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ADAPTIVE REUSE PLAN FOR THE WORCESTER COUNTY COURTHOUSE

A Major Qualifying Report:
Submitted to the Faculty
of the
WORCESTER POLYTECHNIC INSTITUTE
In partial fulfillment of the requirements for the
Degree of Bachelor of Science
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Abstract

This project entailed a three-phase assessment of the historic Worcester County Courthouse. Phase I consisted of a preliminary structural assessment based on data acquired from plans, specifications, and historic documentation. In Phase II we verified the structural capacity of the courthouse via three-dimensional structural modeling tools accompanied by hand calculations. In Phase III we developed a rehabilitation plan in which we redesigned the courthouse as a law school that allowed for sensitivity towards the building's historical integrity.

Authorship

Each of the group members contributed equally to the writing and editing of this document, with specific efforts as follows.

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1 Introduction

Historic Preservation[1] can be defined as the theory and practice of creatively maintaining the historic built environment and controlling the landscape component of which it is an integral part. The Secretary of the Interior of the U.S. government defines the historic environment as districts, sites, buildings, structures, objects, and landscapes which are significant in American history, architecture, archeology, engineering, and culture. [2] Although a relatively nascent industry,[3] preservation has become an active player in the design and construction industries both for financial and political reasons; it can strengthen local economies and stabilize property values, but more importantly, it helps to retain distinctive forms of architecture that will never again be duplicated, and which add an irreplaceable component to the character and personality of our communities. Across the country there are signs of a renewed interest in our communities' historic resources. Abandoned, vacant, and underutilized historic buildings are being converted into distinctive, mixed-use venues combining retail, residential, and office uses. Neglected, but once spectacular, theaters are being restored as new performance spaces. Historic residential districts and neighborhoods are being reinvigorated. As these transformations take place, historic preservation is being seen as providing tangible benefits to communities large and small.[4]

The industry of Historic Preservation has, generally speaking, been the forte of architects rather than engineers. In fact a relatively small proportion of structural engineers consult with architects on building design or renovation. While preservation architects attempt to revive the past, engineers are generally content to ignore it; they circumvent issues of existing structural capacity by retrofitting independent structural systems and incorporating materials and techniques that betray the historical integrity of the structure. [5]

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[1] The term 'Preservation' can also be expanded to encompass adaptive reuse, restoration, rehabilitation and even the renovation of historic structures.

[2] U.S.. Department of the Interior. http://library.doi.gov/internet/historic.html

[3] The Historic Preservation Act was passed by legislature in 1966. A brief timeline of historic preservation is delineated in the Background section.

[4] Facca, Amy. "An Introduction to Preservation Planning." The Planning Commissioner's Journal. www.plannersweb.com. V. 52. Fall 2003. p. 1.

[5] Fischetti, David C. "The Current State of Historic Preservation Engineering: One Engineer's Point of View." APT Bulletin XXVIII. 1994.

Moreover, engineering education, particularly in the United States, tends to emphasize modern construction materials and techniques, leaving very little room for crucial areas of preservation technology. As a result, architects turn toward conservators—professionals of the preservation of historic materials—rather than engineers. While the consultation of a conservator ensures historical accuracy, it does not however ensure structural stability. As a result, there has been increasing emphasis from institutions such as the Association for Preservation Technology on the interdisciplinary relationship between conservators and structural engineers. The alliance of these two fields is essential to striking a balance between structural adequacy and the maximum retention of historic fabric.

In recent years, there has been a push from national and international institutions to acclimate engineers to the world of preservation. In the United Kingdom, for instance, the Conservation Accredited Register for Engineers (CARE) became the first institution to provide certification for engineers with an emphasis on preservation.[6] Though no existing accreditation board exists in the United States, there is a strong desire for a collaborative effort, particularly between the APT and ASCE (American Society of Civil Engineers). Recent publications from ASCE such as the *Guideline for the Structural Condition Assessment of Existing Buildings,* and AISC's (American Institute of Steel Construction) *Rehabilitation and Retrofit Guide* also emphasize the structural engineering industry's growing dedication to preservation efforts. Still, preservation education in engineering at the undergraduate and even graduate level in the United States is far from standardization. NCPTT's *Professional Development Program for Engineers in Historic Preservation*.

As students of engineering, particularly in our locale, we have seen (and often been involved in) a number of examples of preservation, adaptive reuse and restoration at work. The Gateway Park Project utilized an historic mill building in its design, the Kettle Brook Lofts are a keen example of a mill building to residential condominiums reuse project, and the Northern Gateway Visitor Center Project off Rt. 146 is reutilizing the historic Washburn and Moen Manufacturing building on Mill Street as a visitor's center in a project to revitalize and reconstruct part of the Blackstone Canal for

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[6] Flynch, M. www.Apti.org. Nov. 15 2005.

tourism purposes. With increasingly more preservation projects on our doorstep, we as students interested in engineering and the construction industry thought it prudent to become involved in such an endeavor.

1.1 Purpose of Assessment

The purpose of this Major Qualifying Project is twofold; the first—a more theoretical goal—is to familiarize ourselves as engineering students with the roles and processes of structural engineering in historic preservation by implementing standard professional evaluation and design practices, such as those mentioned prior. The second, more practical application of this assessment is to investigate a pertinent and authentic structure—in our case, the Worcester County Courthouse. The Courthouse was chosen because of its historical integrity and significance. Additionally, the structure is no longer suitable for its current needs and is threatened by an impending vacancy. The city of Worcester is particularly concerned with the outcome of this building, which is seen as a vital part of the city's history and landscape.

1.2 Scope of Investigation

A multi-step process must be adhered to when investigating a structure for potential reuse. The scope of this project entails three phases of investigation. The first two phases—the preliminary assessment and the detailed assessment—deal with the analysis of the current historic structure, and have been organized more or less according to ASCE's *Guideline for the Structural Condition Assessment of Existing Buildings* (Appendix 1). Phase III expands upon the knowledge and information gathered in the first two phases, and consists of the development of a rehabilitation plan and a cost benefit analysis for the proposed work.

In the first phase of this project we performed a preliminary assessment of the courthouse. In evaluating an existing building for reuse, it is important to familiarize oneself with the architectural, structural and mechanical components of the structure in order to make any educated decisions concerning its capacities. Generally this was be done by gathering as much technical detail as possible through a number of sources such as shop and architectural drawings, building specifications, accounts of modifications or maintenance performed throughout the structure's lifetime as well as any prior surveys conducted of the building. When this information was gathered, we performed a visual inspection of the facility, with available maintenance personnel who were familiar with the structure. This visual inspection served three purposes: one, to verify the written documentation obtained previously (including previously conducted surveys), two, to familiarize ourselves with the structure, and three, to evaluate the condition of the building. The information from our data collection and survey was then compiled into a database of building materials, structural inventories, and then observations and their limitations were recorded.

In the event of a change of use requiring load changes, it is prudent to conduct a more thorough analysis of the structural components of the building. This was performed in our Phase II Detailed Assessment. Generally speaking, before an analysis can be executed, the documentation concerning the structure and materials has to be further investigated. This would normally include demolition, load and non-destructive testing, as well as materials analysis. As students our capabilities and permissions to perform such testing was limited, and as such it was not included in the scope of this project. However, utilizing the information and database compiled in Phase I, we were able to estimate dead and live loads of the structure and in conjunction with the material and connection data ascertained in Phase I, a mathematical model was generated to produce a more accurate analysis. Due to the limited nature of our information, our model focused primarily on one portion of the building—the 1878 library addition—in which we were able to collect both specifications and structural plans. For the remainder of the building, we performed basic design computations for a more simplified analysis.

Phase III of this project served as the rehabilitation plan for the structure in which the existing building would be transformed into a law school. Utilizing information gathered on our own physical survey of the structure and in the preexisting conditions assessment of the structure, this section incorporated an architectural retention plan, which indicated what, if any, part of the building must be maintained because of its architectural significance. This was done with particular regard to the available codes that refer specifically to historic structures, such as the *Secretary of the Interior's Standards for Rehabilitation*. By investigating the relevant building codes of today, such as the *International Existing Building Code*, or the *Massachusetts State Building Code*, and in particular, those provisions made for historic structures, we were able to familiarize ourselves with the provisions necessary to bring the structure up to code. Once this was completed, a layout for the school including classroom, cafeteria and lecture hall spaces was designed accordingly. Finally, we performed a cost analysis for the proposed work. This estimate included costs incurred by the renovation of the library and 1898 buildings, the demolition of the 1954 addition, and the construction of a parking lot in the place of the demolished building. This estimate was specific with regard to certain components, but it also entailed general square foot cost data. This cost data was obtained primarily from the RS Means catalog.

1.3 Capstone Design

As a Major Qualifying Project, it is imperative that this project fulfills what is known as a Capstone Design Experience. This means that a number of issues must be addressed throughout the course of this project—issues that will most likely be relevant in the 'real world', so to speak. The concerns that must be addressed to fulfill the capstone requirement are as follows:

- Economic
- Sustainability
- Manufacturability
- Ethical
- Health and Safety
- Social
- Political

Although not all issues will by wholly relevant within the context of our project, it is our intent to address (in some form or another) the majority of these issues.

Social and Political

The social and political aspects of this project are categorically very similar and as such have been grouped together. The implications of rehabilitating an historic structure into a school are numerous. In doing so, the landscape and vitality of Main Street in Worcester will be reinvigorated, new professional jobs will be generated, and an influx of students will bring a wider demographic to the area.

Sustainability

The rehabilitation of a structure is inherently associated with sustainable design in that the original structure will be reutilized and made functional once again, as opposed to it being demolished to make way for a new structure. It is sustainable because it utilizes what is already present in that environment to meet current and future needs and minimizes the negative impact on the environment caused by new construction waste.

Manufacturability

This project will first attempt to determine if and what structural modifications are necessary in the rehabilitation of the building. If it is determined that structural modifications are necessary, reinforcement will be designed so as to minimize the labor and materials required to do so (the cost estimate will facilitate in determining the most economical method of reinforcement).

Health and Safety and Ethical

Health and safety issues will be addressed in two phases: first, the safety of the current structure will be evaluated in the Phase II Detailed Assessment; second, in the Phase III Rehabilitation Plan, where topics such as code compliance and updating building systems will be the primary focus. By considering the *Massachusetts State Building Code's* provisions for egress, fire, HVAC, electrical and plumbing systems, we will ensure the health and safety of the building occupants, and thereby uphold the engineering code of ethics which dictates that engineers must "hold paramount the safety, health and welfare of the public."

Economic

The economic issues associated with this project will be addressed in a cost estimate report for the rehabilitation of the structure. This report will entail basic demolition and material cost estimations for the proposed layouts.

2 State of the Art

This chapter is dedicated to providing an understanding of the core scientific fields and techniques that form the foundation of our project. These topics include historic preservation, preservation engineering, and the building codes and standards associated with them. We intend to provide the reader with an understanding of the latest and most sophisticated advances in each of these fields.

2.1 State of the Art of Historic Preservation

Historic Preservation, as previously defined, is the theory and practice of maintaining the historic built environment, but has only recently[7] become a significant field in the United States. The following sections will discuss the current state of historic preservation at the national, state and local levels.

2.1.1 Preservation at the National Level

During the past generation, historic preservation has become an increasingly popular movement in the United States. It is publicly and privately supported throughout the country by individual citizens, organizations, businesses, communities and public institutions. People's desire to embrace America's heritage and allow for its permanence within their own community are reasons for the growing popularity of historic preservation. Peoples' interest in sustainable development also adds to the popularity of historic preservation.

2.1.1.1 Early Instances of Historic Preservation

One of the first acts of historic preservation took place in 1813 with the successful effort to save the Old State House in Philadelphia from demolition.[8] The site had been offered for subdivision, but fortunately numerous historical associations appealed, and the city of Philadelphia purchased it for preservation. The Old State House is now popularly known as Independence Hall.

Although similar preservation activities throughout the United States were to follow, they were primarily supported by private

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[7] Within the past 50 years or so.

[8] History of Preservation. (n.d.) *Early History of the Preservation Movement.* http://www.emich.edu/public/geo/history.html

individuals and organizations. The federal government took almost no role in preservation during the 19th century and showed no inclination to recognize or protect any buildings that may have had historical significance during America's earlier years. Instead, the federal government's interest was in protecting natural features, such as Yellowstone National Park, which was established as a federally protected area in 1872. In 1916, the National Park Service was established within the U.S. Department of the Interior as the administrative agency for sites designated as national park areas.[9]

In the 1930s President Roosevelt established the Historic Sites Act of 1935, one of many New Deal programs developed during the Depression to benefit unemployed workers. The New Deal was a domestic program which took action to bring economic relief to the country as well as reforms in industry, agriculture, finance, waterpower, labor, and housing.[10] As a result of the Historic Sites Act, nearly 1,000 unemployed architects and photographers were given the responsibility of documenting historic structures throughout the United States. The Act established a policy "to preserve for public use historic sites, buildings and objects of national significance for the inspiration and benefit of the people of the United States."[11]

2.1.1.2 Private and Government Preservation Efforts Unite with National Trust for Historic Preservation

In 1949, private and government preservation efforts came together through the establishment of the National Trust for Historic Preservation. The National Trust was structured to form a link between preservation efforts of the National Park Service and private activities.[12] As a private, non-profit organization chartered by Congress, its primary purpose has been to encourage preservation through a published newspaper and magazine, sponsorship of annual conferences and representation as a lobbying agency to Congress.

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[9] The Federal Historic Preservation Tax Incentive Program. (n.d.) *Information for the Tax Advisor.* P. 9. http://www.phlf.org/services/easements/pdf/IRSEasementRegs.pdf

[10] Encyclopedia Britannica. (2007). *New Deal.* http://www.britannica.com/eb/article-9055453/New-Deal

[11] History of Preservation. (n.d.) *Early History of the Preservation Movement.* Retrieved June 28, 2007 from http://www.emich.edu/public/geo/history.html

[12] As mentioned earlier, the NPS was initially developed as an administrative agency for sites designated as national park areas. Additionally, the NPS helps to preserve and enhance a community's important local heritage, thus forming the link to historic preservation.

The official objectives of the National Trust are to:[13]

- Identify and act on important national preservation issues
- Support, broaden, and strengthen organized preservation efforts
- Target communications to those who affect the future of historic resources
- Expand private and public financial resources for preservation activities

One role of the Trust has been to take over ownership of historic properties that have been problematic for the federal government to own, but are of exceptional significance.[14] Since its establishment, the Trust has accepted eighteen properties, including the Rockefeller family's Kykuit Mansion and the Woodrow Wilson House. As of lately though, the Trust has discouraged the donation of properties because of administrative and funding difficulties.

2.1.1.3 National Historic Preservation Act of 1966

In 1966 Congress passed the National Historic Preservation Act (NHPA) making the Federal Government a full partner and leader in historic preservation. Provisions of the Act included the establishment of the National Register of Historic Places, the concept of certified historic districts and the enablement of legislation to fund preservation activities. Additionally, the establishment of State Historic Preservation Offices was encouraged and an Advisory Council on Historic Preservation was created.

Inception of the Act was so significant that involvement in the National Trust for Historic Preservation grew from 10,700 people in 1966 to 185,000 people in 1986.[15] Approximately 54,000 jobs were created in the administrative aspect of preservation alone and more than 35 university graduate professional and technical courses directly related to historic preservation were incorporated into curriculums.

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[13] History of Preservation. (n.d.) *Early History of the Preservation Movement.* P. 7. http://www.emich.edu/public/geo/history.html

[14] Historic properties can become problematic for the federal government to own when they do not have the capacity to maintain them. Insufficient upkeep results in deterioration of the building.

[15] Membership in the National Trust for Historic Preservation is open to all citizens.

The following table summarizes the three significant provisions of the NHPA.

Table 1: Provisions of the NHPA

Additional Provision of the NHPA	Function
National Register of Historic Places	The standard listing of the nation's inventory of recognized historic structures, currently containing almost 50,000 listings representing more than 750,000 properties. Properties must be nominated and approved. Requirements include a description of the property, statements of its history and significance.
Historic Districts	Introduced the concept of designating groupings of buildings for historic preservation. The NHPA recognized that sometimes a building's surroundings are important to its historic significance.
Advisory Council on Historic Preservation	Determined whether federally-supported projects aided unwarranted demolition and destruction of historic resources.

With a better understanding of some of the Act's objectives and provisions, it is clear that it was one of the largest movements towards preservation at the national level. The following section will discuss preservation at the state level, specifically the state of Massachusetts.

2.1.2 Preservation at the State Level

Massachusetts officially recognized the state government's responsibility for preserving historic and archaeological resources with the establishment of the Massachusetts Historical Commission in 1963. In past years, models for preservation efforts have been developed to create a comprehensive planning and decision making framework. It wasn't until 1995 that the first five-year planning cycle was initiated. The most recent Massachusetts historic preservation plan is the *2006-2010 State Plan*. The plan reviews the past five years' accomplishments and proposes goals and objectives for the next five years.

2.1.2.1 Massachusetts Historical Commission

The Massachusetts Historical Commission (MHC) was established by the legislature to identify, evaluate and protect important historical and archaeological sites within the Commonwealth. The Commission is staffed by historians, architects, archaeologists, geographers and preservation planners.

Preservation planning programs of the MHC are centralized around the National Register of Historic Places mentioned earlier. National Register nominations in Massachusetts are usually based on comprehensive local inventories of cultural resources. Massachusetts' diverse range of cultural resources include First Period Houses and 20th century diners; mill worker housing and Federal mansions; urban neighborhoods and rural historic landscapes; and historic and prehistoric archaeological sites.[16]

National Register files maintained by the MHC contain information on the physical characteristics and significance of historic and cultural resources, as well as develop contexts for understanding the history of the Commonwealth. The National Register is used by local historic commissions and local and regional planning entities for numerous planning, incentive, and regulatory programs for cultural resource preservation.

Massachusetts Cultural Resources Information System

The Massachusetts Cultural Resources Information System (MACRIS) was developed by the MHC in 1987. MACRIS is a set of interrelated computer programs that manage information on historic properties and sites and related historic preservation activities. Information from the National Register and the Inventory of Historic and Archaeological Assets of the Commonwealth are integrated into the MACRIS database. The database currently contains information on almost 175,000 properties throughout Massachusetts.

Massachusetts Preservation Projects Fund

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[16] Galvin, William F. (2006, Sept.) Massachusetts Historical Commission*: Massachusetts State Historic Preservation Plan 2006-2010.* P. 18. http://www.sec.state.ma.us/mhc/mhcpdf/State%20Pres%20Plan-2006-2010%20web%20version.pdf

Also associated with the MHC is the Massachusetts Preservation Projects Fund (MPPF), first established in 1984 to support the preservation of historic properties, landscapes and cultural resources that are listed or eligible for listing in the State Register of Historic Places. The MPPF supports such preservation through a state-funded 50% reimbursable matching grant program. Properties eligible for the grant, though, must belong to a municipality or non-profit organization.

The MHC reasons that public and non-profit ownership of historic cultural resources are often subject to a lack of maintenance, use not compatible with the structure, or threat of demolition. The MHC considers such resources to represent a large portion of the Commonwealth's heritage, and because of that they offer these funds to assist with the cost of stabilization, repairs or restoration that may be needed.[17] The Commission hopes to ensure the continued use and integrity of these historic structures, landscapes and sites.

Some eligibility requirements for funding are the following: [18]

- Funding for **pre-developments projects** may be requested to conduct feasibility studies involving the preparation of plans and specifications, historic structures reports or certain archaeological investigations of State Register-listed property.

- **Development projects** may request funding for construction activities including stabilization, protection, rehabilitation and restoration. The grant funding can be used for the overall building preservation, building code compliance and barrier-free access where historic fabric is directly involved. Routine maintenance, mechanical system upgrades, renovation of non-historic spaces and moving of historic buildings are not eligible.

- **Acquisition projects** may be eligible for funding to acquire State Register-listed properties

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[17] Massachusetts Historical Commission. (2007, Oct.) *Massachusetts Historical Commission.* http://www.sec.state.ma.us/mhc/mhcidx.htm

[18] Massachusetts Preservation Projects Fund. (2007). *Massachusetts Historical Commission: Massachusetts Preservation Projects Fund.* http://www.sec.state.ma.us/mhc/mhcmppf/mppfidx.htm

that are threatened with inappropriate alterations or destruction.

The amount of funding requested for each type of project varies. Requests for pre-development or acquisition projects may range from $5,000 to $30,000, while requests for development of acquisition projects may range from $7,500 to $100,000.[19]

2.1.2.2 Preservation Massachusetts

Another resource for information related to historic preservation is Preservation Massachusetts, a non-profit organization that considers itself a "statewide force for preservation." [20] Preservation Massachusetts, formerly Historic Massachusetts, Inc., was established in 1985 by citizens concerned about preserving the Commonwealth's neighborhoods, buildings and landscapes.

Preservation Massachusetts currently works with national, state and local preservation organizations to provide information and assistance to citizens. The organization educates citizens through traveling workshops like Preservation 101, 201 and 301. They also maintain a Consultant's Directory of preservation professionals throughout Massachusetts. They advocate preservation through their 10 Most Endangered Program, in which they support concerned citizens who have sought to protect threatened resources in their communities. Preservation Massachusetts also promotes preservation initiatives at the State House through their legislative agenda. Additionally, they have formed partnerships with the development, real estate and business communities in an effort to further the impact of preservation in Massachusetts.

2.1.3 Preservation at the Local Level

There is a vast amount of important and diverse history in the Worcester area. John Singer Sargent, famous American portrait artist, called Worcester home in the 1890s. A popular theater from the 1920s has remained in historical condition. Additionally, in the sciences, Worcester was home to the first state established mental illness hospital and, in 1885, the first bacteriological laboratory,

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[19] MPPF

[20] Preservation Mass. (2005). *Preservation Mass: About Preservation Massachusetts.* http://www.preservationmass.org/about_us.shtml

known as the Worcester Public Health Laboratory, was founded.[21] These buildings are important to preserving the rich history of Worcester, and organizations within Worcester and greater Massachusetts are working to promote their preservation and restoration. These buildings stand as monuments to remind us of our past and should remain for many generations to come.

On June 25, 2004 Worcester, Massachusetts was included in the sixth *Preserve America* Community designation held in the John L. Chafee Blackstone River Valley National Heritage Corridor. *Preserve America* is a White House initiative in cooperation with the ACHP and numerous U.S. Departments and Committees. The program recognizes communities, including neighborhoods in large cities, which protect and celebrate their heritage, use their historic assets for economic development and community revitalization, and encourage people to experience and appreciate local historic resources.[22]

Worcester earns its title as a *Preserve America* Community with its 600+ historic sites and structures named by the MHC. Some noteworthy rehabilitation projects that the City has supported include the renovation of Union Station and the relocation and rehabilitation of the Quinsigamond Baptist Church.[23] The following sections summarize some of the other organizations that take action towards preservation in Worcester.

2.1.3.1 Worcester Historical Commission

Worcester's Historical Commission is a division of the City's municipal system. The Commission's duties include working with the Planning Board, the Worcester Redevelopment Authority and other City agencies to tend to matters concerning historic sites and buildings. They also work with public and private agencies including the National Trust for Historic Preservation and the National Park Service. Additionally, the Commission provides information about preservation to owners of historic buildings in the City. They also have the authority to waive the automatic project delay placed on all of

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[21] "2007 Most Endangered Structures List." Preservation Worcester. (2007). *Preservation Worcester: In the Heart of the Commonwealth.* http://www.preservationworcester.org/pages/endanger/endanger.html

[22] Preserve America. (2007, Sept.). *Preserve America Initiative*. http://www.preserveamerica.gov/overview.html

[23] Preserve America. (2007, Aug.). *Preserve America Community: Worcester, Massachusetts.* http://www.preserveamerica.gov/6-25-04PAcommunity-worcesterMA.html Union Station was constructed in 1911 and the Quinsigamond Baptist Church in 1891.

Worcester's historic structures set to undergo demolition or exterior alterations.[24]

2.1.3.2 Preservation Worcester

One of the most prominent organizations for preservation in Worcester is Preservation Worcester, a non-profit group dedicated to the preservation of buildings, sites and neighborhoods which represent the culture, history, and architecture of the city. Preservation Worcester feels that "protecting the best of Worcester's architectural heritage and promoting good design encourages community pride and identity."[25] For the past thirteen years, the organization has published an annual list of Worcester's Most Endangered Structures.[26] Their aim for doing so is to inform the public about the threats to some of the city's historic buildings and sites. Raising awareness of their importance within the city often encourages citizens and officials to take action towards their restoration and preservation.

There are local landmarks that have already been successful in preserving their rich history. One such building includes the Swedish Baptist Church, located in Quinsigamond Village and displaying the magnificent craftsmanship of the 19th century. Years ago the building stood abandoned and decaying, that is when Preservation Worcester stepped in. They spent $50,000 to relocate the church to a donated lot near the center of town. Now it stands restored as a children's bookstore and café.[27]

One of the buildings Preservation Worcester is concerned with is the Worcester State Lunatic Hospital. Founded in 1877, this was the first state hospital for mental illness. The building was designed in a Victorian Gothic Style designed by Weston and Rand. This unique building was constructed with fragile stone called ferruginous gneiss, red brick and ornamental granite. There is also a prominent clock tower over the center of the building which is visible from Lake Quinsigamond. Preservation Worcester is working to prevent this

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[24] Worcester Historical Commission. (2007). *City of Worcester: Boards and Commissions.* http://www.ci.worcester.ma.us/

[25] Preservation Worcester. (2007). *Preservation Worcester: In the Heart of the Commonwealth.* http://www.preservationworcester.org/pages/home.html

[26] Preservation Worcester.

[27] "Preserving our Local Landmarks." Preservation Worcester. (2007). *Preservation Worcester: In the Heart of the Commonwealth. http://www.preservationworcester.org/pages/endanger/endanger.html*

historic building, and particularly the clock tower, from being demolished.[28]

Another building of interest is the Dewey Carriage House. It is an 1800s Moorish-style design house that was once the place of residence of the famous American portrait artist John Singer Sargent. During his stay, he was commissioned to paint portraits of some of the prominent people in Worcester at the time. Due to the work he completed during this time, he became one of the most sought-after portrait artists of his era. The building in which Sargent's prominent career started has fallen into disrepair, although the main house has been restored. The restoration of this building is of high concern for Preservation Worcester due to its historical significance.[29]

The Worcester Public Health Laboratory is another building of interest for Preservation Worcester. Besides being the site of the first permanent settlement in Worcester, this was the location of the first bacteriological laboratory in the country. The laboratory was originally opened in 1885 as a part of the Belmont Hospital Complex; it was moved to the building under discussion in 1936. The main concerns for the laboratory were public health issues, such as water quality and syphilis. The building itself is a one-story orange granite building, separated into bays, with asphalt tiled hip roof. According to Preservation Worcester, the exterior walls are in good condition, but the interior walls, the roof, and the floor have fallen into a state of disrepair. There are plans for the structure to be transformed into a museum, however, as part of the agreement for constructing the new Worcester Technical High School. This museum will highlight Worchester's significance in the field of medicine.[30]

Finally, in 1923, John Eberson designed a quaint theater modeled after the famous Majestic Theater in Huston Texas. One of three theaters in the Worcester area, it was designed to seat 2,500 people. This theater was the first of its kind in all of New England, its atmosphere evoking the experience of a Spanish amphitheatre. The theater has recently been acquired by the Mayo Group of Boston, and

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[28] "Worcester State Hospital." Preservation Worcester. (2007). *Preservation Worcester: In the Heart of the Commonwealth.* http://www.preservationworcester.org/pages/endanger/me07_hospital.html

[29] "The Dewey Carriage House." Preservation Worcester. (2007). *Preservation Worcester: In the Heart of the Commonwealth. http://www.preservationworcester.org/pages/endanger/me03_deweycarriage.html*

[30] "Worcester Public Health Laboratory, Belmont Hospital Complex." *Preservation Worcester: In the Heart of the Commonwealth.* http://www.preservationworcester.org/pages/endanger/me01_laboratory.html

Preservation Worcester is encouraging them to incorporate the unique features of the original plans.[31]

These buildings and many more in the Worcester area demonstrate the vast and wide amounts of history this city possesses. The Worcester City Courthouse has had many influential visitors and events. Preserving the integrity of this building and respectfully redesigning its purpose will both enliven the area and maintain the area's historical background.

Having reviewed the state of the art of preservation from the national to the local level, we will now look into preservation from the viewpoint of an engineer. An engineer's role in a preservation project is technical in nature, assuring the structural integrity of the building while limiting intrusiveness. The state of the art of preservation engineering will be discussed in the next section.

2.2 State of the Art of Preservation Engineering

A preservation engineer has been defined by the Association for Preservation Technology International (APT) as "A practicing engineer who through knowledge, training, experience, and skill, provides technical services in conformance with established conservation principles."[32] This definition makes clear the *technical* skill that an engineer brings to a preservation project. As mentioned in the introduction, it is generally the architect who assumes leadership in historic preservation, not the engineer. If a structural engineer is brought into a preservation project (as consultant to the architect) his sensitivity towards historic components is normally at the request and guidance of the architect.[33]

The engineer is usually more concerned with his responsibility to ensure a safe structure and that all code requirements are met. From an engineering standpoint, this is most easily done by starting from scratch with new materials and structural systems, which are much more familiar and predictable. The materials and systems of historic

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[31] "Capitol Theatre." *Preservation Worcester: In the Heart of the Commonwealth.* http://www.preservationworcester.org/pages/endanger/me02_theatre.html

[32] APT Bulletin. (1991). Volume 23, Number 1. The definition of a preservation engineer was developed by an APT group at a forum held in conjunction with the 1990 APT Conference in Montreal.

[33] Fischetti, David C. (1998). *The Current State of Historic Preservation Engineering: One Engineer's Point of View.* APT Bulletin, Vol. 29, No. ¾, Thirtieth-Anniversary Issue. P. 55.

buildings are often unfamiliar and require extensive observation, testing and analysis to verify any deficiencies or deterioration and their implications for structural safety. Such processes can be time consuming and expensive, both factors that the project owner is usually not willing to accept. Therefore, the architect tends to bypass this resistance of the owner by designing a structure that is made of familiar materials (and utilizes familiar techniques) and keeps the cost of the project within the owner's budget.

The value of someone who takes into consideration both the historic and technical aspects of the structure is clear. This is the role of the preservation engineer. The following sections will discuss the underlying philosophy of preservation engineering, where it is today and preservation engineering education.

2.2.1 Philosophy of Preservation Engineering

The philosophy that preservation engineers follow is thought to have its roots in documents such as *The Venice Charter and The Secretary of the Interior's Standards for the Treatment of Historic Properties.* Each of these documents will be discussed separately, as their development is rather detailed.

The Venice Charter, also known as the, *International Charter for the Conservation and Restoration of Monuments and Sites* (ICCROM), was adopted by the International Council on Monuments and Sites (ICOMOS) in 1965. The Charter was born from the need to create an association of specialists of conservation and restoration independent of the already existing associations of museologists.[34] As its name implies, the Charter was adopted in Venice by the Second Congress of Architects and Specialists of Historic Buildings as the first of thirteen resolutions.[35]

Although the Charter focuses mostly on the aesthetics of a building rather than its structure, it is still valuable in that the "aim [of the process of restoration] is to preserve and reveal the aesthetic and historic value of the monument and is based on respect for original

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[34] ICOMOS. (2005, Jan.). *Historic Background: From the Emergence of the Concept of World Heritage to the Creation of ICOMOS.* http://www.international.icomos.org/hist_eng.htm

[35] Note that the second resolution adopted was to provide for the creation of the ICOMOS. It is my understanding then, that ICOMOS must have adopted the Venice Charter after its own adoption.

material…"[36] Steve Kelley, author of *A Philosophy for Preservation Engineering*, points out that "If one interprets the structural or other underlying systems as having historic value, then this is a clear sign to preserve those systems."[37]

Twelve years later in the United States, *The Secretary of the Interior's Standards for the Treatment of Historic Properties* was first published. While these *Standards* focus primarily on building materials rather than systems, they still serve as a valuable contribution to the underlying philosophy of preservation engineering. The *Standards* will be discussed in further detail in the following section, Standards and Building Codes for the Rehabilitation of Historic Structures.

For now, it is important to recognize that documents like these may have played an important role in the convergence of ideas among preservation engineers in the United States and in other countries.[38]

2.2.2 The Current Practice of Preservation Engineering in the United States

Introduced in the previous section, the Association for Preservation Technology International (APT) has been at the forefront of preservation engineering, raising awareness and providing a forum for preservation engineering issues. It is dedicated to promoting the best technology for conserving historic structures and their settings.[39]

APT is an interdisciplinary association including members with a background in areas such as preservation, architecture, engineering, conservation and history, to name a few. These members represent more than 30 countries worldwide.[40]

There are three technical committees of the APT. They are summarized in the table below.

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[36] Article 9 of the Venice Charter. http://www.icomos.org/venice_charter.html

[37] Kelley, Stephen J. (2004, June). *A Philosophy for Preservation Engineering.* http://apti.invisionzone.com/index.php?showtopic=9&mode=threaded

[38] Kelley, Stephen J. (2004, June). *A Philosophy for Preservation Engineering* http://apti.invisionzone.com/index.php?showtopic=9&mode=threaded

[39] Association for Preservation Technology. (2007). *What is APT?* http://www.apti.org/

[40] Association for Preservation Technology. (2007). *What is APT?* http://www.apti.org/

Table 2: APT Technical Committees

Committee	Description
Building Codes for Historic Resources	Created in 2004 to address the issue of how building codes affect historic resources. Committee serves as a forum for the exchange of ideas about the application of existing codes.
Preservation Engineering	Created in 2003 to provide focus for discussing issues relating to engineering and historic preservation. One critical task is to establish itself as a leader for promoting the role of engineering in historic preservation.
Sustainable Preservation	Created in 2004 to educate APT members on the historic relationship between historic preservation and environmental sustainability.

The most relevant of these committees to our project is the Preservation Engineering Technical Committee (PE Tech Comm). According to the December, 2004 committee report, members have been focused on reviewing the ICOMOS (or Venice) Charter.[41] The review was in preparation for revisions to be made to the document for use by the ICOMOS of North America. APT will be publishing the edited document.[42]

Also worth mentioning for its involvement in preservation engineering is the National Center for Preservation Technology & Training (NCPTT). This organization encourages research and partnerships with organizations and institutions working to advance preservation technology for buildings and other structures.[43] One of their goals is to transfer technology and technical information among agencies and organizations, and between professional disciplines. They also strive to provide on-site training programs aimed at students and professionals in practice. This leads us to our next topic, preservation engineering education.

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[41] APT Communiqué. (2004, Dec.) *Preservation Engineering Technical Committee Reports.* Volume 33, Number 4. P. 12. http://www.apti.org/publications/communique/pdf/Dec04_Communique.pdf

[42] APT Communiqué. (2004, Dec.) *Preservation Engineering Technical Committee Reports.* Volume 33, Number 4. P. 12. http://www.apti.org/publications/communique/pdf/Dec04_Communique.pdf

[43] National Center for Preservation Technology & Training. (2007). *Architecture & Engineering.* http://www.ncptt.nps.gov/Architecture-and-Engineering/Default.aspx

2.2.3 Preservation Engineering Education

In North America, academic training for engineers is lacking in several areas of preservation technology.[44] According to David Fischetti, the minimum core subjects for a program in preservation engineering include courses in history, history of technology, materials science, masonry, timber design and preservation. While some universities are providing proper courses for preservation engineering undergraduates, they are not the majority.

In recent years, as mentioned in the Introduction, there has been a push from national and international institutions to acclimate engineers to the world of preservation. One way of doing this would be to establish an accreditation board specifically for preservation engineers. Though no existing accreditation board exists in the United States, there is a strong desire for a collaborative effort, particularly between the APT and ASCE (American Society of Civil Engineers). Still, preservation education in engineering at the undergraduate and even graduate level in the United States is far from standardization.

2.3 Standards and Building Codes for the Rehabilitation of Historic Structures

Standards and codes have been developed to guide individuals and agencies through the proper techniques and procedures of preserving historic structures. Generally, the standards and codes apply to those historic resources that are listed in or eligible for listing in the National Register of Historic Places. Among the conditions of historic preservation that are recognized in Massachusetts are the *International Existing Building Code*, the *Massachusetts State Building Code* and *The Secretary of the Interior's Standards for Rehabilitation*. Each of these sets of standards goes into varying degrees of detail and may be directed towards different audiences. Together though, they provide ample information and guidance on the restoration and preservation of historic resources.

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[44] Fischetti, David C. (1998). *The Current State of Historic Preservation Engineering: One Engineer's Point of View.* APT Bulletin, Vol. 29, No. ¾, Thirtieth-Anniversary Issue. P. 56.

2.3.1 2003 *International Existing Building Code*

Chapter 10 of the 2003 *International Existing Building Code* provides guidelines for the preservation of historic buildings. The *Code* states that "historic buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy."[45] Sections of the chapter include:

Section 1001 General

Section 1002 Repairs

Section 1003 Fire Safety

Section 1004 Alterations

Section 1005 Change of Occupancy

Section 1006 Structural

For more information on this topic the full text of Chapter 10 can be found in Appendix 2. Also found in Appendix 2 are Chapters 4 and 8, which complement Chapter 10.

2.3.2 *Massachusetts State Building Code: Sixth Edition*

780 CMR 34 of the *State Building Code* outlines the regulations and standards of repair, alteration, addition, and change of use of existing structures. Regulations specific to historic buildings are delineated in 780 CMR 3409 titled Historic Buildings.

The *State Building Code* defines a historic building as:

1. Any building or structure individually listed on the National Register of Historic Places

2. Any building or structure evaluated by the Massachusetts Historical Commission (MHC) to be a contributing building within a National Register or State Register District

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[45] International Building Code. (2003). *2003 International Existing Building Code: Historic Buildings*. P. 47. Publication info.

> 3. Any building or structure which has been certified by the MHC to meet eligibility requirements for individual listing on the National Register of Historic Places. Historic building shall be further defined as totally or partially preserved buildings. All entries into the totally preserved building list shall be certified by the MHC. The Board of Building Regulations and Standards (BBRS) shall ratify all buildings or structures certified by the MHC to qualify for totally preserved listing.[46]

As mentioned in the above definition, the *State Building Code* differentiates between a totally preserved building and a partially preserved building. A totally preserved building is a historic building or structure whose principal use must be as an exhibit of the building or structure itself, which is open to the public no less than 12 days per year. Additional uses of the building are allowed within the same building up to a maximum of 40% of the gross floor area.[47] The *State Building Code* also requires that all totally preserved buildings be certified by the MHC. A partially preserved building may be one that is individually listed on the National Register of Historic Places or certified as a historic building by the MHC, but not designated a totally preserved building.[48] In other words, buildings that are not listed as totally preserved in Appendix H of the *State Building Code* are therefore partially preserved.

After distinguishing between totally and partially preserved buildings, the *State Building Code* discusses the building code provisions and exceptions to which each is subject. While some features of the *Code* are adjusted, others are not. In the case that there are no exceptions made for a totally or partially preserved building, the *Code* indicates that the typical requirements shall be upheld. Some examples of areas where exceptions are permitted include *Exit Signs and Emergency Lights* and *Energy Conservation.* Further information on this topic can be found in 3409.2.1 of the *MSBC: Sixth Edition*.

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[46] Massachusetts State Building Code: Sixth Edition. (2007). *780 CMR 34 Historic Buildings*. http://www.mass.gov/Eeops/docs/dps/BuildingCode/780034.pdf

[47] MSBC: Sixth Edition.

[48] Refer to Appendix H of the MSBC: Sixth addition for a list of totally preserved buildings.

2.3.3 The Secretary of the Interior's Standards for Rehabilitation

One of the responsibilities of the Secretary of the Interior is to establish standards for Departmental programs and to advise Federal agencies on the preservation of historic properties listed or eligible for listing in the National Register of Historic Places.[49] The Standards for Rehabilitation were initially developed for use in the Federal Historic Preservation Tax Incentives program. Since then, the Standards have been used not only by Federal agencies, but also by State and local officials, and historic districts and planning commissions.

The Department of Interior regulations, 36 CFR 67, concern historic buildings of all types, as well as their related landscape features, site and environment. Attached or related new construction is also encompassed. The Standards require that historic buildings be rehabilitated in ways that do not damage or destroy materials, features or finishes that are important in defining the building's historic character.[50]

A list of ten standards has been formed by the Secretary of the Interior. They are displayed in Table 3.

Table 3: Secretary of the Interior's Standards for Rehabilitation

Standard	Details
1. A property shall be used for its historic purpose.	Otherwise, place property in a new use that requires minimal change to the defining characteristics of the building and its site and environment.
2. Historic character of a property shall be retained and preserved	The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
3. Each property shall be recognized as a physical record of its time, place, and use.	Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.
4. Preserve the natural	Those changes that have acquired historic

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[49] Secretary of the Interior. (n.d.). *Secretary of the Interior's Standards for Rehabilitation.* http://www.nps.gov/history/hps/tps/tax/rhb/stand.htm

[50] Secretary of the Interior. (n.d.). *Secretary of the Interior's Standards for Rehabilitation.* http://www.nps.gov/history/hps/tps/tax/rhb/stand.htm

evolution of a structure that develops over time.	significance in their own right shall be retained and preserved.
5. Preserve characteristic features.	Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.
6. Repair historic features, rather than replace.	Where the deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be sustained by documentary, physical, or pictorial evidence.
7. Chemical or physical treatments that cause damage to historic materials shall not be used.	When appropriate, the surface cleaning of structures shall be undertaken using the gentlest means possible.
8. Significant archeological resources affected by a project shall be protected and preserved.	If such resources must be disturbed, mitigation measures shall be undertaken.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property.	The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. Promote smart growth of the building.	New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

In addition to the ten standards, the Secretary of the Interior goes into detail about particular aspects of historic building renovation. Table 4 presents the features explored.

Table 4: Interior's Detailed Sections

Feature	Relevant Components
Materials of Construction	Masonry, Wood, Metals
Building Components	Roofs, Windows, Entrances/Porches, Storefronts
Systems	Structural Systems, Spaces/Features/Finishes, Mechanical Systems
Surroundings	Site, Setting
Miscellaneous	Energy, New Additions, Accessibility, Health/Safety

Preferred methods of restoration are recommended within each of these sections. Suggestions of what not to do are also given. In reviewing the *Secretary of the Interior's Standards for Rehabilitation*, it is evident that their main focus is on the protection of the building's historic aspects from an aesthetic viewpoint, not a structural one. While the *Standard's* are still useful, they will need to be accompanied by the preservation engineering methods discussed in the previous section. More information on the *Standards* can be found in Appendix 3.

3 Research Strategies

This chapter discusses our research strategies. It includes our methods for collecting relevant data, who we obtained the data from, and how we managed the data. The later portion of the chapter also discusses the physical survey that we performed of the courthouse. This, in itself, was a large aspect of our data collection.

3.1 Data Collection

In any form of investigation into an historic structure, the first task an engineer must perform is to collect all relevant data pertaining to the original and current state of the structure. This includes anything from deeds and tax records, to specifications, and as-built or construction structural plans. Any records of alterations or past assessments of the structures, such as existing conditions assessments or plans for additions or alterations are also collected for review. These two types of information are hereon referred to as primary and secondary records and will be further discussed in this section.

3.1.1 Primary Records

Primary records are considered records that are directly correlated to the history and construction of the structure. For the purposes of this project, the main types of data considered to be primary records are plans and drawings of the structure, specifications for construction, and any sort of architectural descriptions of the building directly preceding or following its construction. These sources, as discussed below, are summarized in Table 5.

Plans and Drawings

The first and foremost task of this project was to obtain a substantial understanding of the structure as it existed during construction, and as it stands today. As such, we first began to search for any relevant plans of the building that would provide visual clues as to its associated architectural and structural details. The number of challenges faced in collecting this type of evidence is generally directly correlated to the age of the structure. In other words, as time goes on, many documents pertaining to historic buildings have been misplaced or have fallen into a state of disrepair. Because we anticipated these challenges of information gathering, we began our investigation early.

In March of 2007, we spoke with the present owners of the building, the Division of Capital Asset Management (DCAM) for the commonwealth of Massachusetts in the hopes that they might have plans of the structure. Upon a visit to their Boston headquarters and with the assistance of Charles Willse, we were subsequently provided with a full copy of a set of plans that were produced in 1954 when the most recent addition was constructed. Those plans relevant to the 1898 building included a set of existing plans as well as a set of proposed plans, so that we were able to further understand the alterations that were made to the structure. In addition to these plans, DCAM also had retained one blueprint from the original 1898 plans, but they were unable to provide any further information regarding the whereabouts of the full set of the original Andrews, Jacques and Rantoul plans. DCAM was also able to provide us with some information regarding previous endeavors at assessing the structure, and these will be further discussed in the next section.

The search for plans continued at the courthouse itself, where we first met with the building facilities manager Mike Norman. Mr. Norman granted us access to all the plans the courthouse stored, and while most plans were duplicates of those viewed at DCAM, we were able to take a few digital photographs of additional plans that we deemed relevant or important to our project. In the law library at the courthouse, we met first with Kevin Tripplett of Shepley Bullfinch Richardson and Abbott Architects (SBRA), who provided us with an additional copy of the 1954 plans. Although this did not provide us with new information, we now had multiple holdings of these plans which facilitated our data management. Additionally, we met with the head librarian Susan Hoey, who provided us with the original plans of the 1878 library addition, hand drawn and stamped by the architect, Stephen Earle. These plans were digitally photographed, as their delicate state prevented us from photocopying or borrowing them. Because we had both the original and the altered plans for this particular section of the building, we decided to focus more in depth on the library addition in our structural analysis.

Specifications

In addition to the original 1878 plans, we obtained from Ms. Hoey the original bound set of the 1898 building specifications which we also digitally photographed due to fragile condition. These specs provided us with a wealth of information regarding construction methods and materials, and perhaps most valuable, a column schedule indicating column sizes and locations.[51] We were also able to obtain copies of both the original 1898 lighting fixtures specifications, and more importantly the 1878 building specifications from the Worcester Public Library. Like the 1898 specifications, the 1878 document corresponded to the original plans—a copy of which we had—which enabled us to investigate the library addition more fully. Similar to the 1898 specifications, these also provided information on materials and construction techniques.

In addition to the specifications found at the Law Library and the Worcester Public Library, we were able to take advantage of the resources at the American Antiquarian Society, which houses the largest collection of primary source documents of American History in the country. One particularly unique find was a copy of the *Conditions for Competition for the Worcester County Courthouse*, which, as the title indicates, describes the various parameters that competing architects were confined to in their design of the 1898 structure. This source provided some interesting background information on the general history of the courthouse, but it also helped to confirm and supplement the information stipulated in the specifications.

Architectural Descriptions

One other interesting primary source worth noting was the *Architectural Description of the Ammi B. Young Courthouse.* This source, also found at the American Antiquarian Society, was very useful in understanding the architectural history and significance of the structure, as well as the more technical information. Although this particular description does not describe the Worcester courthouse in particular, it fits within the same pattern that Young often utilized repeatedly for his courthouses. Additionally, it provided us with an understanding of the building technologies being utilized in that time period that would have been applied to our own courthouse.

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[51] Unfortunately, the column locations were denoted in a numerical format that corresponds to the existing structural drawings, which we were unable to obtain. Nevertheless, with some detective work, we were able to approximate the locations of these columns to some extent.

Table 5: Summary of Primary Source Documents

TYPE	***Year***	***Primary Record***	***Source***
Plans and Drawings			
	1878	Original Architectural Plans	WCLL
	1898	1954 Proposed Renovation Plans	DCAM, SBRA
Specifications			
	1878	Building Specs	WPL
	1898	Competition Competitions	AAS
	1898	Lighting and Fixtures	WPL
	1898	Building Specs	WCLL
Other			
	1843	Arch. Desc. of Young Courthouse	AAS

3.1.2 Secondary Records

To supplement the primary records collected, a number of secondary resources were investigated. In this case, secondary records are considered as accounts of the structure generated some time after its completion. The two types of secondary records obtained were references pertaining to the building history, and any records of past work done to the building or evaluations of the structure.

Building History

We were able to obtain a copy of Charles Nutt's *A History of Worcester and Its People* at the Worcester Public Library. This volume, a particularly comprehensive work on the pre-20th century history of Worcester, provided us with a history of Court Hill and the various courthouses that have stood upon it since the 1720s. Much of this information was utilized in the Architectural History section of this report.

Another valuable resource was a collection of newspaper articles and clippings related to the courthouse, also found at the Worcester Public Library. These clippings, dating from a 1954 account of the groundbreaking for the then-new addition, to a 2006 article on the start of construction for the new courthouse, were particularly useful in providing a political background for the current situation of the courthouse. These articles provided information regarding the physical state of the courthouse, building code issues, replacement work, proposed renovation plans, and the debate between updating the current structure and building a new courthouse featured prominently.

Records of Past Work

From DCAM, we were able to obtain two records of investigation of the courthouse. The first, an Existing Conditions Assessment conducted in 1991 by Drummey Rosanne Anderson Architects (DRA) was particularly valuable to our project. The conditions assessment was a comprehensive evaluation of the site, architecture, structure, mechanical systems, and code compliance as they stood in 1991. Upon further contact with DRA, we learned that they performed their evaluation with the courthouse maintenance personnel and an engineering firm, Engineering Design Group (EDG) who conducted the structural assessment.[52] While the report indicates that the original 1898 Andrews Jacques and Rantoul plans were utilized to evaluate the building, we were not able to determine the whereabouts of these plans from discussion with DRA nor EDG. However, the report is very thorough and provided a foundation for our research. This assessment also indicated that DRA was unable to find information regarding the library section of the structure, so our assessment of the library will be an essential source of information for completing the existing conditions report.

The second record obtained from DCAM was a trial design study for a courthouse. In 1995, when additions to the existing courthouse were being considered, SBRA was asked to generate some design options for the structure. This study presented two designs—one that incorporated both the original 1898 structure and the 1954 structure, and created an addition to the latter wing; the other demolished the 1954 addition and created a new one in its stead. In addition to these designs, a brief cost benefit analysis was prepared. These options were then analyzed for their positive and negative attributes, so that the County could more effectively determine which

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[52] The structural assessment was primarily visually based, and as such no demolition, destructive testing, or non-destructive testing was performed to verify in place member sizes or materials. In addition, it appears that little to no capacity calculations were actually performed, and as such our project will build upon the information obtained in DRA's report, rather than reiterate it.

approach would be better suited to their needs. In addition to the physical report, Kevin Tripplett of SBRA met with us and provided further information regarding this trial design. Although the information did not provide specific details as to the state of the current structure, it did however provide some ideas as to how the current structure could be reutilized. This information was particularly valuable for our Phase III Rehabilitation Plan.

3.2 Data Management

The organization of collected data is very important to how we synthesize the information and how we display that information to the readers. Our group has collected data in the form of pictures, specifications, plans and existing conditions assessments of the courthouse. Some of the more relevant information is presented in the bulk of our report, while the rest is placed in the Appendix.

Throughout our collection of data we have been careful to organize it in ways that will promote its usability at a later time. If data is collected and then stored at random, without taking any consideration to how it may be used, it no longer serves much of a purpose. The following sections describe how we have organized different types of data in ways that are easy to understand and are functional.

3.2.1 Pictures

As mentioned earlier, digital pictures of the courthouse have been taken throughout our data collection process. Relevant pictures are placed within the text to illustrate and to help convey our description. We chose to place the pictures in the text, rather than in an Appendix, to make it easily accessible to the reader. Additional photographs not used in the report have been stored in digital folder and are attached as a digital appendix to the report

We also use pictures as a way of refreshing our memory without having to revisit the courthouse. For example, when we were locating columns on a plan of the courthouse there were some areas of uncertainty. We were able to reference our photos to see whether a column was physically present where the plans implied it should be. One particularly good example of the utilization of these photographs is how we verified part of the flooring in the library basement. The plans for the 1878 first floor indicate three large arches spanning from bearing wall to bearing wall in the basement.

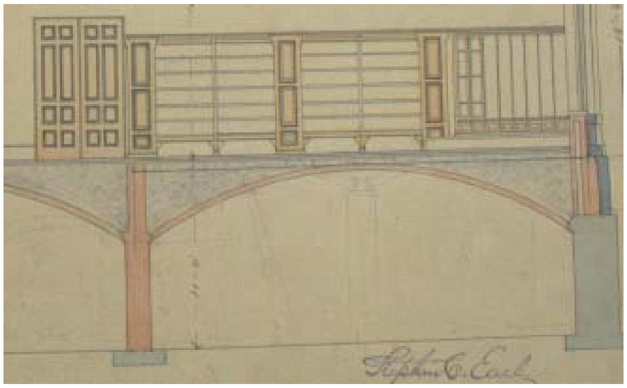


Figure 1: Section indicated first floor flooring scheme

However, there was some uncertainty as to whether this flooring system was actually employed for two reasons: one, from the plans there appears to have been a previous design where the large arch was segmented into two smaller arches, supported by a brick column in the center; secondly, the singular arch spans a very large distance, and it was questionable whether that would be structurally feasible. To settle this discrepancy, on a site visit we were able to gain access to the library basement, and from there were determined that the erased plan of two segmental arches was the plan actually employed.

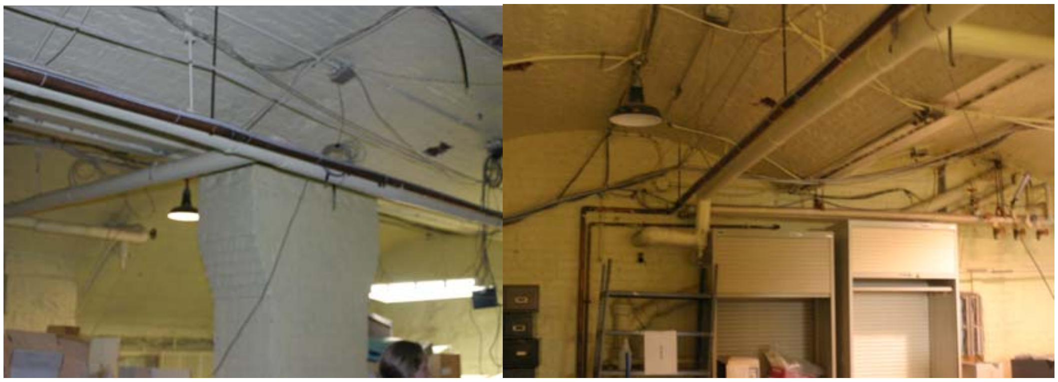


Figure 2: Photos showing segmented arch and brick pilaster

3.2.2 Plans

The plans that we gathered are full-size, non-digitized prints drawn by hand. While these types of plans were standard during the time they were created, they are extremely outdated when held next to the computer generated plans of today. Over the summer we converted the most relevant plans into AutoCAD drawings. Although it was a time consuming process, having the plans in this format proved to be very useful. We were able to incorporate them into our report and refer to them when necessary. We also used the plans contained in secondary documents like the *Existing Conditions Survey*, which will be discussed shortly. Furthermore, we anticipate that the AutoCAD plans might be useful for anyone who may continue our project. We hope to make the digital plans accessible for future research and analysis of the courthouse.

3.2.3 Existing Conditions Data

Prior to starting any analysis of the courthouse, our group collected existing conditions data in the form of surveys. We composed separate surveys for the architectural, site, and structural data. The purpose of these surveys was twofold; first, we wanted to create a set of organized guidelines that would make data collection in the courthouse efficient and structured. Additionally, and perhaps more importantly, we wanted to generate a set of surveys that were applicable to the courthouse, but could just as easily be applied to any historical structure. As such, we spent the week or so prior to our walkthrough creating the surveys that we would use to collect and organize the field data. We brainstormed together on what type of data we were looking for, as well as what we would ultimately want to extract from that data. We realized that our architectural data was taking two separate forms; one was a more detailed explanation of architecture in the historically significant areas of the courthouse, while the other was a tabular, easy-to-view organization of architectural data. For this reason we made two separate architectural surveys, the *Detailed Architectural Conditions Assessment* and the *General Architectural Conditions Assessment*. These surveys are attached as figures as the end of this chapter.

The *Detailed Architectural Conditions Assessment* was designed to collect descriptive data on the historically significant areas of the courthouse. Such areas include the library addition and the courtrooms of the 1898 building. In the survey we outlined architectural features, such as the floor, ceiling, and wall finishes, windows, doors, and light fixtures. We designated space to write about the materials used in each feature, its conditions, whether it was historically significant, and any recommendations or notes we had about it. Space was also provided at the end of the survey for additional notes. Lastly, we explained the rating system used for describing the feature's condition and historical significance.

The *General Architectural Conditions Assessment* was designed to organize data in a tabular form and for use in any area of the courthouse. The same architectural features were included in the survey, but instead of describing them and the materials used, you had to choose from pre-selected options. This entailed that we set these options in advance. This required our additional effort while preparing the survey, but saved time during the walk-through because we only had to circle the appropriate item. Just as in the detailed assessment, space was provided to rate the condition of a feature and identify its historical significance.

Also included in both surveys was a floor plan of the courthouse, which was adapted from our AutoCAD drawings, in the upper right-hand corner. Since there are four floor plans (from the basement to the third floor) copies of the survey were made with each floor plan. This enabled us to circle the room or grouping of rooms that we were discussing, and therefore locate ourselves within the building.

One of the most valuable aspects of the *General Architectural Conditions Assessment* was that the data from all of the rooms visited could be easily analyzed. We were able to go through all of our surveys and count the number of rooms visited that, for example, had water damage to the plaster or needed updated lighting systems. This type of information was utilized in Chapter 6 when developing the schedule of work. While equally important, the *Detailed Architectural Conditions Assessment* is less user-friendly and more directed at highlighting those areas that need to be paid special attention in order to preserve the historic value of a room or area.

In addition to these architectural surveys, we also generated a structural assessment survey. This survey organized the structure on a floor by floor basis, working from the foundations to the roof. The survey is intended to describe the basic anatomy of the building, and like the architectural surveys, is accompanied by AutoCAD plan drawings of the structural elements. Beginning in the basement, the structural evaluation consists of investigating footings, foundation walls, flooring systems, interior bearing walls, and columns. For these elements, materials, dimensions, locations, conditions and recommendations were all recorded, similar to the architectural survey. The survey then continued upward, examining exterior and interior bearing walls, columns, and flooring systems for each story, and ending at the roof with the roofing system. This survey was designed so that an engineer could utilize it while performing a visual inspection, generally accompanied with field testing and verification of data. This survey was also particularly important in understanding how the structure itself works, and was thoroughly utilized in Phase I.

3.3 Physical Survey

Sadly records for most of our more common buildings often simply do not exist, so the diligent researcher must turn elsewhere for answers. Most important of the non-written sources is one that frequently is overlooked by researchers with a purely historical background. A thorough examination of the physical structure will generally turn up answers to even the toughest of questions if one is persistent enough to find them. Throughout this project, we have participated in a number of physical walk-throughs and surveys of this structure, whether it be just a brief run through to familiarize ourselves or a complete inspection utilizing the aforementioned surveys.

Our first time visiting the building occurred during March of last year, for the purpose of picking up plans from maintenance personnel and visiting the library to see if they had any further information about the structure. No photographs were taken at this stage as we were not permitted for security reasons to bring a camera in. However, we were able to briefly tour the building and we arranged for a guided tour of the building with Mr. Norman shortly thereafter. During our second visit, we were escorted through the building, and we were now allowed to take photographs. This tour was arranged as a walk through of the structure, and as such this was the first time we were able to get a sense for the layout and configuration of the building. We were shown the main courtrooms, the library addition, and some of the larger offices, including the registry of deeds and the probate office. We took digital photos and archived them for future reference.

The third and fourth visits proved to be the most beneficial of our walk-throughs. On our third visit, we were escorted around the building by the DCAM building representative, who showed us those rooms accessible to the public, but also a variety of other rooms that normally would have been inaccessible, i.e. the boiler room, basement offices, equipment rooms, etc. We were also able to gain access to the attics of both the 1878 and 1898 structures to examine the roof framing technique, and we also were allowed access onto the roof, where we could inspect the conditions of the exterior bearing walls that were not exposed from street level. Again, photographs were taken, and we acquired a lot of knowledge concerning the history of the structure from the personnel we encountered.

The fourth visit occurred in October, after we had designed and assembled our physical survey forms for both structural and architectural features. At this point the courthouse had been closed for some time, and so we were provided with maintenance personnel to show us around the facility and provide access to locked rooms. Both Chelsea and Courtney recorded data on the general conditions assessment forms, and jotted down any additional notes that would help us to complete the detailed assessments and the structural assessment, and Kate took photographs that could be used to supplement the assessments. We began on the first floor, investigating the courtrooms, and then moved up through the attic. We made note of the order in which rooms were visited and numbered them accordingly so that when we revisited our surveys and our pictures, we would be able to understand where in the structure we were referring to. This was facilitated by the CAD plans on the assessments, so that we could simply circle the room and number it. This process took approximately two and a half hours, and we were able to visit nearly every room in the building.

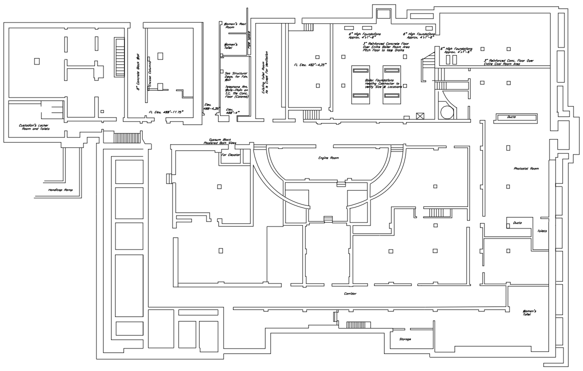
The physical surveys were particularly useful to us because they helped us to understand the structure three dimensionally. We were able to then take a look at the plans and connect them to our walk-through, and we were thus able to visualize proportions, circulation, architecture, etc. By combining all the elements—walk through, photographs, specifications, and plans—we were able to get a greater understanding as to the architectural and structural components of the building and where they are located. This is important for not only understanding how the structure works but it also helped us to brainstorm for the third phase of this project in which we had to develop a reuse plan.

Figure 3: General Architectural Conditions Survey

General Architectural Conditions Assessment

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

Date:______________________
Conducted By:__________________



Floor Finishes

Ceiling Finishes

Wall Finishes

Windows

Skylight

Doors

Stairs

Decorative Features

Structural Features

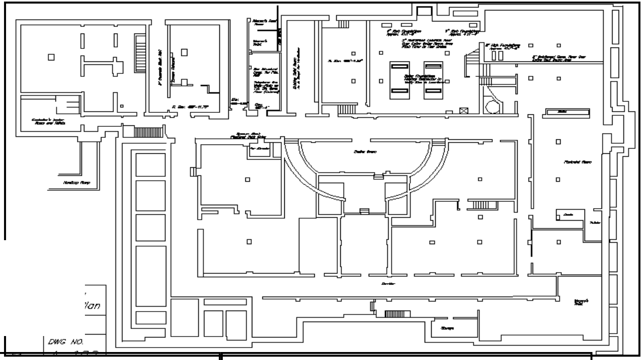
Lighting Fixtures

Appliance Fixtures

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

Architectural Conditions Assessment

Figure 4: Architectural Conditions Survey



Date:__________________________
Conducted By:_____________________
Floor #:_________________________

Interior Conditions Checklist

Floor Finishes	**Condition**	**Historically Significant?**
Materials:__________________________	1 2 3 4 5	Y☐ N ☐

Recommendation:____

Notes:____

Ceiling Finishes	**Condition**	**Historically Significant?**
Materials:__________________________	1 2 3 4 5	Y☐ N ☐

Recommendation:____

Notes:____

Wall Finishes	**Condition**	**Historically Significant?**
Materials:__________________________	1 2 3 4 5	Y☐ N ☐

Recommendation:____

Notes:____

Architectural Conditions Assessment

Windows	**Condition**	**Historically Significant?**
Materials:________	1 2 3 4 5	Y☐ N ☐

Recommendation:________

Notes:________

Skylights	**Condition**	**Historically Significant?**
Materials:________	1 2 3 4 5	Y☐ N ☐

Recommendation:________

Notes:________

Doors	**Condition**	**Historically Significant?**
Materials:________	1 2 3 4 5	Y☐ N ☐

Recommendation:________

Notes:________

Stairs	**Condition**	**Historically Significant?**
Materials:________	1 2 3 4 5	Y☐ N ☐

Recommendation:________

Notes:________

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

Architectural Conditions Assessment

Decorative Features	Condition	Historically Significant?
Materials:	1 2 3 4 5	Y ☐ N ☐

Recommendation:

Notes:

Structural Features	Condition	Historically Significant?
Materials:	1 2 3 4 5	Y ☐ N ☐

Recommendation:

Notes:

Lighting Fixtures	Condition	Historically Significant?
Materials:	1 2 3 4 5	Y ☐ N ☐

Recommendation:

Notes:

Appliance Fixtures	Condition	Historically Significant?
Materials:	1 2 3 4 5	Y ☐ N ☐

Recommendation:

Notes:

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

Architectural Conditions Assessment

Additional Notes:

Condition

1 2 3 4 5

1-Very poor condition. This has to be replaced or repaired immediately, because it no longer serves its intended function.
2-Poor condition. Showing distinct signs of deterioration, but immediate repair is not essential.
3-Fair condition. Exhibits signs of wear, and should be replaced or repaired in the near future.
4-Good condition. Requires little to no alteration. Possible alteration would include

Historically Significant?

Y☐ N ☐

Y (Yes)-The feature or finish is 1) in good condition and is unique to a particular architectural era, architect, or style of architecture, and should be maintained; 2) the feature or finish is not in good condition, but exhibits unique architectural characteristics, and provisions should be made to restore said element to its original condition.

N (No)- The feature or finish does not show any exceptional architectural purpose or quality. If it is in poor condition, it should be replaced with updated materials or systems, and any alterations should not have any provisions to conserve said feature.

Worcester County
Courthouse
2 Main St.
Worcester. MA 01609

Figure 5: Structural Conditions Survey

Date:____________________________
Conducted By:____________________
Floor #:_________________________

Structural Conditions Checklist

Footings	**Dimensions**	**Condition**
Materials:________________________________ ____		1 2 3 4 5

Recommendation:____
____

Notes:____
____
____

Exterior Walls	**Dimensions**	**Condition**
Materials:________________________________ ____		1 2 3 4 5

Recommendation:____
____

Notes:____
____
____

Interior Walls	**Dimensions**	**Condition**
Materials:________________________________ ____		1 2 3 4 5

Recommendation:____
____

Notes:____
____
____

Columns	**Dimensions**	**Condition**
Materials:________________________________ ____		1 2 3 4 5

Recommendation:____
____

Notes:____
____
____

Floors	**Dimensions**	**Condition**
Materials:________________________________ ____		1 2 3 4 5

Recommendation:____
____

Notes:____

4 Phase I-Preliminary Description and Assessment

As indicated in the research strategies section, the first stage in any structural or architectural assessment is to gather appropriate data and to organize it accordingly. Once this information is collected however, it must also be synthesized, so that the investigator can gain a cohesive understanding of how the structure works. The first phase of this project, the Preliminary Description and Assessment, is intended to do just that—synthesize this information and present in an organized fashion to the reader so that they too can gain an understanding of the structure. Particularly in an historic building however, the structure itself and its components are not the whole picture; the building as a whole, in its historical context must be described. As such, this phase seeks to demonstrate not only how the Worcester County Courthouse remains standing, but also why it stands, and how it fits into the greater context of historical building design and construction.

4.1 Architectural History of the Worcester County Courthouse

When an historic building is being researched for its existing conditions, the researcher is trying to obtain information about the building’s age, construction and subsequent additions and alterations. They are also, however, interested in finding out about any significant events or people connected with the structure. Therefore, in documenting a historic structure, information about the architects, the history of the building’s construction and the events happening in the past are all equally important in forming an understanding of the building. The following section provides this architectural history for the Worcester County Courthouse.

4.1.1 The First Courthouses—1732 to 1803

The Worcester County Courthouse has been situated on top of Court Hill in many incarnations since Worcester became a recognized town in the early 18th century. On August 8, 1732, the Court of General Sessions of the Peace passed an order for the construction of a new courthouse on land donated by Judge William Jennison. Within two years, a 26 by 36 foot building, 13 feet in height, was built at what was to become the intersection of Main Street and Belmont

Turnpike. An address by Judge Chandler in the *Boston Weekly Rehearsal* on February 18th, 1734 thanked the benefactors for “so agreeable a house as we are in possession and of which exceeds so many others […] built for like service in the capaciousness, regularity, and workmanship thereof.”[53]

The growth of the town within the next twenty years necessitated the upgrade of the current courthouse. On March 16, 1751 a 36 by 40 foot courthouse was constructed north east of the original building that housed the clerk of courts, registry of deeds and the probate office within, and the stocks, pillory and whipping post in front. [54] The courthouse would play a pivotal role during the revolutionary years; General Henry Knox passed by the building on his trek from Fort Ticonderoga to Dorchester Heights with his oxen and cannon in tow (Figure 6), Isaiah Thomas would provide the first New England reading of the Declaration of Independence at the courthouse in 1776, and in 1785, a confrontation between Judge Artemis Ward and local Shaysites occurred in a faction of the Shays Rebellion.[55] In a history of the second courthouse by a Benjamin Thomas Hill, the addition of several prominent attorneys to the Worcester Bar Association during the years of the Revolution is noted, inclusive of Levi Lincoln, Clerk of Courts in 1776, Judge of Probate from 1777-1781, Attorney General of the United States under Jefferson, and Lieutenant Governor of the Commonwealth of Massachusetts in 1807.[56]

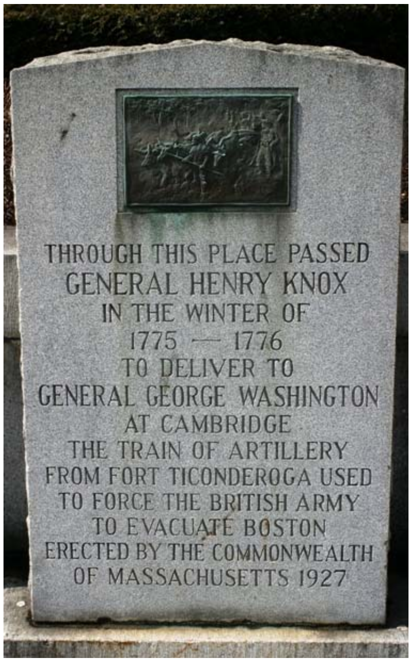


Figure 5: Plaque Dedicated to the passing of Henry Knox through Court Hill

The growth of the town of Worcester from a modest few hundred inhabitants in 1751 to 2,500 in 1790, as well as the expansion of the Worcester Bar Association, compelled the Court of Sessions to petition for a new courthouse in 1793. The committee met with some opposition, but by 1801, it was determined that the present courthouse be raised, placed on wheels, and moved by twenty oxen to the corner of Green, Park and Franklin Streets where it would reside for fifty years before being transported and reconstructed by Stephen Earle at its current location in the Massachusetts Avenue local historical district. An inscription remains on the house stating: “The Court Room of the Second Court House of Worcester County, erected in

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[53] Nutt, Charles. *A History of Worcester and Its People.* V. II. 1919. pg. 385.

[54] Nutt, p. 386.

[55] “The First Unitarian Timeline”. Sixth Edition. 1998. www.first-unitarian.com/user-manual/HISTORY-Wall.html

[56] Nutt, p. 389.

1751 on the site of the north wing of the present court house on Court Hill and occupied until 1801."[57]

Figure 6: Bullfinch Courthouse 1803

The new courthouse, opened September 27, 1803, was the first courthouse to be constructed of masonry as opposed to wood; known as the "brick courthouse", the building, furniture and equipment cost $20,000 and ground was broken by Isaiah Thomas and other members of the building committee. Thomas, who was a prominent member of Worcester society and who had been responsible for the construction of the Boston-Worcester Turnpike adjacent to Court Hill (now known as Route 9) donated land adjacent to the former site so the brick courthouse could be built. The building was designed by renowned American architect Charles Bulfinch, the 'father of the federal style'[58], who is often distinguished as the first American to practice architecture as a profession. Bulfinch worked primarily in Boston and Washington D.C. where he served as the Commissioner of Public Building, and his most noted accomplishments have included the Massachusetts State House, the memorial column on Beacon Hill (the first monument in recognition of the Revolutionary War) and the original rotunda and dome of the U.S. Capitol Building. In 1857 an addition to the brick courthouse was completed, expanding the current structure 16 feet in the front to a dimension of 66½ feet by 48½ feet, raising the roof by four feet, and covering the brick with a coat of mastic.[59] The dome with lady liberty holding the scales of justice mounted atop was retained for symbolic and traditional purposes.

4.1.2 The Young Courthouse 1843-1898

The beginning of the 19th century marked the first full century of a youthful and growing nation; a nation founded upon classical traditions of justice and democracy. The recent archeological discoveries of ancient Greece combined with the desire for a nationalistic style that expressed civic virtue brought about a period of architecture known as Greek Revival.[60] Thomas Jefferson was one of the first major proponents of the Greek Revival style. A classicist as heart, Jefferson was much inspired by his volume of *The Antiquities of Athens,* and his appointment of Benjamin Latrobe to the position of

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[57] Nutt, p. 386.

[58] Bluestone, Daniel. "Civic and Aesthetic Reserve—Ammi B. Young's 1850's Federal Custom House Designs." The Henry Francis DuPont Winterthur Museum, Inc. 1990. p. 1.

[59] *Mastic* (see Glossary) coatings are composed of a proportioned mixture of asphalt, sand, lime dust and asbestos fibers. Mastic coatings are designed both for corrosion mitigation and vapor-retarding action and are applied like paint.

[60] The popularity of Greek Revival can be witnessed in the names of the newly established towns of the era—Athens, Sparta, and Ithaca, for instance.

Surveyor of Public Building resulted in the design and construction of several Greek-inspired buildings. In particular, advocates for the style insisted that government buildings adorned with classical forms "conjured up the grandeur of ancient republics and thus promoted the stability and power of the American government."[61] Latrobe's design of the Capitol building merged classical components with American motifs—his Corinthian columns featured corncobs and tobacco leaves in the capitals, for instance.[62] This juxtaposition of classical and contemporary ideals became a common occurrence in this style and era.

By 1842, it was deemed necessary to expand the Worcester County Courthouse once again. By February of the same year, the county commissioners approved the Greek Revival design of Ammi B. Young. Young, like Bulfinch, was one of the most prominent American architects of the 19th century. In fact, throughout his career, Young would participate in a number of projects that Bulfinch himself designed; in particular, Young undertook the enlargement of Bulfinch's Cambridge Courthouse and his design for an addition to the U.S. Capitol was strongly admired.[63]

Young's architectural style was inspired by his father, a carpenter-designer of courthouses, academic buildings and churches, and his classical knowledge was learned from the pattern books of Asher Benjamin.[64] Later, Young would later study under Alexander Parris, a well-known Boston architect from whom Young appropriated the use of granite for subsequent commissions. Young made a name for himself with his Montpelier, Vermont State Capitol (completed in 1837), and his Boston Customs House, which typified the true Greek Revivalist architecture for which he was known. Young defeated Asher Benjamin himself in the 1837 competition to design the Custom House; with its Greek Doric portico of 32 carved Quincy granite columns, its large scale, and its Roman dome, the Custom House was praised for its reflection of the strength and

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[61] Bluestone, Daniel. "Civic and Aesthetic Reserve—Ammi B. Young's 1850's Federal Custom House Designs." The Henry Francis DuPont Winterthur Museum, Inc. 1990. p. 1.

[62] "To Throw the Labor of the Artist Upon the Shoulder of the President of the United States: The House and Senate Wings." http://www.loc.gov/exhibits/us.capitol/s4.html. Library of Congress. 1995.

[63] Although Young's designs were highly praised, the 1850 competition for the design of an enlargement of the capitol building was ultimately won by Thomas U. Walters. As consolation for his losses, Young was awarded the position of the first Supervising Architect of the U.S. Treasury Department in 1852.

[64] Ibid. p. 3.

confidence of the young nation, and its true representation of Greek Architecture.[65]

Young's Worcester Courthouse typified his signature Greek Revival Style; the building was constructed in imitation of a 'megaron', or Greek house type, typified by a front porch lined by Corinthian columns, each standing 25 feet high and three feet in diameter.[66] In traditional fashion, Young placed the judge's chambers on the upper story of the building, and left the dome covering the courtrooms below the roofline. This dome, "which so ennoble[d] the courtroom, [was] carried on a semicircle of freestanding Ionic columns, making the judges' bench the focus of the entire space."[67] The building was constructed predominately of solid Quincy granite and measured 55 by 108 feet at a total cost of $100,000. On September 30, 1845, the courthouse was dedicated by Chief Justice Lemuel Shaw, and occupied for the fall session.

While Young sought to imitate the grandeur of Greek architecture, it is important to keep in mind that this architecture was an imitation of the past, rather than a duplication. During Young's administration as the Supervising Architect of the Treasury, the government commissioned a number of federal buildings with mandates that they should be fire proof. [68] As such, while solid masonry bearing walls were a prominent feature of both Grecian and Youngian architecture, Young also utilized the recently introduced concept of wrought iron beams with brick arch vaulting for the flooring systems, cast iron as both structural and decorative elements[69], and galvanized metal for roof trusses, as opposed to wood truss work. All of these elements were meant to increase the fire rating and durability of government structures, and featured prominently in the Worcester County Courthouse.

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[65] The Custom House remained in its original style until 1913, when the firm of Peabody and Stearns replaced the dome with a tower. This was to become Boston's first skyscraper.

[66] Charles Nutt's *A History of Worcester and Its People* describes the style as having been in imitation of the Grecian "tower of the winds" in Athens. The six columns that were so crucial to this effect were transported by rail from Quincy to Worcester and drawn by oxen and horses to Court Hill. (Nutt, 389)

[67] McConnell, John C. "The Houses of Law: A History of Superior Court Architecture in Massachusetts." http://www.socialaw.com/renovation/houseslawmconn.htm

[68] While Young was not appointed to this position until 1852, the architectural and structural style of the Worcester Courthouse is very similar to other federal buildings (particularly the Cincinnati Customhouse) constructed during that administration, and it can be assumed that Young would have considered the fireproof characteristics of the Worcester Courthouse as thoroughly as he did those buildings constructed after the mandate was put into effect.

[69] Cast iron was used for interior structural columns, stairs, barred windows, and railings. A big proponent of cast iron, Young insisted that all his cast features were to be manufactured to his specifications at a plant in New York, and then these were to be shipped to building sites for erection.

4.1.3 The Stephen Earle Library 1878

In 1878, Stephen Earle of Worcester, Massachusetts was commissioned to design a large stone addition to the courthouse to function as a library. Stephen Earle, a Worcester native, was one of the city's premier architects; his architecture has been defined as "an essential part of the city's history"[70] and over thirty of his buildings in Worcester alone are listed under the National Register of Historic Places.[71]

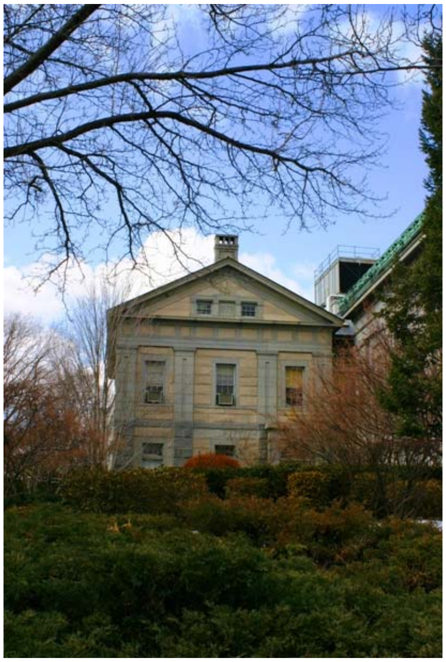

Figure 7: Stephen Earle 1878 Library

Earle was born and raised in Worcester around a crucial moment in the city's history. By the time he was 9, Worcester had just become officially recognized as a city, and over his lifetime he saw the population grow from 50,000 inhabitants to upwards of 200,000. Interested in architecture at an early age, in 1857 he witnessed the construction and dedication of Mechanics Hall on Main Street, and just four years later, Earle went to study in New York under Calvert Vaux [72] , one of New York's leading landscape designers and architects. There he remained until 1864, when he returned to Massachusetts briefly, departed in 1865 on a tour of Europe, and settled finally in Worcester in 1866 at the age of 27.

Earle had already made quite a name for himself by the time the Courthouse library commission was offered. He had already designed a number of buildings in New York, Worcester, Boston and even such far away places as Nova Scotia, where he experimented in a wooden ecclesiastical Gothic style. By the late 1870's, Earle began to try his hand at libraries. His first attempt resulted in the Gothic style Rogers Free Library in Bristol, Rhode Island (completed 1877), and was to be followed by eleven other commissions.[73] The following year, the Worcester Courthouse addition was designed and constructed in a solid, classically organized stone building "with understated decoration based on the geometrical arrangement of surface planes and skillful contrast between rough and smoothly textured stone."[74] With the exception of the south wall of the Young

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[70] Dahl, Curtis. *Stephen C. Earle, Architect: Shaping Worcester's Image.* P. 7.

[71] Amongst Earle's contributions to Worcester architecture are WPI's own Boynton Hall, and the Skull Tomb, as well a Bancroft Tower and the Worcester Art Museum.

[72] Vaux is best remembered as the co-designer of New York's Central Park along with Frederick Law Olmstead.

[73] Curtis says of Earle's libraries, "This outstanding series of fine libraries is second in quality, in New England at least, only to those of H. H. Richardson." p.14.

[74] Curtis, p.14. Earle's designs for this building were initially threatened by government red tape and politics, but nonetheless he was able to come to an agreement with the commissioners and the plans were eventually agreed upon.

courthouse, the 1878 Earle addition is the oldest standing part of the present courthouse today.

4.1.4 The Andrews Jacques & Rantoul Courthouse 1898-Present

The Ammi B. Young building was to serve faithfully as the courthouse until the expansion of the city necessitated the construction of a courthouse with greater capacity. It was determined that the 1803 Bulfinch courthouse was to be demolished, and in 1897, an anonymous competition[75] was announced for the construction of a new building that would preserve or incorporate the original 1843 Young structure from "motives of economy and because it is a fine monumental structure of very substantial construction." [76] The competition stipulated that the cost of the building was not to exceed $300,000.

Several architectural firms competed for the design of the new courthouse, inclusive of Fuller, Delano & Frost of Worcester, Robert Allen Cook, Lucius W. Briggs[77], and even Stephen Earle himself. Earle proposed a classical structure with three pedimented pavilions approached by a wide monumental stairway. His design won only third place, but it was highly admired by the judges. In the end, the firm of Andrews, Jacques and Rantoul won the contract. A Boston firm, Andrews Jacques and Rantoul was composed of Robert Day Andrews (a student of H. H. Richardson), Herbert Jacques, and Augustus Neal. Their best known work was the addition of the east and west wings to the Massachusetts State House.[78]

Throughout the next two years, construction of the new Worcester County Courthouse ensued. Land was bought for a total of $15,000 from the Warren Estate, the design was chosen, and the contract was awarded to the Webb Granite and Construction Company for a total cost of $312,887.86. The old brick courthouse[79] was taken down and demolition of elements of the Young Courthouse were commenced. Although ideally this building was supposed to

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[75] " Conditions of Competition for Court House Buildings Worcester, MA." p. 11. The terms of the competition indicated that architects were not allowed to indicate who submitted each design, so that the entries would be based solely on their design, and would not be biased.

[76] " Conditions of Competition for Court House Buildings Worcester, MA." p. 11.

[77] Lucius Briggs is considered to be another very prominent Worcester architect. Perhaps his most popular buildings were the old fire station on Park Ave across from Elm Park, and the Worcester Memorial Auditorium in Lincoln Square, across the street from the courthouse.

[78] As previously noted, the state house was designed by Charles Bulfinch.

[79] The Bulfinch courthouse.

have been retained in the completed project, the majority of the structure, save the south wall and the 1878 library addition were demolished.

The resultant building was designed in the classical fashion.[80] To incorporate Young's original design, an identical pavilion was constructed to the north of the existing courthouse, connected by a matching granite building. As construction of new columns to match the original would be pricey and laborious, Andrews Jacques and Rantoul solved this problem by transferring four of the existing columns to the connecting wing's façade and constructing just two additional columns for the north pavilion. This imposing building was crowned with a copper roof, and a total of $63,060.70 was allotted for furniture and groundskeeping.[81]

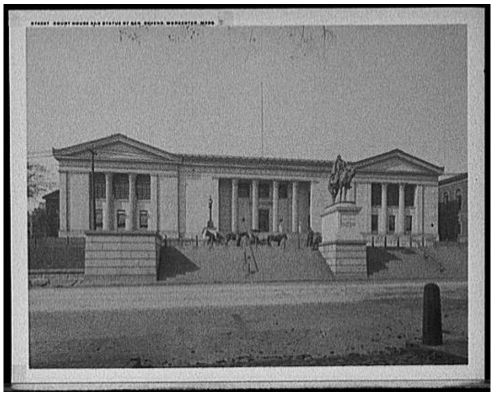

Figure 8: Andrews Jacques and Rantoul Courthouse

4.1.5 The Worcester County Courthouse-1954 to Present

The 1898 Andrews Jacques and Rantoul Courthouse would stand virtually untouched for over 55 years. By 1954 however, yet another expansion to the courthouse became a reality. A 1954 article in the Worcester Telegram & Gazette[82] recounts the groundbreaking ceremony for the $2,000,000 steel frame courthouse addition project, designed by Stuart W. Briggs and Cornelius W. Buckley and contracted by Sebastino Volpe of Boston. Samuel Seder, president of the Worcester County Bar Association, stated, "The history of the great material and social prosperity of Worcester has been, is, and will be closely connected with our courts." Moreover, Seder continued, "As our predecessors broke ground in a ceremony which celebrated the construction of each new courthouse, I am sure that each one of the speakers of that day looked back with pride and astonishment at the rapid growth of Worcester and our county."

4.2 Historical Building Construction

In addition to its rich architectural significance, the historic portion[83] of the Worcester County Courthouse, in all its incarnations, depicts a telling tale of how construction had evolved between 1840

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[80] This style, while fashionable in the 1840's and 50's conveniently saw a revival in the 1890's, particularly in governmental architecture.

[81] Nutt. p. 390.

[82] "Ground Is Broken For New Courthouse." Worcester Telegram and Gazette. 1954.

[83] The components of the existing structure dating from the original Ammi B. Young courthouse through the Andrews, Jacques and Rantoul courthouse. For the purposes of this assessment, the 1954 addition will not be considered as part of the original historic structure.

and 1900. It is inextricably linked to not only the most prominent of architects but also the newest building fashions and technologies of the day. The following section will briefly delineate the types of construction found throughout the courthouse in their historical context.

4.2.1 Masonry Bearing Wall Construction

Traditional masonry construction has been in practice since antiquity, and remnants from pyramids to parkways, stand as a testament to its proliferation and endurance.[84] Masonry has been a favored method of construction for a number of reasons; it is durable, it emits a sense of grandeur and prestige, and it is fire resistant. To put it another way, masonry structures give a sense of solidity, which is seen as both safe and imposing—so much so that large cities have frequently passed laws requiring buildings in densely populated areas to be constructed with masonry walls and slate roofs.[85] While many prominent buildings utilized more fashionable stone such as granite, serpentine or limestone, brick was the traditional (and economical) masonry material of the day. In fact, most buildings that were solid granite in appearance were truly brick walls with a thin granite veneer.

Masonry bearing walls tended to almost always be overbuilt; this was due to the inherently strong compressive properties of brick, combined with a strict building code provision for minimum wall thicknesses. Eight inches, or two 'wythes', or rows, of brick, was the standard minimum dimension dictated by early codes.[86] If analyzed for the loads in a three or even five story building, it is seen that the average compression in each brick is well below its compressive strength, which made life simple for the builders of the day. However, there were occasional instances where builders, in an attempt to minimize labor or materials, chose to reduce the rows of brick to one, thereby causing the collapse of the wall.[87] While the four inch thickness is sufficient for compressive strength, it is too slender to withstand the tensile forces produced by a lateral load on an 8 foot tall wall. In addition, a single wythe wall will experience twice the "accidental" eccentricity, producing out of plane bending, as a two

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[84] "Masonry", in the traditional sense of the word, can be defined as the construction achieved through the use of units of various natural or artificial mineral products, such as stone, brick or concrete. The term masonry can be applied to the craft itself or to the finished product.

[85] Friedman, Donald. *Historical Building Construction.* W.W. Norton & Company. New York. 1995. p. 19. Friedman's book indicates that in 1815, New York and Chicago passed such a law.

[86] In 1830 this was codified as the minimum thickness for party walls.

[87] Friedman, p. 20.

wythe wall.[88] The same can be said of taller walls, whose unbraced length exceeds 12 feet, in which thicker walls must be utilized.

Though shorter walls did not experience the same wind loading as five story buildings, their wall thickness were still kept at a minimum of two wythes for insulation and moisture reduction purposes. Brick, due to its porous nature, has a tendency to absorb water from the atmosphere and to diffuse from the exterior to the interior surfaces of a wall. This can cause damage to plaster coatings, interior woodwork, and can deregulate temperature within the building. By the end of the 19th century, provisions in construction textbooks and building codes discussed an alternative method of wall construction that would ensure a similar wall thickness, but would reduce materials and prevent moisture diffusion. This type of wall, known as a cavity, or hollow wall, consisted of a main exterior wall which would make up the bulk of the wall width, and an interior wall of about 4 to 8 inches. These two walls would be separated by an air space of generally no more than 6 inches, and the walls would be tied together by a tie brick or by iron ties.

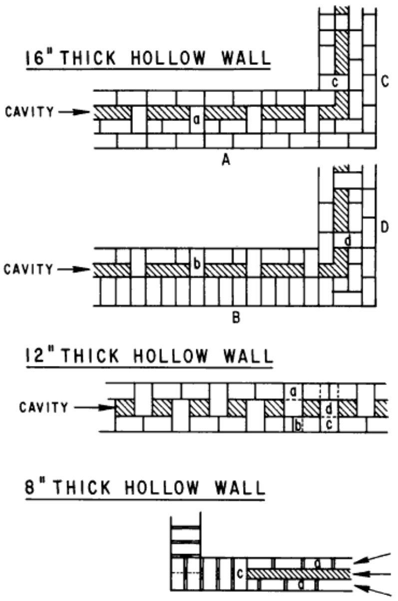

Figure 9: Cavity Walls depicted by Downing

Cavity walls are not new, in the typical sense of the word. Both Greek and Roman archaeological ruins attest to this type of construction. However, the method was seemingly lost, and re-'invented' in early 19th century England. Plans dating from 1805 suggest a two layer wall, bonded by headers across a 6 inch air space, and an 1821 publication by Thomas Dearn entitled *Hints of an Improved Method of Building* suggests the use of cavity walls for insulation and moisture protection purposes.[89] Cavity walls were, according to American Architect A.J. Downing (1815-1852), first introduced in the United States by a New Haven-born architect and engineer Ithiel Town, who studied under Asher Benjamin. Downing noted of Town, "nearly all the best villas at New Haven where [Town] resided are built in this mode" presumably to Town's design.[90] Downing would go on to describe hollow walls as "by far the best mode of building brick houses," the advantages being saving materials, the prevention of dampness, better heat insulation and the

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[88] Ibid., p. 20.

[89] Ritchie, T. "Notes on the History of Hollow Masonry Walls." Association for Preservation Technology. V. 5. No. 4. 1973. p. 40.

[90] Town lived from 1784-1844. Judging by his architectural career, it is probable that this type of cavity wall construction occurred in New Haven between 1825 and 1840. It is unknown whether Town would have been inspired by the British texts that referred to cavity walls, or if he independently came up with the idea. Nevertheless, the seeming abundance of cavity walls in New Haven house construction appears to be a rare and unique case, as cavity walls were not often used until the 1900's.

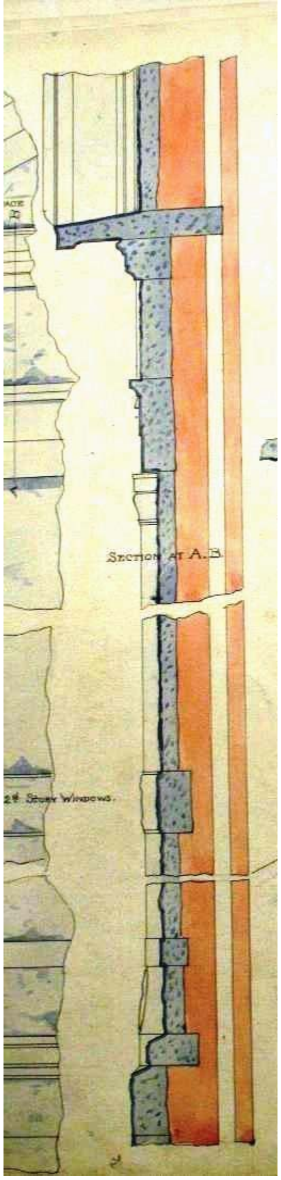

Figure 10: Cavity Walls in Courthouse

saving of the cost of lathing, since the hollow brick wall could be plastered direction on its inside surface. He himself provided plans for three different hollow walls for country houses and small cottages (Figure 9).[91]

The next mention of cavity walls in architectural literature was in Calvert Vaux's *Villas and Cottages,* where he wrote of the many advantages of hollow bricks walls, recommending they be bonded by painted or tarred iron strips, instead of the bricks Downing recommended—bricks could carry the moisture to the interior wall.[92] Vaux, as mentioned previously, also served as the mentor to Stephen Earle between 1861 and 1864. It is no coincidence then that Stephen Earle would have employed the use of cavity walls in his 1878 addition to the Worcester County Courthouse. In fact, it is very possible that the library addition represents one of the first and oldest examples of cavity wall construction *in a public building*[93] in the United States still standing. The only older known example of a large public building in North America employing the use of cavity walls is the 1861 parliament building in Ottawa, Ontario, designed by four architects—Thomas Fuller, Chilion Jones, Thomas Stent and Augustus Laver—all trained in England before coming to Canada.[94] Even in New York City, from the existing buildings, it appears that no architects took advantage of this provision to build cavity walls before 1890; the only hollows normally found in the walls of older buildings are pipe chases.[95] It was not until 1937 that this type of construction gained official acceptance by any building or construction agency in the United States. Since then, interest in and use of cavity walls in this country has increased rapidly.

The Worcester County Courthouse typifies the bearing wall construction that was so prevalent during the era of the mid-1800s. In the original Ammi B. Young Courthouse, solid exterior walls, in combination with solid brick interior partitions supported masonry

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[91] Ritchie, p. 41-3.

[92] Ibid., p. 43. Vaux, an English architect, emigrated to the United States at the behest of A.J. Downing who, on a European tour, met Vaux at an exhibition of landscape watercolors. The two would become great friends and would open a practice together in Newburgh, NY.

[93] Town, Downing and Vaux all make reference to cavity walls, and there is no debate that examples of cavity wall construction were in existence before the courthouse addition. However, these three architects all spoke of or employed this method of construction in small villas, cottages, smaller personal residences. Earle has applied it to a prominent public building.

[94] Ritchie, p. 45. Canada was still primarily under British control at this time and would have employed British workers and methods. Thus the courthouse addition is a truly American example.

[95] Friedman, p. 26.

arch floors, rendering the building an imposing structure and virtually fireproof. Stephen Earle's 1878 addition complimented this type of construction with some innovation of its own in the form of the unique cavity walls that were not in fact typical of the day. Earle's addition was also primarily masonry, to match the aesthetic and the building styles put in place by Young. Earle however, would incorporate a more recent technology in the use of his structure; he still employed the use of exterior and interior masonry walls and partitions, but his floor systems were comprised of brick arches spanned between iron floor beams instead of the typical masonry partitions. Earle's incorporation of iron in his addition became the mainstream in building construction of that era, and would be later elaborated in the 1898 Andrews Jacques and Rantoul building.

4.2.2 Steel Skeleton Framing

The rise of the iron and steel industry in the 1860s[96] provided the means for going taller, and virtually effaced the use of monolithic masonry bearing walls. The switch from interior bearing walls and vaulted floors to terra cotta partitions and arches supported on iron beams was justified as a cost cutting measure both in terms of quicker erection and the reduced amount of costly skilled mason's work. As architect William Birkmire said in defense of the domination of skeleton frames, "This question of speed in erection is most important. There being a large amount of capital invested, there should be but one season lost [to construction] before a return is effected upon this investment." [97] The primary impetus for the development of frame-type structures was not engineering theory, but economics.

During the transitional phase from stone to steel, three major types of large buildings arose.[98] First was a hybrid of the bearing wall construction and iron frame construction; brick bearing walls formed the exterior of the building and provided lateral load resistance. Instead of interior bearing walls and vaulted floors however, cast iron columns and iron beams formed the interior skeleton of the structure. The introduction of terra cotta as a building material also facilitated this process, as the lightness of terra cotta allowed partitions to sit on individual floor beams or girders. This allowed the architect much

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[96] The bulk production of steel began as a result of Henry Bessemer's invention of the Bessemer converter in 1857—an invention that heated pig iron and deposited carbon to form steel.

[97] Birkmire, William H. *Skeleton Construction in Buildings.* John Wiley & Sons. New York. 1894. p. 18.

[98] Friedman, p. 41.

more freedom in planning internal spaces than brick walls, which were necessarily continuous in a vertical plane from their tops down to a dedicated foundation. Although these partitions could not carry substantial shear forces, they served to stiffen the building. The next type of building was that of the complete iron or steel frame with a self-supporting exterior masonry wall. This effaced virtually all bearing wall interior construction, and slimmed down the exterior walls, which the floors no longer transferred dead or live loads to. The last phase of construction was the complete (generally) steel frame, with a curtain wall. This acted somewhat in the reverse manner as the bearing wall construction as now the steel frame supported the gravity loads of the wall and the lateral loads, instead of the reverse.[99]

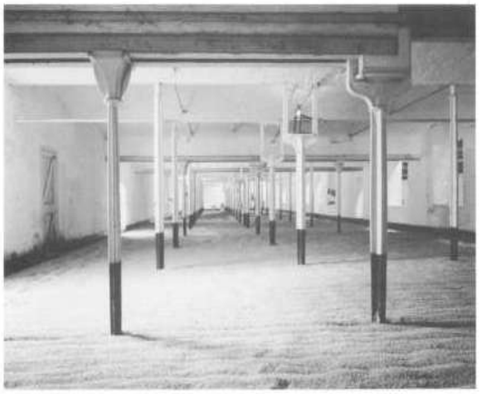

Figure 11: Charles Bage's Flax Mill

This transition was further blurred by the concurrent use of three structural metals—wrought iron, cast iron and steel. The earliest known record of the use of an iron beam in a building dates from 1638 in Shropshire, England, and the use of cast iron as an architectural material in Europe peaked during the British Industrial Revolution.[100] By the 1770's British architects employed cast iron columns to create large open spaces, particularly in textile mills, valuing its fire resistant qualities. By 1796, Charles Bage's flax mill became the first building to be completely constructed out of iron.[101] However popular iron was in eighteenth century Britain, it was not until the 1820's that iron would be considered a viable building material in the United States.

The United States had little need to develop its iron industry in the 18th century, due to its abundance of natural building resources such as wood and stone. As the country entered a period of rapid urbanization in the first half of the nineteenth century however, Americans began to adopt the latest European technology for many architectural needs. As had been the case in earlier Britain, iron's strength and fire-resistant qualities recommended it to architects and builders. Soon architects such as William Strickland in his U.S. Naval Asylum in Philadelphia (1826-29) would begin to employ the use of cast iron in buildings; just ten years later, cast iron columns and beams were used for post and lintel construction in the first two

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[99] These three types are listed in the order of their appearance in construction, although all were in use simultaneously between 1860 and 1900.

[100] Peterson, Charles E. "Inventing the I-beam: Richard Turner, Cooper & Hewitt and Others." Bulletin of the Association of Preservation Technology. Vol. XII. No. 4. 1980. p. 3.

[101] Gayle, Margot, and Carol Gayle. "The Emergence of Cast-Iron Architecture in the United States: Defining the Role of James Bogardus." Bulletin of the Association for Preservation Technology International. Vol. 29. No. 2. 1998. p. 5.

stories of the Lorillard Building in Manhattan (1837). Cast iron would become a popular material for facades[102] and other specialty structural items such as cupolas, domes, skylights and light court frameworks.[103]

Although popularized for these special purpose functions, cast iron's career as a structural building material would be short-lived. Its relatively low tensile strength and unreliable flexural properties eventually led to its limited use, and its demise was propagated by the development of wrought iron. Cast iron beams were necessarily heavy shapes because of the variable tensile properties of cast iron; however, beams of wrought iron were more reliable in flexure and therefore structurally more efficient. Although cast columns would be used for several decades in conjunction with wrought beams, flexural applications for cast iron became limited to specialty applications such as short span masonry lintels, ornamental uses, and light structural applications after the development of economic rolling processes for wrought iron by Peter Cooper in 1845.[104]

Cooper's optimization of the rolling process resulted in the creation of the Trenton Ironworks in Trenton, NJ, operated by Peter's son Edward Cooper and Abram Hewitt. This facility effectively mass produced most of the "bulb-tee" railroad ties utilized in railroad construction of the day. Rolled or wrought iron's success as a viable building material did not go unnoticed and in 1853, three New York buildings pioneered the use of bulb tee beams in architectural construction—Harper and Company Publishers (1854), the Cooper Institute Foundation Building[105] (1853-59), and the United States Assay Office, built between 1853 and 1854, and designed by none other than Ammi B. Young. This new construction gained exceptional publicity around the world. *The Builder* of London described the construction of the Harper and Company building in detail:

> *"The fireproof floors consists simply of long, narrow flat brick arches, supported by wrought iron beams, the ends of the beams being supported in their turn by girders of wrought and cast iron, and these by a range of cast iron columns,*

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[102] James Bogardus pioneered the use of cast iron as storefront facades and popularized it in 1848-49.

[103] Paulson, C., Tide, R. H. R.., and Meinheit, D. F. "Modern Techniques for Determining the Capacity of Cast Iron Columns." *Standards for Preservation and Rehabilitation. ASTM STP 1258.* S. J. Kelley, Ed. American Society for Testing and Materials. 1996. p. 187.

[104] Ibid. p. 187.

[105] Peter Cooper funded this building, but in light of the fire that occurred at the Harper and Company Publishers, he diverted the beams fabricated for his building towards that construction. This explains why the building took six years to be completed.

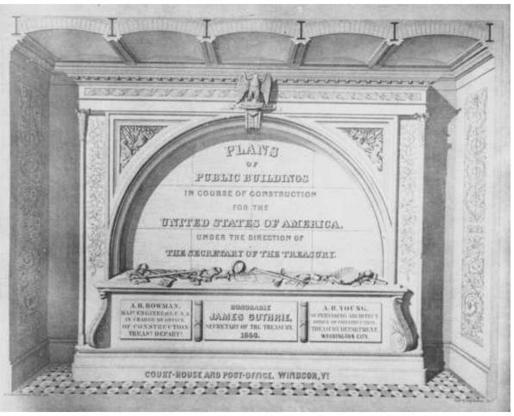

Figure 12: Plans of Public Buildings Under Construction under the supervision of Architect of the Treasury Ammi B. Young, 1856. Notice the I-beam and brick arch floors detailed on the top of the image.

> *supported by a similar range in the story below. The number of cast iron columns and girders in both parts of the edifice is over 250. The number of brick arches, averaging about 4 feet span, and 15 feet in length from girder to girder, with wrought iron beams to support them, is about 2000 …"*

By 1855, the triumph of the wrought iron beam was unquestionable. Captain Bowman of the Corps of Engineers said of it, "the use of wrought iron […] has been extended to all the works now in progress, and each day's experience in its use serves to simplify its application to building purposes and to enlarge its sphere of usefulness."[106] Modifications of the bulb tee soon began to maximize the strength of the beams and to minimize weight. By 1856, the first iron I-beam was mass produced by the Trenton Ironworks and was first specified in construction by, again, Ammi B. Young in the Wheeling West Virginia customhouse.[107] After the invention of the Bessemer process, the use of I-beams truly took hold, and although steel has replaced iron, the I-beam has prospered to this day.

Between the 1870s and the 1900s, the transition from rolled iron to steel manufacturers occurred heavily[108] and most new mills—such as the Carnegie Steel Company, Edgar Thomas Steel Works, or Homestead Steel Works—made their start as steel (and not iron) companies. As such, competition between wrought iron and steel production were minimal because the rolling process could be applied to both steel and iron, facilitating the transition.[109] By the end of the century, however, a great rift between advocates of wrought iron and steel and advocates of cast iron ensued, generating two schools of thought on building construction. Advocates of steel and wrought iron naturally preferred the true skeleton frame over other forms because it minimized the use of materials other than metal. Brick and stone masonry would be used primarily for decorative purposes: curtain walls, terra cotta floor arches and partitions, and concrete foundations and later as a replacement for terra cotta in floor construction. Builders who preferred cast iron, by contrast, needed the stability of

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[106] Peterson, Charles E. "Inventing the I-beam: Richard Turner, Cooper & Hewitt and Others." Bulletin of the Association of Preservation Technology. Vol. XII. No. 4. 1980. p. 16. Bowman's involvement in the promulgation of iron construction landed him a position in Washington as the head of the U.S. Treasury Department's Office of Construction.

[107] Ibid. p. 24.

[108] The Bethlehem Iron Company would become the Bethlehem Steel Company in 1899.

[109] Peterson. p. 22.

masonry shear walls provided by bearing wall and cage construction.[110]

Figure 13: Bessemer Converter

By the end of the century, the war between steel and cast iron hit its apex, and steel advocates, such as the Carnegie Steel Company, made considerable efforts to curb the success of the cast iron industry by including propaganda such as this in the company handbook:

> *"Cast iron is a material so uncertain in character that its use has long since been abandoned in bridge construction. In buildings the loads are generally more quiescent and the liability to sudden shock is more remote than in bridges; yet, on the other hand the columns seldom receive their loads as favorably as in bridges; in most cases there exists considerable eccentricity , that is, the loads on one side of the column are heavier than those of the other side, and the bending strains arising there from increase the strains from direct compression materially…As a protection against these contingencies resort must be had either to the crude and uncertain expedient of a high safety factor, not less than 8 or 10, or a materials such as rolled steel must be adopted of a more uniform and reliable character than cast iron."*[111]

Despite these limitations and strength variability, cast iron remained both popular and economical as a material for columns in building structures until the advent of the high rise rendered its structural limitations crucial. By the 1890s, it became evident that although "the questionable economy of cast columns d[id] still, in the opinion of some architects, compensate for the dangers incident to their use"[112] in multistory buildings, cast metal should be applied only to low or very moderate height buildings. "Among our more progressive designers," stated Joseph K. Freitag in the early 1890s, "the use of cast iron in large buildings has become a thing of the past, and would no more be seriously considered than would the use of cast iron compression members in bridges."[113]

The ultimate fall of cast iron coincided with the standardization of steel sections, particularly the I-beam. While cast iron was produced in certain regular sizes, it was not as part of a standard

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[110] Freidman. p. 50.
[111] Ibid. p. 50.
[112] Freitag, Joseph K. *Architectural Engineering,* 1st ed. Wiley. New York. 1895. p. 21.
[113] Ibid. p. 21.

system of shapes. Hand molds were used, requiring iron laborers to be among the most skilled workers in the building industry.[114] Once the I-beam section had developed, and along side it the manufacturing process and techniques, the differences between beam sections produced by different mills and companies were easily reduced, and by 1896, The Association of American Steel Manufacturers adopted a classification system of American Standard beams. Since differences in construction were created during the post-rolling fabrication process, rolled beams were a commodity, not the specialty that cast iron shapes had been. Nothing presents this more clearly than the fact that no changes were required for builders to switch from wrought iron beams to steel.[115]

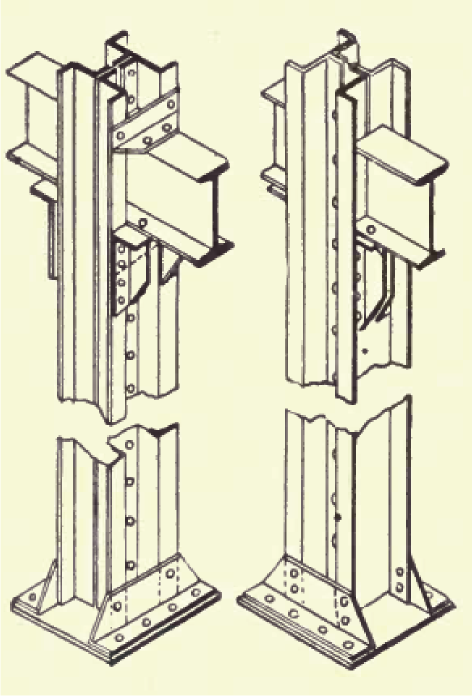

Figure 14: Z-bar Column

Shapes other than I-beams underwent a similar process of simplification and standardization around the same time. The “zee” shape was a particularly useful shape; on its own, it was subject to large bending and eccentric forces but it was commonly used for the purposes of built up shapes, such as the Z-bar column, since it could easily be riveted to other sections.[116] There was no difference in detailing between wrought iron and steel columns, and no change in column form was caused by the total surrender of the wrought iron market to steel during the 1890’s. One historian[117] argues that “the only difference between the two metals in column form was the popularity of the Z bar columns in wrought iron, which were not repeated in steel,” however this is not to say that steel Z-bars were not utilized at all. Testing of steel Z-bar columns was performed by Carnegie, Phipps and Co. in the early 1890s and was published in their handbook.[118] Buildings, such as the southern half of the famous Monadnock building in Chicago utilized steel Z-bar columns throughout its seventeen stories. More importantly, the Worcester County Courthouse specifies that “All beams, channels, angles, *Z’s*, tees, and other wrought shapes, are to be *rolled steel* of the best

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[114] Freidman. p. 68.

[115] Ibid. p. 70. Because the only real difference between steel and wrought iron beam production at this time were the metallurgical properties of the metals themselves, the honesty of builders at the time became questionable. It was distinctly possible for contractors to substitute wrought iron beams for steel beams unbeknownst to the client, and as such, in current alteration projects coupon testing is performed to field verify the metal actually used in construction.

[116] The amount of additional labor required to rivet together the individual pieces of each columns however was enormous, which accounts for the popularity of cast columns even long after engineers began to question the material’s safety.

[117] Donald Friedman, author of *Historical Building Construction.*

[118] Birkmire, William. *Skeleton Construction in Buildings.* 2nd. Edition. John Wily & Sons. New York. 1894. p. 39. Carnegie, Phipps and Co. was a subsidiary branch of the Carnegie Steel Co. and was later absorbed by the monopoly in the mid 1890’s.

quality and in accordance with the standard specifications adopted by the association of American Steel Manufacturers. All sizes referred to on the drawings are those given in the handbook of the Carnegie Steel Co."[119]

The Worcester County Courthouse, throughout its various incarnations and alterations has exemplified the evolution of the steel industry throughout the mid to late 1800s. Although the 1843 courthouse most likely did not display the use of iron or steel construction[120], its designer would become one of the pioneering architects of the Iron Age. Stephen Earle would be the first to introduce iron I-beams in the floors of the 1878 library addition to the building, and he also utilized cast iron columns throughout the structure.[121] In the 1898 courthouse, Andrews Jacques and Rantoul had done away with the primarily masonry bearing wall structure of 1843, only to replace it with a steel frame with rolled beams and girders, and Z-bar columns. In so doing, the Boston architects generated a sort of hybrid of the three previously discussed types of structural metal frames. The building retained the exterior masonry bearing wall[122] to meet the commissioner's desires to make the new building "an extension of the present Stone Courthouse" and "designed as to make of the completed structure a single harmonious building."[123] Yet instead of the iron skeleton, the frame was wholly steel, following the specifications of the Carnegie Steel Company.

4.3 Structural Description

The architectural and building construction histories of the Worcester County Courthouse were particularly fascinating. More importantly, they are useful in that they helped us to further understand how the structure functions. For example, by investigating the historical flooring techniques at the time the 1898 portion of the structure was built, we were able to not only determine the specifics of the terra cotta tile arch floors (not specified in the supporting

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[119] Although this statement in the specifications refers specifically to steel construction, even so far as to dictate where the steel specifications should be taken from, it is potentially (though not likely) possible that wrought iron was used in the actual construction. This is why, as previously mentioned, it is important to conduct materials testing before structurally assessing or attempting to modify the structure.

[120] No information concerning the 1843 Young Courthouse remains in existence to our knowledge. However, given its place in the timeline of nineteenth century architecture, it is relatively safe to assume that it predated the use of structural metal in its architecture.

[121] The cast iron columns in the Earle addition are primarily architectural and not structural, however it does demonstrate the proliferation of the material throughout this particular time frame.

[122] As well as a handful of interior bearing walls.

[123] "Conditions of Competition for Court House Buildings Worcester, MA." p. 11.

documents), but we were also able to recognize that the unique tiling in the main entrance foyer was in fact Guastavino tiling—a very unique and structurally significant type of construction. Additionally, we were able to speculate what the potential framing system for the now-demolished 1843 courthouse by Ammi B. Young was, by examining other buildings by either the same architect, or constructed in a similar time period. With this information documented, it was important for us to combine our understanding of historical building construction and all of our collected information from the plans, specs and physical surveys, and to generate a structural inventory of the building.

4.3.1 Structural Component Inventory

Two structural inventories were generated for this structure: the first for the 1878 library addition, and the second for the 1898 addition. We chose to treat these structures as two separate buildings because there are two unique sets of plans and specifications for each, and as such the amount of information varied between the two structures. Because we were able to ascertain more information regarding the library structure, having both the original plans and specifications, and supplementary photographs, this inventory was naturally more complete.

The structural inventory was derived predominantly from our structural survey and the combination of plans and specifications (see Research Strategies). As such, it contains all of the information listed on that survey (materials, condition, recommendation), in addition to a dimensions category. This information was summarized in two spreadsheets—a wall inventory and a flooring inventory—and any necessary corresponding CAD details were utilized to help visualize the components. To briefly describe how this inventory is intended to work, let's use for an example the flooring system for the first floor. As indicated in the spreadsheet, there are three types of flooring systems on the floor.

Table 6: Inventory Example

Floors

	Dimensions	Materials	Condition	Recom.
1	0'-4"t x 11'-10"r x 6'-1"h w/ribs 0'-8"t x 1'-8"w @8'-0" o.c.	Brick, Concrete	5	None
2	0'-8"t x 7'-6"r x 8'-0"h	Brick,	5	None

		Concrete		
3	0'-4"t x 4'-4"r x 9'-8"h	Brick, Concrete	5	None

The first flooring system, denoted as (1) in both the spreadsheet and the detailed drawings, indicates that the dimensions are 0’-4”t x 11’-10”r x 6’-1” h with ribs at 0’-8” t @ 8’-0” o.c. and the materials are brick and concrete. In translation: the flooring system is made of 4” thick brick, at a radius of 11’-10”, and the brick meets the wall at a height of 6’-1”. In addition, there are ribs 8” thick by 20” wide spaced every 8’ on center. Detailed images help us to further understand this structure—a plan view denotes where on the floor plan this occurs (see Table 7 and 8). When applicable or necessary, photographs are included—e.g., there is a section in the basement where there are two W8x31 steel beams, but these were a later alteration; as such the only recorded evidence that these beams are in existence comes from photographs taken in the basement of the library (See Table 8).

4.3.1.1 Library Addition 1878

The following tables are the wall and floor inventories compiled for the library addition. The wall inventory is supplemented by a three dimensional CAD drawing of the structure which breaks up the walls by floor. The floor inventory is accompanied by floor plans with photographs superimposed in them where applicable.[124] The conditions and recommendation columns correspond to the completed structural surveys.[125]

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[124] For the purpose of displaying this information concisely within this section, the images are scaled down. For full scale images, please refer to Appendix 7 and 8.

[125] Refer to Chapter 3 Research Strategies for the template for the structural survey and the scoring apparatus utilized.

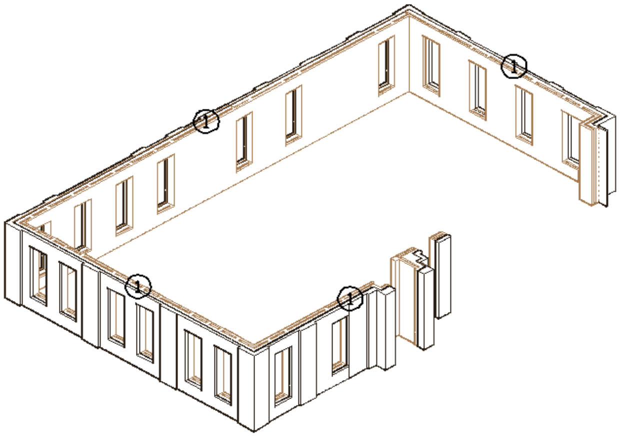
Table 7: Wall Inventory for 1878 Library

Second Floor

Exterior Walls

	Dimensions	Materials	Condition	Recom.
1	2'-0"w* x 15'-0" h	Granite, Brick	NA	NA

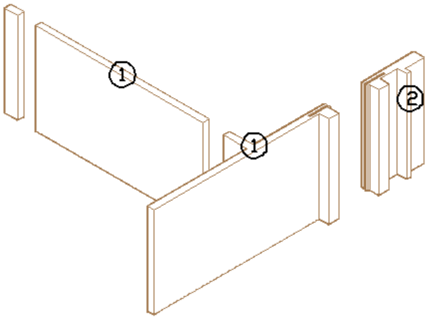
**2'-0"=0'-4" brick+0'-4" airspace+0'-8"+0'-8" granite*



Interior Walls°

	Dimensions	Materials	Condition	Recom.
1	1'-0"w x 16'-5"h	Brick	NA	NA
2	0'-8"w x 16-'5"h	Terra Cotta	NA	NA

°All openings in walls to have arches turned the full thickness of brickwork

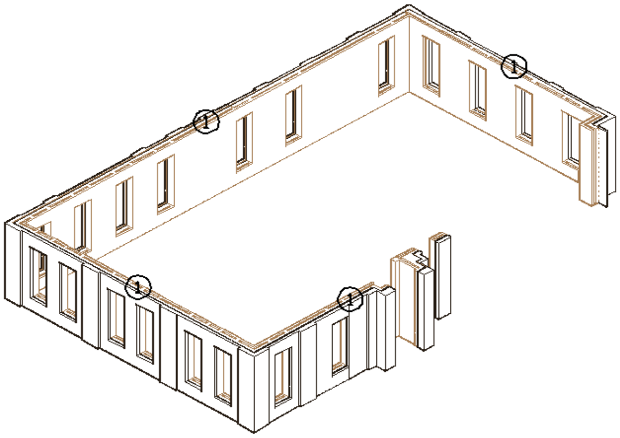


First Floor

Exterior Walls

	Dimensions	Materials	Condition	Recom.
1	2'-0"w* x 15'-0" h	Granite, Brick	NA	NA

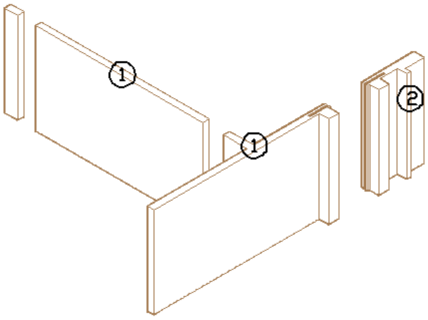
**2'-0"=0'-4" brick+0'-4" airspace+0'-8"+0'-8" granite*



Interior Walls°

	Dimensions	Materials	Condition	Recom.
1	1'-0"w x 15'-0"h	Brick	NA	NA
2	0'-8"w x 15-'0"h	Terra Cotta	NA	NA

°All openings in walls to have arches turned the full thickness of brickwork

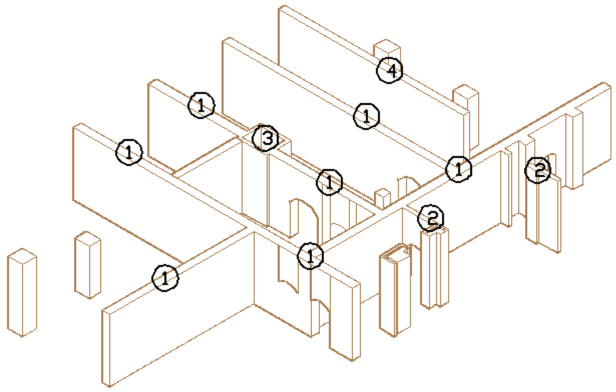


Basement

Interior Walls°

	Dimensions	Materials	Condition	Recom.
1	1'-4"w x 11'-0"h	Brick	NA	NA
2	0'-8"w x 11'-0"h	Terra Cotta	NA	NA
3	0'-6"w x 11'-0"h	Brick	NA	NA
4	0'-8"w x 11'-0"h	CMU	NA	NA

°All openings in walls to have arches turned the full thickness of brickwork

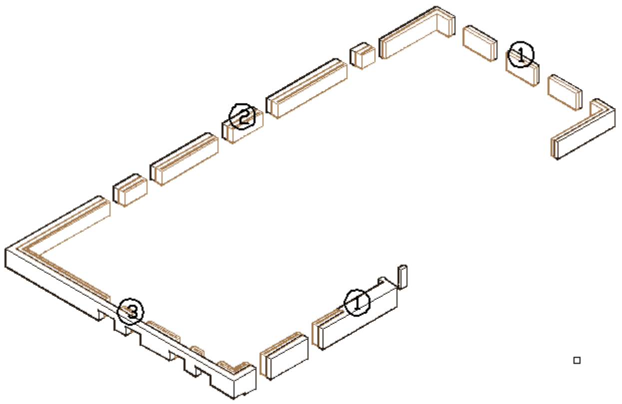


Exterior Walls

	Dimensions	Materials	Condition	Recom.
1	2'-6"w* x 4'-0"h	Granite, Brick**	NA	NA
2	2'-6"w* x 0'-6"h	Granite, Brick**	NA	NA
3	2'-6"w* x 1'-6"h	Granite, Brick**	NA	NA

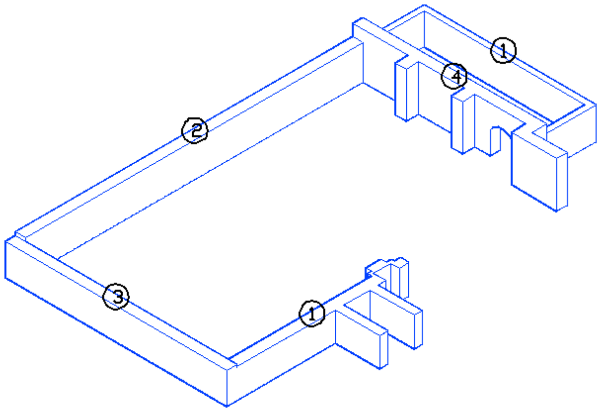
**2'-6" = 0'-4" brick + 0'-4" airspace + 0'-8" + 1'-2" granite*

***Outer and inner parts of brick tied every 1'-8" each direction by 1/16" x 1 1/2" ties; ashlar tied to brick by 1/8" x 1" irons every 3'-0" vertically and 5'-0" horizontally.*



Foundation Walls

	Dimensions	Materials	Condition	Recom.
1	2'-6"w x 7-0"h	Granite	NA	NA
2	2'-6"w x 10'-6"h	Granite	NA	NA
3	2'-6"w x 8'-6"h	Granite	NA	NA
4	2'-6"w x 11'-0"h	Granite	NA	NA



Footings

	Dimensions	Materials	Condition	Recom.
1	4'-0"w x 1'-0"h	Granite	NA	NA
2	3'-0"w x 0"-10"h	Granite	NA	NA

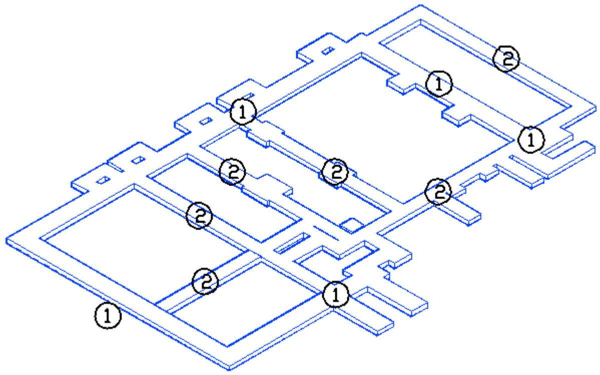
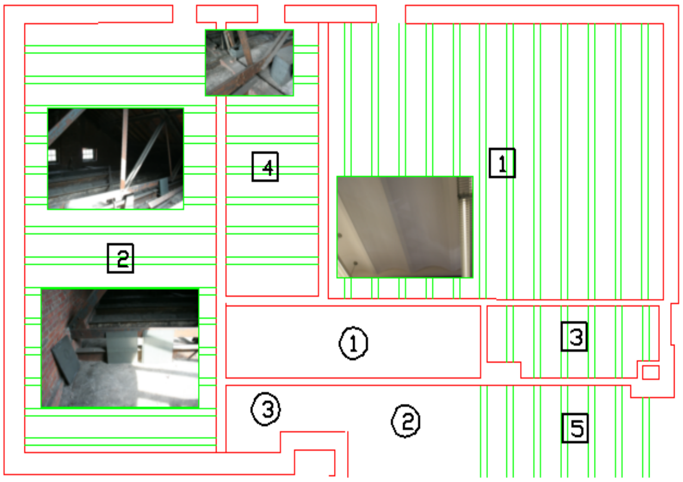


Table 8: Floor and Beam Inventory for 1878 Library

Attic Floor

Beams

	Dimensions	Materials	Condition	Recom.
1	15"d x 50lbs x 32'-0"l	Iron	4	None
2	15"d x 50lbs x 25'-0"l	Iron	4	None
3	8"d x 13.5lbs x 8'-6"l	Iron	5	None
4	12”d x 42lbs x 12’-0”l	Iron	5	None
5	12”d x 42lbs x 15’-0”l	Iron	5	None



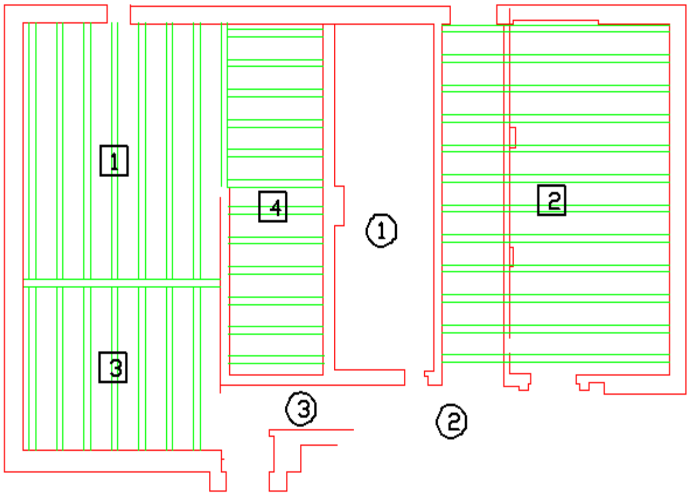
Floors

	Dimensions	Materials	Condition	Recom.
1	0'-4"t x 4'-3"r x 12’-0”l	Brick, Concrete	5	None
2	0'-8"t x 7'-6"r x 13'-0"h	Brick, Concrete	5	None
3	0'-4"t x 4'-4"r x 13'-8"h	Brick, Concrete	5	None

Second Floor

Beams

	Dimensions	Materials	Condition	Recom.
1	15"d x 50lbs x 30'-9"l	Iron	NA	NA
2	15"d x 50lbs x 30'-0"l	Iron	NA	NA
3	12"d x 42lbs x 17'-5"l	Iron	NA	NA
4	12"d x 42lbs x 12'-0"l	Iron	NA	NA



Floors

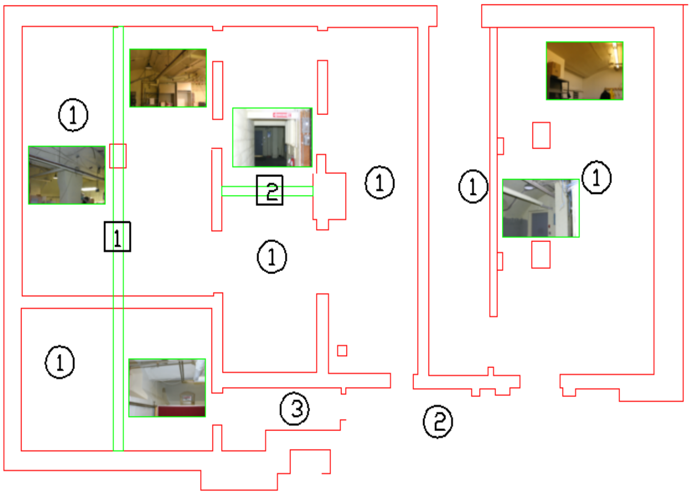
	Dimensions	Materials	Condition	Recom.
1	0'-4"t x 6'-6"r x 13'-0"h	Brick, Concrete	NA	NA
2	0'-8"t x 7'-6"r x 13'-0"h	Brick, Concrete	NA	NA
3	0'-4"t x 4'-4"r x 13'-8"h	Brick, Concrete	NA	NA

First Floor

Beams

	Dimensions	Materials	Condition	Recom.
1	15"d x 50 lbs$^{\sharp}$ x 52'-0"l	Wought Iron	4	None
2	W8x31	Steel	5	None

Each beam to rest on a 0'-4" blue stone glaff, 1'-3" square.



Floors

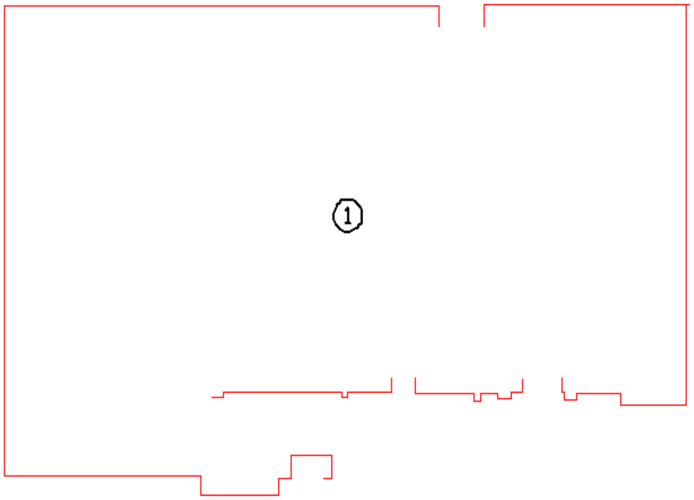
	Dimensions	Materials	Condition	Recom.
1	0'-4"t x 11'-10"r x 6'-1"h w/ribs 0'-8"t @8'-0" o.c.♪	Brick, Concrete	5	None
2	0'-8"t x 7'-6"r x 8'-0"h	Brick, Concrete	5	None
3	0'-4"t x 4'-4"r x 9'-8"h	Brick, Concrete	5	None

♪Iron tie rods inserted at every rib, attached to 5'-0" long imbedded 3x3 angles

Basement

Floors

	Dimensions	Materials	Condition	Recom.
1	0'-2"h	Concrete	4	None



4.3.1.2 Courthouse 1898

The following tables display the inventory compiled for the 1898 portion of the building. Because we were not able to obtain the structural drawings for this portion of the building, the majority of the information contained in these tables was taken from the specifications and (DRA, 1991). We attempted to incorporate as much information as possible for specific locations, however, generally the table indicates the types of materials utilizes for each component—(e.g. we know the basement exterior walls are composed of marble, gray roman brick, and granite, however, we are uncertain of their exact dimensions.)

Table 9: 1898 Structural Component Inventory

Basement

Footings

	Dimensions	Materials	Condition	Recommendation
1		Granite	NA	NA

Foundation Walls

	Dimensions	Materials	Condition	Recommendation
1		Granite	NA	NA

Exterior Walls

	Dimensions	Materials	Condition	Recommendation
1		Echaillon Marble	NA	NA
2		Gray Roman brick	NA	NA
3		Granite, Brick**	NA	NA
4		Mortar	NA	NA

Interior Walls°

	Dimensions	Materials	Condition	Recommendation
1		Terra Cotta	NA	NA
2		Brick	NA	NA
3	4”	Hollow Porous Tile	NA	NA

Floors

	Dimensions	Materials	Condition	Recommendation
1	0'-4"h	Concrete	NA	NA

First Floor

Exterior Walls

	Dimensions	Materials	Condition	Recommendation
1	8"	Granite, Brick	NA	NA
2	*4″*	Clay Tile	NA	NA

Interior Walls°

	Dimensions	Materials	Condition	Recommendation
1		Brick	NA	NA
2		Clay Tile	NA	NA
3		Steel Columns	NA	NA
4	4”	Hollow Porous Tile	NA	NA

Beams

	Dimensions	Materials	Condition	Recommendation
1		Steel	NA	NA
2		Hanging T Irons	NA	NA
3	¾”	Wrought Iron Rods	NA	NA

Floors

	Dimensions	Materials	Condition	Recommendation
1		Reinforced clay	NA	NA
2		Steel girders	NA	NA
3		Load bearing masonry walls	NA	NA
4		Marble Composite Tile	NA	NA
5	12x12x1”	Iron plates (Girders rest on)	NA	NA

Second Floor

Exterior Walls

	Dimensions	Materials	Condition	Recommendation
1	8"	Granite, Brick	NA	NA
2	*4″*	Clay Tile	NA	NA

***Interior Walls*°**

	Dimensions	Materials	Condition	Recommendation
1		Brick	NA	NA
2		Clay Tile	NA	NA
3		Steel Columns	NA	NA
4	4”	Hollow Porous Tile	NA	NA

Beams

	Dimensions	Materials	Condition	Recommendation
1		Steel	NA	NA
2		Hanging T Irons	NA	NA
3	¾”	Wrought Iron Rods	NA	NA

Floors

	Dimensions	Materials	Condition	Recommendation
1		Reinforced clay	NA	NA
2		Steel girders	NA	NA
3		Load bearing masonay walls	NA	NA
4		Marble Composite Tile	NA	NA
5	12x12x1”	Iron plates (Girders rest on)	NA	NA

Roof

	Dimensions	Materials	Condition	Recommendation
1		Brick, Concrete	NA	NA
2		Steel beams	NA	NA
3		Trusses	NA	NA
4		Box Beams	NA	NA
5		Purlins (to fasten wood decking)	NA	NA
6		16-ounce copper with standing seams laid	NA	NA
7		Spruce Plauk	NA	NA

Third Floor

Exterior Walls

	Dimensions	Materials	Condition	Recommendation
1	8"	Granite, Brick	NA	NA
2	*4"*	Clay Tile	NA	NA

Interior Walls°

	Dimensions	Materials	Condition	Recommendation
1		Brick	NA	NA
2		Clay Tile	NA	NA
3		Steel Columns	NA	NA
4	4”	Hollow Porous Tile	NA	NA

Beams

	Dimensions	Materials	Condition	Recommendation
1		Steel	NA	NA
2		Hanging T Irons	NA	NA
3	¾”	Wrought Iron Rods	NA	NA

Floors

	Dimensions	Materials	Condition	Recommendation
1		Reinforced clay	NA	NA
2		Steel girders	NA	NA
3		Load bearing masonay walls	NA	NA
4	12x12x1”	Iron plates (Girders rest on)	NA	NA

Roof

	Dimensions	Materials	Condition	Recommendation
1		Brick, Concrete	NA	NA
2		Steel beams	NA	NA
3		Trusses	NA	NA
4		Box Beams	NA	NA
5		Purlins (to fasten wood decking)	NA	NA
6		16-ounce copper with standing seams laid	NA	NA
7		Spruce Plauk	NA	NA

4.3.2 Materials

In addition to the information collected on the structural layout of the courthouse, we also decided to assemble as much information as possible concerning the properties of the materials utilized through the building. This information was gathered from an assortment of sources, but particularly useful were Donald Friedman's *Historical Building Construction,* William Birkmire's *Skeleton Construction in Buildings,* and Stephen Timoshenko's *History of the Strength of Materials.* The material inventory was utilized extensively in the Phase II Detailed Assessment when analyzing the structural capacity. The following table displays our findings:

Table 10: Materials Database

Material Name	Material Type	Density	F'c (ksi)	Fy (ksi)	Fu	E	Ft (ksi)
Granite	M	170	19	NA	NA	7.3×10^6	NA
Concrete	M	145	4	NA	NA	$3.6x10^6$	NA
wrought iron	Me	480	NA	30	70	$29.0x10^6$	NA
Steel	Me	490	NA	36	80	$29.0x10^6$	NA
hollow porous tile	M	50	2.5	NA	NA	$1.8x10^6$	NA
dense fire clay brick	M	131	2.4	NA	NA	$1.8x10^6$	NA
Limestone	M	165	30	NA	NA	$3.9x10^6$	NA
Marble	M	165	7.5	NA	NA	$4.0x10^6$	NA
Oak	T	47	1.9	NA	NA	$2.0x10^6$	1.9
Pine	T	27	1.2	NA	NA	$1.6x10^6$	1.8

**Note: "Material Type" refers to the structural function of the material.e.g, M=masonry, Me=Metal, and F=finish*

4.3.3 Column, Girder, and Beam Schemes

Equipped with a general idea of the structural components of the courthouse, the next step was to determine the corresponding column, girder and beams schemes for the 1898 addition, using the information collected and our understanding of the mechanics of structural behavior. We decided that the easiest way to accomplish this was to sit down as a group and share our ideas and rationale. We came prepared with copies of our AutoCAD drawings of each floor plan as well as full size plans to mark on.

4.3.3.1 Column Database

The first step was to use the architectural plans and drawings to identify the existence of columns. For some columns this was easy to do because they were clearly depicted on the plans. For others though, we had to assume their existence either because we knew that they physically existed (we referred to the pictures we had taken of the courthouse) or because a column on one floor required a column on the underlying floor to carry the load to the foundation. We marked the column locations on the full size plans and highlighted those of which we were unsure.

We then created an alpha-numeric coordinate system to identify the column locations. We placed letters A-K on the vertical axis and numbers 1-10 on the horizontal axis. We also used decimals to estimate the locations of columns that did not fall exactly on the main gridlines. When identifying a column the number (x-axis) is stated first and then the letter (y-axis). For example, column 1A is on x-axis 1 and y-axis A. If a column does not lie exactly on the A coordinate, but rather slightly over it, it is identified with a decimal notation such as 1A.2.

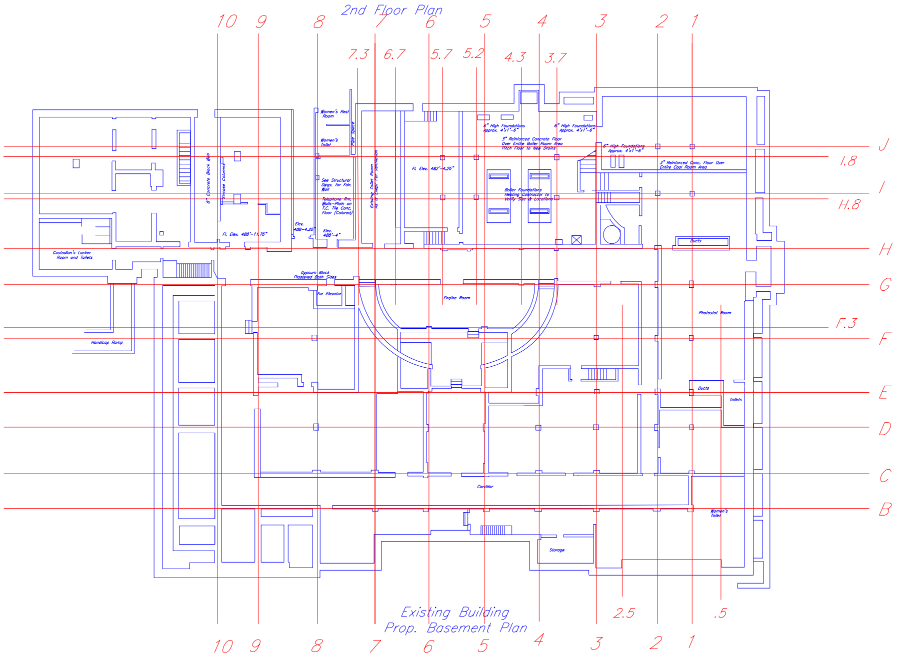


Figure 15: Alpha-Numeric Column Grid

One problem that we encountered when denoting column location was what constituted a bearing wall. Was a wall that had columns imbedded in it a bearing wall? Or was the whole wall load bearing? One example of where this occurred was the first floor main entrance hall. Ultimately, we decided to assume that the two corridor walls extending the length of the building were to be modeled as bearing walls, in addition to the south wall of the northwestern most courtroom, and the semi-circular bearing wall framing the staircase of the center of the courthouse. This scheme was utilized because of our certainty of these walls as bearing walls; the rest of the locations which were ambiguous were assumed to be columns because of symmetry when modeling the structure in Phase II.

Once we had determined the locations of the columns, we formed a database containing information for each column. Although we had the column schedule from the 1898 specifications, it was not particularly useful to us because we did not have the original plans that depicted the column locations. Therefore, we had no way of knowing to which column the specifications were referring. This served as another reason to create a column schedule or database based on the information we had.

The first step in doing this was to observe how the column schedule in the 1898 specifications was organized. We decided to retain this format because of its convenient organization. We added additional categories for information that we wanted to include, but may not have been in the original schedule. The result was a database that identified the column (based on our new alpha-numeric coordinate system), stated on which floors it was present, its size and weight depending on floor, and its tributary area.

We were able to infer the size and weight of each column based on its known floor location and the floor location stated by the specifications. Despite our best attempts, there were still a number of columns for which we did not have enough information to determine their size and weight. However, we did determine an approximate range of values into which they may have fallen. This helped us when we analyzed the data in Phase II.

We included the tributary area of each column in the database so that we could identify the most extreme situations, where the influence area was greatest or smallest. While calculating the tributary area for most of the columns was relatively straightforward, there were some columns where the tributary area was not obvious. For example, since the presence of columns varies from floor to floor, the tributary areas for a particular column was not always the same. We resolved this issue by calculating the tributary area in both situations, *without* the presence of an influencing column and *with* the presence of an influencing column. These situations are identified in the database by labeling the column like shown here: Column 1B and column 1B without .5B. In column 1B *without* the .5B column next to it, the tributary area will be greater than if the .5B column were present.

4.3.3.2 Beam and Girder Scheme

Once the column locations were identified on the full-scale plan we started drawing in the girders. We knew that the girders span columns, bearing walls, or a combination of the two. For the most part, this was relatively straight forward. One location where we became unsure of the girder placement was in the lobby, which consists of a curved bearing wall. We resolved the issue by drawing four girders from the bearing wall to two columns, forming three equilateral triangles. By arranging the girders as such, the layout is repetitive and the girders are all approximately equal in length, which would have facilitated construction. (see Figures 16 and 17).

With the girders in place, the next step was to draw the beams from girder to girder. Beams generally span the shortest distance between girders. With this in mind, we delineated the beams and all but one section consistently ran the same direction. For the section that spanned in the opposite direction, we decided to adjust them so that they were consistent with the others. We made this decision based on our assumption that the beams would be designed to run in the same direction for the sake of uniformity.

In general, we attempted to regenerate a beam and girder scheme that would be the most efficient, in terms of beam and girder replication, because a large number of identical beams would be significantly more economical in construction. However, we also had to consider the mechanics of the actual structure. A particular example of how this is manifested is exhibited in comparison of the first and second floor plans and the attic plans (see Figures 16 and 17). In the first and second floor plans, we attempted to arrange the beams so that all the beams on the perimeter of the building would frame directly into the exterior bearing wall, and those in the interior would all be spanning the same direction (with the exception of the front hallway). However, the attic plan is laid out much differently, particularly along the north and south pavilions. This is because the roof utilized a truss framing system, so the beams must be arranged so that they act as the bottom chord of the truss. This arrangement is also more logical because there are several columns that do not span the full height of the building so the girders and beams must span longer distances.

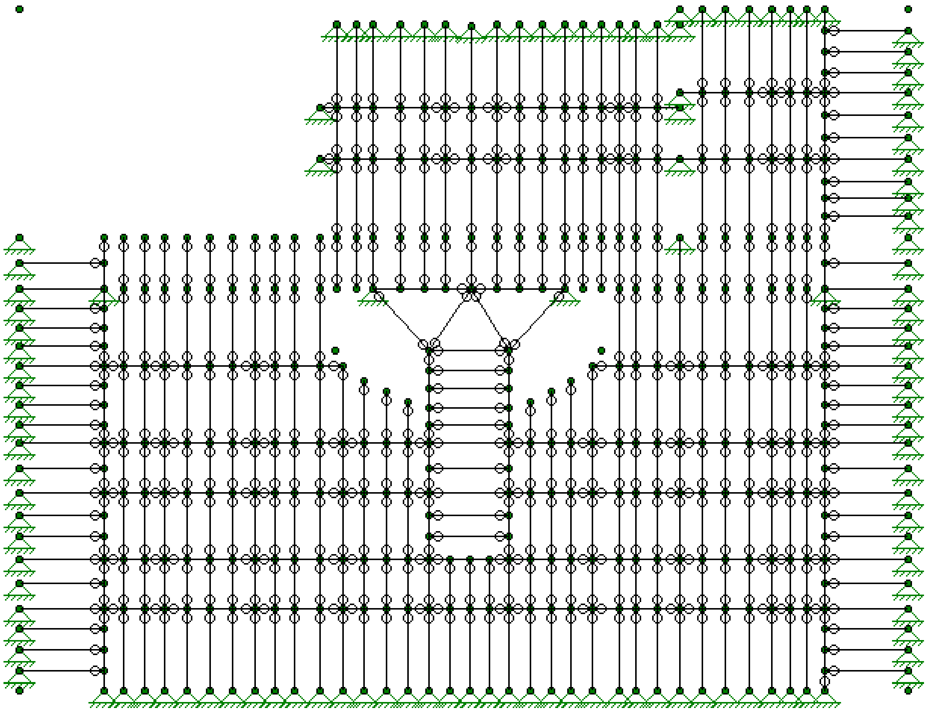


Figure 16: Structural Floor Plan for First and Second Floors

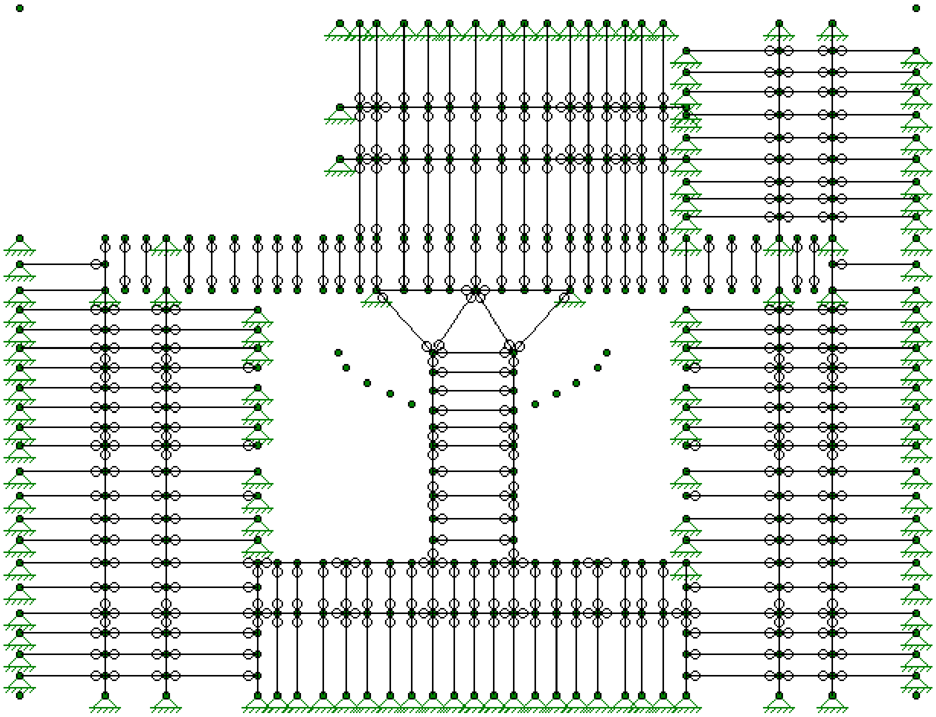


Figure 17: Structural Floor Plan for Third Floor

4.4 Observations and their Significance

In summary, the Phase I Preliminary Assessment consisted of gathering and organization as much information as possible about the structure. By researching the history of the courthouse itself, as well as historical construction techniques employed during the time it was built, and comparing these to the more technical information regarding the actual details of the construction, we were able to assemble a working knowledge of how the structure functions, and from this we drew some conclusions as to the condition of the structure and the limitations of this information.

4.4.1 Existing Structural Conditions

In general, from our physical survey we did not observe any overt instances where the structure appeared to be compromised.

4.4.2 Limitations and Qualifications

Though a great deal of time was invested in understanding how the structure functions, it would be a painstaking task to verify all of the actual components and dimensions, given our limited information. Generally, if time and cost allow, more in depth investigations of the structure are performed by licensed engineers, utilizing state of the art testing and monitoring equipment. Because the scope of this project did not allow for such testing, we believed it would be prudent to instead assemble a working structural model of the building to give us a general sense of how it functions as a whole. This model combines all of the information gathered in the Phase I Assessment and provides us with a greater understanding of not just how the building looks, but how it functions given the loads acting upon it.

5 Phase II-Detailed Assessment

The second phase of our project consisted of a more thorough assessment of the structure. The intent of this detailed assessment was to evaluate all of the data collected about the layout of the structure and to make some conclusions as to the actual structural stability and capacity of the courthouse. In order to do this, we chose to generate a three dimensional structural model to assess the main section of the courthouse (1898 addition), and once this was completed we hand checked some of the obtained values to determine the effectiveness of our model. From here, we were able to draw some conclusions as to the condition of the building structurally, and this facilitated the reuse design that is discussed in Chapter 6.

5.1 Preparations for Modeling

In order to model the courthouse, we had to determine an appropriate three dimensional structural modeling and analysis program. We chose to utilize the program RISA-3D, predominately because of its user-friendly interface, its extensive capabilities and our prior knowledge and use of the program. In order to generate our model, our first task was to translate the gathered information into a format compatible with RISA. RISA-3D is set up essentially as a database; it consists of a number of tables that can be linked and cross referenced to each other, so that a completed structural model consists of joints, members, and plates which are all then assigned material, geometric and/or boundary condition properties. As such, we chose to generate Excel spreadsheets that could be easily edited and imported into RISA. This provided an intermediary step between our raw data and the information entered into RISA. The following paragraphs describe how we went about translating the data.

5.1.1 Coordinates

RISA-3D requires x, y, and z coordinates for each node or joint. Once the nodes have been entered, an individual column, beam, or girder can then be defined from joint to joint where appropriate. To facilitate this, we compiled a series of spreadsheets containing the location of joints for each structural component. These spreadsheets (which can be found in Appendix 9) are discussed in the order in which they were formed: columns, girders, beams, and bearing walls.

The work we had previously done regarding columns entailed identifying their location using the alpha-numeric system we had devised. We had to take this one step further and determine the actual x, y, and z coordinates to show their distance from a set point. We defined the southeastern corner of the building at basement level as the origin with coordinates (0,0,0). From that point, we used the continuous dimension tool in AutoCAD to measure the distance to coordinates in the horizontal x and y direction (Figure 18). For the z direction, we looked at a section view of the courthouse plans to determine the distance of each floor from the origin. We already had an idea of what floors each of the columns spanned; now we were able to depict that in terms of column heights.

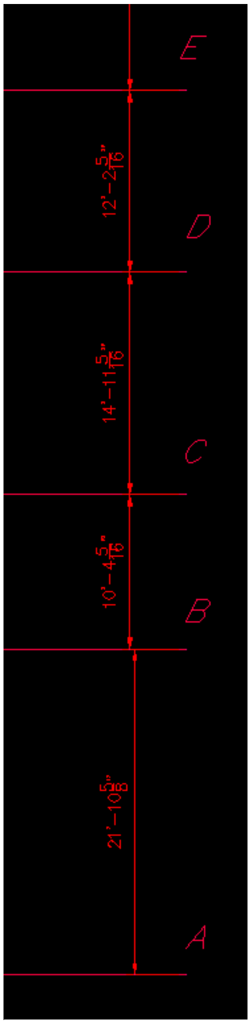


Figure 18: AutoCAD Dimensioning of Column Spacing (A-E)

Once all of the columns joints were organized in the form of spreadsheets, the next step was to translate the data for girder joints into a similar spreadsheet. However, since girders span between columns, bearing walls, or a combination of the two, it was not necessary to form a separate spreadsheet with the same joints as those defined in the column spreadsheet. No additional information was input into Risa-3D, but additional lines were drawn to delineate girders.

The beam spreadsheet was completed in a similar fashion as the column spreadsheet. Given our knowledge of the beams as approximately spaced 5 feet on center, and with reference to the floor beam scheme identified in Chapter 4, we were able to again use AutoCAD's continuous dimension tool to measure the span between columns perpendicular to the direction in which the beams span, and divide this by five to obtain the number of beams in each bay. Then, we would divide that same span by the number of beams in the bay to obtain the approximate distance between beams, and therefore, their coordinate. Like the columns, the beams and their joints were entered in a spreadsheet for future use in RISA-3D.

Bearing walls coordinates were also denoted in a spreadsheet format. Although there was some ambiguity as to whether certain walls were true bearing walls or whether they had columns imbedded in them, we decided to treat the walls on either side of the main corridor (running north-south), the south wall of the two story courtroom, and the semi-circular wall around the staircase as bearing walls and columns were assumed for the rest of the locations because of our uncertainly. The reason for this was purely practical; we were able to simulate a more symmetric and simplified structure.

After the spreadsheets containing the joints for columns, girders, beams and bearing walls were created, the next step was to import this data into RISA. Before we could transfer the information, there needed to be a few modifications to the spreadsheets. First, every coordinate had to have its own unique name. This became a challenge when there were points with the same x and y coordinate but different z values. We solved this problem by adding a numerical value for the corresponding floor. For example, if the point 3C existed on all four levels of the structure, then for the basement coordinate it would be 3C, first floor it would be 3C1 and so on for the succeeding floors.

5.2 Modeling the Structure

Once we had determined the coordinates of the members in the structure, we began to model it using RISA-3D. As mentioned previously, RISA is structured essentially in a database format, in which data is imported into spreadsheets and cross referenced to additional tables. The following section explains the physical process of modeling the structure.

5.2.1 Drawing the Frame

We began our modeling by first importing the joint coordinates we had previously tabulated into a Joints spreadsheet. Once this was completed, we generated a Members table, in which we connected the joints. These members were then assigned properties; because, however, RISA only offers the AISC standard sizes for members, we chose to utilize W12x45 beams to simulate the 12x42 I-beams for the floor beams and W24x146 for the girders. We chose this size for the girders because our knowledge of their dimensions is limited; we know that typically, girders in this type of flooring system consisted of either two 12” I-beams fixed together, or a 24” I-beam. Because the loads on the flooring system are primarily gravity, we could assume that a W24 beam would be sufficient because it shares similar moments of inertia and section moduli as two 12” I beams. We chose the 146 weight because it is a mid-weight W24 beam.[126]

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[126] Estimating like this can be risky if the values obtained in the analysis are close to capacity. However, when we evaluated the W24x146, we determined that it was well within its limit, and thus verified that this size was sufficient

Once the horizontal flooring systems were completed, the next task was to generate the vertical systems. We began with the columns, which as mentioned in Chapter 4, are what are termed Z-bar columns. Unfortunately, these columns do not bear similar geometric properties to contemporary wide flange beams. However, we decided to utilize a standard W8x31 to represent the 8” Z-bar column, because we were predominately interested in the axial loads in the column. The actual stresses in the Z-bar columns and their capacity were calculated by hand and will be discussed in a later section.

The bearing walls were generated next. One of the properties of RISA is the ability to generate plates. Though brick masonry was not a presented option for the material of these plates, we instead chose to simulate the 1-‘0” bearing walls with a concrete wall of the same thickness. Because we were predominately interested in the reactions of the steel, the use of concrete as an approximation of brick is sufficient because they both have similar compressive properties and minimal deflections.[127]

5.2.2 Boundary Conditions

Though we chose to utilize several interior bearing walls, we could easily have simulated the endpoints of the beams as pinned. In fact, we chose to simulate the exterior masonry wall as a set of pinned joints; in other words, the endpoints of the girders and beams imbedded in the exterior connections with the wall were simulated with a pin connection. We chose to do this because in bearing wall construction of this era, lateral loads were generally resisted predominately by the exterior masonry walls. This was not specified by design, however, it was built into the height-to-thickness ratios specified by the building codes, and resultantly, the interior steel skeleton was subject to minimal lateral loads.[128]

Although there was little information available to us concerning the connections in the structure, we decided to simulate

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upon analysis. If the loads on the girders were to approach or exceed capacity, a closer investigation and possible invasive testing would be necessary to determine the true size of the girder for more accurate results.

[127] The stresses in the walls were not excessive enough to be of any cause for concern. However, a more thorough analysis of the brick and mortar walls would be suggested if stresses were large and the integrity of the wall appeared to be in danger or compromised.

[128] This type of construction is referred to as “cage” construction and was common in the 1890’s. Friedman, Donald. *Historical Building Construction.* W.W.Norton & Company. New York. 1995.

the joints as pin connections. This was done because although there are no braces in the interior steel frame against wind loads, the exterior bearing wall is a 2'-6" thick granite wall, which essentially absorbs all of the lateral load in the structure. This rigid wall thus allows for the use of less costly pinned connection in the interior of the structure. As such, we assigned each beam and column free end conditions (i.e. no end fixity) so that the joints would be allowed to rotate independent to one another. The column and bearing wall bases were assigned pinned connections as well.[129]

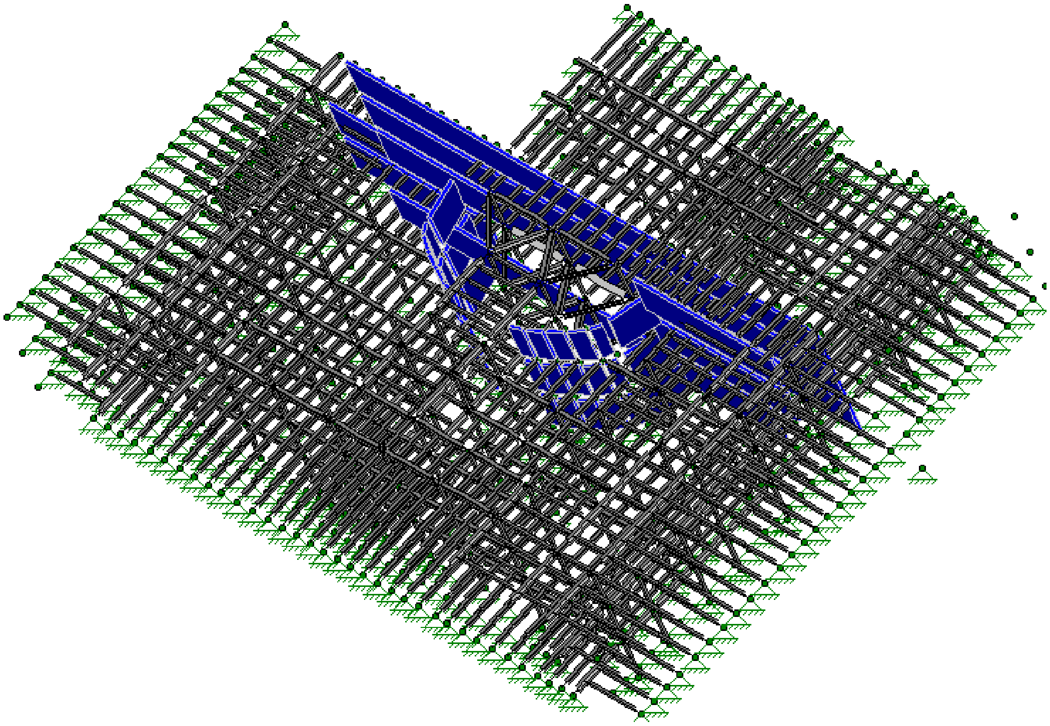

Figure 19: Completed Rendered RISA Model

5.3 Analyzing the Structure

Once the physical model of the structure was completed, we were able to perform an analysis and assess the structural capacity of the courthouse. This was done by applying the necessary loads to the structure, and verifying the results by hand calculations, (namely the loads, moments and deflections in a typical floor bay, two critical column stacks, and interior and exterior bearing walls). Once this was

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[129] Once the analysis was run, it was determined that the pinned connections were sufficient—in other words the stresses caused by the applied loads gave us no reason to think that the connections were in fact fixed, as opposed to our assumption of pinned. If large deflections and/or stresses or forces were computed with pinned connections, we would have re-evaluated the end conditions and re-analyzed the model.

completed, we were able to draw some meaningful conclusions and determine the limitations of the structure.

5.3.1 Computing the Loads

The first step in analyzing the model was to determine the loads and basic loading cases that are applicable to the building. To do this, we utilized information obtained in the materials table (see Chapter 3) to provide us with the weights of the structural elements. Additionally we utilized the tables and provisions in the *Massachusetts State Building Code* (MSBC) for minimum weights for partitions, mechanical equipment, and finishes. Once the dead loads were obtained we again referred to the MSBC for the allowable live loads. Because the original intention of the building was as a public assembly area with a floor live load of 100 psf, and we did not intend to increase the live load on the floor, we decided to try applying this load to the first and second floors. Because the third floor serves as unfinished attic and roof space, we decided that a roof live load would be sufficient for the purposes of our analysis. This was concluded to be 30 psf, including mechanical equipment for the attic, and rain and snow loads for the roof. The dead and live loads are summarized in the table below:

Table 11: Dead and Live Loads for 1898 Structure

Dead Loads		
Floor Fill Weight	40	psf
Concrete Fill	35	
Partitions	20	
HVAC	10	
Finishes	30	
Total	135	psf
Live Loads		
Floor Live Load	100	psf
Roof Live Load	30	psf

Load Combinations

1.2(DL)+1.6(LL)

1.2(135)+1.6(30)=210+1.2(Beam Self Wt.)

1.2(135)+1.6(100)=322+1.2(Beam Self Wt.)

The load combinations indicated above are also taken from the MSBC. Because we were analyzing the steel frame as a gravity structure, we were able to discard the load combinations that incorporate wind loads; similarly, because this is a historic structure, we were not required to analyze earthquake loads. Therefore, the critical loading case for this structure is the standard 1.2*(Dead Load) + 1.6*(Live Load) equation. Once these loads and equations were determined, they were recorded in the RISA model as area loads that act upon the entire floor area.[130]

5.3.2 Running the Analysis

Once all of the loads were obtained, we were able to perform an analysis in RISA for the critical load case. We were presented with a summary of results, inclusive of member deflections; joint displacements; joint reactions; and axial, moment, stress and shear values for members. We were also able to view a deflection animation in which RISA simulates applying and removing loads to the structure so it oscillates. This diagram is particularly helpful in visually and quickly displaying any areas of extreme deflection, which we otherwise would have had to identify by reviewing each member in the results spreadsheet (of which there are thousands).

Upon obtaining all of these results, it was important to consider not only their implications, but also their validity. We checked to see if there were any obvious immediate concerns, such as instabilities (manifested in RISA as locked joints), excessive stresses (particularly in localized areas), or, conversely, instances that resulted in no reactions at all where there should have been. One particular problem spot that we encountered occurred on the south wall of the two story court room, which we had originally simulated as a plate. However, the model recognized this as unstable, and so we solved this problem by pinning the ends of the members that the wall would have supported in bearing. When these obvious errors were worked out, we began to examine the results in more depth to try and find critical areas of concern.

5.3.3 Hand Computations

In order to evaluate the effectiveness of the RISA model, and to determine if the loads in the critical areas were accurate, we performed a number of hand calculations to verify the results. For the steel calculations, we decided to utilize the LRFD method because of

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[130] Note that we did not incorporate the self weight of the beams in the dead load calculations. This was done to prevent redundancy, as RISA can assess factored gravity loads.

our familiarity with it, and its widespread use in the field. For the masonry calculations, we opted to use the Masonry Standards Joint Committee (MSJC) code.

5.3.3.1 Typical Floor Bay

The first step of this process was to analyze a typical floor bay. We selected the bay from our RISA model with the greatest gross area—this corresponds to the first floor bay in the (southwest) corner of the building and the model (Figure 19). The bay is comprised of five 12x42 steel I beams, spanning 18’-10”, between two W24x146 beams, each 21’-3” long (Figure 20).

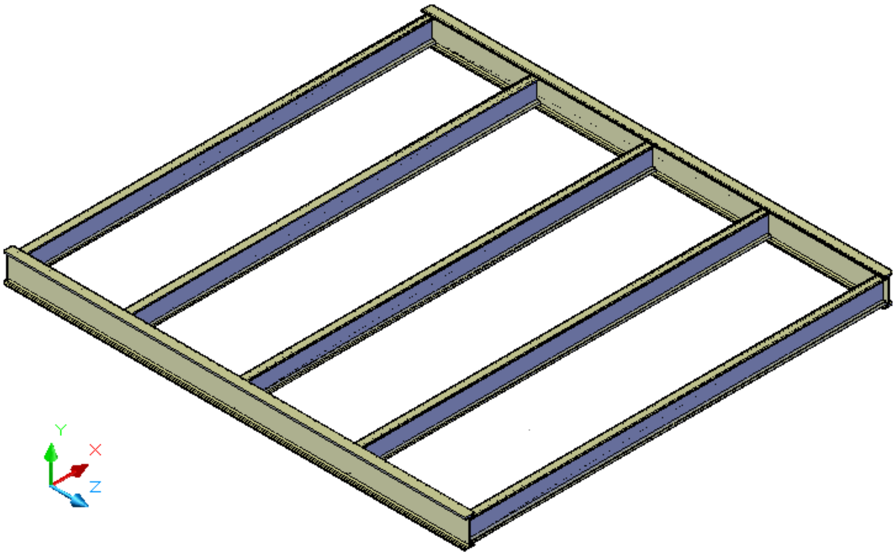

Figure 20: Typical Floor Bay

We first evaluated the capacity of a typical beam. Because the spacing between beams can be calculated as the length of the girder divided by the number of beams in the bay minus one, we determined the beam spacing (and therefore, the tributary width) to be approximately 5’-3”. Once we had this, we were able to calculate the uniform distributed load ω to be

$$\omega = beam\,weight + (1.2DL + 1.6LL) * Tributary\,Width$$
$$\omega = 42plf + (322psf) * 5.25ft = 1.740klf$$

The corresponding shear and moment values were calculated:

$$V = \frac{\omega_u L}{2} = \frac{1.740klf * 18.9ft}{2} = 16.45kips$$

$$M = \frac{\omega_u L^2}{8} = \frac{1.740klf * 18.9ft^2}{8} = 77.73ft - kips$$

Assuming the beam is a fully braced (L_b=0) 12”x42lb I beam with properties

Table 12: Properties of I12x42 Beam

D=12	b_f=4	I_x=247.8	Z_y=4.69
A=12.6	t_f=0.5	I_y=7.6	S_x=41.3
t_w=0.5	T=9.88	Z_x=38.13	S_y=3.8

We first checked for compactness, referring to Table B5.1 of the LRFD Specification, using the formula

$$\left(b/_{t_f} = 4in/_{0.5in} = 8 \right) \le \left(0.38\sqrt{E/_{F_y}} = 10.79 \right)$$

(LRFD Table B5.1)

Then we could assume the beam is compact and fails plastically, and therefore

$$\phi M_n = \phi F_y Z_x = \frac{(0.9)*(38.13in^3)*(36ksi)}{12\,in/_{ft}} = 102.95ft - kips$$

(LRFD Equation F1-1)

Since (M_u=77.73)<(ΦM_n=102.95) the beam size is sufficient.

The next step was to determine the maximum deflection of L/240 allowed by the MSBC for beams. We calculated deflection as follows:

$$\Delta_{\max} = \frac{5\omega_u L^4}{384EI} = \frac{5*\left(1.740klf/_{12\,in/_{ft}} \right)*\left(18.9*12in/_{ft} \right)^4}{384*29000ksi*247.8in^3} = .695in$$

$$\Delta_{allow} = \frac{L}{240} = \frac{18.9in*12\,in/_{ft}}{240} = .945in$$

Because our calculated value of .695 inches is less than the allowable deflection of L/240, then the beam satisfies the deflection limits set forth in the MSBC.

Once these values were ascertained, we compared them to the computed values in the RISA model. The following chart summarizes the findings of both methods:

Table 13: Calculated Value Differential between Hand Calcs and RISA for Beams

	RISA	Hand Calcs	Difference
Shear	17.25 kips	16.40 kips	.85 kips
Moment	81.67 ft-kips	77.73 ft-kips	3.94 ft-kips
Deflection	.714 inches	.695 inches	.019 inches

It is evident from this chart that the values obtained by manual computation correspond rather closely to the computed RISA values. The RISA values are slightly higher; however this discrepancy can be attributed to the approximation of the historical 12”x42lb I beam with the contemporary W12x45. This would increase the uniform load, and thereby increase the shear, moment and deflection. The increase in deflection can also be attributed to the fact that the deflection in the RISA model is represented as the overall decrease in the z value of the local coordinate system. In other words, it takes into consideration other aspects contributing to its deflection, such as the deflection of the supporting girder. Therefore, if we consider that the girder is deflecting at the point in which the beam is connected to it, the net deflection of the RISA beam is less.

Once the capacities of the beams were determined, we used a similar process to analyze the capacities of the girders. The results are tabulated below:

Table 14: Comparison of Hand Calcs and RISA Shear and Moment Values for Girders

	Hand Calcs	RISA
Shear	54.79 kips	51.3 kips
Moment	290.41 ft-kips	290.56 ft-kips

Table 15: Summary of Girder Moment and Deflection Values and Capacities

	RISA	Hand Calc	Allowable
Moment	290.56 ft-kips	290.41 ft-kips	1128.6 ft-kips

Deflection	.176 inches	.177 inches	1.06 inches

Based on the calculated values for the girders, it was evident that they were well under capacity. Although historically it is not uncommon to suppose 24" girders for two 12" I-beams, it is clear from these computations that a smaller beam could be utilized. Whether or not this size was in fact used in the courthouse however, requires more in depth investigation, perhaps by destructive or non destructive testing. However, as historic structures have been known to be overbuilt, it is still likely that the convention of using this standard girder size may have been employed for our structure as well as others.

5.3.3.2 Critical Columns

The next step in verifying the model's results was to calculate the loads and capacities of a critical column. This was useful to us in two ways; first, we could see how accurate our RISA model's approximation of axial loads is, and second, we could examine in more depth the capacity of the Z-bar column specifically, which we were not able to obtain from the RISA model. We first searched through our RISA results to find the columns with the largest axial loads and recognized two columns stacks in the southwest corner of the building: (M922, M1145, M859), and (M917, M1140, M854). These column stacks are similar in that they both are stacked the full three stories of the building, and the bottom two columns of both stacks are 8" Z-bars, while the column spanning between the second and third floor are both 6" Z-bars.

The first task in evaluating these columns was to determine the design loads placed on them. We began this by computing the tributary area at each story. This was done by adding half the span to the positive x direction of the column and half the span to the negative z direction, and multiplying this by the summation of half the span in the positive y direction and half the span in the negative y direction.

$$TA = \left(\frac{x_{left}}{2} + \frac{x_{right}}{2} \right) * \left(\frac{y_{above}}{2} + \frac{y_{below}}{2} \right)$$

Because the framing systems for the first and second floors are the same, we assumed that their tributary areas were also the same. The resultant tributary areas for the floors are tabulated below:

Table 16: Tributary Areas for Critical Columns

	M922	M917
TA-1^{st}	250.7 ft^2	311.1 ft^2
TA-2^{nd}	250.7 ft^2	311.1 ft^2
TA-3^{rd}	512.9 ft^2	311.1 ft^2

Once we had obtained the tributary loads, we applied the load combinations and determined the axial forces on each column. This was done by multiplying the tributary area by the factored load

$$P_u = \frac{TA * \left(1.2DL + 1.6LL\right)}{1000 \, {}^{lbs}\!/_{kip}}$$

The following table summarizes the results obtained from these computations, (from top column to bottom column) and compares these results to those from the RISA analysis.

Table 17: Pu Values for Critical Columns

	M922	
	Hand Calc	RISA
Pu-Top	108 kips	104 kips
Pu-Middle	190 kips	189 kips
Pu-Bottom	270 kips	277 kips

	M917	
	Hand Calc	RISA
Pu-Top	65.3 kips	72.9 kips
Pu-Middle	165.5 kips	180.8 kips
Pu-Bottom	265.7 kips	288.5 kips

The values obtained through hand calculations are comparable to those obtained by RISA. Discrepancies in values can be attributed to the fact that in the hand computations, we did not consider the weight of the beams, girders or columns. As such, the RISA values display a bigger differential between column loads from top to bottom because more weight is being considered in that model.

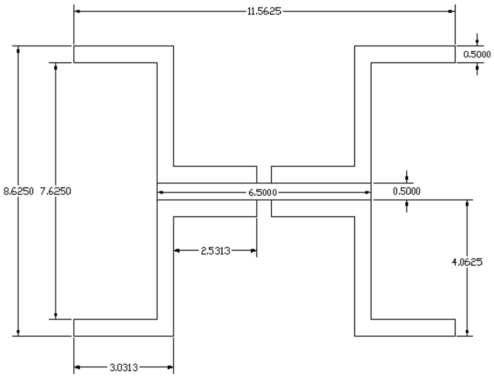

Figure 21: 8" Z-bar Column Dimensions

After the RISA loads were verified, we then computed the axial capacities of the column. The calculated axial force values for M922 (the 8" Z-bar, see Figure 21) and M1145 (the 6" Z-bar, see Figure 22) from the RISA model were utilized instead of the hand computations because they were greater, and as previously mentioned, we assumed that the columns acted purely axially because the exterior bearing wall absorbs all lateral loads.

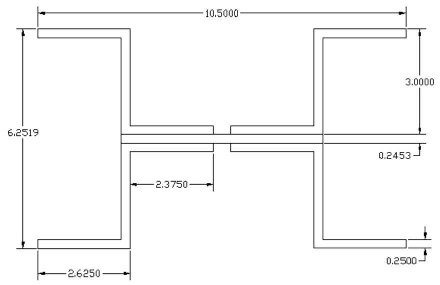

Figure 22: 6" Z-bar Column Dimensions

The formula for evaluating the force in a column is approximated by F=P/A. Because we have computed the force already, we can rearrange this to say alternatively, P=FA. When calculating capacity, we are given the equation

$$\phi P_n = \phi A_g F_{cr} \qquad \text{(LRFD Equation E2-1)}$$

Where P_n is the nominal compressive strength, A_g is the gross cross sectional area of the column, F_{cr} is the critical buckling stress, and Φ is the resistance factor for compression, evaluated to be 0.85. To compute F_{cr} we must first compute the non-dimensional slenderness parameter λ_c. This is done using the formula

$$\lambda_c = \frac{KL}{r\pi}\sqrt{\frac{F_y}{E}} \qquad \text{(LRFD Equation E2-4)}$$

If this λ_c value is less than or equal to 1.5, the column is said to behave inelastically and by the equation

$$F_{cr} = \left(0.658^{\lambda_c^2}\right)F_y \qquad \text{(LRFD Equation E2-2)}$$

Contrarily, if the λ_c value is greater than or equal to 1.5, the column is said to behave elastically and we utilize the equation

$$F_{cr} = \frac{0.877}{\lambda_c^2}F_y \qquad \text{(LRFD Equation E2-3)}$$

Once F_{cr} is obtained, we can substitute this back into our original equation to obtain ΦP_n. The following table summarizes the Pu, and ΦP_n values and whether or not the M922 and M1145 columns have sufficient axial capacity.

Table 18: Column Loads and Capacities Summary

	P_u	ΦP_n	Ok?
M922	288.5	570.3	Yes
M1145	104	183.7	Yes

We deduced that the columns are well under capacity and that given a similar (or lighter) loading scenario, the columns would need no reinforcement.

5.3.3.3 Interior Bearing Walls

Though we did not explicitly investigate the bearing capacity of the bearing walls through our three-dimensional model, we decided to do some basic calculations to determine the compressive stresses in the bricks, and then compare these to the historic values for compressive strength. To do this, we chose to examine the 18" thick western wall of the main corridor, which spans the entire length of the building, and followed the design process specified in the Masonry Standards Joint Committee (MSJC) code.

The first task for this procedure was to determine the axial force within a unit length of the bearing wall. We calculated the tributary area, using the process specified in section 3.3.3.2 for the columns. Because the wall spanned three floors, it was necessary to calculate the loads at each floor and these are presented below.

Table 19: Tributary Loads, Self Weight, and Axial Loads for Interior Bearing Walls

	Tributary Area	Wall Self Weight	P_u
Second to Third Floor	90.585	12810	31.83k
First to Second Floor	90.585	12810	73.81k
Basement to First Floor	90.585	10065	113.04k

For purposes of simplicity, we analyzed the wall segment spanning from the basement to the first floor because this is the critical portion of the wall with the highest axial load. It is important to note that we were able to assume that this wall can be segmented by floors because the flooring systems are anchored to the walls by iron ties, as indicated in the specifications.[131]

Once we have obtained the values of the axial loads, we then computed the allowable design capacity for the wall. For this process, we reexamined our materials table once again and determined the

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[131] If the floor were not tied to the wall and the unbraced length of the wall extended over several story levels, the computations for the loads would be considerably more difficult because the axial load is variable along the length of the wall. This issue also arises in the following section which concerns the exterior bearing walls.

compressive strength of our brick wall (estimated to be approximately 2400 psi)[132], and the modulus of elasticity ($1.8\text{x}10^6$ psi).

The procedure for determining the capacity of a brick wall is relatively simple in theory. The equation relating stress to the force divided by area can be rearranged to give us

$$P = A_n F_a \qquad \text{(MSJC Equation 8.1)}$$

Where A_n is the net area and F_a is the allowable axial stress. F_a was computed as

$$F_a = \frac{f'_m}{4}\left[1-\left(\frac{kh}{140r}\right)^2\right] \qquad \text{(MSJC Equation 8.62)}$$

Where f'_m is the compressive strength of the wall material, kh is the effective height (for our purposes, k=0.80), and r is the radius of gyration, denoted as $r = \sqrt{I/A}$ or alternatively, $r = 0.29t$ where t is the thickness, in inches, of the wall.

When we calculated these equations out, we obtained

$$r = 0.29 * 18 inches = 5.22 inches$$

$$F_a = \frac{2400 psi}{4}\left[1-\left(\frac{0.8 * 12 \, {}^{in}\!/_{ft} * 11 ft}{140 * 5.22}\right)^2\right] = 587.47 psi$$

We substitute this value of F_a into our original formula to determine the design capacity

$$P = A_n F_a = \left(12 \, {}^{in}\!/_{ft} * 18 in\right) * 587.47 psi = 126{,}894 \, {}^{lbs}\!/_{ft}$$

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[132] The strength of brick alone varies considerably from manufacturer to manufacturer. Some bricks have a compressive strength as low as 1600 psi, whereas others have strengths as high as 15,000 psi. Additionally, the strength of the mortar can also significantly alter the strength of the wall as a unit. While typical lime mortars can reduce the overall strength to 500-600 psi, Portland cement mortar, which is present in our courthouse, can often double the strength of the wall. For our purposes, we used a standard average approximation for the compressive strength of brick, recommended by the MSJC.

Before we could be satisfied with this answer, we had to verify the condition $P \leq \frac{1}{4} P_e$, where P_e is the Euler buckling load. P_e was be approximated as

$$P_e = \frac{\pi^2 E_m I}{(kh)^2}\left(1 - 0.577\frac{e}{r}\right)^3 \quad \text{(MSJC Equation 8.64)}$$

Where e is the eccentricity of the load (assumed to be zero for the purposes of this analysis)[133], and E_m is the modulus of elasticity. When calculated, we obtain a value for $P_e/4$ to be

$$P_e = \frac{\pi^2 (1.8 * 10^6\, psi)\left(4.35^2 * 12\, {}^{in}\!/\!_{ft} * 15in\right)}{(0.8 * 132in)^2}\left(1 - 0.577\frac{0}{4.35}\right)^3$$

$$\frac{P_e}{4} = \frac{5{,}376{,}730\, {}^{lbs}\!/\!_{ft}}{4} = 1{,}344{,}180\, {}^{lbs}\!/\!_{ft}$$

Because our calculated design capacity of P=126.89 kips per linear foot is less than the $P_e/4$ value of 1,344 kips per linear foot, we utilized this original P value as our allowable design load. This value was greater than our computed actual load of P=85.88 kips per linear foot, so our bearing wall is under capacity, and structurally sound.

5.3.3.4 Exterior Bearing Walls

In addition to the interior bearing walls, we also examined the exterior bearing walls. Because these exterior walls are responsible for withstanding the majority of the lateral loads, we also considered the effects of wind on the walls. The first task, therefore, was to compute these wind loads. Utilizing the ASCE 7-05, we were able to follow the simple procedure for analyzing wind loads on a structure. The following table summarizes the results:

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[133] We assumed an eccentricity of zero because there is generally symmetry in the transfer of loads to the bearing wall.

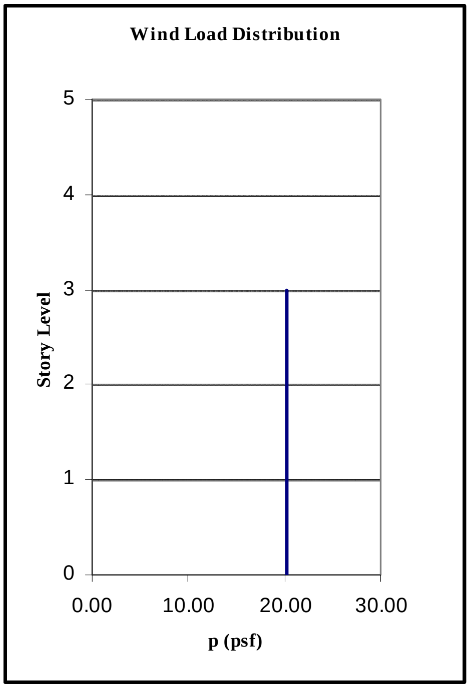
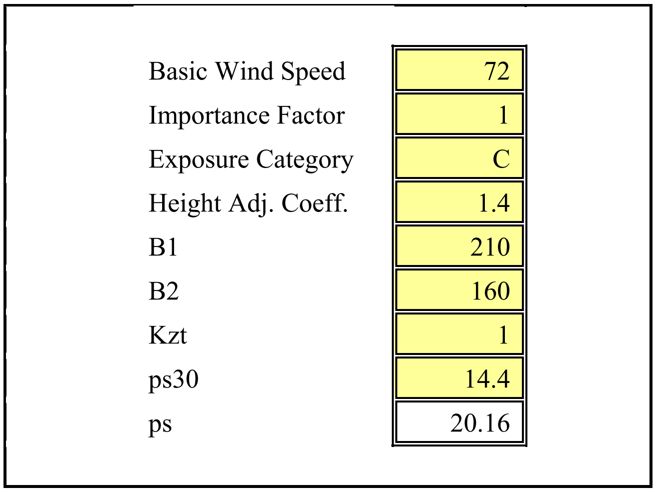


Figure 23: Wind Pressure as a Function of Building Height

Table 20: Wind Load Calculations



Basic Wind Speed	72
Importance Factor	1
Exposure Category	C
Height Adj. Coeff.	1.4
B1	210
B2	160
Kzt	1
ps30	14.4
ps	20.16

Once the wind loads were computed, we then calculated the axial loads on the wall. This procedure was done in the identical fashion as in the previous section. The following table summarizes the tributary areas and axial loads:

Table 21: Tributary Areas, Self Weight and Axial Loads for Exterior Bearing Walls

	Tributary Area	Wall Self Weight	Pu
Second to Third Floor	50	21000	34.20k
First to Second Floor	50	21000	70.40k
Basement to First Floor	50	16500	103.90k

In order to analyze this wall section, we had to approach the computations two different ways. The wall is not axially loaded uniformly; in other words, each floor contributes an additional axial load, so that the axial P value is variable through the length of the wall. In addition to this, the width of the wall is also variable because historic building codes mandated that the wall be thicker at the base of the structure than at the top. As such, we had to break this up and examine the effect of axial and bending loads at each segment, as well as along the whole length of the wall.

The first task was to examine the combined axial and bending effect on the most critical segment of the structure. We utilized the 30” thick first to second floor segment as our critical section because it demonstrated the most significant axial loads and because the wind loads are approximately uniformly distributed along the length of the wall so wind loads would not be significantly higher on another segment.[134]

Because masonry walls are purely compressive (in other words, they have little to no tensile capacity), it is important to determine if the wind loads to which the masonry wall may be subjected are sufficient to cause excessive tension within the wall. The MSJC code allows for 25 psi of tension of flexural stress, and this is calculated using the formula for combined stresses:

$$f_t = \frac{-P}{A_n} + \frac{My}{I} \qquad \text{(MSJC Equation 8.6)}$$

In order to evaluate this equation, we computed the values of P and M. For this particular purpose, P was calculated at the mid-height of the structure, so that only half of the weight of the wall was considered. The value for P was computed as

$$P = 70.4kips + \left(322psf * 50ft^2\right) + \left(20ft * 45plf\right) + \left(\frac{5ft * 2.5ft * 11ft * 120pcf}{2}\right) = 95{,}650plf$$

It was important to once again check that this value was less that ¼P_e, to prevent against Euler buckling. The same process as previously mentioned was utilized to obtain ¼P_e, which was calculated to be 6,882.21 kips/ft, and therefore buckling was not an issue. Once this was completed, the moment was calculated. Because there were assumed to be no eccentricities acting on the wall, the moment was computed simply as

$$\omega = 20.16psf * 5ft = 1{,}008plf$$

$$M = \frac{\omega_u L^2}{8} = \frac{1{,}008plf * 14ft^2}{8} = 2{,}470ft - lbs$$

These values were substituted in the original combined stress equation to give us

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[134] Though the basement wall exhibits the more critical loads, it is not subject to wind loads. However, for the purposes of analysis, we utilized the maximum P values that would have occurred in the wall spanning between the basement and the first floor to determine worst case scenario values.

$$f_t = \frac{-95{,}650\,plf}{(12in*30in)} + \frac{2{,}470\,ft-lbs*12\,{}^{in}\!/_{ft}\left({}^{30in}\!/_{2}\right)}{\left(12in*30in^3\!/_{12}\right)} = -249.23\,psi$$

Because this value of -249.23 is less than the allowable tensile stress of +25 psi, we concluded that the wall size and thickness is satisfactory. The next step was to compute the unity equation

$$\frac{f_a}{F_a} + \frac{f_b}{F_b} = \frac{{}^{P}\!/_{A}}{F_a} + \frac{{}^{M}\!/_{S}}{F_b} \leq 1.33 \qquad \text{(MSJC Equation 8.5)}$$

Following the same process as in 3.3.4 to compute F_a, we get a value of 595.5psi, and given that F_b is equal to the compressive stress of masonry divided by three (MSJC Equation 8.60), we conclude that F_b=667 psi. Substituting these values back into the above equation, we get

$$\frac{265.69}{595.5} + \frac{16.467}{667} = .4709 \leq 1.33$$

Because the value of .4709 is significantly less than the allowed value of 1.33, we concluded that the wall is under capacity with a sufficient thickness. The next step was to evaluate the effect of the wind over the entire length of the exterior wall. To do this, we again calculated moment at mid-height, and, assuming the worst case scenario with the maximum axial load acting upon the entire height of the wall, we substituted our calculated values into the formulas for f_t and the unity equation to obtain

$$f_t = \frac{-95{,}650\,plf}{(12in*30in)} + \frac{19{,}165\,ft-lbs\left({}^{30in}\!/_{2}\right)}{\left(12in*30in^3\!/_{12}\right)} = -137.77\,psi$$

$$\frac{f_a}{F_a} + \frac{f_b}{F_b} = \frac{265.694}{595.5} + \frac{127.77}{667} = .6377 \leq 1.33$$

We concluded that the wind loads acting on the entire wall, in combination with the axial loads applied to the wall do not exceed the capacity of the wall, and therefore the exterior walls are sufficient to withstand the loads acting upon them.

5.4 Special Case: Library Floors

Though the RISA model deals primarily with the 1898 section of the structure, there has been little analysis on the library. Because the library's vertical system is predominately bearing walls however, and the dimensions for these walls are very similar to those calculated in the previous two sections, then it is probably safe to assume that the walls in the library are sufficient and are capable of carrying the dead loads applied to then in addition to the 100 psf live load. However, the floor systems of the library are unique to the structure, and therefore we decided to investigate this particular structural element in order to determine its adequacy.

5.4.1 Analysis of Floor Beams

Both the plans and the specifications for the 1878 library addition to the courthouse provide a good amount of knowledge of the flooring systems employed within the structure. Generally speaking, the floor consists of wrought iron I-beams, and these are spanned by brick arches and topped with concrete, and are spaced on average 3'-0" to 4'-0" on center. The architect provides a list in his specifications which essentially indicates the allowable spans for each beam size. This information is summarized in the table below

Table 22: Beam Summary for 1878 Library

Span	*Weight*	*Depth*
30+	50	15
12 to 30	42	12
0-12	13.5	8

Instead of investigating every arrangement of the floor beams within the library, we chose to try and confirm that the allowable spans denoted in the specifications were in fact adequate for the proposed beams. The first step of this procedure was to acquire some information concerning the properties of these historic wrought iron beams. From the materials database we assembled, we were able to determine some general properties of the iron, including the yield strength, which we approximated to be 30 ksi.[135] In addition, we were able to obtain a list of historic iron beams and their geometric properties. The properties of the 12x42 and the 15x50 beams were easily traced. However, we hit a roadblock when we attempted to find an 8 inch I-beam with the weight 13.5lbf. Of all the records were

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[135] Friedman, Donald. *Historic Building Construction.* W.W. Norton & Company. New York. 1995.

perused, we came to the general conclusion that such beams would not have been manufactured regularly. This required us to look for alternative beam sizes. We were able to find a 6x13.5 I-beam, as well as an 8x18 I-beam, both of which were evaluated. The geometric properties are tabulated below

Table 23: Geometric Properties for Library Beams

Span	*Weight*	*Depth*	*Area*	*Tw*	*Bf*	*Tf*	*K*
30+	50	15.19	15.04	0.50	5	0.563	1.250
12 to 30	42	12	12.60	0.50	4	0.500	1.060
0-12	13.5	6	4.05	0.25	2.75	0.250	0.625
0-12	18.4	8	5.41	0.27	4	0.426	0.831

T	*Ix*	*Iy*	*Sx*	*Sy*	*Rx*	*Ry*	*Zx*	*Zy*
12.69	523.5	15.29	69.8	6.1	5.9	1.01	65.89	7.92
9.88	247.8	7.6	41.3	3.8	4.4	0.78	38.13	4.69
4.75	21.4	1.6	7.1	1.2	2.3	0.63	5.84	1.03
	57.6	3.73	14.4	0.9			14.4	1.86

Once we obtained the necessary properties for the beams, we were able to verify whether or not these span delineations were appropriate. We began by testing the 6x13.5 I-beam. Because the maximum allowable span indicated was 12’-0”, we evaluated the beam capacity at that span.

The first step was to determine the loads on the beam. These loads and load combinations were calculated in a similar fashion as previously done in the 1898 addition. The results are tabulated below:

Table 24: Dead and Live Loads for 1878 Library Addition

Dead Loads

Floor Fill Weight	35	psf
Concrete Fill	45	
Partitions	20	
Finishes	20	
Total	120	psf

Live Loads

Floor Live Load	100	psf

Load Combinations

$1.2(DL)+1.6(LL)$

$1.2(120)+1.6(100)=304+1.2(\text{Beam Self Wt.})$

Using the same process as in section 3.3.1, we computed the design values for moment and shear, and the moment capacity of the beam.

$$\omega = (304)*3ft + 1.2(13.5plf) = .9282klf$$

$$V = \frac{\omega_u L}{2} = \frac{.9282klf * 12ft}{2} = 5.569kips$$

$$M = \frac{\omega_u L^2}{8} = \frac{.9282klf * 12ft^2}{8} = 16.708ft - kips$$

$$\phi M_n = \phi F_y Z_x = \frac{(0.9)*(5.844in^3)*(30ksi)}{12 \frac{in}{ft}} = 13.15ft - kips$$

As evident by the calculations, the moment M_u on the beam exceeds the moment capacity M_n, and is therefore insufficient. We decided to determine the maximum length for which the beam could satisfy the capacity criteria. To do this, we worked backwards from its design capacity:

$$\phi M_n = 13.15 \leq \frac{\omega_u L^2}{8}$$

$$L = \sqrt{\frac{(13.15)(8)}{.9255}} = 10.66ft$$

Using this calculation above, we proceeded to determine the maximum spans for the 8x18, 12x42, and 15x50 beams next. Below are the tabulated results of their capacities, and their allowable spans based on bending strength calculations:

Table 25: Summary of Moment Capacities and Maximum Spans for Library Beams

	ΦM_n	Max Span
8x18	32.40 ft-kips	16.69 ft
12x42	85.79 ft-kips	26.82 ft
15x50	148.25 ft-kips	35.11 ft

5.4.2 Three Dimensional Modeling of Flooring System

There are multiple implications we can make regarding the allowable floor spans tabulated in the previous section. First of all, we can consider that the spans indicated in the specifications and the plans were not adhered to; in other words, beams could have in reality spanned shorter distances. There are certain instances that this would be particularly applicable, such as in the floor of the library stacks section. In the plans the beams are shown as spanning the long length of the building, whereas intuitively, it would be more efficient to span the beams in the opposite direction. This occurs again in the adjoining rooms; it is perhaps more likely that the framing of this section would be rotated ninety degrees, because the framing system of the attic floor is arranged in such a fashion. Conversely, larger beam sizes could have been utilized for the proposed longer spans.

In addition to these alternatives, we also decided to examine the flooring system as a whole, inclusive of the brick arches and concrete fill that spans between them. Research concerning these types of flooring systems have displayed interesting findings. Many studies have suggested that composite action occurs between the steel, the masonry and the concrete infill, as well as partial end fixity,[136] and as such the capacity of these beams is significantly increased. Though testing of this phenomena has primarily been through physical load testing and experimentation, to evaluate this for our own purposes, we decided to generate another three-dimensional structural model using SolidWorks, a Finite Element Analysis program.

The first step in generating this analysis was to determine the geometry of the arch floor. We chose specifically to utilize the 12x42 beam for the purposes of this analysis because it was the most prevalent beam indicated on the plans. Utilizing information gathered from the specifications and plans and tabulated in Chapter 3, key geometric data are summarized below:

Table 26: Summary of Brick Arch Geometry

Beam Size	12x42
Brick depth	4”
Arc length	3’-6”
Radius	3’-3”
Beam Span	30’-0”

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[136] Stecich, “Analysis and Testing of Archaic Floor Construction.” *Standards for Preservation and Rehabilitation.* ASTM STP 1258, S. J. Kelley, Ed. American Society for Testing and Materials, 1996. pp. 201-215.

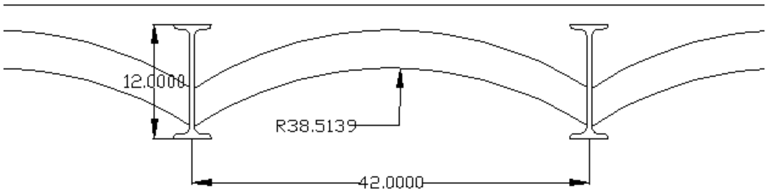

Figure 24: Brick Arch Geometry

5.5 Evaluating Structural Integrity

The analysis of the structure consisted of a three-dimensional structural model of the 1898 courthouse, a finite element model of the library flooring system, and several hand calculations to verify the results obtained in these models. We attempted to compare the values of loads and capacities for critical beams, girders, columns and interior and exterior bearing walls, and we additionally attempted to investigate in more detail the flooring system phenomenon that occurs in the library addition of the courthouse.

Once we analyzed the structure and obtained a significant amount of knowledge as to its capacity, we were able to draw some general conclusions as to the overall structural integrity. Upon analysis of the typical floor bay, we ascertained that the beams as well as the girders were both under capacity. In addition to this, the Z-bar columns were both computed to have ample capacity as well. The bearing walls (both interior and exterior) were sufficient to carry the loads placed on them. In general, from our evidence, the 1898 building is structurally sound, and should a similar loading scheme (i.e maintaining the 100 psf live load) occur once the building is remodeled, structural reinforcement would not be necessary. That having been said, it would be undesirable to attempt to alter the structural system without significant research into the effects of this.

The fact that the courthouse is structurally sound is in accordance with our original assumptions, as well as the findings of the conditions assessment performed in 1991 by DRA. This excess capacity is typical of other prominent buildings of its era, and is indicative of the “over-engineering” that was so common at this intermediary stage between masonry and steel construction. The over-building of structures was common due to a number of factors such as inadequate knowledge of the capacities of materials or appropriate calculation techniques; masonry wall thicknesses for example, as exhibited in our courthouse, were generally designed empirically through experience, rather than by structural analysis. In addition, the tile arch flooring systems tended to exhibit behavior that was inexplicable according to the analytical methods at that time, so these systems were also often excessive.

The massive appearance of the structure with thick stone walls and large embedded columns was also indicative of an architectural element common in the era. These structures were built to last and to instill a sense of grandeur and largess. Unlike today's construction industry which often focuses on minimizing costs and materials, the civic architecture of the 1890s spared no expense, and the structural integrity of the buildings are representative of this.

6 Phase III-Rehabilitation Plan

The contents of this chapter form our rehabilitation plan for the Worcester County Courthouse. We begin the chapter by describing the decline of the Courthouse in recent years. Next, we discuss our plan for reuse of the building in the form of a law school. We also touch upon bringing the building up to the codes mandated by the *Massachusetts State Building Code*. Furthermore, we attempt to provide more detail regarding our ideas for the law school by presenting and discussing the proposed layout for each floor. Lastly, we perform a rough cost analysis to give the reader an idea of approximately how much it would cost to carry out our rehabilitation plan.

6.1 The Decline of the Courthouse

The Worcester County Courthouse represents a period when pride was taken in constructing magnificent buildings. The classical colonnade, which stands tall at the main entrance, welcomes you to embrace the other significant features of the building. In the main lobby, attention is immediately caught by a large statue of Moses a replica of Michel Angelo original work which stands in the Church of Saint Peter in Rome, and intricate stain glass windows, features you would expect to see at museum, not a county courthouse. Sadly, throughout the years, this magnificent building has fallen into a state of disrepair. This can be attributed to overcrowding, public vandalism or simply insufficient funds for maintenance.

As the county court system grew, the historic building could not satisfy the growing need for space. To rectify this, an addition was put on the original building in 1954. This was sufficient for a few years, but again, in 1978, the need arose for more space. It was in this year that plans for a new Annex started to surface. There were thoughts to add a three-story structure and a two-story parking garage in an attempt to solve the pressing parking issue as well[137]. In February of 1980, when the 1978 plans had not materialized as a solution to the space issue, alternative ideas were sought[138]. One thought was to move the Juvenile Courts, which had been already been moved several times before, to the Lincoln Memorial Auditorium across the street. This move was intended to keep the Juvenile Courts closer to the main

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[137] Lincoln R. McKie Jr. 16 July 1978

[138] The Gazette 27 February 1980

building and to unify the department. After looking into this plan, it was decided that the rent and the need to modify the building for code compliance would be too costly[139].

Several ideas for additions to the building were considered, but, as they reached the drawing and designing phase, the plans were repeatedly shown to be too overpowering and out of place for the site. Therefore, in 1999 an entirely new location was discussed. The city considered a few possible locations and then decided on one that was down the street from the present courthouse. This site was large enough to house a courthouse that could incorporate the entire department and tastefully fit on the site. At this point, the historic building was abandoned. In order to ensure its preservation, a new use would have to be designed for it.

Budget is always of concern with public agencies. The upkeep of a nineteenth century building is not always the most economical. In late February 1980, the budget for upkeep on the courthouse received a significant increase. The budget at the time was $724,165; it was changed to $801,127, nearly a $77,000 increase[140]. Then, in 1999, Greenwood Industries Inc. of Worcester was awarded the $1,043,999 job of replacing the historic copper roof. This was an expensive and rigorous task. Because the building is a historic landmark, careful attention needed to be taken to ensure the roof replacement was done according to the original specifications of the building. This meant that the materials needed to be consistent with the original as well. This was a very arduous task, but was crucial to the preservation of the building. There were multiple areas of water damage due to the leaks in the roof. After the replacement of the roof, some of the interior water damage was not repaired.

Another concern that the courthouse faces is that the fact that it is not in compliance with current building codes. The overall housekeeping in the building needs to improve, and upgrades on the electrical systems and plumbing are necessary. Additionally, the building is not handicap accessible[141].

Throughout the years the historic building has become victim to a great deal of natural destruction and vandalism that requires repair. It is expected for a building of this age to have aesthetic

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[139] Telegram & Gazette 21 January 1998
[140] The Gazette 25 February 1980
[141] The Telegram 2 February 1988

problems, especially when the proper funding is not provided for preservation purposes. In 1992, a section of the ceiling in one of the courtrooms fell on the clerk's desk, causing damage to the floor and other furniture in the area. In 1970, a pipe bomb exploded on the windowsill of one of the courtrooms of the 1954 addition to the building. It caused $2,000 worth of damage and destroyed the window, part of the ceiling and put holes in the wood paneling. The room was also speckled with debris.

The preservation of this historic building is imperative to the downtown Worcester area and Lincoln Square. Throughout the years, the building has suffered a great deal of damage and neglect. Insufficient funding has caused a deficiency in maintenance over the years, and, combined with the overcrowding and vandalism, has led to the current shabby state of the once magnificent building.

6.2 Adaptive Reuse of the Courthouse

The arrival of a new courthouse at 225 Main Street in late 2007 brought about the vacancy of the old courthouse. As mentioned in the previous section, the courthouse has already dealt with its fair share of neglect and deterioration, and its recent vacancy will most likely only further this downward spiral. In order to stop the courthouse's degradation it would be best to rehabilitate and reoccupy it as a soon as possible.

We mentioned in the introduction our plans to reuse the structure for another function, preferably a law school. We feel this would be a fitting reuse of the courthouse for a variety of reasons. First, the building already has the key aspects of a law school including courtrooms that could serve as mock courtrooms, a library that could serve as a law library, and adequate space for professor's offices, classrooms and common space. Secondly, there are no law schools in the Worcester area. The vacant courthouse could be a convenient venue for such a law school. Lastly, we believe that the law school is a good fit with the existing space. Other uses may require a large amount of remodeling, whereas a law school would allow for the preservation of many of the building's historic features.

In order to reuse the structure it will be necessary to bring it into compliance with the codes mandated by the *Massachusetts State Building Code*. Where there are gaps in the information provided by the *State Building Code*, reference could also be made to the *International Existing Building Code*. The following section discusses some of our research into bringing a structure up to code as outlined by the *State Building Code*.

6.3 Research into the Massachusetts State Building Code

While bringing a structure up to code is already a very complicated process, it may be further complicated if considering existing conditions and historic structures, elements that are both present in this project. The reason for this is that there are separate provisions for existing conditions and historic structures, which oftentimes govern over the provisions for new construction (if applicable). While the provisions for existing conditions and historic structures are usually less stringent, the complicated part is determining whether they apply to the building at hand. If a large enough percentage of the structure is to undergo renovations, it is possible that the provisions for new construction would have to be followed rather than the less stringent existing conditions and historic provisions.

In an attempt to make sense of all the information within the *State Code*, we formed an Excel spreadsheet to identify and summarize the key chapters and provisions relevant to our project. There are a total of 36 chapters and we explored 17 of them. The reason that we did not delve into all 36 chapters is that some of the chapters are very specific to type of material, system, or construction. For example, Chapter 36 addresses one and two-family dwellings, which are not a topic of interest in our project. For this reason, only chapters of interest are included within the Excel spreadsheet.

The spreadsheet has been placed in Appendix 13, but its format is discussed here. An example entry has been provided in Table 27. Included in the spreadsheet are the chapter number and title under examination.[142] The next important piece of information was the scope of the chapter. This entailed summarizing what the provisions of the chapter controlled. As seen in the example, Chapter 5, titled *General Building Limitations,* restricts the height and area of all structures to be erected and additions to existing buildings. The entry also explains that the height and area limitations are based on type of construction, use group and fire-fighting purposes. The column of the

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[142] Additionally, space was provided for relevant sections or tables within a chapter. In other words, not only whole chapters were discussed.

spreadsheet identifies whether or not the provisions of the chapter under examination are relevant to our project. The provisions of Chapter 5 were marked as being not particularly relevant to our project, and the rationale is provided in the next category classified as Noteworthy Finding.

Table 27: Code Relevancy Table Example

Chapter #	Chapter Title	Scope of Chapter	Relevant (Y/N)	Noteworthy Finding
5	General Building Limitations	Controls the height and area of all structures to be erected and additions to existing structures based on type of construction, use group, and fire-fighting purposes.	N	Height and area limitations need not be determined as we are not constructing a new building or making additions to the old building.

The reader may be wondering why there is a category to determine relevancy if we had already narrowed the chapters under investigation down to those we believed to be relevant. The answer to that question is that not all of the chapters that we initially thought were relevant were applicable to a building with existing conditions. Many of the chapters under investigation would refer the reader to Chapter 34 titled *Repair, Alterations, Additions, and Change of Use of Existing Buildings*. We found most of our useful information in this chapter.

As mentioned earlier, our specific findings regarding each chapter are recorded in the Excel spreadsheet found in Appendix 13.[143] In addition to the specific findings that this exercise helped us to discover, we also learned more generally about how the *Massachusetts State Building Code* works. For example, many of the provisions are regulations for fire protection. It might not have been immediately obvious at first that the provisions in a chapter were directed at fire safety, but upon further research, we learned that that was the underlying purpose of the provision(s). It appears to us that many of the provisions in the code directly or indirectly have to do with controlling against fire.

In conclusion, creating an Excel spreadsheet that summarized the relevant chapters of the *State Code* helped us to organize our thoughts pertaining to what type of work would have to be done to get

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[143] Note that there were also findings regarding important sections or tables, not just whole chapters.

the proposed law school up to code. The exercise also helped us to gain a general sense of how the *State Code* works and what type of control the various provisions have. Ultimately, we learned that rehabilitation and renovation efforts of the old courthouse would have to be in compliance with 780 CMR 3409.0 *Historic Buildings*. Since the building falls into the partially preserved category, it is subject to the provisions specifically set out by 3409.3 *Partially Preserved Buildings*. For more information regarding 780 CMR 3409.0, reference can be made to Appendix 13. Additionally, this exercise was valuable to our efforts in creating a layout for the proposed law school. The following section will discuss our ideas for the layout of the law school.

6.4 Layout of the Proposed Law School

When planning the layout of the proposed law school, we kept three things in mind: keeping the layout similar to that of the existing courthouse, complying with the *Massachusetts State Building Codes* and fulfilling the needs of a higher education school. Oftentimes, these requirements would be achieved concurrently, as many of them were overlapping. For example, while designing larger bathrooms for the students, we achieved the goal of having the building in compliance with ADA/accessibility.

It was decided that the layout of the proposed law school should remain similar to the existing layout of the courthouse in order to maintain the structural integrity of the building. Changing the layout could alter the loading distribution, which could in turn affect the columns and bearing walls. Not altering the building drastically would also be more cost effective for the developer. This method would reduce the need to add many structural supports, a high material expense.

Compliance with current building code provisions is a must for further use of the structure. As mentioned before, there are many issues that need to be addressed. Not all of the restrooms are handicap accessible; some have steps leading to them, and others do not even have sinks. Stairways as part of the egress system, need to be covered and have walls on both sides; this is consistently a problem throughout the courthouse. Through the designing process, these concerns were known and concerted efforts were made to alleviate the problem. Restrooms were designed to be larger to accommodate more people and accessibility, and stairwells were enclosed. Although we did address some of the concerns, we could not resolve every violation that the building possessed. This should, therefore, be looked into further by those interested in the development of this building.

6.4.1 Planning the Layout of the Building

When deciding upon the future use of this building, we chose a law school because it would echo the building's original purpose and have similar needs. The school will need classrooms, offices and study rooms, all of which the building already has in the form of courtrooms, judge's quarters and large open rooms such as the registry of deeds. We then made a list of rooms that were essential to creating a self-sufficient campus.

Table 28: Space Allocation Summary

Purpose	Rooms
Class	Classrooms
Work	Professor Offices
	Teacher Assistant Offices
	Study Rooms
	Library
Supplies	Bookstore
Sustenance	Dining Area
	Lounge
Socialize	Student Storage Area
Other	Janitorial Storage
	Restrooms

After compiling this list, we began planning the layout by placing rooms in logical locations. This included grouping the classrooms and professor's offices, the dining and social areas, and the study and group areas.

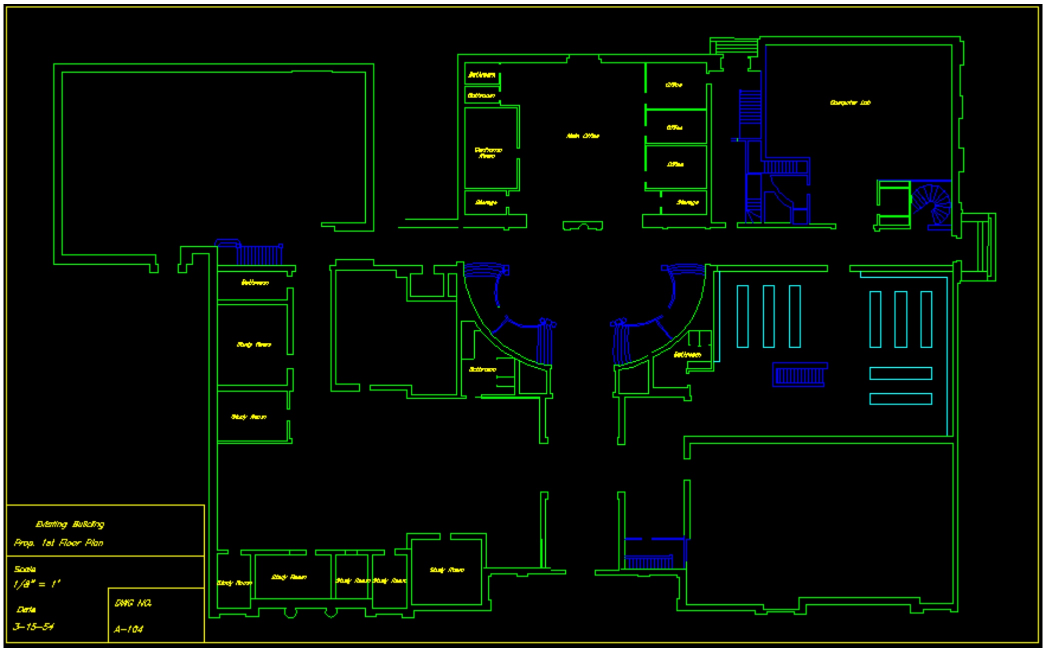

Figure 25: First Floor Proposed Layout

The figure above displays the proposed first floor layout of the law school, it is designed so a student could walk into the main entrance and on either side of them there is the bookstore and the study area, but straight ahead, at the end of the main lobby, is the main office. This would include registration and the heads of the school. Running in front of the main office is a hallway that leads to a computer lab in which the students can simply check their e-mail or research for their projects. Across the hall from the computer lab, as can be seen on the plan above, student storage area. This is lined with lockers for the students' personal use.

Continuing through the building in a clockwise manner, one will next encounter the school's bookstore. This would be similar to the Barnes and Noble that in the WPI campus center, and could sell a range of items, from snacks to text and recreational books. Across the main hallway from the bookstore is the study area. This would include individual and group study rooms. These would be similar to the Tech Suites that are in the Gordon Library. The study room is placed in this room because it is a wide, open room centrally located next to the front entrance and the library. The library is located in the far left corner of the building, which is a secluded and quiet location for study.

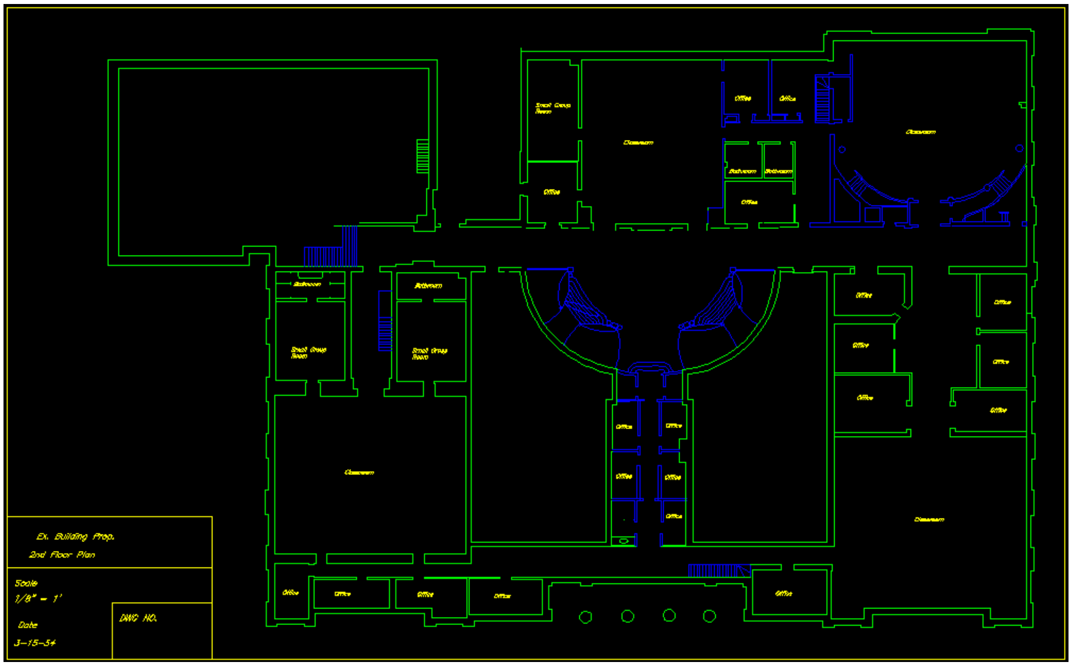

Figure 26: Second Floor Proposed Layout

Above is a figure of the proposed law school's second floor, the majority of the offices and classrooms are on this floor of the building. There are four courtrooms on this floor that can convert easily into classrooms. We propose that at least two of these rooms be preserved to maintain their grandeur as courtrooms. These can be used as realistic mock trial rooms, along with preserving the rich history of the building's original purpose. These are the two courtrooms located in the upper right hand corner and the lower left-hand side of the building plan, above the study room. There is another courtroom that we suggest bringing back to its original glory; this room is located in the lower right-hand corner of the building. It was at one time a two-story courtroom like all of the others, but due to the office space and storage space demands on the building, it was converted into just that. The rest of the rooms on the floor are to become offices for professors and teacher's assistants.

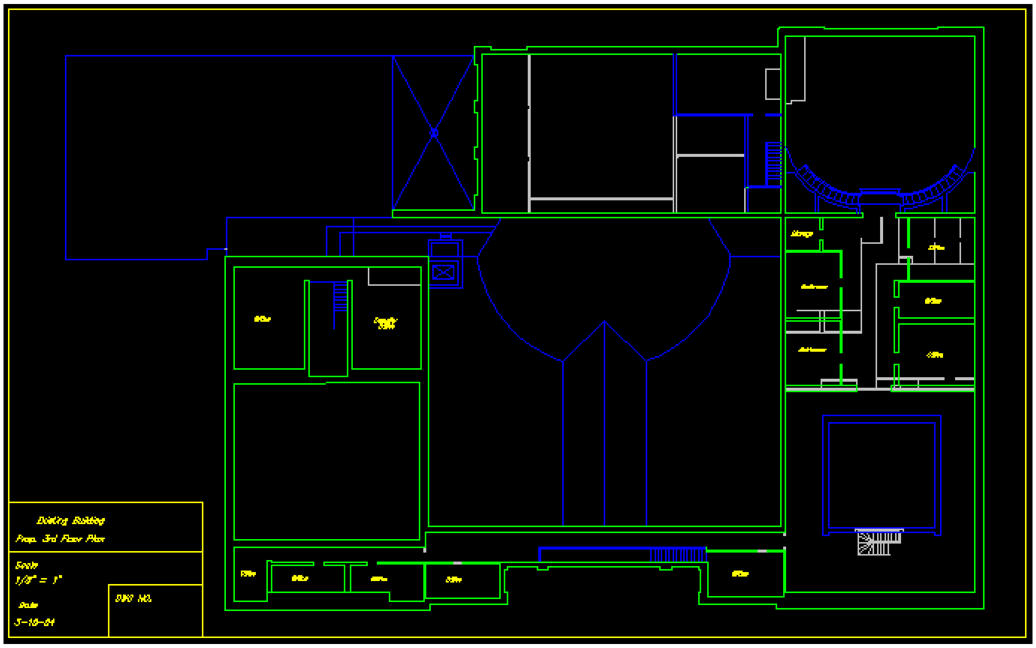

Figure 27: Third Floor Proposed Layout

The figure above represents the third floor, this is a smaller floor than the others and is mainly comprised of offices. When the courthouse was in use, this floor was devoted mostly to storage. With the conversion of the courtroom back to its original splendor, this floor will be greatly reduced in size because will be converted back to its original two-story ceiling and therefore not be usable space.

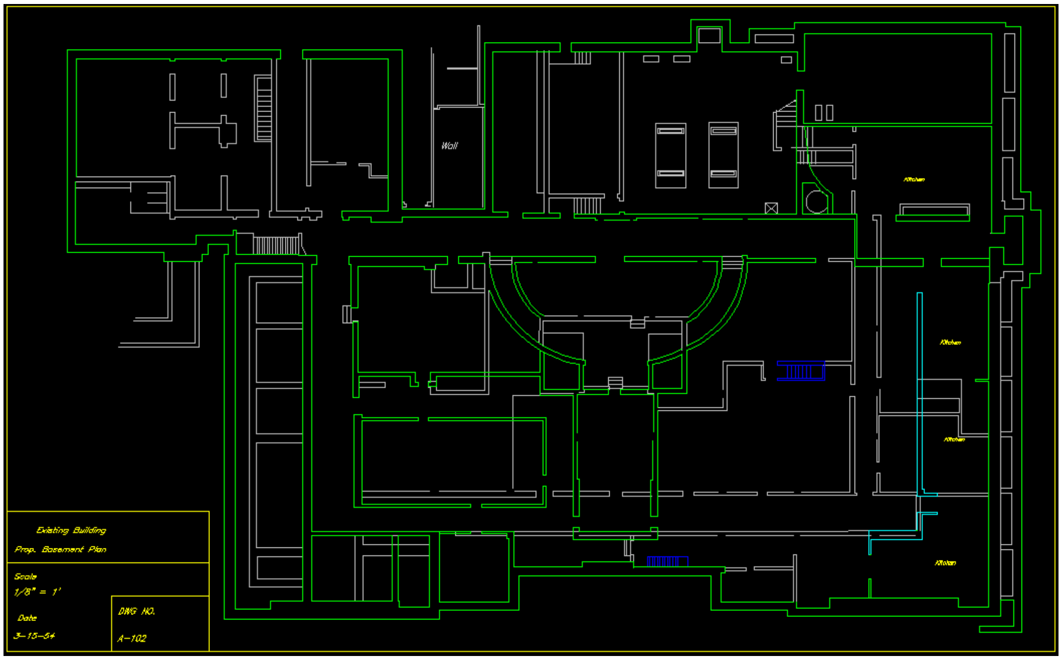

Figure 28: Basement Proposed Layout

Looking at the figure of the basement above, we propose to that this area of this building be converted into something similar to the basement of the Campus Center at WPI. This would include a small kitchen, an eating area, and a social area with televisions and sofas. On the other side of the building, there is also room for more offices, if needed. These could house a department such as Plant Services. As in the past, the basement would also be used for the mechanical systems for the building.

6.4.2 Presenting the Layout of the Building

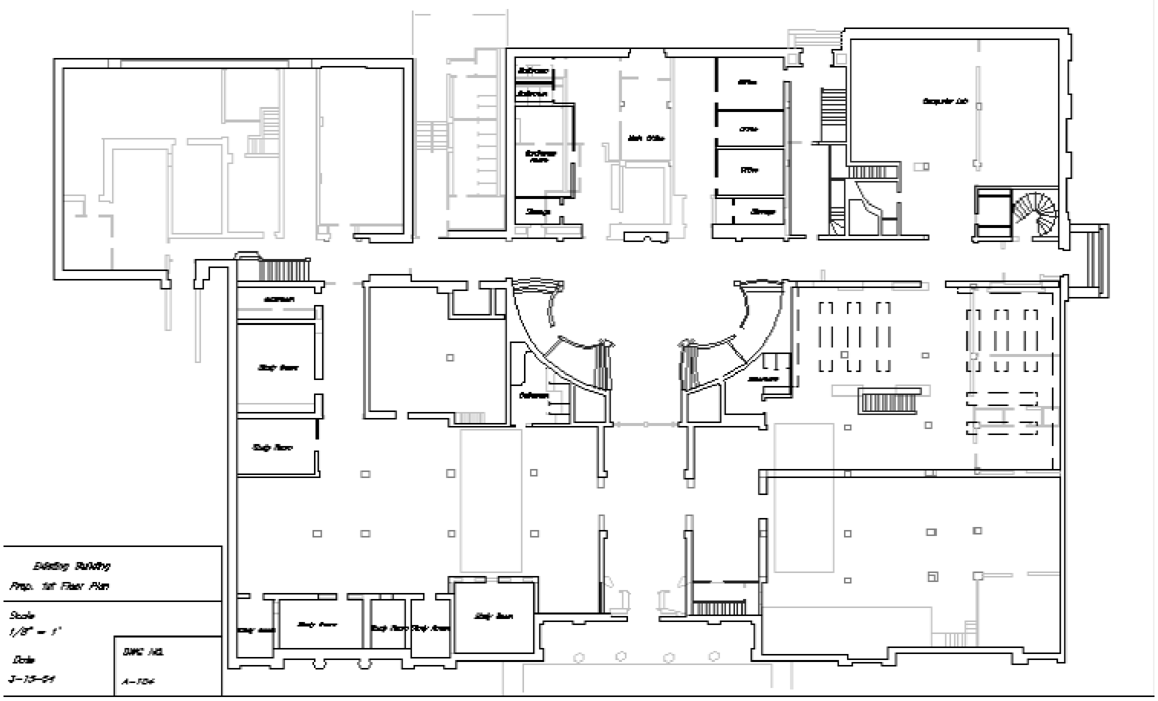

Figure 29: Proposed Layout with Line type

After completing the layout, we sought a way of presenting our work so that the viewer could easily distinguish between the new and old layouts. We found that the plot style of a drawing could be managed by using a pen palette in AutoCAD. This allows the user to alter the weight and intensity of the lines. We utilized these features with the different sections of the building. Lines representing bearing walls, columns, and other features that will be retained are displayed using a thick, but screened back tone. Currently existing and proposed partition walls that are part of the new layout are represented by a thin, dark line. Existing wall proposed for demolition are in a light, thin line that can barely be seen. This allows the viewer to distinguish between the walls that make up the new building layout and those that do not.

Last, we utilized thin, dashed lines to represent the half walls in the proposed building, such as lockers in the student storage room and the half walls in the kitchen.

To summarize, Section 6.4 contains discussion of our ideas for the layout of the proposed law school. The renovated layout of the library and 1898 buildings is only one aspect of the work necessary for the full transformation of the courthouse into a law school. The other two items of work that need to be addressed are the demolition of the 1954 addition and the construction of a parking lot in its place. All three pieces of work will be discussed in terms of cost in the following section. Please note that when we discuss the cost associated with renovating the library and 1898 buildings, it is not a direct reflection of the changes in layout that we have presented in this section. For example, we did not calculate a value for the total square footage of wall taken down or, alternatively, put up. Rather we generalized the cost for renovation by basing it on the gross square footage of the building. In other words, the layouts presented in this section are simply for the purpose of allocating space for different uses, not necessarily for cost analysis.

6.5 Cost Analysis

The last aspect of our rehabilitation plan entailed forming a cost analysis for the work we had proposed. To summarize, we proposed to renovate the existing courthouse, less the 1954 addition, into a law school. In terms of the 1954 addition, we recommended that it be demolished and the space be used for parking. Therefore, there were three main costs that had to be considered in our cost analysis: the renovation of the library and 1898 buildings, the demolition of the 1954 addition, and the construction of a new parking lot.

We approached the analysis from a cost per square foot (or cost per cubic foot, in terms of demolition) standpoint. In other words, we referenced materials that provided us with the typical cost of remodeling, demolition, and site work per square foot or cubic foot. We found the RS Means reference books to be particularly useful for finding the cost data for the renovation and site work. For the demolition work, though, we used another reference book titled <u>The Building Estimator's Reference Book</u>. I will briefly discuss our methods for obtaining a lump sum cost for each of the three types of work.

We began our cost analysis study by investigating the cost to renovate the library and 1898 buildings. We used the RS Means Square Foot Costs reference book as a guide.[144] We found that the book was divided into different sections based on different types of building construction. The section of interest to us was the Commercial/Industrial/Institutional section. It contained base building costs per square foot of floor area for 72 model buildings, one of which was a 2-3 story, 60,000 sq.ft. courthouse.[145] Each model had a table of square foot costs for combinations of exterior wall and framing systems, which was supplemented by a list of common additives and their unit costs. A breakdown of the component costs used to develop the base cost for the model was also provided.

We used the 2-3 story courthouse model to estimate the renovation costs of our building. A copy of this model taken from the RS Means reference book is provided in Appendix 15. The reason we used this model was because the book did not provide a model for law schools, therefore we chose to use a courthouse model since it would most likely be very similar. From here we were able to revise the base cost to reflect our own building's requirements. For example, we were dealing with an existing building so it was not necessary to include substructure and shell costs in the base cost. These exclusions greatly reduced the base cost of our building ($84.95) in comparison to the base cost of the model building ($182.95). Once we obtained the base cost, the next step was to multiply it by the area that we were interested in renovating, which turned out to be roughly 116,000 square feet. This value was calculated from our AutoCAD drawings. We found the total cost for renovating the library and 1898 buildings to be almost 10 million dollars. We put this number aside until we obtained the lump sum costs for the other work to be done (i.e. demolition of the1954 addition and parking lot site work).

Obtaining the lump sum cost for the demolition of the 1954 addition was much simpler than the previous calculations. As mentioned earlier, we referred to The Building Estimator's Reference Book and obtained a value for the demolition of a low-rise steel frame building in terms of price per cubic foot, which was $0.28. Again

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[144] RS Means. (2007). *Square Foot Costs: 29th Annual Edition.* Kingston, MA: Reed Construction Data, Inc.

[145] RS Means. (2007). *Square Foot Costs*

from our AutoCAD drawings, we found the 1954 addition to be approximately 975,480 cubic feet. We multiplied this volume by the price per cubic foot and obtained a value of almost $274,000 for the demolition of the 1954 addition. Once again, we put this number aside until we obtained the lump sum cost for the last piece of work to be done.

The last piece of work to be done was the site work for the construction of a new parking lot in the location of the demolished 1954 building. We used another RS Means reference book titled Site Work and Landscape Cost Data to find a reference cost for parking lot construction. We chose to use a value that covered the entire cost of the parking lot system including compacted bank-run gravel, fine grading with a grader and roller, and bituminous concrete wearing course. Final stall design and layout of the parking lot with pre-cast bumpers, sealcoating, and white paint was also included in the cost. The cost associated with the parking lot system was on a cost per car basis. For the sample that we based our analysis on, the cost was $546.17 per car. Therefore it was necessary to find the approximate number of cars that would fit in the parking lot. Based on the area where the 1954 building once was and the average area of a parking spot, we determined that approximately 80 cars would fit in the available space. This resulted in a total cost of $43,694 for the construction of the parking lot.

Once we obtained lump sum prices for the three main pieces of proposed work, we added these values together for a total cost of $10,171,028. It was still necessary, though, to factor in the general conditions costs (including overhead and profit) the architectural fees, and a location modifier. A ten percent allowance for general conditions and a fifteen percent allowance for the general contractor's overhead and profit and contingencies amounted to a twenty-five percent increase in the total cost of the proposed work. Architectural fees were also based on a percentage of the total cost. Lastly, a location modifier was factored in to take into account the costs at a specific location. The modifier was needed because the costs so far had been based on national averages and were not specific to Worcester, MA. The final cost of all three proposed pieces of work including additional fees and factors was $14,403,702.

Please note that our hand calculations can be found in Appendix 17. This Appendix consists of appraisal forms (provided in the back of the RS Means Square Foot Costs reference book) that we filled out. Although this Appendix is available for viewing, we have summarized our key results in Table 29 below.

Table 29: Cost Estimate Summary

Base Costs	Lump sum cost of renovations	$9,854,200
	Lump sum cost of demolition	$273,134
	Lump sum costs of site work (parking lot)	$43,694
	Total cost of work	$10,171,028

Additional Costs	General conditions	$2,542,757
	Architectural fees	$622,976
	Location modifier	$1,066,941
	Total cost of work with fees and modifier	**$14,403,702**

A

As shown in the table above, the final cost of the work that we have proposed for the rehabilitation of the old courthouse into a law school is $14,403,702. It is important to recognize that there is one essential factor that is still missing from this cost estimate, which is one that covers the workmanship care and quality associated with historical preservation work. We are unsure of the magnitude of this factor, but it is likely that it could be of considerable size. One way that we could have better estimated the renovation cost of the library and 1898 buildings would have been to identify the areas requiring special attention due to their historical significance. We could have used the architectural assessment surveys that we completed to accomplish this. The approximate area identified as requiring special attention could have then been multiplied by a factor that took into account the increased cost of historical preservation work. Regardless, we believe that our cost analysis of almost 14.5 million dollars is a reasonable estimate for the work we have proposed.

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Appendix 1:

5.1 EXECUTIVE SUMMARY

An "Executive Summary" at the beginning of the report is discretionary. It would contain brief statements of the purpose, scope, conclusion, and recommendations.

5.2 INTRODUCTION

5.2.1 Purpose of Assessment.

This introductory section should be a concise statement describing the reasons for the structural condition assessment. Background information, if pertinent, may be related in this part and would include any applicable government/owner/user reporting requirements. (See Section 1.2.)

5.2.2 Scope of Investigation.

The scope of the investigative work performed for the structural assessment will vary with the assignment and must be indicated specifically and clearly. Load assumptions and code jurisdictions should be indicated in this portion. Any unusual design features in life safety areas should be given special consideration.

5.2.2.1 Preliminary Assessment.

An initial "walk-through" visit for orientation and general impressions is common to all assessments. Review of available documents, further site inspections, preliminary analysis, and preliminary evaluation and recommendations may be part of this work (see Section 2.3).

5.2.2.2 Detailed Assessment.

This is an expansion of the preliminary assessment, if needed. It would include a review of documentation, building inspection, materials assessment, detailed analysis, cost impact study, detailed evaluation, and recommendations (see Section 2.4).

5.2.2.3 Testing.

The range and types of testing employed should be outlined in this section.

5.2.3 Methods and Techniques.

Methods and techniques employed in the survey, investigation, and testing should be covered in more detail in this part.

5.2.3.1 Data Collection and Documentation

Visual observations, photographs, oral and videotapes, measurements, drawings and sketches, and methods of investigation should be explained herein.

5.2.3.2 Testing.

On-site and laboratory testing should be described.

5.2.4 Meetings.

A summary of meetings during the investigative phase should be included.

5.3 DESCRIPTION OF STRUCTURE

5.3.1 General.

A general description of the structure to be assessed should be given at this point. This description would include the type of architecture, type of structure, and materials comprising the structure.

5.3.2 Dates of Construction, Alteration, and Repair.

This is self-evident. Any information available should be given in this section.

5.3.3 History.

The use or occupancy of the building throughout its life, maintenance procedures, environmental conditions, and any unusual loadings or other factors should be discussed.

5.3.4 Collected Data.

Information accumulated during the survey, investigation, and assessment should be listed. This may include original drawings, insurance data, alterations, photographs and tapes, measured drawings, interviews, design calculations, etc.

5.4 DISCUSSION OF SITE VISIT

5.4.1 Overview.

This is a report of the initial site visit for orientation and general impressions. On a limited assignment, this may comprise the entire engagement.

5.4.2 Survey.

A more thorough survey should consider materials, real or inferred systems, dimensions, deflections and distortions, identification of problem areas, and a record of data obtained.

5.4.3 Observations and Their Significance.

This should be a summary of observations made, and how they affect the assessment.

5.5 PRELIMINARY OFFICE ANALYSIS

5.5.1 Computational Analysis.

Describe the analytical methods used to utilize the collected information for the assessment of the building structure.

5.5.2 Code Conformance.

Compliance with building codes, life safety requirements, and special owner/user criteria should be discussed for the initial construction, alterations, present condition, and potential future use (if applicable).

5.6 TEST PROGRAM.

Testing methods employed shall be reviewed. Nondestructive, destructive, and load tests may be used.

5.7 FINAL COMPUTATIONAL ANALYSIS.

This will be the basis for the evaluation of the structure.

5.8 INPUT FROM OTHER DISCIPLINES.

The results of the survey and evaluation by other disciplines as they affect the building structure should be given here.

5.9 SUMMARY OF STUDY.

Field and office work directed toward the condition assessment should be summarized. An "Executive Summary," including conclusions and recommendations, may be placed at the beginning of the report.

5.10 CONCLUSIONS AND RECOMMENDATIONS.

Conclusions and recommendations are based upon the survey, investigation, testing, and evaluation. These require experience and "engineering judgment." As such, they are not considered to be part of the standard, although they are the most important part of the report. Prepare a recommended maintenance program if appropriate to ensure the structural adequacy of the building.

5.11 APPENDICES.

This should include all supporting data such as survey information, record drawings, photographs, test data and reports, computations, and references.

A4.3 OBSERVATIONS AND THEIR SIGNIFICANCE

(a) General
(b) Limitations and qualifications
(c) Need for immediate repairs

A5 PRELIMINARY OFFICE ANALYSIS

A5.1 COMPUTATIONAL ANALYSIS

(a) Determine live, dead, wind, seismic, and other appropriate loads
(b) Structure geometry
(c) Material properties; allowable working or ultimate strength parameters
(d) Methods of analysis
(e) Calculate load resistance and deformation
(f) Determine need for material samples, member samples

A5.2 IDENTIFICATION OF TEST AREAS, APPROPRIATE TESTS

A5.3 CODE CONFORMANCE (PAST AND PRESENT)

A6 TEST PROGRAM

A6.1 NONDESTRUCTIVE METHODS

A6.2 DESTRUCTIVE METHODS

A6.3 LOAD TEST

A6.3.1 System or component
A6.3.2 Methods
A6.3.3 Instrumentation

A6.4 RESULTS

A7 FINAL ANALYSIS (Basis for evaluation)

A8 INPUT FROM OTHER DISCIPLINES

A9 SUMMARY OF STUDY

A9.1 FIELD

A9.2 OFFICE

A10 CONCLUSIONS

A11 RECOMMENDATIONS

A12 APPENDICES

A. Survey information

B. Record drawings

C Photographs

D. Test data and reports

E. Computations

F. References
(HUD)
Waterways Experimental Station (WES)
Western Wood Products Association

APPENDIX A
REPORT OF STRUCTURAL CONDITION ASSESSMENT

(Not part of standard)

A1 Executive Summary (optional)
A2 INTRODUCTION
A2.1 Purpose
A2.1.1 Change of owner
A2.1.2 Change of occupancy
A2.1.3 Alterations or additions
A2.1.4 Code conformance
A2.1.5 Adaptive reuse, rehabilitation, or restoration
A2..1.6 Distress or failure— local or major
(a) Overload, lack of bracing, buckling, transitory vibration, brittle fracture, fatigue, and cyclic loading.
(b) Water intrusion, rot, corrosion, freeze-thaw damage, frost heave
(c) Insect infestation
(d) Fire
(e) Flood
(f) Storm, tornado, hurricane, snow, process precipitate.
(g) Blast, impact, progressive collapse, landslide
(h) Connection failure, formwork or shoring failure
(i) Seismic event, tsunami
(j) Subsidence, differential settlement, swelling soils, sinkholes, soil mass movement, quicksand, water table change, sewer or water main break
(k) Deterioration or weathering
(l) Others

A2.2 SCOPE OF INVESTIGATION AND ASSESSMENT
A2.2.1 Preliminary Assessment
A2.2.2 Detailed assessment
A2.2.3 Survey
(a) Corroboration of existing drawings
(b) Measured drawings, measurement of structural members
(c) Field evaluation of conditions (visual, probing, etc.)
(d) Identification of problem areas
(e) Records of observations (prints, matrix, photos, tapes)
A2.2.4 Testing
(a) Nondestructive
(b) Destructive
(c) Load Test
A2.3 METHODS AND TECHNIQUES
A2.3.1 Visual - including binoculars, magnifying glass, borescope, and fiber optics
A2.3.2 Photography, X ray, infrared thermography
A2.3.3 Tapes - oral, video
A2.3.4 Drawings and sketches
A2.3.5 Measurement
A2.3.6 Investigation procedure, and tests used.

A2.4 MEETINGS

A3 DESCRIPTION OF STRUCTURE
A3.1 GENERAL
A3.1.1 Type of architecture
A3.1.2 Type of structure
A3.1.3 Materials
(a) Masonry - stone, brick, CMU, clay tile, terra cotta, adobe, rammed earth
(b) Wood - logs, hewn, sawn, laminated, treated, connections
(c) Metals - iron, steel, aluminum, copper, bronze, lead
(d) Concrete - placed, precast, plain, reinforced, prestressed

A3.2 HISTORY
A3.2.1 Dates of construction, alteration, and repair
A3.2.2 Uses and occupancy - alterations, equipment, vibration, wear
A3.2.3 Environmental conditions - weather, heat, cold, chemicals, food products
A3.2.4 Site conditionss
A3.2.5 Unusual Loadings

A3.3 COLLECTED DATA
A3.3.1 Available drawings, specifications, calculations, reports
A3.3.2 Insurance descriptions, tax maps, deeds, building permits
A3.3.3 Alterations documentation
A3.3.4 Photographs and tapes
A3.3.5 Measured drawings from survey
A3.3.6 Interviews of people familiar with building

A4 DISCUSSION OF SITE VISITS

A4.1 OVERVIEW - may be entire engagement
A4.2 SURVEY
A4.2.1 Materials
A4.2.2 Real or inferred systems
A4.2.3 Dimensions
A4.2.4 Deflections, distortions, deterioration
A4.2.5 Identification of problem areas
A4.2.6 Record of data
(a) Sketches and drawings
(b) Notes
(c) Photographs, X rays, infrared scans
(d) Tapes – oral, video

1

ASSESSMENT METHODOLOGY: MATERIAL CHRONOLOGY, EARLY BUILDING LAWS, AND LOADS

INTRODUCTION

The existing buildings inventory of the United States and of most other countries shares many common characteristics of style, type, use, and structural system or systems. Another parallel, unfortunately, is the lack of original data on the structural analysis as performed by the architect/engineer designers of the buildings. In the United States, original drawings exist for less than 5 percent of the existing building stock, while records of the structural analysis exist for less than 1 per cent. The method or thought process of the original designer, an important analysis that would greatly assist architectural conservators and designers of contemporary uses, is not only unavailable, it is extremely difficult to reconstruct. The allowable stresses on hand-made brick, cast iron, wrought iron, and early steel, and the dimensional data and section properties needed by the architects and engineers responsible for certification of historic buildings, have been lost as current texts and academic courses concentrate on contemporary building materials. The problem is more complex than it appears because the allowable stresses on the early metal components changed regularly as grades of the materials evolved over time. Producers did not utilize any type of marking system identifying, for example, the type of steel, and rolling mills manufactured the same shapes in the new grade as it became available. Dating methods, testing of extracted samples, and in situ testing methods exist that can be utilized in the certification process. This work will enable architects and engineers involved in this important area of design to understand the building in question, make preliminary appraisals as they may apply, and if necessary reconstruct the original analysis and the basis of the design and identify original factors of safety. It will further describe methods of verifying capacities of structural components and the overall building system through use of the period allowable stresses, the design methods that were in effect at that period, and contemporary assessment strategies.

In evaluating an existing building, whether historic or simply a utilitarian structure, for reuse as commercial, housing, or mixed-use redevelopment, most of today's professional designers, architects, and engineers are reluctant to include in their analyses the full original capacity of the existing structural fabric to carry loads and to maintain lateral stability regardless of its condition. In some instances, the existing components, such as bearing walls and floor joists, are utilized to some extent in a very conservative manner, or they are used in conjunction with some form of contemporary "strengthening system." Many buildings were originally designed for heavier loads than a proposed new use requires and yet are still modified due to lack of a rational analysis. In some cases, buildings have been demolished because of lack of

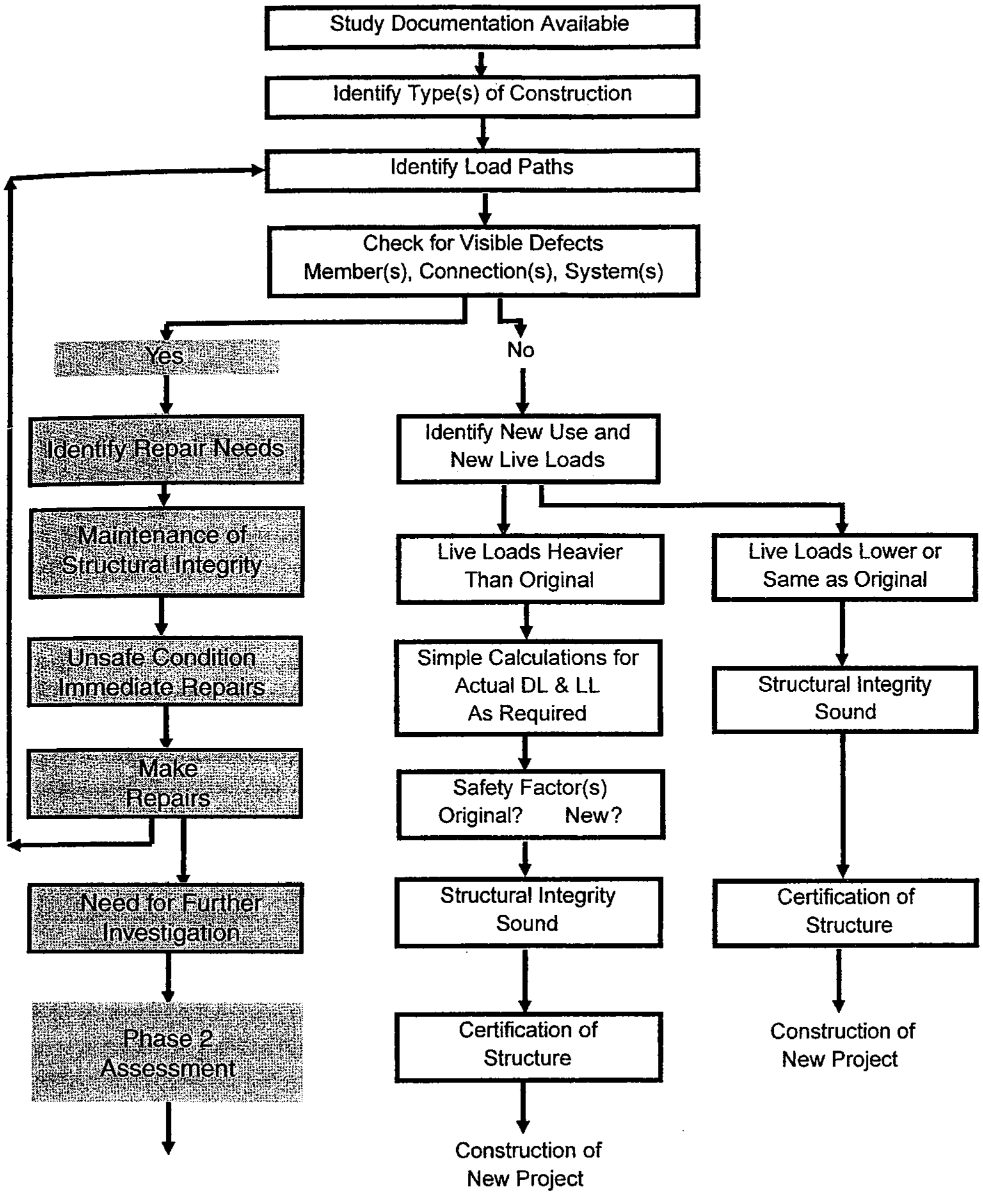


Figure 1-1. The Phase One Assessment (visual, on-site).

Factor of safety with loads associated with new use.

6. Structure adequate as exists for unchanged use.
   (a) Adequate without any repairs.
   (b) Adequate with minor proposed repairs.
7. Determine the need for a more detailed assessment. (If visual observations suggest inadequacy, a more detailed second-level assessment is warranted.)

Some buildings are relatively simple to analyze, and visual inspection of the Initial Assessment Process can adequately verify the structural capacity. Experience and professional judgment are required. In some instances, the structural system loses only a portion of its original factor of safety when the live load of a proposed new use is only marginally larger than the design live load. In many cases, the design live loads are not easily defined. However, experience allows the professional to reconstruct the design loads through an intuitive feel for member sizes, wall thicknesses, and so on, which enables one to determine the existing live load capacity by subtracting the dead load from the total load. The total load capacity is determined by defining the capacity of a floor system through the intuitive process as described above. The lateral load capacity of the building may be very difficult to define. If the building stands alone (without adjacent structures) or more importantly, if adjacent buildings have been removed, there may be a severe lack of lateral resistance. Many groups of adjacent buildings in historic downtown blocks are dependent upon each other for lateral stability. This was not by design; it was an inherited quality. The one inherent weakness in nineteenth-century one- to four-story commercial buildings is their inability to withstand wind loads (calculated wind pressures). Modern calculations often prove that a building will not resist design wind loads, yet it has been standing for over 100 years—proof positive that these buildings actually have more capacity than that calculated or, more probably, that the factor of safety of the original design was larger than the original assumption. At close inspection, however many of these buildings do show signs of small lateral displacement.

The capacity of the system of subassemblies may be greater than the calculated capacity of the assembled parts, but more likely than not, the allowable stresses were and still are extremely conservative. On occasion, the engineer or architrect will exercise professional judgment and determine that the global structural integrity may also be determined within the accuracies as needed for an overall certification through the initial assessment process.

PHASE TWO ASSESSMENT

If evidence of deterioration from building envelope failure exists, or a loss of structural capacity from man-inflicted damage has occurred as determined by the initial assessment process, a more detailed analysis may be needed in certain areas or for the overall structural system. Also, an overall change in use requiring new heavier live loads may require that the architect or engineer make a detailed analysis to determine the capacity of the structural components and overall system to carry the loads. From this analysis, the professional must determine the need for repairs, reinforcement, structural modifications, or redefinition of the structural system to bring the structure into modern code compliance. Building codes have detailed requirements concerning the cost or proportion of the building rehabilitation and the need for bringing the total building "up to code." These requirements normally pertain to utilities systems, life safety measures, and so on. It is always understood that the building must be certified structurally sound by a professional. There is no room for compromise where the structural liability is concerned.

The responsibility to determine the need for a further in-depth analysis is the professional realm of the engineer or architect, who must determine whether the Phase Two Assessment must be performed and in what manner is the work to be done. This phase requires some semidestructive investigative methods, detailed mathematical analysis, possibly scientific tests of materials, and usually a series of in situ load tests. Members and member connections that may be hidden behind finish systems must be accessed through removal of areas of the finish system to allow the designers to see all aspects of the structural components that are necessary for certification. Often it is possible to acquire the needed data with minimal intervention, and careful removal of certain areas will allow a relatively simple "patch" to restore the original appearance. Once all of the member data and connection data are available, the mathematical model can be redefined to produce a more accurate analysis. Actual dead loads can be more accurately determined in an effort to identify excesses, etc. The critical member or connection can be identified and the possibility of rerouting the load paths considered. Any members that are of an unidentified material must be identified and checked as a part of the certification process.

If the computational analysis using modern allowable stresses determines that the structural system or a part of the structural components is only marginally deficit in capacity, a more refined mathematical model that takes into account a comparison between the analytical methods of the period of construction and those of today building as adequate for the use proposed. The building may have been in continuous use, have been properly maintained by a discriminating owner, and be in excellent condition, while the proposed use may be sympathetic to the size and physical arrangement of the building.

The personnel involved in the preliminary investigation should plan ahead and wear proper protective clothing and aspirators. The minimum equipment necessary for the Phase One Assessment is as follows:

adequate flashlights, spare batteries
area lighting
air quality monitor
camera with flash
video tape recorder
cellular phone
moisturemeter
ladders, stepstools
ropes, hammers, handsaw
screwdrivers, pliers, ice pick
brushes, cloths
scale, tapes
sample bags
pencils, paper, clipboard
audio tape recorder
mirror
string and string level
monoscope
48″ level, torpedo level

Care should be taken around pigeon droppings and the possible presence of friable asbestos. The air quality monitor should be utilized at all times. If the building is in the ownership of the developer, an asbestos survey and mitigation undertaking should be performed as necessary to remove all asbestos prior to further work. Tests of any pigeon droppings should be performed, and if the results show "toxic," all pigeon droppings should also be removed prior to larger work crews being moved into the building.

The Phase One Assessment should proceed in an orderly, organized manner. A minimum outline of the visual observations and the items to be investigated is as follows:

1. Study documentation available (data immediately available).
2. Identify type of construction, load paths.
    (a) Determine original use of building.
    (b) Determine structural mechanism or mechanisms of building.
    (c) Determine adjacent buildings.
    (d) Lateral stability—use of adjacent buildings.
3. Inspection process—identify defects visually.
    (a) Defective members, trusses, joists, beams, columns.
    (b) Roof decks, floor decks, trussed walls.
    (c) Loadbearing walls, lintels
    (d) Connections, beam pockets, bearing points.
    (e) Foundation condition (visual observations).
        (i) Evidence of settlement exists.
        (ii) Areas of foundation failure.
        (iii) Underpinning (is the building adequately underpinned?).
4. Failure considerations.
    (a) Are any parts, members, or mechanisms in danger of failure (cracks, buckling, deflected, separated, etc.)?
    (b) Local failure types, conditions of failure.
    (c) Consequences of local failures; does another mechanism take the load?
    (d) Global structural failure possibilities (can structural collapse occur, how and when?).
5. Estimate actual loads on the building.
    (a) Determine actual dead loads, required live loads.
    (b) Roof loads, floor loads, wall loads, foundation loads.
        Lateral loads, uplift, diaphragm transfers.
    (c) Existing factors of safety.
        Factor of safety at time of inspection.

should be performed. The allowable stresses of the period of construction should be identified and checked against the results of scientific testing to ascertain whether additional capacity can be discovered.

If the initial visual assessment determines that the structure will be severely overloaded as a result of the new use, or visual structural damage or overstressed members are present or a preliminary mathematical analysis verifies that the new loads overstress the existing structural components, the second phase of the assessment process and some form of structural modification or structural intrusion are required.

The Phase Two Assessment must be comprehensive and should include at a minimum the following visual observations, testing, verification of hidden elements, and investigative forensic methods:

House to Small Commercial Building

1. *Determination of the Phase Two Assessment strategy.*
   (a) Where is the detailed analysis needed?
      Roof deck, joists, trusses, purlins

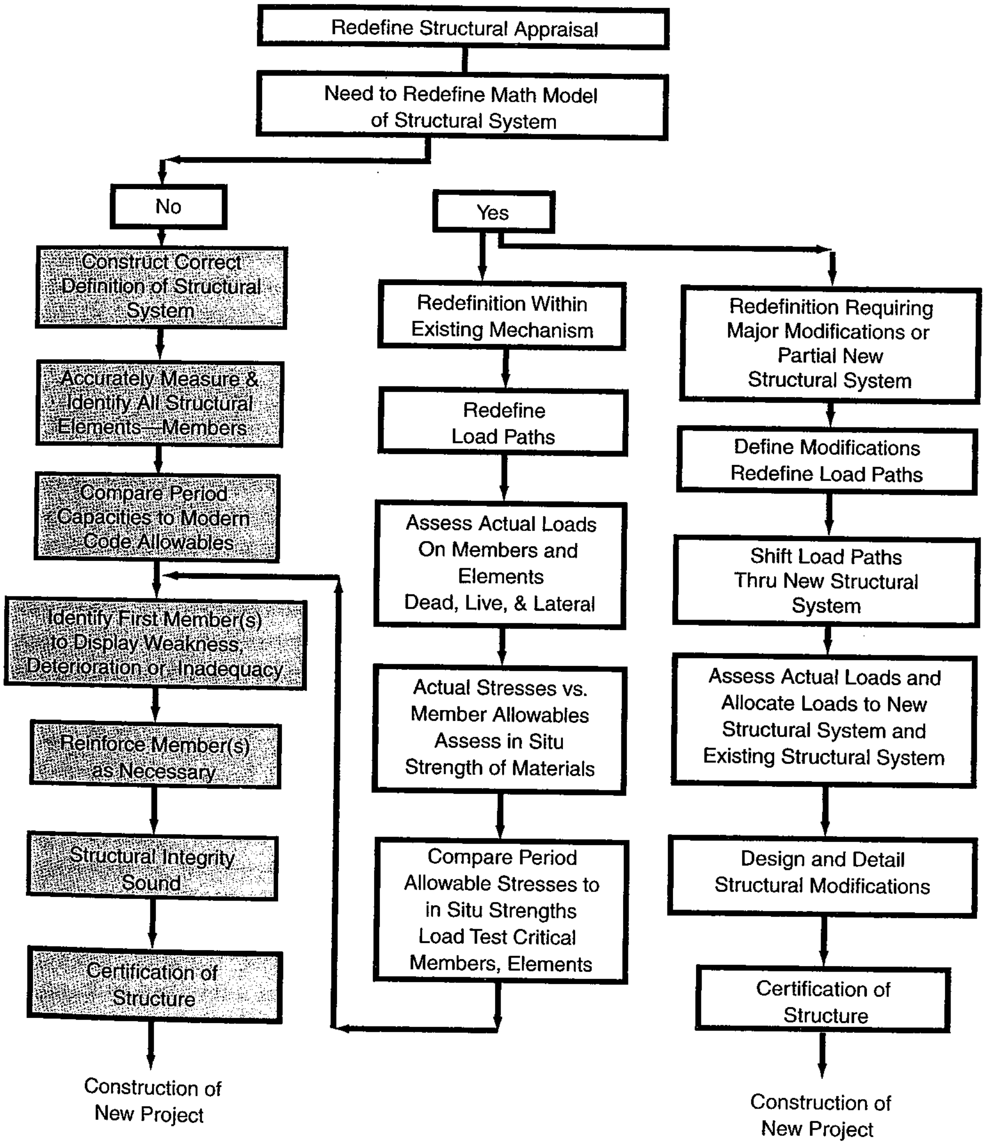


Figure 1-2. The Phase Two Assessment (visual, on-site, testing and office analysis).

- Longitudinal bracing system
- Floor deck, floor joists, floor trusses
- Floor diaphragm, load transfers
- Masonry wall system
  - Thickness of masonry, thickness changes
  - Length-to-height ratios
  - Transverse bracing systems
  - Front facade system
  - Openings, headers, lintels
- Wood wall system
  - Braced frame system
  - Stud, size and spacing
  - Balloon or Platform
- Metal, column and beam
  - Cast iron, wrought iron, steel
  - Curtain wall system
- Foundation system
  - Wall footings, type
  - Column footings, type
  - Piling, piling caps

Medium Commercial Building to 19th Century Skyscraper

2. *Determination of the Phase Two Assessment strategy.*
   (a) Where is the detailed analysis needed?
   - Roof deck, joists, trusses, purlins
   - Longitudinal bracing system
   - Floor deck, floor joists, floor trusses
   - Floor diaphragm, load transfers
   - Masonry wall system
     - Thickness of masonry, thickness changes
     - Length-to-height ratios
     - Transverse bracing systems
     - Front facade system
     - Openings, headers, lintels
   - Metal, column and beam
     - Cast iron, wrought iron, steel
     - Curtain wall system
     - Lateral bracing system
       - Trussed girder
       - Knee bracing
       - Portal frame
       - Cantilever system

3. *In situ material testing.* Determine where verifications are required and the type of testing or samples for testing are needed. Many types of in situ tests are very expensive and will generate only specific data. Chapter 6 provides data on available testing methods.

4. *Load testing.* Probably the cheapest and most definitive test available is the load testing of the structure. Load testing can be done to advantage on a member-by-member basis without damaging much of the building fabric. The method can be as simple as loading the joists or girders individually by placing weights at points on a floor or roof. Hydraulic tensioning of rods that have been anchored below foundation strata can give very accurate results at relatively moderate expense. Either method can provide data on load capacities as well as deflection verification.

5. Development of the mathematical model. The mathematical model of the structure, including modifications and new systems with proper allocation of loads, can be achieved in most cases on historic buildings with relative ease and not too much expense, in some instances by the use of the computer or the computer in

Appendix 2:

CHAPTER 10

HISTORIC BUILDINGS

SECTION 1001
GENERAL

1001.1 Scope. It is the intent of this chapter to provide means for the preservation of historic buildings. Historical buildings shall comply with the provisions of this chapter relating to their repair, alteration, relocation and change of occupancy.

1001.2 Report. A historic building undergoing repair, alteration, or change of occupancy shall be investigated and evaluated. If it is intended that the building meet the requirements of this chapter, a written report shall be prepared and filed with the code official by a registered design professional when such a report is necessary in the opinion of the code official. Such report shall be in accordance with Chapter 1 and shall identify each required safety feature that is in compliance with this chapter and where compliance with other chapters of these provisions would be damaging to the contributing historic features. In high seismic zones, a structural evaluation describing, at minimum, a complete load path and other earthquake-resistant features shall be prepared. In addition, the report shall describe each feature that is not in compliance with these provisions and shall demonstrate how the intent of these provisions is complied with in providing an equivalent level of safety.

1001.3 Special occupancy exceptions—museums. When a building in Group R-3 is also used for Group A, B, or M purposes such as museum tours, exhibits, and other public assembly activities, or for museums less than 3000 square feet (279 m^2), the code official may determine that the occupancy is Group B when life-safety conditions can be demonstrated in accordance with Section 1001.2. Adequate means of egress in such buildings, which may include a means of maintaining doors in an open position to permit egress, a limit on building occupancy to an occupant load permitted by the means of egress capacity, a limit on occupancy of certain areas or floors, or supervision by a person knowledgeable in the emergency exiting procedures, shall be provided.

1001.4 Flood hazard areas. In flood hazard areas, if all proposed work, including repairs, work required because of a change of occupancy, and alterations, constitutes substantial improvement, then the existing building shall comply with Section 1612 of the *International Building Code*.

> **Exception:** If a historic building will continue to be a historic building after the proposed work is completed, then the proposed work is not considered a substantial improvement. For the purposes of this exception, a historic building is:
>
> 1. Listed or preliminarily determined to be eligible for listing in the National Register of Historic Places;
> 2. Determined by the Secretary of the U.S. Department of Interior to contribute to the historical significance of a registered historic district or a district preliminarily determined to qualify as a historic district; or
> 3. Designated as historic under a state or local historic preservation program that is approved by the Department of Interior.

SECTION 1002
REPAIRS

1002.1 General. Repairs to any portion of a historic building or structure shall be permitted with original or like materials and original methods of construction, subject to the provisions of this chapter.

1002.2 Dangerous buildings. When a historic building is determined to be dangerous, no work shall be required except as necessary to correct identified unsafe conditions.

1002.3 Relocated buildings. Foundations of relocated historic buildings and structures shall comply with the *International Building Code*. Relocated historic buildings shall otherwise be considered a historic building for the purposes of this code. Relocated historic buildings and structures shall be sited so that exterior wall and opening requirements comply with the *International Building Code* or with the compliance alternatives of this code.

1002.4 Chapter 4 compliance. Historic buildings undergoing repairs shall comply with all of the applicable requirements of Chapter 4, except as specifically permitted in this chapter.

1002.5 Replacement. Replacement of existing or missing features using original materials shall be permitted. Partial replacement for repairs that match the original in configuration, height, and size shall be permitted. Such replacements shall not be required to meet the materials and methods requirements of Section 401.2.

> **Exception:** Replacement glazing in hazardous locations shall comply with the safety glazing requirements of Chapter 24 of the *International Building Code*.

SECTION 1003
FIRE SAFETY

1003.1 Scope. Historic buildings undergoing alterations, changes of occupancy, or that are moved shall comply with Section 1003.

1003.2 General. Every historic building that does not conform to the construction requirements specified in this code for the occupancy or use and that constitutes a distinct fire hazard as defined herein shall be provided with an approved automatic fire-extinguishing system as determined appropriate by the code official. However, an automatic fire-extinguishing system shall not be used to substitute for, or act as an alternative to, the required number of exits from any facility.

1003.3 Means of egress. Existing door openings and corridor and stairway widths less than those specified elsewhere in this code may be approved, provided that, in the opinion of the code official, there is sufficient width and height for a person to pass through the opening or traverse the means of egress. When approved by the code official, the front or main exit doors need not swing in the direction of the path of exit travel, provided that other approved means of egress having sufficient capacity to serve the total occupant load are provided.

1003.4 Transoms. In fully sprinklered buildings of Group R-1, R-2 or R-3 occupancy, existing transoms in corridors and other fire-resistance-rated, walls may be maintained if fixed in the closed position. A sprinkler shall be installed on each side of the transom.

1003.5 Interior finishes. The existing finishes of walls and ceilings shall be accepted when it is demonstrated that they are the historic finishes.

1003.6 Stairway enclosure. In buildings of three stories or less, exit enclosure construction shall limit the spread of smoke by the use of tight-fitting doors and solid elements. Such elements are not required to have a fire-resistance rating.

1003.7 One-hour fire-resistant assemblies. Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood or metal lath and plaster.

1003.8 Glazing in fire-resistance-rated systems. Historic glazing materials in interior walls required to have a 1-hour fire-resistance rating may be permitted when provided with approved smoke seals and when the area affected is provided with an automatic sprinkler system.

1003.9 Stairway railings. Grand stairways shall be accepted without complying with the handrail and guard requirements. Existing handrails and guards at all stairs shall be permitted to remain, provided they are not structurally dangerous.

1003.10 Guards. Guards shall comply with Sections 1003.10.1 and 1003.10.2.

1003.10.1 Height. Existing guards shall comply with the requirements of Section 405.

1003.10.2 Guard openings. The spacing between existing intermediate railings or openings in existing ornamental patterns shall be accepted. Missing elements or members of a guard may be replaced in a manner that will preserve the historic appearance of the building or structure.

1003.11 Exit signs. Where exit sign or egress path marking location would damage the historic character of the building, alternative exit signs are permitted with approval of the code official. Alternative signs shall identify the exits and egress path.

1003.12 Automatic fire-extinguishing systems.

1003.12.1 General. Every historical building that cannot be made to conform to the construction requirements specified in the *International Building Code* for the occupancy or use and that constitutes a distinct fire hazard shall be deemed to be in compliance if provided with an approved automatic fire-extinguishing system.

Exception: When the code official approves an alternative life-safety system.

SECTION 1004
ALTERATIONS

1004.1 Accessibility requirements. The provisions of Section 506 shall apply to buildings and facilities designated as historic structures that undergo alterations, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the code official, the alternative requirements of Sections 1004.1.1 through 1004.1.5 for that element shall be permitted.

1004.1.1 Site arrival points. At least one main entrance shall be accessible.

1004.1.2 Multilevel buildings and facilities. An accessible route from an accessible entrance to public spaces on the level of the accessible entrance shall be provided.

1004.1.3 Entrances. At least one main entrance shall be accessible.

Exceptions:

1. If a main entrance cannot be made accessible, an accessible nonpublic entrance that is unlocked while the building is occupied shall be provided; or
2. If a main entrance cannot be made accessible, a locked accessible entrance with a notification system or remote monitoring shall be provided.

1004.1.4 Toilet and bathing facilities. Where toilet rooms are provided, at least one accessible toilet room shall be provided for each sex, or a unisex toilet room complying with Section 1109.2.1 of the *International Building Code* shall be provided.

1004.1.5 Ramps. The slope of a ramp run of 24 inches (610 mm) maximum shall not be steeper than one unit vertical in eight units horizontal (12-percent slope).

SECTION 1005
CHANGE OF OCCUPANCY

1005.1 General. Historic buildings undergoing a change of occupancy shall comply with the applicable provisions of Chapter 8, except as specifically permitted in this chapter. When Chapter 8 requires compliance with specific requirements of Chapter 4, Chapter 5, or Chapter 6 and when those requirements are subject to the exceptions in Section 1002, the same exceptions shall apply to this section.

1005.2 Building area. The allowable floor area for historic buildings undergoing a change of occupancy shall be permitted to exceed by 20 percent the allowable areas specified in Chapter 5 of the *International Building Code*.

1005.3 Location on property. Historic structures undergoing a change of use to a higher hazard category in accordance with Section 812.4.3 may use alternative methods to comply with the fire resistance and exterior opening protective requirements. Such alternatives shall comply with Section 1001.2.

1005.4 Occupancy separation. Required occupancy separations of 1 hour may be omitted when the building is provided with an approved automatic sprinkler system throughout.

1005.5 Roof covering. Regardless of occupancy or use group, roof-covering materials not less than Class C shall be permitted where a fire-retardant roof covering is required.

1005.6 Means of egress. Existing door openings and corridor and stairway widths less than those that would be acceptable for nonhistoric buildings under these provisions shall be approved, provided that, in the opinion of the code official, there is sufficient width and height for a person to pass through the opening or traverse the exit and that the capacity of the exit system is adequate for the occupant load, or where other operational controls to limit occupancy are approved by the code official.

1005.7 Door swing. When approved by the code official, existing front doors need not swing in the direction of exit travel, provided that other approved exits having sufficient capacity to serve the total occupant load are provided.

1005.8 Transoms. In corridor walls required by these provisions to be fire-resistance rated, existing transoms may be maintained if fixed in the closed position, and fixed wired glass set in a steel frame or other approved glazing shall be installed on one side of the transom.

> **Exception:** Transoms conforming to Section 1003.4 shall be accepted.

1005.9 Finishes. Where finish materials are required to have a flame-spread classification of Class III or better, existing nonconforming materials shall be surfaced with an approved fire-retardant paint or finish.

> **Exception:** Existing nonconforming materials need not be surfaced with an approved fire-retardant paint or finish where the building is equipped throughout with an automatic fire-suppression system installed in accordance with the *International Building Code* and the nonconforming materials can be substantiated as being historic in character.

1005.10 One-hour fire-resistant assemblies. Where 1-hour fire-resistance-rated construction is required by these provisions, it need not be provided, regardless of construction or occupancy, where the existing wall and ceiling finish is wood lath and plaster.

1005.11 Stairs and railings. Existing stairways shall comply with the requirements of these provisions. The code official shall grant alternatives for stairways and railings if alternative stairways are found to be acceptable or are judged to meet the intent of these provisions. Existing stairways shall comply with Section 1003.

> **Exception:** For buildings less than 3000 square feet (279 m^2), existing conditions are permitted to remain at all stairs and rails.

1005.12 Exit signs. The code official may accept alternative exit sign locations where such signs would damage the historic character of the building or structure. Such signs shall identify the exits and exit path.

1005.13 Exit stair live load. Existing historic stairways in buildings changed to a Group R-1 or R-2 occupancy shall be accepted where it can be shown that the stairway can support a 75-pounds-per-square-foot (366 kg/m^2) live load.

1005.14 Natural light. When it is determined by the code official that compliance with the natural light requirements of Section 811.1.1 will lead to loss of historic character or historic materials in the building, the existing level of natural lighting shall be considered acceptable.

1005.15 Accessibility requirements. The provisions of Section 812.5 shall apply to buildings and facilities designated as historic structures that undergo a change of occupancy, unless technically infeasible. Where compliance with the requirements for accessible routes, ramps, entrances, or toilet facilities would threaten or destroy the historic significance of the building or facility, as determined by the authority having jurisdiction, the alternative requirements of Sections 1004.1.1 through 1004.1.5 for those elements shall be permitted.

SECTION 1006
STRUCTURAL

1006.1 General. Historic buildings shall comply with the applicable structural provisions for the work as classified in Chapter 3.

> **Exception:** The code official shall be authorized to accept existing floors and approve operational controls that limit the live load on any such floor.

1006.2 Unsafe structural elements. Where the code official determines that a component or a portion of a building or structure is dangerous as defined in this code and is in need of repair, strengthening, or replacement by provisions of this code, only that specific component or portion shall be required to be repaired, strengthened, or replaced.

CHAPTER 4
REPAIRS

SECTION 401
GENERAL

401.1 Scope. Repairs as described in Section 302 shall comply with the requirements of this chapter. Repairs to historic buildings shall comply with this chapter, except as modified in Chapter 10.

401.2 Permitted materials. Except as otherwise required herein, work shall be done using materials permitted by the applicable code for new construction or using like materials such that no hazard to life, health or property is created.

401.3 Conformance. The work shall not make the building less conforming to the building, plumbing, mechanical, electrical or fire codes of the jurisdiction, or to alternative materials, design and methods of construction, or any previously approved plans, modifications, alternative methods, or compliance alternatives, than it was before the repair was undertaken.

401.4 Flood hazard areas. In flood hazard areas, repairs that constitute substantial improvement shall require that the building comply with Section 1612 of the *International Building Code*.

SECTION 402
SPECIAL USE AND OCCUPANCY

402.1 General. Repair of buildings classified as special use or occupancy as described in the *International Building Code* shall comply with the requirements of this chapter.

SECTION 403
BUILDING ELEMENTS AND MATERIALS

403.1 Hazardous materials. Hazardous materials that are no longer permitted, such as asbestos and lead-based paint, shall not be used.

403.2 Glazing in hazardous locations. Replacement glazing in hazardous locations shall comply with the safety glazing requirements of the *International Building Code* or *International Residential Code* as applicable.

> **Exception:** Glass block walls, louvered windows, and jalousies repaired with like materials.

SECTION 404
FIRE PROTECTION

404.1 General. Repairs shall be done in a manner that maintains the level of fire protection provided.

SECTION 405
MEANS OF EGRESS

405.1 General. Repairs shall be done in a manner that maintains the level of protection provided for the means of egress.

SECTION 406
ACCESSIBILITY

406.1 General. Repairs shall be done in a manner that maintains the level of accessibility provided.

SECTION 407
STRUCTURAL

407.1 General. Repairs of structural elements shall comply with this section.

407.1.1 Seismic evaluation and design. Seismic evaluation and design of an existing building and its components shall be based on the assumed forces related to the response of the structure to earthquake motions.

407.1.1.1 Evaluation and design procedures. The seismic evaluation and design of an existing building shall be based on the procedures specified in the *International Building Code*, Appendix A of this code (GSREB), ASCE 31 or FEMA 356.

407.1.1.2 IBC level seismic forces. When seismic forces are required to meet the *International Building Code* level, they shall be based on 100 percent of the values in the *International Building Code* or FEMA 356. Where FEMA 356 is used, the FEMA 356 Basic Safety Objective (BSO) shall be used for buildings in Seismic Use Group I. For buildings in other Seismic Use Groups the applicable FEMA 356 performance levels shown in Table 407.1.1.2 for BSE-1 and BSE-2 Earthquake Hazard Levels shall be used.

TABLE 407.1.1.2
IBC SEISMIC USE GROUP EQUIVALENTS TO FEMA 356 AND ASCE 31 PERFORMANCE LEVELS[a]

SEISMIC USE GROUP (BASED ON IBC TABLE 1604.5)	PERFORMANCE LEVELS OF ASCE 31 AND FEMA 356 BSE-1 EARTHQUAKE HAZARD LEVEL	PERFORMANCE LEVELS OF FEMA 356 BSE-2 EARTHQUAKE HAZARD LEVEL
I	Life Safety (LS)	Collapse Prevention (CP)
II	Life Safety (LS)	Collapse Prevention (CP)
III	Note b	Note b
IV	Immediate Occupancy (IO)	Life Safety (LS)

a. The charging provisions for Seismic Use Group equivalents to ASCE 31 and FEMA 356 BSE-1 for reduced *International Building Code* level seismic forces are located in Section 407.1.1.3.

b. Performance Levels for Seismic Use Group III shall be taken as halfway between the performance levels specified for Seismic Use Groups II and IV.

407.1.1.3 Reduced IBC level seismic forces. When seismic forces are permitted to meet reduced *International Building Code* levels, they shall be based on 75 percent of the assumed forces prescribed in the

International Building Code, applicable chapters in Appendix A of this code (GSREB), the applicable performance level of ASCE 31 as shown in Table 407.1.1.2, or the applicable performance level for the BSE-1 Earthquake Hazard Level of FEMA 356 shown in Table 407.1.1.2.

407.1.2 Wind design. Wind design of existing buildings shall be based on the procedures specified in the *International Building Code* or *International Residential Code* as applicable.

407.2 Reduction of strength. Repairs shall not reduce the structural strength or stability of the building, structure, or any individual member thereof.

Exception: Such reduction shall be allowed provided the capacity is not reduced to below the *International Building Code* levels.

407.3 Damaged buildings. Damaged buildings shall be repaired in accordance with this section.

407.3.1 New structural frame members. New structural frame members used in the repair of damaged buildings, including anchorage and connections, shall comply with the *International Building Code*.

Exception: For the design of new structural frame members connected to existing structural frame members, the use of reduced *International Building Code* level seismic forces as specified in Section 407.1.1.3 shall be permitted.

407.3.2 Substantial structural damage. Buildings that have sustained substantial structural damage shall comply with this section.

407.3.2.1 Engineering evaluation and analysis. An engineering evaluation and analysis that establishes the structural adequacy of the damaged building shall be prepared by a registered design professional and submitted to the code official. The evaluation and analysis may assume that all damaged structural elements and systems have their original strength and stiffness. The seismic analysis shall be based on one of the procedures specified in Section 407.1.1.

407.3.2.1.1 Extent of repair. The evaluation and analysis shall demonstrate that the building, once repaired, complies with the wind and seismic provisions of the *International Building Code*.

Exception: The seismic design level for the repair design shall be the higher of the Building Code in effect at the time of original construction or reduced *International Building Code* level seismic forces as specified in Section 407.1.1.3.

407.3.3 Below substantial structural damage. Repairs to buildings damaged to a level below the substantial structural damage level as defined in Section 202 shall be allowed to be made with the materials, methods, and strengths in existence prior to the damage unless such existing conditions are dangerous as defined in Chapter 2. New structural frame members as defined in Chapter 2 shall comply with Section 407.3.1.

407.3.4 Other uncovered structural elements. Where in the course of conducting repairs other uncovered structural elements are found to be unsound or otherwise structurally deficient, such elements shall be made to conform to the requirements of Section 407.3.2.1.1.

407.3.5 Flood hazard areas. In flood hazard areas, damaged buildings that sustain substantial damage shall be brought into compliance with Section 1612 of the *International Building Code*.

SECTION 408
ELECTRICAL

408.1 Material. Existing electrical wiring and equipment undergoing repair shall be allowed to be repaired or replaced with like material.

Exceptions:

1. Replacement of electrical receptacles shall comply with the applicable requirements of Section 406.3(D) of NFPA 70.
2. Plug fuses of the Edison-base type shall be used for replacements only where there is no evidence of over fusing or tampering per applicable requirements of Section 240.51(B) of NFPA 70.
3. For replacement of nongrounding-type receptacles with grounding-type receptacles and for branch circuits that do not have an equipment grounding conductor in the branch circuitry, the grounding conductor of a grounding-type receptacle outlet shall be permitted to be grounded to any accessible point on the grounding electrode system, or to any accessible point on the grounding electrode conductor in accordance with Section 250.130(C) of NFPA 70.
4. Non-"hospital grade" receptacles in patient bed locations of Group I-2 shall be replaced with "hospital grade" receptacles, as required by NFPA 99 and Article 517 of NFPA 70.
5. Frames of electric ranges, wall-mounted ovens, counter-mounted cooking units, clothes dryers, and outlet or junction boxes that are part of the existing branch circuit for these appliances shall be permitted to be grounded to the grounded circuit conductor in accordance with Section 250.140 of NFPA 70.

SECTION 409
MECHANICAL

409.1 General. Existing mechanical systems undergoing repair shall comply with Section 401.1 and the scoping provisions of Chapter 1 where applicable.

[P] SECTION 410
PLUMBING

410.1 Materials. The following plumbing materials and supplies shall not be used:

1. Sheet and tubular copper and brass trap and tailpiece fittings less than the minimum wall thickness of .027 inch (0.69 mm).
2. Solder having more than 0.2-percent lead in the repair of potable water systems.
3. Water closets having a concealed trap seal or an unventilated space or having walls that are not thoroughly washed at each discharge in accordance with ASME A112.19.2M.
4. The following types of joints shall be prohibited:
    - 4.1. Cement or concrete joints.
    - 4.2. Mastic or hot-pour bituminous joints.
    - 4.3. Joints made with fittings not approved for the specific installation.
    - 4.4. Joints between different diameter pipes made with elastomeric rolling O-rings.
    - 4.5. Solvent-cement joints between different types of plastic pipe.
    - 4.6. Saddle-type fittings.
5. The following types of traps are prohibited:
    - 5.1. Traps that depend on moving parts to maintain the seal.
    - 5.2. Bell traps.
    - 5.3. Crown-vented traps.
    - 5.4. Traps not integral with a fixture and that depend on interior partitions for the seal, except those traps constructed of an approved material that is resistant to corrosion and degradation.

410.2 Water closet replacement. When any water closet is replaced, the replacement water closet shall comply with the *International Plumbing Code*. The maximum water consumption flow rates and quantities for all replaced water closets shall be 1.6 gallons (6 L) per flushing cycle.

Exception: Blowout-design water closets [3.5 gallons (13 L) per flushing cycle].

CHAPTER 8

CHANGE OF OCCUPANCY

SECTION 801
GENERAL

801.1 Repair and alteration with no change of occupancy classification. Any repair or alteration work undertaken in connection with a change of occupancy that does not involve a change of occupancy classification as described in the *International Building Code* shall conform to the applicable requirements for the work as classified in Chapter 3 and to the requirements of Sections 802 through 811.

Exceptions:

1. Compliance with all of the provisions of Chapter 7 is not required where the change of occupancy classification complies with the requirements of Section 812.3.
2. As modified in Section 1005 for historic buildings.
3. As permitted in Chapter 12.

801.2 Partial change of occupancy group. Where a portion of an existing building is changed to a new occupancy group, Section 812 shall apply.

801.3 Certificate of occupancy required. A certificate of occupancy shall be issued where a change of occupancy occurs that results in a different occupancy classification as determined by the *International Building Code*.

SECTION 802
SPECIAL USE AND OCCUPANCY

802.1 Compliance with the Building Code. Where the character or use of an existing building or part of an existing building is changed to one of the following special use or occupancy categories as defined in Chapter 4 of the *International Building Code*, the building shall comply with all of the applicable requirements of the *International Building Code*.

1. Covered mall buildings.
2. Atriums.
3. Motor vehicle related occupancies.
4. Aircraft related occupancies.
5. Motion picture projection rooms.
6. Stages and platforms.
7. Special amusement buildings.
8. Incidental use areas.
9. Hazardous materials.

802.2 Underground buildings. An underground building in which there is a change of use shall comply with the requirements of the *International Building Code* applicable to underground structures.

SECTION 803
BUILDING ELEMENTS AND MATERIALS

803.1 General. Building elements and materials in portions of buildings undergoing a change of occupancy classification shall comply with Section 812.

SECTION 804
FIRE PROTECTION

804.1 General. Fire protection requirements of Section 812 shall apply where a building or portions thereof undergo a change of occupancy classification.

SECTION 805
MEANS OF EGRESS

805.1 General. Means of egress in portions of buildings undergoing a change of occupancy classification shall comply with Section 812.

SECTION 806
ACCESSIBILITY

806.1 General. Accessibility in portions of buildings undergoing a change of occupancy classification shall comply with Section 812.5.

SECTION 807
STRUCTURAL

807.1 Gravity loads. Buildings or portions thereof subject to a change of occupancy where such change in the nature of occupancy results in higher uniform or concentrated loads based on Tables 1607.1 and 1607.6 of the *International Building Code* shall comply with the gravity load provisions of the *International Building Code*.

> **Exception:** Structural elements whose stress is not increased by more than 5 percent.

807.2 Snow and wind loads. Buildings and structures subject to a change of occupancy where such change in the nature of occupancy results in higher wind or snow importance factors based on Table 1604.5 of the *International Building Code* shall be analyzed and shall comply with the applicable wind or snow load provisions of the *International Building Code*.

> **Exception:** Where the new occupancy with a higher importance factor is less than or equal to 10 percent of the total building floor area. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.

807.3 Seismic loads. Existing buildings with a change of occupancy shall comply with the seismic provisions of Sections 807.3.1 and 807.3.2.

807.3.1 Compliance with the *International Building Code*. When a building or portion thereof is subject to a change of occupancy such that a change in the nature of the occupancy results in a higher seismic factor based on Table 1604.5 of the *International Building Code* or where such change of occupancy results in a reclassification of a building to a higher hazard category as shown in Table 812.4.1 and a change of a Group M occupancy to a Group A, E, I-1 R-1, R-2, or R-4 occupancy with two-thirds or more of the floors involved in Level 3 alteration work, the building shall conform to the seismic requirements of the *International Building Code* for the new seismic use group.

Exceptions:

1. Group M occupancies being changed to Group A, E, I-1, R-1, R-2, or R-4 occupancies for buildings less than six stories in height and in Seismic Design Category A, B, or C.
2. Specific detailing provisions required for a new structure are not required to be met where it can be shown that an acceptable level of performance and seismic safety is obtained for the applicable seismic use group using reduced *International Building Code* level seismic forces as specified in Section 407.1.1.3. The rehabilitation procedures shall be approved by the code official and shall consider the regularity, over-strength, redundancy, and ductility of the lateral-load-resisting system within the context of the existing detailing of the system.
3. Where the area of the new occupancy with a higher hazard category is less than or equal to 10 percent of the total building floor area and the new occupancy is not classified as Seismic Use Group IV. For the purposes of this exception, where a structure is occupied for two or more occupancies not included in the same seismic use group, the structure shall be assigned the classification of the highest seismic use group corresponding to the various occupancies. Where structures have two or more portions that are structurally separated in accordance with Section 1620 of the *International Building Code*, each portion shall be separately classified. Where a structurally separated portion of a structure provides required access to, required egress from, or shares life safety components with another portion having a higher seismic use group, both portions shall be assigned the higher seismic use group. The cumulative effect of the area of occupancy changes shall be considered for the purposes of this exception.
4. Where the new occupancy with a higher hazard category is within only one story of a building or structure, only the lateral-force-resisting elements in that story and all lateral-force-resisting elements below that story shall be required to comply with Section 807.3.1 and Exception 2. The lateral forces generated by masses of such upper floors shall be included in the analysis and design of the lateral-force-resisting systems for the strengthened floor. Such forces may be applied to the floor level immediately above the topmost strengthened floor and be distributed in that floor in a manner consistent with the construction and layout of the exempted floor.
5. Unreinforced masonry bearing wall buildings in Seismic Use Group II and in Seismic Use Groups II and III when in Seismic Design Categories A, B, and C shall be allowed to be strengthened to meet the requirements of Appendix A of the code (GSREB).

807.3.2 Access to Seismic Use Group IV. Where the change of occupancy is such that compliance with Section 807.3.1 is required and the seismic use group is a Category IV, the operational access to such Seismic Use Group IV existing structure shall not be through an adjacent structure.

Exception: Where the adjacent structure conforms to the requirements for Seismic Use Group IV structures.

Where operational access is less than 10 feet (3048 mm) from an interior lot line or less than 10 feet (3048 mm) from another structure, access protection from potential falling debris shall be provided by the owner of the Seismic Use Group IV structure.

SECTION 808
ELECTRICAL

808.1 Special occupancies. Where the occupancy of an existing building or part of an existing building is changed to one of the following special occupancies as described in the ICC *Electrical Code*, the electrical wiring and equipment of the building or portion thereof that contains the proposed occupancy shall comply with the applicable requirements of the ICC *Electrical Code* whether or not a change of occupancy group is involved:

1. Hazardous locations.
2. Commercial garages, repair, and storage.
3. Aircraft hangars.
4. Gasoline dispensing and service stations.
5. Bulk storage plants.
6. Spray application, dipping, and coating processes.
7. Health care facilities.
8. Places of assembly.
9. Theaters, audience areas of motion picture and television studios, and similar locations.
10. Motion picture and television studios and similar locations.
11. Motion picture projectors.
12. Agricultural buildings.

808.2 Unsafe conditions. Where the occupancy of an existing building or part of an existing building is changed, all unsafe conditions shall be corrected without requiring that all parts of the electrical system be brought up to the current edition of the ICC *Electrical Code*.

808.3 Service upgrade. Where the occupancy of an existing building or part of an existing building is changed, electrical service shall be upgraded to meet the requirements of the ICC *Electrical Code* for the new occupancy.

808.4 Number of electrical outlets. Where the occupancy of an existing building or part of an existing building is changed, the number of electrical outlets shall comply with the ICC *Electrical Code* for the new occupancy.

SECTION 809
MECHANICAL

809.1 Mechanical requirements. Where the occupancy of an existing building or part of an existing building is changed such that the new occupancy is subject to different kitchen exhaust requirements or to increased mechanical ventilation requirements in accordance with the *International Mechanical Code*, the new occupancy shall comply with the intent of the respective *International Mechanical Code* provisions.

SECTION 810
PLUMBING

810.1 Increased demand. Where the occupancy of an existing building or part of an existing building is changed such that the new occupancy is subject to increased or different plumbing fixture requirements or to increased water supply requirements in accordance with the *International Plumbing Code*, the new occupancy shall comply with the intent of the respective *International Plumbing Code* provisions.

810.2 Food handling occupancies. If the new occupancy is a food handling establishment, all existing sanitary waste lines above the food or drink preparation or storage areas shall be panned or otherwise protected to prevent leaking pipes or condensation on pipes from contaminating food or drink. New drainage lines shall not be installed above such areas and shall be protected in accordance with the *International Plumbing Code*.

810.3 Interceptor required. If the new occupancy will produce grease or oil-laden wastes, interceptors shall be provided as required in the *International Plumbing Code*.

810.4 Chemical wastes. If the new occupancy will produce chemical wastes, the following shall apply:

1. If the existing piping is not compatible with the chemical waste, the waste shall be neutralized prior to entering the drainage system, or the piping shall be changed to a compatible material.
2. No chemical waste shall discharge to a public sewer system without the approval of the sewage authority.

810.5 Group I-2. If the occupancy group is changed to Group I-2, the plumbing system shall comply with the applicable requirements of the *International Plumbing Code*.

SECTION 811
OTHER REQUIREMENTS

811.1 Light and ventilation. Light and ventilation shall comply with the requirements of the *International Building Code* for the new occupancy.

SECTION 812
CHANGE OF OCCUPANCY CLASSIFICATION

812.1 Compliance with Chapter 7. The occupancy classification of an existing building may be changed, provided that the building meets all of the requirements of Chapter 7 applied throughout the building for the new occupancy group and complies with the requirements of Sections 802 through 812.

812.1.1 Change of occupancy group without separation. Where a portion of an existing building is changed to a new occupancy group and that portion is not separated from the remainder of the building with fire barriers having a fire-resistance rating as required in the *International Building Code* for the separate occupancy, the entire building shall comply with all of the requirements of Chapter 7 applied throughout the building for the most restrictive occupancy group in the building and with the requirements of this chapter.

> **Exception:** Compliance with all of the provisions of Chapter 7 is not required when the change of occupancy group complies with the requirements of Section 812.3.

812.1.2 Change of occupancy group with separation. A portion of an existing building that is changed to a new occupancy group and that is separated from the remainder of the building with fire barriers having a fire-resistance rating as required in the *International Building Code* for the separate occupancy shall comply with all the requirements of Chapter 7 for the new occupancy group and with the requirements of this chapter.

> **Exception:** Compliance with all of the provisions of Chapter 7 is not required when the change of use complies with the requirements of Section 812.3.

812.2 Hazard category classifications. The relative degree of hazard between different occupancy groups shall be as set forth in the hazard category classifications specified in Tables 812.4.1, 812.4.2, and 812.4.3 of Sections 812.4.1, 812.4.2, and 812.4.3.

812.2.1 Change of occupancy classification to an equal or lesser hazard. An existing building or portion thereof may have its use changed to an occupancy group within the same hazard classification category or to an occupancy group within a lesser hazard classification category (higher number) in all four hazard category classifications, provided it complies with the provisions of Chapter 7 for the new occupancy group, applied throughout the building or portion thereof.

Exception: Compliance with all the provisions of Chapter 7 is not required where the change of occupancy group complies with the requirements of Section 812.3.

812.2.2 Change of occupancy classification to a higher hazard. An existing building shall comply with all of the applicable requirements of this chapter when a change in occupancy group places it in a higher hazard category or when the occupancy group is changed within Group H.

812.2.3 Change of occupancy classification to a higher hazard in all three hazard classifications. An existing building may have its use changed to a higher hazard rating (lower number) in all three hazard category classifications designated in Tables 812.4.1, 812.4.2, and 812.4.3, provided it complies with this chapter or with Chapter 12.

812.3 Change of occupancy classification to an equal or lesser hazard in all three hazard classifications. A change of use to an occupancy group within the same hazard classification category or to an occupancy group within a lesser hazard classification category (higher number) in the three hazard category classifications addressed by Tables 812.4.1, 812.4.2, and 812.4.3 shall be permitted in an existing building or portion thereof, provided the provisions of Sections 812.3.1 through 812.3.5 are met.

812.3.1 Minimum requirements. Regardless of the occupancy group involved, the following requirements shall be met:

1. The capacity of the means of egress shall comply with *International Building Code.*
2. The interior finish of walls and ceilings shall comply with the requirements of the *International Building Code* for the new occupancy group.

812.3.2 Groups I-1, R-1, R-2 or R-4. Where the new use is classified as a Group I-1, R-1, R-2 or R-4 occupancy the following requirements shall be met.

1. Corridor doors and transoms shall comply with the requirements of Sections 605.5.1 and 605.5.2.
2. Automatic sprinkler systems shall comply with the requirements of Section 604.2.
3. Fire alarm and detection systems shall comply with the requirements of Section 604.4.

812.3.3 Group I-2. Where the new use is classified as a Group I-2 occupancy, the following requirements shall be met:

1. Egress doorways from patient sleeping rooms and from suites of rooms shall comply with the requirements of Section 605.4.1.2.
2. Shaft enclosures shall comply with the requirements of Section 703.1.
3. Smoke barriers shall comply with the requirements of Section 603.3.
4. Automatic sprinkler systems shall comply with the requirements of Section 604.2.
5. Fire alarm and detection systems shall comply with the requirements of Section 604.4.

812.3.4 Group I-3. Where the new use is classified as a Group I-3 occupancy, the following requirements shall be met:

1. Locking of egress doors shall comply with the requirements of Section 605.4.5.
2. Shaft enclosures shall comply with the requirements of Section 703.1.
3. Automatic sprinkler systems shall comply with the requirements of Section 604.2.
4. Fire alarm and detection systems shall comply with the requirements of Section 604.4.

812.3.5 Group R-3. Where the new use is classified as a Group R-3 occupancy, the following requirements shall be met:

1. Dwelling unit separation shall comply with the requirements of Section 703.2.1.
2. The smoke alarm requirements of Section 604.4.3 shall be met.

812.4 Fire and life safety. The fire and life safety provisions of this section shall be applicable to buildings or portions of buildings undergoing a change of occupancy classification.

812.4.1 Means of egress, general. Hazard categories in regard to life safety and means of egress shall be in accordance with Table 812.4.1.

TABLE 812.4.1
HAZARD CATEGORIES AND CLASSIFICATIONS: LIFE SAFETY AND EXITS

RELATIVE HAZARD	OCCUPANCY CLASSIFICATION
1 (Highest Hazard)	H
2	I-2, I-3, I-4
3	A, E, I-1, M, R-1, R-2, R-4
4	B, F-1, R-3, S-1
5 (Lowest Hazard)	F-2, S-2, U

812.4.1.1 Means of egress for change to higher hazard category. When a change of occupancy group is made to a higher hazard category (lower number) as shown in Table 812.4.1, the means of egress shall comply with the requirements of Chapter 10 of the *International Building Code.*

Exceptions:

1. Stairways shall be enclosed in compliance with the applicable provisions of Section 703.1.
2. Existing stairways including handrails and guards complying with the requirements of Chapter 7 shall be permitted for continued use subject to approval of the code official.

3. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
4. Existing corridor walls constructed of wood lath and plaster in good condition or $^1/_2$-inch-thick (12.7 mm) gypsum wallboard shall be permitted.
5. Existing corridor doorways, transoms, and other corridor openings shall comply with the requirements in Sections 605.5.1, 605.5.2, and 605.5.3.
6. Existing dead-end corridors shall comply with the requirements in Section 605.6.
7. An existing operable window with clear opening area no less than 4 square feet (0.38 m^2) and with minimum opening height and width of 22 inches (559 mm) and 20 inches (508 mm), respectively, shall be accepted as an emergency escape and rescue opening.

812.4.1.2 Means of egress for change of use to equal or lower hazard category. When a change of occupancy group is made to an equal or lesser hazard category (higher number) as shown in Table 812.4.1, existing elements of the means of egress shall comply with the requirements of Section 705 for the new occupancy group. Newly constructed or configured means of egress shall comply with the requirements of Chapter 10 of the *International Building Code.*

Exception:

1. Any stairway replacing an existing stairway within a space where the pitch or slope cannot be reduced because of existing construction shall not be required to comply with the maximum riser height and minimum tread depth requirements.
2. Compliance with Section 705 is not required where the change of occupancy group complies with the requirements of Section 812.3.

812.4.1.3 Egress capacity. Egress capacity shall meet or exceed the occupant load as specified in the *International Building Code* if the change of occupancy classification is to an equal or lesser hazard category when evaluated in accordance with Table 812.4.1.

812.4.1.4 Handrails. Existing stairways shall comply with the handrail requirements of Section 605.9 in the area of the change of occupancy classification.

812.4.1.5 Guards. Existing guards shall comply with the requirements in Section 605.10 in the area of the change of occupancy classification.

812.4.2 Heights and areas. Hazard categories in regard to height and area shall be in accordance with Table 812.4.2.

TABLE 812.4.2
HAZARD CATEGORIES AND CLASSIFICATIONS: HEIGHTS AND AREAS

RELATIVE HAZARD	OCCUPANCY CLASSIFICATIONS
1 (Highest Hazard)	H
2	A-1, A-2, A-3, A-4, I, R-1, R-2, R-4
3	E, F-1, S-1, M
4 (Lowest Hazard)	B, F-2, S-2, A-5, R-3, U

812.4.2.1 Height and area for change to higher hazard category. When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.2, heights and areas of buildings and structures shall comply with the requirements of Chapter 5 of the *International Building Code* for the new occupancy group.

> **Exception:** A one-story building changed to Group E shall not be required to meet the area limitations of the *International Building Code.*

812.4.2.2 Height and area for change to equal or lesser hazard category. When a change of occupancy group is made to an equal or lesser hazard category as shown in Table 812.4.2, the height and area of the existing building shall be deemed acceptable.

812.4.2.3 Fire barriers. When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.2, fire barriers in separated mixed-use buildings shall comply with the fire resistance requirements of the *International Building Code.*

> **Exception:** Where the fire barriers are required to have a 1-hour fire-resistance rating, existing wood lath and plaster in good condition or existing $^1/_2$-inch-thick (12.7 mm) gypsum wallboard shall be permitted.

812.4.3 Exterior wall fire-resistance ratings. Hazard categories in regard to fire-resistance ratings of exterior walls shall be in accordance with Table 812.4.3.

TABLE 812.4.3
HAZARD CATEGORIES AND CLASSIFICATIONS: EXPOSURE OF EXTERIOR WALLS

RELATIVE HAZARD	OCCUPANCY CLASSIFICATION
1 (Highest Hazard)	H
2	F-1, M, S-1
3	A, B, E, I, R
4 (Lowest Hazard)	F-2, S-2, U

812.4.3.1 Exterior wall rating for change of occupancy classification to a higher hazard category. When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.3, exterior walls shall have fire resistance and exterior opening protectives as required by the *International Building Code*. This provision shall not apply to walls at right angles to the property line.

Exception: A 2-hour fire-resistance rating shall be allowed where the building does not exceed three stories in height and is classified as one of the following groups: A-2 and A-3 with an occupant load of less than 300, B, F, M, or S.

812.4.3.2 Exterior wall rating for change of occupancy classification to an equal or lesser hazard category. When a change of occupancy group is made to an equal or lesser hazard category as shown in Table 812.4.3, existing exterior walls, including openings, shall be accepted.

812.4.3.3 Opening protectives. Openings in exterior walls shall be protected as required by the *International Building Code*. Where openings in the exterior walls are required to be protected because of their distance from the property line, the sum of the area of such openings shall not exceed 50 percent of the total area of the wall in each story.

Exceptions:

1. Where the *International Building Code* permits openings in excess of 50 percent.
2. Protected openings shall not be required in buildings of Group R occupancy that do not exceed three stories in height and that are located not less than 3 feet (914 mm) from the property line.
3. Where exterior opening protectives are required, an automatic sprinkler system throughout may be substituted for opening protection.
4. Exterior opening protectives are not required when the change of occupancy group is to an equal or lower hazard classification in accordance with Table 812.4.3.

812.4.4 Enclosure of vertical shafts. Enclosure of vertical shafts shall be in accordance with Sections 812.4.4.1 through 812.4.4.4.

812.4.4.1 Minimum requirements. Vertical shafts shall be designed to meet the *International Building Code* requirements for atriums or the requirements of this section.

812.4.4.2 Stairways. When a change of occupancy group is made to a higher hazard category as shown in Table 812.4.1, interior stairways shall be enclosed as required by the *International Building Code*.

Exceptions:

1. In other than Group I occupancies, an enclosure shall not be required for openings serving only one adjacent floor and that are not connected with corridors or stairways serving other floors.
2. Unenclosed existing stairways need not be enclosed in a continuous vertical shaft if each story is separated from other stories by 1-hour fire-resistance-rated construction or approved wired glass set in steel frames and all exit corridors are sprinklered. The openings between the corridor and the occupant space shall have at least one sprinkler head above the openings on the tenant side. The sprinkler system shall be permitted to be supplied from the domestic water-supply systems, provided the system is of adequate pressure, capacity, and sizing for the combined domestic and sprinkler requirements.
3. Existing penetrations of stairway enclosures shall be accepted if they are protected in accordance with the *International Building Code*.

812.4.4.3 Other vertical shafts. Interior vertical shafts other than stairways, including but not limited to elevator hoistways and service and utility shafts, shall be enclosed as required by the *International Building Code* when there is a change of use to a higher hazard category as specified in Table 812.4.1.

Exceptions:

1. Existing 1-hour interior shaft enclosures shall be accepted where a higher rating is required.
2. Vertical openings, other than stairways, in buildings of other than Group I occupancy and connecting less than 6 stories shall not be required to be enclosed if the entire building is provided with an approved automatic sprinkler system.

812.4.4.4 Openings. All openings into existing vertical shaft enclosures shall be protected by fire assemblies having a fire-protection rating of not less than 1 hour and shall be maintained self-closing or shall be automatic closing by actuation of a smoke detector. All other openings shall be fire protected in an approved manner. Existing fusible link-type automatic door-closing devices shall be permitted in all shafts except stairways if the fusible link rating does not exceed 135°F (57°C).

812.5 Accessibility. Existing buildings or portions thereof that undergo a change of group or occupancy classification shall have all of the following accessible features:

1. At least one accessible building entrance.
2. At least one accessible route from an accessible building entrance to primary function areas.
3. Signage complying with Section 1110 of the *International Building Code*.
4. Accessible parking, where parking is provided.

5. At least one accessible passenger loading zone, where loading zones are provided.
6. At least one accessible route connecting accessible parking and accessible passenger loading zones to an accessible entrance.

Where it is technically infeasible to comply with the new construction standards for any of these requirements for a change of group or occupancy, the above items shall conform to the requirements to the maximum extent technically feasible. Changes of group or occupancy that incorporate any alterations or additions shall comply with this section and Sections 506.1 and 905.1 as applicable.

> **Exception:** Type B dwelling or sleeping units required by Section 1107 of the *International Building Code* are not required to be provided in existing buildings and facilities.

812.6 Seismic loads. Existing buildings with a change of occupancy classification shall comply with the seismic provisions of Section 807.3.

Appendix 3:

The Secretary of the Interior's Standards for Rehabilitation

Introduction to the Standards

The Secretary of the Interior is responsible for establishing standards for all programs under Departmental authority and for advising Federal agencies on the preservation of historic properties listed in or eligible for listing in the National Register of Historic Places.

The Standards for Rehabilitation (codified in 36 CFR 67 for use in the Federal Historic Preservation Tax Incentives program) address the most prevalent treatment. "Rehabilitation" is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural, and cultural values."

Credits

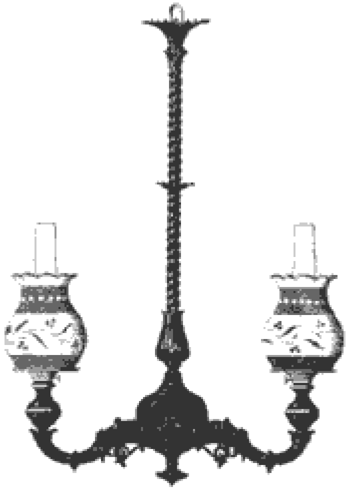
Initially developed by the Secretary of the Interior to determine the appropriateness of proposed project work on registered properties within the Historic Preservation Fund grant-in-aid program, the **Standards for Rehabilitation** have been widely used over the years--particularly to determine if a rehabilitation qualifies as a Certified Rehabilitation for Federal tax purposes. In addition, the Standards have guided Federal agencies in carrying out their historic preservation responsibilities for properties in Federal ownership or control; and State and local officials in reviewing both Federal and nonfederal rehabilitation proposals. They have also been adopted by historic district and planning commissions across the country.

"Rehabilitation" is defined as "the process of returning a property to a state of utility, through repair or alteration, which makes possible an efficient contemporary use while preserving those portions and features of the property which are significant to its historic, architectural,

The intent of the Standards is to assist the long-term preservation of a property's significance through the preservation of historic materials and features. The Standards pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and interior of the buildings. They also encompass related landscape features and the building's site and environment, as well as attached, adjacent, or related new construction. To be certified for Federal tax purposes, a rehabilitation project must be determined by the Secretary to be consistent with the historic character of the structure(s), and where applicable, the district in which it is located.

As stated in the definition, the treatment "rehabilitation" assumes that at least some repair or alteration of the historic building will be needed in order to provide for an efficient contemporary use; however, these repairs and alterations must not damage or destroy materials, features or finishes that are important in defining the building's historic character. For example, certain treatments--if

and cultural values."



improperly applied--may cause or accelerate physical deterioration of the historic building. This can include using improper repointing or exterior masonry cleaning techniques, or introducing insulation that damages historic fabric. In almost all of these situations, use of these materials and treatments will result in a project that does not meet the Standards. Similarly, exterior additions that duplicate the form, material, and detailing of the structure to the extent that they compromise the historic character of the structure will fail to meet the Standards.

The Secretary of the Interior's Standards for Rehabilitation

The Standards (Department of Interior regulations, 36 CFR 67) pertain to historic buildings of all materials, construction types, sizes, and occupancy and encompass the exterior and the interior, related landscape features and the building's site and environment as well as attached, adjacent, or related new construction. The Standards are to be applied to specific rehabilitation projects in a reasonable manner, taking into consideration economic and technical feasibility.

1. A property shall be used for its historic purpose or be placed in a new use that requires minimal change to the defining characteristics of the building and its site and environment.

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.

3. Each property shall be recognized as a physical record of its time, place, and use. Changes that create a false sense of historical development, such as adding conjectural features or architectural elements from other buildings, shall not be undertaken.

4. Most properties change over time; those changes that have acquired historic significance in their own right shall be retained and preserved.

5. Distinctive features, finishes, and construction techniques or examples of craftsmanship that characterize a property shall be preserved.

6. Deteriorated historic features shall be repaired rather than replaced. Where the severity of deterioration requires replacement of a distinctive feature, the new feature shall match the old in design, color, texture, and other visual qualities and, where possible, materials. Replacement of missing features shall be substantiated by documentary, physical, or pictorial evidence.

7. Chemical or physical treatments, such as sandblasting, that cause damage to historic materials shall not be used. The surface cleaning of structures, if appropriate, shall be undertaken using the gentlest means

The Standards are to be applied to specific rehabilitation projects in a reasonable manner,

taking into consideration economic and technical feasibility.

possible.

8. Significant archeological resources affected by a project shall be protected and preserved. If such resources must be disturbed, mitigation measures shall be undertaken.

9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.

10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

Technical Preservation Services

Brick, Stone, Terra Cotta, Concrete, Adobe, Stucco and Mortar

Building Exterior Masonry

Identify | Protect | Repair | Replace | Missing Feature | Alterations/Additions

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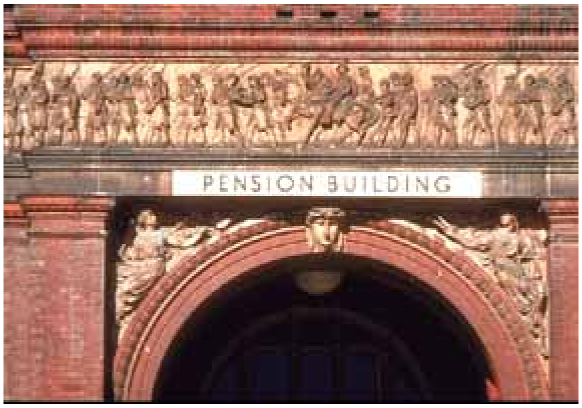

1880s brick building with terra-cotta trim.

The longevity and appearance of a masonry wall is dependent upon the size of the individual units and the mortar.

Stone is one of the more lasting of masonry building materials and has been used throughout the history of American building construction. The kinds of stone most commonly encountered on historic buildings in the U.S. include various types of sandstone, limestone, marble, granite, slate and fieldstone. **Brick** varied considerably in size and quality. Before 1870, brick clays were pressed into molds and were often unevenly fired. The quality of brick depended on the type of clay available and the brick-making techniques; by the 1870s--with the perfection of an extrusion process--bricks became more uniform and durable. **Terra cotta** is also a kiln-dried clay product popular from the late 19th century until the 1930s. The development of the steel-frame office buildings in the early 20th century contributed to the widespread use of architectural terra cotta. **Adobe**, which consists of sun-dried earthen bricks, was one of the earliest permanent building materials used in the U.S., primarily in the Southwest where it is still popular.

Mortar is used to bond together masonry units. Historic mortar was generally quite soft, consisting primarily of lime and sand with other additives. After 1880, portland cement was usually added resulting in a more rigid and non-absorbing mortar. Like historic mortar, early **stucco** coatings were also heavily lime-based, increasing in hardness with the addition of portland cement in the late 19th century. **Concrete** has a long history, being variously made of tabby, volcanic ash and, later, of natural hydraulic cements, before the introduction of portland cement in the 1870s. Since then, concrete has also been used in its precast form.

While masonry is among the most durable of historic building materials, it is also very susceptible to damage by improper maintenance or repair techniques and harsh or abrasive cleaning methods.

Masonry Identify, retain, and preserve

recommended

Materials and craftsmanship illustrated in stone wall.

Identifying, retaining, and preserving masonry features that are important in defining the overall historic character of the building such as walls, brackets, railings, cornices, window architraves, door pediments, steps, and columns; and details such as tooling and bonding patterns, coatings, and color.

not recommended

Removing or radically changing masonry features which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Replacing or rebuilding a major portion of exterior masonry walls that could be repaired so that, as a result, the building is no longer historic and is essentially new construction.

Applying paint or other coatings such as stucco to masonry that has been historically unpainted or uncoated to create a new appearance.

Removing paint from historically painted masonry.

Radically changing the type of paint or coating or its color.

Masonry Protect and Maintain

recommended

Chemical cleaning to remove dirt from granite.

Protecting and maintaining masonry by providing proper drainage so that water does not stand on flat, horizontal surfaces or accumulate in curved decorative features.

Cleaning masonry only when necessary to halt deterioration or remove heavy soiling.

Carrying out masonry surface cleaning tests after it has been determined that such cleaning is appropriate. Tests should be observed over a sufficient period of time so that both the immediate and the long range effects are known to enable selection of the gentlest method possible.

Cleaning masonry surfaces with the gentlest method possible, such as low pressure water and detergents, using natural bristle brushes.

Inspecting painted masonry surfaces to determine whether repainting is necessary.

Removing damaged or deteriorated paint only to the next sound layer using the gentlest method possible (e.g., handscraping) prior to repainting.

Applying compatible paint coating systems following proper surface preparation.

Repainting with colors that are historically appropriate to the building and district.

Removing felt-tipped marker graffiti with poultice.

Evaluating the overall condition of the masonry to determine whether more than protection and maintenance are required, that is, if repairs to the masonry features will be necessary.

not recommended

Failing to evaluate and treat the various causes of mortar joint deterioration such as leaking roofs or gutters, differential settlement of the building, capillary action, or extreme weather exposure.

Cleaning masonry surfaces when they are not heavily soiled to create a new appearance, thus needlessly introducing chemicals or moisture into historic materials.

Cleaning masonry surfaces without testing or without sufficient time for the testing results to be of value.

Historic brick damaged by sandblasting.

Sandblasting brick or stone surfaces using dry or wet grit or other abrasives. These methods of cleaning permanently erode the surface of the material and accelerate deterioration.

Using a cleaning method that involves water or liquid chemical solutions when there is any possibility of freezing temperatures.

Cleaning with chemical products that will damage masonry, such as using acid on limestone or marble, or leaving chemicals on masonry surfaces.

Applying high pressure water cleaning methods that will damage historic masonry and the mortar joints.

Removing paint that is firmly adhering to, and thus protecting, masonry surfaces.

Using methods of removing paint which are destructive to masonry, such as sandblasting, application of caustic solutions, or high pressure waterblasting.

Failing to follow manufacturers' product and application instructions when repainting masonry.

Using new paint colors that are inappropriate to the historic building and district.

Failing to undertake adequate measures to assure the protection of masonry features.

Masonry

Repair

recommended

Repairing masonry walls and other masonry features by repointing the mortar joints where there is evidence of deterioration such as disintegrating mortar, cracks in mortar joints, loose bricks, damp walls, or damaged plasterwork.

Removing deteriorated mortar by carefully hand-raking the joints to avoid damaging the masonry.

Duplicating old mortar in strength, composition, color, and texture.

Duplicating old mortar joints in width and in joint profile.

Repairing stucco by removing the damaged material and patching with new stucco that duplicates the old in strength, composition, color, and texture.

Using mud plaster as a surface coating over unfired, unstabilized adobe because the mud plaster will bond to the adobe.


Preparation for stucco repair.

Cutting damaged concrete back to remove the source of deterioration (often corrosion on metal reinforcement bars). The new patch must be applied carefully so it will bond satisfactorily with, and match, the historic concrete.


Replacement stones tooled to match original.

Repairing masonry features by patching, piecing-in, or consolidating the masonry using recognized preservation methods. Repair may also include the limited replacement in kind--or with compatible substitute material--of those extensively deteriorated or missing parts of masonry features when there are surviving prototypes such as terra-cotta brackets or stone balusters.

Applying new or non-historic surface treatments such as water-repellent coatings to masonry only after repointing and only if masonry repairs have failed to arrest water penetration problems.

not recommended

Removing nondeteriorated mortar from sound joints, then repointing the entire building to achieve a uniform appearance.

Loss of the historic character due to insensitive repointing.

Using electric saws and hammers rather than hand tools to remove deteriorated mortar from joints prior to repointing.

Repointing with mortar of high portland cement content (unless it is the content of the historic mortar). This can often create a bond that is stronger than the historic material and can cause damage as a result of the differing coefficient of expansion and the differing porosity of the material and the mortar.

Repointing with a synthetic caulking compound.

Using a "scrub" coating technique to repoint instead of traditional repointing methods.

Changing the width or joint profile when repointing.

Removing sound stucco; or repairing with new stucco that is stronger than the historic material or does not convey the same visual appearance.

Applying cement stucco to unfired, unstabilized adobe. Because the cement stucco will not bond properly, moisture can become entrapped between materials, resulting in accelerated deterioration of the adobe.

Patching concrete without removing the source of deterioration.

Replacing an entire masonry feature such as a cornice or balustrade when repair of the masonry and limited replacement of deteriorated of missing parts are appropriate.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the masonry feature or that is physically or chemically incompatible.

Applying waterproof, water repellent, or non-historic coatings such as stucco to masonry as a substitute for repointing and masonry repairs. Coatings are frequently unnecessary, expensive, and may change the appearance of historic masonry as well as accelerate its deterioration.

recommended

Replacing in kind an entire masonry feature that is too deteriorated to repair--if the overall form and detailing are still evident--using the physical evidence as a model to reproduce the feature. Examples can include large sections of a wall, a cornice, balustrade, column, or stairway. If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

not recommended

Removing a masonry feature that is unrepairable and not replacing it; or replacing it with a new feature that does not convey the same visual appearance.

Design for Missing Historic Features

The following work is highlighted to indicate that it represents the particularly complex technical or design aspects of rehabilitation projects and should only be considered after the preservation concerns listed above have been addressed.

recommended

Designing and installing a new masonry feature such as steps or a door pediment when the historic feature is completely missing. It may be an accurate restoration using historical, pictorial, and physical documentation; or be a new design that is compatible with the size, scale, material, and color of the historic building.

not recommended

Creating a false historical appearance because the replaced masonry feature is based on insufficient historical, pictorial, and physical documentation.

Introducing a new masonry feature that is incompatible in size, scale, material and color.

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Decorative exterior wood trim and siding.

Because it can be easily shaped by sawing, planing, carving, and gouging, wood is used for architectural features such as clapboard, cornices, brackets, entablatures, shutters, columns and balustrades.

These wooden features, both functional and decorative, may be important in defining the historic character of the building and thus their retention, protection, and repair are important in rehabilitation projects. Wood has played a central role in American building during every period and in every style.

Whether as structural membering, exterior cladding, roofing, interior finishes, or decorative features, wood is frequently an essential component of historic and older buildings.

Wood **Identify, retain, and preserve**

recommended

Wood features on porch repaired and preserved during rehabilitation.

Identifying, retaining, and preserving wood features that are important in defining the overall historic character of the building such as siding, cornices, brackets, window architraves, and doorway pediments; and their paints, finishes, and colors.

not recommended

Removing or radically changing wood features which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Removing a major portion of the historic wood from a facade instead of repairing or replacing only the deteriorated wood, then reconstructing the facade with new material in order to achieve a uniform or "improved" appearance.

Radically changing the type of finish or its color or accent scheme so that the historic character of the exterior is diminished.

Stripping historically painted surfaces to bare wood, then applying clear finishes or stains in order to create a "natural look."

Stripping paint or varnish to bare wood rather than repairing or reapplying a special finish, i.e., a grain finish to an exterior wood feature such as a front door.

Wood features inappropriately stripped of traditional painted finish.

recommended

Protecting and maintaining wood features by providing proper drainage so that water is not allowed to stand on flat, horizontal surfaces or accumulate in decorative features.

Applying chemical preservatives to wood features such as beam ends or outriggers that are exposed to decay hazards and are traditionally unpainted.

Retaining coatings such as paint that help protect the wood from moisture and ultraviolet light. Paint removal should be considered only where there is paint surface deterioration and as part of an overall maintenance program which involves repainting or applying other appropriate protective coatings.

Inspecting painted wood surfaces to determine whether repainting is necessary or if cleaning is all that is required.

Removing damaged or deteriorated paint to the next sound layer using the gentlest method possible (handscraping and handsanding), then repainting.

Using with care electric hot-air guns on decorative wood features and electric heat plates on flat wood surfaces when paint is so deteriorated that total removal is necessary prior to repainting.

Using chemical strippers primarily to supplement other methods such as handscraping, handsanding and the above-recommended thermal devices. Detachable wooden elements such as shutters, doors, and columns may--with the proper safeguards--be chemically dip-stripped.


Hand scraping wood column prior to repainting.

Applying compatible paint coating systems following proper surface preparation.

Repainting with colors that are appropriate to the historic building and district.

Evaluating the overall condition of the wood to determine whether more than protection and maintenance are required, that is, if repairs to wood features will be necessary.

not recommended

Failing to identify, evaluate, and treat the causes of wood deterioration, including faulty flashing,

leaking gutters, cracks and holes in siding, deteriorated caulking in joints and seams, plant material growing too close to wood surfaces, or insect or fungus infestation.


Moss on wood shingles indicative of damaging moisture retention.

Using chemical preservatives such as creosote which can change the appearance of wood features unless they were used historically.

Stripping paint or other coatings to reveal bare wood, thus exposing historically coated surfaces to the effects of accelerated weathering.

Removing paint that is firmly adhering to, and thus, protecting wood surfaces.

Using destructive paint removal methods such as a propane or butane torches, sandblasting or waterblasting. These methods can irreversibly damage historic woodwork.

Using thermal devices improperly so that the historic woodwork is scorched.

Failing to neutralize the wood thoroughly after using chemicals so that new paint does not adhere.

Allowing detachable wood features to soak too long in a caustic solution so that the wood grain is raised and the surface roughened.

Failing to follow manufacturers' product and application instructions when repainting exterior woodwork.

Using new colors that are inappropriate to the historic building or district.

Failing to undertake adequate measures to assure the protection of wood features.

Wood

Repair

recommended

Repairing wood features by patching, piecing-in, consolidating, or otherwise reinforcing the wood using recognized preservation methods.

Limited replacement-in-kind of deteriorated wood clapboards.

Repair may also include the limited replacement in kind--or with compatible substitute material--of those extensively deteriorated or missing parts of features where there are surviving prototypes such as brackets, molding, or sections of siding.

not recommended

Replacing an entire wood feature such as a cornice or wall when repair of the wood and limited replacement of deteriorated or missing parts are appropriate.

Using substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the wood feature or that is physically or chemically incompatible.

Wood Replace

recommended

Replacing in kind an entire wood feature that is too deteriorated to repair--if the overall form and detailing are still evident--using the physical evidence as a model to reproduce the feature. Examples of wood features include a cornice, entablature or balustrade.

If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

Replacing rotted wood column base with new wood.

not recommended

Removing a feature that is unrepairable and not replacing it; or replacing it with a new feature that does not convey the same visual appearance.

Design for Missing Historic Features

The following work is highlighted to indicate that it represents the particularly complex technical or design aspects of rehabilitation projects and should only be considered after the preservation concerns listed above have been addressed.

recommended

Designing and installing a new wood feature such as a cornice or doorway when the historic feature is completely missing. It may be an accurate restoration using historical, pictorial, and physical documentation; or be a new design that is compatible with the size, scale, material, and color of the historic building.

not recommended

Creating a false historical appearance because the replaced wood feature is based on insufficient historical, pictorial, and physical documentation.

Introducing a new wood feature that is incompatible in size, scale, material and color.

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Architectural metal features--such as cast iron facades, porches, and steps; sheet metal cornices, siding, roofs, roof cresting and storefronts; and cast or rolled metal doors, window sash, entablatures, and hardware--are often highly decorative and may be important in defining the overall historic character of the building.

Well-maintained historic metal storefront.

Metals commonly used in historic buildings include **lead, tin, zinc, copper, bronze, brass, iron, steel,** and to a lesser extent, **nickel** alloys, **stainless steel** and **aluminum**.

Historic metal building components were often created by highly skilled, local artisans, and by the late 19th century, many of these components were prefabricated and readily available from catalogs in standardized sizes and designs.

Architectural Metals | Identify, retain, and preserve

recommended

Cast-iron steps with distinctive cut-out work.

Identifying, retaining, and preserving architectural metal features such as columns, capitals, window hoods, or stairways that are important in defining the overall historic character of the building; and their finishes and colors. Identification is also critical to differentiate between metals prior to work. Each metal has unique properties and thus requires different treatments.

not recommended

Removing or radically changing architectural metal features which are important in defining the overall historic character of the building so that, as a result, the character is diminished.

Removing a major portion of the historic architectural metal from a facade instead of repairing or replacing only the deteriorated metal, then reconstructing the facade with new material in order to create a uniform, or "improved" appearance.

Radically changing the type of finish or its historic color or accent scheme.

Architectural Metals | Protect and Maintain

recommended

Protecting and maintaining architectural metals from corrosion by providing proper drainage so that water does not stand on flat, horizontal surfaces or accumulate in curved, decorative features.

Cleaning architectural metals, when appropriate, to remove corrosion prior to repainting or applying other appropriate protective coatings.

Identifying the particular type of metal prior to any cleaning procedure and then testing to assure that the gentlest cleaning method possible is selected or determining that cleaning is inappropriate for the particular metal.

Cleaning soft metals such as lead, tin, copper, terneplate, and zinc with appropriate chemical methods because their finishes can be easily abraded by blasting methods.


Applying a protective coating to bronze doors after cleaning.

Using the gentlest cleaning methods for cast iron, wrought iron, and steel--hard metals--in order to remove paint buildup and corrosion. If handscraping and wire brushing have proven ineffective, low pressure grit blasting may be used as long as it does not abrade or damage the surface.

Applying appropriate paint or other coating systems after cleaning in order to decrease the corrosion rate of metals or alloys.

Repainting with colors that are appropriate to the historic building or district.

Applying an appropriate protective coating, such as lacquer to an architectural metal feature, such as a bronze door which is subject to heavy pedestrian use.

Evaluating the overall condition of the architectural metals to determine whether more than protection and maintenance are required, that is, if repairs to features will be necessary.

not recommended

Failing to identify, evaluate, and treat the causes of corrosion, such as moisture from leaking roofs or gutters.


Clogged gutter leading to corrosion.

Placing incompatible metals together without providing a reliable separation material. Such incompatibility can result in galvanic corrosion of the less noble metal, e.g., copper will corrode cast iron, steel, tin, and aluminum.

Exposing metals which were intended to be protected from the environment.

Applying paint or other coatings to metals such as copper, bronze, or stainless steel that were meant to be exposed.

Using cleaning methods which alter or damage the historic color, texture, and finish of the metal; or cleaning when it is inappropriate for the metal.

Removing the patina of historic metal. The patina may be a protective coating on some metals, such as bronze or copper, as well as a significant historic finish.

Cleaning soft metals such as lead, tin, copper, terneplate, and zinc with grit blasting which will abrade the surface of the metal.

Failing to employ gentler methods prior to abrasively cleaning cast iron, wrought iron or steel; or using high pressure grit blasting.

Failing to re-apply protective coating systems to metals or alloys that require them after cleaning so that accelerated corrosion occurs.

Using new colors that are inappropriate to the historic building or district.

Failing to assess pedestrian use or new access patterns so that architectural metal features are subject to damage by use or inappropriate maintenance such as salting adjacent sidewalks.

Failing to undertake adequate measures to assure the protection of architectural metal features.

Architectural Metals Repair

recommended

Repairing architectural metal features by patching, splicing, or otherwise reinforcing the metal following recognized preservation methods.

Repairs may also include the limited replacement in kind--or with a compatible substitute material--of those extensively deteriorated or missing parts of features when there are surviving prototypes such as porch balusters, column capitals or bases; or porch cresting.

Repairing a decorative iron balcony.

not recommended

Replacing an entire architectural metal feature such as a column or a balustrade when repair of the metal and limited replacement of deteriorated or missing parts are appropriate.

Using a substitute material for the replacement part that does not convey the visual appearance of the surviving parts of the architectural metal feature or that is physically or chemically incompatible.

Architectural Metals Replace

^

recommended

Replacing in kind an entire architectural metal feature that is too deteriorated to repair--if the overall form and detailing are still evident--using the physical evidence as a model to reproduce the feature.

Examples could include cast iron porch steps or steel sash windows.

If using the same kind of material is not technically or economically feasible, then a compatible substitute material may be considered.

Missing cast-iron elements replaced with cast aluminum.

not recommended

Removing an architectural metal feature that is unrepairable and not replacing it; or replacing it with a new architectural metal feature that does not convey the same visual appearance.

Design for Missing Historic Features

The following work is highlighted to indicate that it represents the particularly complex technical or design aspects of rehabilitation projects and should only be considered after the preservation concerns listed above have been addressed.

recommended

Designing and installing a new architectural metal feature such as a metal cornice or cast iron capital when the historic feature is completely missing. It may be an accurate restoration using historical, pictorial, and physical documentation; or be a new design that is compatible with the size, scale, material, and color of the historic building.

not recommended

Creating a false historical appearance because the replaced architectural metal feature is based on insufficient historical, pictorial, and physical documentation.

Introducing a new architectural metal feature that is incompatible in size, scale, material and color.

Appendix 4:

Section One: Existing Conditions

Section One - Existing Conditions is a survey and analysis of the existing site, site utilities, zoning regulations, parking needs, the existing locations of departments, conditions of the existing building, and the architectural significance and history of the building.

I. Existing Site Analysis:

The site for the Court Facility in Downtown Worcester is located in Lincoln Square. The site is at the northerly terminus of Main Street in Worcester, Massachusetts and is bounded by Main, Highland, Harvard and State Streets. Two buildings currently exist on the site, the courthouse facility and the former extension service. Topography of the site is steeply sloping. An elevation change of approximately 60 feet exists between Harvard and Main Streets.

A. Parking:

The existing site provides 304 parking spaces. The available off site spaces are 425 for a total of 729 parking spaces potentially available within the immediate vicinity of the courthouse complex. The parking needs analysis indicates a peak time demand for 1080 spaces.

B. Zoning:

The parcel is located in two zoning districts, BO-1.0 Business Office District and BG-6.0. General Business District. The courthouse facility and parking structure are allowable uses in both districts. State projects are not obligated to adhere to the City's zoning ordinances. State level permitting requires an Environmental Notification Form and a State Highway Curb Cut Permit. Local level permitting is not required for state projects.

C. Site Utilities:

1. **Water**

   a. 12" and 20" high service lines and 6", 14" and 18" low services lines currently exist in the four streets bounding the site.
   b. Previous flow tests performed at Main and George Streets indicate a flow of 1,758 gpm with a residual pressure of 141 psi. Actual flow conditions at the site should be verified.
   c. Existing water infrastructure appears to be adequate for proposed expansion.

2. **Sanitary Sewer**

   a. A 24" sanitary sewer exists in Main Street.
   b. 8" sanitary sewers exist in State and Harvard Streets.
   c. There is no sanitary sewer in Highland Street.
   d. Based on conversations with the Worcester D.P.W., the existing sanitary sewer system should support the proposed facility.
   e. The lack of sanitary sewer in Highland Street will complicate development of the Highland/Harvard Street site.

3. Surface Drainage

a. 42" and 10" surface drains exist in Main Street.
b. An 18" surface drain exists in Highland Street.
c. A 12" surface drain exists in Harvard Street.
d. An 18" surface sewer exists in State Street.
e. Due to the high percentage of impervious surface on the existing site, storm water attenuation facilities required will be minimal or may possible
f. If existing drainage patterns are maintained, existing street drainage should accommodate proposed storm water flows.
g. Construction changes which would change existing drainage patterns will trigger analyses of downstream pipes in order to determine impacts.

4. Conclusions

a. Existing infrastructure within the vicinity of the existing courthouse complex appears to be sufficient to support court expansion.
b. Based exclusively on site engineering considerations, the corner of State and Harvard Street building location would be the location of choice, as it would avoid problems associated with a lack of sanitary facilities in Highland Street.

II. Existing Square Feet Allocations

A. Allocation of Existing SF by Department:

District Court	18,700 nsf	
Housing Court	2,890 nsf	
Juvenile Court	11,390 nsf	(space is located at 75 Grove Street)
Probate & Family	14,880 nsf	(Includes 1500 sf in the Civic Center)
Superior Court	27,700 nsf	
Law Library	7,720 nsf	
District Attorney	29,510 nsf	(Includes 24,300 sf outside the courthouse)
County	27,490 nsf	

B. Analysis of Existing Building Square Footage:

Total GSF:	197,290	
Total Dept.NSF:	130,000	(Includes all space allocated to departments including phantom corridors within departments, and all toilets)
Building Efficiency:	65% / 35% assignable / unassignable	(Includes public circulation, elevators, exterior walls, mechanical space)

III. Architectural Significance

The Worcester Courthouse building was built in several stages. The original granite building was built in 1843 by Ammi Young in a Greek Revival style. A significance addition was constructed in 1898 by Andrews, Jacques & Rantoul which mirrored the original pavilion and inserted an entry portico and lobby space with grand stairwell at the center. In 1950 the courthouse was extended to Harvard Street and a new entrance with a major lobby was located there.

There are several spaces in the 1800's portion of the building with considerable architectural character. These spaces include three courtrooms and the two levels of entrance lobby and stairwell.

IV. Survey of Existing Building

A survey of the existing conditions of the building and site was conducted by DRA Architects, and structural, mechanical, electrical, and plumbing engineers. Available existing plans and specifications were reviewed. The existing conditions were reviewed and recommendations made based on the proposed schemes presented in Section Three - Site Feasibility.

A. Site

The existing site improvements e.g. plazas and walkways are in fair condition. Handicapped accessibility to the building will be required.

SF by Dept.
Net

B. Architecture:

- The existing roofs of asphalt shingles or EPDM and drainage systems are in excellent condition. The roofs were replaced and insulated in 1986.
- The existing exterior walls of granite and brick are in good to excellent condition. They were re-pointed in 1986.
- The existing windows are typically single glazed and should be replaced with double-glazing. Windows that have been replaced with aluminum frame, double glazing should remain.
- Exterior doors are in fair condition and should be replaced or refinished.
- Interior finishes in the 1800's building are in fair condition. Significant renovation is anticipated to meet the program needs. All renovation must be sensitively designed and executed to maintain the architectural character of the building. Interior finishes in the 1950's building are in fair condition. Significant renovation is anticipated in this section also.

Of particular note are the problems with the existing circulation. The existing system does not separate public and staff and detainees. Also, the transition between the two sections of the building is multi-leveled and disorienting. Circulation will be a primary concern in the renovation of this building.

C. Structure:

The 1890's building has load bearing exterior walls and some interior load bearing walls. The interior framing and roof framing are steels columns and beams encased in brick or lath and plaster. The interior loading is 177-270 psf depending on location. The 1950's building is a steel frame onto concrete footings and foundations. The loading is 183 to 226 psf.

The existing condition of the structure of these two buildings is good. If new, heavier loading is introduced i.e. for compact filing or library loading, then reinforcement of the structure is required. The reinforcement is more easily achieved in the 1950's building than in the 1890's building. An in depth inspection including field investigation and core samples will be required in the next phase of this project.

D. Mechanical, Electrical, and Plumbing Systems

Mechanical:

All existing mechanical systems and controls including the hot water heating system, the air conditioning and ventilation systems should be replaced due to their inefficiencies and inadequate design for present and proposed use. The energy source should be gas. New gas fired boilers should be located in the existing boiler room. Roof top units should be used for the air conditioning systems.

Electrical:

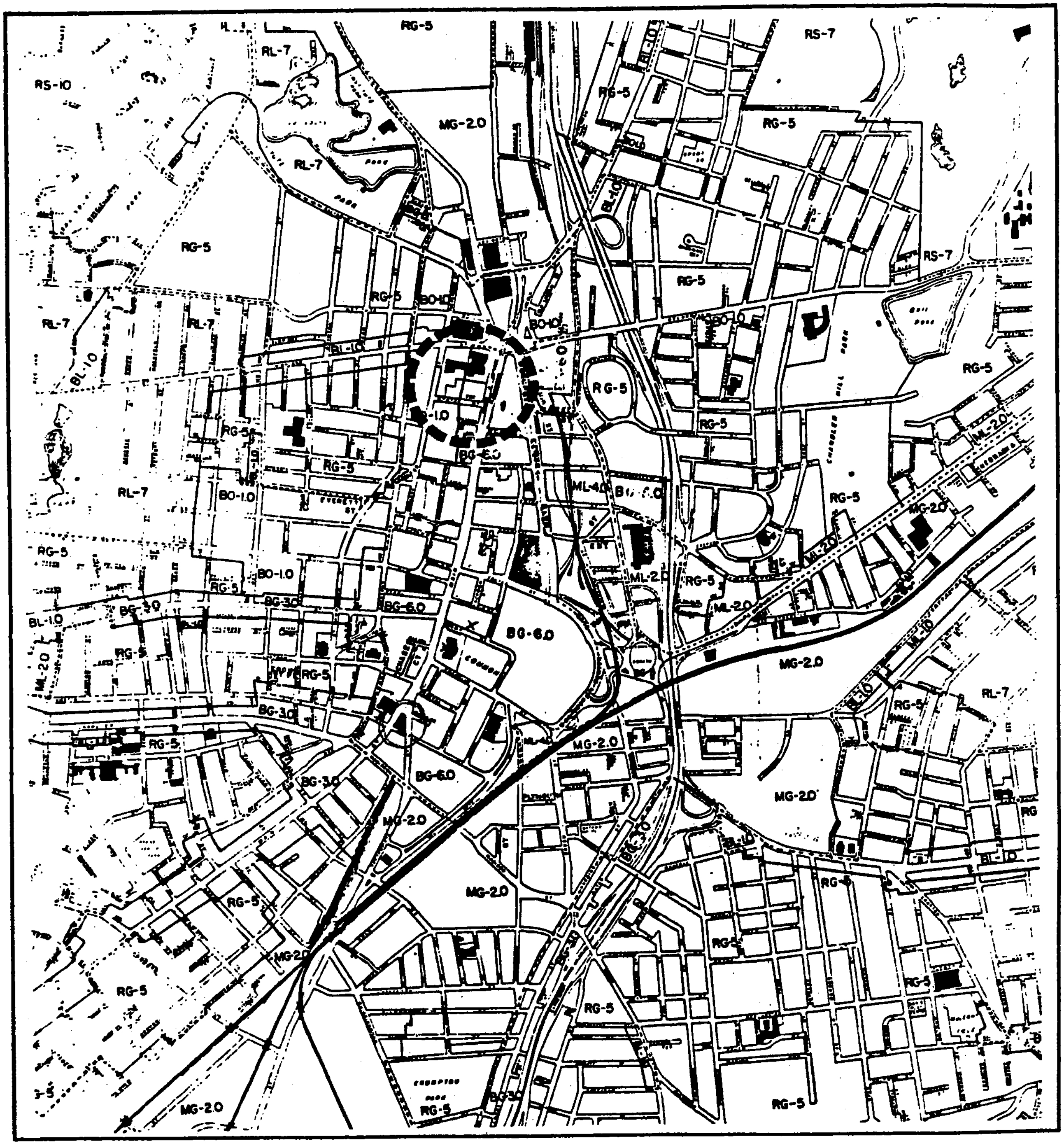
The existing electric service should be replaced with a new 480 volt service sized for the entire building. The existing emergency system must also be replaced. Existing lighting should be upgraded in the court rooms and office areas indicated in the report. Lighting in the additions should be appropriate for the function of the areas served. New low voltage systems such as fire alarm, telephone, paging and master clock should be installed to replace the existing systems.

Plumbing:

New gas service should be extended into the existing boiler room for forced hot water heating and for domestic hot water supply for the new addition and the existing 1898 and 1950's Courthouse buildings. All public toilets in the existing Courthouse should have existing fixtures replaced, floor drains and hose bibs installed, as required for code compliance. The entire complex should be updated to include handicapped fixtures for compliance with the Access Board Code.

Fire Protection:

A new automatic fire protection sprinkler system should be installed in the 1898 Courthouse. The existing automatic fire protection sprinkler system in the 1950's Courthouse should be upgraded. New automatic fire protection systems should be provided for each new addition. The entire complex should be fire zoned.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COMMON
CROMPTON PARK

LOCUS MAP


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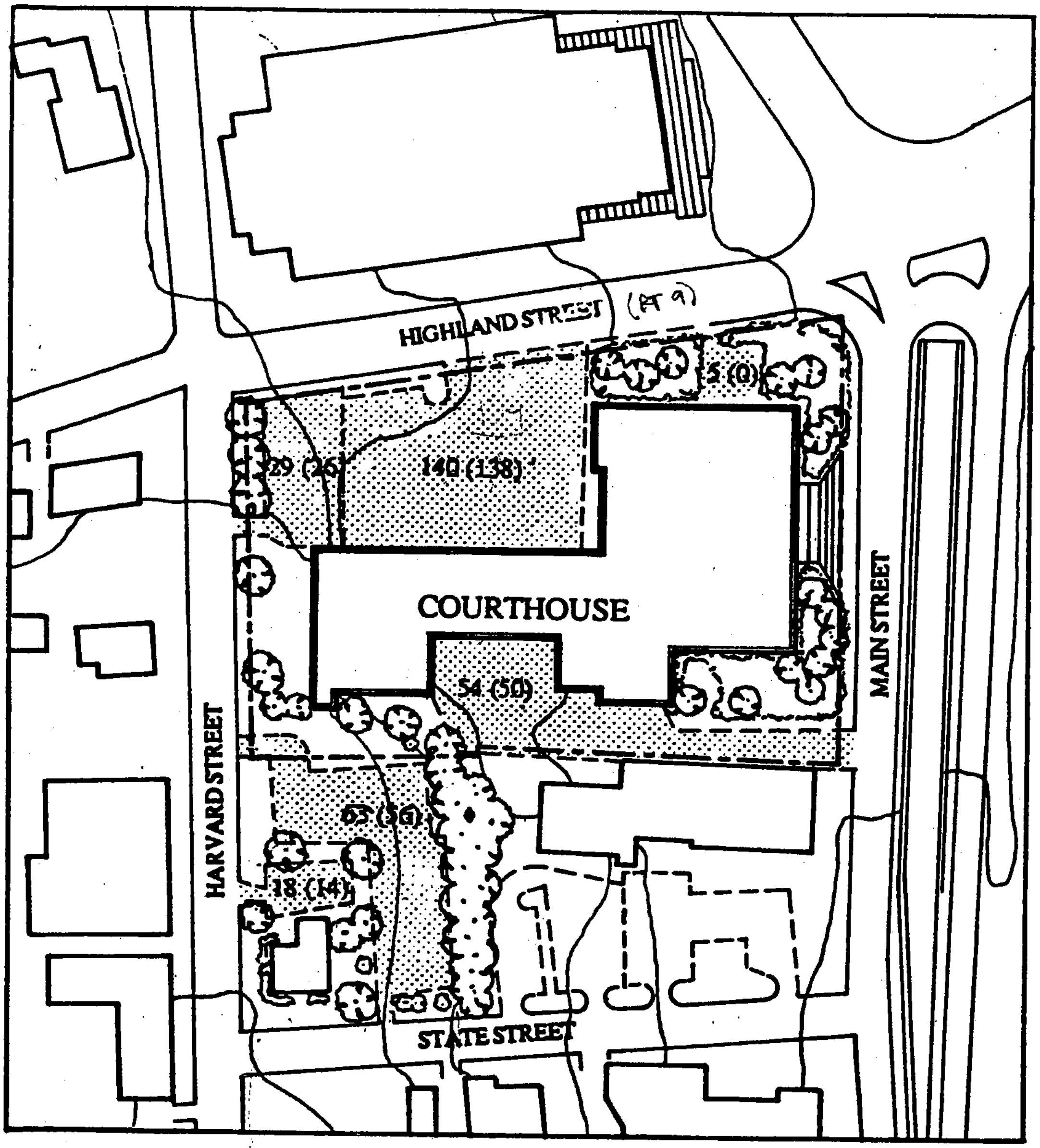
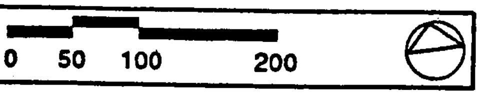


PARKING:	Cars	Spaces
	29	(26)
	140	(138)
	5	(0)
	54	(50)
	63	(56)
	18	(14)
Underground:	20	(20)
Total:	329	(304)

Note: An on-site survey established the parking count for this study. The first number listed in each parking area on the site plan above is the number of parked cars. The second number, in parentheses ( ), is the number of lined parking spaces.

The total number of lined parking spaces found in this study is within 6% of the figure found for "Existing Parking Supply" in a previous study (CW084-1 March,1986).

EXISTING SITE PLAN March 1990



Mass. State Project No. CWO 88-3-STU
Study for a Court Facility in Downtown Worcester

		Available Spaces
• **Onsite**	**subtotal:**	304
• **Offsite:**		
Highland St. (municipal)		94**
Church lot (private)		57**
Marriot Inn (private)		200
On- street parking		74**
	subtotal:	425
	total:	729

*see diagram on pg.

**based on figures from previous study (CW084-1 March, 1986)

1.0 Parking Available (present)

There are two sources of available parking for the courthouse facility; on-site and off-site. The on-site parking totals 304. Its various locations are noted on the site plan. The off-site parking totals 425 spaces. It consists of municipal and private lots open to the public allowing use for both the courthouse staff and the courthouse users.

		Peak Time Demand
• **Courthouse:**		
Staff	.96 x 469 *** =	450
Jurors		120
Attorneys		50
D.A.'s office	.96 x 94 *** =	90
Others*	1.20 x 170 ** =	204
	subtotal:	914
• **County:****		
Staff	.96 x 91 *** =	87
Title company employees		70
Visitors		6
Reg. of deeds visitors		18
	subtotal:	166
	total:	1080

*witnesses, companions, observers, etc.

**based on figures from previous study (CW084-1 March, 1986)

***based on the assumption that 4% of the employees will use public transportation.

2.0 Parking Demand (for year 2010)

The demand for parking should, ideally, be satisfied within the boundaries of the courthouse site. Based on the growth projections for the year 2010, it is evident that additional parking must be made available. The demand chart lists the anticipated number of 1080 for courthouse users (or parking spaces needed, assuming 1 car per person). It is also assumed that all county facilities will not increase in size or amount of usage. Peak demand time is considered to be 10 AM on a week day. The Worcester Regional Transit Authority serves 450,000 people in 28 communities. 20,000 of these people use public transportation daily. Based on these figures it is assumed 4% of employees will take public transportation to the courthouse and 96% will drive.

3.0 Analysis

The demand for parking of 1080 spaces for the courthouse facility exceeds the maximum potential supply of 729 spaces. Of these 729 spaces potentially available, only 304 are exclusively for courthouse use, i.e. on site. It would be unrealistic to expect that 100% of the remaining 425 spaces would be available for only courthouse needs. Thus the number of designated spaces is reduced further.

4.0 Constraints

Specific parking requests were made, both in the interviews with the respective courts, and in their responses to the questionnaire. Two specific suggestions must be considered in a future parking proposal: 1) Additional spaces should be reserved, as well as secured, for all judges (29 spaces).
2) Reserved parking should be provided for specific senior staff members (23 spaces).

5.0 Recommendations

The parking demand can be divided into two groups. Group One (732 spaces) consists of staff, both county and courthouse, as well as jurors. This group should be provided with adequate parking spaces, preferably in close proximity to the building. If the demand can not be accommodated by the on-site parking supply, then remote parking with shuttle-bus service should be considered.

Group Two (348 spaces) consists of visitors, lawyers, etc. This group should have available adequate parking in paid lots either on-site or in close proximity to the Courthouse.

Group One:

• **Courthouse:**	
Staff	450
Jurors	120
D.A.'s Office	90
• **County:**	
Staff	72
total:	732

Group Two:

• **Courthouse:**	
Attorneys	50
Others	204
• **County:**	
Visitors	6
Reg. of Deeds Visitors	18
Title Employees	70
total:	348

A. Zoning

The following analysis has been prepared by Beals and Thomas, Inc. for Drummey Rosane Anderson, Inc. in support of a study for a court facility in downtown Worcester. The analysis identifies zoning constraints and opportunities for development of the subject property under current regulatory statutes. The analysis incorporates the review of a report compiled by City Design entitled "Study for a County Office Building and Parking Garage Worcester County, Project # GWO 84-1, Dated March, 1986, Consultants: Vannasse/Hangen, Consentini Associates and the local zoning and land use laws. The following information is a compilation integrating and updating the report information and evaluating the current applicable zoning ordinances for the City of Worcester as Ordained in City Council April 29, 1980 and amendments thereto through #5626.

1.0 Zoning And Land Use

1.1 District

The subject parcel is divided into two zoning districts, Business Office (BO-1.0) and General Business (BG-6.0). The zone line bisects the parcel and runs parallel to Main Street approximately 220' from the street line. The Business Office (BO-1.0) portion of the parcel abuts Harvard and Highland Streets while the Business General (BG-6.0) abuts Main and Highland Streets (see attached Zoning Map). Our review of the local zoning and land use laws incorporated the analysis of the constraints and opportunities under both regulatory scenarios. It is our opinion that the courthouse facility and parking structure are allowable uses in both districts.

1.2 Dimensional Requirements

As summarized, the primary dimensional requirements for development within each zoning district is outlined in the following table.

LAND USE

Zoning District	Business, Office (BO-1.0)	Business, General (BG-6.0)
Minimum Lot Area	n/a	n/a
Floor Area Ratio to Land Use	1 to 1	6 to 1
Maximum Building Height (Feet)	40'	-
Maximum Height in Stories	3	-
Minimum Front Yard	15'	
(Feet) Side Yard	10'	10'
Rear Yard	10'	

1.3 Use Regulations

Use Regulations are in addition to the table. Article X, General Application of Regulations, Section 4, Exception (c), states the following:

Provided it is not otherwise non-conforming, an institutional or public service building, or group of such buildings on one lot may be altered, enlarged, or supplemented by a new building to a floor area ratio fifty (50) percent greater than the maximum permitted in Article V (Reference Maximum Floor Area Ratio in Zoning Table).

In addition, Article IV Use Regulations, states the following:

(c) Legal non-conforming uses existing on the effective date of this ordinance may be expanded, rebuilt or changed to a non-conforming use of a similar nature upon grant of a Special Permit by the Zoning Board of Appeals.

For further information regarding zoning and land use regulations, reference Zoning Ordinance of the City of Worcester Ordained in City Council April 26, 1980, amendments through 5626.

1.4 Definitions

a. Story shall be considered above basement or cellar, between upper surface of a floor and upper surface of floor or roof next above.

b. Height of building shall be vertical distance from grade level measured from center of that face of building having the main entrance, to a line extended from highest point of building (chimney, tower and other similar projections excluded).

c. Basement shall be a portion of building partly underground which has more than 1/2 of its clear height from floor to ceiling above the outside average grade of the adjoining ground and not deemed a story unless the ceiling is 6' or more above the grade.

d. Cellar shall be the portion of building partially underground, having 1/2 or more than 1/2 its clear height below grade plane.

e. Floor Area Ratio, ratio of total gross floor area of building on one lot to the total area of the lot.

f. The owner of a corner lot may designate either street lot line as the front lot line. The exterior side yard of a corner shall be not less than:

In BO districts	10 feet

2.0 Off-street Parking And Loading Requirements

Re: Article VI Off-Street Parking and Loading

2.1 Quantity Requirements

a. Parking

Office Areas: including reception, desk, drafting, bench, data processing.	1 space for each 500 square feet in such use

Note: Utility, energy, corridor, stairway, restroom and building maintenance areas are exempt from space assignment.

b. Loading - According to the following schedule

Gross Floor Area of Structure (sf)	Number of Required Loading Spaces
0-10,000	0
10,001-50,000	1
50,001-100,000	2
100,001-200,000	3
200,001-400,000	4
Each additional 200,000	1

2.2 Dimensional Requirements:

a.	Parking Spaces:	9"W X 18'L
b.	Loading Spaces:	12'W X 50'L
c.	Setbacks:	5' from boundary line 5' from building line

2.3 General Information

a. Additions to existing buildings and land uses will be subject to off-street parking and loading requirements as described in the General Provisions. If existing parking or loading spaces exceed the requirements of this Ordinance, any excess shall be applied to the requirements for additions. If existing parking or loading spaces are less than the requirements of this ordinance, only the requirements for any additions need to be fulfilled with additional spaces.

b. Landscape separation of 5' feet shall be provided between parking area and adjoining public way.

c. No accessory parking is required in a BG-6.0 District.

Section Three

This

d. No off-street parking shall be located within required front yard depth or exterior side yard except as permitted in Article X of the Zoning Ordinance of the City of Worcester.

e. In a BG-6 district an additional floor space premium is allowed where off-street parking is provided on the site of a building or on a lot or in a structure through the same ownership within (1000) feet of the facility it is to serve. The premium six hundred (600) square feet of floor space for each parking space provided may be used in computing floor area ratio.

f. In business and manufacturing districts required parking shall be provided through the same ownership within 1,000 feet of the use it is to serve.

3.0 State And Local Permitting Requirements And Approvals

The following information is a brief summarization of the potential permits which may be required for the project site. The list encompasses state and local permits, jurisdiction of approval (governing agency), and the projected timeline. If should be noted that the state is not obliged to comply with the requirements of local authorities, with the exception of the fire department. Any local level permitting review will be conducted as a courtesy and not as a required approval. Review of the permitting issues concluded that the following permits may apply, there may be additional issues which are not written or will not surface until the approval package has been reviewed by the appropriate agencies.

3.1 State Level Permitting

Permits/Approval	Jurisdiction	Timeline (Estimated Max. After Submittal)	Prior Consultation Approval
Environmental Notification Form (see a: Review Threshold: Categorical Inclusion)	Massachusetts Environmental Protection Agency (MEPA)	81 days	ENF
			*If scoped to proceed with further analysis
		58 days	DEIR
		58 days	FEIR

State Highway Curb Cut Permit	Massachusetts Department of Public Works	6 weeks±	MEPA

Note:

a. An ENF filing is required in the event that the project site access a state highway by means of a new or altered driveway. Review threshold for permits 301 CMR - 94.11.26 categorically includes Curb Cut Permits and other activities pursuant to MGL 81 ss 7C and 21 which grant access to a state highway by means of a new or altered driveway servicing: (b) a nonresidential development housing 25,000 sf or more of gross interior space or 200 or more parking spaces (i.e.: access to the state highway, Route 9, and the fact that the property abuts the state highway triggers this review).

b. Estimated maximum days for MEPA process includes compilation, filing, publication, review and action required (see attached MEPA Process Flow Chart for accurate timeline). Note that it does not include the research and engineering for the report preparation. The ENF preparation would take approximately 2 weeks. The DEIR preparation depends on what is scoped, but an allowance of 3 months should be considered. The preparation of the FEIR depends on comments received, but an allowance of 6 to 8 weeks should be anticipated.

3.2 Local Level Permitting (Courtesy review for state projects)

Permits/Approvals	Jurisdiction	Timeline (After Submittal)	Prior Consultation Approval
Site Plan Review	Planning Board	35 days	A. Bureau of Land Use Control B. Department of Public Works C. Health Department D. Park & Recreation Department E. Conservation Commission F. Fire Department G. Traffic Engineering Department H. *Any Other Board or Department the Planning Board Deems Necessary

Off-Street Parking	License Board		A. Report by Traffic Engineer B. Director of Land Use Control
Building Permit	Department of Public Safety	-	All Prior Approvals
Sign Permit	Building Commissioner	-	
Filling and Excavation of Earth (placing, filling or dumping of earth or other material including ice and snow (Special Permit)	Zoning Board of Appeals	65 days to hold hearing 90 day decision	Commissioner of Public Health, Conservation Commission, Building Commissioner

Additional permits may be required depending upon the final scope of the project and the initial and final agency requirements. The information above is a partial listing of the potential permits compiled from available sources.

4.0. Additional Comments

As mentioned the information herein is a compilation of available sources integrated into a summarized report of the potential constraints and opportunities for the development. Naturally, the analysis provided is only as accurate as the referenced sources and there may be underlying issues that may develop as the design/development stages progress.

B. Site Utilities

The following analysis has been prepared by Beals and Thomas, Inc. for Drummey Rosane Anderson, Inc. in support of a study for a court facility in ~~downtown Worcester~~. The analysis is the result of a review of existing study information provided by DRA Inc., site reconnaissance, file research and discussions with Worcester DPW and ~~Courthouse maintenance personnel~~. In some instances the record file information obtained from the various agencies was contradictory. Field verification of utility locations and size should be performed during the design phase.

YAY!

1.0 Site Description

1.1 The Worcester County Courthouse facility is located at the northerly terminus of Main Street, in the City of Worcester. The site is bounded on the east by Main Street, on the north by Highland Street, on the west by Harvard Street and on the south by State Street and the First Unitarian Church.

1.2 The site is located on a steep hill side and falls approximately 60 feet in elevation from Harvard Street to Main Street. Two buildings are located on the site, the Courthouse facility itself and an abandoned building which formerly housed the County Extension Service. Various parking areas are located on the site which have gone through a number of expansions to maximize the number of available spaces.

1.3 Existing utility infrastructure exists in all four of the streets abutting the site and are accessible for future development.

2.0 Utilities

2.1 Water

a. The site is serviced by the City of Worcester Water Department. The City distribution system consists of a high pressure service and low pressure service system. Main Street contains a 12" high pressure service line, Highland Street has an 18" low pressure service line and a 20" high pressure service line, Harvard Street contains a 14" low pressure service line and a 20" high pressure service line and State Street contains a 6" low pressure service line. According to the Worcester Water Department, both high and low systems are available for proposed water connections.

b. Based upon available record plans, the existing Courthouse facility is serviced by an 8" line connecting to the most recent building addition. This 8" line is connected to the 20" high service line in Harvard Street by a common line which also services the First Unitarian Church. We believe that there may be other miscellaneous connections which service older parts of the building which were not shown on record plans.

c. The existing city water distribution system appears to have ample capacity to vice the proposed expansion. The most recent flow test on record at the Water Department for a test performed in the area was conducted on Main Street at George Street on May 5, 1989. The test was performed on a 16" high service line and resulted in a flow of 1,758 gallons per minute with a residual pressure of 141 psi. Static pressure in the line was reported as being 146 psi. Although the test was not performed at the site it did take place within about 1/4 mile on the same distribution system. The results indicate that water flow and pressure at either the Highland and Harvard Street site and/or the Harvard and State Street site should be sufficient for the expansion proposal. However, actual discharge rate and pressure should be determined at the two locations of the site to assure that the available water supply is sufficient for the projected demand.

d. Construction at the corner of State and Harvard Streets could be supported by water connections to the distribution system in State or Harvard Street, or to the existing line servicing the latest expansion. The optimal location will depend upon fire flow requirements, location of utility rooms within the new structure and conflicts with other utilities. The final connection location may also be subject to review and suggestion of the Worcester DPW.

e. Opportunities for water connections to service a potential building site in the existing courthouse parking area are sufficient to allow for some design flexibility.

2.2 Sanitary Sewer

a. The proposed project site is fully serviced by the City of Worcester sanitary sewer system. A 24" sanitary sewer is located in Main Street, an 8" sanitary sewer is located in Harvard Street, and an 8" sanitary sewer is located in State Street. Highland Street is no longer serviced by sanitary sewer in the area of the courthouse. It formerly was serviced by a combined sewer; however, sanitary flows were excluded from the line as part of the sewer separation project. A 10" sanitary sewer is located in Court Street running in between the courthouse and the First Unitarian Church. This line services the majority of the existing courthouse facility. Stubs shown on the record combined sewer plans for Highland Street suggest, however, that there may have been connections there in the past.

b. Based on conversations with the Worcester Sewer Department, sanitary sewers in the vicinity of State and Harvard Streets should support the proposed construction of the expanded facility in this area. Pipe sizes and slopes in the immediate vicinity of the site appear to be adequate to accommodate additional flows. An analysis of existing and proposed flow rates will be required to determine the exact impact. The existing 10" line in Court Street could potentially be utilized to service the proposed expansion.

c. Expansion in the courthouse parking lot would be more difficult since there are no convenient locations in which to access the existing sewers. A connection to the sewer in Harvard Street would most likely require a lift station to transport the sewage to the elevation of the existing sewer. A second alternative would be to construct a new sewer down Highland Street. Both of these alternatives are costly, could involve substantial engineering design and additional permitting obligations. This makes expansion into the courthouse parking lot less desirable than a facility at State and Harvard Streets.

d. According to DPW officials, the standard practice in Worcester has been to treat parking structure drains as sanitary fixtures. Runoff from parking structures must first pass through a M.D.C gas and oil trap, and then into the sanitary sewer.The final connection locations may be subject to review and suggestion of the Worcester DPW.

2.3 Surface Drainage

a. All surface drainage from the site is collected and piped directly into the City of Worcester surface drain system. A 42" (formerly a combined sewer) and a 10" surface drain exist in Main Street. Highland Street is serviced by an 18" sewer (formerly a combined sewer). A 12" surface sewer, also formerly a combined sewer, is located in Harvard Street and an 18" oval surface sewer (formerly a combined sewer) is located in State Street. Existing site runoff is collected and routed to the 15" storm drain located in Court Street. The surface system services parking areas, building roofs and some subsurface drains. Runoff collected in the courthouse parking area at Highland and Harvard Streets is piped underneath the existing building in a 12" pipe to the collection line in Court Street.

b. Construction of stormwater attenuation facilities on this site would be difficult due to limited available space and unfavorable soil conditions for infiltration. Peak discharge increases, however, would be small due to the high percentage of impervious surface which presently exists on the site. If absolutely necessary, a piped storage system could be designed to reduce peak runoff rates, such that they would not exceed existing conditions.

c. Surface runoff from a proposed structure at the corner of State Street and Harvard Street could drain to the surface drainage system in State Street or to the surface system in Court Street. Existing runoff rates and patterns from the existing parking areas off Harvard and State Streets will have to be analyzed to determine which system can best handle the proposed runoff.

d. Construction of a building at the corner of Harvard and Highland Streets (the courthouse parking lot) would not cause an increase in runoff rates as the existing area is essentially 100% impervious. Roof and surface drains could be connected to the 12" line which currently services the area. It appears, however, that the 12" line could be inadequate in size during high intensity storms. Connection to this line should only be made after an analysis has been performed to determine if the 12" line will function satisfactory during a reasonable design storm.

e. The existing 15" drain line located in Highland Street is physically accessible for a drainage connection to a building at the corner of Harvard and Highland Streets. Connecting to this drain line, however, would change the existing drainage pattern in the vicinity of the site, as currently no runoff from this area contributes to flow in Highland Street. Connecting proposed drainage to the drain line in Highland Street would result in an increase of flow in this system. Runoff from the site would occupy approximately 40% of the available capacity in this drainline. A hydraulic analysis of the existing system would have to be conducted to determine if the existing drains could handle an increase in flow and whether there would be an adverse downstream impact as a result of increasing runoff.

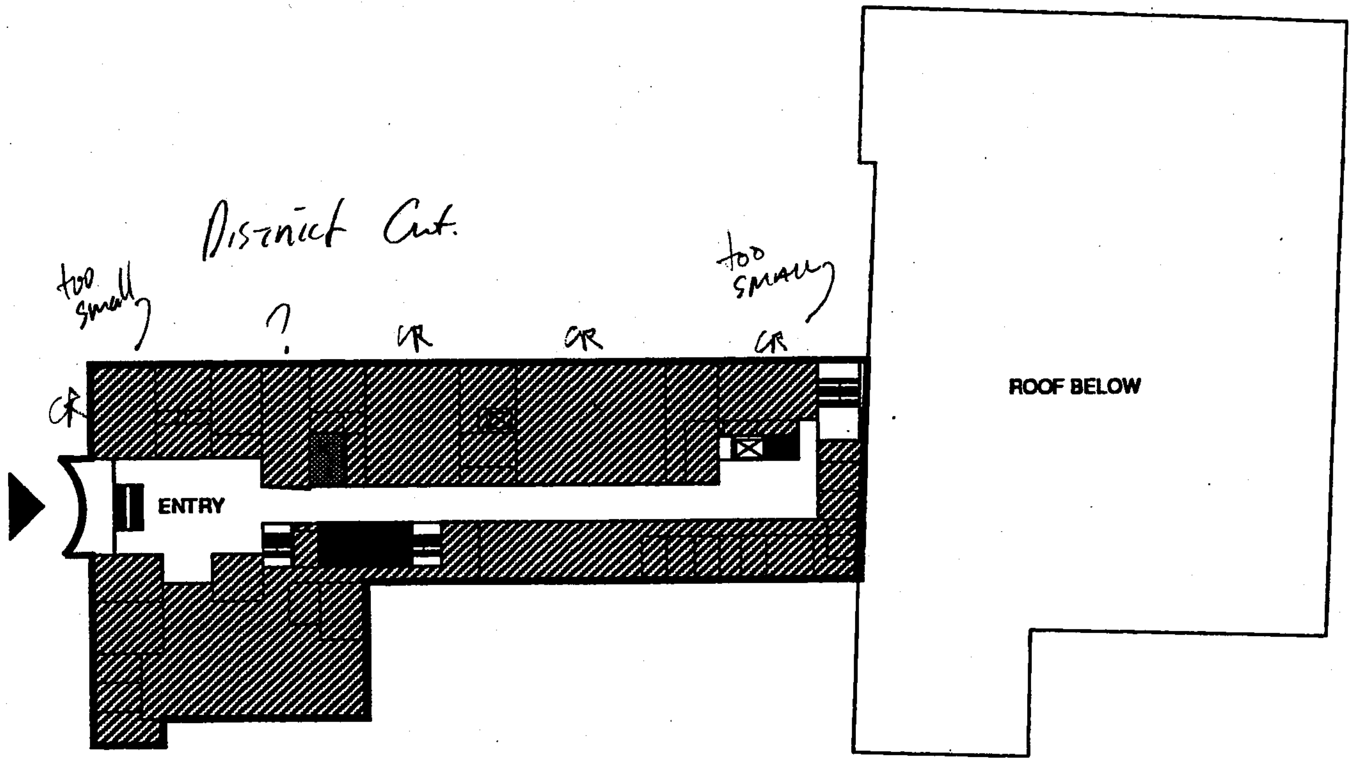
3.0 Utility Conclusions

3.1 The existing infrastructure in the courthouse complex vicinity appears to be sufficient to support new construction. Various connection location alternatives exist allowing for flexibility of design. Based on site engineering considerations, the corner of State and Harvard Street location is the location of choice. Complicated sanitary sewer issues associated with the Highland Street option would be avoided.

3.2 Conversations with representatives of the Worcester Water and Sewer Departments did not reveal any problems or constraints to future building expansion in the immediate vicinity of the project. The City of Worcester Sewer Department also indicated that, normally, a developer must submit proposed flow calculations and existing sewer capacity calculations at all proposed utility tie in locations, A decision is then made based on the proportion of proposed flow to total capacity in the subject sewer as to whether the performance of an actual total flow analysis will be required. The Worcester Sewer Department stated that they were unaware of any sewer capacity problems in the vicinity of Highland and Harvard Streets.

3.3 Conversations with the superintendent of buildings at the courthouse complex revealed a site with no infrastructure problems. According to the superintendent, everything is in fine working order.

3.4 A compiled plan of existing utilities and infrastructure has been prepared in conjunction with the study and has been included with this report.



FOURTH FLOOR PLAN

4/14

LEGEND:

▩ Superior Court
▨ District Court
▨ Housing Court
░ Probate & Family
░ District Attorney
▦ Law Library
░ Attorney / Conference Rooms
▓ County Offices
■ Building Services (mechanical, toilets, custodial, and cafeteria)

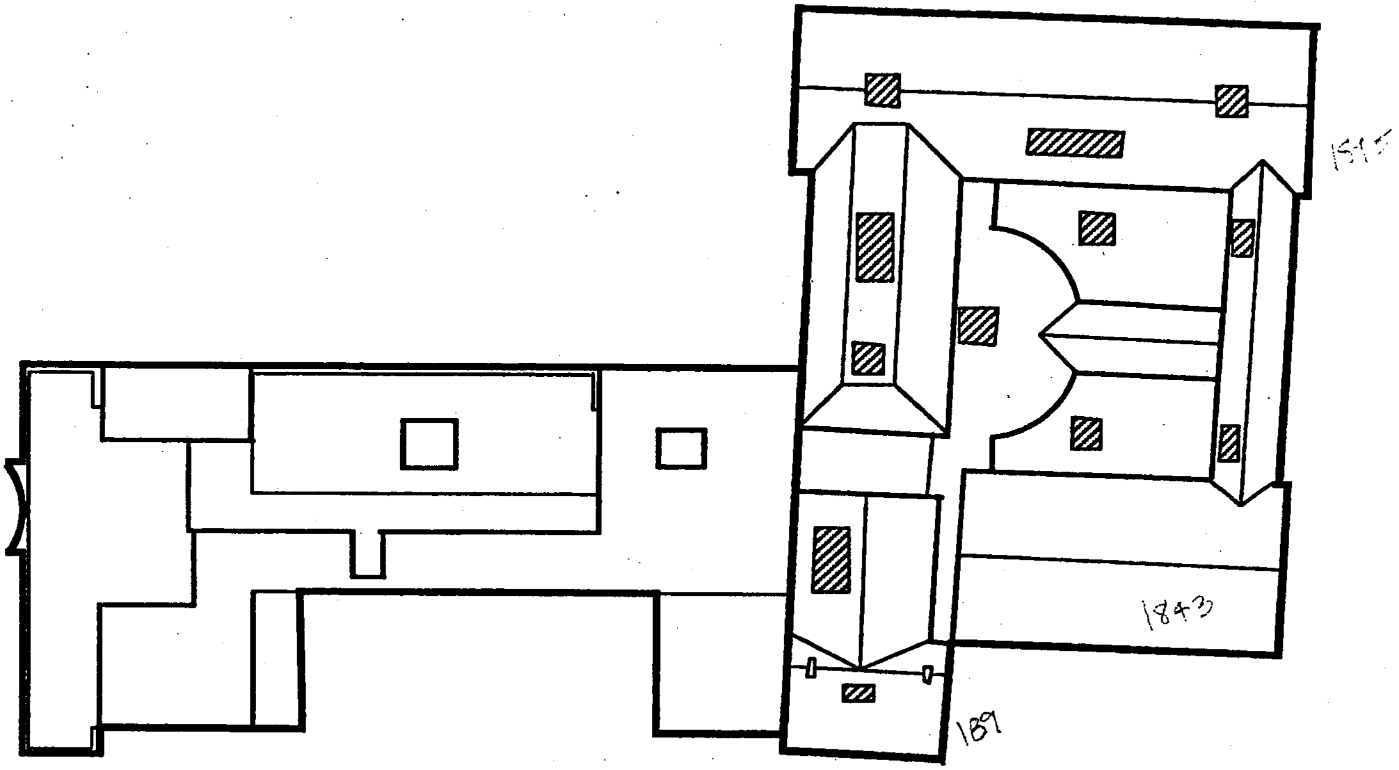
NOTES:

Juvenile Court is not located in this building.

Probate & Family Court occupy an additional 1300 square feet in another building.

FOURTH FLOOR PLAN March 1990

0 25 50 100



ROOF PLAN

LEGEND:

▨ Skylights

ROOF PLAN March 1990

0 25 50 100

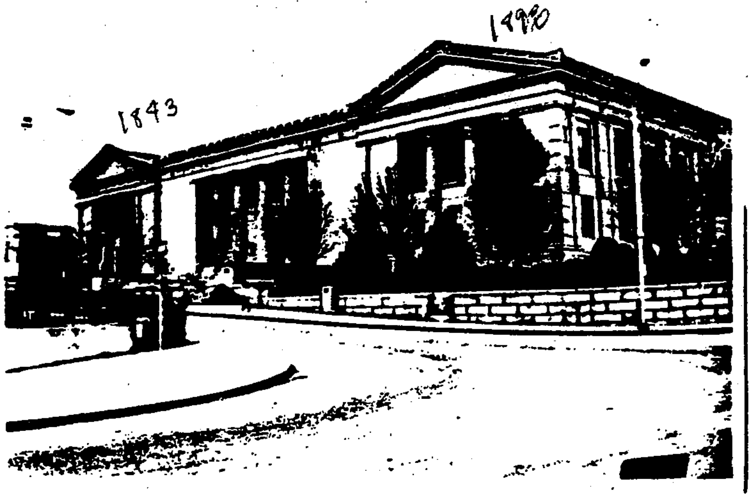
The original 19th century courthouse building on Main Street was constructed in two phases. The left wing of the courthouse was erected in 1843 by architect Ammi B. Young in the Greek Revival style. The remainder of the building was added in 1898 by the firm of Andrews, Jacques & Rantoul in an identical style to create the symmetrical facade that exists today.

The Greek Revival architecture of the 19th century courthouse is typified by the granite stonework of all its facades including the granite columns and colonnades, and the sloped pediment roofs. These elements draw on the classical vocabulary of ancient Greece to symbolize civic and public architecture.

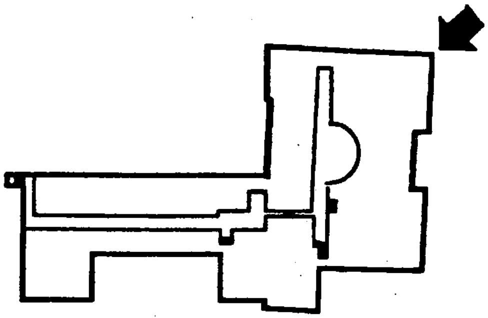
The grandeur of the style was carried into the building's interior lobbies and courtrooms. Marble stairs, ornate railings and trim, columns and colonnades, plaster and wood ornamentation and panelling, and skylights and clerestory windows, in symmetrical and balanced compositions contribute to the architectural history and significance of the 19th century courthouse.

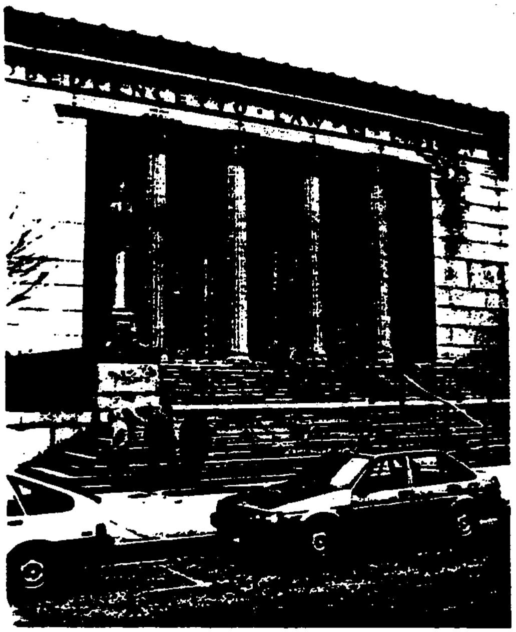
By comparison, the 1950 courthouse addition is a utilitarian building designed to simply accommodate the space needs of the court. Little of the design evokes the grandeur or richness of the original building. Its main lobby on Harvard Street is a modest example of reinterpreted classical public architecture.

The original courthouse building is listed by the Massachusetts Historic Commission on both its district and multiple resource area listings. The designation requires the review of the plans by the Massachusetts Historic Commission of any proposal for alteration or addition as per the regulations of Chapter 254. The building is not within any local historic districts or subject to any additional local historic regulations.

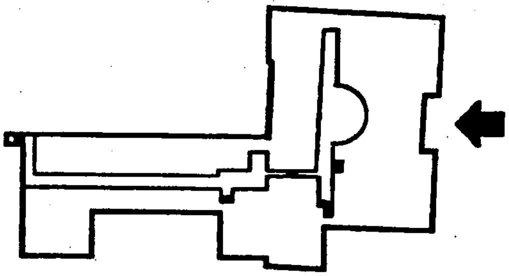


The granite exterior of this 1898 courthouse with its formal arrangement of classical elements, exemplifies turn-of-the-century Greek Revival architecture. This notable style has been commonly used in civic architecture.

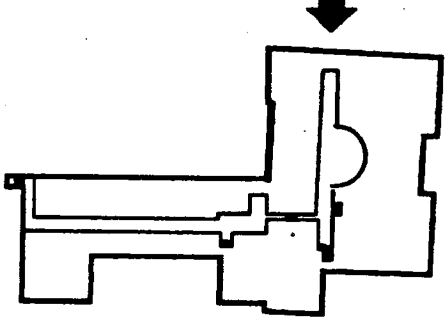


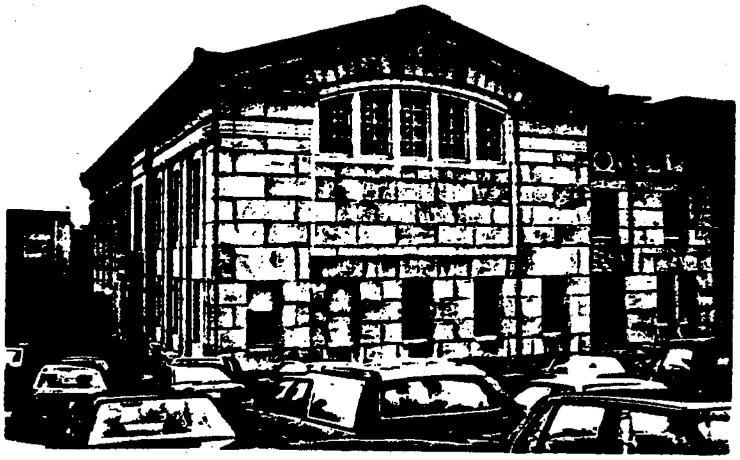


Along Main St. the grand steps lead up to a Corinthian columned portico. The pediment above with the flanking wings of the building to either side frame the traditional entry. This condition is typical for the Greek Revival public architecture of the late 19th century.

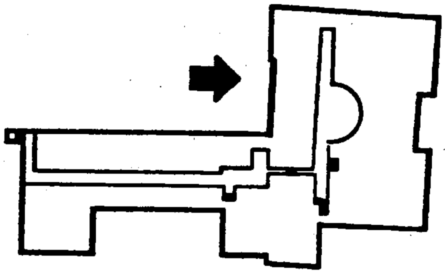


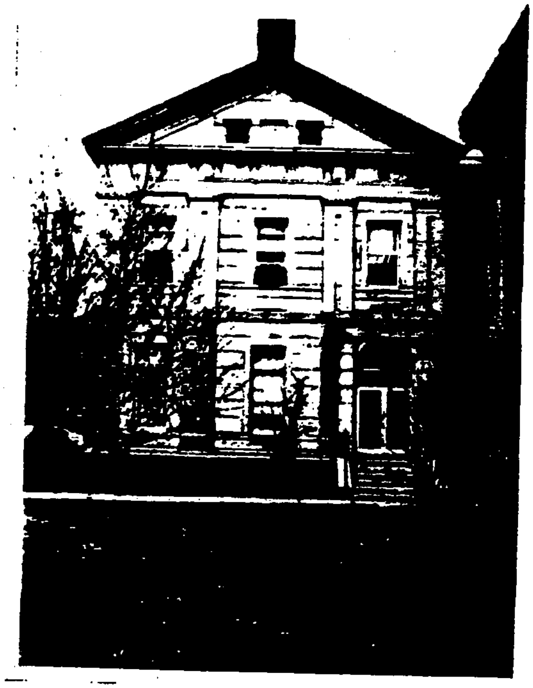
The side entrances are also classically detailed with granite Doric columns, pediment, and cornice. The granite steps and light fixtures denote entry on a more modest scale than the main entrances.



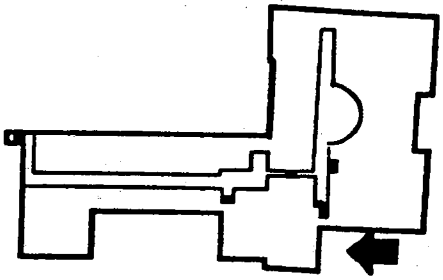


The rear of the 1898 courthouse building continues with the use of granite. The detailing is less refined than the more public front facades but is handsome in its rusticated nature.

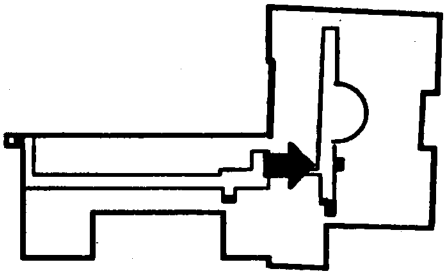




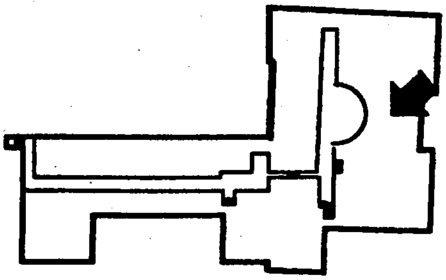
The law library, which from the outside can be identified as a separate volume, is attached to the south end of the courthouse. The regular spacing of pilasters and the intermediate horizontal banding divides the facade into a more intimate scale. This portion of the building is unique and demands some independent function.



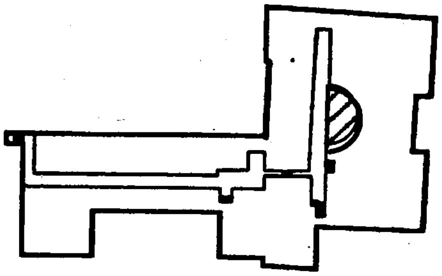
The lobby of the 1898 courthouse building features curved marble stairs with wood and cast-iron railings. The symmetrical layout reflects a classical sense of balance and architectural composition symbolic of public architecture in the early 1900's.



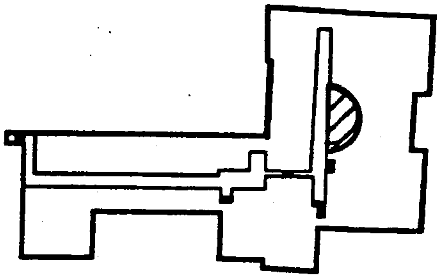
The curved stairs and the second floor lobby are supported by an eclectic set of stacked columns. These columns are detached from both the stair and the wall giving the stair a light quality.

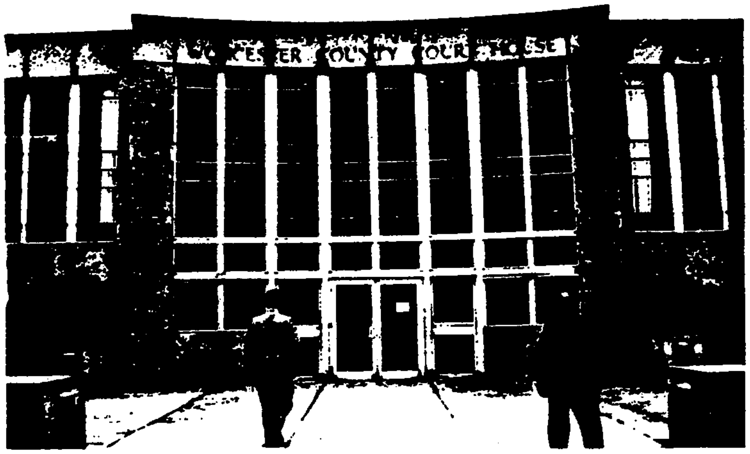


The second floor lobby continues in the use of similar elements as the ground floor lobby. The arched plaster ceiling with coffers and a skylight provide a bright interior for the replica sculpture of Moses.

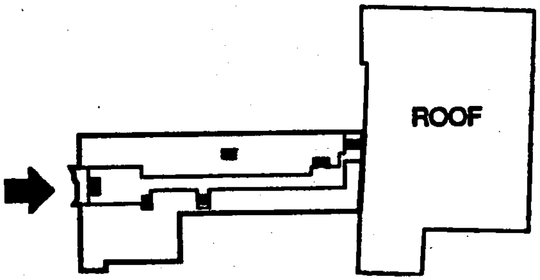


The second floor lobby is naturally lit by light wells that surround the lobby. The paired windows over the stairs are crafted of stain glass and frame historic murals at each curved face of the lobby.

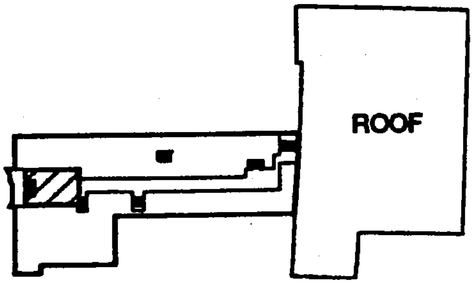


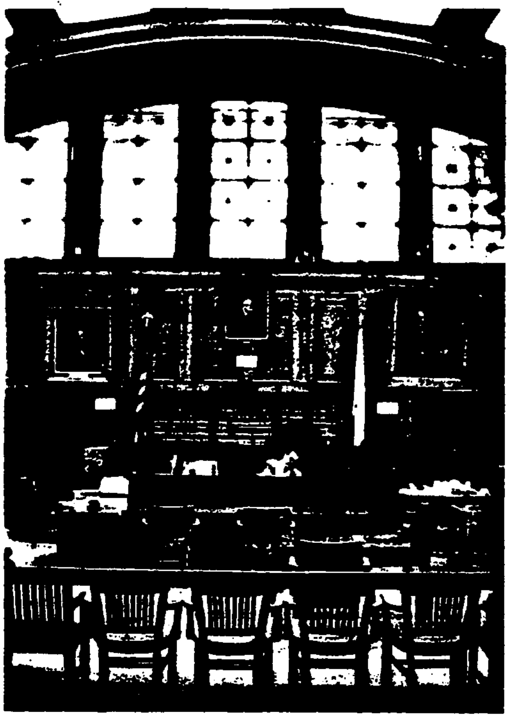


The entry to the 1950 addition seeks to redefine the original building's grandeur. Its gently curving curtain wall provides a gesture to the public for the upper end of the building. This symmetrical layout take cues from the classical precedents. Although more modest in scale, it embodies the 1950 approach to the making of civic architecture.

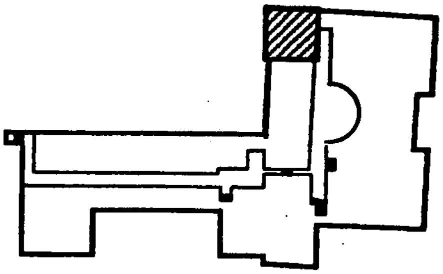


The lobby inside this curtain wall is detailed with marble steps and wainscotting.

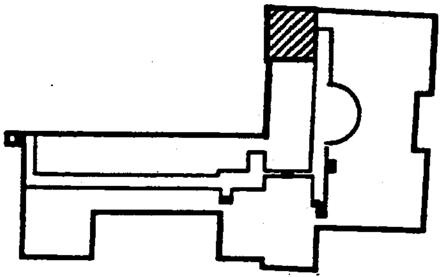




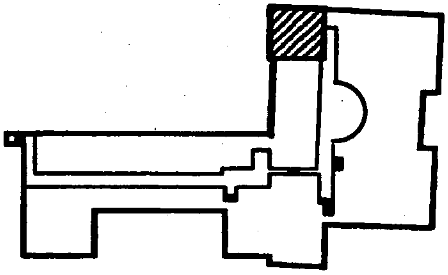
The second floor Superior Courtroom 18 is a magnificent courtroom space with a curved coffered ceiling, wood wainscotting, and clerestory windows.



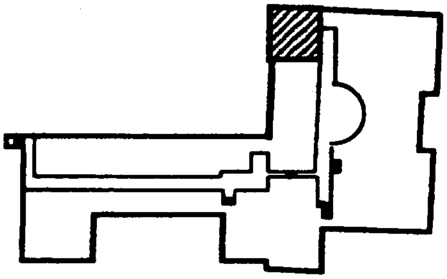
This same courtroom is defined by articulated plaster walls and trim with wood panelling both behind the judge's bench and along the jury seating.

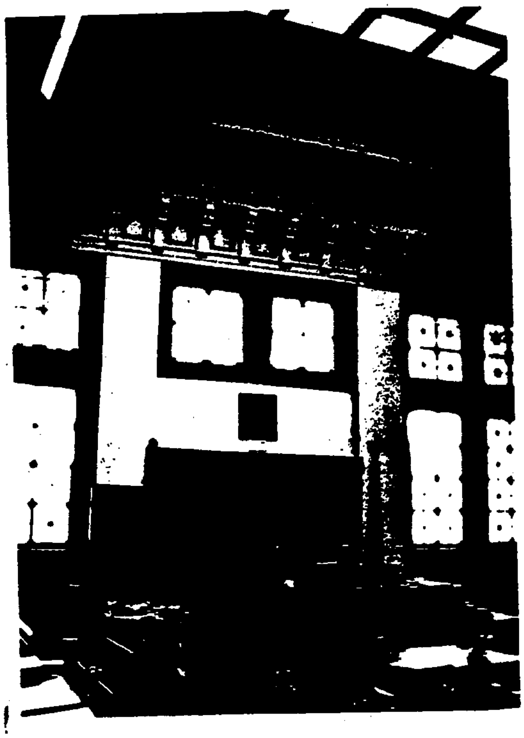


The same Superior Courtroom 18 has a curved rear wall with a sculpted Ionic colonnade. A pair of curved staircases lead to jury rooms on the third floor. A decorative cornice suspended over the colonnade begins to highlight the room's domed ceiling.

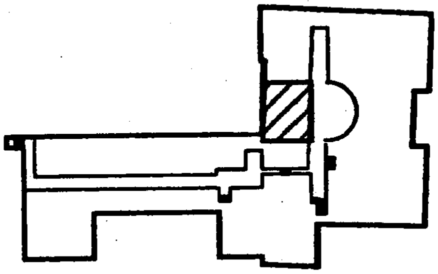


The ceiling is half domed with a plaster coffer pattern. Wood trim and paint complete the other half. A semi-circular wood and glass skylight at the oculos brings diffuse natural light into the center of the courtroom.

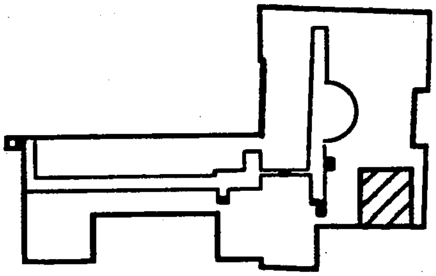




Superior Courtroom 16 is a two story space almost square in proportion. The plaster walls and wood trim are simply detailed. A strongly articulated cornice tops the room and emphasizes the transition to a coffered plaster ceiling with skylights. Light wells and tall windows flood the courtroom with natural light.



Superior Courtroom 12 is a large two story space. Wood panel wainscotting accents all four walls of the courtroom. A simply articulated coffered ceiling highlights the room.



The data for the following was compiled by a walk-through of the facilities to determine their physical condition, a review of available plan and specification documents, and discussions with the building superintendent.

1.0 Description

The existing site for the courthouse building including the State and Harvard Streets parcel is approximately 197,270 sq.ft. There is approximately 50' change in elevation between the Harvard and Main Street entrances. There are two parking areas on the north and south sides of the building. The parking area on the north side includes a parking deck. The total number of on-site parking spaces available in these two areas is 214 spaces. On the adjacent State and Harvard Street site there is another 70 on-site parking spaces available.

2.0 Exterior Stairs, Site Walls, Plazas, Walkways

2.1 Main Street Entrance:

Main Street entrance exterior stairs and site walls are granite. They were repaired in 1986 and require only minor repointing. In general, they are in good condition. The plaza on the northeast side is also of granite. It is in fair condition with significant deterioration of the mortar joints at the circular retaining walls. The handrails are rusted.

2.2 The Harvard Street Entrance:

The Harvard Street entrance is concrete. The plaza, steps, and retaining walls are in fair to poor condition. There are major cracks, settlement, and deterioration of the concrete. The concrete site stair to a lower level is also deteriorating

RECOMMENDATIONS: Repoint existing plazas and site walls as noted above. Repair or replace the Harvard street entrance plaza, site stair, and walks as dictated by the new design. Replace handrails.

3.0 Parking Deck and Lots

3.1 Parking Decks:

The parking deck pavement is in fair condition. The retaining walls show evidence of significant cracking and deterioration.

3.2 Parking Lots:

The existing lots are an asphalt surface. They are in fair condition with considerable cracking, potholes and deterioration of the surface.

The lot on the north side drains to a single catch basis near to the face of the building.

RECOMMENDATION: Repair or replace the existing parking lot and deck surfaces as required by the final design. Repair all retaining walls. Reconfigure the drainage pattern at the north lot away from the face of the building

4.0 Areaways

The metal grates on the areaways on the east and west sides of the building are rusted and loose. The areaway closest to the Main Street entrance is holding water.

RECOMMENDATION: Repair, scrape, and paint existing grates. Redesign drainage at problem areaway.

5.0 Landscaping

At the north and east sides of the 1800's building the landscaping is extensive and in good condition with evergreen shrubs, a few deciduous, specimen trees, and ground cover. At the South side of the 1800's building there is a lawn area in good condition. At the Harvard Street Entrance there are deciduous hedges and small areas of lawn. The hedges and lawn are in fair condition from people walking over and through them.

RECOMMENDATION: Redesign of the Harvard Street entrance landscaping will be required to withstand the high level of pedestrian activity.

6.0 Code Compliance

Handicapped access is possible now at the garage entrance of the 1950's building. This is also the entrance for the detainees.

RECOMMENDATIONS: Proper access for the physically disabled will be required to the courthouse complex as outlined in the regulations for the Architectural Access Board, 521 CMR.

1.0 Roof and Drainage

In 1986 the roofs, flashing, and drainage systems were repaired and replaced for the entire complex. For the pitched roof of the 1800's building the original slate and copper roofs were replaced with either an elastomeric roof system or asphalt shingles. It appears that rigid insulation of varying thicknesses was added where possible. The flat roofs of the 1800's and 1950's building were all replaced with an elastomeric roof system. It appears that rigid insulation was added at this time. The roofs are all in excellent condition. The drains were also cleaned and repaired at this time. There was no evidence of blockage.

Loose sections of the decorative copper cornice of the 1800's building was also repaired in 1986. From a street level inspection no problems were detected. Downspouts and gutters were replaced. They are in good condition. Skylights were replaced in 1986. They are an insulated skylight product. It appears to be a Kalwall product. They are in excellent condition.

RECOMMENDATION: Due to the excellent existing condition of the roof, all work required in this area will be due to any changes in roof top equipment, new openings, etc. as dictated by the new design.

2.0 Exterior Walls

2.1 1800's Building

The exterior walls are granite faced. They were repointed in 1986. There is some minor cracking and evidence of caulking lifting at the joints of walls and piers. The overall condition is good.

RECOMMENDATION: Minor repointing is required.

2.2 1950's Building

The exterior walls are granite faced on the west facade, and a combination of white, glazed brick and granite on the north and south sides. The back up for the walls is masonry. There is some evidence of spalling at some lintels and at the corners. Some lintels are rusted. There are no vertical or horizontal control joints in the facade. The overall condition is good.

The roof top structures include mechanical penthouses, a chimney, and a stairwell penthouse. They are of masonry construction or metal panel. At the masonry structures there is evidence of water penetration with rusted lintels, separation of masonry from the backup. Also there are missing metal panels.

RECOMMENDATIONS: Review the need for control joints in the facade. Repaint steel lintels as required. Repair roof top structures.

3.0 Windows

3.1 1800's Building

The clerestory windows behind the Main Street entrance portico are aluminum, insulated replacement windows. They are installed behind the existing windows. All windows on the interior court side are are aluminum framed, insulated glass replacement windows. The replacement windows are in excellent condition.

The majority of the remaining windows on this portion of the building are double-hung, wood sash, single glazed. There are some special windows with decorative mullion patterns. They are single glazed. They were repainted, recaulked, and repaired in 1986. They are in fair to good condition.

RECOMMENDATIONS: Replace wood sash windows with double-glazing to achieve an energy efficient building envelope. Special solutions will be required for the decorative windows to maintain their architectural character, and improve their insulating value.

3.2 1950's Building

The windows are aluminum framed, single glazed. They are in good condition. The curtain wall at the Harvard Street entrance is also of aluminum frame with single glazing. Some panes of glass need to be replaced.

RECOMMENDATIONS: Replace existing windows with double -glazing to achieve an energy efficient building envelope.

4.0 Exterior Doors

4.1 1800's Building

On the west elevation there is one aluminum storefront system frame and door. Recaulking is required at this frame. The remaining doors are the original wood panel doors. They require refinishing. Hardware must be replaced. They are in fair condition.

RECOMMENDATIONS: Repair and refinish existing wood panel doors as required. Install new hardware as required by the building code.

4.2 1950's Building

Doors are an aluminum storefront system with single glazing. Some openings do not meet present codes for size or required hardware.

RECOMMENDATIONS: Replace doors with insulated glass. Door system may be changed as required by the new design.

5.0 Interior Finishes - 1800's Building

5.1 Basement:

The walls are typically of painted brick, the ceilings painted plaster. Floors are painted concrete. The pipes and ducts are typically exposed and at varying heights. Some are only 7'-0" AFF. Some of the concrete floors are uneven. The overall condition is good.

RECOMMENDATIONS: Level floors as required by new design. Perform minor patching and repairing of walls and ceilings as required.

5.2 First Floor

a. <u>First Floor: Registry of Deeds, Registry of Probate, Treasurer's Office</u>

Typically, these spaces have high, plaster ceilings often with decorative, plaster cornices. Other ceilings have 1x1 ACT applied to the plaster. The walls are plaster. The floors are finished with composition tile. The base is wood. Some interior partitions are of wood and glass which have no acoustical properties. Unpainted ductwork hangs exposed from the ceilings.

The general condition of the spaces is fair to poor. The plaster is often cracked. There is evidence of water damage on the ceilings and walls. It is probably the result of roof leaks that were repaired with the 1986 roof renovation. However, the damaged interior finishes have yet to be repaired.

RECOMMENDATIONS: The height of these spaces allows for central air conditioning. There is little of significant interior detail that must be retained. The ceiling and floor finishes need to be refurbished. The spaces require a complete renovation based on both proposed future use and existing conditions.

b. <u>First Floor: Judge's Offices in Probate Court Area</u>

These two offices have carpeting and 2x4 acoustical ceilings. The walls are plaster, some with wood panelling. One office has a barrel vaulted plaster ceiling. The toilet rooms have a variety of finishes and are in fair condition.

RECOMMENDATIONS: The floor plans should be developed with an effort to retain the architectural character of these two offices.

c. <u>Main Entrance Hall, Stairwell, Second Floor Lobby</u>:

The floors are terrazzo with no control joints. They have two large cracks which extend the width of the corridor. The walls are clad with a marble dado. The marble is in good condition but requires cleaning. At the entrance hall the ceiling is a barrel vault of a ceramic masonry material in running bond and herringbone patterns. The doors are 10' high, of wood, and in poor condition with cracks running the full height. The windows into the light courts are stained glass. The murals were painted in the 1970's for the Bicentennial celebrations.

The stair has marble treads. The handrail is wood, the ballusters are cast iron. Although somewhat worn, the stairwell is in good condition. The columns are marble or encased plaster with a painted, faux finish.

RECOMMENDATIONS: Every effort should be made to retain the architectural quality of this space. New building systems must be sensitively introduced. Code compliance must be addressed with the architectural integrity in mind. Further investigation is needed to determine if any preservation efforts are requried for the stained glass windows.

5.3 Second Floor

a. Second Floor: Superior Court Clerk Magistrate's Office

The finishes are similar to the Registry of Deeds space above. They are in poor condition with considerable water damage, and signs of excessive wear. The ceilings are high.

RECOMMENDATIONS: This area should be considered for a possible courtroom for the Superior Court due to its height and potential detail. e.g. plaster cornices.

b. Second Floor Courtrooms

3

There are three courtrooms on this level, all of exceptional architectural character. The ceilings are a combination of plaster, coffered ceilings and skylights. The walls are wood panelled and plastered (probably hairplaster). The floors are carpeted. In general the condition of the room finishes is good except for the carpet which is fair. The plaster walls have some cracking. At the wood entrance doors there is considerable amount of wear on the doors and the adjacent wood wainscoting.

RECOMMENDATIONS: These courtrooms require very sensitive renovation to accommodate necessary mechanical systems, e.g. fire protection systems and HVAC. Their architectural character must be maintained. Adequate egress must be provided from each courtroom as required by the building code.

c. Second Floor: Law Library

The 1800's portion of the Law Library has painted plaster walls and ceilings (coffered). The base is wood, the floors are carpeted. In general the finishes are in good condition.

The two tiered stack area is constructed with a metal structure and glass flooring. The upper level ceiling is vaulted with a skylight. The ceiling shows evidence of water damage at the skylight. It is difficult to determine if this damage was prior or subsequent to the 1986 roof repairs.

RECOMMENDATIONS: The plans should be developed to maintain the architectural quality of these spaces. The upper stack level does not comply with the code for egress or floor ratings. Additional structural work will be required to retain a second level in this area.

5.4 Third Floor

The third floor contains a mixture of jury deliberation and storage rooms. The finishes are plaster walls and ceilings and wood floors. The wood floors have been sanded numerous times and are deteriorating. Their finishes are in fair to poor condition. Much of the area is unheated which accounts for some of the deterioration of the finishes. There are several skylights. The space between interior and exterior glazing of the skylights is full of debris.

RECOMMENDATIONS: Extensive renovation is required on this level to achieve usable, habitable space. The present egress from many areas is inadequate e.g. dead end corridors, only one stair etc. and must be addressed. However, there is architectural potential in some of this existing space. The skylights must be cleaned.

a. Toilet Rooms:

The toilet rooms have ceramic tile floors and metal toilet partitions. They are in fair condition.

RECOMMENDATIONS: The toilet rooms are not handicapped accessible. All toilets in the complex should be reviewed before a determination is made to renovate or eliminate some of the existing toilet rooms to comply with code. Because of their condition and code issues, many of the existing toilet rooms could be considered for demolition to facilitate the program for the courthouse complex.

6.0 Interior Finishes - 1950's Building

6.1 Typical Finishes: Offices, Corridors, Judge's Lobbies, Lounges

a. Walls:

The walls are typically painted plaster over a clay tile. There is wall covering in a few areas. They are in good condition with only minor chipping and cracking. In the basement the walls are masonry units, either glazed or standard. They are also in good condition.

b. Ceilings:

The ceilings are typically 1x1 ACT on a concealed grid. The tiles are dirty particularly near exhaust grilles, and the grid is rusted. The ceilings are in fair condition.

c. Floors:

The corridor floors and bases are terrazzo. They are in good condition. The office floors are either carpet or composition tile. They are in fair condition with considerable wear to the finishes.

d. Doors:

The doors are solid core wood doors. Some show considerable wear at the stiles. Their condition varies from good to fair condition.

6.2 Courtrooms:

6

The walls are plaster and oak panelling. In general the finishes are in good condition. There is evidence of water damage to some of the finishes. Again, the damage appears to have occurred prior to the exterior repairs in 1986. The floors are carpeted or composition tile. They are in fair condition. The entry doors are solid core wood and in poor condition due to extensive use. Six of the courtrooms have high ceilings, an appropriate scale for courtroom use.

6.3 Toilet Rooms:

The walls have a glazed masonry dado. The floors are ceramic tile. The ceilings are plaster The stall partitions are marble, and the doors are metal. The finishes are in good condition with the exception of the stall doors which are in fair condition. No toilet rooms are accessible to the handicapped.

6.4 Stairwells:

The treads and risers are terrazzo and in good condition. The plaster walls and ceilings are also in good condition. The aluminum railings are in good condition but do not comply with present codes e.g. rail spacing, loading, etc.

6.5 Detainee Areas:

The masonry finishes are in fair condition. The size, configuration, and security systems do not meet current detention standards, e.g. suicide prevention, prisoner separation, security systems, etc.

RECOMMENDATIONS: In general the finishes in this portion of the building are in good to fair condition. Many of the spaces as they now exist have little to recommend them either by size or architectural character for many any of the proposed reuses.

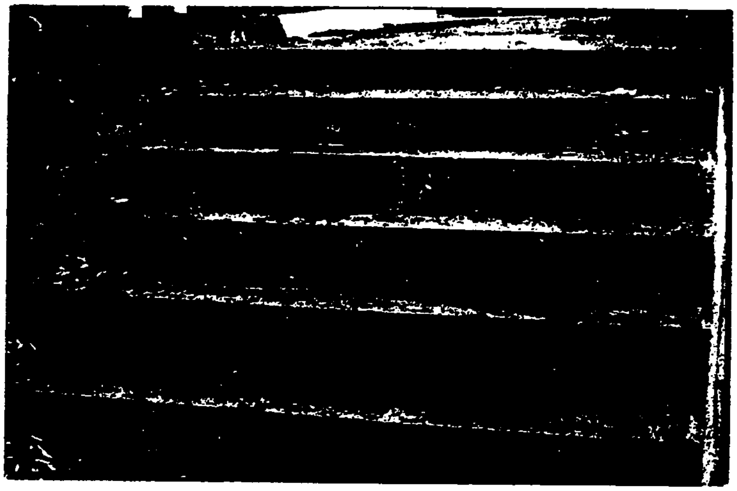
To facilitate the execution of the program for the courthouse complex, demolition of much of the 1950's building's interior should be considered.

7.0 Circulation

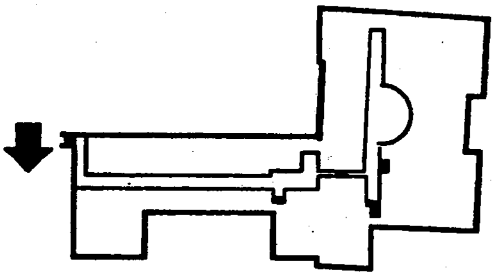
The circulation of the existing courthouse complex does not meet the requirements of present day courthouse use.The critical need for a separation between public and courthouse staff circulation systems is not met at present and is not readily developed from the existing floor plan. In addition the transition between the 1800's and 1950's buildings is difficult, because floor levels do not coincide. Numerous stairs and ramps make this point of transition disorienting to the user and inaccessible for the physically disabled. These circulation problems will require significant attention by the final designer and may result in major changes to the existing building at the juncture of these two parts of the facility.

8.0 Code Compliance

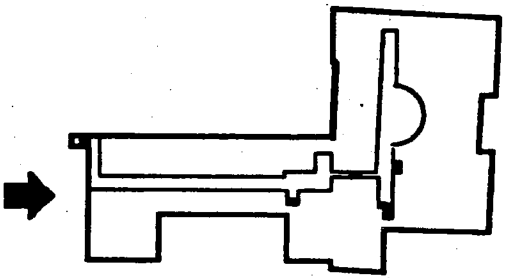
In general the renovation of the existing courthouse facility must comply with the Massachusetts State Building Code, with specific reference to Article 32, "Repair, Alteration, Addition, and Change of Use of Existing Buildings." The extent of renovation proposed will also require compliance with the Architectural Access Board CMR 521. Some areas of compliance have been referenced above. Other issues must be addressed as required by the final design.



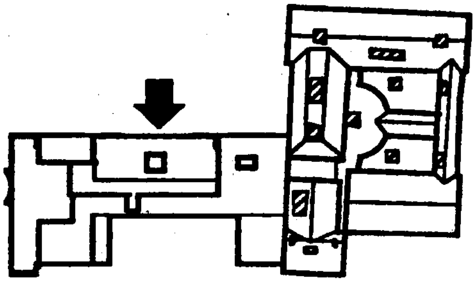
Deteriorated concrete stairs at the Harvard Street entrance.



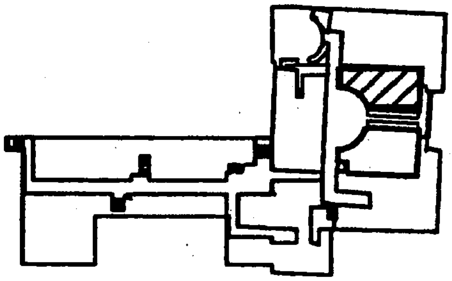
Cracked and settled concrete entrance plaza at Harvard Street.

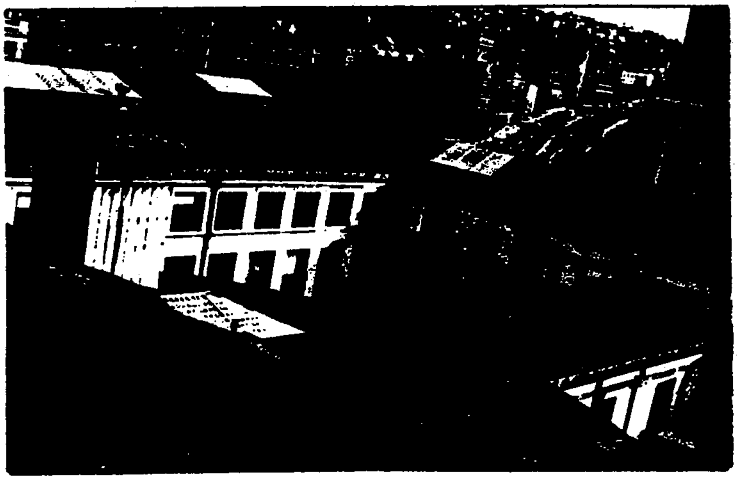


Deterioration of roof-top structures at 1950's building due to water penetration.

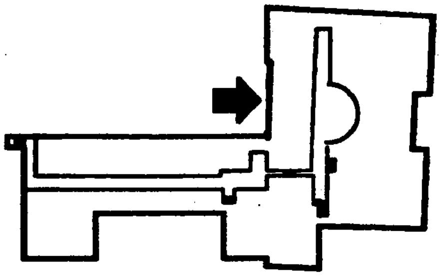


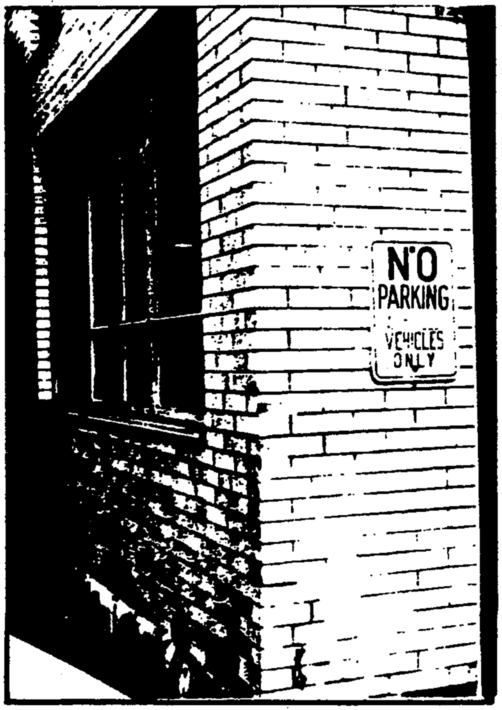
Aluminum, double-glazed windows at the light courts of the 1800's building.



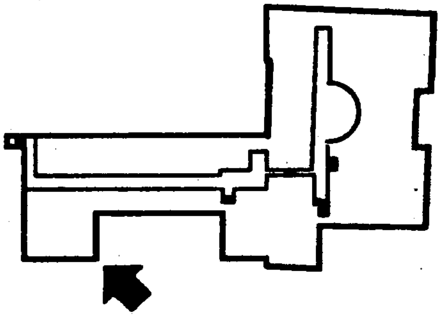


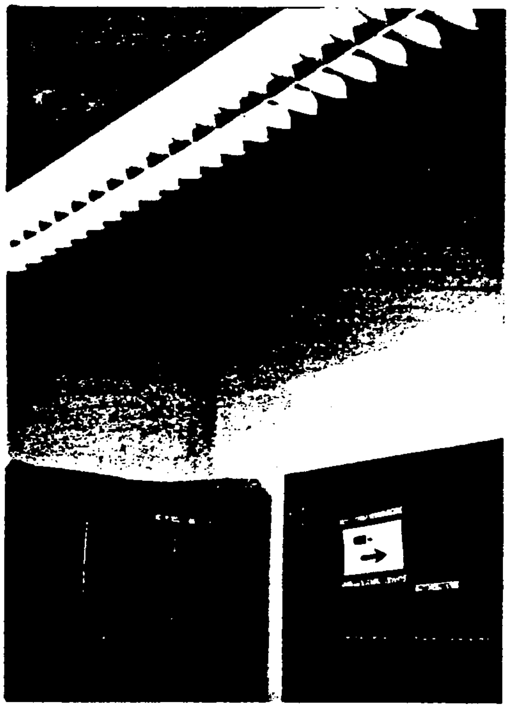
Elastomeric roof system and asphalt shingles at the pitched roofs of the 1800's building.



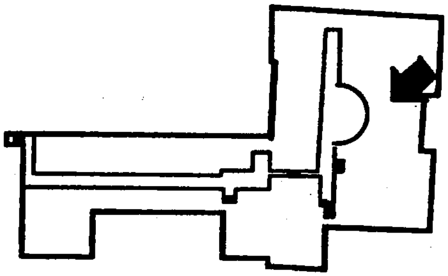


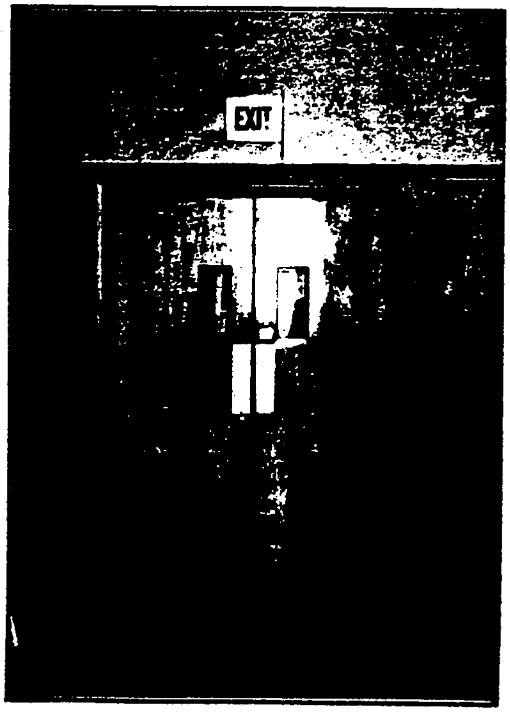
Spalling of glazed brick at exterior corners of the 1950's building.



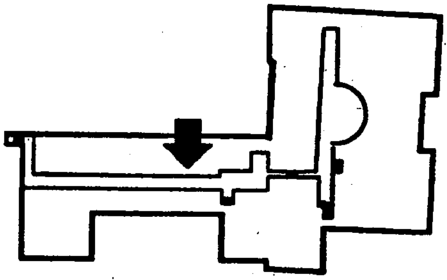


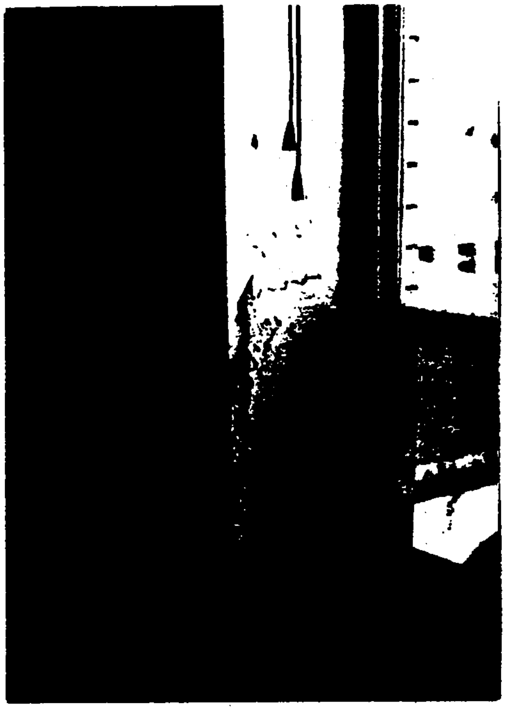
Water damaged finishes in Registry of Deeds area in the 1800's Building.



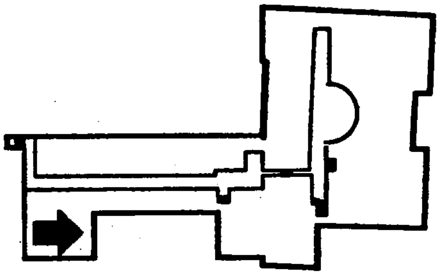


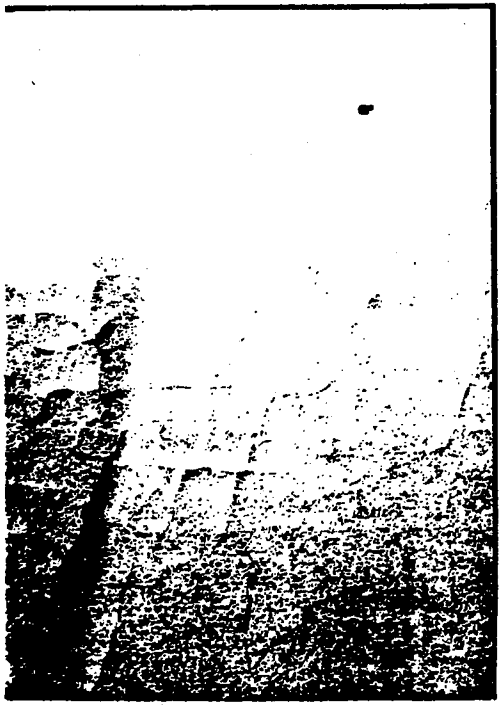
Interior doors in 1950's addition showing excessive wear from frequent use.



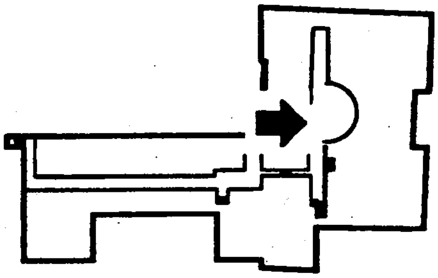


Water damage to window jambs and sills in the 1950's Building.





Example of cracked plaster finishes in the 1800's building.



This report of the Worcester Courthouse Building was prepared for Drummey, Rosane and Anderson, Inc. It is based on a walkthrough, available drawings and meetings with the custodial staff. No demolition was made to expose the structure or to check the accuracy of the existing documents.

1.0 Structural Description - The 1890 Building

(taken from original drawings by Andrews, Jacques and Ratoul Architects)

1.1 Foundations

The footings are a combination of concrete and granite with foundation walls built mainly of granite and brick.

1.2 Columns

The columns appear to be steel, using built up sections. These are either encased in brick or lath and plaster.

1.3 Floors

The floor system is reinforced clay tile spanning 5'-0" OC +/- on to steel beams which in turn span to either steel girders or loadbearing masonry walls.

As we were not able to perform any cores, we were unable to ascertain the total thickness or the composition of the floor such as thickness of: a) floor finish; b) concrete fill; c) clay tile; d) plaster ceilings.

1.4 Roof

The main members on the roofs are steel beams, trusses, box beams and purlins on to which is fastened wood decking.

1.5 Exterior Walls

These load bearing walls appear to be a combination of brick and granite with clay tile appearing in some areas as an interior facing material.

1.6 Interior Walls

These interior walls are either brick or clay tile and in some cases a combination of both. Verification of this was only made in the basement where some walls were exposed and not covered with lath and plaster, as were all of the upper walls.

Care should be taken in the planning process as some of these walls are loadbearing and cannot be removed unless replaced with new structure which would appear to would appear to be impracticable. The location of these bearing walls which are shown in the floor plans, were taken from the original documents and are not field verified.

2.0 Condition Review - 1890 Building

2.1 Basement

Typically throughout this area there are cracks which do not exhibit any sign of further movement. The floor does not appear to be level, which may have been poured that way, or else some minor settlement has taken place due either to additional loading or ground water. As was stated, this does not appear to have increased over the past few years.

2.2 Boiler Room (Lower Basement)

This area is approximately 7'-0" +/- below the main basement floor and has similar cracking characteristics to those shown in the main basement, however, in this instance standing water is shown in a trench 1/2" +/- from floor level.

The custodial staff stated that water is coming through the granite foundation wall and not from under the slab. The custodial staff also stated that the water problem increased when landscaping and regrading took place several years ago.

2.3 First Floor/Second Floor/Third Floor

There was no sign of any movement or distress shown in these floors other than some cracking in the upper and lower lobbies at the main entrance. This appears to be inherent in the surface material as there were no control joints to relieve any of the shrinkage. These cracks appear to be old and there is no evidence of any new ones appearing.

2.4 Facade

There is no evidence of any structural distress shown in the granite facade.

3.0 Structural Description - The 1954 Building

(Data taken from structural drawings by L. W. Briggs Associates, Inc./C.W. Buckley Associates Architects)

3.1 Foundations

The footings are independent footings with concrete piers which carry down to a minimum bearing of four tons per square foot.

Columns:

The columns are steel H sections bearing on the concrete piers or external concrete walls.

3.2 Floors

The floor system on structural steel is 2" reinforced concrete slabs on 3/4" high rib lath typically throughout, spanning 4'-0" O.C. on to which is placed either 1 1/2" Terrazzo, 1" Ceramic tile, granolithic or 7/8" asphalt tile.

3.3 Roof

The roof system is structural steel with a 3" gypsum slab typically throughout spanning 6'-8" +/- O.C.

3.4 Bracing

The horizontal bracing system is steel cross-bracing. It was designed per 1954 codes for wind loads but is probably not sufficient to meet present day code requirements for seismic forces.

4.0 Condition Review - The 1954 Building

The 1954 building shows no signs of any movement or distress either in the floors or the facade There are some signs of water infiltration from the roof which we believe was replaced in 1986- 1987.

We assume that the structure was checked to ascertain whether any deterioration occurred before these leaks were repaired. If not, this should be done during the final investigation and design.

5.0 Loading

Again from documents of the 1890 building and the 1954 building, the following are the total design loads that, from our calculations the buildings are capable of carrying.

5.1 The 1890 Building

These total loads, based on the capacity of the steel beams and girders, range from 177 psf to 270 psf according to the location. From our research the dead loads could range from 70 psf to 90 psf according to the make up of the floor system and the floor finishes.

As we are aware, it is the intent to expand the library, as well as to install compact storage, therefore care and consideration should be given to where these are located

as these floors and possibly columns have not been designed to carry this type of

As we are aware, it is the intent to expand the library, as well as to install compact storage, therefore care and consideration should be given to where these are located as these floors and possibly columns have not been designed to carry this type of loading and must be reinforced.

The slabs, however, as designed, are capable of taking these additional loads.

5.2 The 1954 Building

Again, the total loads based on the capacity of the steel beams and girders, range from 183 psf to 226 psf, however, the dead load could range from 60 to 80 psf.

As compact storage is the only anticipated change in loading, this location must be coordinated very carefully so as to minimize the additional reinforcement that will be required. The slab appears capable of taking this additional load.

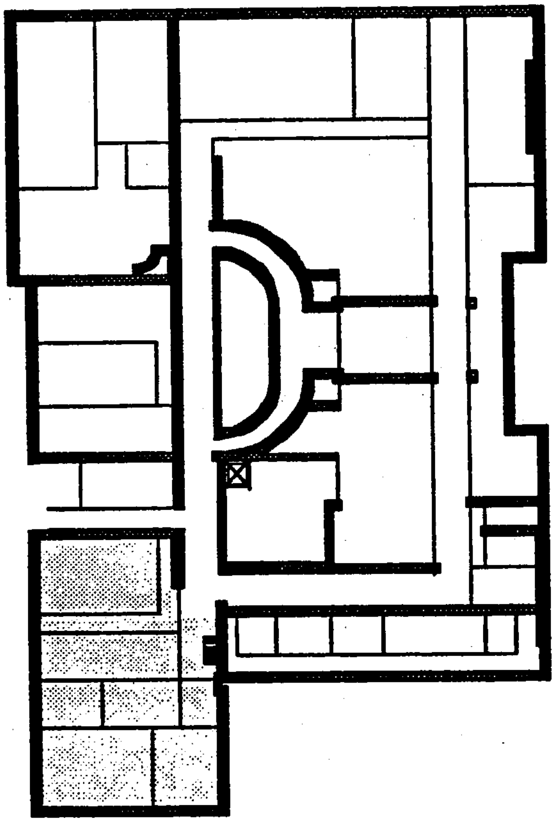
No vertical expansion is possible as the columns, foundations and bracing are not capable of taking additional loads without major reinforcement which we believe is uneconomical. There is also the question of the seismic loads for which both buildings have not been designed to withstand, and which will totally preclude vertical expansion.

6.0 Conclusion

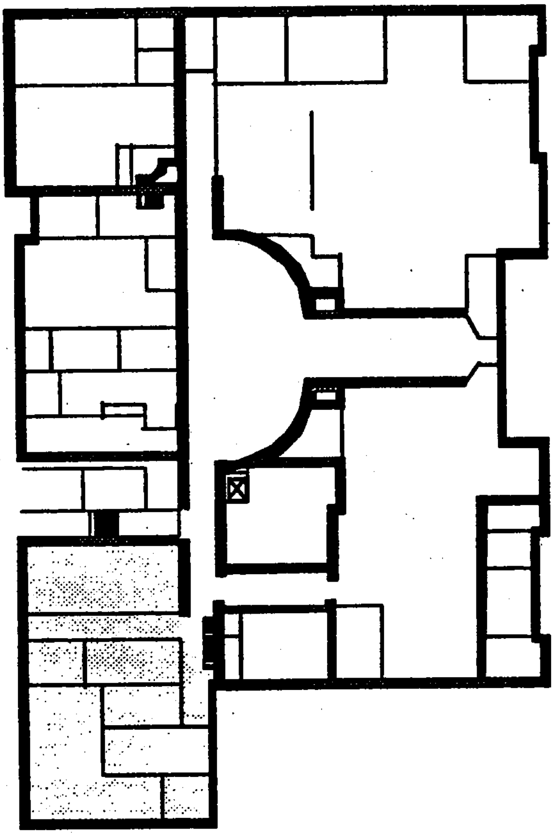
Both the 1800's and 1950's buildings structurally are in good condition and have been designed to carry the type of loading that they are presently carrying (excluding seismic loads). If new, heavier loading conditions, such as compact storage or library are allocated, reinforcement of the structure is necessary. Structural reinforcement is more easily performed in the 1954 building as the girders, beams and columns can be reinforced by means of flange plates and reinforcing the connections to carry the increased loads. In the 1890 building reinforcement would be much more difficult, as it would mean the introduction of a new framing system under the existing framing in order to carry these additional loads.

However, as part of the next phase of design, we believe that it is imperative that money be allocated to perform an in depth inspection of the structure. The inspection would check the in place sizes and condition of the structure so that the most economical strengthening could be designed as required by the new design.

Finally, consideration should also be given to a method to combat the already noted water infiltration into the boiler room in the 1800's building. The solutions may include regrading, adding catch basins, waterproofing or a combination of same.



BASEMENT FLOOR PLAN



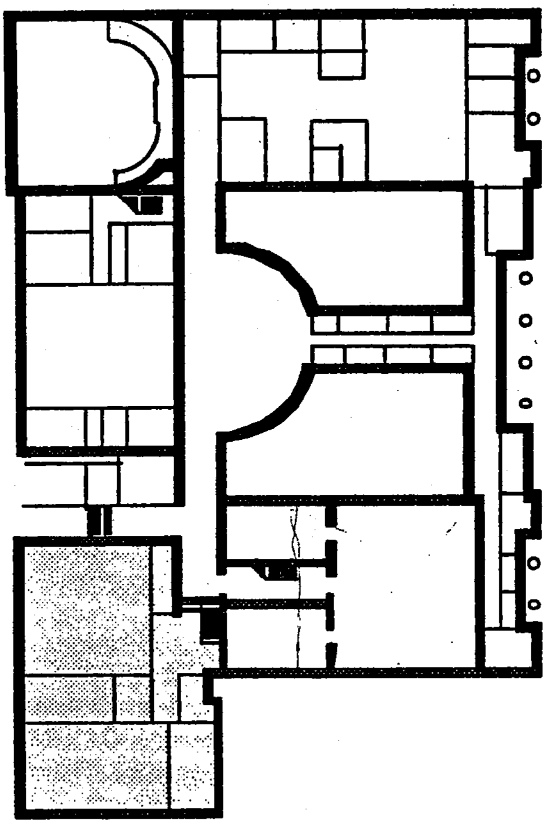
FIRST FLOOR PLAN

LEGEND:

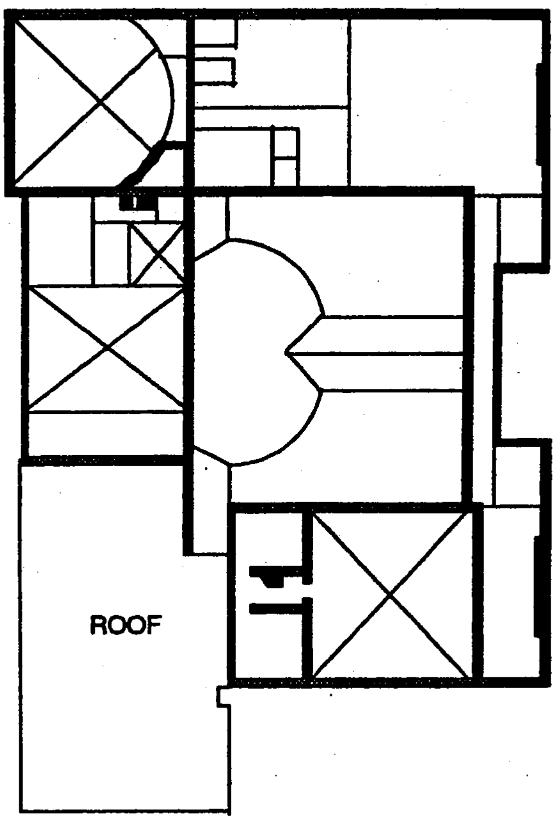
▬ Bearing Walls

— Non-Bearing Partitions

▨ No data available for this area from existing drawings or site walk-through. Further site investigation will be required to determine actual framing.



SECOND FLOOR PLAN



THIRD FLOOR PLAN

LEGEND:

▨ Bearing Walls

— Non-Bearing Partitions

▨ No data available for this area from existing drawings or site walk-through. Further site investigation will be required to determine actual framing.

STRUCTURAL DIAGRAMS February 1991 0 25 50 100

1.0 Existing Conditions

1.1 Mechanical (HVAC)

a. Boiler Room is located in basement area and contains two (2) Hodge Boiler works steam boilers. Each boiler is fired by a combination gas-oil Industrial Combustion HEV-E-DUTY Burner Model DEG-1755 burning #4 fuel oil which is drawn from two (2) 12,300 gallon fuel oil tanks located in a vault outside of the building. Output of each boiler is 416 BHP at 80% efficiency firing natural gas. However, natural gas was never provided and boilers most probably have an efficiency rating of between 70 and 75 percent firing #4 fuel oil. The boilers are 35 years old and have never been retubed. It was noted that installation allows no room for tube removal. Boilers are run "Primary and Backup." There are a pair of steam-to-water converters and hot water pumps which serve the 1955 addition perimeter heating system. There is an existing energy management system approximately five years old by Landis Gyr Powers. The EMS is wired to emergency power. EMS, CRT and printer are located in the room adjacent to the Boiler Room. A smoke opacity system is installed consisting of a meter/recorder/alarm. The opacity system is out of calibration. The existing low pressure steam system has its condensate returned via a vacuum pump/boiler feed system. There is a chemical treatment system and there has been trap replacement over the last eight years. In general, the boiler room has been well maintained. The Maintenance Supervisor indicated that the facility uses approximately 64,000 gallons of fuel oil per year.

b. The Chiller Room is located in the basement of the 1955 building and houses a 300 ton York centrifugal chiller which is 35 years old. The chiller is a high maintenance item and most parts are no longer in manufacture. There are two base mounted 560 GPM chilled water pumps and two base mounted 900 GPM condenser water pumps. The existing cooling tower is in poor condition. The temperature control air compressors, two small and one large, have been a source of trouble. The two small compressors run together or the larger compressor must run. There have been constant breakdowns.

c. The 1898 Court Building originally had ventilation supplied to courtrooms by a Sturtevent Centrifugal Vent Set consisting of large double inlet blower with a 40 HP motor and two large bare pipe steam coils located at base of air shafts. System operated on 100% outside air. The system is now inoperable. Heating in the 1898 Court Building is low pressure steam with old cast iron column radiators with manual steam control valves. Lack of temperature control has been one of the main complaints with rooms either overheated or too cold. There are several areas on the top floor that have no heat which has caused paint to peel off walls and ceilings. The Registry of Deeds and Probate Registry are air conditioned by vertical package units. Condenser piping is exposed in space as is ductwork. There is no provision for outdoor air in either space. There is an existing snow melting system at the flat roof which has been aban doned for approximately four years. It is no longer required due to the new, insulated elastomeric roofing system which was installed in 1986. The previous roofing system was uninsulated which caused ice jams to form. The ice dams prevented water from draining properly. Consequently leaks developed. The abandoned system with a combination of bare pipes and live steam melted the snow and thus prevented the formation of ice dams. With the new insulated roof system the snow on the roof stays frozen on cold days and prevents the formation of ice dams.

d. The 1955 Court Building has a heating, ventilating and air conditioning system which is 35 years old. The perimeter system is baseboard radiation supplied with forced hot water. The heating and ventilation system consists of twenty-five (25) air handling units, twenty-one (21) return air fans and four (4) exhaust fans. The air handling units have low pressure steam heating coils and chilled water cooling coils. Air distributed to the basement and four (4) floors of the 1955 Court Building through ductwork to combination supply/return Anemostats. Temperature control is provided through the digital/pneumatic energy management system installed by Landis Gyr Powers. Control is maintained by a CRT with printer located in the Boiler room through three (3) SCU standalone control units. One (1) is located in the Boiler Room, one (1) in the Basement Mechanical Room and one (1) in the fourth floor penthouse. The system basically sequences supply, return, relief dampers and heating and cooling coil valves to maintain thermostat setpoint. An economy cycle is also provided. It was noted that some areas lacked good air quality.

1.2 Electrical

a. The building receives primary electric power from the existing Mass Electric Company distribution system via an underground duct bank to a transformer vault. The vault is located on the north side of the 1955 addition near the original building.

b. Power is transformed to 120/208 volts, 3 phase, 4 wire and it is supplied by a 3000 ampere bus duct to the main switchgear. The switchgear is located in the main electric room of the original building which is next to the transformer vault.

c. The main switchgear was manufactured by Westinghouse Electric Company and it is approximately 35 years old. The switchboard is rated for 3000 amperes at 120/208 volts, 3 phase, 4 wire operation. The switchboard contains a Westinghouse DA-75 electrically-operated main circuit breaker with 3000 amp trips. There are thirty-one (31) individually-mounted molded case circuit breakers with trip ratings between 40 amp, 3 pole and 400 amp, 3 pole which serve the various loads throughout the building, a Westinghouse DA-50 electrically operated circuit breaker which is presently a spare breaker and space for a second breaker of this type. The switchboard bus is tapped and two individually mounted circuit breakers in NEMA 1 enclosures are mounted on the switchboard to feed the boilers. A two-section GE Type AV-1 switchboard has been installed at the end of the Westinghouse switchboard. This board has a 1000 amp, 3 pole main circuit breaker, 24 group mounted molded case circuit breakers with trip ratings between 15 amp, 3 pole and 100 amp, 3 pole and two motor starters which are all used to feed air conditioning loads. At the top of the left hand section, there is panel with pilot lights to indicate the "on-off" status of the air conditioning equipment. This switchboard is approximately 10 years old.

d. Emergency power is provided to the building by emergency generator which is located in the main electric room approximately three feet from the main switchgear. The generator was installed as part of the building addition project, but there are only 340 hours on the running time meter. There is no battery charger with the emergency generator to properly maintain the starting battery charge.

e. The output of the generator is connected to an ASCO transfer switch, rated at 150 amperes, 120/208 volts, 3 pole mounted in a NEMA 1 enclosure. The switch is located on the wall next to the switchgear. The switch feeds a branch circuit panelboard which is mounted next to it.

f. Normal power is distributed by conduit and wire feeders to branch circuit panelboards located throughout the building and to motor control centers in mechanical spaces.

g. Panelboards which were installed as part of the building addition project were manufactured by Westinghouse Electric Company and are circuit breaker type. Most of these panelboards were flush mounted in corridor or room walls, but there are several locations where the panels are surface mounted within small rooms. Several panelboards installed in corridors are split-bus type with one bus fed from the switchboard supplying normal loads and the other bus fed from the normal emergency system supplying emergency loads such as corridor and stair lighting and exit signs. Where additional power has been required, surface mounted Square D circuit breaker load centers or panelboards have been installed.

h. There are three (3) motor control centers in the building; one (1) in the Boiler Room, one (1) in the Basement Fan Room and one (1) in the penthouse. All three (3) units were manufactured by Westinghouse and were installed as part of the building addition project. Individual devices consist of a combination circuit breaker and motor starter mounted in a separate compartment. In the basement fan room and in the penthouse, the motors served by the control center do not have a disconnect switch at their location.

i. Where motors have been added in the building, they are supplied power from individual disconnect switches and motor starters mounted on the walls or on structural supports.

j. Branch circuit wiring consists of conduit and wire run both exposed and concealed. Wiremold has been used in some locations where additions have been made. There are several locations where Romex has been used to supply loads.

k. Receptacles in the original building are of the two-prong non-grounding type which are incapable of accepting the newer three-prong cord caps. Receptacles which have been added in the original building or where installed in the addition are the three-prong grounding type.

l. The lighting system consists of a mix of incandescent and fluorescent luminaries.

m. As an energy conservation measure, the lamps in incandescent downlight fixtures in public spaces have been replaced with PL style lamps. Lamps in enclosed incandescent fixtures have been changed to circlite type self-ballasted fluorescent lamps. This change has resulted in some dark areas in the building such as the Main Street lobby outside of the Registry of Probate and Registry of Deed offices.

n. Lighting in the large public bathrooms consists of glass globes with circlite type fluorescent lamps. Lighting in the small bathrooms in the judge's offices and in jury rooms consists of a single glass globe with an incandescent lamp. Both types of bathrooms are poorly illuminated.

o. Footcandle readings were taken in various locations in several court rooms to determine the average lighting levels. The average footcandles are:

   1. On the judge's bench: 30 F.C.
   2. On the clerk's desk: 37 F.C.
   3. On the railing of the jury box: 20 F.C.
   4. On the attorney's desk: 35 F.C.
   5. At the spectator's area: 31 F.C.

   All these levels are below the IES recommendations of 50 to 100 footcandles for court rooms.

p. Incandescent lamps are still used in the downlight fixtures over the judge's bench.

q. Fluorescent fixtures are used to provide the general lighting within court rooms. The type of fixture used varies from room to room with 1'x4', 2'x4', 4'x4' and 4'x8' acrylic lense fixtures used in the majority of rooms. Three (3) courtrooms have 2'x2' lense fixtures.

r. Several courtrooms have different lighting systems. In Court Room #18, there are 4'x4' fluorescent fixtures over the judge and clerk area. The remainder of the room is illuminated by bare incandescent lamps mounted around a ceiling soffit. In Court Room #16, there is an acrylic dome in the center of the room with fluorescent lamps above to give a skylight effect with additional fixtures around the perimeter of the room. In Court Room #12, there are fifty-four

(54) 4'x4' fluorescent fixture mounted side by side to give the effect of one large fixture in the room. In Court Room #6, the fixtures over the judge are four lamp fluorescents with vertical slabs perpendicular to the lamps. The remainder of the fixtures in this room are three lamp, triangular with no lense.

s. Fluorescent fixtures are used for office lighting. In the Registry of Deeds, Registry of Probate and Superior Court Clerk offices, bare lamp fluorescent strips and vertical slat fluorescent fixtures are used. These fixtures are not well suited for this application due to excessive glare and low visual comfort levels.

t. There are several office areas such as the Central District's offices, the Probation Department's offices and Jury Rooms with recessed fluorescents with egg-crate louvers. The louvers are yellowed which reduces the fixtures efficiency and light output.

u. The lighting system has been updated in several areas such as Judge's Offices, District Attorney's Offices, Housing Court Offices and corridors by installing fluorescent fixtures with acrylic lenses.

v. Emergency egress lighting consists of a portion of the fixtures in an area wired to a normal/emergency panelboard. The panelboard is connected to the emergency generator which supplies power if utility company power is lost. Exit signs have been installed but some appear to be the non-illuminated type while some illuminated signs do not appear to be working.

w. The building contains a limited fire alarm system manufactured by Edwards Company. There are ten (10) pull stations located around the building, each of which has its own alarm code. There are alarm zones for the automatic detectors located in the Basement Fan Room and in the Penthouse and for the sprinkler system. Alarm horns are located in the vicinity of the pull stations. The control panel is located in the main electric room. The system is connected to the City of Worcester Fire Department through fire alarm box #2039 and the telephone system.

x. There is a vault alarm system to alert appropriate personnel if someone becomes locked in a vault. Each location contains an emergency switch which when activated illuminates a light in an annunciator panel and sounds an alarm device in the main electric room. In addition, an alarm device on the exterior of the building is activated.

y. The building contains a master clock system. The control panel in the addition has been replaced with a Simplex Model 2350 control panel. This panel is functioning satisfactorily but several clocks which are connected to the panel have defective motors. It was indicated by Court personnel that replacement motors are not available. There is a second master clock panel next to the Simplex panel in the main electric room. This panel controls the clocks in the original building.

z. Each court room has a self-contained sound system. There are microphones on the judge's bench, at the witness stand and on the clerk's and lawyer's desks. Speakers are wall mounted. Wiring for this equipment is run exposed with cables attached to desks or the floor. Some of the wiring on the floor is protected with cord covers.

aa. The building does not have a security/intrusion alarm system.

bb. There are two telephone services to the facility, one serves the County offices such as Registry of Deeds and the second one serves the Court Facility. The service cables pass through the boiler room where they are partially exposed and are taped or spliced. The main telephone backboard is located in a separate room in the basement of the original building near the main electric room. Several departments such as the District Attorney have added telephone equipment to increase their communications
capability. There is also data transmission equipment in the telephone room to tie computer terminals into the telephone system.

cc. The facility contains a separate intercom system to permit internal conversations between employees and paging of court officers through visual signal lights.

1.3 Plumbing

a. Old Wing (1898)
Boiler Room

1. Water service, 4-inch, is in good condition. This service has a water meter with a 2-inch watts reduced pressure backflow. This supplies make-up water to heating system.
2. Gas service and meter are installed on inside Boiler Room wall. This service supplies the emergency generator, heating boiler pilots and boiler for domestic hot water (Summer use).
3. Gas trains are installed at boilers (heating), but gas has not been connected. Present service is not large enough.
4. The domestic hot water system for summer use is in good condition and consists of the following: An A.O. Smith Copper Hydronic Boiler installed in 1982, Model No. HW 399-780, gas-fired, 399,000 BTU input, 320,000 BTU output, and a domestic hot water storage tank of 1,000 gallon capacity.
5. Photo sinks located in basement at 1955 Courthouse are in good condition. Water supply piping to sinks has backflow preventers installed on walls.
6. Plumbing fixtures in Boiler Room are in good working condition.

b. 1955 Addition

1. Water service is 6-inch and is in fair condition. This water service supplies both domestic water and fire protection systems separately.
2. Water pressure is at 75 PSI.
3. The water service has a separate water meter and double check valve assembly.
4. Sump pumps are in good working condition.
5. There is a separate backflow preventer for the supply to the chilled water system.
6. There is a separate 50 gallon electric water heater installed in kitchen.

c. General Notes:

1. Plumbing fixtures in Judge's Chambers are in good condition.
2. A new roof was installed three (3) years ago. Storm drains look in good condition.

1.4 Fire Protection

a. Old Wing 1898

1. There is no fire protection system present in this part of building with the exception of 1-1/2 inch fire hose cabinets with fire extinguishers. The fire hose cabinets are supplied by the fire protection service entrance located in the Garage of the 1955 addition.

b. 1955 Courthouse Addition

1. The 1955 addition is protected throughout by an automatic sprinkler system with the exception of the File Room and by 1-1/2 inch fire hose valve cabinets with extinguishers.
2. The 6-inch fire protection service is located in South West corner of Garage.
3. There is a 6-inch alarm check valve assembly with trim and alarm gong piping.
4. A jockey pump is present to maintain a system pressure of 75 psig to prevent false alarms.

2.0. Code Compliance

2.1 Mechanical (HVAC)

a. Existing fuel oil tanks do not comply with Fire Prevention Regulations 527 CMR 9.24.

b. Pipe insulation does not conform to Massachusetts State Building Code Section 2010.12.

c. In the 1898 Court Building, there is no provision for outdoor air. Outdoor air requirement set by the Massachusetts Building Code Appendix B is ASHRAE Standard 62-1989.

d. In the 1955 Court Building, air handlers must have their outdoor air minimums set for people count in each space served to comply with the Massachusetts Building Code Appendix B, ASHRAE Standard 62-1989.

e. Some toilet rooms in 1898 Courthouse are not exhausted in accordance with State Building Code Section 512.0.

f. Night setback control is required in 1898 Court Building per Massachusetts Building Code Section 2010.7.4.2.

g. Duct insulation does not conform to Massachusetts State Building Code Section 2010.9.1.

2.2 Electrical

a. The location of the emergency generator, transfer switch and emergency power panel do not comply with Article 700-10 of the Mass Electric Code. This article requires all emergency system generation and distribution equipment to be located in a two-hour fire resistive room. In addition, all equipment and conduit alien to the emergency system shall not be located within these rooms.

b. The emergency generator system does not have a battery charger for the starting batteries as required by Article 700-12(b)(4) of the Mass Electric Code and NFPA 110 Section 3-5.4.6.

c. Two-prong, non-grounding type receptacles do not meet the requirements of Mass Electric Code, Article 210-7.

d. Exits are required to be marked by illuminated exit signs by Mass Building Code Section 623 and NFPA 101 Section 5-10.3.

e. Fire alarm pull stations have not been installed in the original building as required by Mass Building Code Section 1217 and NFPA 101 Section 27-3.4.2.

f. Motors are required to have a disconnecting means within sight of the motor location by Article 430-102(b) of the Massachusetts Electric Code.

2.3 Plumbing

a. Stall urinals in existing public toilets are in non-compliance with the Plumbing Code.

b. Entire building needs to be updated to include handicapped fixtures.

c. All existing hose bibbs and wall hydrants require vacuum breakers.

2.4 Fire Protection

a. New automatic sprinklers and piping are required in the 1898 Building per latest NFPA standards.

b. Upgrading of existing automatic sprinkler system in the 1955 Building is required to ensure compliance with latest NFPA standards.

3.0 Recommendations

3.1 Mechanical (HVAC)

a. The two (2) 35-year old oil-fired steam boilers in the Boiler Room should be replaced by a modular gas-fired boiler system to generate hot water for space heating in the existing building. A gas fired system should also be used for the new additions for the following reasons:

1. Gas-fired equipment has a much lower first cost than oil-fired equipment due to additional appurtenances required by oil fired systems.
2. Oil-fired systems for a project of this size have large fuel oil storage tanks which must comply with Fire Prevention Regulations 527 CMR 9.00. The existing fuel oil storage tanks would require replacement if a new oil-fired system were to be installed.
3. Fuel oil specialty equipment such as a gauging system, oil filters, fusible valves and various accessories are required with oil-fired equipment.
4. Duplex fuel oil pumps must be installed in the Boiler Room for both No. 2 and No. 4 fuel oil. In addition, No. 4 fuel oil requires fuel oil heating.
5. Gas-fired modular boilers require less space than oil-fired systems.
6. Oil-fired systems are more maintenance intensive than gas-fired systems due to the additional equipment required for the storage, heating and pumping of oil.

7. Gas-fired modular boilers have higher efficiencies than oil-fired systems which generates fuel savings.

8. Oil-fired systems use additional energy due to pumping and heating requirements.

9. Oil fuel does not burn as cleanly as natural gas. Design Data Sheets for Fossil Fuel Utilization Facilities must be submitted to the Air Quality Control Division of the Department of Environmental Protection for approval. Restrictions on oil-fired equipment are more stringent than for equipment fired with natural gas due to much heavier concentrations of particulate in the products of oil combustion. Particulate matter in the products of combustion of natural gas is nil.

10. Although boilers have been well maintained, age of the existing boilers and their condition dictates need for replacement.

11. A forced hot water system is more efficient and requires less maintenance than steam systems.

12. High efficiency gas-fired modular boilers allows for modulation of the system which increases heating performance by eliminating short-cycling during moderate weather.

13. The modular boiler concept offers a high degree of protection against service interruption due to being composed of multiple units.

14. Gas-fired modular boilers can be installed with Type B gas vent saving breeching costs. (Reference "Thermific" gas-fired boilers by Patterson-Kelley Company as an example).

15. Gas-fired modular boilers can be installed with manufacturer supplied controls to allow for reset water based on outdoor temperature for energy savings and to provide progressive alternation of lead boiler modules for even wear on all units.

16. Natural gas can be supplied in adequate capacities to existing Boiler Room at a pressure of 5" WC based on 6" WC available in the street. (Reference Plumbing Section of Study). Some gas-fired modular boilers can operate at a minimum of 4" WC. If boilers are supplied that require an operating pressure of more than 5" WC, a gas pressure booster will be required.

b. The single 35 year old centrifugal chiller in the basement Mechanical Room should be replaced by a new centrifugal chiller for the following reasons:

   1. Existing chiller is 35 years old, at the end of its useful life, is in poor condition and has been unreliable.

2. Parts are no longer in manufacture.

3. New chillers are much more efficient. They can be provided with multistage compressors and economizers for operation at a wide range of capacities.

4. New chillers are quieter and much more reliable.

5. New chillers operate more efficiently at less cost.

6. New chillers have "state-of-the-art" microprocessor controls.

c. The cooling tower for the 1955 Court Building should be replaced by a new tower for the following reasons:

1. Existing cooling tower is 35 years old, at the end of its useful life, and is in poor condition.

2. Tower has required constant repair. Floor has rotted, louvered slats are falling out.

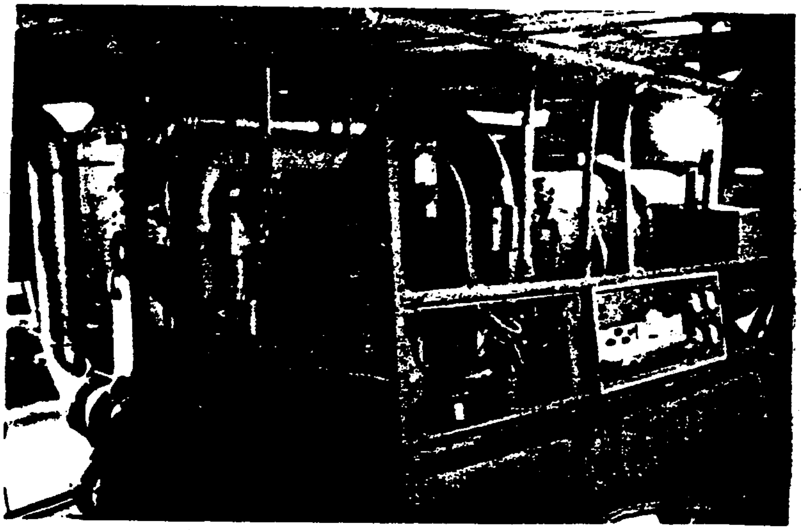
d. The hot, chilled and condenser pumps in the Boiler Room and Mechanical room should be replaced for the following reasons:

1. They are 35 years old and nearing end of service life.

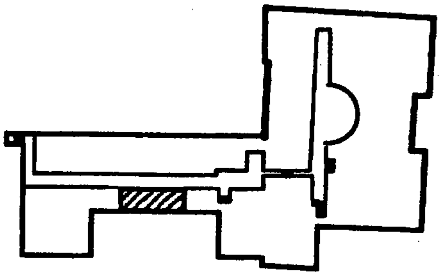
e. The existing EMS (Energy Management System) by Landis Gyr Powers should be modified, updated and expanded to control both the existing courthouses and the new additions.

f. In the 1955 Court Building, the existing air handlers (21), return air fans (21), exhaust fans (4), and all associated steam piping, valves and fittings should be removed and replaced with new air handlers, return air fans, and exhaust fans. The new air handlers would have forced hot water heating coils and new chilled water coils. New piping and controls would be provided for the hot water system and the existing chilled water piping could be utilized for the chilled water system. New return air and exhaust air fans would be provided. Existing ductwork would remain for connections to new equipment.

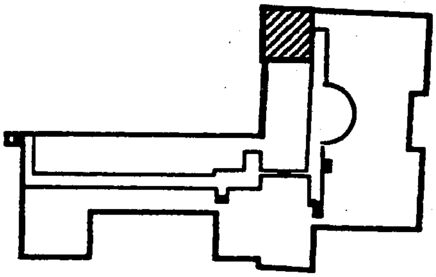
g. In the 1898 Court Building, the existing Sturtevant air handler would be removed and replaced with a new air handler with a hot water coil tied into the new forced hot water system. The air handler would also have a chilled water coil with new piping tied to new chilled water system in Mechanical Room. New outdoor air, exhaust air and return air systems should be installed. The existing ductwork from fan room to court rooms should remain utilizing the two existing air shafts, one for exhaust and one for outdoor air.

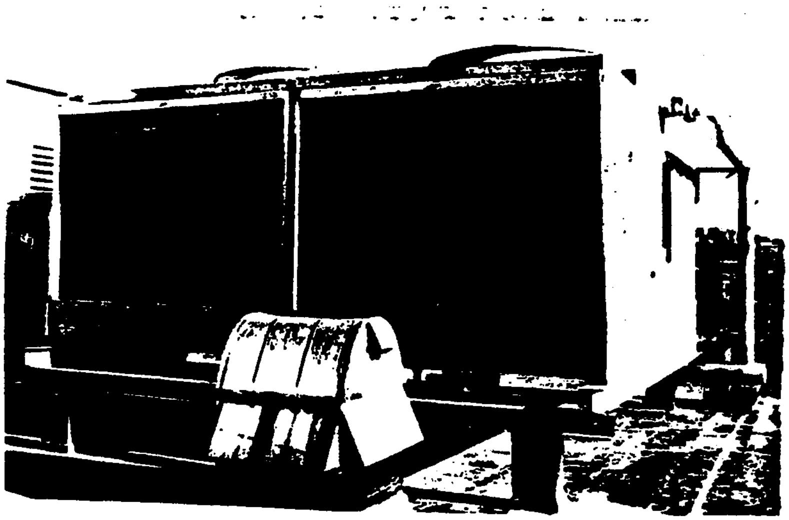


Existing chiller is a high maintenance item with parts almost impossible to locate. It has gone beyond its useful life expectancy.

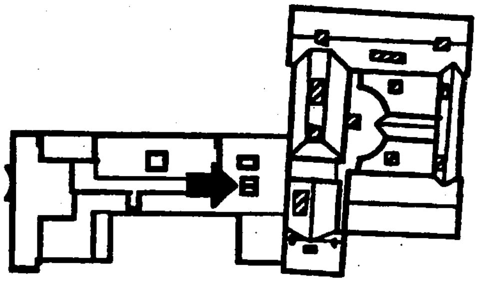


Existing 1898 courtroom with recessed cast iron radiator (shown to the right of chair in center of picture.)

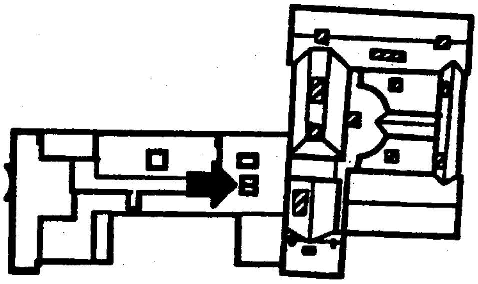


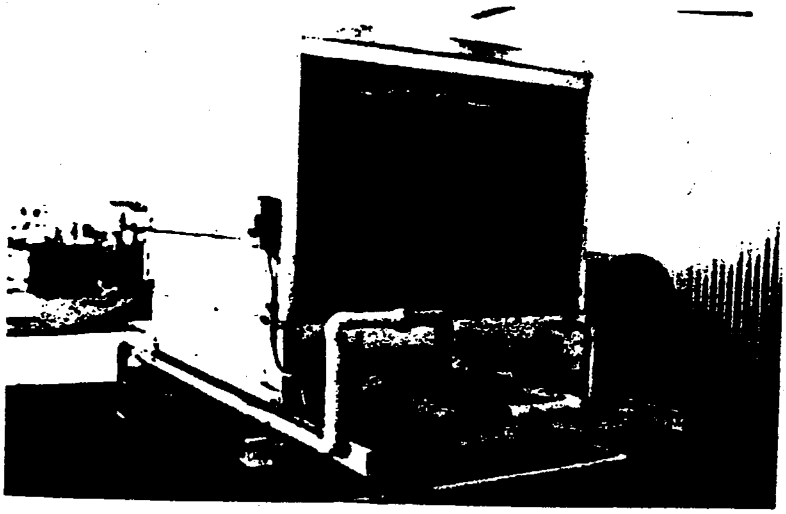


Existing cooling tower serving chiller shown in present form of disrepair.

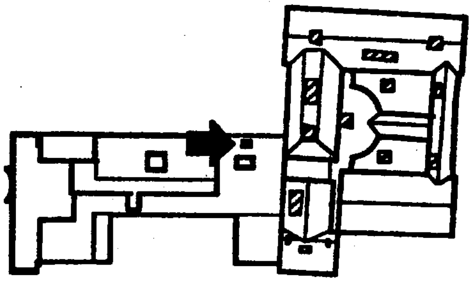


Major corrosion of cooling tower pan and disrepair of wooden slats is evident in this picture.

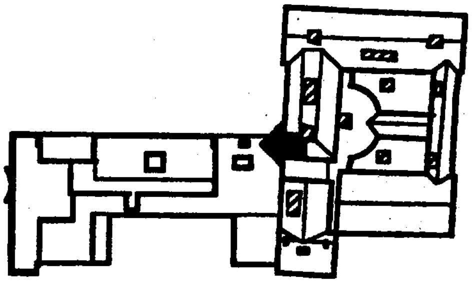


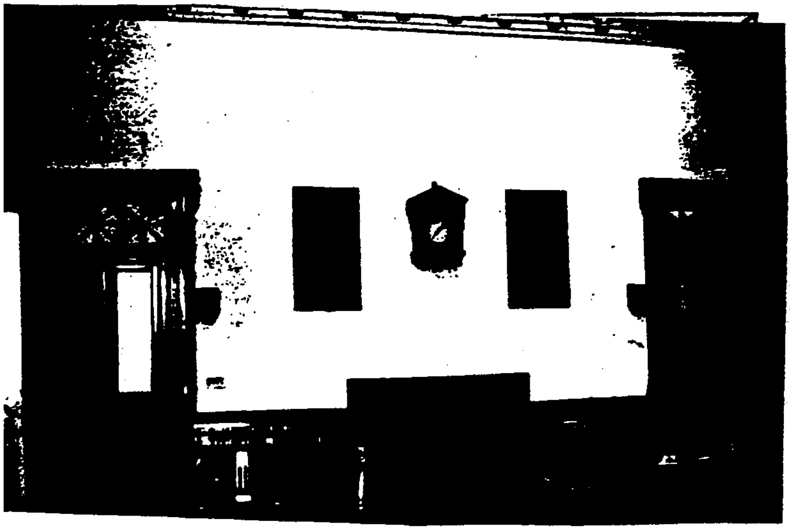


Existing cooling tower serving 1898 self contained air conditioning units. Tower is 35 years old and is in disrepair.

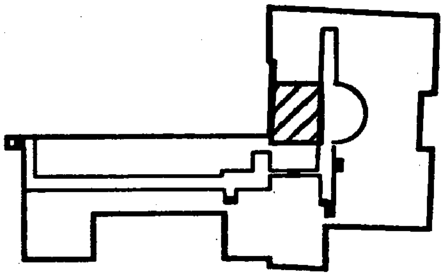


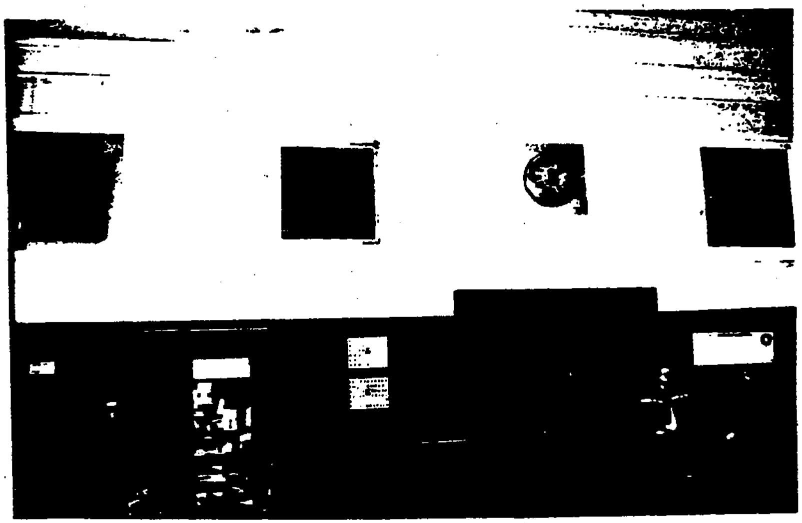
Other side of same cooling tower showing corrosion. Patching over of rot holes has been done over years of service.



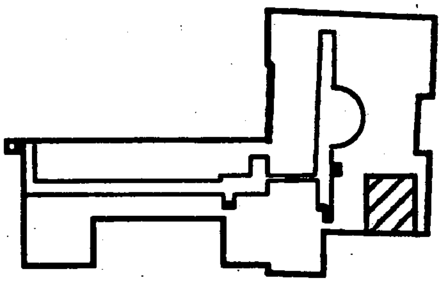


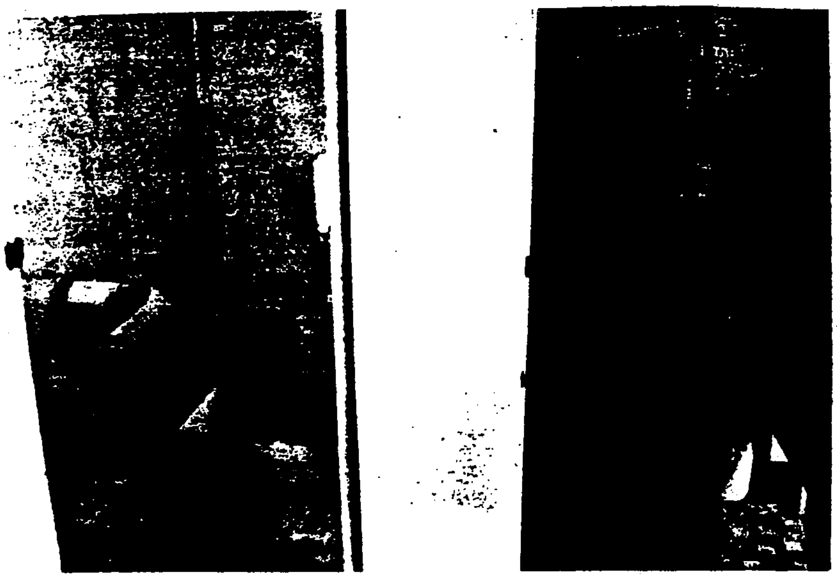
Existing 1898 Courtroom #16 interior wall showing high supply grilles (on each side of clock) and low return grilles (below clock).



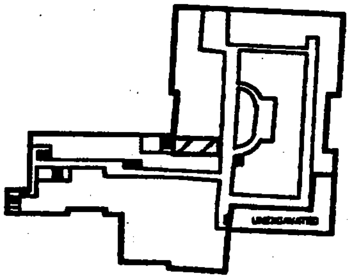


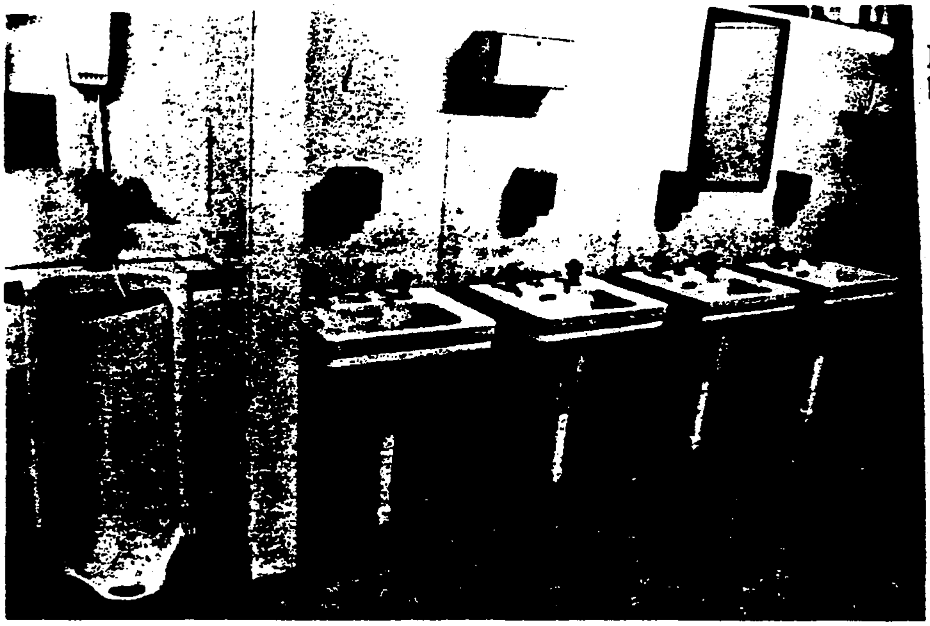
Existing 1898 Courtroom #12 interior wall showing high supply grillles (on each side of clock) and low return grilles (one shown in bottom left corner next to open door).



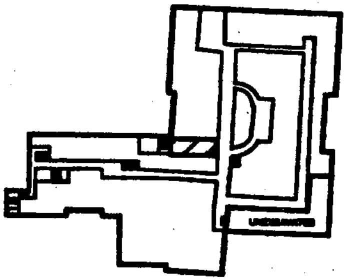


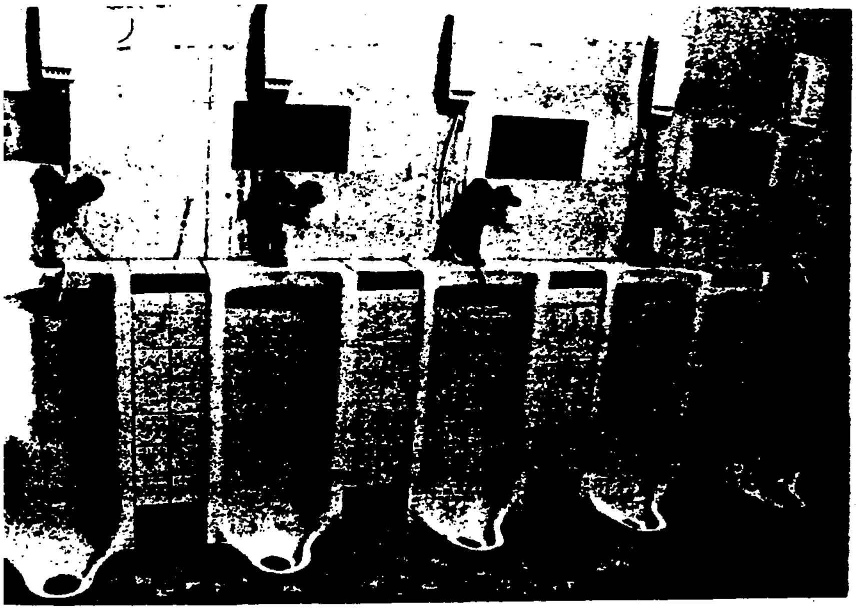
Existing Water Closet and Janitor's Sink to be removed.



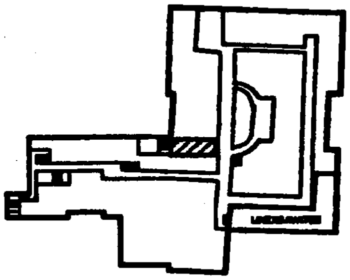


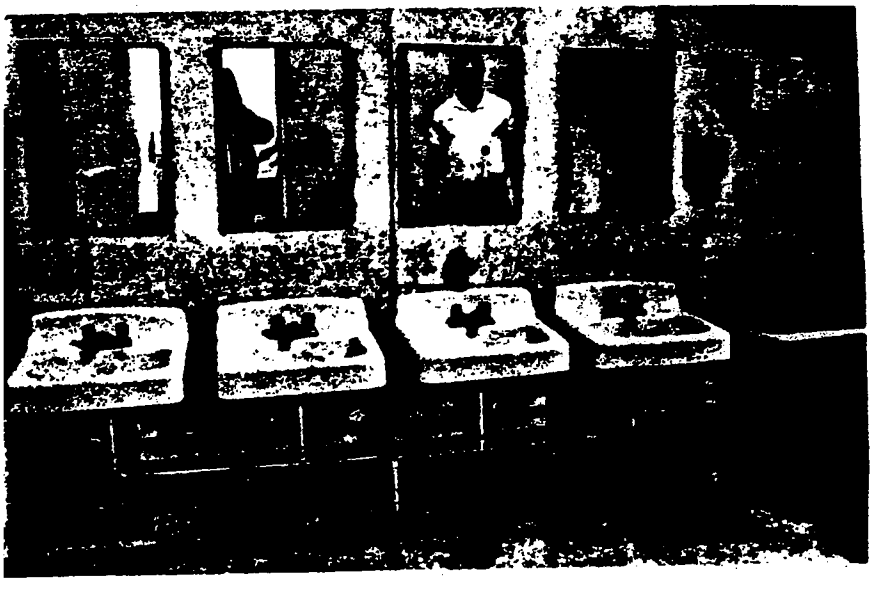
Existing Stall Urinal and Lavatories to be removed.



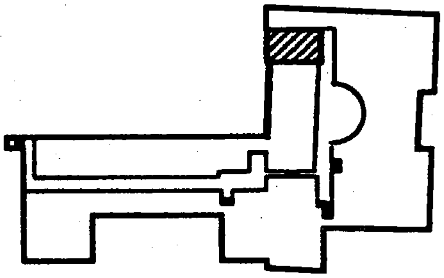


Existing Stall Urinals to be removed.

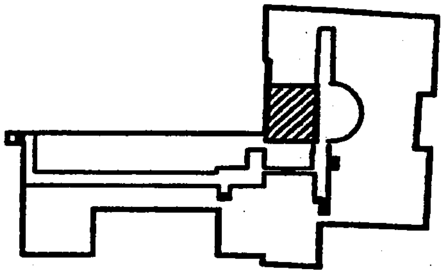


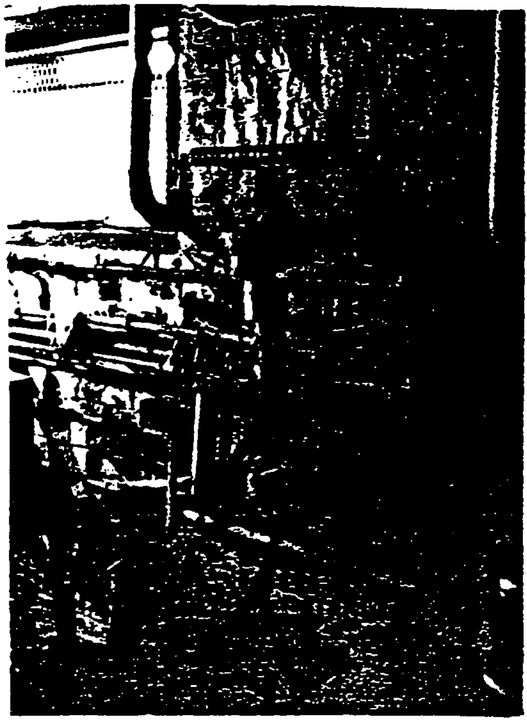


Existing Wall Hung Lavatories and Janitors Sink to be removed.

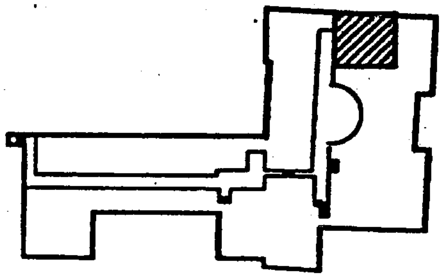


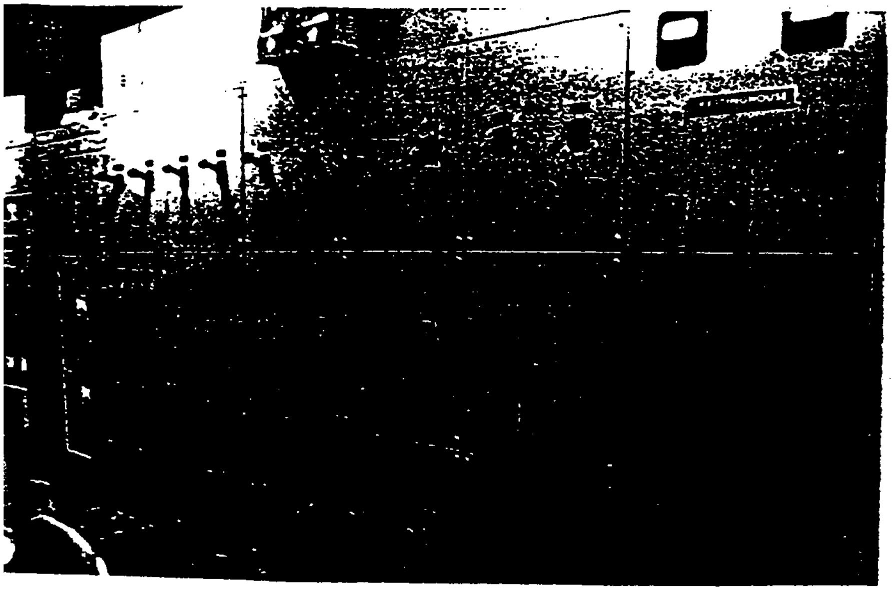
Existing Domestic Water Heater with Hot Water Storage Tank above.



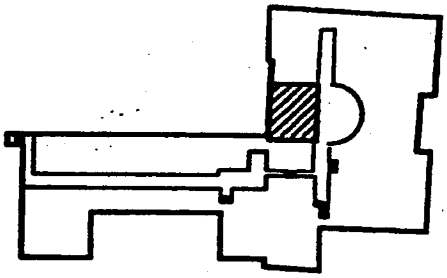


Existing Backflow Preventer Supplying Non-Potable Water to Developing Equipment.

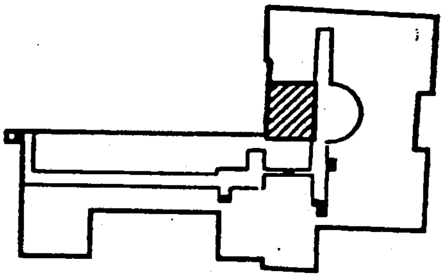


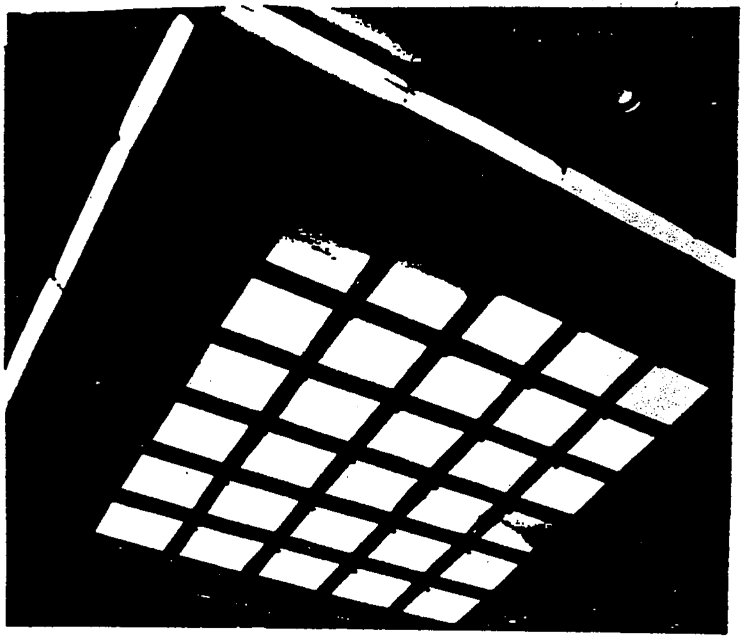


Existing Main Switchboard

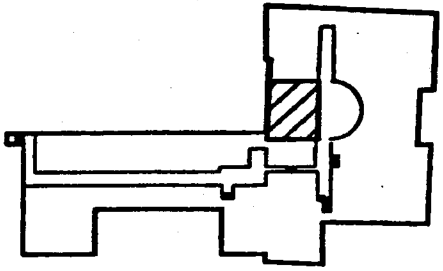


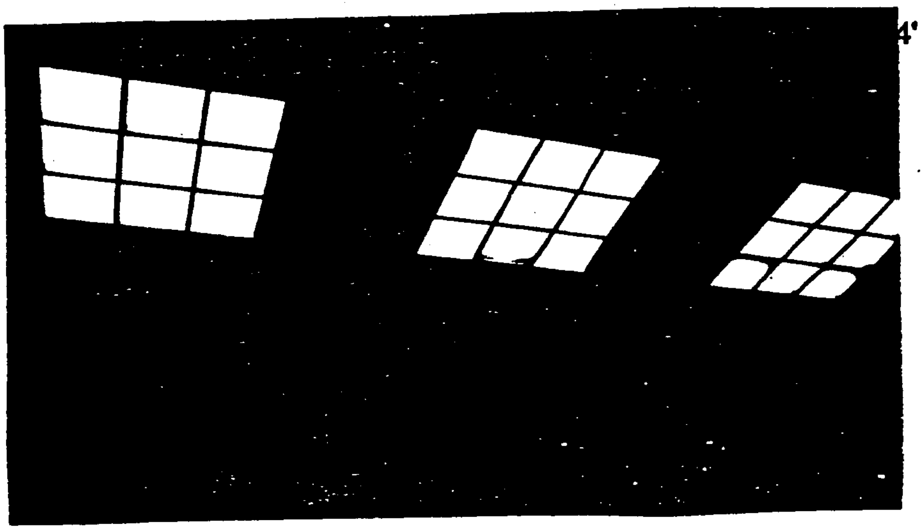
Existing Emergency Generator with Transfer Switch on wall behind switchboard.



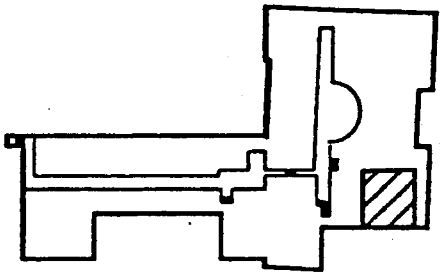


Strip and Down Lights Court Room #16.

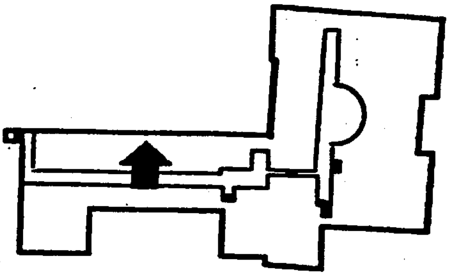


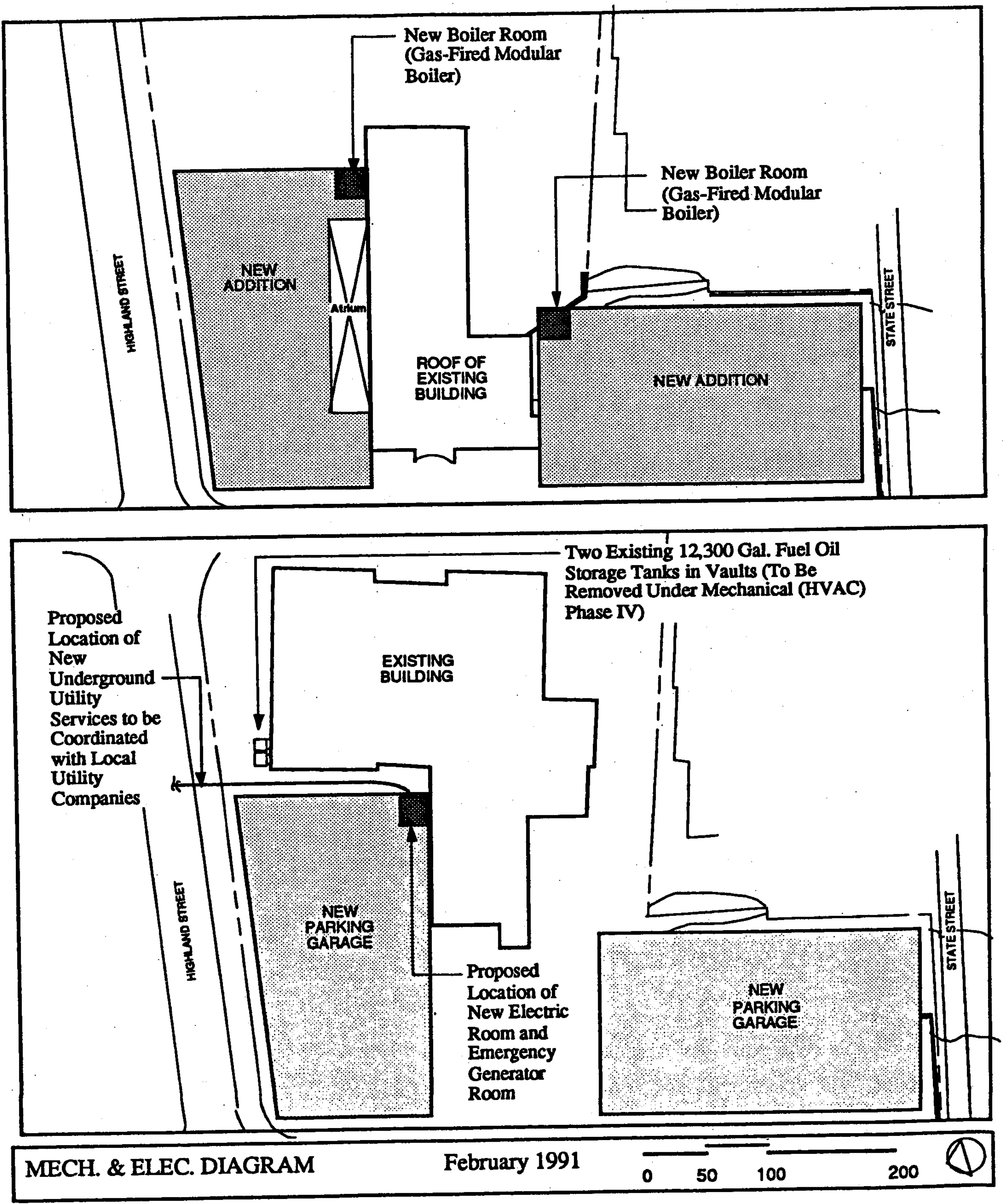


4' x 4' light fixtures Court Room #12.



4' x 4' light fixtures Court Room 203
(Court Room 204 similar)





MECH. & ELEC. DIAGRAM February 1991

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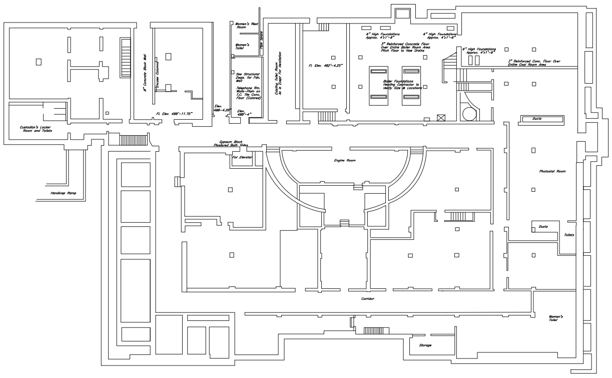
Appendix 5:

1898 Building
Basement Level

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date:___________________________
Conducted By:___________________
Room #:________________________



Floor Finishes
Exp. H.V. Cond.

Carpet…………...
Glass……………
Wood…………...
Ceramic Tile……
1/2” Steel Plate…
Concrete………..
Terrazzo………..
Other _________

Wall Finishes
Exp. H.V. Cond.

Wainscoting………...
Plaster………………
Horsehair Plaster…...
1/2” Steel Plate……..
Brick………………..
Glzd. Masonry Dado..
Wood………………..
Concrete……………..
Other______________

Ceiling Finishes
Exp. H.V. Cond.

Plaster…………….
Glass……………...
Marble Dado……...
Drop Ceiling……..
1/2” Steel Plate…..
Acoustical………..
Domed……………
Vaulted…………...
Wood Trim……….
Coffered…………..
Other___________

Windows
Exp. H.V. Cond.

Double Hung…….
Single Glazed........
Double Glazed…...
Stained Glass…….
Aluminum Frame...
Wood Sash……….
Marble Sill……….
Wrought Iron Grills
Other___________
Other___________

Doors
Exp. H.V. Cond.

Tinned………………
Cast Bronze Frame….
Wood Covered w/
C.B. Exterior……
Wrought Iron Grills...
Wood………………..
Metal………………..
Other_____________
Other_____________
Other_____________

Skylight
Exp. H.V. Cond.

Semi-Circular……...
Circular……………
Rectangular………..
Copper Flashing……
“Hayes” Patent…….
Light Wells………..
Other____________
Other____________

Stair
Exp. H.V. Cond.

Curved Marble…
Wood&C.I. Rails
Aluminum Rails..
Terrazzo Treads..
Marble Treads….
Wood Treads…...
Other__________

Decorative Feature
Exp. H.V. Cond.

Marble…………………..
Imitation Marble………...
Bronze Work…………….
Plaster Cornice/Moldings
Other________________
Other________________

Structural Feature
Exp. H.V. Cond.

Columns w/Steel Core
Brick Encasing……….
Lath&Plaster Encasing
Other______________
Other______________

Appliance Fixture
Exp. H.V. Cond.

Sink…………………
Faucet………………
Toilet………………..
Other_____________
Other_____________

Lighting Fixture
Exp. H.V. Cond.

Fluorescents w/Eggcrate
Louvers……………..
Incandescent Lamp…….
Natural Light………….
Cast Bronze Lamps…….
Other________________

Notes

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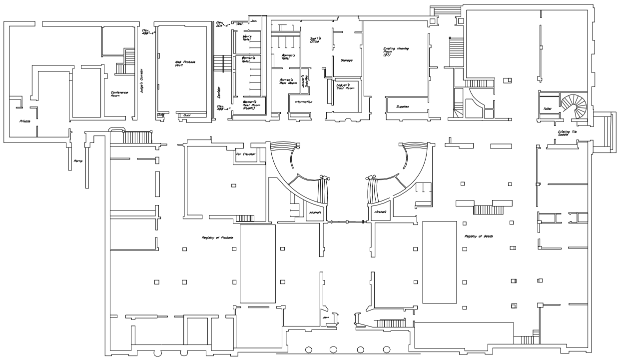
1898 Building
First Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date:__________________________
Conducted By:___________________
Room #:_________________________



Floor Finishes	Exp.	H.V.	Cond.
Carpet…………...			
Glass……………			
Wood…………...			
Ceramic Tile……			
1/2” Steel Plate…			
Concrete………..			
Terrazzo………..			
Other _________			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting………...			
Plaster………………			
Horsehair Plaster…...			
1/2” Steel Plate……..			
Brick………………..			
Glzd. Masonry Dado..			
Wood………………..			
Concrete……………..			
Other______________			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster…………….			
Glass……………...			
Marble Dado……...			
Drop Ceiling……...			
1/2” Steel Plate…..			
Acoustical………..			
Domed……………			
Vaulted…………...			
Wood Trim……….			
Coffered………….			
Other___________			

Windows	Exp.	H.V.	Cond.
Double Hung…….			
Single Glazed........			
Double Glazed…...			
Stained Glass…….			
Aluminum Frame...			
Wood Sash……….			
Marble Sill……….			
Wrought Iron Grills			
Other___________			
Other___________			

Doors	Exp.	H.V.	Cond.
Tinned………………			
Cast Bronze Frame….			
Wood Covered w/ C.B. Exterior……			
Wrought Iron Grills...			
Wood………………..			
Metal………………..			
Other_____________			
Other_____________			
Other_____________			

Skylight	Exp.	H.V.	Cond.
Semi-Circular……...			
Circular……………			
Rectangular………..			
Copper Flashing……			
“Hayes” Patent…….			
Light Wells………..			
Other____________			
Other____________			

Stair	Exp.	H.V.	Cond.
Curved Marble…			
Wood&C.I. Rails			
Aluminum Rails..			
Terrazzo Treads..			
Marble Treads….			
Wood Treads…...			
Other__________			

Decorative Feature	Exp.	H.V.	Cond.
Marble…………………..			
Imitation Marble………...			
Bronze Work…………….			
Plaster Cornice/Moldings			
Other________________			
Other________________			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing……….			
Lath&Plaster Encasing			
Other______________			
Other______________			

Appliance Fixture	Exp.	H.V.	Cond.
Sink………………….			
Faucet………………..			
Toilet………………..			
Other_____________			
Other_____________			

Lighting Fixture	Exp.	H.V.	Cond.
Fluorescents w/Eggcrate Louvers……………..			
Incandescent Lamp…….			
Natural Light…………..			
Cast Bronze Lamps…….			
Other_______________			

Notes

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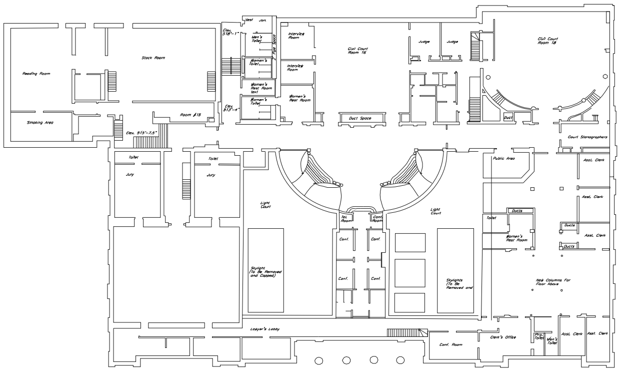
1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date:___________________________
Conducted By:__________________
Room #:________________________



Floor Finishes	Exp.	H.V.	Cond.
Carpet…………...			
Glass……………			
Wood…………...			
Ceramic Tile……			
1/2" Steel Plate…			
Concrete………..			
Terrazzo………..			
Other _________			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting………...			
Plaster………………			
Horsehair Plaster…...			
1/2" Steel Plate……..			
Brick………………..			
Glzd. Masonry Dado..			
Wood………………..			
Concrete……………..			
Other______________			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster…………….			
Glass……………...			
Marble Dado……...			
Drop Ceiling……...			
1/2" Steel Plate…..			
Acoustical………..			
Domed……………			
Vaulted…………...			
Wood Trim……….			
Coffered………….			
Other___________			

Windows	Exp.	H.V.	Cond.
Double Hung…….			
Single Glazed........			
Double Glazed…...			
Stained Glass…….			
Aluminum Frame...			
Wood Sash……….			
Marble Sill……….			
Wrought Iron Grills			
Other___________			
Other___________			

Doors	Exp.	H.V.	Cond.
Tinned………………			
Cast Bronze Frame….			
Wood Covered w/ C.B. Exterior……			
Wrought Iron Grills...			
Wood………………..			
Metal………………..			
Other_____________			
Other_____________			
Other_____________			

Skylight	Exp.	H.V.	Cond.
Semi-Circular……...			
Circular……………			
Rectangular………..			
Copper Flashing……			
"Hayes" Patent…….			
Light Wells………..			
Other____________			
Other____________			

Stair	Exp.	H.V.	Cond.
Curved Marble…			
Wood&C.I. Rails			
Aluminum Rails..			
Terrazzo Treads..			
Marble Treads….			
Wood Treads…...			
Other__________			

Decorative Feature	Exp.	H.V.	Cond.
Marble…………………..			
Imitation Marble………...			
Bronze Work…………….			
Plaster Cornice/Moldings			
Other________________			
Other________________			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing……….			
Lath&Plaster Encasing			
Other______________			
Other______________			

Appliance Fixture	Exp.	H.V.	Cond.
Sink………………….			
Faucet……………….			
Toilet………………..			
Other_____________			
Other_____________			

Lighting Fixture	Exp.	H.V.	Cond.
Fluorescents w/Eggcrate Louvers……………..			
Incandescent Lamp…….			
Natural Light…………..			
Cast Bronze Lamps……			
Other_______________			

Notes

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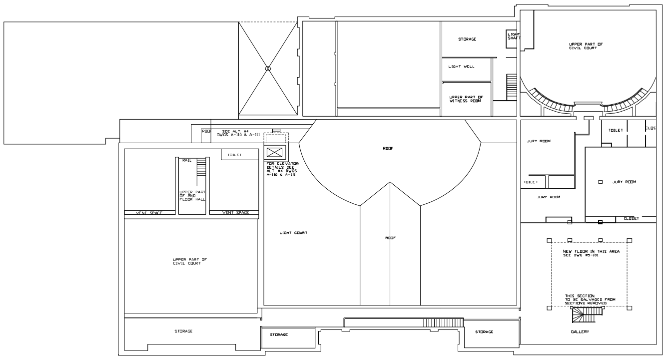
1898 Building
Third Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date:___________________________
Conducted By:__________________
Room #:________________________



Floor Finishes	Exp.	H.V.	Cond.
Carpet…………...			
Glass……………			
Wood…………...			
Ceramic Tile……			
1/2” Steel Plate…			
Concrete………..			
Terrazzo………..			
Other _________			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting………...			
Plaster………………			
Horsehair Plaster…...			
1/2” Steel Plate……..			
Brick………………..			
Glzd. Masonry Dado..			
Wood………………..			
Concrete……………..			
Other______________			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster…………….			
Glass……………...			
Marble Dado……...			
Drop Ceiling……...			
1/2” Steel Plate…..			
Acoustical………..			
Domed……………			
Vaulted…………...			
Wood Trim……….			
Coffered………….			
Other___________			

Windows	Exp.	H.V.	Cond.
Double Hung…….			
Single Glazed........			
Double Glazed…...			
Stained Glass…….			
Aluminum Frame...			
Wood Sash……….			
Marble Sill……….			
Wrought Iron Grills			
Other___________			
Other___________			

Doors	Exp.	H.V.	Cond.
Tinned………………			
Cast Bronze Frame….			
Wood Covered w/ C.B. Exterior……			
Wrought Iron Grills...			
Wood………………..			
Metal………………..			
Other_____________			
Other_____________			
Other_____________			

Skylight	Exp.	H.V.	Cond.
Semi-Circular……...			
Circular……………			
Rectangular………..			
Copper Flashing……			
“Hayes” Patent…….			
Light Wells………..			
Other____________			
Other____________			

Stair	Exp.	H.V.	Cond.
Curved Marble…			
Wood&C.I. Rails			
Aluminum Rails..			
Terrazzo Treads..			
Marble Treads….			
Wood Treads…...			
Other__________			

Decorative Feature	Exp.	H.V.	Cond.
Marble…………………..			
Imitation Marble………...			
Bronze Work…………….			
Plaster Cornice/Moldings			
Other________________			
Other________________			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing……….			
Lath&Plaster Encasing			
Other_______________			
Other_______________			

Appliance Fixture	Exp.	H.V.	Cond.
Sink………………….			
Faucet……………….			
Toilet………………..			
Other_____________			
Other_____________			

Lighting Fixtures	Exp.	H.V.	Cond.
Fluorescents w/Eggcrate Louvers……………..			
Incandescent Lamp…….			
Natural Light…………..			
Cast Bronze Lamps…….			
Other______________			

Notes

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Appendix 6:

Bob Baker 508 208 4478

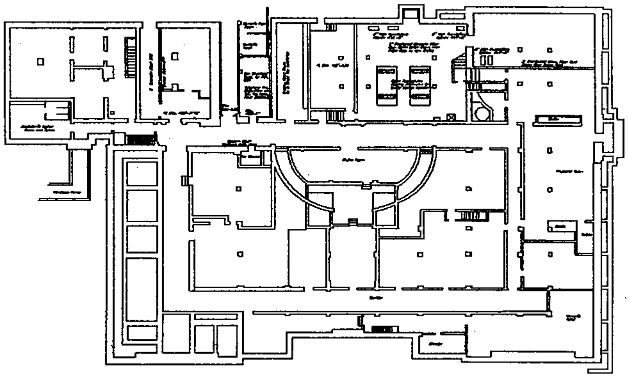
WPI

1898 Building
Basement Level

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10-12
Conducted By:
Room #: General



Floor Finishes	Exp.	H.V.	Cond.
Carpet			
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
[✓ Concrete]	P		2
Terrazzo			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
Plaster			
Horsehair Plaster			
1/2" Steel Plate			
[✓ Brick]	P		3
Glzd. Masonry Dado			
Wood			
Concrete			
Other Granite			3

Ceiling Finishes	Exp.	H.V.	Cond.
[✓ Plaster]	P		3
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			
Vaulted			
Wood Trim			
Coffered			
Other			

Windows	Exp.	H.V.	Cond.
Double Hung			
[✓ Single Glazed]	P		2
Double Glazed			
Stained Glass			
Aluminum Frame			
Wood Sash			
Marble Sill			
Wrought Iron Grills			
Other wood frame			
Other			

Doors	Exp.	H.V.	Cond.
[✓ Tinned]			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
Wood			
[✓ Metal]			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
Rectangular			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
Wood&C.I. Rails			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other metal stairs			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
Plaster Cornice/Moldings			
Other Clock (main)			
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
[✓ Brick Encasing]	P		3
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents w/Eggcrate Louvers]			
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other			

Notes

* in boiler room damaged floor due to water damage

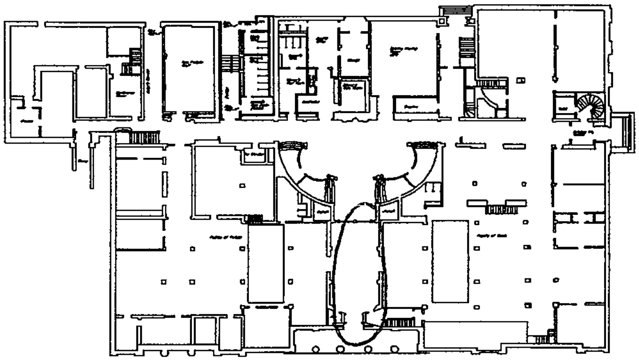
WPI

1898 Building
First Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10·22·07
Conducted By: Courtney
Room #: Main Entrance Hall



Floor Finishes	Exp.	H.V.	Cond.
Carpet			
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
[✓ Terrazzo]			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
Plaster			
Horsehair Plaster			
1/2" Steel Plate			
Brick			
[✓ Glzd. Masonry Dado]			3
Wood			
Concrete			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			
[✓ Vaulted] barrel		Y	
Wood Trim			
Coffered			
Other Ceramic Masonry			

Windows	Exp.	H.V.	Cond.
Double Hung			
Single Glazed			
Double Glazed			
[✓ Stained Glass] into light courts			
Aluminum Frame			
Wood Sash			
Marble Sill			
Wrought Iron Grills			
Other			
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
[✓ Wood]			2
Metal			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
Rectangular			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
[✓ Wood&C.I. Rails]			3
Aluminum Rails			
Terrazzo Treads			
[✓ Marble Treads]			3
Wood Treads			
Other			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
Plaster Cornice/Moldings			
Other			
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
Fluorescents w/Eggcrate Louvers			
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other			

Notes

2 large cracks in floor
Significant historic value

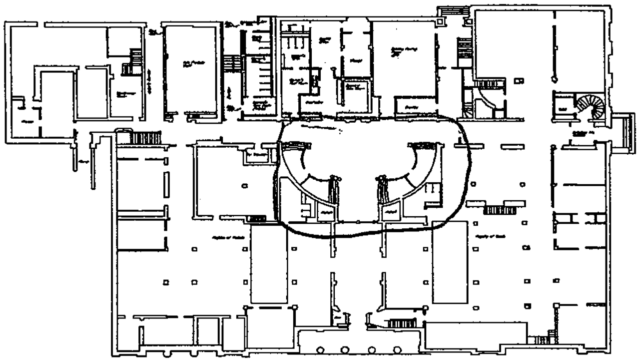
WPI

1898 Building
First Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10·22·07
Conducted By: Courtney
Room #: Lobby



Floor Finishes	Exp.	H.V.	Cond.
Carpet			
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
Terrazzo			
Other ________			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
Plaster			
Horsehair Plaster			
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
Wood			
Concrete			
Other ________			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			
Vaulted			
Wood Trim			
Coffered			
Other ________			

Windows	Exp.	H.V.	Cond.
Double Hung			
Single Glazed			
Double Glazed			
Stained Glass			
Aluminum Frame			
Wood Sash			
Marble Sill			
Wrought Iron Grills			
Other ________			
Other ________			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
Wood			
Metal			
Other ________			
Other ________			
Other ________			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
Rectangular			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other ________			
Other ________			

Stair	Exp.	H.V.	Cond.
[✓ Curved Marble]			
Wood&C.I. Rails			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other ________			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
Plaster Cornice/Moldings			
Other ________			
Other ________			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing			
Lath&Plaster Encasing			
Other Stacked Columns			
Other ________			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other ________			
Other ________			

Lighting Fixture	Exp.	H.V.	Cond.
Fluorescents w/Eggcrate Louvers			
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other ________			

Notes

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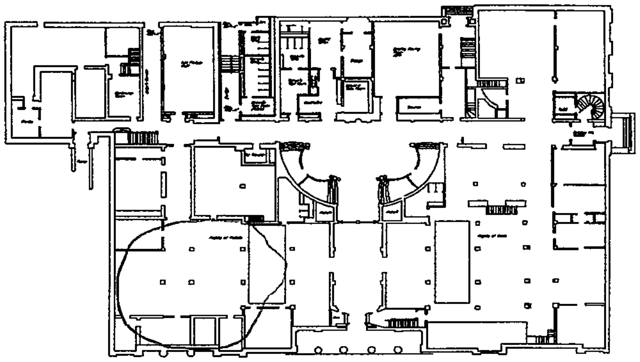
WPI

1898 Building
First Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10·22·07
Conducted By: Courtney
Room #: Registry of Probate



Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]………….			2
Glass……………			
Wood…………....			
Ceramic Tile……			
1/2" Steel Plate…			
Concrete……….			
Terrazzo……….			
[✓ Other composition tile]			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting………..			
[✓ Plaster]…………….			
Horsehair Plaster…...			
1/2" Steel Plate……..			
Brick……………….			
Glzd. Masonry Dado..			
Wood……………….			
Concrete…………….			
Other____________			

Ceiling Finishes	Exp.	H.V.	Cond.
[✓ Plaster]……………			
Glass……………..			
Marble Dado……...			
Drop Ceiling……...			
1/2" Steel Plate…..			
Acoustical………..			
Domed……………			
Vaulted…………..			
Wood Trim……….			
Coffered………….			
Other 1 x 1 ACT			

Windows	Exp.	H.V.	Cond.
Double Hung…….			
[✓ Single Glazed].....			2
Double Glazed…...			
Stained Glass…….			
Aluminum Frame...			
[✓ Wood Sash]…….			
Marble Sill……….			
Wrought Iron Grills			
Other__________			
Other__________			

Doors	Exp.	H.V.	Cond.
Tinned……………….			
Cast Bronze Frame…,			
Wood Covered w/ C.B. Exterior……			
Wrought Iron Grills...			
[✓ Wood]……………….			
Metal………………..			
Other___________			
Other___________			
Other___________			

Skylight	Exp.	H.V.	Cond.
Semi-Circular……..			
Circular……………			
Rectangular……….			
Copper Flashing……			
"Hayes" Patent…….			
Light Wells……….			
Other__________			
Other__________			

Stair	Exp.	H.V.	Cond.
Curved Marble…			
Wood&C.I. Rails			
Aluminum Rails..			
Terrazzo Treads..			
Marble Treads….			
Wood Treads…...			
Other_________			

Decorative Feature	Exp.	H.V.	Cond.
Marble…………………..			
Imitation Marble………..			
Bronze Work…………….			
[✓ Plaster Cornice/Moldings]			
Other______________			
Other______________			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing……….			
Lath&Plaster Encasing			
Other____________			
Other____________			

Appliance Fixture	Exp.	H.V.	Cond.
Sink…………………			
Faucet……………….			
Toilet………………..			
Other___________			
Other___________			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents w/Eggcrate] Louvers……………..			
Incandescent Lamp…….			
Natural Light………….			
Cast Bronze Lamps…….			
Other____________			

Notes

unpainted ductwork

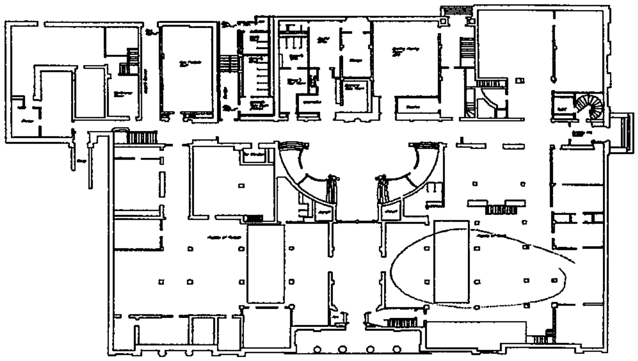
WPI

1898 Building
First Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10-12
Conducted By:
Room #: Reg. of Deeds



Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]……………			3
Glass……………			
Wood……………			
[✓ Ceramic Tile]…..			2
1/2" Steel Plate…			
Concrete………..			
Terrazzo………..			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting………..			
[✓ Plaster]…………….	P		4
Horsehair Plaster……			
1/2" Steel Plate……..			
Brick………………..			
Glzd. Masonry Dado..			
Wood………………..			
Concrete…………….			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster…………….			
Glass………………			
Marble Dado………			
[✓ Drop Ceiling]………			3
1/2" Steel Plate…..			
Acoustical………..			
Domed……………			
Vaulted……………			
Wood Trim……….			
Coffered………….			
Other 1x1 ACT			

Windows	Exp.	H.V.	Cond.
Double Hung…….			
[✓ Single Glazed]…….			2
Double Glazed……			
Stained Glass…….			
Aluminum Frame...			
[✓ Wood Sash]………			
Marble Sill……….			
Wrought Iron Grills			
Other metal grill			
Other			

Doors	Exp.	H.V.	Cond.
Tinned……………….			
Cast Bronze Frame….			
Wood Covered w/ C.B. Exterior……			
Wrought Iron Grills...			
[✓ Wood]……………….			4
Metal………………..			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular………			
Circular……………			
Rectangular………..			
Copper Flashing……			
"Hayes" Patent…….			
Light Wells……….			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble…			
Wood&C.I. Rails			
Aluminum Rails..			
Terrazzo Treads..			
Marble Treads….			
Wood Treads……			
Other			

Decorative Feature	Exp.	H.V.	Cond.
Marble…………………..			
Imitation Marble………..			
Bronze Work…………….			
Plaster Cornice/Moldings			
Other			
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing……….			
Lath&Plaster Encasing			
Other Columns			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink…………………			
Faucet……………….			
Toilet………………..			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents] w/Eggcrate Louvers……………..			
Incandescent Lamp…….			
Natural Light………….			
Cast Bronze Lamps…….			
Other			

Notes

*Tandem Stairs
There is little significant interior detail that must be retained - DRA

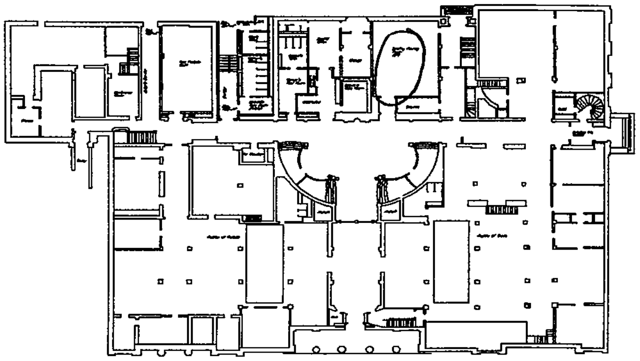
WPI

1898 Building
First Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10-12
Conducted By:
Room #: Probate Court 7



Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]			3
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
Terrazzo			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
[✓ Plaster]			4
Horsehair Plaster			
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
Wood			
Concrete			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
[✓ Plaster]			4
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			
Vaulted			
Wood Trim			
Coffered			
Other			

Windows	Exp.	H.V.	Cond.
Double Hung			
[✓ Single Glazed]			3
Double Glazed			
Stained Glass			
Aluminum Frame			
[✓ Wood Sash]			2
Marble Sill			
Wrought Iron Grills			
Other wood frame			3
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
[✓ Wood]			3
Metal			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
Rectangular			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
Wood&C.I. Rails			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
[✓ Plaster Cornice/Moldings]			4
Other wood desk			4
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents] w/Eggcrate Louvers			2
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other			

Notes

* Small storage space
* vent in back of room

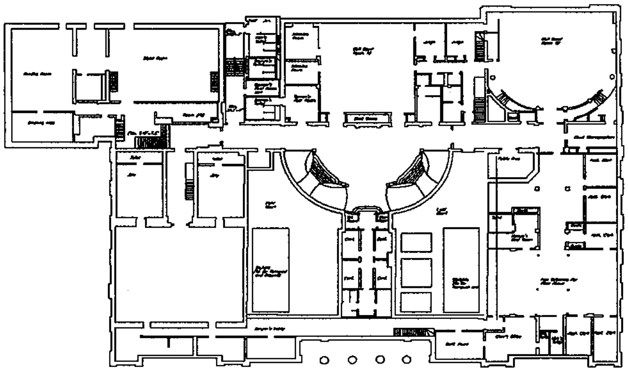
WPI

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date:____________________
Conducted By:______________
Room #:_________________



Floor Finishes	Exp.	H.V.	Cond.
Carpet…………..			
Glass……………			
Wood…………..			
Ceramic Tile……			
1/2" Steel Plate…			
Concrete………..			
Terrazzo………..			
Other ________			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting………..			
Plaster………………			
Horsehair Plaster…..			
1/2" Steel Plate……..			
Brick………………..			
Glzd. Masonry Dado..			
Wood………………..			
Concrete……………..			
Other____________			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster……………			
Glass……………..			
Marble Dado……..			
Drop Ceiling……..			
1/2" Steel Plate…..			
Acoustical……….			
Domed……………			
Vaulted…………..			
Wood Trim………			
Coffered…………..			
Other__________			

Windows	Exp.	H.V.	Cond.
Double Hung…….			
Single Glazed........			
Double Glazed…...			
Stained Glass…….			
Aluminum Frame...			
Wood Sash……….			
Marble Sill……….			
Wrought Iron Grills			
Other__________			
Other__________			

Doors	Exp.	H.V.	Cond.
Tinned……………….			
Cast Bronze Frame….			
Wood Covered w/ C.B. Exterior……			
Wrought Iron Grills...			
Wood………………..			
Metal………………..			
Other___________			
Other___________			
Other___________			

Skylight	Exp.	H.V.	Cond.
Semi-Circular……..			
Circular……………			
Rectangular……….			
Copper Flashing……			
"Hayes" Patent…….			
Light Wells……….			
Other___________			
Other___________			

Stair	Exp.	H.V.	Cond.
Curved Marble…			
Wood&C.I. Rails			
Aluminum Rails..			
Terrazzo Treads..			
Marble Treads….			
Wood Treads…...			
Other_________			

Decorative Feature	Exp.	H.V.	Cond.
Marble…………………..			
Imitation Marble………..			
Bronze Work…………….			
Plaster Cornice/Moldings			
Other_____________			
Other_____________			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing………			
Lath&Plaster Encasing			
Other_____________			
Other_____________			

Appliance Fixture	Exp.	H.V.	Cond.
Sink…………………			
Faucet……………….			
Toilet………………..			
Other___________			
Other___________			

Lighting Fixture	Exp.	H.V.	Cond.
Fluorescents w/Eggcrate Louvers……………..			
Incandescent Lamp…….			
Natural Light…………..			
Cast Bronze Lamps…….			
Other_____________			

Notes

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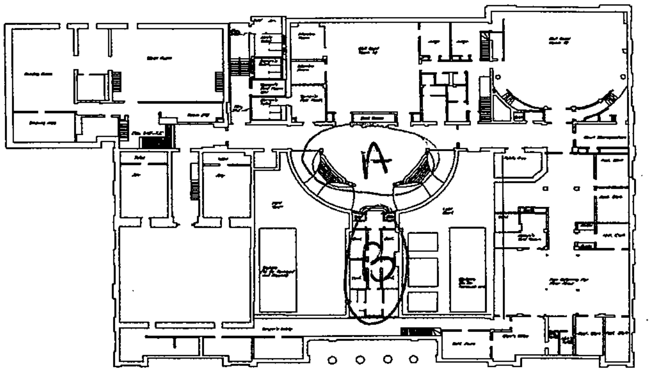
WPI

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10-12
Conducted By:
Room #: main lobby



Floor Finishes	Exp.	H.V.	Cond.
Carpet			
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
[✓ Terrazzo]			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
[✓ Plaster]			
Horsehair Plaster			
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
Wood			
Concrete			
Other Marble			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
[✓ Domed]	P		
[✓ Vaulted]	P		4
Wood Trim			4
Coffered			
Other Glosteuno? sp sorry			4

Windows	Exp.	H.V.	Cond.
Double Hung			
Single Glazed			
Double Glazed			
[✓ Stained Glass]			4
Aluminum Frame			
Wood Sash			
Marble Sill			
Wrought Iron Grills			
Other			
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
Wood			
Metal			
Other Glass			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
[✓ Rectangular]			3
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
[✓ Curved Marble]			
Wood&C.I. Rails			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other			

Decorative Feature	Exp.	H.V.	Cond.
[✓ Marble] Columns			
Imitation Marble			
Bronze Work			
Plaster Cornice/Moldings			
Other fountain			
Other			

Structural Feature	Exp.	H.V.	Cond.
[✓ Columns w/Steel Core]			
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents] w/Eggcrate Louvers			
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other			

Notes

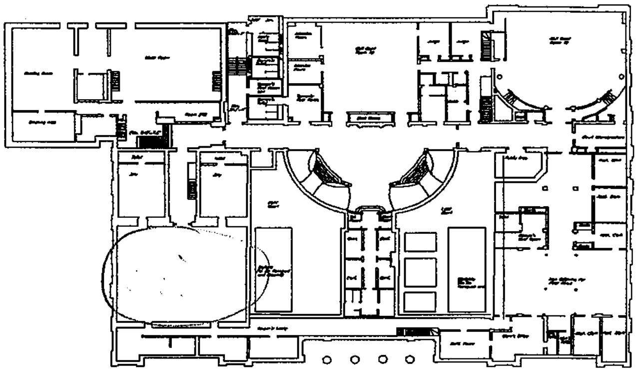
★ middle square columns = structural
★ fountain

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10.12
Conducted By:
Room #: Courtroom 12



Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]……			2
Glass……			
Wood……			
Ceramic Tile……			
1/2" Steel Plate…			
Concrete……			
Terrazzo……			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting……			
[✓ Plaster]……			
Horsehair Plaster……			
1/2" Steel Plate……			
Brick……			
Glzd. Masonry Dado..			
[✓ Wood]……			
Concrete……			
Other wood panelling			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster……			
Glass……			
Marble Dado……			
Drop Ceiling……			
1/2" Steel Plate…..			
Acoustical……			
Domed……			
Vaulted……			
Wood Trim……			
[✓ Coffered]……	P		3
Other			

Windows	Exp.	H.V.	Cond.
Double Hung……			
[✓ Single Glazed]……			
Double Glazed……			
Stained Glass……			
Aluminum Frame...			
[✓ Wood Sash]……			1
Marble Sill……			
Wrought Iron Grills			
Other			
Other			

Doors	Exp.	H.V.	Cond.
Tinned……			
Cast Bronze Frame….			
Wood Covered w/ C.B. Exterior……			
Wrought Iron Grills...			
[✓ Wood]……			2
Metal……			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular……			
Circular……			
Rectangular……			
Copper Flashing……			
"Hayes" Patent……			
Light Wells……			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble…			
Wood&C.I. Rails			
Aluminum Rails..			
Terrazzo Treads..			
Marble Treads….			
Wood Treads……			
Other			

Decorative Feature	Exp.	H.V.	Cond.
Marble……			
Imitation Marble……			
Bronze Work……			
[✓ Plaster Cornice/Moldings]			3
Other portraits			
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing……			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink……			
Faucet……			
Toilet……			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents] w/Eggcrate Louvers……			2
Incandescent Lamp……			
Natural Light……			
Cast Bronze Lamps……			
Other			

Notes

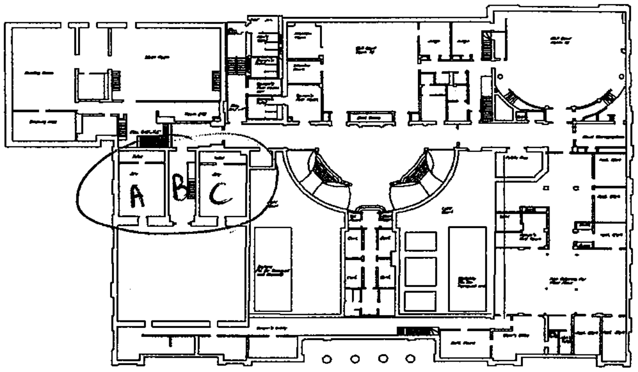
Judges desk + benches
exposed radiators/wiring

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10.12
Conducted By:
Room #: back room w/ bathroom
Official court reporters room



Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]			2
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
Terrazzo			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			a b 2 3
[✓ Plaster]	P		
[✓ Horsehair Plaster]	P		
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
[✓ Wood]			
Concrete			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			a b
[✓ Vaulted]	P		3 4
Wood Trim			
Coffered			
Other			

Windows	Exp.	H.V.	Cond.
Double Hung			
[✓ Single Glazed]			
Double Glazed			
Stained Glass			
Aluminum Frame			
[✓ Wood Sash]			1
Marble Sill			
Wrought Iron Grills			
Other			
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
[✓ Wood]			
Metal			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
Rectangular			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
[✓ Wood&C.I. Rails]			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other Cast iron treads			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
Plaster Cornice/Moldings			
Other			
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

poor
↓

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents w/Eggcrate Louvers]			
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other			

Notes

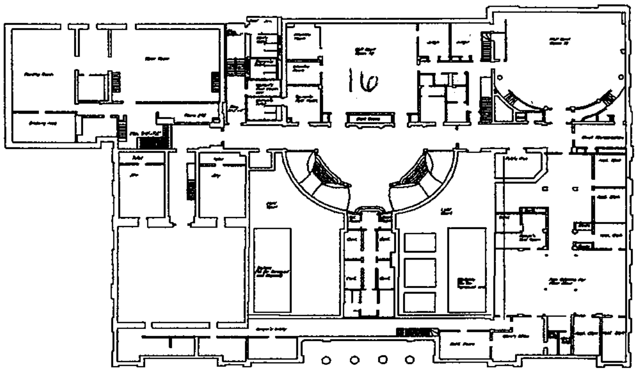
exposed radiators + wiring

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10·12·07
Conducted By:
Room #: Courtroom 16



P-Painted

Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]			2
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
Terrazzo			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
[✓ Plaster]			2
[✓ Horsehair Plaster]			
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
[✓ Wood]			3
Concrete			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
[✓ Plaster]			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			
Vaulted			
Wood Trim			
[✓ Coffered]	P	Y	4
Other Cornice	P	Y	4

Windows	Exp.	H.V.	Cond.
Double Hung			
[✓ Single Glazed]			
Double Glazed			
Stained Glass			
Aluminum Frame			
[✓ Wood Sash]			2
Marble Sill			
Wrought Iron Grills			
Other			
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
[✓ Wood]			
Metal			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
Rectangular			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other 6x5 rectangles			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
Wood&C.I. Rails			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
[✓ Plaster Cornice/Moldings]	P	Y	4
Other portraits		Y	
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
Fluorescents w/Eggcrate Louvers			
Incandescent Lamp			
[✓ Natural Light]			
Cast Bronze Lamps			
Other recess lighting			

Notes

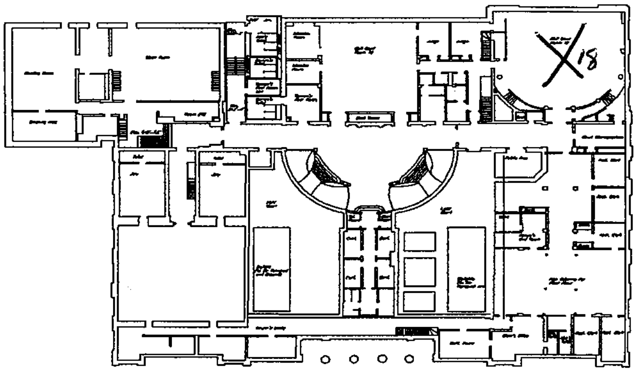
Judges Bench + Seating (all wood) - Level 3 cond.

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10.12
Conducted By:
Room #: Courtroom 18



Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]			2
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
Terrazzo			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
[✓ Plaster]	P		2
[✓ Horsehair Plaster]	P		2
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
[✓ Wood]			3
Concrete			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
[✓ Plaster]			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
[✓ Domed]		Y	
[✓ Vaulted]		Y	
Wood Trim			
[✓ Coffered]	P	Y	
Other			

Windows	Exp.	H.V.	Cond.
Double Hung			
[✓ Single Glazed]			
Double Glazed			
Stained Glass			
Aluminum Frame			
[✓ Wood Sash]			2
Marble Sill			
Wrought Iron Grills			
Other			
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
[✓ Wood]			
Metal			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
[✓ Semi-Circular]			2
Circular			
Rectangular			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
[✓ Wood&C.I. Rails]			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
[✓ Wood Treads]	P		3
Other			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
[✓ Plaster Cornice/Moldings]			
Other			
Other			

Structural Feature	Exp.	H.V.	Cond.
[✓ Columns w/Steel Core]	P		4
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents] w/Eggcrate Louvers	4x4'		3
Incandescent Lamp			
[✓ Natural Light]			
Cast Bronze Lamps			
Other			

Notes

Exposed wires
Structural columns?

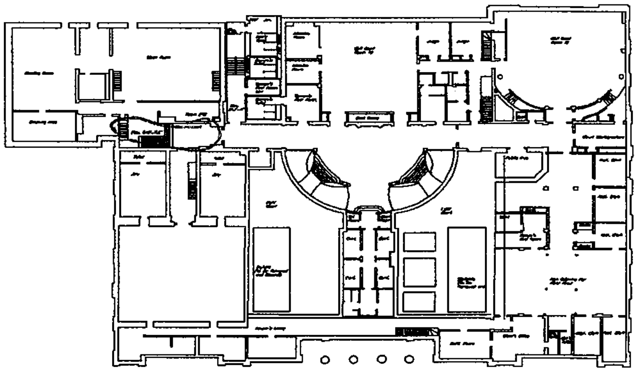
WPI

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10-12
Conducted By: CLB
Room #: library



Floor Finishes	Exp.	H.V.	Cond.
[✓ Carpet]			
Glass			
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
Terrazzo			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
[✓ Plaster]	P		4
Horsehair Plaster			
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
Wood			
Concrete			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			
Vaulted			
Wood Trim			
[✓ Coffered]	P		4
Other			

Windows	Exp.	H.V.	Cond.
Double Hung			
[✓ Single Glazed]			3
Double Glazed			
Stained Glass			
Aluminum Frame			
[✓ Wood Sash]			4
Marble Sill			
Wrought Iron Grills			
Other wood frame			
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
[✓ Wood]			
Metal			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
[✓ Rectangular]			
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
[✓ Wood&C.I. Rails]			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other Cast iron treads			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
[✓ Plaster Cornice/Moldings]			
Other			
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

Appliance Fixture	Exp.	H.V.	Cond.
[✓ Sink]			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents] w/Eggcrate Louvers			
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other			

Notes

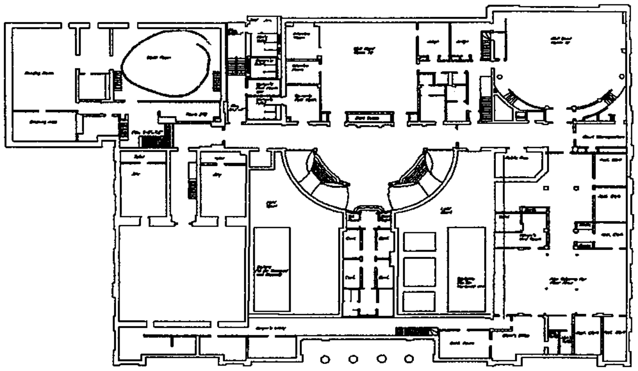
WPI

1898 Building
Second Floor

Worcester County Courthouse
2 Main St.
Worcester, MA 01609

General Architectural Conditions Assessment

Date: 10-12
Conducted By:
Room #: library Balcony



Floor Finishes	Exp.	H.V.	Cond.
Carpet			
[✓ Glass]			2
Wood			
Ceramic Tile			
1/2" Steel Plate			
Concrete			
Terrazzo			
Other			

Wall Finishes	Exp.	H.V.	Cond.
Wainscoting			
[✓ Plaster]	P		1
Horsehair Plaster			
1/2" Steel Plate			
Brick			
Glzd. Masonry Dado			
Wood			
Concrete			
Other			

Ceiling Finishes	Exp.	H.V.	Cond.
Plaster			
Glass			
Marble Dado			
Drop Ceiling			
1/2" Steel Plate			
Acoustical			
Domed			
[✓ Vaulted]	P		3
Wood Trim			
Coffered			
Other			

Windows	Exp.	H.V.	Cond.
Double Hung			
[✓ Single Glazed]			
Double Glazed			
Stained Glass			
Aluminum Frame			
Wood Sash			
Marble Sill			
Wrought Iron Grills			
Other wooden frm			
Other			

Doors	Exp.	H.V.	Cond.
Tinned			
Cast Bronze Frame			
Wood Covered w/ C.B. Exterior			
Wrought Iron Grills			
Wood			
Metal			
Other			
Other			
Other			

Skylight	Exp.	H.V.	Cond.
Semi-Circular			
Circular			
[✓ Rectangular]			2
Copper Flashing			
"Hayes" Patent			
Light Wells			
Other			
Other			

Stair	Exp.	H.V.	Cond.
Curved Marble			
Wood&C.I. Rails			
Aluminum Rails			
Terrazzo Treads			
Marble Treads			
Wood Treads			
Other bronze			

Decorative Feature	Exp.	H.V.	Cond.
Marble			
Imitation Marble			
Bronze Work			
Plaster Cornice/Moldings			
Other			
Other			

Structural Feature	Exp.	H.V.	Cond.
Columns w/Steel Core			
Brick Encasing			
Lath&Plaster Encasing			
Other			
Other			

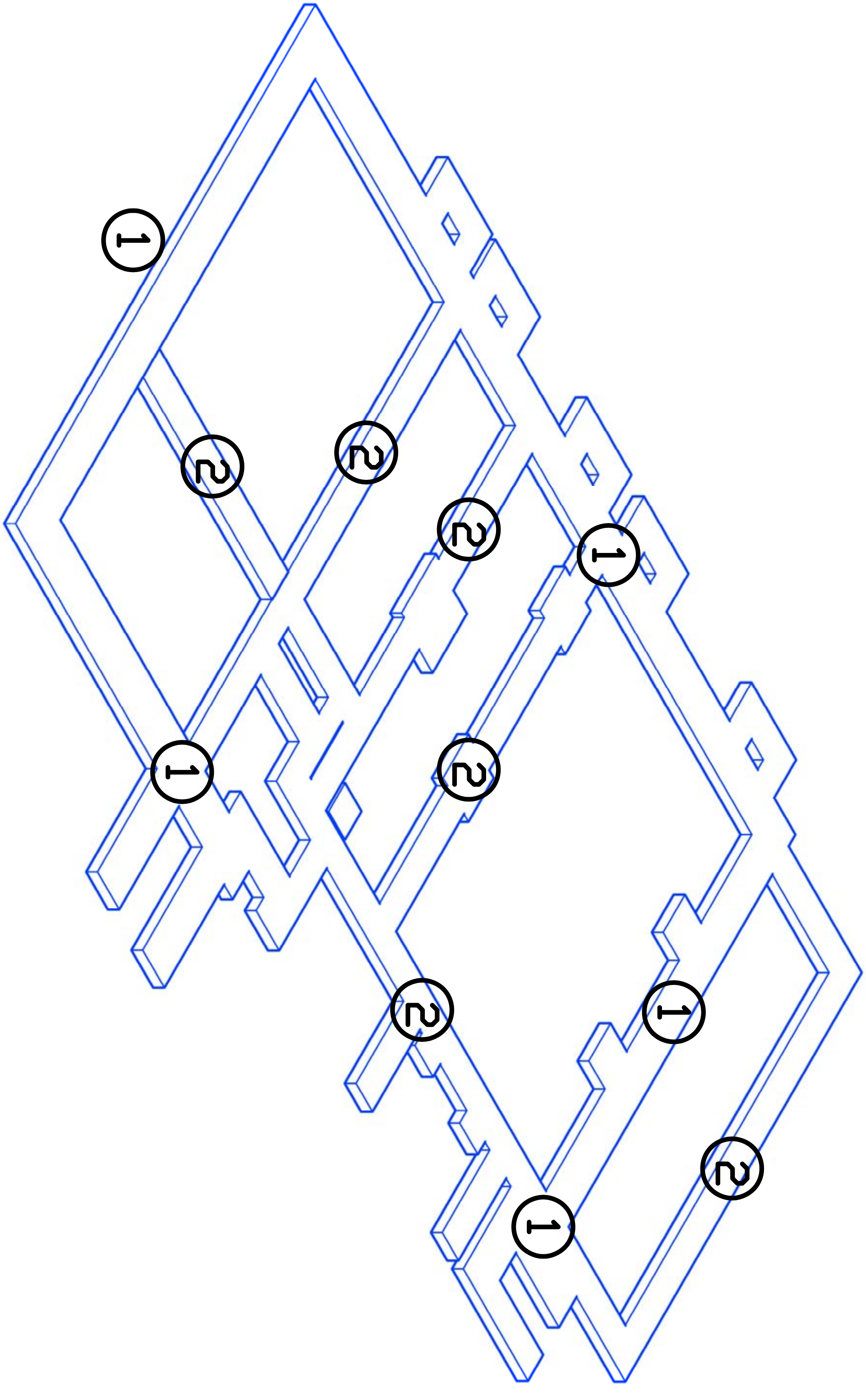
Appliance Fixture	Exp.	H.V.	Cond.
Sink			
Faucet			
Toilet			
Other			
Other			

Lighting Fixture	Exp.	H.V.	Cond.
[✓ Fluorescents] w/Eggcrate Louvers			
Incandescent Lamp			
Natural Light			
Cast Bronze Lamps			
Other			

Notes

*little office 4 wooden stairs

Appendix 7: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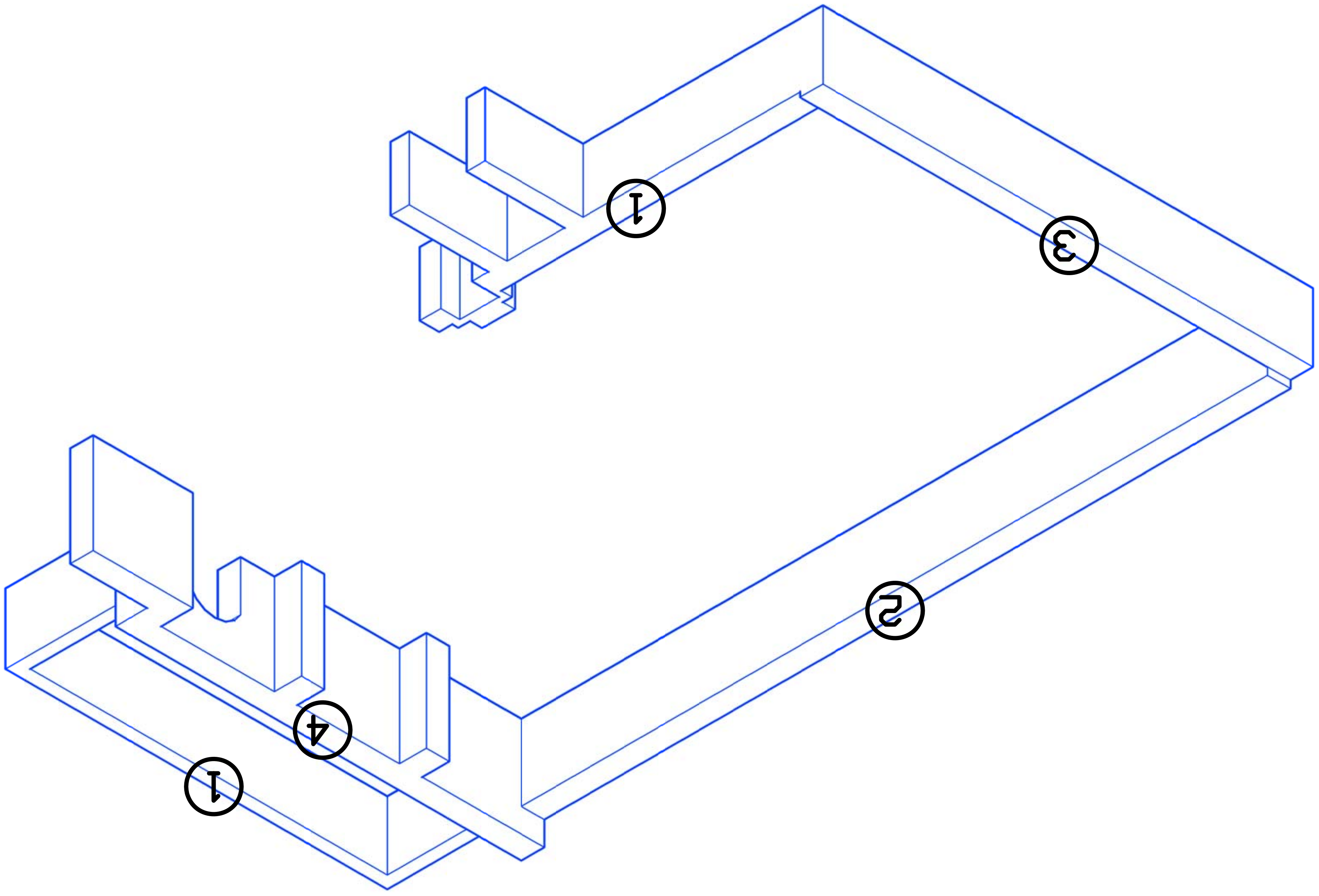
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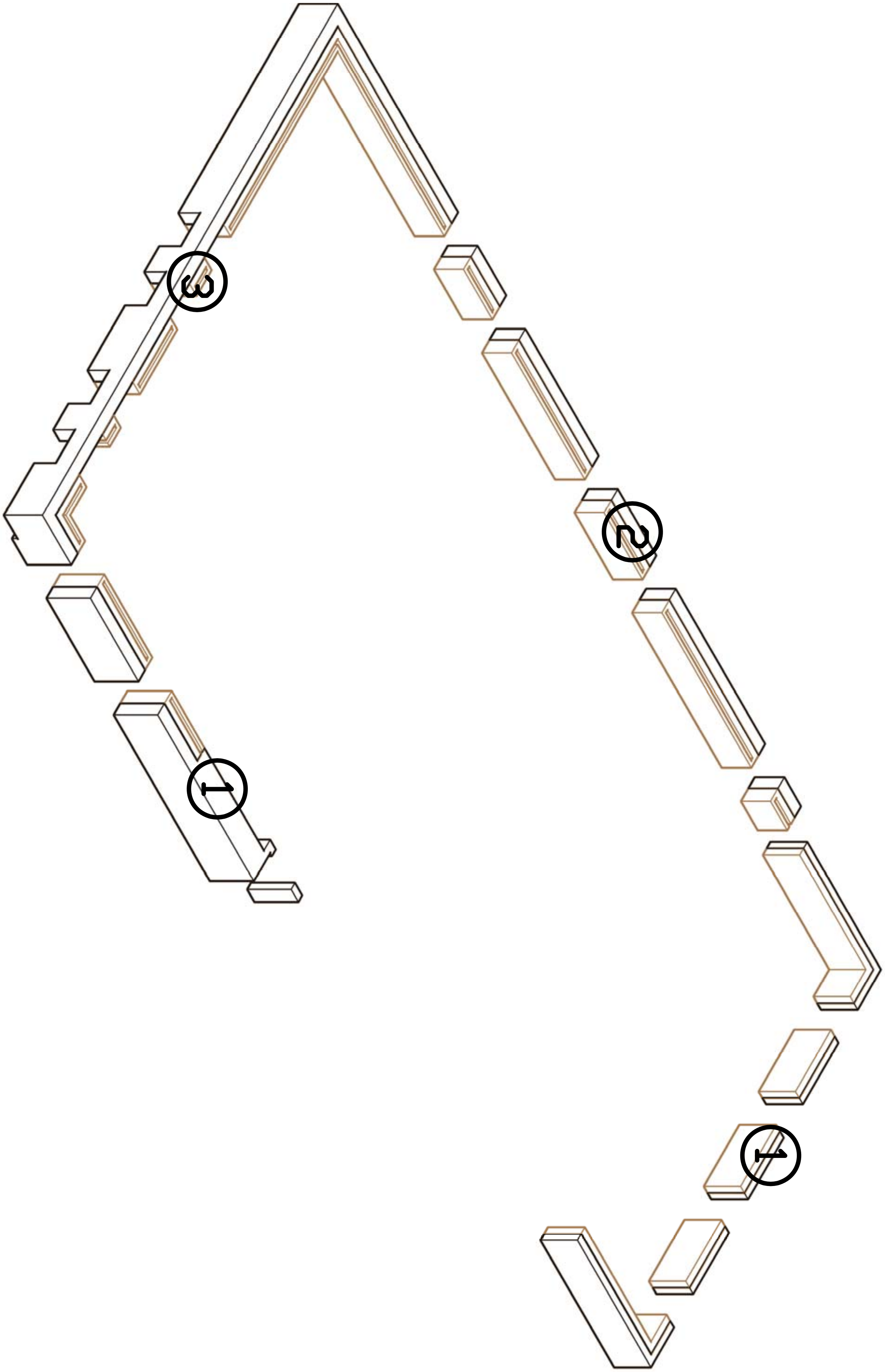
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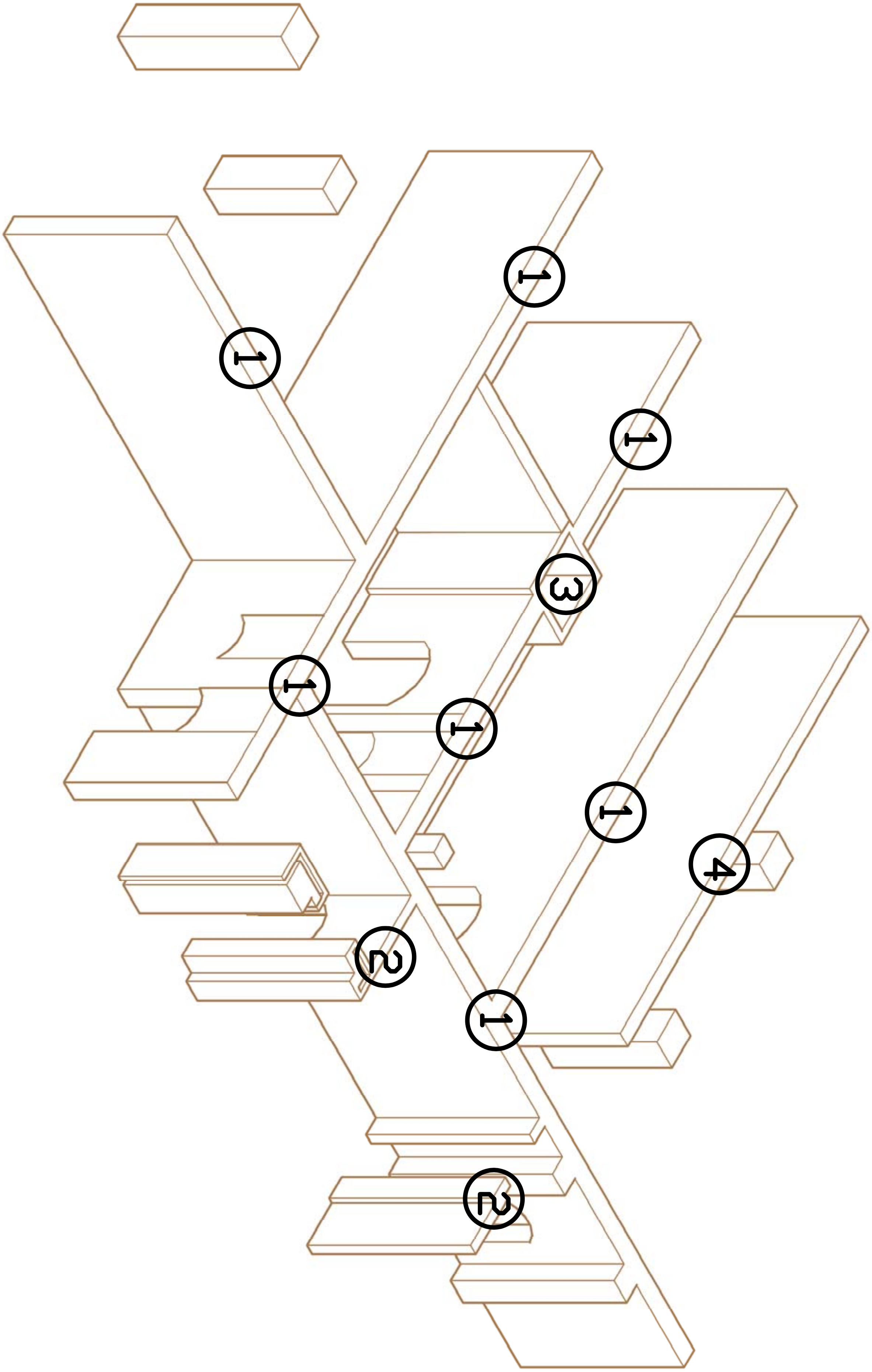
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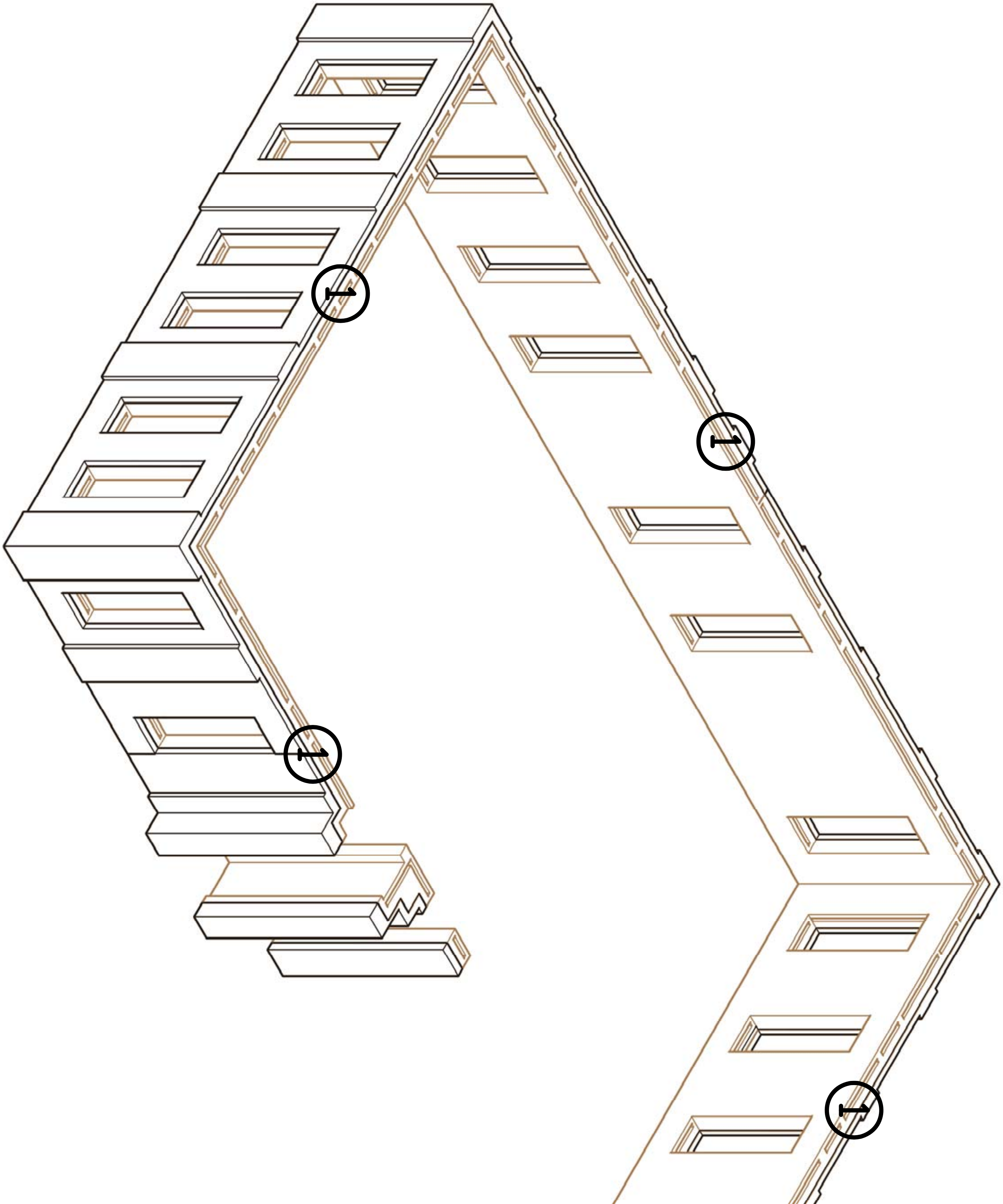

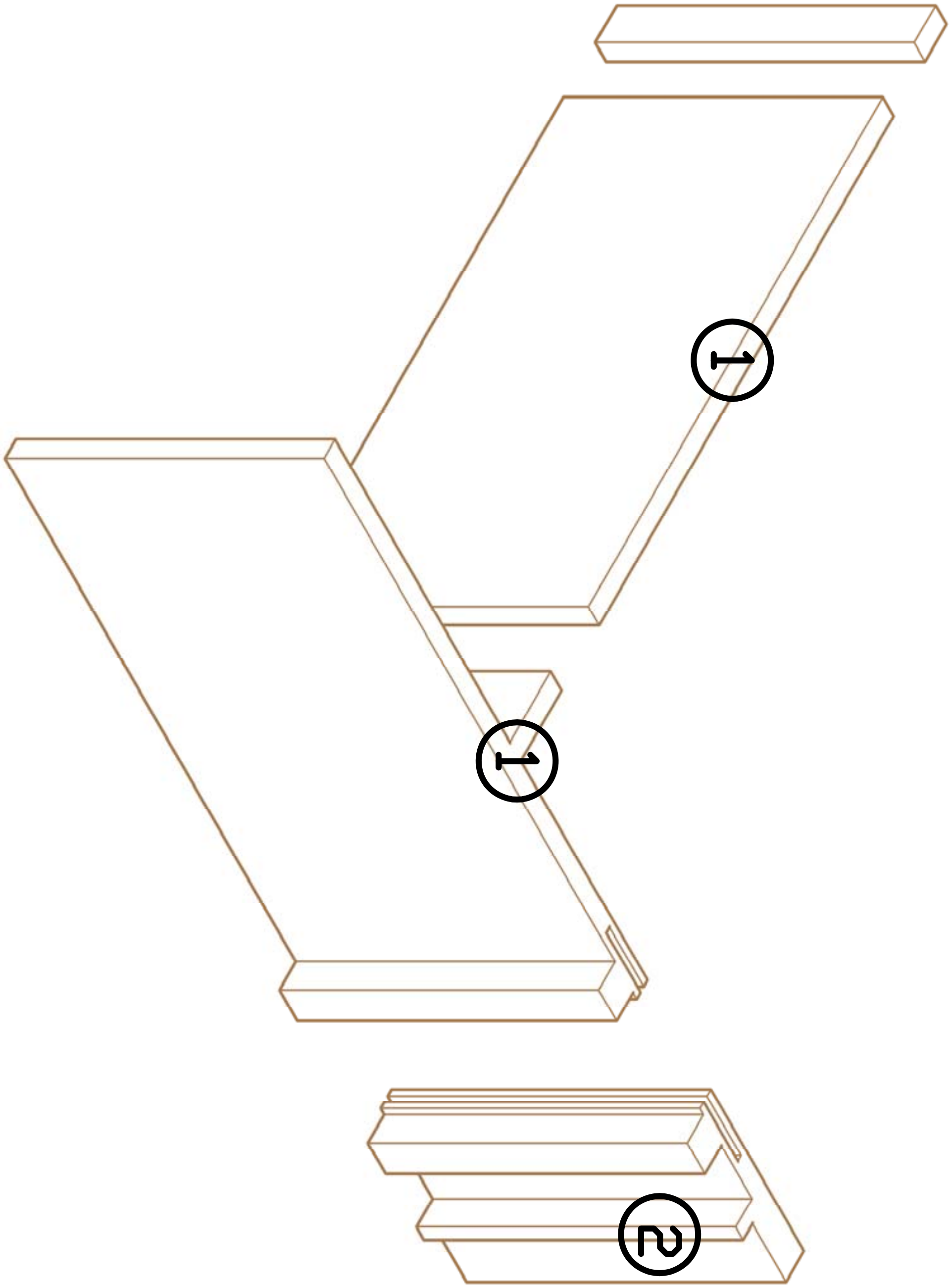
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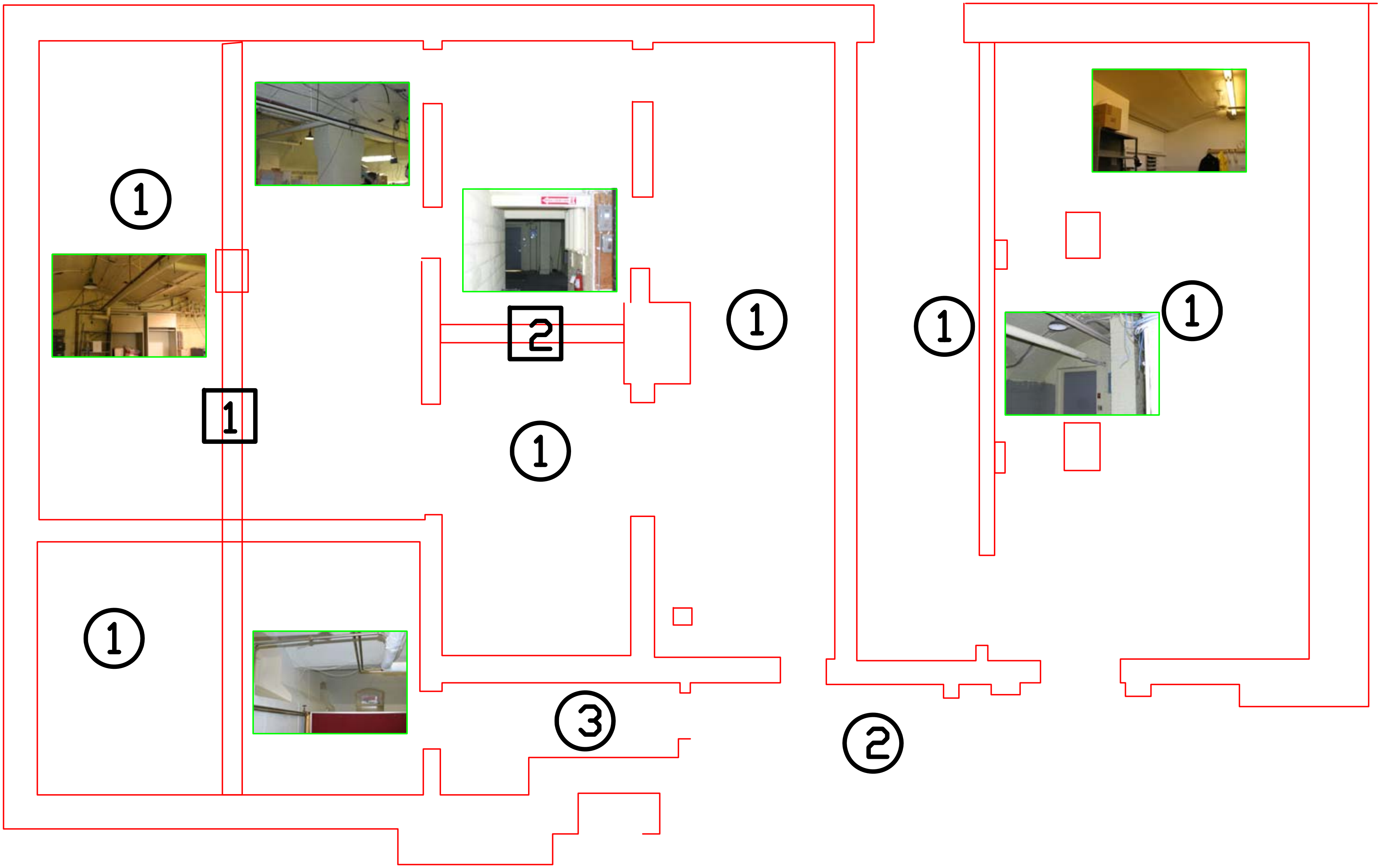
②

Appendix 8: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2
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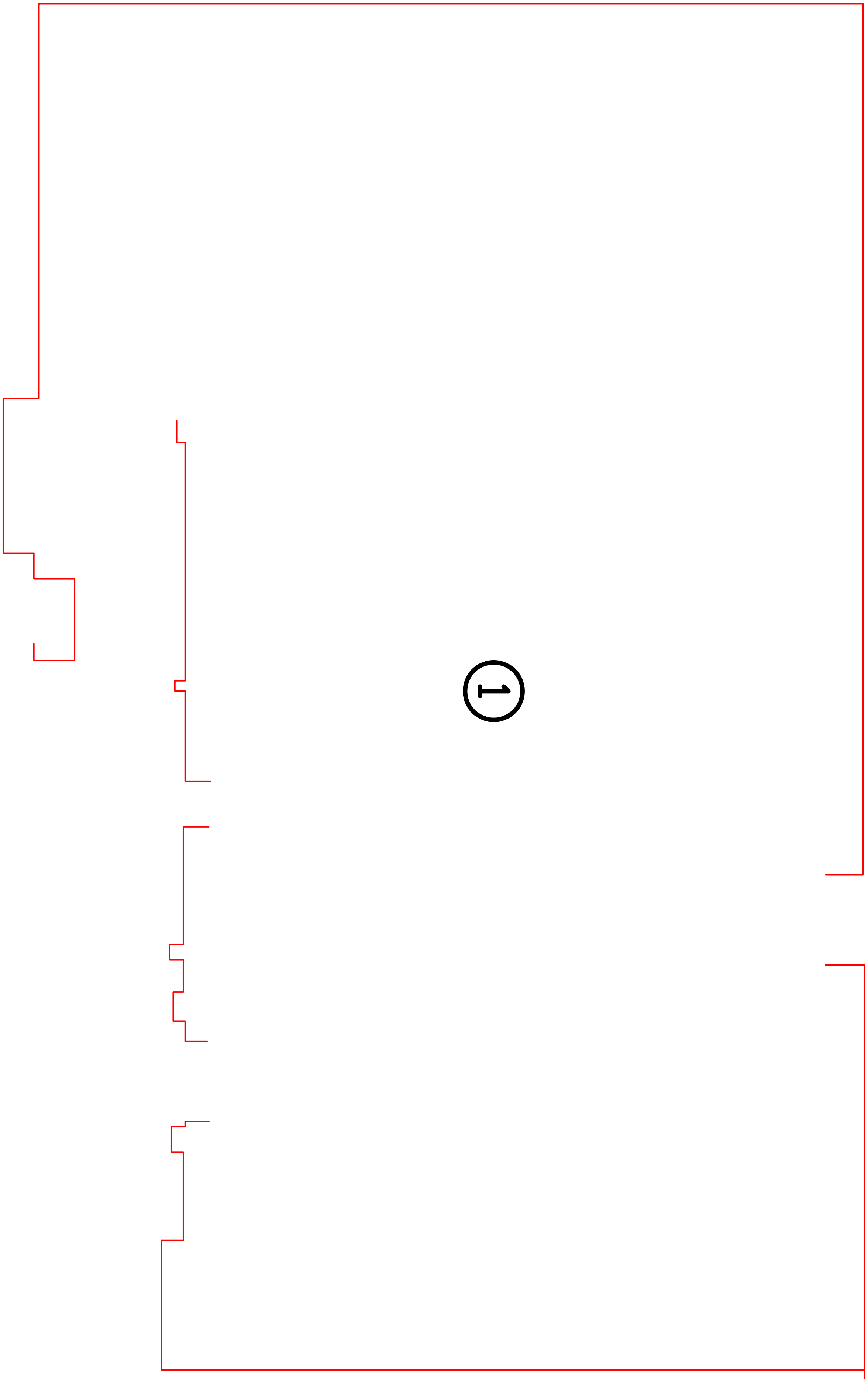
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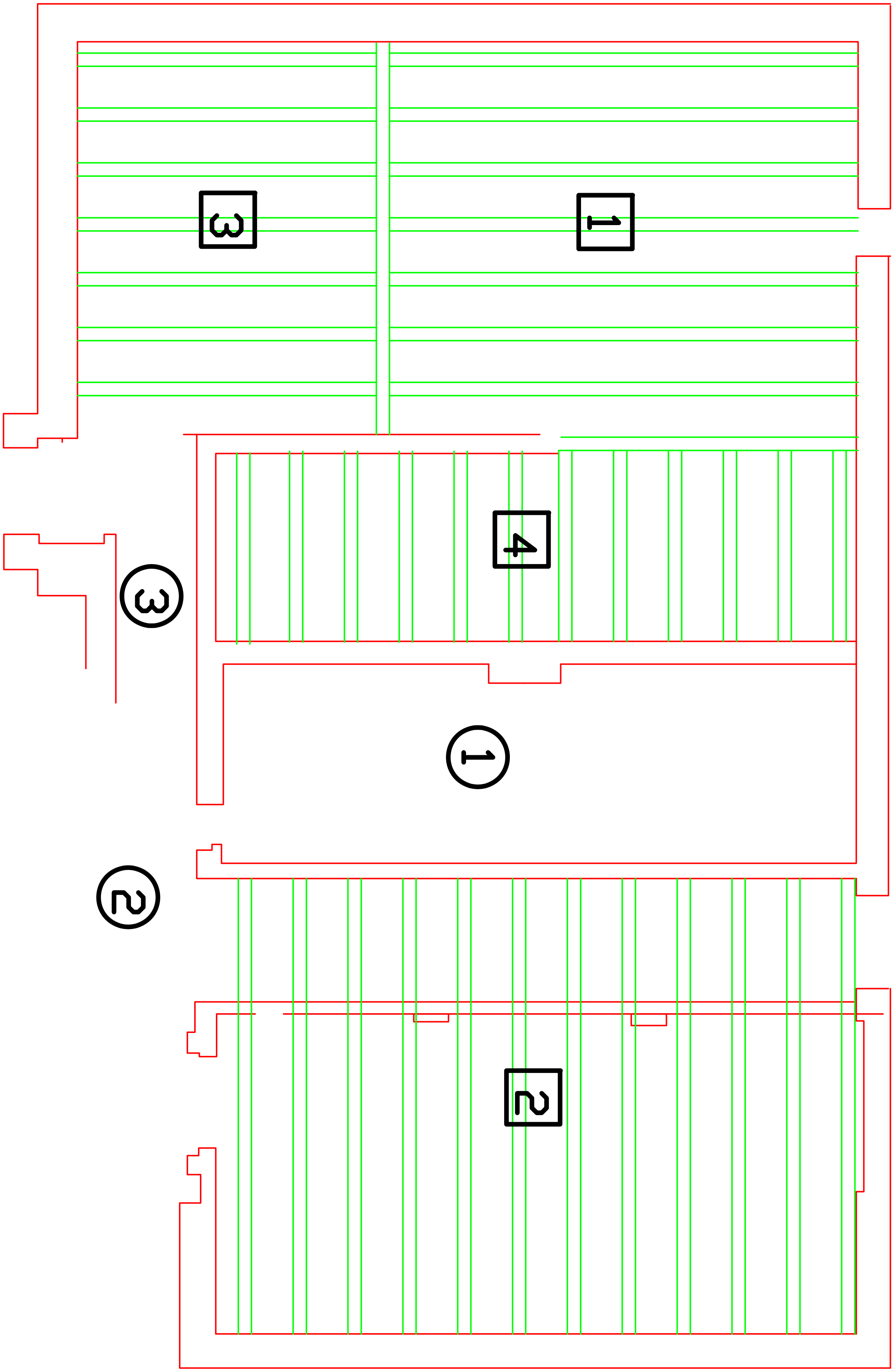
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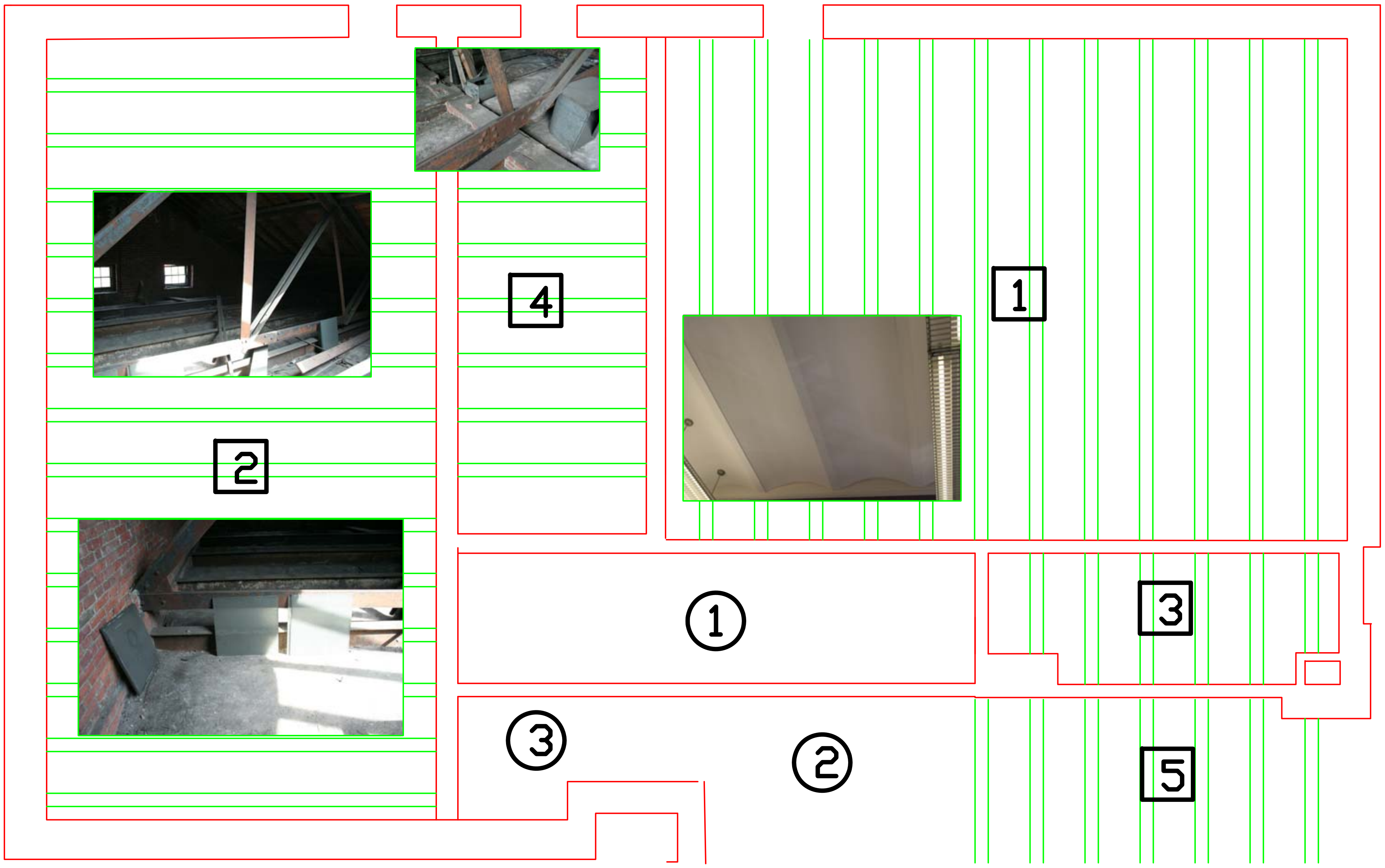
1
4
③
①
②
2


1
4
2
3
5
①
③
②

Appendix 9:

Tributay Area (sq.ft.)	Column	Location by Floor	Foundations to 2nd Floor		2nd Floor to Roof		3rd Floor	
			Size	Weight (lbs)	Size	Weight (lbs)	Size	Weight
224.58	.5B	2,3			6.25"	31.7		
167.82	1B	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
241.53	1B w/o .5	B,1						
186.23	2B	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
254.03	2B w/o 2.5	B,1						
163.22	2.5B	2,3			6.25"	31.7		
221.66	3B	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
254.03	3B w/o 2.5	B,1						
298.52	4B	B,1			Foundation to 1st Floor Only			
293.91	5B		Bearing Wall or Columns?					
293.91	6B							
296.98	7B	B,1			Foundation to 1st Floor Only			
310.79	8B	B,1						
144.85	1C	B,1,2						
160.73	2C	B,1,2						
191.32	3C	B,1						
258.23	4C	B,1						
254.25	5C		Bearing Wall or Columns?					
253.68	6C							
256.33	7C	B,1			Foundation to 1st Floor Only			
268.24	8C	B,1			"			
229.71	9C	1						
220.45	10C	1						
145.83	1D	B,1,2			Foundation to 1st Floor Only			
161.83	2D	B,1,2			"			
192.62	3D	B,1			"			
259.4	4D	B,1			"			
255.4	5D		Bearing Wall or Columns?					
255.4	6D							
258.07	7D	B,1			Foundation to 1st Floor Only			
270.07	8D	B,1			"			
231.28	9D	1						
221.94	10D	1						
160.05	1E	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
177.61	2E	B1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
211.4	3E	B,1			Foundation to 1st Floor Only			
284.7	4E	B,1			"			
280.31	5E		Bearing Wall or Columns?					
280.31	6E							
192.98	1F	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
214.15	2F	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
254.9	3F	B,1						
337.98	5F.3	B,1,2	8.25-8.375	38.3-58.0	6.25"	3.17		
337.98	6F.3	B,1,2	8.25-8.375	38.3-58.0	6.25"	3.17		
357.39	8F	B,1						
160.16	1G	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
177.73	2G	B,1,2,3	8.25-8.375	38.3-58.0	6.25"	3.17		
211.55	3G	B,1						

			Foundations to 2nd Floor		2nd Floor to Roof		3rd Floor	
Tributay Area (sq.ft.)	Column	Location by Floor	Size	Weight (lbs)	Size	Weight (lbs)	Size	Weight
138.06	4.3G	1,2						
	6.7G	1,2						
298.65	3.7H.8	B,1,2	8.25-8.375	38.3-58.0	6.25"	3.17		
	4.3H.8	2			6.25"	3.17		
306.37	5.2H.8	B,1						
306.37	5.7H.8	B,1						
290.82	3.7H	1						
	4.3H	1						
	5.2H	1						
	5.7H	1						
	6.7H	1						
244.28	1H	B,1						
260.58	2H	B,1						
292.18	3.7I.8	B,1,2	8.25-8.375	38.3-58.0	6.25"	3.17		
	4.3I.8	2			6.25"	3.17		
299.15	5.2I.8	B,1						
299.15	5.7I.8	B,1						
258.18	1I	B,1						
275.48	2I	B,1						
	3.7I	B,1,2	8.25-8.375	38.3-58.0	6.25"	3.17		
	4.3I	2			6.25"	3.17		
	5.2I	B,1						
	5.7I	B,1						
245.06	1J	B,1						
261.4	2J	B						

Column	Location by Floor	x	y	z	
.5B	2,3	194.08	18.88	25-52	B=0-11
1B	B,1,2,3	184.07	18.88	0-25/25-52	1=11-25
1B w/o .5	B,1			0-25	2=25-41
2B	B,1,2,3	172.13	18.88	0-25/25-52	3=41-52
2B w/o 2.5	B,1			0-25	
2.5B	2,3	159.76	18.88	25-52	
3B	B,1,2,3	150.87	18.88	0-25/25-52	
3B w/o 2.5	B,1			0-25	
4B	B,1	130.87	18.88	0-25	
5B		111.93	18.88		
6B		93.7	18.88		
7B	B,1	73.78	18.88	0-25	
8B	B,1	53.77	18.88	0-25	
1C	B,1,2	184.07	30.2	0-25/25-41	
2C	B,1,2	172.13	30.2	0-25/25-41	
3C	B,1	150.87	30.2	0-25	
4C	B,1	130.87	30.2	0-25	
5C		111.93	30.2		
6C		93.7	30.2		
7C	B,1	73.78	30.2	0-25	
8C	B,1	53.77	30.2	0-25	
9C	1	33.13	30.2	11 to 25	
10C	1	19.09	30.2	11 to 25	
1D	B,1,2	184.07	45.37	0-25/25-41	
2D	B,1,2	172.13	45.37	0-25/25-41	
3D	B,1	150.87	45.37	0-25	
4D	B,1	130.87	45.37	0-25	
5D		111.93	45.37		
6D		93.7	45.37		
7D	B,1	73.78	45.37	0-25	
8D	B,1	53.77	45.37	0-25	
9D	1	33.13	45.37	11 to 25	
10D	1	19.09	45.37	11 to 25	
1E	B,1,2,3	184.07	56.69	0-25/25-52	
2E	B1,2,3	172.13	56.69	0-25/25-52	
3E	B,1	150.87	56.69	0-25	
4E	B,1	130.87	56.69	0-25	
5E		111.93	56.69		
6E		93.7	56.69		
1F	B,1,2,3	184.07	74.4	0-25/25-52	
2F	B,1,2,3	172.13	74.4	0-25/25-52	
3F	B,1	150.87	74.4	0-25	
5F.3	B,1,2	111.93	77.82	0-25/25-41	
6F.3	B,1,2	93.7	77.82	0-25/25-41	
8F	B,1	53.77	74.4	0-25	
1G	B,1,2,3	184.07	91.96	0-25/25-52	
2G	B,1,2,3	172.13	91.96	0-25/25-52	
3G	B,1	150.87	91.96	0-25	
4.3G	1,2	124.65	91.96	11 to 41	
6.7G	1,2	80.86	91.96	11 to 41	

Column	Location by Floor	x	y	z
3.7H.8	B,1,2	137.04	119.88	0-25/25-41
4.3H.8	2	124.65	119.88	25-41
5.2H.8	B,1	109.14	119.88	0-25
5.7H.8	B,1	97.34	119.88	0-25
3.7H	1	137.04	103.71	11 to 25
4.3H	1	124.65	103.71	11 to 25
5.2H	1	109.14	103.71	11 to 25
5.7H	1	97.34	103.71	11 to 25
6.7H	1	80.86	103.71	11 to 25
1H	B,1	184.07	103.71	0-25
2H	B,1	172.13	103.71	0-25
3.7I.8	B,1,2	137.04	133.63	0-25/25-41
4.3I.8	2	124.65	133.63	25-41
5.2I.8	B,1	109.14	133.63	0-25
5.7I.8	B,1	97.34	133.63	0-25
1I	B,1	184.07	121.71	0-25
2I	B,1	172.13	121.71	0-25
3.7I	B,1,2	137.04	121.71	0-25/25-41
4.3I	2	124.65	121.71	25-41
5.2I	B,1	109.13	121.71	0-25
5.7I	B,1	97.34	121.71	0-25
1J	B,1	184.07	136.99	0-25
2J	B	172.13	136.99	0-11

Appendix 10:

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area (Me...	Surface (...
1	gravity	DL			-1					
2	Dead Loads	DL							3	
3	Live Loads	LL							3	
4	Snow Loads	SL								
5	Rain Loads	RLL								
6	BLC 2 Transient Area...	None						11265		
7	BLC 3 Transient Area...	None						11265		

Load Combinations

	Description	Solve	PD...	SR...	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	Gravity	Yes			1	1														
2	Dead Load	Yes			1	1	2	1.4												
3	Dead+Live	Yes			1	1	2	1.2	3	1.6										
4		Yes																		

Joint Reactions (By Combination)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
1	3	N1	0	0	16.99	0	0	0
2	3	N2	.054	0	16.99	0	0	0
3	3	N3	0	0	17.192	0	0	0
4	3	N4	-.014	0	17.115	0	0	0
5	3	N5	1.878	0	15.293	0	0	0
6	3	N6	0	0	13.214	0	0	0
7	3	N7	0	0	206.248	0	0	0
8	3	N123	0	0	22.344	0	0	0
9	3	N124	0	0	15.247	0	0	0
10	3	N125	0	0	13.503	0	0	0
11	3	N126	.003	0	17.192	0	0	0
12	3	N127	.004	0	15.293	0	0	0
13	3	N128	-.002	0	15.293	0	0	0
14	3	N129	0	0	16.99	0	0	0
15	3	N130	-.012	0	13.287	0	0	0
16	3	N131	-.083	0	13.503	0	0	0
17	3	N132	.184	0	13.332	0	0	0
18	3	N133	.181	0	13.503	0	0	0
19	3	N134	-.081	0	13.363	0	0	0
20	3	N135	.085	0	15.293	0	0	0
21	3	N136	-.055	0	101.943	0	0	0
22	3	N56	0	.043	14.48	0	0	0
23	3	N60	0	.044	16.643	0	0	0
24	3	N82	0	.112	12.083	0	0	0
25	3	N91	0	0	0	0	0	0
26	3	N102	0	0	14.76	0	0	0
27	3	N113	0	0	35.276	0	0	0
28	3	N217	0	0	131.496	0	0	0
29	3	N222	0	0	14.48	0	0	0
30	3	N231	0	0	14.386	0	0	0
31	3	N241	0	-.002	16.643	0	0	0
32	3	N252	0	.006	16.83	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
33	3	N270	0	.353	19.251	0	0	0
34	3	N285	0	.006	14.433	0	0	0
35	3	N296	0	-.002	16.83	0	0	0
36	3	N304	0	-.003	14.464	0	0	0
37	3	N315	0	-.005	12.083	0	0	0
38	3	N320	0	.023	12.192	0	0	0
39	3	N337	0	-.002	12.192	0	0	0
40	3	N348	0	-.03	22.791	0	0	0
41	3	N362	0	.004	39.944	0	0	0
42	3	N373	0	0	17.063	0	0	0
43	3	N384	0	0	17.188	0	0	0
44	3	N395	0	0	10.012	0	0	0
45	3	N406	0	0	14.76	0	0	0
46	3	N450	0	0	22.344	0	0	0
47	3	N114	0	0	17.161	0	0	0
48	3	N115	.119	0	17.208	0	0	0
49	3	N116	0	0	16.99	0	0	0
50	3	N117	-.019	0	16.99	0	0	0
51	3	N118	-2.405	0	15.293	0	0	0
52	3	N119	0	0	13.211	0	0	0
53	3	N120	0	0	206.248	0	0	0
54	3	N121	.003	0	15.293	0	0	0
55	3	N122	0	0	15.247	0	0	0
56	3	N429	0	0	22.516	0	0	0
57	3	N430	0	0	15.278	0	0	0
58	3	N431	0	0	13.363	0	0	0
59	3	N432	.007	0	16.99	0	0	0
60	3	N433	.009	0	15.293	0	0	0
61	3	N434	-.005	0	15.293	0	0	0
62	3	N435	-.001	0	17.208	0	0	0
63	3	N436	.012	0	13.503	0	0	0
64	3	N437	.108	0	13.379	0	0	0
65	3	N438	-.236	0	13.503	0	0	0
66	3	N439	-.233	0	13.363	0	0	0
67	3	N440	.104	0	13.503	0	0	0
68	3	N441	-.081	0	15.293	0	0	0
69	3	N442	.07	0	25.955	0	0	0
70	3	N443	-.007	0	22.344	0	0	0
71	3	N444	.001	0	11.589	0	0	0
72	3	N445	0	0	15.278	0	0	0
73	3	N446	0	0	15.293	0	0	0
74	3	N447	0	0	16.99	0	0	0
75	3	N448	0	0	13.503	0	0	0
76	3	N449	0	0	15.247	0	0	0
77	3	N8	0	0	37.776	0	0	0
78	3	N16	0	0	14.76	0	0	0
79	3	N24	0	-.004	17.188	0	0	0
80	3	N37	0	.823	14.76	0	0	0
81	3	N46	0	.74	14.775	0	0	0
82	3	N61	0	.574	14.76	0	0	0
83	3	N71	0	.981	17.157	0	0	0
84	3	N83	0	.077	17.063	0	0	0
85	3	N92	0	.002	14.76	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
86	3	N103	0	0	35.178	0	0	0
87	3	N159	0	0	14.76	0	0	0
88	3	N167	0	0	17.017	0	0	0
89	3	N175	0	0	14.76	0	0	0
90	3	N183	0	0	14.76	0	0	0
91	3	N191	0	-.06	12.332	0	0	0
92	3	N199	0	-.07	17.141	0	0	0
93	3	N207	0	.189	17.017	0	0	0
94	3	N223	0	1.211	14.76	0	0	0
95	3	N232	0	1.34	14.76	0	0	0
96	3	N242	0	1.129	17.188	0	0	0
97	3	N260	0	.11	14.76	0	0	0
98	3	N263	0	-.072	12.332	0	0	0
99	3	N271	0	.078	14.76	0	0	0
100	3	N286	0	.969	14.76	0	0	0
101	3	N297	0	1.229	14.775	0	0	0
102	3	N305	0	1.215	14.76	0	0	0
103	3	N321	0	.201	14.729	0	0	0
104	3	N327	0	-.026	12.332	0	0	0
105	3	N338	0	-.041	17.188	0	0	0
106	3	N352	0	.012	14.76	0	0	0
107	3	N363	0	-.004	17.188	0	0	0
108	3	N374	0	-.001	17.063	0	0	0
109	3	N385	0	0	9.997	0	0	0
110	3	N396	0	0	14.775	0	0	0
111	3	N35	.665	0	281.451	0	0	0
112	3	N34	.519	0	154.642	0	0	0
113	3	N151	0	0	14.76	0	0	0
114	3	N451	.004	0	16.99	0	0	0
115	3	N452	-.251	0	16.99	0	0	0
116	3	N453	-.002	0	17.192	0	0	0
117	3	N454	.082	0	17.115	0	0	0
118	3	N455	-3.515	0	15.293	0	0	0
119	3	N456	0	0	12.907	0	0	0
120	3	N457	0	0	206.248	0	0	0
121	3	N458	0	0	37.776	0	0	0
122	3	N466	0	0	14.76	0	0	0
123	3	N474	0	.016	17.188	0	0	0
124	3	N484	0	0	155.09	0	0	0
125	3	N485	0	0	281.437	0	0	0
126	3	N487	0	.679	14.76	0	0	0
127	3	N496	0	2.196	14.775	0	0	0
128	3	N506	0	.48	14.48	0	0	0
129	3	N510	0	.484	16.643	0	0	0
130	3	N511	0	2.163	14.76	0	0	0
131	3	N521	0	1.274	17.157	0	0	0
132	3	N532	0	.198	12.083	0	0	0
133	3	N533	0	-.351	17.063	0	0	0
134	3	N541	0	0	0	0	0	0
135	3	N542	0	0	0	0	0	0
136	3	N543	0	-.002	14.76	0	0	0
137	3	N553	0	0	14.76	0	0	0
138	3	N554	0	0	35.178	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
139	3	N564	0	0	35.276	0	0	0
140	3	N565	.003	0	17.161	0	0	0
141	3	N566	-.527	0	17.208	0	0	0
142	3	N567	.001	0	16.99	0	0	0
143	3	N568	-.071	0	16.99	0	0	0
144	3	N569	1.644	0	15.293	0	0	0
145	3	N570	0	0	12.905	0	0	0
146	3	N571	0	0	206.248	0	0	0
147	3	N572	-.004	0	15.293	0	0	0
148	3	N573	0	0	15.247	0	0	0
149	3	N574	0	0	22.344	0	0	0
150	3	N575	0	0	15.247	0	0	0
151	3	N576	0	0	13.503	0	0	0
152	3	N577	-.015	0	17.192	0	0	0
153	3	N578	-.018	0	15.293	0	0	0
154	3	N579	.01	0	15.293	0	0	0
155	3	N580	.004	0	16.99	0	0	0
156	3	N581	.029	0	13.363	0	0	0
157	3	N582	.153	0	13.503	0	0	0
158	3	N583	-.345	0	13.332	0	0	0
159	3	N584	-.348	0	13.503	0	0	0
160	3	N585	.157	0	13.363	0	0	0
161	3	N586	.035	0	15.293	0	0	0
162	3	N587	-.007	0	101.943	0	0	0
163	3	N602	0	0	14.76	0	0	0
164	3	N610	0	0	14.76	0	0	0
165	3	N618	0	0	17.017	0	0	0
166	3	N626	0	0	14.76	0	0	0
167	3	N634	0	.005	14.76	0	0	0
168	3	N642	0	-.076	12.332	0	0	0
169	3	N650	0	-.151	17.141	0	0	0
170	3	N658	0	.033	17.017	0	0	0
171	3	N668	0	.002	131.496	0	0	0
172	3	N673	0	.002	14.48	0	0	0
173	3	N674	0	1.408	14.76	0	0	0
174	3	N682	0	-.009	14.386	0	0	0
175	3	N683	0	1.964	14.76	0	0	0
176	3	N692	0	-.037	16.643	0	0	0
177	3	N693	0	2.178	17.188	0	0	0
178	3	N703	0	.107	16.83	0	0	0
179	3	N711	0	.316	14.76	0	0	0
180	3	N714	0	-.24	12.332	0	0	0
181	3	N721	0	1.181	19.251	0	0	0
182	3	N722	0	.309	14.76	0	0	0
183	3	N736	0	.091	14.433	0	0	0
184	3	N737	0	2.234	14.76	0	0	0
185	3	N747	0	-.035	16.83	0	0	0
186	3	N748	0	2.203	14.775	0	0	0
187	3	N755	0	-.015	14.464	0	0	0
188	3	N756	0	1.851	14.76	0	0	0
189	3	N766	0	-.007	12.083	0	0	0
190	3	N771	0	.043	12.192	0	0	0
191	3	N772	0	.294	14.729	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
192	3	N778	0	0	12.332	0	0	0
193	3	N788	0	.01	12.192	0	0	0
194	3	N789	0	-.126	17.188	0	0	0
195	3	N799	0	-.052	22.791	0	0	0
196	3	N803	0	-.053	14.76	0	0	0
197	3	N813	0	-.006	39.944	0	0	0
198	3	N814	0	.017	17.188	0	0	0
199	3	N824	0	0	17.063	0	0	0
200	3	N825	0	.007	17.063	0	0	0
201	3	N835	0	.003	17.188	0	0	0
202	3	N836	0	0	9.997	0	0	0
203	3	N846	0	0	10.012	0	0	0
204	3	N847	0	0	14.775	0	0	0
205	3	N857	0	0	14.76	0	0	0
206	3	N880	0	0	22.516	0	0	0
207	3	N881	0	0	15.278	0	0	0
208	3	N882	0	0	13.363	0	0	0
209	3	N883	-.031	0	16.99	0	0	0
210	3	N884	-.039	0	15.293	0	0	0
211	3	N885	.021	0	15.293	0	0	0
212	3	N886	-.004	0	17.208	0	0	0
213	3	N887	-.017	0	13.503	0	0	0
214	3	N888	-.07	0	13.379	0	0	0
215	3	N889	.162	0	13.503	0	0	0
216	3	N890	.163	0	13.363	0	0	0
217	3	N891	-.074	0	13.503	0	0	0
218	3	N892	-.028	0	15.293	0	0	0
219	3	N893	.012	0	25.955	0	0	0
220	3	N894	-.002	0	22.344	0	0	0
221	3	N895	.001	0	11.589	0	0	0
222	3	N896	0	0	15.278	0	0	0
223	3	N897	0	0	15.293	0	0	0
224	3	N898	0	0	16.99	0	0	0
225	3	N899	0	0	13.503	0	0	0
226	3	N900	0	0	15.247	0	0	0
227	3	N901	0	0	22.344	0	0	0
228	3	N902	0	0	103.124	0	0	0
229	3	N976	0	0	103.124	0	0	0
230	3	N903	0	0	284.452	0	0	0
231	3	N904	0	0	152.629	0	0	0
232	3	N905	0	0	152.882	0	0	0
233	3	N906	-.037	0	272.974	0	0	0
234	3	N907	-.011	0	222.313	0	0	0
235	3	N908	-.986	-3.843	83.955	0	0	0
236	3	N909	0	0	292.916	0	0	0
237	3	N910	0	.009	158.212	0	0	0
238	3	N911	0	-.011	158.251	0	0	0
239	3	N912	0	0	300.8	0	0	0
240	3	N913	.007	0	297.332	0	0	0
241	3	N914	0	0	283.486	0	0	0
242	3	N915	0	.009	273.804	0	0	0
243	3	N916	0	-.011	93.519	0	0	0
244	3	N917	0	0	215.377	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
245	3	N918	.01	0	261.023	0	0	0
246	3	N919	2.308	-9.066	107.107	0	0	0
247	3	N920	4.959	-1.739	164.318	0	0	0
248	3	N921	0	0	273.437	0	0	0
249	3	N922	0	0	288.967	0	0	0
250	3	N923	0	0	180.562	0	0	0
251	3	N924	0	0	187.026	0	0	0
252	3	N925	15.884	-5.476	104.609	0	0	0
253	3	N926	-.794	-.006	.217	0	0	0
254	3	N927	16.946	-8.53	155.659	0	0	0
255	3	N928	0	0	265.584	0	0	0
256	3	N929	0	0	241.39	0	0	0
257	3	N930	0	0	241.691	0	0	0
258	3	N931	-.001	0	111.592	0	0	0
259	3	N932	-14.915	3.239	78.738	0	0	0
260	3	N933	-.001	0	195.372	0	0	0
261	3	N934	0	0	270.735	0	0	0
262	3	N935	0	0	358.319	0	0	0
263	3	N936	0	0	250.597	0	0	0
264	3	N937	0	0	298.438	0	0	0
265	3	N938	0	0	258.436	0	0	0
266	3	N939	0	0	235.511	0	0	0
267	3	N940	0	0	237.583	0	0	0
268	3	N941	.002	0	102.895	0	0	0
269	3	N942	13.908	3.137	68.237	0	0	0
270	3	N943	.002	0	188.519	0	0	0
271	3	N944	-15.156	-7.973	145.108	0	0	0
272	3	N945	.716	.021	.217	0	0	0
273	3	N946	0	0	269.275	0	0	0
274	3	N947	0	-.001	251.48	0	0	0
275	3	N948	0	0	178.699	0	0	0
276	3	N949	0	0	184.069	0	0	0
277	3	N950	-14.891	-6.525	103.401	0	0	0
278	3	N951	-6.572	-3.891	167.187	0	0	0
279	3	N952	-2.877	-10.021	102.93	0	0	0
280	3	N953	0	0	256.195	0	0	0
281	3	N954	0	0	353.552	0	0	0
282	3	N955	0	0	288.548	0	0	0
283	3	N956	-.032	-.022	94.879	0	0	0
284	3	N957	0	0	219.712	0	0	0
285	3	N958	0	0	265.646	0	0	0
286	3	N959	-.008	0	339.25	0	0	0
287	3	N960	0	0	0	0	0	0
288	3	N961	0	0	276.986	0	0	0
289	3	N962	0	0	151.738	0	0	0
290	3	N963	0	0	152.625	0	0	0
291	3	N964	0	0	272.667	0	0	0
292	3	N965	-.006	0	276.351	0	0	0
293	3	N966	0	0	160.649	0	0	0
294	3	N967	0	0	201.441	0	0	0
295	3	N968	0	0	265.257	0	0	0
296	3	N969	0	0	142.015	0	0	0
297	3	N970	0	0	141.902	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
298	3	N971	0	0	254.358	0	0	0
299	3	N972	0	0	210.825	0	0	0
300	3	N973	.985	-14.459	83.955	0	0	0
301	3	N974	.002	0	186.129	0	0	0
302	3	N975	0	0	185.307	0	0	0
303	3	N977	17.631	-7.382	143.996	0	0	0
304	3	N978	20.654	-1.016	180.547	0	0	0
305	3	N979	0	0	203.422	0	0	0
306	3	N980	-19.02	-.837	164.258	0	0	0
307	3	N981	-15.981	-6.681	137.925	0	0	0
308	3	N801	0	-.003	31.579	0	0	0
309	3	N802	0	0	65.134	0	0	0
310	3	N800	-.007	-.021	140.269	0	0	0
311	3	N351	0	0	65.134	0	0	0
312	3	N350	-.135	-.001	31.578	0	0	0
313	3	N540	0	-.138	15.968	0	0	0
314	3	N349	-.148	-.006	133.777	0	0	0
315	3	N90	0	.028	15.968	0	0	0
316	3	N560	-.369	-124.072	194.749	0	0	0
317	3	N14	-2.476	32.252	245.179	0	0	0
318	3	N109	2.461	89.864	232.474	0	0	0
319	3	N464	.368	-37.594	194.989	0	0	0
320	3	N43	4.374	.631	85.613	0	0	0
321	3	N69	-3.899	.607	83.275	0	0	0
322	3	N493	.789	1.896	141.848	0	0	0
323	3	N519	-.62	1.849	137.602	0	0	0
324	3	N982	.003	0	11.23	0	0	0
325	3	N983	0	0	11.23	0	0	0
326	3	N984	0	0	11.362	0	0	0
327	3	N985	-.008	0	11.311	0	0	0
328	3	N986	-.011	0	10.123	0	0	0
329	3	N987	0	0	8.975	0	0	0
330	3	N988	0	0	103.124	0	0	0
331	3	N989	0	0	34.705	0	0	0
332	3	N995	3.049	9.178	135.195	0	0	0
333	3	N997	0	0	36.033	0	0	0
334	3	N1003	0	0	26.941	0	0	0
335	3	N1014	0	.02	9.774	0	0	0
336	3	N1018	-11.28	4.8	142.922	0	0	0
337	3	N1021	0	5.028	9.784	0	0	0
338	3	N1029	0	.906	13.062	0	0	0
339	3	N1031	0	.911	15.052	0	0	0
340	3	N1032	0	5.346	9.774	0	0	0
341	3	N1040	10.556	5.192	110.467	0	0	0
342	3	N1042	0	.033	11.337	0	0	0
343	3	N1051	0	-.355	8.028	0	0	0
344	3	N1052	0	0	27.523	0	0	0
345	3	N1059	0	0	17.985	LOCKED	LOCKED	LOCKED
346	3	N1060	0	0	34.238	0	0	0
347	3	N1066	0	0	32.541	0	0	0
348	3	N1070	-2.998	48.661	3.509	0	0	0
349	3	N1071	-.01	0	205.477	0	0	0
350	3	N1072	.006	0	11.341	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
351	3	N1073	0	0	11.372	0	0	0
352	3	N1074	0	0	11.23	0	0	0
353	3	N1075	0	0	11.23	0	0	0
354	3	N1076	.001	0	10.123	0	0	0
355	3	N1077	0	0	8.975	0	0	0
356	3	N1078	0	0	103.124	0	0	0
357	3	N1079	0	0	10.123	0	0	0
358	3	N1080	0	0	10.093	0	0	0
359	3	N1081	0	0	14.722	0	0	0
360	3	N1082	0	0	10.093	0	0	0
361	3	N1083	0	0	8.956	0	0	0
362	3	N1084	0	0	11.362	0	0	0
363	3	N1085	0	0	10.123	0	0	0
364	3	N1086	0	0	10.123	0	0	0
365	3	N1087	0	0	11.23	0	0	0
366	3	N1088	0	0	8.864	0	0	0
367	3	N1089	0	0	8.956	0	0	0
368	3	N1090	-.001	0	8.844	0	0	0
369	3	N1091	-.001	0	8.956	0	0	0
370	3	N1092	0	0	8.864	0	0	0
371	3	N1093	-.007	0	10.123	0	0	0
372	3	N1094	.005	0	66.634	0	0	0
373	3	N1119	0	0	8.19	0	0	0
374	3	N1124	0	0	11.327	0	0	0
375	3	N1129	0	.002	11.245	0	0	0
376	3	N1134	0	0	0	0	0	0
377	3	N1137	0	0	87.358	0	0	0
378	3	N1138	0	-.093	9.774	0	0	0
379	3	N1142	0	.003	13.002	0	0	0
380	3	N1143	0	-.279	9.774	0	0	0
381	3	N1148	0	-.127	15.052	0	0	0
382	3	N1149	0	.749	11.357	0	0	0
383	3	N1155	0	-.101	15.174	0	0	0
384	3	N1163	0	.717	9.774	0	0	0
385	3	N1166	0	-.574	8.19	0	0	0
386	3	N1171	0	2.757	17.174	0	0	0
387	3	N1172	0	.78	9.774	0	0	0
388	3	N1184	0	-.132	13.032	0	0	0
389	3	N1185	0	.853	9.774	0	0	0
390	3	N1191	0	-.161	15.174	0	0	0
391	3	N1192	0	-.3	9.784	0	0	0
392	3	N1195	0	.005	13.052	0	0	0
393	3	N1196	0	-.117	9.774	0	0	0
394	3	N1202	0	.019	10.921	0	0	0
395	3	N1205	0	-.073	17.163	0	0	0
396	3	N1206	0	.003	9.753	0	0	0
397	3	N1209	0	-.001	8.19	0	0	0
398	3	N1216	0	-.076	8.099	0	0	0
399	3	N1217	0	0	11.357	0	0	0
400	3	N1224	0	.024	12.453	0	0	0
401	3	N1225	.181	.003	51.725	0	0	0
402	3	N1226	.17	.003	18.522	0	0	0
403	3	N1227	0	0	13.226	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
404	3	N1248	0	0	14.833	0	0	0
405	3	N1249	0	0	10.113	0	0	0
406	3	N1250	.001	0	8.864	0	0	0
407	3	N1251	.001	0	11.23	0	0	0
408	3	N1252	0	0	10.123	0	0	0
409	3	N1253	0	0	10.123	0	0	0
410	3	N1254	0	0	11.372	0	0	0
411	3	N1255	0	0	8.956	0	0	0
412	3	N1256	0	0	8.875	0	0	0
413	3	N1257	0	0	8.956	0	0	0
414	3	N1258	.003	0	8.864	0	0	0
415	3	N1259	0	0	8.956	0	0	0
416	3	N1260	-.076	0	10.123	0	0	0
417	3	N1261	.084	0	17.077	0	0	0
418	3	N1262	0	0	14.722	0	0	0
419	3	N1263	0	0	7.707	0	0	0
420	3	N1264	0	0	10.113	0	0	0
421	3	N1265	0	0	10.123	0	0	0
422	3	N1266	0	0	11.23	0	0	0
423	3	N1267	0	0	8.956	0	0	0
424	3	N1268	0	0	23.218	0	0	0
425	3	N1269	0	0	13.601	0	0	0
426	3	N1270	0	0	10.485	0	0	0
427	3	N1271	0	0	13.601	0	0	0
428	3	N1272	0	0	13.419	0	0	0
429	3	N1273	0	0	14.251	0	0	0
430	3	N1274	0	0	12.028	0	0	0
431	3	N1275	0	0	34.594	0	0	0
432	3	N1054	.673	.448	157.981	0	0	0
433	3	N1277	0	0	15.926	0	0	0
434	3	N1278	0	0	21.133	0	0	0
435	3	N1279	0	0	33.457	0	0	0
436	3	N1280	0	0	10.089	0	0	0
437	3	N1281	0	0	10.14	0	0	0
438	3	N1282	0	0	10.089	0	0	0
439	3	N1283	.003	0	10.14	0	0	0
440	3	N1284	-.005	0	10.099	0	0	0
441	3	N1285	-.038	0	15.561	0	0	0
442	3	N1006	0	0	105.89	0	0	0
443	3	N1326	0	0	11.134	0	0	0
444	3	N1327	0	0	11.134	0	0	0
445	3	N1328	0	0	12.504	0	0	0
446	3	N1332	0	0	9.834	0	0	0
447	3	N1333	.001	0	9.784	0	0	0
448	3	N1334	-.002	0	9.834	0	0	0
449	3	N1335	-.002	0	9.784	0	0	0
450	3	N1336	0	0	9.834	0	0	0
451	3	N1337	-.003	0	14.981	0	0	0
452	3	N1338	0	0	80.407	0	0	0
453	3	N1339	0	0	95.162	0	0	0
454	3	N1364	-.7	0	146.573	0	0	0
455	3	N1388	-.547	0	58.465	0	0	0
456	3	N22	0	0	25.998	0	0	0

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
457	3	N1064	-.007	0	4.493	0	0	0
458	3	N1001	0	0	52.475	0	0	0
459	3	N1065	0	0	125.027	0	0	0
460	3	N1002	0	0	38.913	0	0	0
461	3	N1009	LOCKED	NC	LOCKED	NC	NC	NC
462	3	N1010	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
463	3	N1109	LOCKED	NC	LOCKED	NC	NC	NC
464	3	N1110	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
465	3	N1111	LOCKED	NC	LOCKED	NC	NC	NC
466	3	N1112	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
467	3	N1113	LOCKED	NC	LOCKED	NC	NC	NC
468	3	N1114	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
469	3	N1115	LOCKED	NC	LOCKED	NC	NC	NC
470	3	N1116	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
471	3	N1117	LOCKED	NC	LOCKED	NC	NC	NC
472	3	N1118	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
473	3	N1122	LOCKED	NC	LOCKED	NC	NC	NC
474	3	N1123	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
475	3	N1127	LOCKED	NC	LOCKED	NC	NC	NC
476	3	N1128	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
477	3	N1132	LOCKED	NC	LOCKED	NC	NC	NC
478	3	N1133	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
479	3	N1228	LOCKED	NC	LOCKED	NC	NC	NC
480	3	N1229	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
481	3	N1230	LOCKED	NC	LOCKED	NC	NC	NC
482	3	N1231	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
483	3	N1232	LOCKED	NC	LOCKED	NC	NC	NC
484	3	N1233	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
485	3	N1234	LOCKED	NC	LOCKED	NC	NC	NC
486	3	N1235	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
487	3	N1236	LOCKED	NC	LOCKED	NC	NC	NC
488	3	N1237	LOCKED	LOCKED	LOCKED	NC	LOCKED	NC
489	3	N821	LOCKED	NC	LOCKED	NC	NC	NC
490	3	N359	LOCKED	NC	LOCKED	NC	NC	NC
491	3	N810	LOCKED	NC	LOCKED	NC	NC	NC
492	3	N1220	LOCKED	NC	LOCKED	NC	NC	NC
493	3	N809	LOCKED	NC	LOCKED	NC	NC	NC
494	3	N820	LOCKED	NC	LOCKED	NC	NC	NC
495	3	N832	LOCKED	NC	LOCKED	NC	NC	NC
496	3	N358	LOCKED	NC	LOCKED	NC	NC	NC
497	3	N370	LOCKED	NC	LOCKED	NC	NC	NC
498	3	N344	LOCKED	NC	LOCKED	NC	NC	NC
499	3	N795	LOCKED	NC	LOCKED	NC	NC	NC
500	3	N1221	LOCKED	NC	LOCKED	NC	NC	NC
501	3	N1212	LOCKED	NC	LOCKED	NC	NC	NC
502	3	N831	LOCKED	NC	LOCKED	NC	NC	NC
503	3	N550	LOCKED	NC	LOCKED	NC	NC	NC
504	3	N369	LOCKED	NC	LOCKED	NC	NC	NC
505	3	N381	LOCKED	NC	LOCKED	NC	NC	NC
506	3	N345	LOCKED	NC	LOCKED	NC	NC	NC
507	3	N333	LOCKED	NC	LOCKED	NC	NC	NC
508	3	N796	LOCKED	NC	LOCKED	NC	NC	NC
509	3	N784	LOCKED	NC	LOCKED	NC	NC	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
510	3	N1213	LOCKED	NC	LOCKED	NC	NC	NC
511	3	N843	LOCKED	NC	LOCKED	NC	NC	NC
512	3	N549	LOCKED	NC	LOCKED	NC	NC	NC
513	3	N380	LOCKED	NC	LOCKED	NC	NC	NC
514	3	N99	LOCKED	NC	LOCKED	NC	NC	NC
515	3	N334	LOCKED	NC	LOCKED	NC	NC	NC
516	3	N785	LOCKED	NC	LOCKED	NC	NC	NC
517	3	N1048	LOCKED	NC	LOCKED	NC	NC	NC
518	3	N1203	LOCKED	NC	LOCKED	NC	NC	NC
519	3	N842	LOCKED	NC	LOCKED	NC	NC	NC
520	3	N854	LOCKED	NC	LOCKED	NC	NC	NC
521	3	N98	LOCKED	NC	LOCKED	NC	NC	NC
522	3	N392	LOCKED	NC	LOCKED	NC	NC	NC
523	3	N79	LOCKED	NC	LOCKED	NC	NC	NC
524	3	N316	LOCKED	NC	LOCKED	NC	NC	NC
525	3	N281	LOCKED	NC	LOCKED	NC	NC	NC
526	3	N529	LOCKED	NC	LOCKED	NC	NC	NC
527	3	N767	LOCKED	NC	LOCKED	NC	NC	NC
528	3	N1204	LOCKED	NC	LOCKED	NC	NC	NC
529	3	N1200	LOCKED	NC	LOCKED	NC	NC	NC
530	3	N853	LOCKED	NC	LOCKED	NC	NC	NC
531	3	N391	LOCKED	NC	LOCKED	NC	NC	NC
532	3	N403	LOCKED	NC	LOCKED	NC	NC	NC
533	3	N274	LOCKED	NC	LOCKED	NC	NC	NC
534	3	N259	LOCKED	NC	LOCKED	NC	NC	NC
535	3	N317	LOCKED	NC	LOCKED	NC	NC	NC
536	3	N311	LOCKED	NC	LOCKED	NC	NC	NC
537	3	N282	LOCKED	NC	LOCKED	NC	NC	NC
538	3	N292	LOCKED	NC	LOCKED	NC	NC	NC
539	3	N768	LOCKED	NC	LOCKED	NC	NC	NC
540	3	N762	LOCKED	NC	LOCKED	NC	NC	NC
541	3	N1201	LOCKED	NC	LOCKED	NC	NC	NC
542	3	N402	LOCKED	NC	LOCKED	NC	NC	NC
543	3	N57	LOCKED	NC	LOCKED	NC	NC	NC
544	3	N213	LOCKED	NC	LOCKED	NC	NC	NC
545	3	N53	LOCKED	NC	LOCKED	NC	NC	NC
546	3	N248	LOCKED	NC	LOCKED	NC	NC	NC
547	3	N664	LOCKED	NC	LOCKED	NC	NC	NC
548	3	N1135	LOCKED	NC	LOCKED	NC	NC	NC
549	3	N312	LOCKED	NC	LOCKED	NC	NC	NC
550	3	N293	LOCKED	NC	LOCKED	NC	NC	NC
551	3	N763	LOCKED	NC	LOCKED	NC	NC	NC
552	3	N1183	LOCKED	NC	LOCKED	NC	NC	NC
553	3	N214	LOCKED	NC	LOCKED	NC	NC	NC
554	3	N218	LOCKED	NC	LOCKED	NC	NC	NC
555	3	N249	LOCKED	NC	LOCKED	NC	NC	NC
556	3	N237	LOCKED	NC	LOCKED	NC	NC	NC
557	3	N665	LOCKED	NC	LOCKED	NC	NC	NC
558	3	N669	LOCKED	NC	LOCKED	NC	NC	NC
559	3	N1030	LOCKED	NC	LOCKED	NC	NC	NC
560	3	N1028	LOCKED	NC	LOCKED	NC	NC	NC
561	3	N1136	LOCKED	NC	LOCKED	NC	NC	NC
562	3	N1012	LOCKED	NC	LOCKED	NC	NC	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
563	3	N33	LOCKED	NC	LOCKED	NC	NC	NC
564	3	N733	LOCKED	NC	LOCKED	NC	NC	NC
565	3	N1190	LOCKED	NC	LOCKED	NC	NC	NC
566	3	N219	LOCKED	NC	LOCKED	NC	NC	NC
567	3	N238	LOCKED	NC	LOCKED	NC	NC	NC
568	3	N507	LOCKED	NC	LOCKED	NC	NC	NC
569	3	N503	LOCKED	NC	LOCKED	NC	NC	NC
570	3	N670	LOCKED	NC	LOCKED	NC	NC	NC
571	3	N1154	LOCKED	NC	LOCKED	NC	NC	NC
572	3	N1170	LOCKED	NC	LOCKED	NC	NC	NC
573	3	N206	LOCKED	NC	LOCKED	NC	NC	NC
574	3	N483	LOCKED	NC	LOCKED	NC	NC	NC
575	3	N744	LOCKED	NC	LOCKED	NC	NC	NC
576	3	N1041	LOCKED	NC	LOCKED	NC	NC	NC
577	3	N267	LOCKED	NC	LOCKED	NC	NC	NC
578	3	N700	LOCKED	NC	LOCKED	NC	NC	NC
579	3	N718	LOCKED	NC	LOCKED	NC	NC	NC
580	3	N1147	LOCKED	NC	LOCKED	NC	NC	NC
581	3	N205	LOCKED	NC	LOCKED	NC	NC	NC
582	3	N198	LOCKED	NC	LOCKED	NC	NC	NC
583	3	N657	LOCKED	NC	LOCKED	NC	NC	NC
584	3	N70	LOCKED	NC	LOCKED	NC	NC	NC
585	3	N520	LOCKED	NC	LOCKED	NC	NC	NC
586	3	N689	LOCKED	NC	LOCKED	NC	NC	NC
587	3	N1019	LOCKED	NC	LOCKED	NC	NC	NC
588	3	N197	LOCKED	NC	LOCKED	NC	NC	NC
589	3	N31	LOCKED	NC	LOCKED	NC	NC	NC
590	3	N641	LOCKED	NC	LOCKED	NC	NC	NC
591	3	N656	LOCKED	NC	LOCKED	NC	NC	NC
592	3	N649	LOCKED	NC	LOCKED	NC	NC	NC
593	3	N44	LOCKED	NC	LOCKED	NC	NC	NC
594	3	N494	LOCKED	NC	LOCKED	NC	NC	NC
595	3	N633	LOCKED	NC	LOCKED	NC	NC	NC
596	3	N190	LOCKED	NC	LOCKED	NC	NC	NC
597	3	N30	LOCKED	NC	LOCKED	NC	NC	NC
598	3	N640	LOCKED	NC	LOCKED	NC	NC	NC
599	3	N648	LOCKED	NC	LOCKED	NC	NC	NC
600	3	N481	LOCKED	NC	LOCKED	NC	NC	NC
601	3	N632	LOCKED	NC	LOCKED	NC	NC	NC
602	3	N625	LOCKED	NC	LOCKED	NC	NC	NC
603	3	N189	LOCKED	NC	LOCKED	NC	NC	NC
604	3	N182	LOCKED	NC	LOCKED	NC	NC	NC
605	3	N480	LOCKED	NC	LOCKED	NC	NC	NC
606	3	N624	LOCKED	NC	LOCKED	NC	NC	NC
607	3	N473	LOCKED	NC	LOCKED	NC	NC	NC
608	3	N181	LOCKED	NC	LOCKED	NC	NC	NC
609	3	N174	LOCKED	NC	LOCKED	NC	NC	NC
610	3	N617	LOCKED	NC	LOCKED	NC	NC	NC
611	3	N472	LOCKED	NC	LOCKED	NC	NC	NC
612	3	N173	LOCKED	NC	LOCKED	NC	NC	NC
613	3	N23	LOCKED	NC	LOCKED	NC	NC	NC
614	3	N616	LOCKED	NC	LOCKED	NC	NC	NC
615	3	N609	LOCKED	NC	LOCKED	NC	NC	NC

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
616	3	N166	LOCKED	NC	LOCKED	NC	NC	NC
617	3	N608	LOCKED	NC	LOCKED	NC	NC	NC
618	3	N165	LOCKED	NC	LOCKED	NC	NC	NC
619	3	N158	LOCKED	NC	LOCKED	NC	NC	NC
620	3	N157	LOCKED	NC	LOCKED	NC	NC	NC
621	3	N534	NC	NC	NC	NC	NC	LOCKED
622	3	N89	LOCKED	NC	LOCKED	NC	NC	NC
623	3	N536	NC	NC	NC	NC	NC	LOCKED
624	3	N93	NC	NC	NC	NC	NC	LOCKED
625	3	N101	NC	NC	NC	NC	NC	LOCKED
626	3	N539	LOCKED	NC	LOCKED	NC	NC	NC
627	3	N537	NC	NC	NC	NC	NC	LOCKED
628	3	N94	NC	NC	NC	NC	NC	LOCKED
629	3	N104	NC	NC	NC	NC	NC	LOCKED
630	3	N75	NC	NC	NC	NC	NC	LOCKED
631	3	N1043	NC	NC	NC	NC	NC	LOCKED
632	3	N524	NC	NC	NC	NC	NC	LOCKED
633	3	N1044	NC	NC	NC	NC	NC	LOCKED
634	3	N100	NC	NC	NC	NC	NC	LOCKED
635	3	N112	NC	NC	NC	NC	NC	LOCKED
636	3	N95	NC	NC	NC	NC	NC	LOCKED
637	3	N105	NC	NC	NC	NC	NC	LOCKED
638	3	N1057	NC	NC	NC	NC	NC	LOCKED
639	3	N96	NC	NC	NC	NC	NC	LOCKED
640	3	N106	NC	NC	NC	NC	NC	LOCKED
641	3	N531	NC	NC	NC	NC	NC	LOCKED
642	3	N97	NC	NC	NC	NC	NC	LOCKED
643	3	N107	NC	NC	NC	NC	NC	LOCKED
644	3	N515	NC	NC	NC	NC	NC	LOCKED
645	3	N530	NC	NC	NC	NC	NC	LOCKED
646	3	N111	NC	NC	NC	NC	NC	LOCKED
647	3	N509	NC	NC	NC	NC	NC	LOCKED
648	3	N505	NC	NC	NC	NC	NC	LOCKED
649	3	N1033	NC	NC	NC	NC	NC	LOCKED
650	3	N514	NC	NC	NC	NC	NC	LOCKED
651	3	N500	NC	NC	NC	NC	NC	LOCKED
652	3	N1034	NC	NC	NC	NC	NC	LOCKED
653	3	N508	NC	NC	NC	NC	NC	LOCKED
654	3	N504	NC	NC	NC	NC	NC	LOCKED
655	3	N499	NC	NC	NC	NC	NC	LOCKED
656	3	N108	NC	NC	NC	NC	NC	LOCKED
657	3	N1023	NC	NC	NC	NC	NC	LOCKED
658	3	N717	NC	NC	NC	NC	NC	LOCKED
659	3	N517	NC	NC	NC	NC	NC	LOCKED
660	3	N1022	NC	NC	NC	NC	NC	LOCKED
661	3	N491	NC	NC	NC	NC	NC	LOCKED
662	3	N502	NC	NC	NC	NC	NC	LOCKED
663	3	N490	NC	NC	NC	NC	NC	LOCKED
664	3	N479	NC	NC	NC	NC	NC	LOCKED
665	3	N1016	NC	NC	NC	NC	NC	LOCKED
666	3	N478	NC	NC	NC	NC	NC	LOCKED
667	3	N1015	NC	NC	NC	NC	NC	LOCKED
668	3	N477	NC	NC	NC	NC	NC	LOCKED

Joint Reactions (By Combination) (Continued)

	LC	Joint Label	X [k]	Y [k]	Z [k]	MX [k-ft]	MY [k-ft]	MZ [k-ft]
669	3	N21	NC	NC	NC	NC	NC	LOCKED
670	3	N1005	NC	NC	NC	NC	NC	LOCKED
671	3	N20	NC	NC	NC	NC	NC	LOCKED
672	3	N13	NC	NC	NC	NC	NC	LOCKED
673	3	N19	NC	NC	NC	NC	NC	LOCKED
674	3	N12	NC	NC	NC	NC	NC	LOCKED
675	3	N1004	NC	NC	NC	NC	NC	LOCKED
676	3	N18	NC	NC	NC	NC	NC	LOCKED
677	3	N11	NC	NC	NC	NC	NC	LOCKED
678	3	N17	NC	NC	NC	NC	NC	LOCKED
679	3	N10	NC	NC	NC	NC	NC	LOCKED
680	3	N9	NC	NC	NC	NC	NC	LOCKED
681	3	Totals:	0	0	26406.478			
682	3	COG (ft):	NC	NC	NC			

Member Section Forces

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1	3	M1	1	0	-18.36	0	0	0	0
2			2	0	-11.764	0	0	0	75.636
3			3	0	-.498	0	0	0	104.316
4			4	0	10.923	0	0	0	80.318
5			5	0	22.344	0	0	0	0
6	3	M2	1	0	-13.628	0	0	0	0
7			2	0	-7.81	0	0	0	53.859
8			3	0	-.125	0	0	0	72.209
9			4	0	7.561	0	0	0	55.048
10			5	0	15.247	0	0	0	0
11	3	M3	1	0	-12.258	0	0	0	0
12			2	0	-6.907	0	0	0	47.988
13			3	0	0	0	0	0	63.884
14			4	0	6.596	0	0	0	48.582
15			5	0	13.503	0	0	0	0
16	3	M4	1	0	-14.998	0	0	0	0
17			2	0	-8.713	0	0	0	59.731
18			3	0	-.249	0	0	0	80.533
19			4	0	8.526	0	0	0	61.514
20			5	0	16.99	0	0	0	0
21	3	M5	1	.003	-15.107	0	0	0	0
22			2	.003	-8.822	0	0	0	60.845
23			3	.003	-.047	0	0	0	81.276
24			4	.003	8.417	0	0	0	61.886
25			5	.003	17.192	0	0	0	0
26	3	M6	1	.054	-14.998	0	0	0	0
27			2	.054	-8.713	0	0	0	59.731
28			3	.054	-.249	0	0	0	80.533
29			4	.054	8.526	0	0	0	61.514
30			5	.054	16.99	0	0	0	0
31	3	M7	1	.004	-13.893	0	0	0	0
32			2	.004	-7.763	0	0	0	54.528
33			3	.004	-.078	0	0	0	72.654
34			4	.004	7.608	0	0	0	55.271

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-..	z-z Moment[k-...
35			5	.004	15.293	0	0	0	0
36	3	M8	1	-.002	-13.893	0	0	0	0
37			2	-.002	-7.763	0	0	0	54.528
38			3	-.002	-.078	0	0	0	72.654
39			4	-.002	7.608	0	0	0	55.271
40			5	-.002	15.293	0	0	0	0
41	3	M9	1	0	-15.107	0	0	0	0
42			2	0	-8.822	0	0	0	60.845
43			3	0	-.047	0	0	0	81.276
44			4	0	8.417	0	0	0	61.886
45			5	0	17.192	0	0	0	0
46	3	M10	1	0	-14.998	0	0	0	0
47			2	0	-8.713	0	0	0	59.731
48			3	0	-.249	0	0	0	80.533
49			4	0	8.526	0	0	0	61.514
50			5	0	16.99	0	0	0	0
51	3	M11	1	-.014	-14.873	0	0	0	0
52			2	-.014	-8.9	0	0	0	59.731
53			3	-.014	-.125	0	0	0	80.533
54			4	-.014	8.339	0	0	0	61.514
55			5	-.014	17.115	0	0	0	0
56	3	M12	1	-.012	-12.164	0	0	0	-1.463
57			2	-.012	-6.813	0	0	0	46.667
58			3	-.012	-.217	0	0	0	63.004
59			4	-.012	6.691	0	0	0	48.142
60			5	-.012	13.287	0	0	0	0
61	3	M13	1	-.083	-12.258	0	0	0	0
62			2	-.083	-6.907	0	0	0	47.988
63			3	-.083	0	0	0	0	63.884
64			4	-.083	6.596	0	0	0	48.582
65			5	-.083	13.503	0	0	0	0
66	3	M14	1	.184	-12.118	0	0	0	0
67			2	.184	-6.767	0	0	0	47.319
68			3	.184	-.171	0	0	0	63.438
69			4	.184	6.736	0	0	0	48.359
70			5	.184	13.332	0	0	0	0
71	3	M15	1	1.878	-13.893	0	0	0	0
72			2	1.878	-7.763	0	0	0	54.528
73			3	1.878	-.078	0	0	0	72.654
74			4	1.878	7.608	0	0	0	55.271
75			5	1.878	15.293	0	0	0	0
76	3	M16	1	.181	-12.258	0	0	0	0
77			2	.181	-6.907	0	0	0	47.988
78			3	.181	0	0	0	0	63.884
79			4	.181	6.596	0	0	0	48.582
80			5	.181	13.503	0	0	0	0
81	3	M17	1	-.081	-12.087	0	0	0	0
82			2	-.081	-6.736	0	0	0	47.765
83			3	-.081	-.14	0	0	0	63.736
84			4	-.081	6.767	0	0	0	48.508
85			5	-.081	13.363	0	0	0	0
86	3	M18	1	.085	-13.893	0	0	0	0
87			2	.085	-7.763	0	0	0	54.528

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
88			3	.085	-.078	0	0	0	72.654
89			4	.085	7.608	0	0	0	55.271
90			5	.085	15.293	0	0	0	0
91	3	M19	1	0	-15.661	0	0	.013	-38.827
92			2	0	-9.843	0	0	.01	24.739
93			3	0	-2.157	0	0	.007	52.795
94			4	0	5.528	0	0	.003	45.341
95			5	0	13.214	0	0	0	0
96	3	M20	1	-.055	-50.828	0	0	0	0
97			2	-.055	-40.341	0	0	0	226.287
98			3	-.055	-12.732	0	0	0	355.822
99			4	-.055	32.932	0	0	0	318.298
100			5	-.055	101.943	0	0	0	0
101	3	M21	1	0	-13.172	0	0	0	0
102			2	0	-7.823	0	0	0	52.25
103			3	0	-.607	0	0	0	70.402
104			4	0	7.543	0	0	0	52.691
105			5	0	14.76	0	0	0	0
106	3	M22	1	0	-13.172	0	0	0	0
107			2	0	-7.823	0	0	0	52.25
108			3	0	-.607	0	0	0	70.402
109			4	0	7.543	0	0	0	52.691
110			5	0	14.76	0	0	0	0
111	3	M23	1	0	-14.962	0	0	0	0
112			2	0	-9.146	0	0	0	59.457
113			3	0	-.841	0	0	0	81.139
114			4	0	8.711	0	0	0	60.928
115			5	0	17.017	0	0	0	0
116	3	M24	1	0	-13.172	0	0	0	0
117			2	0	-7.823	0	0	0	52.25
118			3	0	-.607	0	0	0	70.402
119			4	0	7.543	0	0	0	52.691
120			5	0	14.76	0	0	0	0
121	3	M25	1	0	-13.172	0	0	0	0
122			2	0	-7.823	0	0	0	52.25
123			3	0	-.607	0	0	0	70.402
124			4	0	7.543	0	0	0	52.691
125			5	0	14.76	0	0	0	0
126	3	M26	1	-.004	-15.102	0	0	0	0
127			2	-.004	-9.131	0	0	0	60.634
128			3	-.004	-.669	0	0	0	81.58
129			4	-.004	8.726	0	0	0	61.075
130			5	-.004	17.188	0	0	0	0
131	3	M27	1	-.06	-11.242	0	0	0	0
132			2	-.06	-6.516	0	0	0	43.866
133			3	-.06	-.545	0	0	0	59.223
134			4	-.06	6.36	0	0	0	44.307
135			5	-.06	12.332	0	0	0	0
136	3	M28	1	-.07	-14.838	0	0	0	0
137			2	-.07	-9.178	0	0	0	59.972
138			3	-.07	-.716	0	0	0	81.139
139			4	-.07	8.68	0	0	0	60.854
140			5	-.07	17.141	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
141	3	M29	1	.189	-14.962	0	0	0	0
142			2	.189	-9.146	0	0	0	59.457
143			3	.189	-.841	0	0	0	81.139
144			4	.189	8.711	0	0	0	60.928
145			5	.189	17.017	0	0	0	0
146	3	M30	1	.823	-13.172	0	0	0	0
147			2	.823	-7.823	0	0	0	52.25
148			3	.823	-.607	0	0	0	70.402
149			4	.823	7.543	0	0	0	52.691
150			5	.823	14.76	0	0	0	0
151	3	M31	1	1.211	-13.172	0	0	0	0
152			2	1.211	-7.823	0	0	0	52.25
153			3	1.211	-.607	0	0	0	70.402
154			4	1.211	7.543	0	0	0	52.691
155			5	1.211	14.76	0	0	0	0
156	3	M32	1	1.34	-13.172	0	0	0	0
157			2	1.34	-7.823	0	0	0	52.25
158			3	1.34	-.607	0	0	0	70.402
159			4	1.34	7.543	0	0	0	52.691
160			5	1.34	14.76	0	0	0	0
161	3	M33	1	1.129	-15.102	0	0	0	0
162			2	1.129	-9.131	0	0	0	60.634
163			3	1.129	-.669	0	0	0	81.58
164			4	1.129	8.726	0	0	0	61.075
165			5	1.129	17.188	0	0	0	0
166	3	M34	1	.74	-13.468	0	0	0	0
167			2	.74	-7.808	0	0	0	52.47
168			3	.74	-.591	0	0	0	70.549
169			4	.74	7.559	0	0	0	52.764
170			5	.74	14.775	0	0	0	0
171	3	M35	1	.11	-13.172	0	0	0	0
172			2	.11	-7.823	0	0	0	52.25
173			3	.11	-.607	0	0	0	70.402
174			4	.11	7.543	0	0	0	52.691
175			5	.11	14.76	0	0	0	0
176	3	M36	1	-.072	-11.242	0	0	0	0
177			2	-.072	-6.516	0	0	0	43.866
178			3	-.072	-.545	0	0	0	59.223
179			4	-.072	6.36	0	0	0	44.307
180			5	-.072	12.332	0	0	0	0
181	3	M37	1	.078	-13.172	0	0	0	0
182			2	.078	-7.823	0	0	0	52.25
183			3	.078	-.607	0	0	0	70.402
184			4	.078	7.543	0	0	0	52.691
185			5	.078	14.76	0	0	0	0
186	3	M38	1	.574	-13.172	0	0	0	0
187			2	.574	-7.823	0	0	0	52.25
188			3	.574	-.607	0	0	0	70.402
189			4	.574	7.543	0	0	0	52.691
190			5	.574	14.76	0	0	0	0
191	3	M39	1	.969	-13.172	0	0	0	0
192			2	.969	-7.823	0	0	0	52.25
193			3	.969	-.607	0	0	0	70.402

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
194			4	.969	7.543	0	0	0	52.691
195			5	.969	14.76	0	0	0	0
196	3	M40	1	1.229	-13.468	0	0	0	0
197			2	1.229	-7.808	0	0	0	52.47
198			3	1.229	-.591	0	0	0	70.549
199			4	1.229	7.559	0	0	0	52.764
200			5	1.229	14.775	0	0	0	0
201	3	M41	1	1.215	-13.172	0	0	0	0
202			2	1.215	-7.823	0	0	0	52.25
203			3	1.215	-.607	0	0	0	70.402
204			4	1.215	7.543	0	0	0	52.691
205			5	1.215	14.76	0	0	0	0
206	3	M42	1	.981	-15.133	0	0	0	0
207			2	.981	-9.162	0	0	0	60.192
208			3	.981	-.7	0	0	0	81.286
209			4	.981	8.695	0	0	0	60.928
210			5	.981	17.157	0	0	0	0
211	3	M43	1	.201	-13.203	0	0	0	0
212			2	.201	-7.855	0	0	0	51.808
213			3	.201	-.638	0	0	0	70.107
214			4	.201	7.512	0	0	0	52.544
215			5	.201	14.729	0	0	0	0
216	3	M44	1	-.026	-11.242	0	0	0	0
217			2	-.026	-6.516	0	0	0	43.866
218			3	-.026	-.545	0	0	0	59.223
219			4	-.026	6.36	0	0	0	44.307
220			5	-.026	12.332	0	0	0	0
221	3	M45	1	-.041	-15.102	0	0	0	0
222			2	-.041	-9.131	0	0	0	60.634
223			3	-.041	-.669	0	0	0	81.58
224			4	-.041	8.726	0	0	0	61.075
225			5	-.041	17.188	0	0	0	0
226	3	M46	1	.077	-15.227	0	0	0	0
227			2	.077	-9.1	0	0	0	60.119
228			3	.077	-.794	0	0	0	81.58
229			4	.077	8.757	0	0	0	61.148
230			5	.077	17.063	0	0	0	0
231	3	M47	1	.012	-13.172	0	0	0	0
232			2	.012	-7.823	0	0	0	52.25
233			3	.012	-.607	0	0	0	70.402
234			4	.012	7.543	0	0	0	52.691
235			5	.012	14.76	0	0	0	0
236	3	M48	1	-.004	-15.102	0	0	0	0
237			2	-.004	-9.131	0	0	0	60.634
238			3	-.004	-.669	0	0	0	81.58
239			4	-.004	8.726	0	0	0	61.075
240			5	-.004	17.188	0	0	0	0
241	3	M49	1	-.001	-15.227	0	0	0	0
242			2	-.001	-9.1	0	0	0	60.119
243			3	-.001	-.794	0	0	0	81.58
244			4	-.001	8.757	0	0	0	61.148
245			5	-.001	17.063	0	0	0	0
246	3	M50	1	.002	-13.172	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
247			2	.002	-7.823	0	0	0	52.25
248			3	.002	-.607	0	0	0	70.402
249			4	.002	7.543	0	0	0	52.691
250			5	.002	14.76	0	0	0	0
251	3	M51	1	0	-9.219	0	0	0	0
252			2	0	-5.271	0	0	0	35.555
253			3	0	-.389	0	0	0	47.75
254			4	0	5.115	0	0	0	35.702
255			5	0	9.997	0	0	0	0
256	3	M52	1	0	-13.468	0	0	0	0
257			2	0	-7.808	0	0	0	52.47
258			3	0	-.591	0	0	0	70.549
259			4	0	7.559	0	0	0	52.764
260			5	0	14.775	0	0	0	0
261	3	M53	1	0	-7.227	0	0	0	0
262			2	0	-4.61	0	0	0	17.862
263			3	0	.187	0	0	0	24.109
264			4	0	4.516	0	0	0	16.939
265			5	0	6.978	0	0	0	0
266	3	M54	1	0	-6.9	0	0	0	0
267			2	0	-4.594	0	0	0	17.642
268			3	0	.202	0	0	0	23.846
269			4	0	4.532	0	0	0	16.631
270			5	0	6.993	0	0	0	0
271	3	M55	1	0	-6.9	0	0	0	0
272			2	0	-4.594	0	0	0	17.642
273			3	0	.202	0	0	0	23.846
274			4	0	4.532	0	0	0	16.631
275			5	0	6.993	0	0	0	0
276	3	M56	1	0	-8.161	0	-.001	0	0
277			2	0	-5.388	0	-.001	0	20.456
278			3	0	.187	0	-.001	0	27.803
279			4	0	5.294	0	-.001	0	19.533
280			5	0	7.912	0	-.001	0	0
281	3	M57	1	0	-7.491	0	-.003	0	0
282			2	0	-4.563	0	-.003	0	18.258
283			3	0	.233	0	-.003	0	24.373
284			4	0	4.563	0	-.003	0	17.071
285			5	0	7.025	0	-.003	0	0
286	3	M58	1	0	-7.227	0	-.004	0	0
287			2	0	-4.61	0	-.004	0	17.51
288			3	0	.187	0	-.004	0	23.758
289			4	0	4.516	0	-.004	0	16.587
290			5	0	6.978	0	-.004	0	0
291	3	M59	1	-.003	-7.756	0	0	0	0
292			2	-.003	-5.294	0	0	0	20.017
293			3	-.003	.28	0	0	0	27.099
294			4	-.003	5.232	0	0	0	18.61
295			5	-.003	7.694	0	0	0	0
296	3	M60	1	-.054	-5.779	0	0	0	0
297			2	-.054	-3.94	0	0	0	14.872
298			3	-.054	.078	0	0	0	20.328
299			4	-.054	3.785	0	0	0	14.52

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
300			5	-.054	6.246	0	0	0	0
301	3	M61	1	-.071	-8.083	0	0	0	0
302			2	-.071	-5.31	0	0	0	19.885
303			3	-.071	.265	0	0	0	27.011
304			4	-.071	5.217	0	0	0	18.566
305			5	-.071	7.678	0	0	0	0
306	3	M62	1	.17	-8.161	0	-.002	0	0
307			2	.17	-5.388	0	-.002	0	20.456
308			3	.17	.187	0	-.002	0	27.803
309			4	.17	5.294	0	-.002	0	19.533
310			5	.17	7.912	0	-.002	0	0
311	3	M63	1	.828	-7.227	0	0	0	0
312			2	.828	-4.61	0	0	0	17.862
313			3	.828	.187	0	0	0	24.109
314			4	.828	4.516	0	0	0	16.939
315			5	.828	6.978	0	0	0	0
316	3	M64	1	1.216	-7.227	0	.002	0	0
317			2	1.216	-4.61	0	.002	0	17.51
318			3	1.216	.187	0	.002	0	23.758
319			4	1.216	4.516	0	.002	0	16.587
320			5	1.216	6.978	0	.002	0	0
321	3	M65	1	1.351	-6.635	0	0	0	0
322			2	1.351	-4.641	0	0	0	17.247
323			3	1.351	.156	0	0	0	23.582
324			4	1.351	4.485	0	0	0	16.499
325			5	1.351	6.947	0	0	0	0
326	3	M66	1	1.127	-7.756	0	0	0	0
327			2	1.127	-5.294	0	0	0	20.017
328			3	1.127	.28	0	0	0	27.099
329			4	1.127	5.232	0	0	0	18.61
330			5	1.127	7.694	0	0	0	0
331	3	M67	1	.758	-7.227	0	0	0	0
332			2	.758	-4.61	0	0	0	17.862
333			3	.758	.187	0	0	0	24.109
334			4	.758	4.516	0	0	0	16.939
335			5	.758	6.978	0	0	0	0
336	3	M68	1	.074	-6.9	0	.004	0	0
337			2	.074	-4.594	0	.004	0	17.642
338			3	.074	.202	0	.004	0	23.846
339			4	.074	4.532	0	.004	0	16.631
340			5	.074	6.993	0	.004	0	0
341	3	M69	1	-.053	-6.044	0	0	0	0
342			2	-.053	-3.894	0	0	0	14.916
343			3	-.053	.125	0	0	0	20.24
344			4	-.053	3.831	0	0	0	14.301
345			5	-.053	6.293	0	0	0	0
346	3	M70	1	.053	-7.227	0	-.004	0	0
347			2	.053	-4.61	0	-.004	0	17.51
348			3	.053	.187	0	-.004	0	23.758
349			4	.053	4.516	0	-.004	0	16.587
350			5	.053	6.978	0	-.004	0	0
351	3	M71	1	.587	-7.227	0	0	0	0
352			2	.587	-4.61	0	0	0	17.862

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
353			3	.587	.187	0	0	0	24.109
354			4	.587	4.516	0	0	0	16.939
355			5	.587	6.978	0	0	0	0
356	3	M72	1	.966	-7.227	0	0	0	0
357			2	.966	-4.61	0	0	0	17.862
358			3	.966	.187	0	0	0	24.109
359			4	.966	4.516	0	0	0	16.939
360			5	.966	6.978	0	0	0	0
361	3	M73	1	1.239	-7.227	0	0	0	0
362			2	1.239	-4.61	0	0	0	17.862
363			3	1.239	.187	0	0	0	24.109
364			4	1.239	4.516	0	0	0	16.939
365			5	1.239	6.978	0	0	0	0
366	3	M74	1	1.221	-7.227	0	-.001	0	0
367			2	1.221	-4.61	0	-.001	0	17.862
368			3	1.221	.187	0	-.001	0	24.109
369			4	1.221	4.516	0	-.001	0	16.939
370			5	1.221	6.978	0	-.001	0	0
371	3	M75	1	.983	-8.083	0	0	0	0
372			2	.983	-5.31	0	0	0	20.237
373			3	.983	.265	0	0	0	27.363
374			4	.983	5.217	0	0	0	18.917
375			5	.983	7.678	0	0	0	0
376	3	M76	1	.185	-7.491	0	.005	0	0
377			2	.185	-4.563	0	.005	0	18.258
378			3	.185	.233	0	.005	0	24.373
379			4	.185	4.563	0	.005	0	17.071
380			5	.185	7.025	0	.005	0	0
381	3	M77	1	-.028	-6.044	0	.004	0	0
382			2	-.028	-3.894	0	.004	0	14.916
383			3	-.028	.125	0	.004	0	20.24
384			4	-.028	3.831	0	.004	0	14.301
385			5	-.028	6.293	0	.004	0	0
386	3	M78	1	-.038	-7.756	0	.003	0	0
387			2	-.038	-5.294	0	.003	0	20.017
388			3	-.038	.28	0	.003	0	27.099
389			4	-.038	5.232	0	.003	0	18.61
390			5	-.038	7.694	0	.003	0	0
391	3	M79	1	.083	-8.161	0	0	0	0
392			2	.083	-5.388	0	0	0	20.456
393			3	.083	.187	0	0	0	27.803
394			4	.083	5.294	0	0	0	19.533
395			5	.083	7.912	0	0	0	0
396	3	M80	1	.008	-7.491	0	0	0	0
397			2	.008	-4.563	0	0	0	18.258
398			3	.008	.233	0	0	0	24.373
399			4	.008	4.563	0	0	0	17.071
400			5	.008	7.025	0	0	0	0
401	3	M81	1	-.002	-7.756	0	-.002	0	0
402			2	-.002	-5.294	0	-.002	0	19.665
403			3	-.002	.28	0	-.002	0	26.748
404			4	-.002	5.232	0	-.002	0	18.258
405			5	-.002	7.694	0	-.002	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
406	3	M82	1	0	-8.161	0	-.003	0	0
407			2	0	-5.388	0	-.003	0	20.456
408			3	0	.187	0	-.003	0	27.803
409			4	0	5.294	0	-.003	0	19.533
410			5	0	7.912	0	-.003	0	0
411	3	M83	1	.002	-7.491	0	0	0	0
412			2	.002	-4.563	0	0	0	18.258
413			3	.002	.233	0	0	0	24.373
414			4	.002	4.563	0	0	0	17.071
415			5	.002	7.025	0	0	0	0
416	3	M84	1	0	-5.11	0	0	0	0
417			2	0	-3.115	0	0	0	12.674
418			3	0	.125	0	0	0	16.898
419			4	0	3.053	0	0	0	12.058
420			5	0	5.359	0	0	0	0
421	3	M85	1	0	-7.491	0	0	0	0
422			2	0	-4.563	0	0	0	18.258
423			3	0	.233	0	0	0	24.373
424			4	0	4.563	0	0	0	17.071
425			5	0	7.025	0	0	0	0
426	3	M86	1	0	-10.287	0	0	0	0
427			2	0	-6.225	0	0	0	33.03
428			3	0	.016	0	0	0	43.764
429			4	0	6.257	0	0	0	32.912
430			5	0	10.007	0	0	0	0
431	3	M87	1	0	-10.536	0	0	0	0
432			2	0	-6.163	0	0	0	33.503
433			3	0	.078	0	0	0	44.001
434			4	0	6.319	0	0	0	32.912
435			5	0	9.758	0	0	0	0
436	3	M88	1	0	-10.536	0	0	0	0
437			2	0	-6.163	0	0	0	33.503
438			3	0	.078	0	0	0	44.001
439			4	0	6.319	0	0	0	32.912
440			5	0	9.758	0	0	0	0
441	3	M89	1	0	-11.237	0	.003	0	0
442			2	0	-7.175	0	.003	0	37.466
443			3	0	0	0	.003	0	49.797
444			4	0	7.331	0	.003	0	37.052
445			5	0	11.237	0	.003	0	0
446	3	M90	1	0	-10.046	0	.003	0	-.66
447			2	0	-6.296	0	.003	0	32.4
448			3	0	-.055	0	.003	0	43.4
449			4	0	6.186	0	.003	0	32.814
450			5	0	10.248	0	.003	0	-.541
451	3	M91	1	0	-10.552	0	.003	0	0
452			2	0	-6.179	0	.003	0	33.563
453			3	0	.062	0	.003	0	44.119
454			4	0	6.303	0	.003	0	33.089
455			5	0	10.054	0	.003	0	0
456	3	M92	1	-.005	-11.75	0	0	0	0
457			2	-.005	-7.222	0	0	0	38.058
458			3	-.005	.109	0	0	0	50.389

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
459			4	-.005	7.284	0	0	0	37.644
460			5	-.005	11.034	0	0	0	0
461	3	M93	1	-.045	-9.058	0	-.001	0	0
462			2	-.045	-5.151	0	-.001	0	28.417
463			3	-.045	0	0	-.001	0	37.258
464			4	-.045	5.307	0	-.001	0	28.003
465			5	-.045	8.435	0	-.001	0	0
466	3	M94	1	-.071	-11.766	0	-.001	0	0
467			2	-.071	-7.237	0	-.001	0	38.117
468			3	-.071	.093	0	-.001	0	50.507
469			4	-.071	7.268	0	-.001	0	37.821
470			5	-.071	11.33	0	-.001	0	0
471	3	M95	1	.138	-10.941	0	-.001	0	0
472			2	.138	-7.19	0	-.001	0	37.289
473			3	.138	-.016	0	-.001	0	49.679
474			4	.138	7.315	0	-.001	0	36.993
475			5	.138	11.221	0	-.001	0	0
476	3	M96	1	.836	-10.303	0	0	0	0
477			2	.836	-6.241	0	0	0	33.563
478			3	.836	0	0	0	0	44.356
479			4	.836	6.241	0	0	0	33.563
480			5	.836	10.303	0	0	0	0
481	3	M97	1	1.223	-10.552	0	-.002	0	0
482			2	1.223	-6.179	0	-.002	0	33.563
483			3	1.223	.062	0	-.002	0	44.119
484			4	1.223	6.303	0	-.002	0	33.089
485			5	1.223	10.054	0	-.002	0	0
486	3	M98	1	1.372	-10.536	0	-.002	0	0
487			2	1.372	-6.163	0	-.002	0	33.503
488			3	1.372	.078	0	-.002	0	44.001
489			4	1.372	6.319	0	-.002	0	32.912
490			5	1.372	9.758	0	-.002	0	0
491	3	M99	1	1.12	-11.75	0	-.002	0	0
492			2	1.12	-7.222	0	-.002	0	38.058
493			3	1.12	.109	0	-.002	0	50.389
494			4	1.12	7.284	0	-.002	0	37.644
495			5	1.12	11.034	0	-.002	0	0
496	3	M100	1	.957	-10.303	0	.001	0	0
497			2	.957	-6.241	0	.001	0	33.563
498			3	.957	0	0	.001	0	44.356
499			4	.957	6.241	0	.001	0	33.563
500			5	.957	10.303	0	.001	0	0
501	3	M101	1	1.258	-10.303	0	.001	0	0
502			2	1.258	-6.241	0	.001	0	33.563
503			3	1.258	0	0	.001	0	44.356
504			4	1.258	6.241	0	.001	0	33.563
505			5	1.258	10.303	0	.001	0	0
506	3	M102	1	1.231	-10.303	0	.001	0	0
507			2	1.231	-6.241	0	.001	0	33.563
508			3	1.231	0	0	.001	0	44.356
509			4	1.231	6.241	0	.001	0	33.563
510			5	1.231	10.303	0	.001	0	0
511	3	M103	1	.982	-11.517	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
512			2	.982	-7.299	0	0	0	38.117
513			3	.982	.031	0	0	0	50.744
514			4	.982	7.206	0	0	0	38.294
515			5	.982	11.579	0	0	0	0
516	3	M104	1	.157	-10.007	0	-.004	0	0
517			2	.157	-6.257	0	-.004	0	32.912
518			3	.157	-.016	0	-.004	0	43.764
519			4	.157	6.225	0	-.004	0	33.03
520			5	.157	10.287	0	-.004	0	0
521	3	M105	1	-.029	-9.058	0	-.003	0	0
522			2	-.029	-5.151	0	-.003	0	28.417
523			3	-.029	0	0	-.003	0	37.258
524			4	-.029	5.307	0	-.003	0	28.003
525			5	-.029	8.435	0	-.003	0	0
526	3	M106	1	-.034	-11.486	0	-.003	0	0
527			2	-.034	-7.268	0	-.003	0	37.525
528			3	-.034	.062	0	-.003	0	50.034
529			4	-.034	7.237	0	-.003	0	37.466
530			5	-.034	10.988	0	-.003	0	0
531	3	M107	1	-.043	-11.579	0	0	0	0
532			2	-.043	-7.206	0	0	0	37.821
533			3	-.043	-.031	0	0	0	50.271
534			4	-.043	7.299	0	0	0	37.644
535			5	-.043	11.517	0	0	0	0
536	3	M108	1	.002	-10.038	0	.002	0	0
537			2	.002	-6.288	0	.002	0	33.03
538			3	.002	-.047	0	.002	0	44.001
539			4	.002	6.194	0	.002	0	33.385
540			5	.002	10.256	0	.002	0	0
541	3	M109	1	0	-11.766	0	.002	0	0
542			2	0	-7.237	0	.002	0	38.117
543			3	0	.093	0	.002	0	50.507
544			4	0	7.268	0	.002	0	37.821
545			5	0	11.33	0	.002	0	0
546	3	M110	1	0	-11.283	0	.002	0	0
547			2	0	-7.222	0	.002	0	37.644
548			3	0	-.047	0	.002	0	50.152
549			4	0	7.284	0	.002	0	37.585
550			5	0	11.501	0	.002	0	0
551	3	M111	1	0	-10.038	0	0	0	0
552			2	0	-6.288	0	0	0	33.03
553			3	0	-.047	0	0	0	44.001
554			4	0	6.194	0	0	0	33.385
555			5	0	10.256	0	0	0	0
556	3	M112	1	0	-7.486	0	0	0	0
557			2	0	-4.202	0	0	0	23.035
558			3	0	.016	0	0	0	30.279
559			4	0	4.233	0	0	0	22.916
560			5	0	7.205	0	0	0	0
561	3	M113	1	0	-10.303	0	0	0	0
562			2	0	-6.241	0	0	0	33.563
563			3	0	0	0	0	0	44.356
564			4	0	6.241	0	0	0	33.563

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
565			5	0	10.303	0	0	0	0
566	3	M114	1	0	-7.165	0	0	0	0
567			2	0	-4.859	0	0	0	17.686
568			3	0	-.062	0	0	0	24.637
569			4	0	4.734	0	0	0	18.038
570			5	0	7.04	0	0	0	0
571	3	M115	1	0	-6.884	0	0	0	0
572			2	0	-4.89	0	0	0	17.598
573			3	0	-.093	0	0	0	24.637
574			4	0	4.703	0	0	0	18.126
575			5	0	7.32	0	0	0	0
576	3	M116	1	0	-6.884	0	0	0	0
577			2	0	-4.89	0	0	0	17.598
578			3	0	-.093	0	0	0	24.637
579			4	0	4.703	0	0	0	18.126
580			5	0	7.32	0	0	0	0
581	3	M117	1	0	-7.632	0	0	0	0
582			2	0	-5.481	0	0	0	19.049
583			3	0	-.218	0	0	0	27.451
584			4	0	5.357	0	0	0	20.193
585			5	0	7.818	0	0	0	0
586	3	M118	1	0	-7.133	0	0	0	0
587			2	0	-4.827	0	0	0	17.598
588			3	0	-.031	0	0	0	24.461
589			4	0	4.765	0	0	0	17.774
590			5	0	7.071	0	0	0	0
591	3	M119	1	0	-6.931	0	.001	0	0
592			2	0	-4.936	0	.001	0	17.73
593			3	0	-.14	0	.001	0	24.901
594			4	0	4.656	0	.001	0	18.522
595			5	0	7.585	0	.001	0	0
596	3	M120	1	0	-7.818	0	0	0	0
597			2	0	-5.668	0	0	0	20.193
598			3	0	-.093	0	0	0	28.331
599			4	0	5.481	0	0	0	20.72
600			5	0	8.254	0	0	0	0
601	3	M121	1	-.03	-5.951	0	.002	0	0
602			2	-.03	-4.111	0	.002	0	15.004
603			3	-.03	-.093	0	.002	0	20.943
604			4	-.03	3.925	0	.002	0	15.532
605			5	-.03	6.386	0	.002	0	0
606	3	M122	1	-.066	-7.554	0	.003	0	0
607			2	-.066	-5.559	0	.003	0	19.489
608			3	-.066	-.14	0	.003	0	27.715
609			4	-.066	5.279	0	.003	0	20.281
610			5	-.066	8.207	0	.003	0	0
611	3	M123	1	.082	-7.585	0	.004	0	0
612			2	.082	-5.435	0	.004	0	18.917
613			3	.082	-.171	0	.004	0	27.187
614			4	.082	5.403	0	.004	0	19.797
615			5	.082	7.554	0	.004	0	0
616	3	M124	1	.852	-7.133	0	0	0	0
617			2	.852	-4.827	0	0	0	17.598

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
618			3	.852	-.031	0	0	0	24.461
619			4	.852	4.765	0	0	0	17.774
620			5	.852	7.071	0	0	0	0
621	3	M125	1	1.234	-6.931	0	.004	0	0
622			2	1.234	-4.936	0	.004	0	17.73
623			3	1.234	-.14	0	.004	0	24.901
624			4	1.234	4.656	0	.004	0	18.522
625			5	1.234	7.585	0	.004	0	0
626	3	M126	1	1.383	-6.884	0	.003	0	0
627			2	1.383	-4.89	0	.003	0	17.598
628			3	1.383	-.093	0	.003	0	24.637
629			4	1.383	4.703	0	.003	0	18.126
630			5	1.383	7.32	0	.003	0	0
631	3	M127	1	1.146	-7.818	0	.002	0	0
632			2	1.146	-5.668	0	.002	0	20.193
633			3	1.146	-.093	0	.002	0	28.331
634			4	1.146	5.481	0	.002	0	20.72
635			5	1.146	8.254	0	.002	0	0
636	3	M128	1	.975	-6.838	0	-.003	0	0
637			2	.975	-4.843	0	-.003	0	17.466
638			3	.975	-.047	0	-.003	0	24.373
639			4	.975	4.75	0	-.003	0	17.73
640			5	.975	7.056	0	-.003	0	0
641	3	M129	1	1.268	-7.133	0	-.004	0	0
642			2	1.268	-4.827	0	-.004	0	17.598
643			3	1.268	-.031	0	-.004	0	24.461
644			4	1.268	4.765	0	-.004	0	17.774
645			5	1.268	7.071	0	-.004	0	0
646	3	M130	1	1.247	-7.133	0	-.004	0	0
647			2	1.247	-4.827	0	-.004	0	17.598
648			3	1.247	-.031	0	-.004	0	24.461
649			4	1.247	4.765	0	-.004	0	17.774
650			5	1.247	7.071	0	-.004	0	0
651	3	M131	1	.992	-7.756	0	0	0	0
652			2	.992	-5.45	0	0	0	19.357
653			3	.992	-.031	0	0	0	27.275
654			4	.992	5.388	0	0	0	19.533
655			5	.992	7.694	0	0	0	0
656	3	M132	1	.106	-6.931	0	-.002	0	0
657			2	.106	-4.781	0	-.002	0	16.719
658			3	.106	-.14	0	-.002	0	23.846
659			4	.106	4.656	0	-.002	0	17.466
660			5	.106	6.962	0	-.002	0	0
661	3	M133	1	-.028	-5.951	0	0	0	0
662			2	-.028	-4.111	0	0	0	15.004
663			3	-.028	-.093	0	0	0	20.943
664			4	-.028	3.925	0	0	0	15.532
665			5	-.028	6.386	0	0	0	0
666	3	M134	1	-.02	-7.818	0	0	0	0
667			2	-.02	-5.668	0	0	0	20.193
668			3	-.02	-.093	0	0	0	28.331
669			4	-.02	5.481	0	0	0	20.72
670			5	-.02	8.254	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
671	3	M135	1	-.034	-7.865	0	0	0	0
672			2	-.034	-5.559	0	0	0	19.665
673			3	-.034	-.14	0	0	0	27.891
674			4	-.034	5.435	0	0	0	20.412
675			5	-.034	7.896	0	0	0	0
676	3	M136	1	-.001	-6.869	0	-.003	0	0
677			2	-.001	-4.874	0	-.003	0	17.203
678			3	-.001	-.078	0	-.003	0	24.197
679			4	-.001	4.719	0	-.003	0	17.642
680			5	-.001	7.025	0	-.003	0	0
681	3	M137	1	.002	-7.787	0	-.002	0	0
682			2	.002	-5.637	0	-.002	0	20.105
683			3	.002	-.062	0	-.002	0	28.155
684			4	.002	5.357	0	-.002	0	20.5
685			5	.002	8.285	0	-.002	0	0
686	3	M138	1	0	-7.865	0	0	0	0
687			2	0	-5.559	0	0	0	19.665
688			3	0	-.14	0	0	0	27.891
689			4	0	5.435	0	0	0	20.412
690			5	0	7.896	0	0	0	0
691	3	M139	1	0	-7.133	0	0	0	0
692			2	0	-4.827	0	0	0	17.598
693			3	0	-.031	0	0	0	24.461
694			4	0	4.765	0	0	0	17.774
695			5	0	7.071	0	0	0	0
696	3	M140	1	0	-5.017	0	0	0	0
697			2	0	-3.333	0	0	0	12.41
698			3	0	-.093	0	0	0	17.25
699			4	0	3.146	0	0	0	12.937
700			5	0	5.452	0	0	0	0
701	3	M141	1	0	-7.133	0	0	0	0
702			2	0	-4.827	0	0	0	17.598
703			3	0	-.031	0	0	0	24.461
704			4	0	4.765	0	0	0	17.774
705			5	0	7.071	0	0	0	0
706	3	M142	1	0	-11.931	0	-.001	0	0
707			2	0	-7.063	0	-.001	0	43.677
708			3	0	-.327	0	-.001	0	59.2
709			4	0	6.876	0	-.001	0	44.71
710			5	0	12.211	0	-.001	0	0
711	3	M143	1	0	-12.227	0	0	0	0
712			2	0	-7.047	0	0	0	43.333
713			3	0	-.311	0	0	0	58.787
714			4	0	6.892	0	0	0	44.228
715			5	0	12.227	0	0	0	0
716	3	M144	1	0	-12.227	0	0	0	0
717			2	0	-7.047	0	0	0	43.333
718			3	0	-.311	0	0	0	58.787
719			4	0	6.892	0	0	0	44.228
720			5	0	12.227	0	0	0	0
721	3	M145	1	0	-13.597	0	-.002	0	0
722			2	0	-8.261	0	-.002	0	50.427
723			3	0	-.436	0	-.002	0	68.705

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
724			4	0	8.012	0	-.002	0	51.804
725			5	0	13.97	0	-.002	0	0
726	3	M146	1	0	-12.227	0	0	0	0
727			2	0	-7.047	0	0	0	43.884
728			3	0	-.311	0	0	0	59.338
729			4	0	6.892	0	0	0	44.779
730			5	0	12.227	0	0	0	0
731	3	M147	1	0	-12.523	0	0	0	0
732			2	0	-7.032	0	0	0	44.09
733			3	0	-.296	0	0	0	59.476
734			4	0	6.907	0	0	0	44.848
735			5	0	12.242	0	0	0	0
736	3	M148	1	0	-13.783	0	0	0	0
737			2	0	-8.137	0	0	0	49.6
738			3	0	-.311	0	0	0	67.328
739			4	0	7.981	0	0	0	50.496
740			5	0	13.783	0	0	0	0
741	3	M149	1	-.013	-10.655	0	.001	0	0
742			2	-.013	-5.942	0	.001	0	36.996
743			3	-.013	-.296	0	.001	0	50.109
744			4	-.013	5.818	0	.001	0	37.754
745			5	-.013	10.375	0	.001	0	0
746	3	M150	1	-.051	-14.079	0	.003	0	0
747			2	-.051	-8.121	0	.003	0	50.358
748			3	-.051	-.296	0	.003	0	68.016
749			4	-.051	7.997	0	.003	0	51.116
750			5	-.051	13.799	0	.003	0	0
751	3	M151	1	0	-13.597	0	.005	0	0
752			2	0	-8.261	0	.005	0	50.427
753			3	0	-.436	0	.005	0	68.705
754			4	0	8.012	0	.005	0	51.804
755			5	0	13.97	0	.005	0	0
756	3	M152	1	.877	-25.535	0	0	0	0
757			2	.877	-6.347	0	0	0	53.182
758			3	.877	.389	0	0	0	65.537
759			4	.877	7.592	0	0	0	47.878
760			5	.877	12.927	0	0	0	0
761	3	M153	1	1.25	-24.244	0	.005	0	0
762			2	1.25	-5.095	0	.005	0	37.086
763			3	1.25	.669	0	.005	0	44.662
764			4	1.25	6.433	0	.005	0	30.965
765			5	1.25	10.329	0	.005	0	0
766	3	M154	1	1.382	-20.53	0	-.001	0	0
767			2	1.382	-3.744	0	-.001	0	24.233
768			3	1.382	.591	0	-.001	0	29.434
769			4	1.382	5.393	0	-.001	0	20.606
770			5	1.382	8.016	0	-.001	0	0
771	3	M155	1	1.201	-13.423	0	-.013	0	0
772			2	1.201	-3.669	0	-.013	0	16.179
773			3	1.201	.171	0	-.013	0	19.81
774			4	1.201	4.478	0	-.013	0	13.899
775			5	1.201	6.606	0	-.013	0	0
776	3	M156	1	1.016	-12.209	0	.011	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
777			2	1.016	-3.233	0	.011	0	14.261
778			3	1.016	.14	0	.011	0	17.639
779			4	1.016	3.98	0	.011	0	12.632
780			5	1.016	5.952	0	.011	0	0
781	3	M157	1	1.269	-19.425	0	.002	0	0
782			2	1.269	-3.884	0	.002	0	23.912
783			3	1.269	.451	0	.002	0	29.525
784			4	1.269	5.253	0	.002	0	21.111
785			5	1.269	8.188	0	.002	0	0
786	3	M158	1	1.271	-23.061	0	-.004	0	0
787			2	1.271	-5.157	0	-.004	0	36.418
788			3	1.271	.607	0	-.004	0	44.217
789			4	1.271	6.371	0	-.004	0	30.742
790			5	1.271	10.267	0	-.004	0	0
791	3	M159	1	1.007	-27.091	0	0	0	0
792			2	1.007	-7.436	0	0	0	59.449
793			3	1.007	.389	0	0	0	74.077
794			4	1.007	8.682	0	0	0	54.146
795			5	1.007	14.484	0	0	0	0
796	3	M160	1	.029	-11.884	0	-.005	0	0
797			2	.029	-7.016	0	-.005	0	43.47
798			3	.029	-.28	0	-.005	0	58.787
799			4	.029	6.923	0	-.005	0	44.09
800			5	.029	11.947	0	-.005	0	0
801	3	M161	1	-.018	-10.359	0	-.004	0	0
802			2	-.018	-5.958	0	-.004	0	36.79
803			3	-.018	-.311	0	-.004	0	49.971
804			4	-.018	5.802	0	-.004	0	37.685
805			5	-.018	10.359	0	-.004	0	0
806	3	M162	1	0	-13.783	0	-.002	0	0
807			2	0	-8.137	0	-.002	0	49.6
808			3	0	-.311	0	-.002	0	67.328
809			4	0	7.981	0	-.002	0	50.496
810			5	0	13.783	0	-.002	0	0
811	3	M163	1	-.03	-13.597	0	0	0	0
812			2	-.03	-8.261	0	0	0	50.427
813			3	-.03	-.436	0	0	0	68.705
814			4	-.03	8.012	0	0	0	51.804
815			5	-.03	13.97	0	0	0	0
816	3	M164	1	-.003	-12.227	0	0	0	0
817			2	-.003	-7.047	0	0	0	43.884
818			3	-.003	-.311	0	0	0	59.338
819			4	-.003	6.892	0	0	0	44.779
820			5	-.003	12.227	0	0	0	0
821	3	M165	1	.002	-13.768	0	0	0	0
822			2	.002	-8.121	0	0	0	49.531
823			3	.002	-.296	0	0	0	67.19
824			4	.002	7.997	0	0	0	50.289
825			5	.002	13.488	0	0	0	0
826	3	M166	1	0	-13.597	0	.003	0	0
827			2	0	-8.261	0	.003	0	50.427
828			3	0	-.436	0	.003	0	68.705
829			4	0	8.012	0	.003	0	51.804

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
830			5	0	13.97	0	.003	0	0
831	3	M167	1	0	-12.227	0	0	0	0
832			2	0	-7.047	0	0	0	43.884
833			3	0	-.311	0	0	0	59.338
834			4	0	6.892	0	0	0	44.779
835			5	0	12.227	0	0	0	0
836	3	M168	1	0	-8.709	0	0	0	0
837			2	0	-4.775	0	0	0	30.109
838			3	0	-.218	0	0	0	40.604
839			4	0	4.65	0	0	0	30.798
840			5	0	8.896	0	0	0	0
841	3	M169	1	0	-12.227	0	.001	0	0
842			2	0	-7.047	0	.001	0	43.884
843			3	0	-.311	0	.001	0	59.338
844			4	0	6.892	0	.001	0	44.779
845			5	0	12.227	0	.001	0	0
846	3	M170	1	0	-13.75	0	0	0	0
847			2	0	-6.548	0	0	0	44.656
848			3	0	.654	0	0	0	59.267
849			4	0	6.922	0	0	0	43.834
850			5	0	11.944	0	0	0	0
851	3	M171	1	0	-13.75	0	0	0	0
852			2	0	-6.548	0	0	0	44.656
853			3	0	.654	0	0	0	59.267
854			4	0	6.922	0	0	0	43.834
855			5	0	11.944	0	0	0	0
856	3	M172	1	0	-13.797	0	0	0	0
857			2	0	-6.595	0	0	0	44.861
858			3	0	.607	0	0	0	59.678
859			4	0	6.875	0	0	0	44.45
860			5	0	12.209	0	0	0	0
861	3	M173	1	0	-15.82	0	0	0	0
862			2	0	-7.529	0	0	0	51.504
863			3	0	.763	0	0	0	68.444
864			4	0	8.12	0	0	0	50.271
865			5	0	13.299	0	0	0	0
866	3	M174	1	0	-13.765	0	0	0	0
867			2	0	-6.564	0	0	0	44.724
868			3	0	.638	0	0	0	59.404
869			4	0	6.906	0	0	0	44.039
870			5	0	12.24	0	0	0	0
871	3	M175	1	0	-13.797	0	0	0	0
872			2	0	-6.595	0	0	0	44.861
873			3	0	.607	0	0	0	59.678
874			4	0	6.875	0	0	0	44.45
875			5	0	12.209	0	0	0	0
876	3	M176	1	0	-16.069	0	0	0	0
877			2	0	-7.622	0	0	0	51.984
878			3	0	.825	0	0	0	68.718
879			4	0	8.027	0	0	0	50.751
880			5	0	13.672	0	0	0	0
881	3	M177	1	0	-11.477	0	0	0	0
882			2	0	-5.521	0	0	0	37.533

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
883			3	0	.436	0	0	0	50.227
884			4	0	5.77	0	0	0	37.533
885			5	0	10.481	0	0	0	0
886	3	M178	1	0	-16.116	0	0	0	0
887			2	0	-7.669	0	0	0	52.189
888			3	0	.778	0	0	0	69.129
889			4	0	7.98	0	0	0	51.367
890			5	0	13.937	0	0	0	0
891	3	M179	1	-.143	-26.311	0	-.01	0	0
892			2	-.143	-13.039	0	-.01	0	87.254
893			3	-.143	2.413	0	-.01	0	115.014
894			4	-.143	14.128	0	-.01	0	79.446
895			5	-.143	20.24	0	-.01	0	0
896	3	M180	1	-.116	-24.661	0	.01	0	0
897			2	-.116	-12.167	0	.01	0	81.706
898			3	-.116	2.506	0	.01	0	107.344
899			4	-.116	13.132	0	.01	0	73.625
900			5	-.116	18.777	0	.01	0	0
901	3	M181	1	.036	-11.477	0	.004	0	0
902			2	.036	-5.521	0	.004	0	37.533
903			3	.036	.436	0	.004	0	50.227
904			4	.036	5.77	0	.004	0	37.533
905			5	.036	10.481	0	.004	0	0
906	3	M182	1	.022	-16.069	0	0	0	0
907			2	.022	-7.622	0	0	0	51.984
908			3	.022	.825	0	0	0	68.718
909			4	.022	8.027	0	0	0	50.751
910			5	.022	13.672	0	0	0	0
911	3	M183	1	-.028	-15.836	0	0	0	0
912			2	-.028	-7.544	0	0	0	51.573
913			3	-.028	.747	0	0	0	68.581
914			4	-.028	8.105	0	0	0	50.477
915			5	-.028	13.594	0	0	0	0
916	3	M184	1	-.003	-13.765	0	0	0	0
917			2	-.003	-6.564	0	0	0	44.724
918			3	-.003	.638	0	0	0	59.404
919			4	-.003	6.906	0	0	0	44.039
920			5	-.003	12.24	0	0	0	0
921	3	M185	1	0	-16.116	0	-.002	0	0
922			2	0	-7.669	0	-.002	0	52.189
923			3	0	.778	0	-.002	0	69.129
924			4	0	7.98	0	-.002	0	51.367
925			5	0	13.937	0	-.002	0	0
926	3	M186	1	0	-15.836	0	-.003	0	0
927			2	0	-7.544	0	-.003	0	51.573
928			3	0	.747	0	-.003	0	68.581
929			4	0	8.105	0	-.003	0	50.477
930			5	0	13.594	0	-.003	0	0
931	3	M187	1	0	-13.765	0	0	0	0
932			2	0	-6.564	0	0	0	44.724
933			3	0	.638	0	0	0	59.404
934			4	0	6.906	0	0	0	44.039
935			5	0	12.24	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
936	3	M188	1	0	-9.345	0	0	0	0
937			2	0	-4.478	0	0	0	30.411
938			3	0	.389	0	0	0	40.502
939			4	0	4.634	0	0	0	30.274
940			5	0	8.567	0	0	0	0
941	3	M189	1	0	-13.765	0	0	0	0
942			2	0	-6.564	0	0	0	44.724
943			3	0	.638	0	0	0	59.404
944			4	0	6.906	0	0	0	44.039
945			5	0	12.24	0	0	0	0
946	3	M190	1	0	-327.296	0	0	0	0
947			2	0	12.461	0	0	0	166.523
948			3	0	16.328	0	0	0	123.601
949			4	0	21.128	0	0	0	68.822
950			5	0	25.929	0	0	0	0
951	3	M191	1	0	-73.854	0	0	0	0
952			2	0	-.878	0	0	0	49.473
953			3	0	2.988	0	0	0	45.567
954			4	0	7.789	0	0	0	29.805
955			5	0	12.59	0	0	0	0
956	3	M192	1	0	-66.46	0	0	0	0
957			2	0	-1.268	0	0	0	46.058
958			3	0	2.599	0	0	0	43.291
959			4	0	7.4	0	0	0	28.667
960			5	0	12.201	0	0	0	0
961	3	M193	1	0	-68.608	0	0	0	0
962			2	0	-2.015	0	0	0	49.746
963			3	0	2.63	0	0	0	48.026
964			4	0	8.21	0	0	0	32.172
965			5	0	13.789	0	0	0	0
966	3	M194	1	0	-51.674	0	0	0	0
967			2	0	-2.046	0	0	0	39.229
968			3	0	1.821	0	0	0	38.738
969			4	0	6.622	0	0	0	26.39
970			5	0	11.423	0	0	0	0
971	3	M195	1	0	-44.576	0	0	0	0
972			2	0	-2.419	0	0	0	35.951
973			3	0	1.448	0	0	0	36.553
974			4	0	6.248	0	0	0	25.298
975			5	0	11.049	0	0	0	0
976	3	M196	1	0	-43.004	0	0	0	0
977			2	0	-3.182	0	0	0	37.499
978			3	0	1.152	0	0	0	39.376
979			4	0	6.731	0	0	0	27.847
980			5	0	12.31	0	0	0	0
981	3	M197	1	0	-25.151	0	0	0	0
982			2	0	-2.762	0	0	0	24.706
983			3	0	.638	0	0	0	27.265
984			4	0	4.661	0	0	0	19.516
985			5	0	8.683	0	0	0	0
986	3	M198	1	0	-26.739	0	0	0	0
987			2	0	-4.038	0	0	0	29.987
988			3	0	.296	0	0	0	34.368

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
989			4	0	5.875	0	0	0	25.343
990			5	0	11.454	0	0	0	0
991	3	M199	1	0	-15.298	0	0	0	0
992			2	0	-3.96	0	0	0	22.43
993			3	0	-.093	0	0	0	27.539
994			4	0	4.707	0	0	0	20.791
995			5	0	9.508	0	0	0	0
996	3	M200	1	0	-7.703	0	0	0	0
997			2	0	-3.68	0	0	0	16.648
998			3	0	-.28	0	0	0	21.893
999			4	0	3.742	0	0	0	16.83
1000			5	0	7.765	0	0	0	0
1001	3	M201	1	0	-9.088	0	0	0	0
1002			2	0	-4.287	0	0	0	19.561
1003			3	0	-.42	0	0	0	25.626
1004			4	0	4.381	0	0	0	19.834
1005			5	0	9.181	0	0	0	0
1006	3	M202	1	0	-9.057	0	-.015	0	0
1007			2	0	-4.256	0	-.015	0	19.47
1008			3	0	-.389	0	-.015	0	25.444
1009			4	0	4.412	0	-.015	0	19.561
1010			5	0	8.59	0	-.015	0	0
1011	3	M203	1	0	-10.473	0	0	0	0
1012			2	0	-4.894	0	0	0	22.475
1013			3	0	-.56	0	0	0	29.36
1014			4	0	5.019	0	0	0	22.839
1015			5	0	10.598	0	0	0	0
1016	3	M204	1	0	-10.645	0	0	0	0
1017			2	0	-5.065	0	0	0	22.976
1018			3	0	-.42	0	0	0	30.179
1019			4	0	5.159	0	0	0	23.249
1020			5	0	10.738	0	0	0	0
1021	3	M205	1	0	-9.088	0	0	0	0
1022			2	0	-4.287	0	0	0	19.561
1023			3	0	-.42	0	0	0	25.626
1024			4	0	4.381	0	0	0	19.834
1025			5	0	9.181	0	0	0	0
1026	3	M206	1	-.446	-11.968	0	0	0	0
1027			2	-.446	-5.61	0	0	0	25.707
1028			3	-.446	-.498	0	0	0	33.548
1029			4	-.446	5.859	0	0	0	25.707
1030			5	-.446	10.971	0	0	0	0
1031	3	M207	1	0	-10.473	0	0	0	0
1032			2	0	-4.894	0	0	0	22.475
1033			3	0	-.56	0	0	0	29.36
1034			4	0	5.019	0	0	0	22.839
1035			5	0	10.598	0	0	0	0
1036	3	M208	1	0	-9.088	0	0	0	0
1037			2	0	-4.287	0	0	0	19.561
1038			3	0	-.42	0	0	0	25.626
1039			4	0	4.381	0	0	0	19.834
1040			5	0	9.181	0	0	0	0
1041	3	M209	1	0	-10.645	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1042			2	0	-5.065	0	0	0	22.976
1043			3	0	-.42	0	0	0	30.179
1044			4	0	5.159	0	0	0	23.249
1045			5	0	10.738	0	0	0	0
1046	3	M210	1	-.002	-9.072	0	.012	0	0
1047			2	-.002	-4.272	0	.012	0	19.516
1048			3	-.002	-.405	0	.012	0	25.535
1049			4	-.002	4.396	0	.012	0	19.698
1050			5	-.002	8.886	0	.012	0	0
1051	3	M211	1	0	-7.532	0	0	0	0
1052			2	0	-3.509	0	0	0	16.147
1053			3	0	-.42	0	0	0	21.074
1054			4	0	3.602	0	0	0	16.42
1055			5	0	7.625	0	0	0	0
1056	3	M212	1	0	-7.703	0	0	0	0
1057			2	0	-3.68	0	0	0	16.648
1058			3	0	-.28	0	0	0	21.893
1059			4	0	3.742	0	0	0	16.83
1060			5	0	7.765	0	0	0	0
1061	3	M213	1	-.147	-7.532	0	.001	0	0
1062			2	-.147	-3.509	0	.001	0	16.147
1063			3	-.147	-.42	0	.001	0	21.074
1064			4	-.147	3.602	0	.001	0	16.42
1065			5	-.147	7.625	0	.001	0	0
1066	3	M214	1	.036	-7.703	0	.004	0	0
1067			2	.036	-3.68	0	.004	0	16.648
1068			3	.036	-.28	0	.004	0	21.893
1069			4	.036	3.742	0	.004	0	16.83
1070			5	.036	7.765	0	.004	0	0
1071	3	M215	1	.022	-10.473	0	0	0	0
1072			2	.022	-4.894	0	0	0	22.475
1073			3	.022	-.56	0	0	0	29.36
1074			4	.022	5.019	0	0	0	22.839
1075			5	.022	10.598	0	0	0	0
1076	3	M216	1	-.028	-15.968	0	0	0	0
1077			2	-.028	-4.785	0	0	0	25.434
1078			3	-.028	-.14	0	0	0	31.818
1079			4	-.028	5.439	0	0	0	24.069
1080			5	-.028	11.018	0	0	0	0
1081	3	M217	1	-.003	-9.088	0	0	0	0
1082			2	-.003	-4.287	0	0	0	19.561
1083			3	-.003	-.42	0	0	0	25.626
1084			4	-.003	4.381	0	0	0	19.834
1085			5	-.003	9.181	0	0	0	0
1086	3	M218	1	0	-10.473	0	-.002	0	0
1087			2	0	-4.894	0	-.002	0	22.475
1088			3	0	-.56	0	-.002	0	29.36
1089			4	0	5.019	0	-.002	0	22.839
1090			5	0	10.598	0	-.002	0	0
1091	3	M219	1	0	-10.645	0	-.003	0	0
1092			2	0	-5.065	0	-.003	0	22.976
1093			3	0	-.42	0	-.003	0	30.179
1094			4	0	5.159	0	-.003	0	23.249

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1095			5	0	10.738	0	-.003	0	0
1096	3	M220	1	0	-9.088	0	0	0	0
1097			2	0	-4.287	0	0	0	19.561
1098			3	0	-.42	0	0	0	25.626
1099			4	0	4.381	0	0	0	19.834
1100			5	0	9.181	0	0	0	0
1101	3	M221	1	0	-6.146	0	0	0	0
1102			2	0	-2.902	0	0	0	13.233
1103			3	0	-.28	0	0	0	17.341
1104			4	0	2.964	0	0	0	13.415
1105			5	0	6.209	0	0	0	0
1106	3	M222	1	0	-9.088	0	0	0	0
1107			2	0	-4.287	0	0	0	19.561
1108			3	0	-.42	0	0	0	25.626
1109			4	0	4.381	0	0	0	19.834
1110			5	0	9.181	0	0	0	0
1111	3	M223	1	0	19.122	0	0	0	0
1112			2	0	11.748	0	0	0	-78.014
1113			3	0	.327	0	0	0	-105.951
1114			4	0	-11.094	0	0	0	-81.135
1115			5	0	-22.516	0	0	0	0
1116	3	M224	1	0	13.597	0	0	0	0
1117			2	0	7.779	0	0	0	-54.305
1118			3	0	.093	0	0	0	-72.506
1119			4	0	-7.592	0	0	0	-55.197
1120			5	0	-15.278	0	0	0	0
1121	3	M225	1	0	12.087	0	0	0	0
1122			2	0	6.736	0	0	0	-47.765
1123			3	0	.14	0	0	0	-63.736
1124			4	0	-6.767	0	0	0	-48.508
1125			5	0	-13.363	0	0	0	0
1126	3	M226	1	0	15.138	0	0	0	0
1127			2	0	8.853	0	0	0	-60.399
1128			3	0	.078	0	0	0	-80.979
1129			4	0	-8.386	0	0	0	-61.737
1130			5	0	-17.161	0	0	0	0
1131	3	M227	1	-.007	14.998	0	0	0	0
1132			2	-.007	8.713	0	0	0	-59.731
1133			3	-.007	.249	0	0	0	-80.533
1134			4	-.007	-8.526	0	0	0	-61.514
1135			5	-.007	-16.99	0	0	0	0
1136	3	M228	1	-.119	15.402	0	0	0	0
1137			2	-.119	8.806	0	0	0	-61.068
1138			3	-.119	.031	0	0	0	-81.424
1139			4	-.119	-8.433	0	0	0	-61.96
1140			5	-.119	-17.208	0	0	0	0
1141	3	M229	1	-.009	13.893	0	0	0	0
1142			2	-.009	7.763	0	0	0	-54.528
1143			3	-.009	.078	0	0	0	-72.654
1144			4	-.009	-7.608	0	0	0	-55.271
1145			5	-.009	-15.293	0	0	0	0
1146	3	M230	1	.005	13.893	0	0	0	0
1147			2	.005	7.763	0	0	0	-54.528

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1148			3	.005	.078	0	0	0	-72.654
1149			4	.005	-7.608	0	0	0	-55.271
1150			5	.005	-15.293	0	0	0	0
1151	3	M231	1	0	14.998	0	0	0	0
1152			2	0	8.713	0	0	0	-59.731
1153			3	0	.249	0	0	0	-80.533
1154			4	0	-8.526	0	0	0	-61.514
1155			5	0	-16.99	0	0	0	0
1156	3	M232	1	.001	15.402	0	0	0	0
1157			2	.001	8.806	0	0	0	-61.068
1158			3	.001	.031	0	0	0	-81.424
1159			4	.001	-8.433	0	0	0	-61.96
1160			5	.001	-17.208	0	0	0	0
1161	3	M233	1	.019	14.998	0	0	0	0
1162			2	.019	8.713	0	0	0	-59.731
1163			3	.019	.249	0	0	0	-80.533
1164			4	.019	-8.526	0	0	0	-61.514
1165			5	.019	-16.99	0	0	0	0
1166	3	M234	1	-.012	12.258	0	0	0	0
1167			2	-.012	6.907	0	0	0	-47.988
1168			3	-.012	0	0	0	0	-63.884
1169			4	-.012	-6.596	0	0	0	-48.582
1170			5	-.012	-13.503	0	0	0	0
1171	3	M235	1	-.108	12.383	0	0	0	0
1172			2	-.108	6.721	0	0	0	-47.988
1173			3	-.108	.125	0	0	0	-63.884
1174			4	-.108	-6.783	0	0	0	-48.582
1175			5	-.108	-13.379	0	0	0	0
1176	3	M236	1	.236	12.258	0	0	0	0
1177			2	.236	6.907	0	0	0	-47.988
1178			3	.236	0	0	0	0	-63.884
1179			4	.236	-6.596	0	0	0	-48.582
1180			5	.236	-13.503	0	0	0	0
1181	3	M237	1	2.405	13.893	0	0	0	0
1182			2	2.405	7.763	0	0	0	-54.528
1183			3	2.405	.078	0	0	0	-72.654
1184			4	2.405	-7.608	0	0	0	-55.271
1185			5	2.405	-15.293	0	0	0	0
1186	3	M238	1	.233	12.087	0	0	0	0
1187			2	.233	6.736	0	0	0	-47.765
1188			3	.233	.14	0	0	0	-63.736
1189			4	.233	-6.767	0	0	0	-48.508
1190			5	.233	-13.363	0	0	0	0
1191	3	M239	1	-.104	12.258	0	0	0	0
1192			2	-.104	6.907	0	0	0	-47.988
1193			3	-.104	0	0	0	0	-63.884
1194			4	-.104	-6.596	0	0	0	-48.582
1195			5	-.104	-13.503	0	0	0	0
1196	3	M240	1	.081	13.893	0	0	0	0
1197			2	.081	7.763	0	0	0	-54.528
1198			3	.081	.078	0	0	0	-72.654
1199			4	.081	-7.608	0	0	0	-55.271
1200			5	.081	-15.293	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1201	3	M241	1	0	15.663	0	0	.013	38.875
1202			2	0	9.846	0	0	.01	-24.702
1203			3	0	2.16	0	0	.007	-52.771
1204			4	0	-5.526	0	0	.003	-45.329
1205			5	0	-13.211	0	0	0	0
1206	3	M242	1	-.07	20.975	0	0	0	0
1207			2	-.07	13.756	0	0	0	-87.378
1208			3	-.07	.623	0	0	0	-120.964
1209			4	-.07	-12.666	0	0	0	-93.25
1210			5	-.07	-25.955	0	0	0	0
1211	3	M243	1	.007	18.36	0	0	0	0
1212			2	.007	11.764	0	0	0	-75.636
1213			3	.007	.498	0	0	0	-104.316
1214			4	.007	-10.923	0	0	0	-80.318
1215			5	.007	-22.344	0	0	0	0
1216	3	M244	1	-.001	10.748	0	0	0	0
1217			2	-.001	5.865	0	0	0	-41.447
1218			3	-.001	.047	0	0	0	-55.114
1219			4	-.001	-5.771	0	0	0	-41.893
1220			5	-.001	-11.589	0	0	0	0
1221	3	M245	1	0	13.597	0	0	0	0
1222			2	0	7.779	0	0	0	-54.305
1223			3	0	.093	0	0	0	-72.506
1224			4	0	-7.592	0	0	0	-55.197
1225			5	0	-15.278	0	0	0	0
1226	3	M246	1	-.003	13.893	0	0	0	0
1227			2	-.003	7.763	0	0	0	-54.528
1228			3	-.003	.078	0	0	0	-72.654
1229			4	-.003	-7.608	0	0	0	-55.271
1230			5	-.003	-15.293	0	0	0	0
1231	3	M247	1	0	13.893	0	0	0	0
1232			2	0	7.763	0	0	0	-54.528
1233			3	0	.078	0	0	0	-72.654
1234			4	0	-7.608	0	0	0	-55.271
1235			5	0	-15.293	0	0	0	0
1236	3	M248	1	0	14.998	0	0	0	0
1237			2	0	8.713	0	0	0	-59.731
1238			3	0	.249	0	0	0	-80.533
1239			4	0	-8.526	0	0	0	-61.514
1240			5	0	-16.99	0	0	0	0
1241	3	M249	1	0	13.628	0	0	0	0
1242			2	0	7.81	0	0	0	-53.859
1243			3	0	.125	0	0	0	-72.209
1244			4	0	-7.561	0	0	0	-55.048
1245			5	0	-15.247	0	0	0	0
1246	3	M250	1	0	12.258	0	0	0	0
1247			2	0	6.907	0	0	0	-47.988
1248			3	0	0	0	0	0	-63.884
1249			4	0	-6.596	0	0	0	-48.582
1250			5	0	-13.503	0	0	0	0
1251	3	M251	1	0	13.628	0	0	0	0
1252			2	0	7.81	0	0	0	-53.859
1253			3	0	.125	0	0	0	-72.209

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1254			4	0	-7.561	0	0	0	-55.048
1255			5	0	-15.247	0	0	0	0
1256	3	M252	1	0	18.36	0	0	0	0
1257			2	0	11.764	0	0	0	-75.636
1258			3	0	.498	0	0	0	-104.316
1259			4	0	-10.923	0	0	0	-80.318
1260			5	0	-22.344	0	0	0	0
1261	3	M253	1	0	-12.638	0	0	0	0
1262			2	0	-7.3	0	0	0	47.382
1263			3	0	-.093	0	0	0	64.016
1264			4	0	7.113	0	0	0	48.222
1265			5	0	14.319	0	0	0	0
1266	3	M254	1	0	-8.856	0	0	0	0
1267			2	0	-4.918	0	0	0	32.253
1268			3	0	-.047	0	0	0	43.424
1269			4	0	4.825	0	0	0	32.673
1270			5	0	9.696	0	0	0	0
1271	3	M255	1	0	-12.638	0	0	0	0
1272			2	0	-7.3	0	0	0	47.382
1273			3	0	-.093	0	0	0	64.016
1274			4	0	7.113	0	0	0	48.222
1275			5	0	14.319	0	0	0	0
1276	3	M256	1	0	-14.195	0	-.003	0	0
1277			2	0	-8.545	0	-.003	0	54.246
1278			3	0	-.093	0	-.003	0	73.822
1279			4	0	8.202	0	-.003	0	55.717
1280			5	0	16.498	0	-.003	0	0
1281	3	M257	1	0	-14.366	0	-.002	0	0
1282			2	0	-8.56	0	-.002	0	53.966
1283			3	0	-.265	0	-.002	0	73.682
1284			4	0	8.187	0	-.002	0	55.717
1285			5	0	16.638	0	-.002	0	0
1286	3	M258	1	-.003	-18.102	0	0	0	0
1287			2	-.003	-11.829	0	0	0	71.126
1288			3	-.003	-.265	0	0	0	98.897
1289			4	-.003	11.456	0	0	0	73.438
1290			5	-.003	20.374	0	0	0	0
1291	3	M259	1	.022	-18.102	0	0	0	0
1292			2	.022	-11.985	0	0	0	71.616
1293			3	.022	-.265	0	0	0	99.458
1294			4	.022	11.456	0	0	0	73.998
1295			5	.022	20.997	0	0	0	0
1296	3	M260	1	.036	-10.973	0	.004	0	0
1297			2	.036	-6.101	0	.004	0	39.957
1298			3	.036	.016	0	.004	0	53.79
1299			4	.036	5.977	0	.004	0	40.448
1300			5	.036	11.938	0	.004	0	0
1301	3	M261	1	-.147	-10.817	0	.001	0	0
1302			2	-.147	-6.101	0	.001	0	39.887
1303			3	-.147	-.14	0	.001	0	53.79
1304			4	-.147	5.977	0	.001	0	40.518
1305			5	-.147	12.093	0	.001	0	0
1306	3	M262	1	0	-10.973	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1307			2	0	-6.101	0	0	0	39.957
1308			3	0	.016	0	0	0	53.79
1309			4	0	5.977	0	0	0	40.448
1310			5	0	11.938	0	0	0	0
1311	3	M263	1	0	-10.817	0	0	0	0
1312			2	0	-6.101	0	0	0	39.887
1313			3	0	-.14	0	0	0	53.79
1314			4	0	5.977	0	0	0	40.518
1315			5	0	12.093	0	0	0	0
1316	3	M264	1	-.002	-12.669	0	.012	0	0
1317			2	-.002	-7.331	0	.012	0	46.962
1318			3	-.002	-.125	0	.012	0	63.736
1319			4	-.002	7.082	0	.012	0	48.082
1320			5	-.002	14.288	0	.012	0	0
1321	3	M265	1	0	-14.459	0	0	0	0
1322			2	0	-8.498	0	0	0	54.876
1323			3	0	-.047	0	0	0	74.243
1324			4	0	8.249	0	0	0	55.927
1325			5	0	16.545	0	0	0	0
1326	3	M266	1	0	-12.374	0	0	0	0
1327			2	0	-7.346	0	0	0	46.752
1328			3	0	-.14	0	0	0	63.596
1329			4	0	7.066	0	0	0	48.012
1330			5	0	14.273	0	0	0	0
1331	3	M267	1	0	-14.366	0	0	0	0
1332			2	0	-8.56	0	0	0	53.966
1333			3	0	-.265	0	0	0	73.682
1334			4	0	8.187	0	0	0	55.717
1335			5	0	16.638	0	0	0	0
1336	3	M268	1	-.446	-15.891	0	0	0	0
1337			2	-.446	-9.775	0	0	0	61.25
1338			3	-.446	-.233	0	0	0	83.768
1339			4	-.446	9.308	0	0	0	63.351
1340			5	-.446	18.849	0	0	0	0
1341	3	M269	1	0	-12.638	0	0	0	0
1342			2	0	-7.3	0	0	0	47.382
1343			3	0	-.093	0	0	0	64.016
1344			4	0	7.113	0	0	0	48.222
1345			5	0	14.319	0	0	0	0
1346	3	M270	1	0	-14.459	0	0	0	0
1347			2	0	-8.498	0	0	0	54.876
1348			3	0	-.047	0	0	0	74.243
1349			4	0	8.249	0	0	0	55.927
1350			5	0	16.545	0	0	0	0
1351	3	M271	1	0	-14.07	0	0	0	0
1352			2	0	-8.576	0	0	0	53.756
1353			3	0	-.28	0	0	0	73.542
1354			4	0	8.171	0	0	0	55.647
1355			5	0	16.623	0	0	0	0
1356	3	M272	1	0	-12.374	0	-.015	0	0
1357			2	0	-7.346	0	-.015	0	46.752
1358			3	0	-.14	0	-.015	0	63.596
1359			4	0	7.066	0	-.015	0	48.012

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1360			5	0	14.273	0	-.015	0	0
1361	3	M273	1	0	-12.638	0	0	0	0
1362			2	0	-7.3	0	0	0	47.382
1363			3	0	-.093	0	0	0	64.016
1364			4	0	7.113	0	0	0	48.222
1365			5	0	14.319	0	0	0	0
1366	3	M274	1	0	-38.445	0	0	0	0
1367			2	0	-15.829	0	0	0	122.257
1368			3	0	3.985	0	0	0	146.106
1369			4	0	17.261	0	0	0	95.501
1370			5	0	24.623	0	0	0	0
1371	3	M275	1	0	-98.061	0	-.041	0	0
1372			2	0	-22.749	0	-.041	0	136.179
1373			3	0	4.311	0	-.041	0	163.327
1374			4	0	28.415	0	-.041	0	113.813
1375			5	0	46.604	0	-.041	0	0
1376	3	M276	1	0	-7.536	0	-.022	0	0
1377			2	0	-4.912	0	-.022	0	19.72
1378			3	0	-.109	0	-.022	0	27.189
1379			4	0	4.694	0	-.022	0	20.369
1380			5	0	8.252	0	-.022	0	0
1381	3	M277	1	0	-6.898	0	-.004	0	0
1382			2	0	-4.741	0	-.004	0	18.609
1383			3	0	-.093	0	-.004	0	25.985
1384			4	0	4.71	0	-.004	0	19.119
1385			5	0	7.334	0	-.004	0	0
1386	3	M278	1	.001	-7.847	0	.018	0	0
1387			2	.001	-5.69	0	.018	0	21.712
1388			3	.001	-.109	0	.018	0	30.338
1389			4	.001	5.472	0	.018	0	22.36
1390			5	.001	8.563	0	.018	0	0
1391	3	M279	1	-.004	-8.19	0	.031	0	0
1392			2	-.004	-5.566	0	.031	0	21.665
1393			3	-.004	-.14	0	.031	0	30.338
1394			4	-.004	5.441	0	.031	0	22.453
1395			5	-.004	8.844	0	.031	0	0
1396	3	M280	1	-.028	-7.489	0	0	0	0
1397			2	-.028	-4.865	0	0	0	19.582
1398			3	-.028	-.062	0	0	0	26.911
1399			4	-.028	4.741	0	0	0	19.952
1400			5	-.028	7.987	0	0	0	0
1401	3	M281	1	-.387	-8.766	0	.002	0	0
1402			2	-.387	-6.297	0	.002	0	24.073
1403			3	-.387	-.093	0	.002	0	33.765
1404			4	-.387	6.266	0	.002	0	24.583
1405			5	-.387	9.201	0	.002	0	0
1406	3	M282	1	-.028	-7.847	0	0	0	0
1407			2	-.028	-5.69	0	0	0	21.712
1408			3	-.028	-.109	0	0	0	30.338
1409			4	-.028	5.472	0	0	0	22.36
1410			5	-.028	8.563	0	0	0	0
1411	3	M283	1	-.003	-7.178	0	-.01	0	0
1412			2	-.003	-4.865	0	-.01	0	19.396

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1413			3	-.003	-.062	0	-.01	0	26.726
1414			4	-.003	4.741	0	-.01	0	19.767
1415			5	-.003	7.676	0	-.01	0	0
1416	3	M284	1	.001	-8.19	0	-.005	0	0
1417			2	.001	-5.566	0	-.005	0	21.665
1418			3	.001	-.14	0	-.005	0	30.338
1419			4	.001	5.441	0	-.005	0	22.453
1420			5	.001	8.844	0	-.005	0	0
1421	3	M285	1	0	-7.225	0	.001	0	0
1422			2	0	-4.912	0	.001	0	19.165
1423			3	0	-.109	0	.001	0	26.634
1424			4	0	4.694	0	.001	0	19.813
1425			5	0	7.941	0	.001	0	0
1426	3	M286	1	.004	-6.524	0	.006	0	0
1427			2	.004	-4.056	0	.006	0	16.757
1428			3	.004	-.031	0	.006	0	22.837
1429			4	.004	3.994	0	.006	0	16.942
1430			5	.004	7.085	0	.006	0	0
1431	3	M287	1	-.016	-5.98	0	.009	0	0
1432			2	-.016	-4.134	0	.009	0	16.248
1433			3	-.016	-.109	0	.009	0	22.559
1434			4	-.016	3.916	0	.009	0	16.896
1435			5	-.016	6.696	0	.009	0	0
1436	3	M288	1	-.124	-6.82	0	0	0	0
1437			2	-.124	-4.04	0	0	0	17.266
1438			3	-.124	-.016	0	0	0	23.3
1439			4	-.124	4.009	0	0	0	17.359
1440			5	-.124	7.1	0	0	0	0
1441	3	M289	1	.013	-5.98	0	-.001	0	0
1442			2	.013	-4.134	0	-.001	0	16.248
1443			3	.013	-.109	0	-.001	0	22.559
1444			4	.013	3.916	0	-.001	0	16.896
1445			5	.013	6.696	0	-.001	0	0
1446	3	M290	1	.027	-9.855	0	.006	0	0
1447			2	.027	-7.387	0	.006	0	27.315
1448			3	.027	-.249	0	.006	0	39.321
1449			4	.027	7.356	0	.006	0	28.38
1450			5	.027	10.602	0	.006	0	0
1451	3	M291	1	-.005	-14.243	0	-.008	0	0
1452			2	-.005	-10.024	0	-.008	0	47.959
1453			3	-.005	.732	0	-.008	0	67.399
1454			4	-.005	9.153	0	-.008	0	49.21
1455			5	-.005	14.772	0	-.008	0	0
1456	3	M292	1	0	-11.581	0	0	0	0
1457			2	0	-7.207	0	0	0	37.362
1458			3	0	.591	0	0	0	51.086
1459			4	0	6.678	0	0	0	37.898
1460			5	0	11.519	0	0	0	0
1461	3	M293	1	0	-11.379	0	.006	0	0
1462			2	0	-7.316	0	.006	0	36.588
1463			3	0	.483	0	.006	0	50.253
1464			4	0	6.725	0	.006	0	37.422
1465			5	0	11.41	0	.006	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1466	3	M294	1	0	-10.227	0	0	0	0
1467			2	0	-6.32	0	0	0	32.718
1468			3	0	.389	0	0	0	44.775
1469			4	0	5.697	0	0	0	33.849
1470			5	0	10.694	0	0	0	0
1471	3	M295	1	0	-7.223	0	.001	0	0
1472			2	0	-4.25	0	.001	0	22.3
1473			3	0	.28	0	.001	0	30.368
1474			4	0	3.876	0	.001	0	22.895
1475			5	0	7.161	0	.001	0	0
1476	3	M296	1	0	-9.885	0	.001	0	0
1477			2	0	-6.289	0	.001	0	32.361
1478			3	0	.42	0	.001	0	44.299
1479			4	0	5.728	0	.001	0	33.254
1480			5	0	10.414	0	.001	0	0
1481	3	M297	1	0	13.172	0	0	0	0
1482			2	0	7.823	0	0	0	-52.25
1483			3	0	.607	0	0	0	-70.402
1484			4	0	-7.543	0	0	0	-52.691
1485			5	0	-14.76	0	0	0	0
1486	3	M298	1	0	9.514	0	0	0	0
1487			2	0	5.255	0	0	0	-35.776
1488			3	0	.374	0	0	0	-47.897
1489			4	0	-5.131	0	0	0	-35.776
1490			5	0	-10.012	0	0	0	0
1491	3	M299	1	0	13.172	0	0	0	0
1492			2	0	7.823	0	0	0	-52.25
1493			3	0	.607	0	0	0	-70.402
1494			4	0	-7.543	0	0	0	-52.691
1495			5	0	-14.76	0	0	0	0
1496	3	M300	1	0	15.102	0	0	0	0
1497			2	0	9.131	0	0	0	-60.634
1498			3	0	.669	0	0	0	-81.58
1499			4	0	-8.726	0	0	0	-61.075
1500			5	0	-17.188	0	0	0	0
1501	3	M301	1	0	15.227	0	0	0	0
1502			2	0	9.1	0	0	0	-60.119
1503			3	0	.794	0	0	0	-81.58
1504			4	0	-8.757	0	0	0	-61.148
1505			5	0	-17.063	0	0	0	0
1506	3	M302	1	-.004	20.986	0	0	0	0
1507			2	-.004	14.703	0	0	0	-88.286
1508			3	-.004	3.129	0	0	0	-128.06
1509			4	-.004	-10.314	0	0	0	-108.879
1510			5	-.004	-39.944	0	0	0	0
1511	3	M303	1	.03	17.593	0	0	0	0
1512			2	.03	11.31	0	0	0	-72.401
1513			3	.03	.981	0	0	0	-103.055
1514			4	.03	-10.905	0	0	0	-79.608
1515			5	.03	-22.791	0	0	0	0
1516	3	M304	1	.002	11.071	0	0	0	0
1517			2	.002	6.033	0	0	0	-43.057
1518			3	.002	.062	0	0	0	-57.311

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1519			4	.002	-6.065	0	0	0	-42.983
1520			5	.002	-12.192	0	0	0	0
1521	3	M305	1	-.112	11.491	0	0	0	0
1522			2	-.112	5.987	0	0	0	-43.792
1523			3	-.112	-.14	0	0	0	-57.752
1524			4	-.112	-6.111	0	0	0	-43.13
1525			5	-.112	-12.083	0	0	0	0
1526	3	M306	1	-.023	11.071	0	0	0	0
1527			2	-.023	6.033	0	0	0	-43.057
1528			3	-.023	.062	0	0	0	-57.311
1529			4	-.023	-6.065	0	0	0	-42.983
1530			5	-.023	-12.192	0	0	0	0
1531	3	M307	1	.005	11.491	0	0	0	0
1532			2	.005	5.987	0	0	0	-43.792
1533			3	.005	-.14	0	0	0	-57.752
1534			4	.005	-6.111	0	0	0	-43.13
1535			5	.005	-12.083	0	0	0	0
1536	3	M308	1	.003	13.157	0	0	0	0
1537			2	.003	7.185	0	0	0	-51.588
1538			3	.003	-.031	0	0	0	-68.489
1539			4	.003	-7.248	0	0	0	-51.294
1540			5	.003	-14.464	0	0	0	0
1541	3	M309	1	.002	15.149	0	0	0	0
1542			2	.002	8.399	0	0	0	-59.163
1543			3	.002	.093	0	0	0	-79.08
1544			4	.002	-8.368	0	0	0	-59.383
1545			5	.002	-16.83	0	0	0	0
1546	3	M310	1	-.006	13.188	0	0	0	0
1547			2	-.006	7.216	0	0	0	-51.146
1548			3	-.006	0	0	0	0	-68.195
1549			4	-.006	-7.216	0	0	0	-51.146
1550			5	-.006	-14.433	0	0	0	0
1551	3	M311	1	-.044	14.713	0	0	0	0
1552			2	-.044	8.43	0	0	0	-58.795
1553			3	-.044	-.031	0	0	0	-78.786
1554			4	-.044	-8.337	0	0	0	-59.163
1555			5	-.044	-16.643	0	0	0	0
1556	3	M312	1	-.353	16.45	0	0	0	0
1557			2	-.353	10.015	0	0	0	-64.425
1558			3	-.353	1.09	0	0	0	-89.084
1559			4	-.353	-9.703	0	0	0	-67.32
1560			5	-.353	-19.251	0	0	0	0
1561	3	M313	1	-.043	13.452	0	0	0	0
1562			2	-.043	7.17	0	0	0	-51.808
1563			3	-.043	-.047	0	0	0	-68.636
1564			4	-.043	-7.263	0	0	0	-51.367
1565			5	-.043	-14.48	0	0	0	0
1566	3	M314	1	-.006	15.149	0	0	0	0
1567			2	-.006	8.399	0	0	0	-59.163
1568			3	-.006	.093	0	0	0	-79.08
1569			4	-.006	-8.368	0	0	0	-59.383
1570			5	-.006	-16.83	0	0	0	0
1571	3	M315	1	.002	14.713	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1572			2	.002	8.43	0	0	0	-58.795
1573			3	.002	-.031	0	0	0	-78.786
1574			4	.002	-8.337	0	0	0	-59.163
1575			5	.002	-16.643	0	0	0	0
1576	3	M316	1	0	12.923	0	0	0	0
1577			2	0	7.263	0	0	0	-50.485
1578			3	0	.047	0	0	0	-67.754
1579			4	0	-7.17	0	0	0	-50.926
1580			5	0	-14.386	0	0	0	0
1581	3	M317	1	0	13.452	0	0	0	0
1582			2	0	7.17	0	0	0	-51.808
1583			3	0	-.047	0	0	0	-68.636
1584			4	0	-7.263	0	0	0	-51.367
1585			5	0	-14.48	0	0	0	0
1586	3	M318	1	0	109.986	0	0	0	0
1587			2	0	61.834	0	0	0	-423.426
1588			3	0	4.031	0	0	0	-581.68
1589			4	0	-60.464	0	0	0	-450.858
1590			5	0	-131.496	0	0	0	0
1591	3	M319	1	0	-13.172	0	0	0	0
1592			2	0	-7.823	0	0	0	52.25
1593			3	0	-.607	0	0	0	70.402
1594			4	0	7.543	0	0	0	52.691
1595			5	0	14.76	0	0	0	0
1596	3	M320	1	0	13.047	0	0	0	0
1597			2	0	7.551	0	0	0	-50.119
1598			3	0	-.747	0	0	0	-66.165
1599			4	0	-7.177	0	0	0	-48.136
1600			5	0	-12.674	0	0	0	0
1601	3	M321	1	0	12.783	0	0	0	0
1602			2	0	7.598	0	0	0	-49.482
1603			3	0	-.7	0	0	0	-65.74
1604			4	0	-7.131	0	0	0	-47.924
1605			5	0	-12.627	0	0	0	0
1606	3	M322	1	0	14.012	0	0	0	0
1607			2	0	8.516	0	0	0	-54.935
1608			3	0	-.716	0	0	0	-72.963
1609			4	0	-7.925	0	0	0	-53.306
1610			5	0	-14.199	0	0	0	0
1611	3	M323	1	0	13.903	0	0	0	0
1612			2	0	8.563	0	0	0	-55.077
1613			3	0	-.825	0	0	0	-73.671
1614			4	0	-8.034	0	0	0	-53.518
1615			5	0	-13.997	0	0	0	0
1616	3	M324	1	-.015	13.701	0	0	0	0
1617			2	-.015	8.516	0	0	0	-54.652
1618			3	-.015	-.716	0	0	0	-72.68
1619			4	-.015	-7.925	0	0	0	-53.023
1620			5	-.015	-13.888	0	0	0	0
1621	3	M325	1	.399	11.584	0	0	0	0
1622			2	.399	6.71	0	0	0	-44.17
1623			3	.399	-.654	0	0	0	-58.799
1624			4	.399	-6.306	0	0	0	-42.966

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1625			5	.399	-11.647	0	0	0	0
1626	3	M326	1	-.246	10.168	0	0	0	0
1627			2	-.246	5.761	0	0	0	-38.363
1628			3	-.246	-.514	0	0	0	-50.726
1629			4	-.246	-5.387	0	0	0	-37.301
1630			5	-.246	-10.261	0	0	0	0
1631	3	M327	1	-.412	11.04	0	0	0	0
1632			2	-.412	6.633	0	0	0	-43.887
1633			3	-.412	-.576	0	0	0	-57.808
1634			4	-.412	-6.228	0	0	0	-42.329
1635			5	-.412	-11.257	0	0	0	0
1636	3	M328	1	.015	11.584	0	0	0	0
1637			2	.015	6.71	0	0	0	-44.17
1638			3	.015	-.654	0	0	0	-58.799
1639			4	.015	-6.306	0	0	0	-42.966
1640			5	.015	-11.647	0	0	0	0
1641	3	M329	1	-.382	13.405	0	0	0	0
1642			2	-.382	9.154	0	0	0	-55.147
1643			3	-.382	-1.012	0	0	0	-76.221
1644			4	-.382	-8.687	0	0	0	-53.023
1645			5	-.382	-13.25	0	0	0	0
1646	3	M330	1	-.814	45.225	0	.009	0	0
1647			2	-.814	22.597	0	.009	0	-158.354
1648			3	-.814	-1.899	0	.009	0	-210.643
1649			4	-.814	-23.593	0	.009	0	-147.493
1650			5	-.814	-34.703	0	.009	0	0
1651	3	M331	1	-.808	-43.809	0	-.008	0	0
1652			2	-.808	-22.114	0	-.008	0	153.816
1653			3	-.808	2.07	0	-.008	0	204.245
1654			4	-.808	22.986	0	-.008	0	141.096
1655			5	-.808	33.318	0	-.008	0	0
1656	3	M332	1	0	-32.271	0	0	0	0
1657			2	0	-14.808	0	0	0	140.76
1658			3	0	-8.669	0	0	0	194.9
1659			4	0	11.41	0	0	0	156.028
1660			5	0	37.776	0	0	0	0
1661	3	M333	1	0	13.867	-.002	0	0	0
1662			2	0	11.119	-.002	0	-.004	-35.996
1663			3	0	7.128	-.002	0	-.009	-62.119
1664			4	0	-11.819	.002	0	-.005	-38.632
1665			5	0	-14.722	.002	0	0	0
1666	3	M334	1	0	22.787	-.002	0	0	0
1667			2	0	18.651	-.002	0	-.007	-79.915
1668			3	0	0	.002	0	-.005	-106.544
1669			4	0	-18.651	0	0	0	-79.915
1670			5	0	-22.787	0	0	0	0
1671	3	M335	1	0	14.26	0	.01	0	0
1672			2	0	11.667	0	.01	.001	-38.029
1673			3	0	-7.17	0	.01	.002	-64.116
1674			4	0	-11.784	0	.01	.001	-38.049
1675			5	0	-14.532	0	.01	0	0
1676	3	M336	1	0	28.592	.005	1.095	0	0
1677			2	0	11.734	-.007	-.368	.023	-117.206

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1678			3	0	-6.152	-.09	-.368	-.013	-155.375
1679			4	0	-11.936	-.09	-.368	-.411	-116.042
1680			5	0	-28.282	.094	-.368	0	0
1681	3	M337	1	0	13.925	-.094	.172	0	0
1682			2	0	9.39	-.094	.172	-.414	-52.387
1683			3	0	-20.113	.087	.172	-.032	-28.143
1684			4	0	-39.475	.091	.172	-.007	73.62
1685			5	0	-45.255	.091	.172	.394	259.478
1686	3	M338	1	0	68.727	.055	0	-.321	412.626
1687			2	0	64.875	.055	0	-.159	216.504
1688			3	0	9.891	0	0	0	35.83
1689			4	0	6.654	0	0	0	10.37
1690			5	0	0	0	0	0	0
1691	3	M339	1	.794	21.993	0	0	0	0
1692			2	.794	17.857	0	0	.001	-76.898
1693			3	.794	.051	0	0	0	-102.623
1694			4	.794	-17.801	0	0	0	-76.686
1695			5	.794	-21.937	0	0	0	0
1696	3	M340	1	.766	13.926	0	0	0	0
1697			2	.766	11.178	0	0	0	-37.041
1698			3	.766	-7.03	0	0	-.001	-61.228
1699			4	.766	-11.179	0	0	0	-35.946
1700			5	.766	-13.772	0	0	0	0
1701	3	M341	1	.614	22.238	0	0	0	0
1702			2	.614	17.946	0	0	-.001	-78.241
1703			3	.614	.047	0	0	0	-103.995
1704			4	.614	-17.962	0	0	0	-77.768
1705			5	.614	-22.098	0	0	0	0
1706	3	M342	1	.591	13.973	0	0	0	0
1707			2	.591	11.381	0	0	0	-36.866
1708			3	.591	-7.077	0	0	.001	-61.489
1709			4	.591	-11.226	0	0	0	-36.077
1710			5	.591	-13.818	0	0	0	0
1711	3	M343	1	.064	21.469	.043	0	0	0
1712			2	.064	16.601	.043	0	.194	-89.865
1713			3	.064	-3.391	-.032	0	.054	-118.602
1714			4	.064	-16.575	-.032	0	.147	-88.547
1715			5	.064	-21.599	-.032	0	0	0
1716	3	M344	1	0	36.751	.023	0	0	0
1717			2	0	33.128	.023	0	.107	-159.825
1718			3	0	-8.818	-.013	0	.05	-210.15
1719			4	0	-32.902	-.018	0	.08	-159.507
1720			5	0	-37.148	-.018	0	0	0
1721	3	M345	1	-.269	-132.243	.001	0	0	0
1722			2	-.269	-94.777	-.001	0	.004	847.937
1723			3	-.269	-53.446	0	0	0	1375.746
1724			4	.665	55.073	0	0	0	1305.384
1725			5	.665	281.451	0	0	0	0
1726	3	M346	1	-.24	-95.722	.002	0	0	0
1727			2	-.24	-65.762	-.002	0	.006	609.56
1728			3	-.24	-34	0	0	0	961.595
1729			4	.519	60.757	0	0	0	808.814
1730			5	.519	154.642	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1731	3	M347	1	-.269	26.343	-.017	0	0	0
1732			2	-.269	18.907	-.017	0	-.05	-67.203
1733			3	-.269	12.716	.017	0	-.1	-114.492
1734			4	-.269	-18.845	.017	0	-.05	-68.168
1735			5	-.269	-27.059	.017	0	0	0
1736	3	M348	1	-.237	19.06	-.029	0	0	0
1737			2	-.237	15.827	-.029	0	-.087	-52.468
1738			3	-.237	12.593	.029	0	-.174	-94.111
1739			4	-.237	-15.733	.029	0	-.087	-52.742
1740			5	-.237	-19.278	.029	0	0	0
1741	3	M349	1	0	35.178	0	0	0	0
1742			2	0	9.761	0	0	0	-148.513
1743			3	0	-8.574	0	0	0	-183.494
1744			4	0	-13.624	0	0	0	-131.64
1745			5	0	-29.826	0	0	0	0
1746	3	M350	1	0	12.897	-.003	0	0	0
1747			2	0	10.304	-.003	0	-.009	-33.299
1748			3	0	7.09	-.003	0	-.019	-57.867
1749			4	0	-10.968	.004	0	-.01	-35.657
1750			5	0	-13.405	.004	0	0	0
1751	3	M351	1	0	21.013	-.004	0	0	0
1752			2	0	17.655	-.004	0	-.016	-74.651
1753			3	0	.093	.004	0	-.01	-99.683
1754			4	0	-17.624	0	0	0	-74.947
1755			5	0	-21.448	0	0	0	0
1756	3	M352	1	0	13.359	0	0	0	0
1757			2	0	10.922	0	0	.001	-35.527
1758			3	0	-7.849	0	0	.003	-60.412
1759			4	0	-10.91	0	0	.001	-34.615
1760			5	0	-13.036	0	0	0	0
1761	3	M353	1	0	26.799	-.005	0	0	0
1762			2	0	10.314	.007	0	-.021	-109.478
1763			3	0	-6.296	.115	0	.016	-145.144
1764			4	0	-10.368	.115	0	.526	-108.549
1765			5	0	-26.698	-.12	0	0	0
1766	3	M354	1	0	17.225	.12	-.173	0	0
1767			2	0	13.157	.12	-.173	.53	-67.526
1768			3	0	-15.256	-.112	-.173	.036	-62.599
1769			4	0	-33.528	-.089	-.173	0	14.986
1770			5	0	-37.596	-.089	-.173	-.392	171.597
1771	3	M355	1	0	64.897	-.065	.103	.335	461.859
1772			2	0	61.2	-.065	.103	.144	276.897
1773			3	0	37.154	.005	.103	-.044	104.16
1774			4	0	34.233	.005	.103	-.03	-1.423
1775			5	0	28.513	.005	.103	-.016	-93.736
1776	3	M356	1	0	28.513	.005	.103	-.016	-93.736
1777			2	0	21.317	.005	.103	.006	-203.472
1778			3	0	-11.874	-.002	.103	.001	-216.635
1779			4	0	-30.176	0	.103	0	-145.677
1780			5	0	-34.259	0	.103	0	0
1781	3	M357	1	0	21.419	0	0	0	0
1782			2	0	17.902	0	0	0	-76.751
1783			3	0	.804	0	0	0	-103.671

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-..	z-z Moment[k-...
1784			4	0	-18.489	0	0	0	-78.22
1785			5	0	-22.161	0	0	0	0
1786	3	M358	1	0	30.413	0	0	0	0
1787			2	0	13.573	0	0	0	-132.717
1788			3	0	-4.949	0	0	0	-183.722
1789			4	0	-10.155	0	0	0	-147.303
1790			5	0	-35.276	0	0	0	0
1791	3	M359	1	-.269	101.991	.001	0	0	0
1792			2	-.269	66.752	-.001	0	.004	-624.874
1793			3	-.269	28.236	0	0	-.001	-952.916
1794			4	.135	-80.483	.003	0	.01	-675.103
1795			5	.135	-108.982	-.005	0	0	0
1796	3	M360	1	-.239	84.603	.002	0	0	0
1797			2	-.239	57.463	-.002	0	.006	-530.668
1798			3	-.239	26.77	0	0	-.002	-823.587
1799			4	.154	-70.313	.007	0	.016	-579.794
1800			5	.154	-92.893	-.009	0	0	0
1801	3	M361	1	.135	28.962	.007	0	0	0
1802			2	.135	25.963	.007	0	.025	-95.757
1803			3	.135	4.372	-.004	0	.015	-127.357
1804			4	.135	-25.155	-.001	0	.005	-97.06
1805			5	.135	-31.578	-.001	0	0	0
1806	3	M362	1	.154	4.242	.014	0	0	0
1807			2	.154	1.71	.014	0	.047	-10.775
1808			3	.154	-20.032	-.009	0	.026	42.647
1809			4	.154	-50.815	-.004	0	.003	159.675
1810			5	.154	-58.484	-.004	0	-.011	346.769
1811	3	M363	1	0	65.134	0	0	0	0
1812			2	0	51.128	0	0	-.002	-294.236
1813			3	0	-15.887	0	0	0	-365.469
1814			4	0	-47.968	0	0	0	-267.095
1815			5	0	-52.946	0	0	0	0
1816	3	M364	1	0	23.94	0	0	0	0
1817			2	0	21.011	0	0	0	-68.079
1818			3	0	2.589	0	0	0	-95.204
1819			4	0	-23.553	0	0	0	-74.633
1820			5	0	-26.016	0	0	0	0
1821	3	M365	1	.006	75.293	.002	0	-.011	346.769
1822			2	.006	65.334	.002	0	0	-17.158
1823			3	.006	27.483	0	0	.001	-176.172
1824			4	.006	-29.608	0	0	0	-170.454
1825			5	.006	-34.586	0	0	0	0
1826	3	M366	1	.006	23.256	0	0	0	0
1827			2	.006	20.482	0	0	0	-66.355
1828			3	.006	2.626	0	0	0	-92.913
1829			4	.006	-23.045	0	0	0	-72.875
1830			5	.006	-25.663	0	0	0	0
1831	3	M367	1	2.684	49.61	0	0	0	0
1832			2	2.684	44.165	0	0	.002	-247.017
1833			3	2.684	14.875	0	0	.003	-338.471
1834			4	2.684	-45.776	0	0	0	-256.218
1835			5	2.684	-50.91	0	0	0	0
1836	3	M368	1	2.667	24.224	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1837			2	2.667	21.606	0	0	0	-69.678
1838			3	2.667	2.646	0	0	0	-97.513
1839			4	2.667	-24.128	0	0	0	-76.498
1840			5	2.667	-26.746	0	0	0	0
1841	3	M369	1	.014	41.09	.001	0	0	0
1842			2	.014	35.801	.001	0	.006	-203.102
1843			3	.014	11.416	0	0	.003	-277.622
1844			4	.014	-37.294	0	0	0	-210.526
1845			5	.014	-42.272	0	0	0	0
1846	3	M370	1	.015	20.389	0	0	0	0
1847			2	.015	17.771	0	0	0	-57.8
1848			3	.015	2.174	0	0	0	-80.853
1849			4	.015	-19.804	0	0	0	-63.153
1850			5	.015	-22.422	0	0	0	0
1851	3	M371	1	0	38.445	.002	0	0	0
1852			2	0	32.844	.002	0	.01	-187.765
1853			3	0	10.803	-.001	0	.003	-257.723
1854			4	0	-34.184	0	0	0	-195.108
1855			5	0	-39.629	0	0	0	0
1856	3	M372	1	0	19.139	0	0	0	0
1857			2	0	16.366	0	0	0	-54.098
1858			3	0	1.899	0	0	0	-75.305
1859			4	0	-18.249	0	0	0	-58.72
1860			5	0	-20.711	0	0	0	0
1861	3	M373	1	-.128	37.928	.003	.009	0	0
1862			2	-.128	32.95	.003	.009	.018	-187.003
1863			3	-.128	10.225	-.003	.009	0	-254.548
1864			4	-.128	-33.969	0	.009	0	-192.819
1865			5	-.128	-38.791	0	.009	0	0
1866	3	M374	1	-.127	18.895	0	0	0	0
1867			2	-.127	16.122	0	0	0	-53.273
1868			3	-.127	1.966	0	0	0	-74.154
1869			4	-.127	-18.135	0	0	0	-58.144
1870			5	-.127	-20.753	0	0	0	0
1871	3	M375	1	-.003	42.862	.002	0	0	0
1872			2	-.003	37.572	.002	0	.01	-212.49
1873			3	-.003	12.086	-.002	0	.001	-290.567
1874			4	-.003	-39.137	0	0	0	-220.288
1875			5	-.003	-44.115	0	0	0	0
1876	3	M376	1	-.003	21.474	0	0	0	0
1877			2	-.003	18.545	0	0	0	-60.682
1878			3	-.003	2.283	0	0	0	-84.727
1879			4	-.003	-20.828	0	0	0	-66.223
1880			5	-.003	-23.446	0	0	0	0
1881	3	M377	1	2.707	-50.168	.001	0	0	0
1882			2	2.707	-45.079	.023	0	.006	238.897
1883			3	2.707	-12.845	.077	0	.121	315.075
1884			4	2.707	42.658	-.069	0	.345	231.694
1885			5	2.707	51.639	-.069	0	0	0
1886	3	M378	1	.014	-39.655	.003	0	0	0
1887			2	.014	-34.721	.023	0	.015	186.876
1888			3	.014	-8.497	.034	0	.131	240.761
1889			4	.014	30.846	-.043	0	.215	170.068

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-..	z-z Moment[k-...
1890			5	.014	37.181	-.043	0	0	0
1891	3	M379	1	0	-36.637	.004	0	0	0
1892			2	0	-32.169	.019	0	.021	173.108
1893			3	0	-7.962	.019	0	.115	223.623
1894			4	0	28.451	-.031	0	.156	157.86
1895			5	0	34.631	-.031	0	0	0
1896	3	M380	1	.07	-36.62	.006	-.009	0	0
1897			2	.07	-31.375	.01	-.009	.03	171.545
1898			3	.07	-7.386	.01	-.009	.08	221.27
1899			4	.07	28.561	-.019	-.009	.095	156.074
1900			5	.07	34.118	-.019	-.009	0	0
1901	3	M381	1	0	-41.388	.004	0	0	0
1902			2	0	-36.454	.007	0	.018	195.541
1903			3	0	-9.035	.007	0	.052	252.122
1904			4	0	32.572	-.011	0	.057	177.765
1905			5	0	38.596	-.011	0	0	0
1906	3	M382	1	.014	-32.179	-.028	0	0	0
1907			2	.014	-10.815	-.005	0	-.134	141.383
1908			3	.014	8.781	-.005	0	-.157	184.23
1909			4	.014	25.691	.037	0	-.175	131.223
1910			5	.014	30.121	.037	0	0	0
1911	3	M383	1	0	-35.073	-.022	0	0	0
1912			2	0	-13.113	-.006	0	-.104	153.351
1913			3	0	-8.838	-.006	0	-.132	207.109
1914			4	0	30.481	.023	0	-.108	153.312
1915			5	0	34.756	.023	0	0	0
1916	3	M384	1	.067	-34.501	-.014	0	0	0
1917			2	.067	-13.007	-.005	0	-.068	152.408
1918			3	.067	8.797	.014	0	-.092	205.668
1919			4	.067	30.291	.005	0	-.026	152.407
1920			5	.067	34.566	.005	0	0	0
1921	3	M385	1	0	-38.904	-.009	0	0	0
1922			2	0	-14.635	-.003	0	-.043	173.115
1923			3	0	10.241	.007	0	-.055	233.44
1924			4	0	34.51	.004	0	-.02	173.117
1925			5	0	38.941	.004	0	0	0
1926	3	M386	1	0	-41.728	-.005	0	0	0
1927			2	0	-36.798	-.005	0	-.026	196.263
1928			3	0	10.425	.004	0	-.062	254.151
1929			4	0	35.816	.009	0	-.044	188.128
1930			5	0	40.436	.009	0	0	0
1931	3	M387	1	.062	-37.055	-.007	0	0	0
1932			2	.062	-31.813	-.007	0	-.035	172.859
1933			3	.062	8.613	.007	0	-.104	223.946
1934			4	.062	31.29	.014	0	-.069	165.843
1935			5	.062	36.065	.014	0	0	0
1936	3	M388	1	0	-36.952	-.028	0	0	0
1937			2	0	-32.489	-.028	0	-.139	173.818
1938			3	0	9.525	.009	0	-.147	224.905
1939			4	0	31.658	.021	0	-.102	166.511
1940			5	0	35.966	.021	0	0	0
1941	3	M389	1	-.007	-32.284	-.045	0	0	0
1942			2	-.007	-27.354	-.045	0	-.223	149.279

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1943			3	-.007	6.591	.01	0	-.176	201.554
1944			4	-.007	29.093	.026	0	-.127	154.677
1945			5	-.007	33.712	.026	0	0	0
1946	3	M390	1	0	-41.29	.013	0	0	0
1947			2	0	-36.2	.013	0	.064	192.635
1948			3	0	-7.011	-.006	0	.041	253.247
1949			4	0	19.058	-.007	0	.007	188.769
1950			5	0	41.324	-.001	0	0	0
1951	3	M391	1	.06	-36.31	.022	-.004	0	0
1952			2	.06	-31.376	.022	-.004	.108	168.435
1953			3	.06	-6.146	-.011	-.004	.064	222.35
1954			4	.06	17.132	-.011	-.004	.01	166.73
1955			5	.06	37.059	-.001	-.004	0	0
1956	3	M392	1	0	-36.506	.036	.005	0	0
1957			2	0	-31.261	.036	.005	.178	168.638
1958			3	0	-6.291	-.02	.005	.093	223.195
1959			4	0	16.765	-.016	.005	.011	166.263
1960			5	0	36.52	0	.005	0	0
1961	3	M393	1	-.006	-39.306	.049	0	0	0
1962			2	-.006	-34.527	.049	0	.247	183.96
1963			3	-.006	-6.657	-.032	0	.109	242.41
1964			4	-.006	18.404	-.017	0	.009	180.853
1965			5	-.006	39.663	0	0	0	0
1966	3	M394	1	2.149	-54.138	.079	0	0	0
1967			2	2.149	-47.18	.079	0	.396	249.404
1968			3	2.149	-7.335	-.064	0	.117	313.064
1969			4	2.149	23.762	-.013	0	.005	228.375
1970			5	2.149	49.521	0	0	0	0
1971	3	M395	1	0	-41.212	0	0	0	0
1972			2	0	-35.941	0	0	0	198.991
1973			3	0	9.364	0	0	0	269.46
1974			4	0	37.198	0	0	0	207.268
1975			5	0	42.469	0	0	0	0
1976	3	M396	1	.058	-36.955	0	-.272	0	0
1977			2	.058	-31.528	0	-.272	0	175.751
1978			3	.058	8.295	0	.269	0	238.383
1979			4	.058	32.498	0	.269	0	182.539
1980			5	.058	37.924	0	.269	0	0
1981	3	M397	1	0	-36.343	0	.332	0	0
1982			2	0	-32.005	0	.332	0	176.367
1983			3	0	7.897	0	-.328	0	237.958
1984			4	0	32.379	0	-.328	0	182.085
1985			5	0	37.494	0	-.328	0	0
1986	3	M398	1	-.006	-39.57	0	0	0	0
1987			2	-.006	-34.299	0	0	0	190.492
1988			3	-.006	8.883	0	0	0	257.859
1989			4	-.006	35.444	0	0	0	198.191
1990			5	-.006	40.716	0	0	0	0
1991	3	M399	1	2.119	-47.316	0	0	0	0
1992			2	2.119	-42.356	0	0	0	231.22
1993			3	2.119	11.179	0	0	0	312.371
1994			4	2.119	43.346	0	0	0	240.53
1995			5	2.119	48.928	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
1996	3	M400	1	0	-26.601	0	0	0	0
1997			2	0	-22.82	0	0	0	87.25
1998			3	0	-.119	0	0	0	116.412
1999			4	0	22.877	0	0	0	86.796
2000			5	0	26.347	0	0	0	0
2001	3	M401	1	.058	-24.086	0	.006	0	0
2002			2	.058	-19.838	0	.006	0	77.521
2003			3	.058	-.178	0	.006	0	103.17
2004			4	.058	19.903	0	.006	0	76.822
2005			5	.058	23.373	0	.006	0	0
2006	3	M402	1	0	-23.342	0	-.007	0	0
2007			2	0	-20.183	0	-.007	0	77.149
2008			3	0	-.103	0	-.007	0	103.046
2009			4	0	19.916	0	-.007	0	76.812
2010			5	0	23.852	0	-.007	0	0
2011	3	M403	1	-.006	-25.501	0	0	0	0
2012			2	-.006	-21.72	0	0	0	83.399
2013			3	-.006	-.073	0	0	0	111.135
2014			4	-.006	21.838	0	0	0	83.158
2015			5	-.006	25.308	0	0	0	0
2016	3	M404	1	2.096	-30.248	0	0	0	0
2017			2	2.096	-26.779	0	0	0	100.886
2018			3	2.096	-.072	0	0	0	135.125
2019			4	2.096	26.651	0	0	0	100.874
2020			5	2.096	30.743	0	0	0	0
2021	3	M405	1	.555	-13.965	-.031	-.059	0	0
2022			2	.555	-31.676	.368	-.059	.184	97.061
2023			3	-.831	34.875	.38	.037	-.533	109.823
2024			4	-.831	13.045	-.032	.037	.103	-10.153
2025			5	-.831	-9.491	-.017	.037	0	0
2026	3	M406	1	.722	-14.932	.011	.053	0	0
2027			2	.722	-32.58	-.388	.053	-.291	102.103
2028			3	-.819	35.632	-.379	-.034	.526	115.701
2029			4	-.819	13.555	.032	-.034	-.106	-7.606
2030			5	-.819	-8.763	.017	-.034	0	0
2031	3	M407	1	-.259	18.262	0	0	0	0
2032			2	-.259	14.057	0	0	0	-70.884
2033			3	-.259	2.07	0	0	0	-108.118
2034			4	-.259	-14.275	0	0	0	-80.989
2035			5	-.259	-21.905	0	0	0	0
2036	3	M408	1	-.272	21.204	0	0	0	0
2037			2	-.272	13.435	0	0	0	-75.086
2038			3	-.272	-1.494	0	0	0	-100.719
2039			4	-.272	-13.466	0	0	0	-67.634
2040			5	-.272	-17.966	0	0	0	0
2041	3	M409	1	0	-18.36	0	0	0	0
2042			2	0	-11.764	0	0	0	75.636
2043			3	0	-.498	0	0	0	104.316
2044			4	0	10.923	0	0	0	80.318
2045			5	0	22.344	0	0	0	0
2046	3	M410	1	0	-13.628	0	0	0	0
2047			2	0	-7.81	0	0	0	53.859
2048			3	0	-.125	0	0	0	72.209

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2049			4	0	7.561	0	0	0	55.048
2050			5	0	15.247	0	0	0	0
2051	3	M411	1	0	-12.258	0	0	0	0
2052			2	0	-6.907	0	0	0	47.988
2053			3	0	0	0	0	0	63.884
2054			4	0	6.596	0	0	0	48.582
2055			5	0	13.503	0	0	0	0
2056	3	M412	1	.004	-14.998	0	0	0	0
2057			2	.004	-8.713	0	0	0	59.731
2058			3	.004	-.249	0	0	0	80.533
2059			4	.004	8.526	0	0	0	61.514
2060			5	.004	16.99	0	0	0	0
2061	3	M413	1	-.015	-15.107	0	0	0	0
2062			2	-.015	-8.822	0	0	0	60.845
2063			3	-.015	-.047	0	0	0	81.276
2064			4	-.015	8.417	0	0	0	61.886
2065			5	-.015	17.192	0	0	0	0
2066	3	M414	1	-.251	-14.998	0	0	0	0
2067			2	-.251	-8.713	0	0	0	59.731
2068			3	-.251	-.249	0	0	0	80.533
2069			4	-.251	8.526	0	0	0	61.514
2070			5	-.251	16.99	0	0	0	0
2071	3	M415	1	-.018	-13.893	0	0	0	0
2072			2	-.018	-7.763	0	0	0	54.528
2073			3	-.018	-.078	0	0	0	72.654
2074			4	-.018	7.608	0	0	0	55.271
2075			5	-.018	15.293	0	0	0	0
2076	3	M416	1	.01	-13.893	0	0	0	0
2077			2	.01	-7.763	0	0	0	54.528
2078			3	.01	-.078	0	0	0	72.654
2079			4	.01	7.608	0	0	0	55.271
2080			5	.01	15.293	0	0	0	0
2081	3	M417	1	-.002	-15.107	0	0	0	0
2082			2	-.002	-8.822	0	0	0	60.845
2083			3	-.002	-.047	0	0	0	81.276
2084			4	-.002	8.417	0	0	0	61.886
2085			5	-.002	17.192	0	0	0	0
2086	3	M418	1	.004	-14.998	0	0	0	0
2087			2	.004	-8.713	0	0	0	59.731
2088			3	.004	-.249	0	0	0	80.533
2089			4	.004	8.526	0	0	0	61.514
2090			5	.004	16.99	0	0	0	0
2091	3	M419	1	.082	-14.873	0	0	0	0
2092			2	.082	-8.9	0	0	0	59.731
2093			3	.082	-.125	0	0	0	80.533
2094			4	.082	8.339	0	0	0	61.514
2095			5	.082	17.115	0	0	0	0
2096	3	M420	1	.029	-12.087	0	0	0	0
2097			2	.029	-6.736	0	0	0	47.765
2098			3	.029	-.14	0	0	0	63.736
2099			4	.029	6.767	0	0	0	48.508
2100			5	.029	13.363	0	0	0	0
2101	3	M421	1	.153	-12.258	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-..	z-z Moment[k-...
2102			2	.153	-6.907	0	0	0	47.988
2103			3	.153	0	0	0	0	63.884
2104			4	.153	6.596	0	0	0	48.582
2105			5	.153	13.503	0	0	0	0
2106	3	M422	1	-.345	-12.118	0	0	0	0
2107			2	-.345	-6.767	0	0	0	47.319
2108			3	-.345	-.171	0	0	0	63.438
2109			4	-.345	6.736	0	0	0	48.359
2110			5	-.345	13.332	0	0	0	0
2111	3	M423	1	-3.515	-13.893	0	0	0	0
2112			2	-3.515	-7.763	0	0	0	54.528
2113			3	-3.515	-.078	0	0	0	72.654
2114			4	-3.515	7.608	0	0	0	55.271
2115			5	-3.515	15.293	0	0	0	0
2116	3	M424	1	-.348	-12.258	0	0	0	0
2117			2	-.348	-6.907	0	0	0	47.988
2118			3	-.348	0	0	0	0	63.884
2119			4	-.348	6.596	0	0	0	48.582
2120			5	-.348	13.503	0	0	0	0
2121	3	M425	1	.157	-12.087	0	0	0	0
2122			2	.157	-6.736	0	0	0	47.765
2123			3	.157	-.14	0	0	0	63.736
2124			4	.157	6.767	0	0	0	48.508
2125			5	.157	13.363	0	0	0	0
2126	3	M426	1	.035	-13.893	0	0	0	0
2127			2	.035	-7.763	0	0	0	54.528
2128			3	.035	-.078	0	0	0	72.654
2129			4	.035	7.608	0	0	0	55.271
2130			5	.035	15.293	0	0	0	0
2131	3	M427	1	0	-15.968	0	0	.002	-44.696
2132			2	0	-10.15	0	0	.001	20.337
2133			3	0	-2.465	0	0	0	49.861
2134			4	0	5.221	0	0	0	43.874
2135			5	0	12.907	0	0	0	0
2136	3	M428	1	-.007	-50.828	0	0	0	0
2137			2	-.007	-40.341	0	0	0	226.287
2138			3	-.007	-12.732	0	0	0	355.822
2139			4	-.007	32.932	0	0	0	318.298
2140			5	-.007	101.943	0	0	0	0
2141	3	M429	1	0	-13.172	0	0	0	0
2142			2	0	-7.823	0	0	0	52.25
2143			3	0	-.607	0	0	0	70.402
2144			4	0	7.543	0	0	0	52.691
2145			5	0	14.76	0	0	0	0
2146	3	M430	1	0	-13.172	0	0	0	0
2147			2	0	-7.823	0	0	0	52.25
2148			3	0	-.607	0	0	0	70.402
2149			4	0	7.543	0	0	0	52.691
2150			5	0	14.76	0	0	0	0
2151	3	M431	1	0	-14.962	0	0	0	0
2152			2	0	-9.146	0	0	0	59.457
2153			3	0	-.841	0	0	0	81.139
2154			4	0	8.711	0	0	0	60.928

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2155			5	0	17.017	0	0	0	0
2156	3	M432	1	0	-13.172	0	0	0	0
2157			2	0	-7.823	0	0	0	52.25
2158			3	0	-.607	0	0	0	70.402
2159			4	0	7.543	0	0	0	52.691
2160			5	0	14.76	0	0	0	0
2161	3	M433	1	.005	-13.172	0	0	0	0
2162			2	.005	-7.823	0	0	0	52.25
2163			3	.005	-.607	0	0	0	70.402
2164			4	.005	7.543	0	0	0	52.691
2165			5	.005	14.76	0	0	0	0
2166	3	M434	1	.016	-15.102	0	0	0	0
2167			2	.016	-9.131	0	0	0	60.634
2168			3	.016	-.669	0	0	0	81.58
2169			4	.016	8.726	0	0	0	61.075
2170			5	.016	17.188	0	0	0	0
2171	3	M435	1	-.076	-11.242	0	0	0	0
2172			2	-.076	-6.516	0	0	0	43.866
2173			3	-.076	-.545	0	0	0	59.223
2174			4	-.076	6.36	0	0	0	44.307
2175			5	-.076	12.332	0	0	0	0
2176	3	M436	1	-.151	-14.838	0	0	0	0
2177			2	-.151	-9.178	0	0	0	59.972
2178			3	-.151	-.716	0	0	0	81.139
2179			4	-.151	8.68	0	0	0	60.854
2180			5	-.151	17.141	0	0	0	0
2181	3	M437	1	.033	-14.962	0	0	0	0
2182			2	.033	-9.146	0	0	0	59.457
2183			3	.033	-.841	0	0	0	81.139
2184			4	.033	8.711	0	0	0	60.928
2185			5	.033	17.017	0	0	0	0
2186	3	M438	1	.679	-13.172	0	0	0	0
2187			2	.679	-7.823	0	0	0	52.25
2188			3	.679	-.607	0	0	0	70.402
2189			4	.679	7.543	0	0	0	52.691
2190			5	.679	14.76	0	0	0	0
2191	3	M439	1	1.408	-13.172	0	0	0	0
2192			2	1.408	-7.823	0	0	0	52.25
2193			3	1.408	-.607	0	0	0	70.402
2194			4	1.408	7.543	0	0	0	52.691
2195			5	1.408	14.76	0	0	0	0
2196	3	M440	1	1.964	-13.172	0	0	0	0
2197			2	1.964	-7.823	0	0	0	52.25
2198			3	1.964	-.607	0	0	0	70.402
2199			4	1.964	7.543	0	0	0	52.691
2200			5	1.964	14.76	0	0	0	0
2201	3	M441	1	2.178	-15.102	0	0	0	0
2202			2	2.178	-9.131	0	0	0	60.634
2203			3	2.178	-.669	0	0	0	81.58
2204			4	2.178	8.726	0	0	0	61.075
2205			5	2.178	17.188	0	0	0	0
2206	3	M442	1	2.196	-13.468	0	0	0	0
2207			2	2.196	-7.808	0	0	0	52.47

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2208			3	2.196	-.591	0	0	0	70.549
2209			4	2.196	7.559	0	0	0	52.764
2210			5	2.196	14.775	0	0	0	0
2211	3	M443	1	.316	-13.172	0	0	0	0
2212			2	.316	-7.823	0	0	0	52.25
2213			3	.316	-.607	0	0	0	70.402
2214			4	.316	7.543	0	0	0	52.691
2215			5	.316	14.76	0	0	0	0
2216	3	M444	1	-.24	-11.242	0	0	0	0
2217			2	-.24	-6.516	0	0	0	43.866
2218			3	-.24	-.545	0	0	0	59.223
2219			4	-.24	6.36	0	0	0	44.307
2220			5	-.24	12.332	0	0	0	0
2221	3	M445	1	.309	-13.172	0	0	0	0
2222			2	.309	-7.823	0	0	0	52.25
2223			3	.309	-.607	0	0	0	70.402
2224			4	.309	7.543	0	0	0	52.691
2225			5	.309	14.76	0	0	0	0
2226	3	M446	1	2.163	-13.172	0	0	0	0
2227			2	2.163	-7.823	0	0	0	52.25
2228			3	2.163	-.607	0	0	0	70.402
2229			4	2.163	7.543	0	0	0	52.691
2230			5	2.163	14.76	0	0	0	0
2231	3	M447	1	2.234	-13.172	0	0	0	0
2232			2	2.234	-7.823	0	0	0	52.25
2233			3	2.234	-.607	0	0	0	70.402
2234			4	2.234	7.543	0	0	0	52.691
2235			5	2.234	14.76	0	0	0	0
2236	3	M448	1	2.203	-13.468	0	0	0	0
2237			2	2.203	-7.808	0	0	0	52.47
2238			3	2.203	-.591	0	0	0	70.549
2239			4	2.203	7.559	0	0	0	52.764
2240			5	2.203	14.775	0	0	0	0
2241	3	M449	1	1.851	-13.172	0	0	0	0
2242			2	1.851	-7.823	0	0	0	52.25
2243			3	1.851	-.607	0	0	0	70.402
2244			4	1.851	7.543	0	0	0	52.691
2245			5	1.851	14.76	0	0	0	0
2246	3	M450	1	1.274	-15.133	0	0	0	0
2247			2	1.274	-9.162	0	0	0	60.192
2248			3	1.274	-.7	0	0	0	81.286
2249			4	1.274	8.695	0	0	0	60.928
2250			5	1.274	17.157	0	0	0	0
2251	3	M451	1	.294	-13.203	0	0	0	0
2252			2	.294	-7.855	0	0	0	51.808
2253			3	.294	-.638	0	0	0	70.107
2254			4	.294	7.512	0	0	0	52.544
2255			5	.294	14.729	0	0	0	0
2256	3	M452	1	0	-11.242	0	0	0	0
2257			2	0	-6.516	0	0	0	43.866
2258			3	0	-.545	0	0	0	59.223
2259			4	0	6.36	0	0	0	44.307
2260			5	0	12.332	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2261	3	M453	1	-.126	-15.102	0	0	0	0
2262			2	-.126	-9.131	0	0	0	60.634
2263			3	-.126	-.669	0	0	0	81.58
2264			4	-.126	8.726	0	0	0	61.075
2265			5	-.126	17.188	0	0	0	0
2266	3	M454	1	-.351	-15.227	0	0	0	0
2267			2	-.351	-9.1	0	0	0	60.119
2268			3	-.351	-.794	0	0	0	81.58
2269			4	-.351	8.757	0	0	0	61.148
2270			5	-.351	17.063	0	0	0	0
2271	3	M455	1	-.053	-13.172	0	0	0	0
2272			2	-.053	-7.823	0	0	0	52.25
2273			3	-.053	-.607	0	0	0	70.402
2274			4	-.053	7.543	0	0	0	52.691
2275			5	-.053	14.76	0	0	0	0
2276	3	M456	1	.017	-15.102	0	0	0	0
2277			2	.017	-9.131	0	0	0	60.634
2278			3	.017	-.669	0	0	0	81.58
2279			4	.017	8.726	0	0	0	61.075
2280			5	.017	17.188	0	0	0	0
2281	3	M457	1	.007	-15.227	0	0	0	0
2282			2	.007	-9.1	0	0	0	60.119
2283			3	.007	-.794	0	0	0	81.58
2284			4	.007	8.757	0	0	0	61.148
2285			5	.007	17.063	0	0	0	0
2286	3	M458	1	-.002	-13.172	0	0	0	0
2287			2	-.002	-7.823	0	0	0	52.25
2288			3	-.002	-.607	0	0	0	70.402
2289			4	-.002	7.543	0	0	0	52.691
2290			5	-.002	14.76	0	0	0	0
2291	3	M459	1	0	-9.219	0	0	0	0
2292			2	0	-5.271	0	0	0	35.555
2293			3	0	-.389	0	0	0	47.75
2294			4	0	5.115	0	0	0	35.702
2295			5	0	9.997	0	0	0	0
2296	3	M460	1	0	-13.468	0	0	0	0
2297			2	0	-7.808	0	0	0	52.47
2298			3	0	-.591	0	0	0	70.549
2299			4	0	7.559	0	0	0	52.764
2300			5	0	14.775	0	0	0	0
2301	3	M461	1	0	-7.227	0	0	0	0
2302			2	0	-4.61	0	0	0	17.862
2303			3	0	.187	0	0	0	24.109
2304			4	0	4.516	0	0	0	16.939
2305			5	0	6.978	0	0	0	0
2306	3	M462	1	0	-6.9	0	0	0	0
2307			2	0	-4.594	0	0	0	17.642
2308			3	0	.202	0	0	0	23.846
2309			4	0	4.532	0	0	0	16.631
2310			5	0	6.993	0	0	0	0
2311	3	M463	1	0	-6.9	0	0	0	0
2312			2	0	-4.594	0	0	0	17.642
2313			3	0	.202	0	0	0	23.846

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2314			4	0	4.532	0	0	0	16.631
2315			5	0	6.993	0	0	0	0
2316	3	M464	1	0	-8.161	0	-.004	0	0
2317			2	0	-5.388	0	-.004	0	20.456
2318			3	0	.187	0	-.004	0	27.803
2319			4	0	5.294	0	-.004	0	19.533
2320			5	0	7.912	0	-.004	0	0
2321	3	M465	1	0	-7.491	0	-.006	0	0
2322			2	0	-4.563	0	-.006	0	18.258
2323			3	0	.233	0	-.006	0	24.373
2324			4	0	4.563	0	-.006	0	17.071
2325			5	0	7.025	0	-.006	0	0
2326	3	M466	1	.004	-7.227	0	-.007	0	0
2327			2	.004	-4.61	0	-.007	0	17.51
2328			3	.004	.187	0	-.007	0	23.758
2329			4	.004	4.516	0	-.007	0	16.587
2330			5	.004	6.978	0	-.007	0	0
2331	3	M467	1	.015	-7.756	0	0	0	0
2332			2	.015	-5.294	0	0	0	20.017
2333			3	.015	.28	0	0	0	27.099
2334			4	.015	5.232	0	0	0	18.61
2335			5	.015	7.694	0	0	0	0
2336	3	M468	1	-.067	-5.779	0	0	0	0
2337			2	-.067	-3.94	0	0	0	14.872
2338			3	-.067	.078	0	0	0	20.328
2339			4	-.067	3.785	0	0	0	14.52
2340			5	-.067	6.246	0	0	0	0
2341	3	M469	1	-.15	-8.083	0	0	0	0
2342			2	-.15	-5.31	0	0	0	19.885
2343			3	-.15	.265	0	0	0	27.011
2344			4	-.15	5.217	0	0	0	18.566
2345			5	-.15	7.678	0	0	0	0
2346	3	M470	1	.008	-8.161	0	-.002	0	0
2347			2	.008	-5.388	0	-.002	0	20.456
2348			3	.008	.187	0	-.002	0	27.803
2349			4	.008	5.294	0	-.002	0	19.533
2350			5	.008	7.912	0	-.002	0	0
2351	3	M471	1	.69	-7.227	0	0	0	0
2352			2	.69	-4.61	0	0	0	17.862
2353			3	.69	.187	0	0	0	24.109
2354			4	.69	4.516	0	0	0	16.939
2355			5	.69	6.978	0	0	0	0
2356	3	M472	1	1.404	-7.227	0	.003	0	0
2357			2	1.404	-4.61	0	.003	0	17.51
2358			3	1.404	.187	0	.003	0	23.758
2359			4	1.404	4.516	0	.003	0	16.587
2360			5	1.404	6.978	0	.003	0	0
2361	3	M473	1	1.979	-6.635	0	.002	0	0
2362			2	1.979	-4.641	0	.002	0	17.247
2363			3	1.979	.156	0	.002	0	23.582
2364			4	1.979	4.485	0	.002	0	16.499
2365			5	1.979	6.947	0	.002	0	0
2366	3	M474	1	2.177	-7.756	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2367			2	2.177	-5.294	0	0	0	20.017
2368			3	2.177	.28	0	0	0	27.099
2369			4	2.177	5.232	0	0	0	18.61
2370			5	2.177	7.694	0	0	0	0
2371	3	M475	1	2.258	-7.227	0	0	0	0
2372			2	2.258	-4.61	0	0	0	17.862
2373			3	2.258	.187	0	0	0	24.109
2374			4	2.258	4.516	0	0	0	16.939
2375			5	2.258	6.978	0	0	0	0
2376	3	M476	1	.214	-6.9	0	.003	0	0
2377			2	.214	-4.594	0	.003	0	17.642
2378			3	.214	.202	0	.003	0	23.846
2379			4	.214	4.532	0	.003	0	16.631
2380			5	.214	6.993	0	.003	0	0
2381	3	M477	1	-.175	-6.044	0	0	0	0
2382			2	-.175	-3.894	0	0	0	14.916
2383			3	-.175	.125	0	0	0	20.24
2384			4	-.175	3.831	0	0	0	14.301
2385			5	-.175	6.293	0	0	0	0
2386	3	M478	1	.21	-7.227	0	-.004	0	0
2387			2	.21	-4.61	0	-.004	0	17.51
2388			3	.21	.187	0	-.004	0	23.758
2389			4	.21	4.516	0	-.004	0	16.587
2390			5	.21	6.978	0	-.004	0	0
2391	3	M479	1	2.228	-7.227	0	0	0	0
2392			2	2.228	-4.61	0	0	0	17.862
2393			3	2.228	.187	0	0	0	24.109
2394			4	2.228	4.516	0	0	0	16.939
2395			5	2.228	6.978	0	0	0	0
2396	3	M480	1	2.224	-7.227	0	0	0	0
2397			2	2.224	-4.61	0	0	0	17.862
2398			3	2.224	.187	0	0	0	24.109
2399			4	2.224	4.516	0	0	0	16.939
2400			5	2.224	6.978	0	0	0	0
2401	3	M481	1	2.219	-7.227	0	0	0	0
2402			2	2.219	-4.61	0	0	0	17.862
2403			3	2.219	.187	0	0	0	24.109
2404			4	2.219	4.516	0	0	0	16.939
2405			5	2.219	6.978	0	0	0	0
2406	3	M482	1	1.855	-7.227	0	-.001	0	0
2407			2	1.855	-4.61	0	-.001	0	17.862
2408			3	1.855	.187	0	-.001	0	24.109
2409			4	1.855	4.516	0	-.001	0	16.939
2410			5	1.855	6.978	0	-.001	0	0
2411	3	M483	1	1.279	-8.083	0	0	0	0
2412			2	1.279	-5.31	0	0	0	20.237
2413			3	1.279	.265	0	0	0	27.363
2414			4	1.279	5.217	0	0	0	18.917
2415			5	1.279	7.678	0	0	0	0
2416	3	M484	1	.272	-7.491	0	.009	0	0
2417			2	.272	-4.563	0	.009	0	18.258
2418			3	.272	.233	0	.009	0	24.373
2419			4	.272	4.563	0	.009	0	17.071

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2420			5	.272	7.025	0	.009	0	0
2421	3	M485	1	-.01	-6.044	0	.008	0	0
2422			2	-.01	-3.894	0	.008	0	14.916
2423			3	-.01	.125	0	.008	0	20.24
2424			4	-.01	3.831	0	.008	0	14.301
2425			5	-.01	6.293	0	.008	0	0
2426	3	M486	1	-.1	-7.756	0	.007	0	0
2427			2	-.1	-5.294	0	.007	0	20.017
2428			3	-.1	.28	0	.007	0	27.099
2429			4	-.1	5.232	0	.007	0	18.61
2430			5	-.1	7.694	0	.007	0	0
2431	3	M487	1	-.367	-8.161	0	-.003	0	0
2432			2	-.367	-5.388	0	-.003	0	20.456
2433			3	-.367	.187	0	-.003	0	27.803
2434			4	-.367	5.294	0	-.003	0	19.533
2435			5	-.367	7.912	0	-.003	0	0
2436	3	M488	1	-.037	-7.491	0	-.001	0	0
2437			2	-.037	-4.563	0	-.001	0	18.258
2438			3	-.037	.233	0	-.001	0	24.373
2439			4	-.037	4.563	0	-.001	0	17.071
2440			5	-.037	7.025	0	-.001	0	0
2441	3	M489	1	.011	-7.756	0	-.003	0	0
2442			2	.011	-5.294	0	-.003	0	19.665
2443			3	.011	.28	0	-.003	0	26.748
2444			4	.011	5.232	0	-.003	0	18.258
2445			5	.011	7.694	0	-.003	0	0
2446	3	M490	1	.006	-8.161	0	-.005	0	0
2447			2	.006	-5.388	0	-.005	0	20.456
2448			3	.006	.187	0	-.005	0	27.803
2449			4	.006	5.294	0	-.005	0	19.533
2450			5	.006	7.912	0	-.005	0	0
2451	3	M491	1	-.002	-7.491	0	0	0	0
2452			2	-.002	-4.563	0	0	0	18.258
2453			3	-.002	.233	0	0	0	24.373
2454			4	-.002	4.563	0	0	0	17.071
2455			5	-.002	7.025	0	0	0	0
2456	3	M492	1	0	-5.11	0	0	0	0
2457			2	0	-3.115	0	0	0	12.674
2458			3	0	.125	0	0	0	16.898
2459			4	0	3.053	0	0	0	12.058
2460			5	0	5.359	0	0	0	0
2461	3	M493	1	0	-7.491	0	0	0	0
2462			2	0	-4.563	0	0	0	18.258
2463			3	0	.233	0	0	0	24.373
2464			4	0	4.563	0	0	0	17.071
2465			5	0	7.025	0	0	0	0
2466	3	M494	1	0	-10.287	0	0	0	0
2467			2	0	-6.225	0	0	0	33.03
2468			3	0	.016	0	0	0	43.764
2469			4	0	6.257	0	0	0	32.912
2470			5	0	10.007	0	0	0	0
2471	3	M495	1	.001	-10.536	0	0	0	0
2472			2	.001	-6.163	0	0	0	33.503

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-..	z-z Moment[k-...
2473			3	.001	.078	0	0	0	44.001
2474			4	.001	6.319	0	0	0	32.912
2475			5	.001	9.758	0	0	0	0
2476	3	M496	1	.01	-10.536	0	0	0	0
2477			2	.01	-6.163	0	0	0	33.503
2478			3	.01	.078	0	0	0	44.001
2479			4	.01	6.319	0	0	0	32.912
2480			5	.01	9.758	0	0	0	0
2481	3	M497	1	0	-11.237	0	.006	0	0
2482			2	0	-7.175	0	.006	0	37.466
2483			3	0	0	0	.006	0	49.797
2484			4	0	7.331	0	.006	0	37.052
2485			5	0	11.237	0	.006	0	0
2486	3	M498	1	0	-10.038	0	.006	0	0
2487			2	0	-6.288	0	.006	0	33.03
2488			3	0	-.047	0	.006	0	44.001
2489			4	0	6.194	0	.006	0	33.385
2490			5	0	10.256	0	.006	0	0
2491	3	M499	1	.004	-10.552	0	.006	0	0
2492			2	.004	-6.179	0	.006	0	33.563
2493			3	.004	.062	0	.006	0	44.119
2494			4	.004	6.303	0	.006	0	33.089
2495			5	.004	10.054	0	.006	0	0
2496	3	M500	1	.026	-11.75	0	0	0	0
2497			2	.026	-7.222	0	0	0	38.058
2498			3	.026	.109	0	0	0	50.389
2499			4	.026	7.284	0	0	0	37.644
2500			5	.026	11.034	0	0	0	0
2501	3	M501	1	-.053	-9.058	0	-.003	0	0
2502			2	-.053	-5.151	0	-.003	0	28.417
2503			3	-.053	0	0	-.003	0	37.258
2504			4	-.053	5.307	0	-.003	0	28.003
2505			5	-.053	8.435	0	-.003	0	0
2506	3	M502	1	-.147	-11.766	0	-.003	0	0
2507			2	-.147	-7.237	0	-.003	0	38.117
2508			3	-.147	.093	0	-.003	0	50.507
2509			4	-.147	7.268	0	-.003	0	37.821
2510			5	-.147	11.33	0	-.003	0	0
2511	3	M503	1	-.036	-10.941	0	-.003	0	0
2512			2	-.036	-7.19	0	-.003	0	37.289
2513			3	-.036	-.016	0	-.003	0	49.679
2514			4	-.036	7.315	0	-.003	0	36.993
2515			5	-.036	11.221	0	-.003	0	0
2516	3	M504	1	.711	-10.303	0	0	0	0
2517			2	.711	-6.241	0	0	0	33.563
2518			3	.711	0	0	0	0	44.356
2519			4	.711	6.241	0	0	0	33.563
2520			5	.711	10.303	0	0	0	0
2521	3	M505	1	1.395	-10.552	0	-.004	0	0
2522			2	1.395	-6.179	0	-.004	0	33.563
2523			3	1.395	.062	0	-.004	0	44.119
2524			4	1.395	6.303	0	-.004	0	33.089
2525			5	1.395	10.054	0	-.004	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2526	3	M506	1	2.01	-10.536	0	-.004	0	0
2527			2	2.01	-6.163	0	-.004	0	33.503
2528			3	2.01	.078	0	-.004	0	44.001
2529			4	2.01	6.319	0	-.004	0	32.912
2530			5	2.01	9.758	0	-.004	0	0
2531	3	M507	1	2.169	-11.75	0	-.004	0	0
2532			2	2.169	-7.222	0	-.004	0	38.058
2533			3	2.169	.109	0	-.004	0	50.389
2534			4	2.169	7.284	0	-.004	0	37.644
2535			5	2.169	11.034	0	-.004	0	0
2536	3	M508	1	2.198	-10.303	0	.003	0	0
2537			2	2.198	-6.241	0	.003	0	33.563
2538			3	2.198	0	0	.003	0	44.356
2539			4	2.198	6.241	0	.003	0	33.563
2540			5	2.198	10.303	0	.003	0	0
2541	3	M509	1	2.255	-10.303	0	.003	0	0
2542			2	2.255	-6.241	0	.003	0	33.563
2543			3	2.255	0	0	.003	0	44.356
2544			4	2.255	6.241	0	.003	0	33.563
2545			5	2.255	10.303	0	.003	0	0
2546	3	M510	1	1.858	-10.303	0	.003	0	0
2547			2	1.858	-6.241	0	.003	0	33.563
2548			3	1.858	0	0	.003	0	44.356
2549			4	1.858	6.241	0	.003	0	33.563
2550			5	1.858	10.303	0	.003	0	0
2551	3	M511	1	1.305	-11.517	0	0	0	0
2552			2	1.305	-7.299	0	0	0	38.117
2553			3	1.305	.031	0	0	0	50.744
2554			4	1.305	7.206	0	0	0	38.294
2555			5	1.305	11.579	0	0	0	0
2556	3	M512	1	.236	-10.007	0	-.007	0	0
2557			2	.236	-6.257	0	-.007	0	32.912
2558			3	.236	-.016	0	-.007	0	43.764
2559			4	.236	6.225	0	-.007	0	33.03
2560			5	.236	10.287	0	-.007	0	0
2561	3	M513	1	-.03	-9.058	0	-.007	0	0
2562			2	-.03	-5.151	0	-.007	0	28.417
2563			3	-.03	0	0	-.007	0	37.258
2564			4	-.03	5.307	0	-.007	0	28.003
2565			5	-.03	8.435	0	-.007	0	0
2566	3	M514	1	-.055	-11.486	0	-.007	0	0
2567			2	-.055	-7.268	0	-.007	0	37.525
2568			3	-.055	.062	0	-.007	0	50.034
2569			4	-.055	7.237	0	-.007	0	37.466
2570			5	-.055	10.988	0	-.007	0	0
2571	3	M515	1	.168	-11.579	0	.002	0	0
2572			2	.168	-7.206	0	.002	0	37.821
2573			3	.168	-.031	0	.002	0	50.271
2574			4	.168	7.299	0	.002	0	37.644
2575			5	.168	11.517	0	.002	0	0
2576	3	M516	1	-.008	-10.038	0	.004	0	0
2577			2	-.008	-6.288	0	.004	0	33.03
2578			3	-.008	-.047	0	.004	0	44.001

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2579			4	-.008	6.194	0	.004	0	33.385
2580			5	-.008	10.256	0	.004	0	0
2581	3	M517	1	-.002	-11.766	0	.004	0	0
2582			2	-.002	-7.237	0	.004	0	38.117
2583			3	-.002	.093	0	.004	0	50.507
2584			4	-.002	7.268	0	.004	0	37.821
2585			5	-.002	11.33	0	.004	0	0
2586	3	M518	1	.004	-11.283	0	.004	0	0
2587			2	.004	-7.222	0	.004	0	37.644
2588			3	.004	-.047	0	.004	0	50.152
2589			4	.004	7.284	0	.004	0	37.585
2590			5	.004	11.501	0	.004	0	0
2591	3	M519	1	0	-10.038	0	0	0	0
2592			2	0	-6.288	0	0	0	33.03
2593			3	0	-.047	0	0	0	44.001
2594			4	0	6.194	0	0	0	33.385
2595			5	0	10.256	0	0	0	0
2596	3	M520	1	0	-7.486	0	0	0	0
2597			2	0	-4.202	0	0	0	23.035
2598			3	0	.016	0	0	0	30.279
2599			4	0	4.233	0	0	0	22.916
2600			5	0	7.205	0	0	0	0
2601	3	M521	1	0	-10.303	0	0	0	0
2602			2	0	-6.241	0	0	0	33.563
2603			3	0	0	0	0	0	44.356
2604			4	0	6.241	0	0	0	33.563
2605			5	0	10.303	0	0	0	0
2606	3	M522	1	0	-7.165	0	-.002	0	0
2607			2	0	-4.859	0	-.002	0	17.686
2608			3	0	-.062	0	-.002	0	24.637
2609			4	0	4.734	0	-.002	0	18.038
2610			5	0	7.04	0	-.002	0	0
2611	3	M523	1	0	-6.884	0	-.001	0	0
2612			2	0	-4.89	0	-.001	0	17.598
2613			3	0	-.093	0	-.001	0	24.637
2614			4	0	4.703	0	-.001	0	18.126
2615			5	0	7.32	0	-.001	0	0
2616	3	M524	1	0	-6.884	0	0	0	0
2617			2	0	-4.89	0	0	0	17.598
2618			3	0	-.093	0	0	0	24.637
2619			4	0	4.703	0	0	0	18.126
2620			5	0	7.32	0	0	0	0
2621	3	M525	1	0	-7.632	0	0	0	0
2622			2	0	-5.481	0	0	0	19.049
2623			3	0	-.218	0	0	0	27.451
2624			4	0	5.357	0	0	0	20.193
2625			5	0	7.818	0	0	0	0
2626	3	M526	1	0	-7.133	0	.001	0	0
2627			2	0	-4.827	0	.001	0	17.598
2628			3	0	-.031	0	.001	0	24.461
2629			4	0	4.765	0	.001	0	17.774
2630			5	0	7.071	0	.001	0	0
2631	3	M527	1	.003	-6.931	0	.002	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-..	z-z Moment[k-...
2632			2	.003	-4.936	0	.002	0	17.73
2633			3	.003	-.14	0	.002	0	24.901
2634			4	.003	4.656	0	.002	0	18.522
2635			5	.003	7.585	0	.002	0	0
2636	3	M528	1	.009	-7.818	0	0	0	0
2637			2	.009	-5.668	0	0	0	20.193
2638			3	.009	-.093	0	0	0	28.331
2639			4	.009	5.481	0	0	0	20.72
2640			5	.009	8.254	0	0	0	0
2641	3	M529	1	-.033	-5.951	0	.004	0	0
2642			2	-.033	-4.111	0	.004	0	15.004
2643			3	-.033	-.093	0	.004	0	20.943
2644			4	-.033	3.925	0	.004	0	15.532
2645			5	-.033	6.386	0	.004	0	0
2646	3	M530	1	-.132	-7.554	0	.005	0	0
2647			2	-.132	-5.559	0	.005	0	19.489
2648			3	-.132	-.14	0	.005	0	27.715
2649			4	-.132	5.279	0	.005	0	20.281
2650			5	-.132	8.207	0	.005	0	0
2651	3	M531	1	-.114	-7.585	0	.006	0	0
2652			2	-.114	-5.435	0	.006	0	18.917
2653			3	-.114	-.171	0	.006	0	27.187
2654			4	-.114	5.403	0	.006	0	19.797
2655			5	-.114	7.554	0	.006	0	0
2656	3	M532	1	.748	-7.133	0	0	0	0
2657			2	.748	-4.827	0	0	0	17.598
2658			3	.748	-.031	0	0	0	24.461
2659			4	.748	4.765	0	0	0	17.774
2660			5	.748	7.071	0	0	0	0
2661	3	M533	1	1.386	-6.931	0	.006	0	0
2662			2	1.386	-4.936	0	.006	0	17.73
2663			3	1.386	-.14	0	.006	0	24.901
2664			4	1.386	4.656	0	.006	0	18.522
2665			5	1.386	7.585	0	.006	0	0
2666	3	M534	1	1.987	-6.884	0	.006	0	0
2667			2	1.987	-4.89	0	.006	0	17.598
2668			3	1.987	-.093	0	.006	0	24.637
2669			4	1.987	4.703	0	.006	0	18.126
2670			5	1.987	7.32	0	.006	0	0
2671	3	M535	1	2.275	-7.818	0	.004	0	0
2672			2	2.275	-5.668	0	.004	0	20.193
2673			3	2.275	-.093	0	.004	0	28.331
2674			4	2.275	5.481	0	.004	0	20.72
2675			5	2.275	8.254	0	.004	0	0
2676	3	M536	1	2.285	-6.838	0	-.005	0	0
2677			2	2.285	-4.843	0	-.005	0	17.466
2678			3	2.285	-.047	0	-.005	0	24.373
2679			4	2.285	4.75	0	-.005	0	17.73
2680			5	2.285	7.056	0	-.005	0	0
2681	3	M537	1	2.236	-7.133	0	-.006	0	0
2682			2	2.236	-4.827	0	-.006	0	17.598
2683			3	2.236	-.031	0	-.006	0	24.461
2684			4	2.236	4.765	0	-.006	0	17.774

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2685			5	2.236	7.071	0	-.006	0	0
2686	3	M538	1	1.869	-7.133	0	-.007	0	0
2687			2	1.869	-4.827	0	-.007	0	17.598
2688			3	1.869	-.031	0	-.007	0	24.461
2689			4	1.869	4.765	0	-.007	0	17.774
2690			5	1.869	7.071	0	-.007	0	0
2691	3	M539	1	1.323	-7.756	0	0	0	0
2692			2	1.323	-5.45	0	0	0	19.357
2693			3	1.323	-.031	0	0	0	27.275
2694			4	1.323	5.388	0	0	0	19.533
2695			5	1.323	7.694	0	0	0	0
2696	3	M540	1	.171	-6.931	0	-.002	0	0
2697			2	.171	-4.781	0	-.002	0	16.719
2698			3	.171	-.14	0	-.002	0	23.846
2699			4	.171	4.656	0	-.002	0	17.466
2700			5	.171	6.962	0	-.002	0	0
2701	3	M541	1	-.036	-5.951	0	-.002	0	0
2702			2	-.036	-4.111	0	-.002	0	15.004
2703			3	-.036	-.093	0	-.002	0	20.943
2704			4	-.036	3.925	0	-.002	0	15.532
2705			5	-.036	6.386	0	-.002	0	0
2706	3	M542	1	-.016	-7.818	0	-.001	0	0
2707			2	-.016	-5.668	0	-.001	0	20.193
2708			3	-.016	-.093	0	-.001	0	28.331
2709			4	-.016	5.481	0	-.001	0	20.72
2710			5	-.016	8.254	0	-.001	0	0
2711	3	M543	1	.15	-7.865	0	0	0	0
2712			2	.15	-5.559	0	0	0	19.665
2713			3	.15	-.14	0	0	0	27.891
2714			4	.15	5.435	0	0	0	20.412
2715			5	.15	7.896	0	0	0	0
2716	3	M544	1	.007	-6.869	0	-.004	0	0
2717			2	.007	-4.874	0	-.004	0	17.203
2718			3	.007	-.078	0	-.004	0	24.197
2719			4	.007	4.719	0	-.004	0	17.642
2720			5	.007	7.025	0	-.004	0	0
2721	3	M545	1	-.006	-7.787	0	-.003	0	0
2722			2	-.006	-5.637	0	-.003	0	20.105
2723			3	-.006	-.062	0	-.003	0	28.155
2724			4	-.006	5.357	0	-.003	0	20.5
2725			5	-.006	8.285	0	-.003	0	0
2726	3	M546	1	.002	-7.865	0	-.002	0	0
2727			2	.002	-5.559	0	-.002	0	19.665
2728			3	.002	-.14	0	-.002	0	27.891
2729			4	.002	5.435	0	-.002	0	20.412
2730			5	.002	7.896	0	-.002	0	0
2731	3	M547	1	0	-7.133	0	0	0	0
2732			2	0	-4.827	0	0	0	17.598
2733			3	0	-.031	0	0	0	24.461
2734			4	0	4.765	0	0	0	17.774
2735			5	0	7.071	0	0	0	0
2736	3	M548	1	0	-5.017	0	0	0	0
2737			2	0	-3.333	0	0	0	12.41

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2738			3	0	-.093	0	0	0	17.25
2739			4	0	3.146	0	0	0	12.937
2740			5	0	5.452	0	0	0	0
2741	3	M549	1	0	-7.133	0	0	0	0
2742			2	0	-4.827	0	0	0	17.598
2743			3	0	-.031	0	0	0	24.461
2744			4	0	4.765	0	0	0	17.774
2745			5	0	7.071	0	0	0	0
2746	3	M550	1	0	-11.931	0	-.002	0	0
2747			2	0	-7.063	0	-.002	0	43.677
2748			3	0	-.327	0	-.002	0	59.2
2749			4	0	6.876	0	-.002	0	44.71
2750			5	0	12.211	0	-.002	0	0
2751	3	M551	1	0	-12.227	0	-.001	0	0
2752			2	0	-7.047	0	-.001	0	43.333
2753			3	0	-.311	0	-.001	0	58.787
2754			4	0	6.892	0	-.001	0	44.228
2755			5	0	12.227	0	-.001	0	0
2756	3	M552	1	0	-12.227	0	0	0	0
2757			2	0	-7.047	0	0	0	43.333
2758			3	0	-.311	0	0	0	58.787
2759			4	0	6.892	0	0	0	44.228
2760			5	0	12.227	0	0	0	0
2761	3	M553	1	0	-13.597	0	-.003	0	0
2762			2	0	-8.261	0	-.003	0	50.427
2763			3	0	-.436	0	-.003	0	68.705
2764			4	0	8.012	0	-.003	0	51.804
2765			5	0	13.97	0	-.003	0	0
2766	3	M554	1	0	-12.227	0	-.001	0	0
2767			2	0	-7.047	0	-.001	0	43.884
2768			3	0	-.311	0	-.001	0	59.338
2769			4	0	6.892	0	-.001	0	44.779
2770			5	0	12.227	0	-.001	0	0
2771	3	M555	1	.001	-12.523	0	0	0	0
2772			2	.001	-7.032	0	0	0	44.09
2773			3	.001	-.296	0	0	0	59.476
2774			4	.001	6.907	0	0	0	44.848
2775			5	.001	12.242	0	0	0	0
2776	3	M556	1	.005	-13.783	0	0	0	0
2777			2	.005	-8.137	0	0	0	49.6
2778			3	.005	-.311	0	0	0	67.328
2779			4	.005	7.981	0	0	0	50.496
2780			5	.005	13.783	0	0	0	0
2781	3	M557	1	-.011	-10.655	0	.003	0	0
2782			2	-.011	-5.942	0	.003	0	36.996
2783			3	-.011	-.296	0	.003	0	50.109
2784			4	-.011	5.818	0	.003	0	37.754
2785			5	-.011	10.375	0	.003	0	0
2786	3	M558	1	-.098	-14.079	0	.005	0	0
2787			2	-.098	-8.121	0	.005	0	50.358
2788			3	-.098	-.296	0	.005	0	68.016
2789			4	-.098	7.997	0	.005	0	51.116
2790			5	-.098	13.799	0	.005	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2791	3	M559	1	-.23	-13.597	0	.007	0	0
2792			2	-.23	-8.261	0	.007	0	50.427
2793			3	-.23	-.436	0	.007	0	68.705
2794			4	-.23	8.012	0	.007	0	51.804
2795			5	-.23	13.97	0	.007	0	0
2796	3	M560	1	.802	-25.535	0	0	0	0
2797			2	.802	-6.347	0	0	0	53.182
2798			3	.802	.389	0	0	0	65.537
2799			4	.802	7.592	0	0	0	47.878
2800			5	.802	12.927	0	0	0	0
2801	3	M561	1	1.384	-24.244	0	.004	0	0
2802			2	1.384	-5.095	0	.004	0	37.086
2803			3	1.384	.669	0	.004	0	44.662
2804			4	1.384	6.433	0	.004	0	30.965
2805			5	1.384	10.329	0	.004	0	0
2806	3	M562	1	1.901	-20.53	0	-.002	0	0
2807			2	1.901	-3.744	0	-.002	0	24.233
2808			3	1.901	.591	0	-.002	0	29.434
2809			4	1.901	5.393	0	-.002	0	20.606
2810			5	1.901	8.016	0	-.002	0	0
2811	3	M563	1	2.49	-13.423	0	-.014	0	0
2812			2	2.49	-3.669	0	-.014	0	16.179
2813			3	2.49	.171	0	-.014	0	19.81
2814			4	2.49	4.478	0	-.014	0	13.899
2815			5	2.49	6.606	0	-.014	0	0
2816	3	M564	1	2.478	-12.209	0	.013	0	0
2817			2	2.478	-3.233	0	.013	0	14.261
2818			3	2.478	.14	0	.013	0	17.639
2819			4	2.478	3.98	0	.013	0	12.632
2820			5	2.478	5.952	0	.013	0	0
2821	3	M565	1	2.152	-19.425	0	.002	0	0
2822			2	2.152	-3.884	0	.002	0	23.912
2823			3	2.152	.451	0	.002	0	29.525
2824			4	2.152	5.253	0	.002	0	21.111
2825			5	2.152	8.188	0	.002	0	0
2826	3	M566	1	1.896	-23.061	0	-.003	0	0
2827			2	1.896	-5.157	0	-.003	0	36.418
2828			3	1.896	.607	0	-.003	0	44.217
2829			4	1.896	6.371	0	-.003	0	30.742
2830			5	1.896	10.267	0	-.003	0	0
2831	3	M567	1	1.348	-27.091	0	0	0	0
2832			2	1.348	-7.436	0	0	0	59.449
2833			3	1.348	.389	0	0	0	74.077
2834			4	1.348	8.682	0	0	0	54.146
2835			5	1.348	14.484	0	0	0	0
2836	3	M568	1	.075	-11.884	0	-.007	0	0
2837			2	.075	-7.016	0	-.007	0	43.47
2838			3	.075	-.28	0	-.007	0	58.787
2839			4	.075	6.923	0	-.007	0	44.09
2840			5	.075	11.947	0	-.007	0	0
2841	3	M569	1	-.027	-10.359	0	-.006	0	0
2842			2	-.027	-5.958	0	-.006	0	36.79
2843			3	-.027	-.311	0	-.006	0	49.971

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2844			4	-.027	5.802	0	-.006	0	37.685
2845			5	-.027	10.359	0	-.006	0	0
2846	3	M570	1	.022	-13.783	0	-.004	0	0
2847			2	.022	-8.137	0	-.004	0	49.6
2848			3	.022	-.311	0	-.004	0	67.328
2849			4	.022	7.981	0	-.004	0	50.496
2850			5	.022	13.783	0	-.004	0	0
2851	3	M571	1	.141	-13.597	0	0	0	0
2852			2	.141	-8.261	0	0	0	50.427
2853			3	.141	-.436	0	0	0	68.705
2854			4	.141	8.012	0	0	0	51.804
2855			5	.141	13.97	0	0	0	0
2856	3	M572	1	.017	-12.227	0	0	0	0
2857			2	.017	-7.047	0	0	0	43.884
2858			3	.017	-.311	0	0	0	59.338
2859			4	.017	6.892	0	0	0	44.779
2860			5	.017	12.227	0	0	0	0
2861	3	M573	1	-.007	-13.768	0	.002	0	0
2862			2	-.007	-8.121	0	.002	0	49.531
2863			3	-.007	-.296	0	.002	0	67.19
2864			4	-.007	7.997	0	.002	0	50.289
2865			5	-.007	13.488	0	.002	0	0
2866	3	M574	1	-.001	-13.597	0	.004	0	0
2867			2	-.001	-8.261	0	.004	0	50.427
2868			3	-.001	-.436	0	.004	0	68.705
2869			4	-.001	8.012	0	.004	0	51.804
2870			5	-.001	13.97	0	.004	0	0
2871	3	M575	1	0	-12.227	0	0	0	0
2872			2	0	-7.047	0	0	0	43.884
2873			3	0	-.311	0	0	0	59.338
2874			4	0	6.892	0	0	0	44.779
2875			5	0	12.227	0	0	0	0
2876	3	M576	1	0	-8.709	0	.002	0	0
2877			2	0	-4.775	0	.002	0	30.109
2878			3	0	-.218	0	.002	0	40.604
2879			4	0	4.65	0	.002	0	30.798
2880			5	0	8.896	0	.002	0	0
2881	3	M577	1	0	-12.227	0	.002	0	0
2882			2	0	-7.047	0	.002	0	43.884
2883			3	0	-.311	0	.002	0	59.338
2884			4	0	6.892	0	.002	0	44.779
2885			5	0	12.227	0	.002	0	0
2886	3	M578	1	0	-13.75	0	0	0	0
2887			2	0	-6.548	0	0	0	44.656
2888			3	0	.654	0	0	0	59.267
2889			4	0	6.922	0	0	0	43.834
2890			5	0	11.944	0	0	0	0
2891	3	M579	1	0	-13.75	0	0	0	0
2892			2	0	-6.548	0	0	0	44.656
2893			3	0	.654	0	0	0	59.267
2894			4	0	6.922	0	0	0	43.834
2895			5	0	11.944	0	0	0	0
2896	3	M580	1	0	-13.797	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2897			2	0	-6.595	0	0	0	44.861
2898			3	0	.607	0	0	0	59.678
2899			4	0	6.875	0	0	0	44.45
2900			5	0	12.209	0	0	0	0
2901	3	M581	1	0	-15.82	0	0	0	0
2902			2	0	-7.529	0	0	0	51.504
2903			3	0	.763	0	0	0	68.444
2904			4	0	8.12	0	0	0	50.271
2905			5	0	13.299	0	0	0	0
2906	3	M582	1	0	-13.765	0	0	0	0
2907			2	0	-6.564	0	0	0	44.724
2908			3	0	.638	0	0	0	59.404
2909			4	0	6.906	0	0	0	44.039
2910			5	0	12.24	0	0	0	0
2911	3	M583	1	0	-13.797	0	0	0	0
2912			2	0	-6.595	0	0	0	44.861
2913			3	0	.607	0	0	0	59.678
2914			4	0	6.875	0	0	0	44.45
2915			5	0	12.209	0	0	0	0
2916	3	M584	1	0	-16.069	0	0	0	0
2917			2	0	-7.622	0	0	0	51.984
2918			3	0	.825	0	0	0	68.718
2919			4	0	8.027	0	0	0	50.751
2920			5	0	13.672	0	0	0	0
2921	3	M585	1	0	-11.477	0	0	0	0
2922			2	0	-5.521	0	0	0	37.533
2923			3	0	.436	0	0	0	50.227
2924			4	0	5.77	0	0	0	37.533
2925			5	0	10.481	0	0	0	0
2926	3	M586	1	0	-16.116	0	0	0	0
2927			2	0	-7.669	0	0	0	52.189
2928			3	0	.778	0	0	0	69.129
2929			4	0	7.98	0	0	0	51.367
2930			5	0	13.937	0	0	0	0
2931	3	M587	1	-.441	-26.311	0	-.012	0	0
2932			2	-.441	-13.039	0	-.012	0	87.254
2933			3	-.441	2.413	0	-.012	0	115.014
2934			4	-.441	14.128	0	-.012	0	79.446
2935			5	-.441	20.24	0	-.012	0	0
2936	3	M588	1	-.101	-24.661	0	.012	0	0
2937			2	-.101	-12.167	0	.012	0	81.706
2938			3	-.101	2.506	0	.012	0	107.344
2939			4	-.101	13.132	0	.012	0	73.625
2940			5	-.101	18.777	0	.012	0	0
2941	3	M589	1	.033	-11.477	0	.007	0	0
2942			2	.033	-5.521	0	.007	0	37.533
2943			3	.033	.436	0	.007	0	50.227
2944			4	.033	5.77	0	.007	0	37.533
2945			5	.033	10.481	0	.007	0	0
2946	3	M590	1	.054	-16.069	0	.003	0	0
2947			2	.054	-7.622	0	.003	0	51.984
2948			3	.054	.825	0	.003	0	68.718
2949			4	.054	8.027	0	.003	0	50.751

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
2950			5	.054	13.672	0	.003	0	0
2951	3	M591	1	.138	-15.836	0	0	0	0
2952			2	.138	-7.544	0	0	0	51.573
2953			3	.138	.747	0	0	0	68.581
2954			4	.138	8.105	0	0	0	50.477
2955			5	.138	13.594	0	0	0	0
2956	3	M592	1	.02	-13.765	0	0	0	0
2957			2	.02	-6.564	0	0	0	44.724
2958			3	.02	.638	0	0	0	59.404
2959			4	.02	6.906	0	0	0	44.039
2960			5	.02	12.24	0	0	0	0
2961	3	M593	1	-.005	-16.116	0	-.002	0	0
2962			2	-.005	-7.669	0	-.002	0	52.189
2963			3	-.005	.778	0	-.002	0	69.129
2964			4	-.005	7.98	0	-.002	0	51.367
2965			5	-.005	13.937	0	-.002	0	0
2966	3	M594	1	-.003	-15.836	0	-.004	0	0
2967			2	-.003	-7.544	0	-.004	0	51.573
2968			3	-.003	.747	0	-.004	0	68.581
2969			4	-.003	8.105	0	-.004	0	50.477
2970			5	-.003	13.594	0	-.004	0	0
2971	3	M595	1	0	-13.765	0	0	0	0
2972			2	0	-6.564	0	0	0	44.724
2973			3	0	.638	0	0	0	59.404
2974			4	0	6.906	0	0	0	44.039
2975			5	0	12.24	0	0	0	0
2976	3	M596	1	0	-9.345	0	-.001	0	0
2977			2	0	-4.478	0	-.001	0	30.411
2978			3	0	.389	0	-.001	0	40.502
2979			4	0	4.634	0	-.001	0	30.274
2980			5	0	8.567	0	-.001	0	0
2981	3	M597	1	0	-13.765	0	-.001	0	0
2982			2	0	-6.564	0	-.001	0	44.724
2983			3	0	.638	0	-.001	0	59.404
2984			4	0	6.906	0	-.001	0	44.039
2985			5	0	12.24	0	-.001	0	0
2986	3	M598	1	0	-327.296	0	0	0	0
2987			2	0	12.461	0	0	0	166.523
2988			3	0	16.328	0	0	0	123.601
2989			4	0	21.128	0	0	0	68.822
2990			5	0	25.929	0	0	0	0
2991	3	M599	1	0	-73.854	0	0	0	0
2992			2	0	-.878	0	0	0	49.473
2993			3	0	2.988	0	0	0	45.567
2994			4	0	7.789	0	0	0	29.805
2995			5	0	12.59	0	0	0	0
2996	3	M600	1	0	-66.46	0	0	0	0
2997			2	0	-1.268	0	0	0	46.058
2998			3	0	2.599	0	0	0	43.291
2999			4	0	7.4	0	0	0	28.667
3000			5	0	12.201	0	0	0	0
3001	3	M601	1	0	-68.608	0	0	0	0
3002			2	0	-2.015	0	0	0	49.746

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3003			3	0	2.63	0	0	0	48.026
3004			4	0	8.21	0	0	0	32.172
3005			5	0	13.789	0	0	0	0
3006	3	M602	1	0	-51.674	0	0	0	0
3007			2	0	-2.046	0	0	0	39.229
3008			3	0	1.821	0	0	0	38.738
3009			4	0	6.622	0	0	0	26.39
3010			5	0	11.423	0	0	0	0
3011	3	M603	1	0	-44.576	0	0	0	0
3012			2	0	-2.419	0	0	0	35.951
3013			3	0	1.448	0	0	0	36.553
3014			4	0	6.248	0	0	0	25.298
3015			5	0	11.049	0	0	0	0
3016	3	M604	1	0	-43.004	0	0	0	0
3017			2	0	-3.182	0	0	0	37.499
3018			3	0	1.152	0	0	0	39.376
3019			4	0	6.731	0	0	0	27.847
3020			5	0	12.31	0	0	0	0
3021	3	M605	1	0	-25.151	0	0	0	0
3022			2	0	-2.762	0	0	0	24.706
3023			3	0	.638	0	0	0	27.265
3024			4	0	4.661	0	0	0	19.516
3025			5	0	8.683	0	0	0	0
3026	3	M606	1	0	-26.739	0	0	0	0
3027			2	0	-4.038	0	0	0	29.987
3028			3	0	.296	0	0	0	34.368
3029			4	0	5.875	0	0	0	25.343
3030			5	0	11.454	0	0	0	0
3031	3	M607	1	0	-15.298	0	0	0	0
3032			2	0	-3.96	0	0	0	22.43
3033			3	0	-.093	0	0	0	27.539
3034			4	0	4.707	0	0	0	20.791
3035			5	0	9.508	0	0	0	0
3036	3	M608	1	0	-7.703	0	0	0	0
3037			2	0	-3.68	0	0	0	16.648
3038			3	0	-.28	0	0	0	21.893
3039			4	0	3.742	0	0	0	16.83
3040			5	0	7.765	0	0	0	0
3041	3	M609	1	0	-9.088	0	0	0	0
3042			2	0	-4.287	0	0	0	19.561
3043			3	0	-.42	0	0	0	25.626
3044			4	0	4.381	0	0	0	19.834
3045			5	0	9.181	0	0	0	0
3046	3	M610	1	-.007	-8.917	0	.022	0	0
3047			2	-.007	-4.116	0	.022	0	19.061
3048			3	-.007	-.249	0	.022	0	24.625
3049			4	-.007	4.396	0	.022	0	18.378
3050			5	-.007	7.796	0	.022	0	0
3051	3	M611	1	.033	-10.255	0	.046	0	0
3052			2	.033	-4.676	0	.046	0	21.838
3053			3	.033	-.342	0	.046	0	28.085
3054			4	.033	5.237	0	.046	0	20.927
3055			5	.033	8.325	0	.046	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3056	3	M612	1	-.063	-10.458	0	.03	0	0
3057			2	-.063	-4.879	0	.03	0	22.43
3058			3	-.063	-.233	0	.03	0	29.087
3059			4	-.063	5.346	0	.03	0	21.61
3060			5	-.063	8.434	0	.03	0	0
3061	3	M613	1	-.405	-8.964	0	-.025	0	0
3062			2	-.405	-4.163	0	-.025	0	19.197
3063			3	-.405	-.296	0	-.025	0	24.898
3064			4	-.405	4.505	0	-.025	0	18.742
3065			5	-.405	7.438	0	-.025	0	0
3066	3	M614	1	-1.388	-11.703	0	0	0	0
3067			2	-1.388	-5.346	0	0	0	24.934
3068			3	-1.388	-.233	0	0	0	32
3069			4	-1.388	5.968	0	0	0	23.431
3070			5	-1.388	9.057	0	0	0	0
3071	3	M615	1	-.407	-10.224	0	.02	0	0
3072			2	-.407	-4.645	0	.02	0	21.747
3073			3	-.407	-.311	0	.02	0	27.903
3074			4	-.407	5.268	0	.02	0	20.654
3075			5	-.407	8.356	0	.02	0	0
3076	3	M616	1	-.05	-8.964	0	-.03	0	0
3077			2	-.05	-4.163	0	-.03	0	19.197
3078			3	-.05	-.296	0	-.03	0	24.898
3079			4	-.05	4.505	0	-.03	0	18.742
3080			5	-.05	7.438	0	-.03	0	0
3081	3	M617	1	.034	-10.458	0	-.041	0	0
3082			2	.034	-4.879	0	-.041	0	22.43
3083			3	.034	-.233	0	-.041	0	29.087
3084			4	.034	5.346	0	-.041	0	21.61
3085			5	.034	8.434	0	-.041	0	0
3086	3	M618	1	-.012	-9.01	0	-.023	0	0
3087			2	-.012	-4.209	0	-.023	0	19.334
3088			3	-.012	-.342	0	-.023	0	25.171
3089			4	-.012	4.458	0	-.023	0	19.152
3090			5	-.012	8.325	0	-.023	0	0
3091	3	M619	1	0	-7.532	0	0	0	0
3092			2	0	-3.509	0	0	0	16.147
3093			3	0	-.42	0	0	0	21.074
3094			4	0	3.602	0	0	0	16.42
3095			5	0	7.625	0	0	0	0
3096	3	M620	1	0	-7.703	0	0	0	0
3097			2	0	-3.68	0	0	0	16.648
3098			3	0	-.28	0	0	0	21.893
3099			4	0	3.742	0	0	0	16.83
3100			5	0	7.765	0	0	0	0
3101	3	M621	1	-.249	-7.532	0	.002	0	0
3102			2	-.249	-3.509	0	.002	0	16.147
3103			3	-.249	-.42	0	.002	0	21.074
3104			4	-.249	3.602	0	.002	0	16.42
3105			5	-.249	7.625	0	.002	0	0
3106	3	M622	1	.033	-7.703	0	.007	0	0
3107			2	.033	-3.68	0	.007	0	16.648
3108			3	.033	-.28	0	.007	0	21.893

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3109			4	.033	3.742	0	.007	0	16.83
3110			5	.033	7.765	0	.007	0	0
3111	3	M623	1	.054	-10.473	0	.003	0	0
3112			2	.054	-4.894	0	.003	0	22.475
3113			3	.054	-.56	0	.003	0	29.36
3114			4	.054	5.019	0	.003	0	22.839
3115			5	.054	10.598	0	.003	0	0
3116	3	M624	1	.138	-15.968	0	0	0	0
3117			2	.138	-4.785	0	0	0	25.434
3118			3	.138	-.14	0	0	0	31.818
3119			4	.138	5.439	0	0	0	24.069
3120			5	.138	11.018	0	0	0	0
3121	3	M625	1	.02	-9.088	0	0	0	0
3122			2	.02	-4.287	0	0	0	19.561
3123			3	.02	-.42	0	0	0	25.626
3124			4	.02	4.381	0	0	0	19.834
3125			5	.02	9.181	0	0	0	0
3126	3	M626	1	-.005	-10.473	0	-.002	0	0
3127			2	-.005	-4.894	0	-.002	0	22.475
3128			3	-.005	-.56	0	-.002	0	29.36
3129			4	-.005	5.019	0	-.002	0	22.839
3130			5	-.005	10.598	0	-.002	0	0
3131	3	M627	1	-.003	-10.645	0	-.004	0	0
3132			2	-.003	-5.065	0	-.004	0	22.976
3133			3	-.003	-.42	0	-.004	0	30.179
3134			4	-.003	5.159	0	-.004	0	23.249
3135			5	-.003	10.738	0	-.004	0	0
3136	3	M628	1	0	-9.088	0	0	0	0
3137			2	0	-4.287	0	0	0	19.561
3138			3	0	-.42	0	0	0	25.626
3139			4	0	4.381	0	0	0	19.834
3140			5	0	9.181	0	0	0	0
3141	3	M629	1	0	-6.146	0	-.001	0	0
3142			2	0	-2.902	0	-.001	0	13.233
3143			3	0	-.28	0	-.001	0	17.341
3144			4	0	2.964	0	-.001	0	13.415
3145			5	0	6.209	0	-.001	0	0
3146	3	M630	1	0	-9.088	0	-.001	0	0
3147			2	0	-4.287	0	-.001	0	19.561
3148			3	0	-.42	0	-.001	0	25.626
3149			4	0	4.381	0	-.001	0	19.834
3150			5	0	9.181	0	-.001	0	0
3151	3	M631	1	0	19.122	0	0	0	0
3152			2	0	11.748	0	0	0	-78.014
3153			3	0	.327	0	0	0	-105.951
3154			4	0	-11.094	0	0	0	-81.135
3155			5	0	-22.516	0	0	0	0
3156	3	M632	1	0	13.597	0	0	0	0
3157			2	0	7.779	0	0	0	-54.305
3158			3	0	.093	0	0	0	-72.506
3159			4	0	-7.592	0	0	0	-55.197
3160			5	0	-15.278	0	0	0	0
3161	3	M633	1	0	12.087	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3162			2	0	6.736	0	0	0	-47.765
3163			3	0	.14	0	0	0	-63.736
3164			4	0	-6.767	0	0	0	-48.508
3165			5	0	-13.363	0	0	0	0
3166	3	M634	1	-.003	15.138	0	0	0	0
3167			2	-.003	8.853	0	0	0	-60.399
3168			3	-.003	.078	0	0	0	-80.979
3169			4	-.003	-8.386	0	0	0	-61.737
3170			5	-.003	-17.161	0	0	0	0
3171	3	M635	1	.031	14.998	0	0	0	0
3172			2	.031	8.713	0	0	0	-59.731
3173			3	.031	.249	0	0	0	-80.533
3174			4	.031	-8.526	0	0	0	-61.514
3175			5	.031	-16.99	0	0	0	0
3176	3	M636	1	.527	15.402	0	0	0	0
3177			2	.527	8.806	0	0	0	-61.068
3178			3	.527	.031	0	0	0	-81.424
3179			4	.527	-8.433	0	0	0	-61.96
3180			5	.527	-17.208	0	0	0	0
3181	3	M637	1	.039	13.893	0	0	0	0
3182			2	.039	7.763	0	0	0	-54.528
3183			3	.039	.078	0	0	0	-72.654
3184			4	.039	-7.608	0	0	0	-55.271
3185			5	.039	-15.293	0	0	0	0
3186	3	M638	1	-.021	13.893	0	0	0	0
3187			2	-.021	7.763	0	0	0	-54.528
3188			3	-.021	.078	0	0	0	-72.654
3189			4	-.021	-7.608	0	0	0	-55.271
3190			5	-.021	-15.293	0	0	0	0
3191	3	M639	1	-.001	14.998	0	0	0	0
3192			2	-.001	8.713	0	0	0	-59.731
3193			3	-.001	.249	0	0	0	-80.533
3194			4	-.001	-8.526	0	0	0	-61.514
3195			5	-.001	-16.99	0	0	0	0
3196	3	M640	1	.004	15.402	0	0	0	0
3197			2	.004	8.806	0	0	0	-61.068
3198			3	.004	.031	0	0	0	-81.424
3199			4	.004	-8.433	0	0	0	-61.96
3200			5	.004	-17.208	0	0	0	0
3201	3	M641	1	.071	14.998	0	0	0	0
3202			2	.071	8.713	0	0	0	-59.731
3203			3	.071	.249	0	0	0	-80.533
3204			4	.071	-8.526	0	0	0	-61.514
3205			5	.071	-16.99	0	0	0	0
3206	3	M642	1	.017	12.258	0	0	0	0
3207			2	.017	6.907	0	0	0	-47.988
3208			3	.017	0	0	0	0	-63.884
3209			4	.017	-6.596	0	0	0	-48.582
3210			5	.017	-13.503	0	0	0	0
3211	3	M643	1	.07	12.383	0	0	0	0
3212			2	.07	6.721	0	0	0	-47.988
3213			3	.07	.125	0	0	0	-63.884
3214			4	.07	-6.783	0	0	0	-48.582

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3215			5	.07	-13.379	0	0	0	0
3216	3	M644	1	-.162	12.258	0	0	0	0
3217			2	-.162	6.907	0	0	0	-47.988
3218			3	-.162	0	0	0	0	-63.884
3219			4	-.162	-6.596	0	0	0	-48.582
3220			5	-.162	-13.503	0	0	0	0
3221	3	M645	1	-1.644	13.893	0	0	0	0
3222			2	-1.644	7.763	0	0	0	-54.528
3223			3	-1.644	.078	0	0	0	-72.654
3224			4	-1.644	-7.608	0	0	0	-55.271
3225			5	-1.644	-15.293	0	0	0	0
3226	3	M646	1	-.163	12.087	0	0	0	0
3227			2	-.163	6.736	0	0	0	-47.765
3228			3	-.163	.14	0	0	0	-63.736
3229			4	-.163	-6.767	0	0	0	-48.508
3230			5	-.163	-13.363	0	0	0	0
3231	3	M647	1	.074	12.258	0	0	0	0
3232			2	.074	6.907	0	0	0	-47.988
3233			3	.074	0	0	0	0	-63.884
3234			4	.074	-6.596	0	0	0	-48.582
3235			5	.074	-13.503	0	0	0	0
3236	3	M648	1	.028	13.893	0	0	0	0
3237			2	.028	7.763	0	0	0	-54.528
3238			3	.028	.078	0	0	0	-72.654
3239			4	.028	-7.608	0	0	0	-55.271
3240			5	.028	-15.293	0	0	0	0
3241	3	M649	1	0	15.97	0	0	.002	44.729
3242			2	0	10.152	0	0	.002	-20.312
3243			3	0	2.466	0	0	.001	-49.844
3244			4	0	-5.219	0	0	0	-43.866
3245			5	0	-12.905	0	0	0	0
3246	3	M650	1	-.012	20.975	0	0	0	0
3247			2	-.012	13.756	0	0	0	-87.378
3248			3	-.012	.623	0	0	0	-120.964
3249			4	-.012	-12.666	0	0	0	-93.25
3250			5	-.012	-25.955	0	0	0	0
3251	3	M651	1	.002	18.36	0	0	0	0
3252			2	.002	11.764	0	0	0	-75.636
3253			3	.002	.498	0	0	0	-104.316
3254			4	.002	-10.923	0	0	0	-80.318
3255			5	.002	-22.344	0	0	0	0
3256	3	M652	1	-.001	10.748	0	0	0	0
3257			2	-.001	5.865	0	0	0	-41.447
3258			3	-.001	.047	0	0	0	-55.114
3259			4	-.001	-5.771	0	0	0	-41.893
3260			5	-.001	-11.589	0	0	0	0
3261	3	M653	1	0	13.597	0	0	0	0
3262			2	0	7.779	0	0	0	-54.305
3263			3	0	.093	0	0	0	-72.506
3264			4	0	-7.592	0	0	0	-55.197
3265			5	0	-15.278	0	0	0	0
3266	3	M654	1	.004	13.893	0	0	0	0
3267			2	.004	7.763	0	0	0	-54.528

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3268			3	.004	.078	0	0	0	-72.654
3269			4	.004	-7.608	0	0	0	-55.271
3270			5	.004	-15.293	0	0	0	0
3271	3	M655	1	0	13.893	0	0	0	0
3272			2	0	7.763	0	0	0	-54.528
3273			3	0	.078	0	0	0	-72.654
3274			4	0	-7.608	0	0	0	-55.271
3275			5	0	-15.293	0	0	0	0
3276	3	M656	1	0	14.998	0	0	0	0
3277			2	0	8.713	0	0	0	-59.731
3278			3	0	.249	0	0	0	-80.533
3279			4	0	-8.526	0	0	0	-61.514
3280			5	0	-16.99	0	0	0	0
3281	3	M657	1	0	13.628	0	0	0	0
3282			2	0	7.81	0	0	0	-53.859
3283			3	0	.125	0	0	0	-72.209
3284			4	0	-7.561	0	0	0	-55.048
3285			5	0	-15.247	0	0	0	0
3286	3	M658	1	0	12.258	0	0	0	0
3287			2	0	6.907	0	0	0	-47.988
3288			3	0	0	0	0	0	-63.884
3289			4	0	-6.596	0	0	0	-48.582
3290			5	0	-13.503	0	0	0	0
3291	3	M659	1	0	13.628	0	0	0	0
3292			2	0	7.81	0	0	0	-53.859
3293			3	0	.125	0	0	0	-72.209
3294			4	0	-7.561	0	0	0	-55.048
3295			5	0	-15.247	0	0	0	0
3296	3	M660	1	0	18.36	0	0	0	0
3297			2	0	11.764	0	0	0	-75.636
3298			3	0	.498	0	0	0	-104.316
3299			4	0	-10.923	0	0	0	-80.318
3300			5	0	-22.344	0	0	0	0
3301	3	M661	1	0	-12.638	0	-.001	0	0
3302			2	0	-7.3	0	-.001	0	47.382
3303			3	0	-.093	0	-.001	0	64.016
3304			4	0	7.113	0	-.001	0	48.222
3305			5	0	14.319	0	-.001	0	0
3306	3	M662	1	0	-8.856	0	-.001	0	0
3307			2	0	-4.918	0	-.001	0	32.253
3308			3	0	-.047	0	-.001	0	43.424
3309			4	0	4.825	0	-.001	0	32.673
3310			5	0	9.696	0	-.001	0	0
3311	3	M663	1	0	-12.638	0	0	0	0
3312			2	0	-7.3	0	0	0	47.382
3313			3	0	-.093	0	0	0	64.016
3314			4	0	7.113	0	0	0	48.222
3315			5	0	14.319	0	0	0	0
3316	3	M664	1	-.003	-14.195	0	-.004	0	0
3317			2	-.003	-8.545	0	-.004	0	54.246
3318			3	-.003	-.093	0	-.004	0	73.822
3319			4	-.003	8.202	0	-.004	0	55.717
3320			5	-.003	16.498	0	-.004	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3321	3	M665	1	-.005	-14.366	0	-.002	0	0
3322			2	-.005	-8.56	0	-.002	0	53.966
3323			3	-.005	-.265	0	-.002	0	73.682
3324			4	-.005	8.187	0	-.002	0	55.717
3325			5	-.005	16.638	0	-.002	0	0
3326	3	M666	1	.02	-18.102	0	0	0	0
3327			2	.02	-11.829	0	0	0	71.126
3328			3	.02	-.265	0	0	0	98.897
3329			4	.02	11.456	0	0	0	73.438
3330			5	.02	20.374	0	0	0	0
3331	3	M667	1	.054	-18.102	0	.003	0	0
3332			2	.054	-11.985	0	.003	0	71.616
3333			3	.054	-.265	0	.003	0	99.458
3334			4	.054	11.456	0	.003	0	73.998
3335			5	.054	20.997	0	.003	0	0
3336	3	M668	1	.033	-10.973	0	.007	0	0
3337			2	.033	-6.101	0	.007	0	39.957
3338			3	.033	.016	0	.007	0	53.79
3339			4	.033	5.977	0	.007	0	40.448
3340			5	.033	11.938	0	.007	0	0
3341	3	M669	1	-.249	-10.817	0	.002	0	0
3342			2	-.249	-6.101	0	.002	0	39.887
3343			3	-.249	-.14	0	.002	0	53.79
3344			4	-.249	5.977	0	.002	0	40.518
3345			5	-.249	12.093	0	.002	0	0
3346	3	M670	1	0	-10.973	0	0	0	0
3347			2	0	-6.101	0	0	0	39.957
3348			3	0	.016	0	0	0	53.79
3349			4	0	5.977	0	0	0	40.448
3350			5	0	11.938	0	0	0	0
3351	3	M671	1	0	-10.817	0	0	0	0
3352			2	0	-6.101	0	0	0	39.887
3353			3	0	-.14	0	0	0	53.79
3354			4	0	5.977	0	0	0	40.518
3355			5	0	12.093	0	0	0	0
3356	3	M672	1	-.012	-12.669	0	-.023	0	0
3357			2	-.012	-7.331	0	-.023	0	46.962
3358			3	-.012	-.125	0	-.023	0	63.736
3359			4	-.012	7.082	0	-.023	0	48.082
3360			5	-.012	14.288	0	-.023	0	0
3361	3	M673	1	.034	-14.459	0	-.041	0	0
3362			2	.034	-8.498	0	-.041	0	54.876
3363			3	.034	-.047	0	-.041	0	74.243
3364			4	.034	8.249	0	-.041	0	55.927
3365			5	.034	16.545	0	-.041	0	0
3366	3	M674	1	-.05	-12.374	0	-.03	0	0
3367			2	-.05	-7.346	0	-.03	0	46.752
3368			3	-.05	-.14	0	-.03	0	63.596
3369			4	-.05	7.066	0	-.03	0	48.012
3370			5	-.05	14.273	0	-.03	0	0
3371	3	M675	1	-.407	-14.366	0	.02	0	0
3372			2	-.407	-8.56	0	.02	0	53.966
3373			3	-.407	-.265	0	.02	0	73.682

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3374			4	-.407	8.187	0	.02	0	55.717
3375			5	-.407	16.638	0	.02	0	0
3376	3	M676	1	-1.388	-15.891	0	0	0	0
3377			2	-1.388	-9.775	0	0	0	61.25
3378			3	-1.388	-.233	0	0	0	83.768
3379			4	-1.388	9.308	0	0	0	63.351
3380			5	-1.388	18.849	0	0	0	0
3381	3	M677	1	-.405	-12.638	0	-.025	0	0
3382			2	-.405	-7.3	0	-.025	0	47.382
3383			3	-.405	-.093	0	-.025	0	64.016
3384			4	-.405	7.113	0	-.025	0	48.222
3385			5	-.405	14.319	0	-.025	0	0
3386	3	M678	1	-.063	-14.459	0	.03	0	0
3387			2	-.063	-8.498	0	.03	0	54.876
3388			3	-.063	-.047	0	.03	0	74.243
3389			4	-.063	8.249	0	.03	0	55.927
3390			5	-.063	16.545	0	.03	0	0
3391	3	M679	1	.033	-14.07	0	.046	0	0
3392			2	.033	-8.576	0	.046	0	53.756
3393			3	.033	-.28	0	.046	0	73.542
3394			4	.033	8.171	0	.046	0	55.647
3395			5	.033	16.623	0	.046	0	0
3396	3	M680	1	-.007	-12.374	0	.022	0	0
3397			2	-.007	-7.346	0	.022	0	46.752
3398			3	-.007	-.14	0	.022	0	63.596
3399			4	-.007	7.066	0	.022	0	48.012
3400			5	-.007	14.273	0	.022	0	0
3401	3	M681	1	0	-12.638	0	0	0	0
3402			2	0	-7.3	0	0	0	47.382
3403			3	0	-.093	0	0	0	64.016
3404			4	0	7.113	0	0	0	48.222
3405			5	0	14.319	0	0	0	0
3406	3	M682	1	0	-38.445	0	0	0	0
3407			2	0	-15.829	0	0	0	122.257
3408			3	0	3.985	0	0	0	146.106
3409			4	0	17.261	0	0	0	95.501
3410			5	0	24.623	0	0	0	0
3411	3	M683	1	0	-98.061	0	-.042	0	0
3412			2	0	-22.749	0	-.042	0	136.179
3413			3	0	4.311	0	-.042	0	163.327
3414			4	0	28.415	0	-.042	0	113.813
3415			5	0	46.604	0	-.042	0	0
3416	3	M684	1	-.002	-7.536	0	-.022	0	0
3417			2	-.002	-4.912	0	-.022	0	19.72
3418			3	-.002	-.109	0	-.022	0	27.189
3419			4	-.002	4.694	0	-.022	0	20.369
3420			5	-.002	8.252	0	-.022	0	0
3421	3	M685	1	.003	-6.898	0	-.004	0	0
3422			2	.003	-4.741	0	-.004	0	18.609
3423			3	.003	-.093	0	-.004	0	25.985
3424			4	.003	4.71	0	-.004	0	19.119
3425			5	.003	7.334	0	-.004	0	0
3426	3	M686	1	.036	-7.847	0	.017	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3427			2	.036	-5.69	0	.017	0	21.712
3428			3	.036	-.109	0	.017	0	30.338
3429			4	.036	5.472	0	.017	0	22.36
3430			5	.036	8.563	0	.017	0	0
3431	3	M687	1	-.091	-8.19	0	.029	0	0
3432			2	-.091	-5.566	0	.029	0	21.665
3433			3	-.091	-.14	0	.029	0	30.338
3434			4	-.091	5.441	0	.029	0	22.453
3435			5	-.091	8.844	0	.029	0	0
3436	3	M688	1	-.453	-7.489	0	0	0	0
3437			2	-.453	-4.865	0	0	0	19.582
3438			3	-.453	-.062	0	0	0	26.911
3439			4	-.453	4.741	0	0	0	19.952
3440			5	-.453	7.987	0	0	0	0
3441	3	M689	1	-1.256	-8.766	0	.002	0	0
3442			2	-1.256	-6.297	0	.002	0	24.073
3443			3	-1.256	-.093	0	.002	0	33.765
3444			4	-1.256	6.266	0	.002	0	24.583
3445			5	-1.256	9.201	0	.002	0	0
3446	3	M690	1	-.456	-7.847	0	0	0	0
3447			2	-.456	-5.69	0	0	0	21.712
3448			3	-.456	-.109	0	0	0	30.338
3449			4	-.456	5.472	0	0	0	22.36
3450			5	-.456	8.563	0	0	0	0
3451	3	M691	1	-.076	-7.178	0	-.009	0	0
3452			2	-.076	-4.865	0	-.009	0	19.396
3453			3	-.076	-.062	0	-.009	0	26.726
3454			4	-.076	4.741	0	-.009	0	19.767
3455			5	-.076	7.676	0	-.009	0	0
3456	3	M692	1	.034	-8.19	0	-.005	0	0
3457			2	.034	-5.566	0	-.005	0	21.665
3458			3	.034	-.14	0	-.005	0	30.338
3459			4	.034	5.441	0	-.005	0	22.453
3460			5	.034	8.844	0	-.005	0	0
3461	3	M693	1	.005	-7.225	0	0	0	0
3462			2	.005	-4.912	0	0	0	19.165
3463			3	.005	-.109	0	0	0	26.634
3464			4	.005	4.694	0	0	0	19.813
3465			5	.005	7.941	0	0	0	0
3466	3	M694	1	.006	-6.524	0	.004	0	0
3467			2	.006	-4.056	0	.004	0	16.757
3468			3	.006	-.031	0	.004	0	22.837
3469			4	.006	3.994	0	.004	0	16.942
3470			5	.006	7.085	0	.004	0	0
3471	3	M695	1	-.029	-5.98	0	.007	0	0
3472			2	-.029	-4.134	0	.007	0	16.248
3473			3	-.029	-.109	0	.007	0	22.559
3474			4	-.029	3.916	0	.007	0	16.896
3475			5	-.029	6.696	0	.007	0	0
3476	3	M696	1	-.217	-6.82	0	0	0	0
3477			2	-.217	-4.04	0	0	0	17.266
3478			3	-.217	-.016	0	0	0	23.3
3479			4	-.217	4.009	0	0	0	17.359

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3480			5	-.217	7.1	0	0	0	0
3481	3	M697	1	.005	-5.98	0	0	0	0
3482			2	.005	-4.134	0	0	0	16.248
3483			3	.005	-.109	0	0	0	22.559
3484			4	.005	3.916	0	0	0	16.896
3485			5	.005	6.696	0	0	0	0
3486	3	M698	1	.051	-9.855	0	.008	0	0
3487			2	.051	-7.387	0	.008	0	27.315
3488			3	.051	-.249	0	.008	0	39.321
3489			4	.051	7.356	0	.008	0	28.38
3490			5	.051	10.602	0	.008	0	0
3491	3	M699	1	.008	-14.243	0	-.009	0	0
3492			2	.008	-10.024	0	-.009	0	47.959
3493			3	.008	.732	0	-.009	0	67.399
3494			4	.008	9.153	0	-.009	0	49.21
3495			5	.008	14.772	0	-.009	0	0
3496	3	M700	1	0	-11.581	0	0	0	0
3497			2	0	-7.207	0	0	0	37.362
3498			3	0	.591	0	0	0	51.086
3499			4	0	6.678	0	0	0	37.898
3500			5	0	11.519	0	0	0	0
3501	3	M701	1	-.003	-11.379	0	.007	0	0
3502			2	-.003	-7.316	0	.007	0	36.588
3503			3	-.003	.483	0	.007	0	50.253
3504			4	-.003	6.725	0	.007	0	37.422
3505			5	-.003	11.41	0	.007	0	0
3506	3	M702	1	0	-10.227	0	0	0	0
3507			2	0	-6.32	0	0	0	32.718
3508			3	0	.389	0	0	0	44.775
3509			4	0	5.697	0	0	0	33.849
3510			5	0	10.694	0	0	0	0
3511	3	M703	1	0	-7.223	0	.002	0	0
3512			2	0	-4.25	0	.002	0	22.3
3513			3	0	.28	0	.002	0	30.368
3514			4	0	3.876	0	.002	0	22.895
3515			5	0	7.161	0	.002	0	0
3516	3	M704	1	0	-9.885	0	.002	0	0
3517			2	0	-6.289	0	.002	0	32.361
3518			3	0	.42	0	.002	0	44.299
3519			4	0	5.728	0	.002	0	33.254
3520			5	0	10.414	0	.002	0	0
3521	3	M705	1	0	13.172	0	0	0	0
3522			2	0	7.823	0	0	0	-52.25
3523			3	0	.607	0	0	0	-70.402
3524			4	0	-7.543	0	0	0	-52.691
3525			5	0	-14.76	0	0	0	0
3526	3	M706	1	0	9.514	0	0	0	0
3527			2	0	5.255	0	0	0	-35.776
3528			3	0	.374	0	0	0	-47.897
3529			4	0	-5.131	0	0	0	-35.776
3530			5	0	-10.012	0	0	0	0
3531	3	M707	1	0	13.172	0	0	0	0
3532			2	0	7.823	0	0	0	-52.25

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3533			3	0	.607	0	0	0	-70.402
3534			4	0	-7.543	0	0	0	-52.691
3535			5	0	-14.76	0	0	0	0
3536	3	M708	1	-.003	15.102	0	0	0	0
3537			2	-.003	9.131	0	0	0	-60.634
3538			3	-.003	.669	0	0	0	-81.58
3539			4	-.003	-8.726	0	0	0	-61.075
3540			5	-.003	-17.188	0	0	0	0
3541	3	M709	1	0	15.227	0	0	0	0
3542			2	0	9.1	0	0	0	-60.119
3543			3	0	.794	0	0	0	-81.58
3544			4	0	-8.757	0	0	0	-61.148
3545			5	0	-17.063	0	0	0	0
3546	3	M710	1	.006	20.986	0	0	0	0
3547			2	.006	14.703	0	0	0	-88.286
3548			3	.006	3.129	0	0	0	-128.06
3549			4	.006	-10.314	0	0	0	-108.879
3550			5	.006	-39.944	0	0	0	0
3551	3	M711	1	.052	17.593	0	0	0	0
3552			2	.052	11.31	0	0	0	-72.401
3553			3	.052	.981	0	0	0	-103.055
3554			4	.052	-10.905	0	0	0	-79.608
3555			5	.052	-22.791	0	0	0	0
3556	3	M712	1	-.01	11.071	0	0	0	0
3557			2	-.01	6.033	0	0	0	-43.057
3558			3	-.01	.062	0	0	0	-57.311
3559			4	-.01	-6.065	0	0	0	-42.983
3560			5	-.01	-12.192	0	0	0	0
3561	3	M713	1	-.198	11.491	0	0	0	0
3562			2	-.198	5.987	0	0	0	-43.792
3563			3	-.198	-.14	0	0	0	-57.752
3564			4	-.198	-6.111	0	0	0	-43.13
3565			5	-.198	-12.083	0	0	0	0
3566	3	M714	1	-.043	11.071	0	0	0	0
3567			2	-.043	6.033	0	0	0	-43.057
3568			3	-.043	.062	0	0	0	-57.311
3569			4	-.043	-6.065	0	0	0	-42.983
3570			5	-.043	-12.192	0	0	0	0
3571	3	M715	1	.007	11.491	0	0	0	0
3572			2	.007	5.987	0	0	0	-43.792
3573			3	.007	-.14	0	0	0	-57.752
3574			4	.007	-6.111	0	0	0	-43.13
3575			5	.007	-12.083	0	0	0	0
3576	3	M716	1	.015	13.157	0	0	0	0
3577			2	.015	7.185	0	0	0	-51.588
3578			3	.015	-.031	0	0	0	-68.489
3579			4	.015	-7.248	0	0	0	-51.294
3580			5	.015	-14.464	0	0	0	0
3581	3	M717	1	.035	15.149	0	0	0	0
3582			2	.035	8.399	0	0	0	-59.163
3583			3	.035	.093	0	0	0	-79.08
3584			4	.035	-8.368	0	0	0	-59.383
3585			5	.035	-16.83	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3586	3	M718	1	-.091	13.188	0	0	0	0
3587			2	-.091	7.216	0	0	0	-51.146
3588			3	-.091	0	0	0	0	-68.195
3589			4	-.091	-7.216	0	0	0	-51.146
3590			5	-.091	-14.433	0	0	0	0
3591	3	M719	1	-.484	14.713	0	0	0	0
3592			2	-.484	8.43	0	0	0	-58.795
3593			3	-.484	-.031	0	0	0	-78.786
3594			4	-.484	-8.337	0	0	0	-59.163
3595			5	-.484	-16.643	0	0	0	0
3596	3	M720	1	-1.181	16.45	0	0	0	0
3597			2	-1.181	10.015	0	0	0	-64.425
3598			3	-1.181	1.09	0	0	0	-89.084
3599			4	-1.181	-9.703	0	0	0	-67.32
3600			5	-1.181	-19.251	0	0	0	0
3601	3	M721	1	-.48	13.452	0	0	0	0
3602			2	-.48	7.17	0	0	0	-51.808
3603			3	-.48	-.047	0	0	0	-68.636
3604			4	-.48	-7.263	0	0	0	-51.367
3605			5	-.48	-14.48	0	0	0	0
3606	3	M722	1	-.107	15.149	0	0	0	0
3607			2	-.107	8.399	0	0	0	-59.163
3608			3	-.107	.093	0	0	0	-79.08
3609			4	-.107	-8.368	0	0	0	-59.383
3610			5	-.107	-16.83	0	0	0	0
3611	3	M723	1	.037	14.713	0	0	0	0
3612			2	.037	8.43	0	0	0	-58.795
3613			3	.037	-.031	0	0	0	-78.786
3614			4	.037	-8.337	0	0	0	-59.163
3615			5	.037	-16.643	0	0	0	0
3616	3	M724	1	.009	12.923	0	0	0	0
3617			2	.009	7.263	0	0	0	-50.485
3618			3	.009	.047	0	0	0	-67.754
3619			4	.009	-7.17	0	0	0	-50.926
3620			5	.009	-14.386	0	0	0	0
3621	3	M725	1	-.002	13.452	0	0	0	0
3622			2	-.002	7.17	0	0	0	-51.808
3623			3	-.002	-.047	0	0	0	-68.636
3624			4	-.002	-7.263	0	0	0	-51.367
3625			5	-.002	-14.48	0	0	0	0
3626	3	M726	1	-.002	109.986	0	0	0	0
3627			2	-.002	61.834	0	0	0	-423.426
3628			3	-.002	4.031	0	0	0	-581.68
3629			4	-.002	-60.464	0	0	0	-450.858
3630			5	-.002	-131.496	0	0	0	0
3631	3	M727	1	0	-13.172	0	0	0	0
3632			2	0	-7.823	0	0	0	52.25
3633			3	0	-.607	0	0	0	70.402
3634			4	0	7.543	0	0	0	52.691
3635			5	0	14.76	0	0	0	0
3636	3	M728	1	-.004	13.047	0	0	0	0
3637			2	-.004	7.551	0	0	0	-50.119
3638			3	-.004	-.747	0	0	0	-66.165

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3639			4	-.004	-7.177	0	0	0	-48.136
3640			5	-.004	-12.674	0	0	0	0
3641	3	M729	1	.002	12.783	0	0	0	0
3642			2	.002	7.598	0	0	0	-49.482
3643			3	.002	-.7	0	0	0	-65.74
3644			4	.002	-7.131	0	0	0	-47.924
3645			5	.002	-12.627	0	0	0	0
3646	3	M730	1	.004	14.012	0	0	0	0
3647			2	.004	8.516	0	0	0	-54.935
3648			3	.004	-.716	0	0	0	-72.963
3649			4	.004	-7.925	0	0	0	-53.306
3650			5	.004	-14.199	0	0	0	0
3651	3	M731	1	-.009	13.903	0	0	0	0
3652			2	-.009	8.563	0	0	0	-55.077
3653			3	-.009	-.825	0	0	0	-73.671
3654			4	-.009	-8.034	0	0	0	-53.518
3655			5	-.009	-13.997	0	0	0	0
3656	3	M732	1	-.308	13.701	0	0	0	0
3657			2	-.308	8.516	0	0	0	-54.652
3658			3	-.308	-.716	0	0	0	-72.68
3659			4	-.308	-7.925	0	0	0	-53.023
3660			5	-.308	-13.888	0	0	0	0
3661	3	M733	1	2.213	11.584	0	0	0	0
3662			2	2.213	6.71	0	0	0	-44.17
3663			3	2.213	-.654	0	0	0	-58.799
3664			4	2.213	-6.306	0	0	0	-42.966
3665			5	2.213	-11.647	0	0	0	0
3666	3	M734	1	7.8	10.168	0	0	0	0
3667			2	7.8	5.761	0	0	0	-38.363
3668			3	7.8	-.514	0	0	0	-50.726
3669			4	7.8	-5.387	0	0	0	-37.301
3670			5	7.8	-10.261	0	0	0	0
3671	3	M735	1	.583	11.04	0	0	0	0
3672			2	.583	6.633	0	0	0	-43.887
3673			3	.583	-.576	0	0	0	-57.808
3674			4	.583	-6.228	0	0	0	-42.329
3675			5	.583	-11.257	0	0	0	0
3676	3	M736	1	-.334	11.584	0	0	0	0
3677			2	-.334	6.71	0	0	0	-44.17
3678			3	-.334	-.654	0	0	0	-58.799
3679			4	-.334	-6.306	0	0	0	-42.966
3680			5	-.334	-11.647	0	0	0	0
3681	3	M737	1	-1.119	13.405	0	0	0	0
3682			2	-1.119	9.154	0	0	0	-55.147
3683			3	-1.119	-1.012	0	0	0	-76.221
3684			4	-1.119	-8.687	0	0	0	-53.023
3685			5	-1.119	-13.25	0	0	0	0
3686	3	M738	1	-2.759	37.816	0	-.035	0	0
3687			2	-2.759	18.612	0	-.035	0	-130.979
3688			3	-2.759	.031	0	-.035	0	-176.721
3689			4	-2.759	-19.795	0	-.035	0	-129.342
3690			5	-2.759	-30.905	0	-.035	0	0
3691	3	M739	1	-2.67	-37.038	0	.031	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3692			2	-2.67	-18.145	0	.031	0	126.664
3693			3	-2.67	-.187	0	.031	0	171.96
3694			4	-2.67	19.484	0	.031	0	124.358
3695			5	-2.67	29.816	0	.031	0	0
3696	3	M740	1	0	-32.271	0	0	0	0
3697			2	0	-14.808	0	0	0	140.76
3698			3	0	-8.669	0	0	0	194.9
3699			4	0	11.41	0	0	0	156.028
3700			5	0	37.776	0	0	0	0
3701	3	M741	1	0	13.867	.007	0	0	0
3702			2	0	11.119	.007	0	.02	-35.996
3703			3	0	7.128	.007	0	.04	-62.119
3704			4	0	-11.819	-.008	0	.022	-38.632
3705			5	0	-14.722	-.008	0	0	0
3706	3	M742	1	0	22.787	.009	0	0	0
3707			2	0	18.651	.009	0	.034	-79.915
3708			3	0	0	-.009	0	.022	-106.544
3709			4	0	-18.651	0	0	0	-79.915
3710			5	0	-22.787	0	0	0	0
3711	3	M743	1	0	14.26	-.002	-.003	0	0
3712			2	0	11.667	-.002	-.003	-.006	-38.029
3713			3	0	-7.17	.002	-.003	-.013	-64.116
3714			4	0	-11.784	.002	-.003	-.006	-38.049
3715			5	0	-14.532	.002	-.003	0	0
3716	3	M744	1	0	28.534	-.013	0	0	0
3717			2	0	11.753	.016	0	-.055	-116.954
3718			3	0	-6.133	.169	0	.023	-155.207
3719			4	0	-11.917	.169	0	.771	-115.958
3720			5	0	-28.263	-.176	0	0	0
3721	3	M745	1	0	12.048	.176	.143	0	0
3722			2	0	7.513	.176	.143	.775	-44.13
3723			3	0	-21.99	-.171	.143	.021	-11.631
3724			4	0	-41.351	.021	.143	-.041	98.389
3725			5	0	-47.132	.021	.143	.051	292.504
3726	3	M746	1	0	68.727	.007	0	-.038	412.626
3727			2	0	64.875	.007	0	-.019	216.504
3728			3	0	9.891	0	0	0	35.83
3729			4	0	6.654	0	0	0	10.37
3730			5	0	0	0	0	0	0
3731	3	M747	1	2.375	21.993	-.002	0	0	0
3732			2	2.375	17.857	-.002	0	-.006	-76.898
3733			3	2.375	.051	.002	0	-.003	-102.623
3734			4	2.375	-17.801	0	0	.001	-76.686
3735			5	2.375	-21.937	0	0	0	0
3736	3	M748	1	2.309	13.926	-.004	0	0	0
3737			2	2.309	11.178	-.004	0	-.012	-37.041
3738			3	2.309	-7.03	.004	0	-.024	-61.228
3739			4	2.309	-11.179	.004	0	-.012	-35.946
3740			5	2.309	-13.772	.004	0	0	0
3741	3	M749	1	2.351	22.238	.002	0	0	0
3742			2	2.351	17.946	.002	0	.006	-78.241
3743			3	2.351	.047	-.002	0	.003	-103.995
3744			4	2.351	-17.962	0	0	-.001	-77.768

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3745			5	2.351	-22.098	0	0	0	0
3746	3	M750	1	2.292	13.973	.004	0	0	0
3747			2	2.292	11.38	.004	0	.012	-36.866
3748			3	2.292	-7.077	-.004	0	.024	-61.489
3749			4	2.292	-11.226	-.004	0	.012	-36.077
3750			5	2.292	-13.818	-.004	0	0	0
3751	3	M751	1	-.273	21.469	.126	0	0	0
3752			2	-.273	16.601	.126	0	.571	-89.865
3753			3	-.273	-3.391	-.088	0	.18	-118.602
3754			4	-.273	-16.575	-.124	0	.562	-88.547
3755			5	-.273	-21.599	-.124	0	0	0
3756	3	M752	1	-.003	36.751	.069	0	0	0
3757			2	-.003	33.128	.069	0	.312	-159.825
3758			3	-.003	-8.818	-.033	0	.167	-210.15
3759			4	-.003	-32.902	-.067	0	.307	-159.507
3760			5	-.003	-37.148	-.067	0	0	0
3761	3	M753	1	0	-130.637	.011	0	0	0
3762			2	0	-93.171	-.006	0	.038	836.374
3763			3	0	-51.84	-.005	0	.002	1352.619
3764			4	0	55.059	0	0	-.002	1305.283
3765			5	0	281.437	0	0	0	0
3766	3	M754	1	0	-94.773	.018	0	0	0
3767			2	0	-64.813	-.01	0	.062	602.695
3768			3	0	-33.051	-.007	0	.002	947.85
3769			4	0	61.205	0	0	-.002	812.039
3770			5	0	155.09	0	0	0	0
3771	3	M755	1	0	26.343	-.038	0	0	0
3772			2	0	18.907	-.038	0	-.111	-67.203
3773			3	0	12.716	.038	0	-.223	-114.492
3774			4	0	-18.845	.038	0	-.111	-68.168
3775			5	0	-27.059	.038	0	0	0
3776	3	M756	1	-.002	19.06	-.066	0	0	0
3777			2	-.002	15.827	-.066	0	-.194	-52.468
3778			3	-.002	12.593	.066	0	-.388	-94.111
3779			4	-.002	-15.733	.066	0	-.194	-52.742
3780			5	-.002	-19.277	.066	0	0	0
3781	3	M757	1	0	35.178	0	0	0	0
3782			2	0	9.761	0	0	0	-148.513
3783			3	0	-8.574	0	0	0	-183.494
3784			4	0	-13.624	0	0	0	-131.64
3785			5	0	-29.826	0	0	0	0
3786	3	M758	1	0	12.897	.015	0	0	0
3787			2	0	10.304	.015	0	.042	-33.299
3788			3	0	7.09	.015	0	.084	-57.867
3789			4	0	-10.968	-.016	0	.046	-35.657
3790			5	0	-13.405	-.016	0	0	0
3791	3	M759	1	0	21.013	.019	0	0	0
3792			2	0	17.655	.019	0	.072	-74.651
3793			3	0	.093	-.02	0	.046	-99.683
3794			4	0	-17.624	0	0	-.003	-74.947
3795			5	0	-21.448	0	0	0	0
3796	3	M760	1	0	13.359	.002	0	0	0
3797			2	0	10.922	.002	0	.006	-35.527

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3798			3	0	-7.849	-.002	0	.011	-60.412
3799			4	0	-10.91	-.002	0	.005	-34.615
3800			5	0	-13.036	-.002	0	0	0
3801	3	M761	1	0	26.799	.008	0	0	0
3802			2	0	10.314	-.009	0	.033	-109.478
3803			3	0	-6.296	-.079	0	-.011	-145.144
3804			4	0	-10.368	-.079	0	-.361	-108.549
3805			5	0	-26.698	.082	0	0	0
3806	3	M762	1	0	6.872	-.082	-.142	0	0
3807			2	0	-9.283	-.082	-.142	-.363	-21.973
3808			3	0	-25.609	.081	-.142	-.007	28.506
3809			4	0	-43.881	-.021	-.142	.023	151.643
3810			5	0	-47.949	-.021	-.142	-.07	353.806
3811	3	M763	1	0	70.104	-.011	.084	.057	616.523
3812			2	0	66.407	-.011	.084	.026	416.329
3813			3	0	42.361	0	.084	-.005	228.36
3814			4	0	39.44	0	.084	-.003	107.545
3815			5	0	33.72	0	.084	0	0
3816	3	M764	1	0	33.72	0	.084	0	0
3817			2	0	26.525	0	.084	.004	-133.17
3818			3	0	-6.666	-.001	.084	0	-169.767
3819			4	0	-24.968	0	.084	0	-122.243
3820			5	0	-29.051	0	.084	0	0
3821	3	M765	1	0	21.419	0	0	0	0
3822			2	0	17.902	0	0	0	-76.751
3823			3	0	.804	0	0	0	-103.671
3824			4	0	-18.489	0	0	0	-78.22
3825			5	0	-22.161	0	0	0	0
3826	3	M766	1	0	30.413	0	0	0	0
3827			2	0	13.573	0	0	0	-132.717
3828			3	0	-4.949	0	0	0	-183.722
3829			4	0	-10.155	0	0	0	-147.303
3830			5	0	-35.276	0	0	0	0
3831	3	M767	1	0	96.338	.01	0	0	0
3832			2	0	61.099	-.006	0	.041	-585.448
3833			3	0	22.583	-.006	0	0	-874.063
3834			4	0	-74.235	.006	0	.016	-631.522
3835			5	0	-102.734	-.008	0	0	0
3836	3	M768	1	0	80.71	.016	0	0	0
3837			2	0	53.569	-.01	0	.067	-503.482
3838			3	0	22.876	-.01	0	-.001	-769.203
3839			4	0	-66.261	.013	0	.027	-551.531
3840			5	0	-88.841	-.016	0	0	0
3841	3	M769	1	0	28.962	.01	0	0	0
3842			2	0	25.963	.01	0	.036	-95.756
3843			3	0	4.372	-.005	0	.026	-127.357
3844			4	0	-25.155	-.003	0	.012	-97.061
3845			5	0	-31.579	-.003	0	0	0
3846	3	M770	1	0	.321	.019	0	0	0
3847			2	0	-2.211	.019	0	.067	2.852
3848			3	0	-23.953	-.009	0	.047	69.898
3849			4	0	-54.737	-.012	0	.011	200.553
3850			5	0	-62.405	-.012	0	-.031	401.274

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3851	3	M771	1	0	65.134	0	0	0	0
3852			2	0	51.128	0	0	.003	-294.236
3853			3	0	-15.887	0	0	-.001	-365.468
3854			4	0	-47.968	0	0	-.001	-267.095
3855			5	0	-52.946	0	0	0	0
3856	3	M772	1	0	23.94	0	0	0	0
3857			2	0	21.01	0	0	0	-68.079
3858			3	0	2.589	0	0	0	-95.204
3859			4	0	-23.553	0	0	0	-74.634
3860			5	0	-26.016	0	0	0	0
3861	3	M773	1	-.007	77.864	.008	0	-.031	401.274
3862			2	-.007	67.905	.008	0	.013	23.729
3863			3	-.007	30.054	-.003	0	-.004	-148.922
3864			4	-.007	-27.037	0	0	-.001	-156.83
3865			5	-.007	-32.015	0	0	0	0
3866	3	M774	1	-.007	23.256	0	0	0	0
3867			2	-.007	20.483	0	0	0	-66.356
3868			3	-.007	2.626	0	0	0	-92.913
3869			4	-.007	-23.045	0	0	0	-72.874
3870			5	-.007	-25.663	0	0	0	0
3871	3	M775	1	-1.837	49.609	-.002	0	0	0
3872			2	-1.837	44.164	-.002	0	-.013	-247.016
3873			3	-1.837	14.875	.002	0	-.012	-338.472
3874			4	-1.837	-45.776	.002	0	0	-256.219
3875			5	-1.837	-50.91	0	0	0	0
3876	3	M776	1	-1.82	24.224	0	0	0	0
3877			2	-1.82	21.606	0	0	0	-69.678
3878			3	-1.82	2.645	0	0	0	-97.513
3879			4	-1.82	-24.128	0	0	0	-76.499
3880			5	-1.82	-26.746	0	0	0	0
3881	3	M777	1	.081	41.091	-.006	0	0	0
3882			2	.081	35.801	-.006	0	-.032	-203.104
3883			3	.081	11.416	.003	0	-.013	-277.623
3884			4	.081	-37.294	.003	0	0	-210.527
3885			5	.081	-42.272	0	0	0	0
3886	3	M778	1	.081	20.389	0	0	0	0
3887			2	.081	17.771	0	0	0	-57.8
3888			3	.081	2.174	0	0	0	-80.853
3889			4	.081	-19.804	0	0	0	-63.153
3890			5	.081	-22.422	0	0	0	0
3891	3	M779	1	0	38.444	-.009	0	0	0
3892			2	0	32.844	-.009	0	-.048	-187.766
3893			3	0	10.803	.007	0	-.012	-257.725
3894			4	0	-34.184	.003	0	.001	-195.111
3895			5	0	-39.629	0	0	0	0
3896	3	M780	1	0	19.139	0	0	0	0
3897			2	0	16.366	0	0	0	-54.098
3898			3	0	1.899	0	0	0	-75.305
3899			4	0	-18.249	0	0	0	-58.72
3900			5	0	-20.711	0	0	0	0
3901	3	M781	1	.563	37.929	-.015	-.033	0	0
3902			2	.563	32.951	-.015	-.033	-.079	-187.006
3903			3	.563	10.225	.014	-.033	-.005	-254.55

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3904			4	.563	-33.968	.001	-.033	0	-192.82
3905			5	.563	-38.791	0	-.033	0	0
3906	3	M782	1	.563	18.895	0	-.002	0	0
3907			2	.563	16.122	0	-.002	0	-53.273
3908			3	.563	1.966	0	-.002	0	-74.154
3909			4	.563	-18.135	0	-.002	0	-58.144
3910			5	.563	-20.753	0	-.002	0	0
3911	3	M783	1	.011	42.862	-.008	0	0	0
3912			2	.011	37.572	-.008	0	-.045	-212.491
3913			3	.011	12.086	.007	0	-.006	-290.568
3914			4	.011	-39.137	.001	0	.002	-220.29
3915			5	.011	-44.115	0	0	0	0
3916	3	M784	1	.011	21.474	0	0	0	0
3917			2	.011	18.545	0	0	0	-60.682
3918			3	.011	2.283	0	0	0	-84.727
3919			4	.011	-20.828	0	0	0	-66.223
3920			5	.011	-23.446	0	0	0	0
3921	3	M785	1	-1.859	-50.168	0	0	0	0
3922			2	-1.859	-45.078	.032	0	-.002	238.898
3923			3	-1.859	-12.844	.092	0	.156	315.077
3924			4	-1.859	42.658	-.084	0	.422	231.697
3925			5	-1.859	51.639	-.084	0	0	0
3926	3	M786	1	.082	-39.656	-.003	0	0	0
3927			2	.082	-34.722	.034	0	-.017	186.877
3928			3	.082	-8.497	.043	0	.154	240.761
3929			4	.082	30.846	-.053	0	.264	170.068
3930			5	.082	37.181	-.053	0	0	0
3931	3	M787	1	0	-36.636	-.006	0	0	0
3932			2	0	-32.169	.033	0	-.031	173.108
3933			3	0	-7.962	.033	0	.132	223.624
3934			4	0	28.452	-.038	0	.192	157.862
3935			5	0	34.631	-.038	0	0	0
3936	3	M788	1	-.281	-36.622	-.014	.035	0	0
3937			2	-.281	-31.376	.032	.035	-.068	171.551
3938			3	-.281	-7.387	.032	.035	.094	221.273
3939			4	-.281	28.56	-.023	.035	.117	156.068
3940			5	-.281	34.117	-.023	.035	0	0
3941	3	M789	1	-.003	-41.387	-.007	0	0	0
3942			2	-.003	-36.453	.018	0	-.035	195.542
3943			3	-.003	-9.034	.018	0	.056	252.124
3944			4	-.003	32.573	-.014	0	.071	177.768
3945			5	-.003	38.597	-.014	0	0	0
3946	3	M790	1	.082	-32.178	-.027	0	0	0
3947			2	.082	-10.814	0	0	-.125	141.383
3948			3	.082	8.782	-.084	0	-.125	184.232
3949			4	.082	25.691	.109	0	-.516	131.225
3950			5	.082	30.122	.109	0	0	0
3951	3	M791	1	0	-35.073	-.02	0	0	0
3952			2	0	-13.113	-.01	0	-.094	153.35
3953			3	0	-8.838	-.029	0	-.14	207.11
3954			4	0	30.481	.058	0	-.274	153.31
3955			5	0	34.756	.058	0	0	0
3956	3	M792	1	-.277	-34.5	-.014	.002	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
3957			2	-.277	-13.007	-.011	.002	-.066	152.408
3958			3	-.277	8.798	.025	.002	-.118	205.668
3959			4	-.277	30.291	0	.002	0	152.409
3960			5	-.277	34.566	0	.002	0	0
3961	3	M793	1	-.003	-38.904	-.009	0	0	0
3962			2	-.003	-14.635	-.005	0	-.044	173.115
3963			3	-.003	10.241	.012	0	-.067	233.44
3964			4	-.003	34.51	.002	0	-.01	173.116
3965			5	-.003	38.941	.002	0	0	0
3966	3	M794	1	-.003	-41.728	-.006	0	0	0
3967			2	-.003	-36.798	-.006	0	-.031	196.262
3968			3	-.003	10.426	.008	0	-.064	254.152
3969			4	-.003	35.817	.005	0	-.024	188.129
3970			5	-.003	40.436	.005	0	0	0
3971	3	M795	1	-.272	-37.056	-.007	0	0	0
3972			2	-.272	-31.814	-.007	0	-.037	172.861
3973			3	-.272	8.612	.016	0	-.112	223.944
3974			4	-.272	31.29	.006	0	-.032	165.841
3975			5	-.272	36.065	.006	0	0	0
3976	3	M796	1	0	-36.952	-.066	0	0	0
3977			2	0	-32.488	-.066	0	-.326	173.815
3978			3	0	9.526	.017	0	-.127	224.907
3979			4	0	31.659	.008	0	-.041	166.514
3980			5	0	35.967	.008	0	0	0
3981	3	M797	1	.038	-32.285	-.117	-.001	0	0
3982			2	.038	-27.354	-.117	-.001	-.584	149.281
3983			3	.038	6.59	.012	-.001	-.109	201.552
3984			4	.038	29.092	.01	-.001	-.05	154.675
3985			5	.038	33.711	.01	-.001	0	0
3986	3	M798	1	-.003	-41.29	.016	0	0	0
3987			2	-.003	-36.2	.016	0	.08	192.636
3988			3	-.003	-7.012	-.009	0	.042	253.248
3989			4	-.003	19.058	-.008	0	0	188.769
3990			5	-.003	41.324	0	0	0	0
3991	3	M799	1	-.269	-36.31	.027	.001	0	0
3992			2	-.269	-31.376	.027	.001	.136	168.436
3993			3	-.269	-6.146	-.017	.001	.066	222.35
3994			4	-.269	17.132	-.013	.001	-.002	166.73
3995			5	-.269	37.059	.002	.001	0	0
3996	3	M800	1	0	-36.505	.046	-.001	0	0
3997			2	0	-31.26	.046	-.001	.229	168.635
3998			3	0	-6.29	-.032	-.001	.092	223.193
3999			4	0	16.765	-.017	-.001	-.007	166.262
4000			5	0	36.521	.003	-.001	0	0
4001	3	M801	1	.038	-39.306	.065	0	0	0
4002			2	.038	-34.527	.065	0	.324	183.961
4003			3	.038	-6.658	-.051	0	.103	242.41
4004			4	.038	18.404	-.017	0	-.015	180.853
4005			5	.038	39.663	.005	0	0	0
4006	3	M802	1	-3.96	-54.138	.108	0	0	0
4007			2	-3.96	-47.181	.108	0	.539	249.406
4008			3	-3.96	-7.336	-.103	0	.087	313.064
4009			4	-3.96	23.762	-.005	0	-.025	228.375

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4010			5	-3.96	49.521	.006	0	0	0
4011	3	M803	1	-.003	-41.213	0	0	0	0
4012			2	-.003	-35.942	0	0	.001	198.993
4013			3	-.003	9.363	0	0	0	269.458
4014			4	-.003	37.198	0	0	0	207.265
4015			5	-.003	42.469	0	0	0	0
4016	3	M804	1	-.268	-36.958	0	0	0	0
4017			2	-.268	-31.531	0	0	.002	175.767
4018			3	-.268	8.3	0	0	.002	238.426
4019			4	-.268	32.503	0	0	0	182.564
4020			5	-.268	37.929	0	0	0	0
4021	3	M805	1	0	-36.339	0	0	0	0
4022			2	0	-32.002	0	0	.004	176.348
4023			3	0	7.892	0	0	.002	237.916
4024			4	0	32.375	0	0	.001	182.063
4025			5	0	37.49	0	0	0	0
4026	3	M806	1	.038	-39.57	0	0	0	0
4027			2	.038	-34.299	0	0	.005	190.493
4028			3	.038	8.882	0	0	.002	257.859
4029			4	.038	35.444	0	0	.001	198.191
4030			5	.038	40.715	0	0	0	0
4031	3	M807	1	-3.928	-47.316	0	0	0	0
4032			2	-3.928	-42.356	0	0	.005	231.22
4033			3	-3.928	11.179	0	0	.002	312.372
4034			4	-3.928	43.346	0	0	.001	240.531
4035			5	-3.928	48.928	0	0	0	0
4036	3	M808	1	-.003	-26.601	0	0	0	0
4037			2	-.003	-22.82	0	0	0	87.25
4038			3	-.003	-.119	0	0	0	116.412
4039			4	-.003	22.877	0	0	0	86.796
4040			5	-.003	26.347	0	0	0	0
4041	3	M809	1	-.267	-24.086	0	-.003	0	0
4042			2	-.267	-19.838	0	-.003	0	77.521
4043			3	-.267	-.178	0	-.003	0	103.17
4044			4	-.267	19.903	0	-.003	0	76.821
4045			5	-.267	23.372	0	-.003	0	0
4046	3	M810	1	0	-23.342	0	.003	0	0
4047			2	0	-20.184	0	.003	0	77.15
4048			3	0	-.103	0	.003	0	103.046
4049			4	0	19.916	0	.003	0	76.812
4050			5	0	23.852	0	.003	0	0
4051	3	M811	1	.037	-25.501	0	0	0	0
4052			2	.037	-21.72	0	0	0	83.399
4053			3	.037	-.073	0	0	0	111.135
4054			4	.037	21.838	0	0	0	83.158
4055			5	.037	25.308	0	0	0	0
4056	3	M812	1	-3.904	-30.248	0	0	0	0
4057			2	-3.904	-26.778	0	0	0	100.885
4058			3	-3.904	-.072	0	0	0	135.125
4059			4	-3.904	26.651	0	0	0	100.874
4060			5	-3.904	30.743	0	0	0	0
4061	3	M813	1	2.183	-23.287	-.398	-.074	0	0
4062			2	2.183	-40.997	1.815	-.074	-.165	146.231

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4063			3	-3.006	40.809	-.289	.047	-.537	172.422
4064			4	-3.006	18.978	.295	.047	-.12	21.147
4065			5	-3.006	-3.557	-.039	.047	0	0
4066	3	M814	1	2.19	-24.962	.351	.055	0	0
4067			2	2.19	-42.61	-1.863	.055	-.086	155.014
4068			3	-3.052	42.009	.307	-.035	.345	182.98
4069			4	-3.052	19.932	-.276	-.035	.024	26.033
4070			5	-3.052	-2.386	.057	-.035	0	0
4071	3	M815	1	-1.209	15.414	0	0	0	0
4072			2	-1.209	11.209	0	0	0	-58.718
4073			3	-1.209	-.467	0	0	0	-84.052
4074			4	-1.209	-10.742	0	0	0	-58.252
4075			5	-1.209	-15.103	0	0	0	0
4076	3	M816	1	-1.201	14.791	0	0	0	0
4077			2	-1.201	11.069	0	0	0	-55.645
4078			3	-1.201	.498	0	0	0	-81.797
4079			4	-1.201	-11.162	0	0	0	-58.043
4080			5	-1.201	-15.663	0	0	0	0
4081	3	M817	1	196.1	0	0	0	0	0
4082			2	196.208	0	0	0	0	0
4083			3	196.317	0	0	0	0	0
4084			4	196.426	0	0	0	0	0
4085			5	196.535	0	0	0	0	0
4086	3	M818	1	75.88	0	0	0	.003	0
4087			2	75.988	0	0	0	.003	0
4088			3	76.097	0	0	0	.002	-.001
4089			4	76.206	0	0	0	.002	-.002
4090			5	76.314	0	0	0	.002	-.003
4091	3	M819	1	76.006	0	0	0	-.003	-.003
4092			2	76.115	0	0	0	-.003	-.003
4093			3	76.223	0	0	0	-.003	-.003
4094			4	76.332	0	0	0	-.003	-.004
4095			5	76.441	0	0	0	-.003	-.004
4096	3	M820	1	188.799	.051	0	0	0	.137
4097			2	188.908	.051	0	0	0	-.041
4098			3	189.017	.051	0	0	0	-.219
4099			4	189.126	.051	0	0	0	-.397
4100			5	189.234	.051	0	0	0	-.574
4101	3	M821	1	134.601	.042	0	0	0	.204
4102			2	134.71	.042	0	0	0	.058
4103			3	134.819	.042	0	0	0	-.088
4104			4	134.927	.042	0	0	0	-.233
4105			5	135.036	.042	0	0	0	-.379
4106	3	M822	1	-.217	3.427	.005	0	.06	23.137
4107			2	-.109	3.427	.005	0	.079	11.143
4108			3	0	3.427	.005	0	.098	-.851
4109			4	.109	3.427	.005	0	.117	-12.844
4110			5	.217	3.427	.005	0	.136	-24.838
4111	3	M823	1	202.81	0	0	0	0	0
4112			2	202.919	0	0	0	0	0
4113			3	203.028	0	0	0	0	0
4114			4	203.136	0	0	0	0	0
4115			5	203.245	0	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4116	3	M824	1	78.673	0	.01	0	-.003	0
4117			2	78.782	0	.01	0	.031	0
4118			3	78.891	0	.01	0	.065	-.002
4119			4	79	0	.01	0	.099	-.003
4120			5	79.108	0	.01	0	.132	-.004
4121	3	M825	1	78.688	0	-.012	0	.004	0
4122			2	78.797	0	-.012	0	-.037	0
4123			3	78.906	0	-.012	0	-.079	0
4124			4	79.015	0	-.012	0	-.12	0
4125			5	79.123	0	-.012	0	-.162	0
4126	3	M826	1	214.602	0	0	0	0	-.003
4127			2	214.711	0	0	0	0	-.001
4128			3	214.82	0	0	0	0	0
4129			4	214.929	0	0	0	0	0
4130			5	215.037	0	0	0	0	.002
4131	3	M827	1	192.85	.016	0	0	0	.118
4132			2	192.959	.016	0	0	0	.062
4133			3	193.067	.016	0	0	0	.007
4134			4	193.176	.016	0	0	0	-.048
4135			5	193.285	.016	0	0	0	-.104
4136	3	M828	1	177.283	0	0	0	0	0
4137			2	177.392	0	0	0	0	0
4138			3	177.501	0	0	0	0	0
4139			4	177.61	0	0	0	0	0
4140			5	177.718	0	0	0	0	0
4141	3	M829	1	180.129	.001	.012	0	-.029	.009
4142			2	180.238	.001	.012	0	.013	.005
4143			3	180.347	.001	.012	0	.056	.001
4144			4	180.456	.001	.012	0	.099	-.003
4145			5	180.564	.001	.012	0	.141	-.007
4146	3	M830	1	-.218	0	-.015	0	.036	0
4147			2	-.11	0	-.015	0	-.016	0
4148			3	0	0	-.015	0	-.068	0
4149			4	.108	0	-.015	0	-.12	0
4150			5	.216	0	-.015	0	-.172	0
4151	3	M831	1	113.672	0	0	0	0	-.002
4152			2	113.781	0	0	0	0	-.001
4153			3	113.89	0	0	0	0	0
4154			4	113.999	0	0	0	0	0
4155			5	114.107	0	0	0	0	.002
4156	3	M832	1	135.861	.021	0	0	0	.152
4157			2	135.969	.021	0	0	0	.081
4158			3	136.078	.021	0	0	0	.009
4159			4	136.187	.021	0	0	0	-.063
4160			5	136.296	.021	0	0	0	-.135
4161	3	M833	1	170.691	0	0	0	0	0
4162			2	170.8	0	0	0	-.001	0
4163			3	170.909	0	0	0	-.002	0
4164			4	171.018	0	0	0	-.002	0
4165			5	171.126	0	0	0	-.003	0
4166	3	M834	1	198.192	.001	0	0	0	.011
4167			2	198.301	.001	0	0	-.001	.006
4168			3	198.409	.001	0	0	-.001	.001

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4169			4	198.518	.001	0	0	-.002	-.004
4170			5	198.627	.001	0	0	-.002	-.008
4171	3	M835	1	89.846	0	0	0	0	0
4172			2	89.955	0	0	0	-.003	0
4173			3	90.064	0	0	0	-.005	0
4174			4	90.172	0	0	0	-.007	0
4175			5	90.281	0	0	0	-.009	0
4176	3	M836	1	93.078	0	0	0	.001	0
4177			2	93.187	0	0	0	-.001	0
4178			3	93.295	0	0	0	-.004	0
4179			4	93.404	0	0	0	-.006	0
4180			5	93.513	0	0	0	-.008	.001
4181	3	M837	1	165.789	0	0	0	.004	0
4182			2	165.898	0	0	0	.003	0
4183			3	166.007	0	0	0	.002	0
4184			4	166.116	0	0	0	.002	0
4185			5	166.224	0	0	0	.001	0
4186	3	M838	1	152.776	.002	0	0	.006	.013
4187			2	152.885	.002	0	0	.005	.007
4188			3	152.994	.002	0	0	.004	.002
4189			4	153.103	.002	0	0	.003	-.004
4190			5	153.211	.002	0	0	.002	-.01
4191	3	M839	1	153.994	0	0	0	.007	0
4192			2	154.102	0	0	0	.006	0
4193			3	154.211	0	0	0	.004	0
4194			4	154.32	0	0	0	.003	0
4195			5	154.428	0	0	0	.002	0
4196	3	M840	1	65.897	.005	0	0	.008	.031
4197			2	66.005	.005	0	0	.006	.015
4198			3	66.114	.005	0	0	.005	0
4199			4	66.223	.005	0	0	.004	-.016
4200			5	66.332	.005	0	0	.002	-.032
4201	3	M841	1	119.368	.003	0	0	-.002	.012
4202			2	119.476	.003	0	0	-.001	.002
4203			3	119.585	.003	0	0	0	-.007
4204			4	119.694	.003	0	0	0	-.016
4205			5	119.803	.003	0	0	0	-.025
4206	3	M842	1	-.217	-4.126	-.003	0	-.029	-46.622
4207			2	-.109	-4.126	-.003	0	-.038	-32.182
4208			3	0	-4.126	-.003	0	-.047	-17.743
4209			4	.109	-4.126	-.003	0	-.057	-3.303
4210			5	.217	-4.126	-.003	0	-.066	11.136
4211	3	M843	1	148.473	.001	-.001	0	.016	.005
4212			2	148.582	.001	-.001	0	.012	.002
4213			3	148.69	.001	-.001	0	.008	-.002
4214			4	148.799	.001	-.001	0	.004	-.006
4215			5	148.908	.001	-.001	0	0	-.01
4216	3	M844	1	161.328	0	0	0	.004	0
4217			2	161.436	0	0	0	.003	0
4218			3	161.545	0	0	0	.003	0
4219			4	161.654	0	0	0	.002	0
4220			5	161.762	0	0	0	.002	0
4221	3	M845	1	149.012	.002	0	0	.005	.015

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4222			2	149.121	.002	0	0	.004	.008
4223			3	149.23	.002	0	0	.004	.002
4224			4	149.338	.002	0	0	.004	-.005
4225			5	149.447	.002	0	0	.003	-.011
4226	3	M846	1	151.687	0	0	0	.008	0
4227			2	151.796	0	0	0	.007	0
4228			3	151.905	0	0	0	.006	0
4229			4	152.014	0	0	0	.005	0
4230			5	152.122	0	0	0	.003	0
4231	3	M847	1	58.163	-.004	0	0	.009	-.027
4232			2	58.272	-.004	0	0	.008	-.011
4233			3	58.381	-.004	0	0	.006	.004
4234			4	58.489	-.004	0	0	.005	.019
4235			5	58.598	-.004	0	0	.004	.035
4236	3	M848	1	113.624	-.002	0	0	0	-.007
4237			2	113.733	-.002	0	0	0	0
4238			3	113.842	-.002	0	0	.001	.006
4239			4	113.95	-.002	0	0	.002	.012
4240			5	114.059	-.002	0	0	.003	.018
4241	3	M849	1	-.217	3.723	-.007	0	.27	42.076
4242			2	-.109	3.723	-.007	0	.244	29.045
4243			3	0	3.723	-.007	0	.218	16.013
4244			4	.109	3.723	-.007	0	.192	2.982
4245			5	.217	3.723	-.007	0	.166	-10.049
4246	3	M850	1	168.094	0	0	0	-.004	0
4247			2	168.202	0	0	0	-.003	0
4248			3	168.311	0	0	0	-.002	0
4249			4	168.42	0	0	0	-.002	0
4250			5	168.529	0	0	0	0	0
4251	3	M851	1	162.33	.002	.005	0	-.058	.017
4252			2	162.439	.002	.005	0	-.042	.009
4253			3	162.547	.002	.005	0	-.025	.002
4254			4	162.656	.002	.005	0	-.009	-.005
4255			5	162.765	.002	.005	0	.007	-.013
4256	3	M852	1	88.915	0	0	0	.001	0
4257			2	89.024	0	0	0	0	0
4258			3	89.133	0	0	0	-.002	0
4259			4	89.241	0	0	0	-.003	0
4260			5	89.35	0	0	0	-.005	0
4261	3	M853	1	91.599	0	0	0	0	0
4262			2	91.708	0	0	0	0	0
4263			3	91.816	0	0	0	-.002	0
4264			4	91.925	0	0	0	-.004	0
4265			5	92.034	0	0	0	-.006	0
4266	3	M854	1	180.29	-.003	0	0	.003	-.034
4267			2	180.399	-.003	0	0	.002	-.024
4268			3	180.508	-.003	0	0	0	-.013
4269			4	180.617	-.003	0	0	0	-.003
4270			5	180.725	-.003	0	0	-.002	.008
4271	3	M855	1	-.217	-.167	.114	0	-1.272	-1.895
4272			2	-.108	-.167	.114	0	-.874	-1.311
4273			3	0	-.167	.114	0	-.475	-.726
4274			4	.109	-.167	.114	0	-.076	-.142

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4275			5	.218	-.167	.114	0	.323	.443
4276	3	M856	1	124.286	0	-.002	0	.023	-.001
4277			2	124.394	0	-.002	0	.015	0
4278			3	124.503	0	-.002	0	.007	0
4279			4	124.612	0	-.002	0	0	0
4280			5	124.72	0	-.002	0	-.008	0
4281	3	M857	1	162.196	0	0	0	0	.002
4282			2	162.304	0	0	0	0	.001
4283			3	162.413	0	0	0	0	0
4284			4	162.522	0	0	0	-.001	0
4285			5	162.631	0	0	0	-.002	0
4286	3	M858	1	211.411	-.015	0	0	0	-.102
4287			2	211.52	-.015	0	0	0	-.049
4288			3	211.629	-.015	0	0	0	.004
4289			4	211.738	-.015	0	0	0	.057
4290			5	211.846	-.015	0	0	-.001	.11
4291	3	M859	1	190.33	0	0	0	0	0
4292			2	190.439	0	0	0	0	0
4293			3	190.548	0	0	0	0	0
4294			4	190.656	0	0	0	0	0
4295			5	190.765	0	0	0	0	0
4296	3	M860	1	75.434	0	.003	0	-.032	0
4297			2	75.542	0	.003	0	-.023	-.002
4298			3	75.651	0	.003	0	-.014	-.004
4299			4	75.76	0	.003	0	-.005	-.006
4300			5	75.869	0	.003	0	.004	-.008
4301	3	M861	1	75.878	0	0	0	0	0
4302			2	75.987	0	0	0	0	0
4303			3	76.096	0	0	0	0	0
4304			4	76.204	0	0	0	0	0
4305			5	76.313	0	0	0	0	0
4306	3	M862	1	189.775	0	0	0	0	.002
4307			2	189.884	0	0	0	0	.001
4308			3	189.993	0	0	0	0	0
4309			4	190.102	0	0	0	0	0
4310			5	190.21	0	0	0	0	0
4311	3	M863	1	175.88	-.012	0	0	0	-.078
4312			2	175.989	-.012	0	0	0	-.037
4313			3	176.098	-.012	0	0	0	.003
4314			4	176.207	-.012	0	0	0	.043
4315			5	176.315	-.012	0	0	0	.084
4316	3	M864	1	183.081	0	0	0	0	0
4317			2	183.189	0	0	0	0	0
4318			3	183.298	0	0	0	0	0
4319			4	183.407	0	0	0	0	0
4320			5	183.516	0	0	0	0	0
4321	3	M865	1	70.572	0	0	0	-.002	0
4322			2	70.681	0	0	0	-.001	-.001
4323			3	70.79	0	0	0	0	-.003
4324			4	70.899	0	0	0	0	-.005
4325			5	71.007	0	0	0	0	-.007
4326	3	M866	1	70.516	0	0	0	0	0
4327			2	70.625	0	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4328			3	70.734	0	0	0	0	0
4329			4	70.842	0	0	0	0	0
4330			5	70.951	0	0	0	0	0
4331	3	M867	1	176.233	0	0	0	0	.002
4332			2	176.342	0	0	0	0	.001
4333			3	176.45	0	0	0	0	0
4334			4	176.559	0	0	0	0	0
4335			5	176.668	0	0	0	0	0
4336	3	M868	1	125.393	-.021	0	0	0	-.127
4337			2	125.502	-.021	0	0	0	-.053
4338			3	125.611	-.021	0	0	0	.022
4339			4	125.72	-.021	0	0	0	.096
4340			5	125.828	-.021	0	0	0	.171
4341	3	M869	1	-.217	-3.422	.015	0	-.555	-23.105
4342			2	-.109	-3.422	.015	0	-.503	-11.128
4343			3	0	-3.422	.015	0	-.451	.848
4344			4	.109	-3.422	.015	0	-.399	12.825
4345			5	.217	-3.422	.015	0	-.347	24.802
4346	3	M870	1	90.026	-.011	0	0	0	-.083
4347			2	90.134	-.011	0	0	0	-.045
4348			3	90.243	-.011	0	0	0	-.006
4349			4	90.352	-.011	0	0	0	.032
4350			5	90.461	-.011	0	0	0	.071
4351	3	M871	1	92.218	0	0	0	0	0
4352			2	92.327	0	0	0	0	0
4353			3	92.436	0	0	0	0	0
4354			4	92.545	0	0	0	0	0
4355			5	92.653	0	0	0	0	0
4356	3	M872	1	78.604	0	0	0	0	0
4357			2	78.713	0	0	0	0	0
4358			3	78.821	0	0	0	0	0
4359			4	78.93	0	0	0	0	0
4360			5	79.039	0	0	0	0	0
4361	3	M873	1	100.286	0	0	0	0	0
4362			2	100.394	0	0	0	0	0
4363			3	100.503	0	0	0	0	0
4364			4	100.612	0	0	0	0	0
4365			5	100.721	0	0	0	0	0
4366	3	M874	1	140.273	0	0	0	.005	-.001
4367			2	140.381	0	0	0	.003	0
4368			3	140.49	0	0	0	.002	0
4369			4	140.599	0	0	0	0	0
4370			5	140.707	0	0	0	-.001	.002
4371	3	M875	1	196.426	0	0	0	-.002	0
4372			2	196.535	0	0	0	-.001	0
4373			3	196.644	0	0	0	0	0
4374			4	196.752	0	0	0	0	0
4375			5	196.861	0	0	0	0	0
4376	3	M876	1	122.917	-.002	0	0	0	-.02
4377			2	123.026	-.002	0	0	0	-.014
4378			3	123.134	-.002	0	0	0	-.008
4379			4	123.243	-.002	0	0	.001	-.001
4380			5	123.352	-.002	0	0	.002	.005

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4381	3	M877	1	145.958	0	0	0	0	0
4382			2	146.066	0	0	0	0	0
4383			3	146.175	0	0	0	0	0
4384			4	146.284	0	0	0	0	0
4385			5	146.393	0	0	0	.001	0
4386	3	M878	1	134.458	.002	0	0	0	.025
4387			2	134.567	.002	0	0	0	.017
4388			3	134.676	.002	0	0	0	.009
4389			4	134.784	.002	0	0	.001	.001
4390			5	134.893	.002	0	0	.002	-.007
4391	3	M879	1	177.922	0	0	0	0	0
4392			2	178.03	0	0	0	0	0
4393			3	178.139	0	0	0	0	0
4394			4	178.248	0	0	0	0	0
4395			5	178.357	0	0	0	.001	-.001
4396	3	M880	1	284.017	0	0	0	0	0
4397			2	284.126	0	0	0	0	0
4398			3	284.235	0	0	0	0	0
4399			4	284.344	0	0	0	0	0
4400			5	284.452	0	0	0	0	0
4401	3	M881	1	152.194	0	0	0	-.004	-.003
4402			2	152.303	0	0	0	-.003	-.002
4403			3	152.411	0	0	0	-.002	-.001
4404			4	152.52	0	0	0	0	0
4405			5	152.629	0	0	0	0	0
4406	3	M882	1	152.447	0	0	0	.004	.005
4407			2	152.555	0	0	0	.003	.004
4408			3	152.664	0	0	0	.002	.003
4409			4	152.773	0	0	0	.001	.001
4410			5	152.882	0	0	0	0	0
4411	3	M883	1	272.539	.037	0	0	0	.511
4412			2	272.648	.037	0	0	0	.383
4413			3	272.756	.037	0	0	0	.256
4414			4	272.865	.037	0	0	0	.128
4415			5	272.974	.037	0	0	0	0
4416	3	M884	1	221.878	.011	0	0	0	.161
4417			2	221.987	.011	0	0	0	.12
4418			3	222.095	.011	0	0	0	.08
4419			4	222.204	.011	0	0	0	.04
4420			5	222.313	.011	0	0	0	0
4421	3	M885	1	-.217	.986	0	0	-.112	13.8
4422			2	-.109	.986	0	0	-.111	10.349
4423			3	0	.986	0	0	-.11	6.897
4424			4	.109	.986	0	0	-.109	3.446
4425			5	.217	.986	0	0	-.108	-.006
4426	3	M886	1	292.481	0	0	0	0	0
4427			2	292.59	0	0	0	0	0
4428			3	292.698	0	0	0	0	0
4429			4	292.807	0	0	0	0	0
4430			5	292.916	0	0	0	0	0
4431	3	M887	1	157.777	0	.009	0	-.131	-.004
4432			2	157.886	0	.009	0	-.098	-.003
4433			3	157.994	0	.009	0	-.065	-.002

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4434			4	158.103	0	.009	0	-.033	0
4435			5	158.212	0	.009	0	0	0
4436	3	M888	1	157.816	0	-.011	0	.16	0
4437			2	157.924	0	-.011	0	.12	0
4438			3	158.033	0	-.011	0	.08	0
4439			4	158.142	0	-.011	0	.04	0
4440			5	158.251	0	-.011	0	0	0
4441	3	M889	1	300.365	0	0	0	0	.002
4442			2	300.474	0	0	0	0	.001
4443			3	300.582	0	0	0	0	0
4444			4	300.691	0	0	0	0	0
4445			5	300.8	0	0	0	0	0
4446	3	M890	1	296.897	-.007	0	0	0	-.104
4447			2	297.005	-.007	0	0	0	-.078
4448			3	297.114	-.007	0	0	0	-.052
4449			4	297.223	-.007	0	0	0	-.026
4450			5	297.332	-.007	0	0	0	0
4451	3	M891	1	283.051	0	0	0	0	0
4452			2	283.16	0	0	0	0	0
4453			3	283.269	0	0	0	0	0
4454			4	283.377	0	0	0	0	0
4455			5	283.486	0	0	0	0	0
4456	3	M892	1	273.369	0	.009	0	-.127	-.007
4457			2	273.477	0	.009	0	-.095	-.005
4458			3	273.586	0	.009	0	-.063	-.003
4459			4	273.695	0	.009	0	-.032	-.002
4460			5	273.804	0	.009	0	0	0
4461	3	M893	1	93.084	0	-.011	0	.155	0
4462			2	93.192	0	-.011	0	.116	0
4463			3	93.301	0	-.011	0	.077	0
4464			4	93.41	0	-.011	0	.039	0
4465			5	93.519	0	-.011	0	0	0
4466	3	M894	1	214.942	0	0	0	0	.002
4467			2	215.051	0	0	0	0	.001
4468			3	215.16	0	0	0	0	0
4469			4	215.269	0	0	0	0	0
4470			5	215.377	0	0	0	0	0
4471	3	M895	1	260.588	-.01	0	0	0	-.135
4472			2	260.697	-.01	0	0	0	-.101
4473			3	260.806	-.01	0	0	0	-.067
4474			4	260.914	-.01	0	0	0	-.034
4475			5	261.023	-.01	0	0	0	0
4476	3	M896	1	273.002	0	0	0	-.003	0
4477			2	273.11	0	0	0	-.002	0
4478			3	273.219	0	0	0	-.001	0
4479			4	273.328	0	0	0	0	0
4480			5	273.437	0	0	0	0	0
4481	3	M897	1	288.532	0	0	0	-.006	-.008
4482			2	288.64	0	0	0	-.005	-.006
4483			3	288.749	0	0	0	-.003	-.004
4484			4	288.858	0	0	0	-.002	-.002
4485			5	288.967	0	0	0	0	0
4486	3	M898	1	180.127	0	0	0	-.004	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4487			2	180.236	0	0	0	-.003	0
4488			3	180.344	0	0	0	-.002	0
4489			4	180.453	0	0	0	0	0
4490			5	180.562	0	0	0	0	0
4491	3	M899	1	186.591	0	0	0	-.008	.001
4492			2	186.7	0	0	0	-.006	.001
4493			3	186.809	0	0	0	-.004	0
4494			4	186.917	0	0	0	-.002	0
4495			5	187.026	0	0	0	0	0
4496	3	M900	1	265.149	0	0	0	.001	0
4497			2	265.258	0	0	0	0	0
4498			3	265.367	0	0	0	0	0
4499			4	265.476	0	0	0	0	0
4500			5	265.584	0	0	0	0	0
4501	3	M901	1	240.955	0	0	0	.002	-.01
4502			2	241.064	0	0	0	.001	-.007
4503			3	241.173	0	0	0	0	-.005
4504			4	241.282	0	0	0	0	-.002
4505			5	241.39	0	0	0	0	0
4506	3	M902	1	241.256	0	0	0	.002	0
4507			2	241.365	0	0	0	.002	0
4508			3	241.474	0	0	0	.001	0
4509			4	241.582	0	0	0	0	0
4510			5	241.691	0	0	0	0	0
4511	3	M903	1	111.157	.001	0	0	.002	.02
4512			2	111.266	.001	0	0	.002	.015
4513			3	111.374	.001	0	0	.001	.01
4514			4	111.483	.001	0	0	0	.005
4515			5	111.592	.001	0	0	0	0
4516	3	M904	1	194.937	.001	0	0	.007	.015
4517			2	195.045	.001	0	0	.005	.011
4518			3	195.154	.001	0	0	.004	.008
4519			4	195.263	.001	0	0	.002	.004
4520			5	195.372	.001	0	0	0	0
4521	3	M905	1	-.217	.794	-.006	0	.08	11.11
4522			2	-.109	.794	-.006	0	.06	8.333
4523			3	0	.794	-.006	0	.04	5.555
4524			4	.109	.794	-.006	0	.02	2.778
4525			5	.217	.794	-.006	0	0	0
4526	3	M906	1	202.987	0	0	0	0	-.009
4527			2	203.096	0	0	0	0	-.007
4528			3	203.205	0	0	0	0	-.005
4529			4	203.314	0	0	0	0	-.002
4530			5	203.422	0	0	0	0	0
4531	3	M907	1	258.002	0	0	0	.002	0
4532			2	258.11	0	0	0	.001	0
4533			3	258.219	0	0	0	0	0
4534			4	258.328	0	0	0	0	0
4535			5	258.436	0	0	0	0	0
4536	3	M908	1	235.077	0	0	0	.004	-.011
4537			2	235.185	0	0	0	.003	-.008
4538			3	235.294	0	0	0	.002	-.006
4539			4	235.403	0	0	0	0	-.003

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4540			5	235.511	0	0	0	0	0
4541	3	M909	1	237.148	0	0	0	.003	0
4542			2	237.257	0	0	0	.003	0
4543			3	237.366	0	0	0	.002	0
4544			4	237.475	0	0	0	0	0
4545			5	237.583	0	0	0	0	0
4546	3	M910	1	102.46	-.002	0	0	.004	-.023
4547			2	102.569	-.002	0	0	.003	-.018
4548			3	102.677	-.002	0	0	.002	-.012
4549			4	102.786	-.002	0	0	0	-.006
4550			5	102.895	-.002	0	0	0	0
4551	3	M911	1	188.084	-.002	0	0	.008	-.025
4552			2	188.192	-.002	0	0	.006	-.019
4553			3	188.301	-.002	0	0	.004	-.012
4554			4	188.41	-.002	0	0	.002	-.006
4555			5	188.519	-.002	0	0	0	0
4556	3	M912	1	-.217	-.716	.021	0	-.301	-10.028
4557			2	-.109	-.716	.021	0	-.226	-7.521
4558			3	0	-.716	.021	0	-.15	-5.014
4559			4	.109	-.716	.021	0	-.075	-2.507
4560			5	.217	-.716	.021	0	0	0
4561	3	M913	1	268.84	0	0	0	-.001	0
4562			2	268.949	0	0	0	0	0
4563			3	269.058	0	0	0	0	0
4564			4	269.166	0	0	0	0	0
4565			5	269.275	0	0	0	0	0
4566	3	M914	1	251.045	0	-.001	0	.016	-.013
4567			2	251.154	0	-.001	0	.012	-.01
4568			3	251.263	0	-.001	0	.008	-.006
4569			4	251.371	0	-.001	0	.004	-.003
4570			5	251.48	0	-.001	0	0	0
4571	3	M915	1	178.264	0	0	0	-.005	0
4572			2	178.373	0	0	0	-.004	0
4573			3	178.482	0	0	0	-.003	0
4574			4	178.591	0	0	0	-.001	0
4575			5	178.699	0	0	0	0	0
4576	3	M916	1	183.634	0	0	0	-.006	0
4577			2	183.742	0	0	0	-.005	0
4578			3	183.851	0	0	0	-.003	0
4579			4	183.96	0	0	0	-.002	0
4580			5	184.069	0	0	0	0	0
4581	3	M917	1	288.113	0	0	0	-.002	.009
4582			2	288.222	0	0	0	-.002	.006
4583			3	288.331	0	0	0	-.001	.004
4584			4	288.44	0	0	0	0	.002
4585			5	288.548	0	0	0	0	0
4586	3	M918	1	94.444	.032	-.022	0	.305	.441
4587			2	94.553	.032	-.022	0	.229	.331
4588			3	94.662	.032	-.022	0	.153	.221
4589			4	94.771	.032	-.022	0	.076	.11
4590			5	94.879	.032	-.022	0	0	0
4591	3	M919	1	219.277	0	0	0	-.007	0
4592			2	219.386	0	0	0	-.005	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4593			3	219.495	0	0	0	-.004	0
4594			4	219.603	0	0	0	-.002	0
4595			5	219.712	0	0	0	0	0
4596	3	M920	1	265.212	0	0	0	-.001	0
4597			2	265.32	0	0	0	0	0
4598			3	265.429	0	0	0	0	0
4599			4	265.538	0	0	0	0	0
4600			5	265.646	0	0	0	0	0
4601	3	M921	1	338.815	.008	0	0	0	.11
4602			2	338.924	.008	0	0	0	.082
4603			3	339.033	.008	0	0	0	.055
4604			4	339.141	.008	0	0	0	.027
4605			5	339.25	.008	0	0	0	0
4606	3	M922	1	276.551	0	0	0	0	0
4607			2	276.66	0	0	0	0	0
4608			3	276.768	0	0	0	0	0
4609			4	276.877	0	0	0	0	0
4610			5	276.986	0	0	0	0	0
4611	3	M923	1	151.303	0	0	0	.012	-.008
4612			2	151.411	0	0	0	.009	-.006
4613			3	151.52	0	0	0	.006	-.004
4614			4	151.629	0	0	0	.003	-.002
4615			5	151.738	0	0	0	0	0
4616	3	M924	1	152.19	0	0	0	0	0
4617			2	152.299	0	0	0	0	0
4618			3	152.408	0	0	0	0	0
4619			4	152.517	0	0	0	0	0
4620			5	152.625	0	0	0	0	0
4621	3	M925	1	272.232	0	0	0	0	0
4622			2	272.341	0	0	0	0	0
4623			3	272.449	0	0	0	0	0
4624			4	272.558	0	0	0	0	0
4625			5	272.667	0	0	0	0	0
4626	3	M926	1	275.916	.006	0	0	0	.084
4627			2	276.025	.006	0	0	0	.063
4628			3	276.134	.006	0	0	0	.042
4629			4	276.242	.006	0	0	0	.021
4630			5	276.351	.006	0	0	0	0
4631	3	M927	1	264.822	0	0	0	0	0
4632			2	264.931	0	0	0	0	0
4633			3	265.039	0	0	0	0	0
4634			4	265.148	0	0	0	0	0
4635			5	265.257	0	0	0	0	0
4636	3	M928	1	141.58	0	0	0	0	-.006
4637			2	141.688	0	0	0	0	-.005
4638			3	141.797	0	0	0	0	-.003
4639			4	141.906	0	0	0	0	-.002
4640			5	142.015	0	0	0	0	0
4641	3	M929	1	141.467	0	0	0	0	0
4642			2	141.576	0	0	0	0	0
4643			3	141.685	0	0	0	0	0
4644			4	141.794	0	0	0	0	0
4645			5	141.902	0	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4646	3	M930	1	253.923	0	0	0	0	0
4647			2	254.032	0	0	0	0	0
4648			3	254.14	0	0	0	0	0
4649			4	254.249	0	0	0	0	0
4650			5	254.358	0	0	0	0	0
4651	3	M931	1	210.39	0	0	0	0	-.002
4652			2	210.499	0	0	0	0	-.002
4653			3	210.608	0	0	0	0	-.001
4654			4	210.717	0	0	0	0	0
4655			5	210.825	0	0	0	0	0
4656	3	M932	1	-.217	-.985	0	0	.42	-13.78
4657			2	-.109	-.985	0	0	.417	-10.333
4658			3	0	-.985	0	0	.414	-6.887
4659			4	.109	-.985	0	0	.411	-3.44
4660			5	.217	-.985	0	0	.408	.006
4661	3	M933	1	185.694	-.002	0	0	0	-.031
4662			2	185.803	-.002	0	0	0	-.024
4663			3	185.911	-.002	0	0	0	-.016
4664			4	186.02	-.002	0	0	0	-.008
4665			5	186.129	-.002	0	0	0	0
4666	3	M934	1	184.872	0	0	0	0	0
4667			2	184.98	0	0	0	0	0
4668			3	185.089	0	0	0	0	0
4669			4	185.198	0	0	0	0	0
4670			5	185.307	0	0	0	0	0
4671	3	M935	1	160.214	0	0	0	0	0
4672			2	160.322	0	0	0	0	0
4673			3	160.431	0	0	0	0	0
4674			4	160.54	0	0	0	0	0
4675			5	160.649	0	0	0	0	0
4676	3	M936	1	201.006	0	0	0	0	0
4677			2	201.115	0	0	0	0	0
4678			3	201.224	0	0	0	0	0
4679			4	201.333	0	0	0	0	0
4680			5	201.441	0	0	0	0	0
4681	3	M937	1	255.76	0	0	0	-.001	0
4682			2	255.869	0	0	0	-.001	0
4683			3	255.978	0	0	0	0	0
4684			4	256.086	0	0	0	0	0
4685			5	256.195	0	0	0	0	0
4686	3	M938	1	353.117	0	0	0	0	0
4687			2	353.225	0	0	0	0	0
4688			3	353.334	0	0	0	0	0
4689			4	353.443	0	0	0	0	0
4690			5	353.552	0	0	0	0	0
4691	3	M939	1	250.162	0	0	0	.002	.005
4692			2	250.271	0	0	0	.001	.004
4693			3	250.379	0	0	0	0	.002
4694			4	250.488	0	0	0	0	.001
4695			5	250.597	0	0	0	0	0
4696	3	M940	1	298.003	0	0	0	.001	0
4697			2	298.111	0	0	0	0	0
4698			3	298.22	0	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4699			4	298.329	0	0	0	0	0
4700			5	298.438	0	0	0	0	0
4701	3	M941	1	270.3	0	0	0	.002	-.007
4702			2	270.409	0	0	0	.001	-.005
4703			3	270.518	0	0	0	0	-.003
4704			4	270.627	0	0	0	0	-.002
4705			5	270.735	0	0	0	0	0
4706	3	M942	1	357.884	0	0	0	.001	-.001
4707			2	357.993	0	0	0	0	0
4708			3	358.102	0	0	0	0	0
4709			4	358.211	0	0	0	0	0
4710			5	358.319	0	0	0	0	0
4711	3	M943	1	.023	-.112	33.074	-.003	-105.139	.02
4712			2	.023	-.112	26.81	-.003	63.348	.646
4713			3	.023	-.146	8.797	-.003	147.886	1.441
4714			4	.023	.323	-17.853	-.003	117.942	1.799
4715			5	.023	.323	-24.272	-.003	0	0
4716	3	M944	1	-.023	-.321	23.256	-.01	0	0
4717			2	-.023	-.321	16.711	-.01	109.084	1.726
4718			3	-.023	.086	-2.534	-.01	133.066	1.479
4719			4	-.023	.135	-18.09	-.01	60.577	.768
4720			5	-.023	.101	-31.513	-.01	-95.218	.22
4721	3	M945	1	0	-12.123	0	0	0	0
4722			2	0	-7.747	0	0	0	49.862
4723			3	0	-.325	0	0	0	68.744
4724			4	0	7.198	0	0	0	52.916
4725			5	0	14.722	0	0	0	0
4726	3	M946	1	0	-9.037	0	0	0	0
4727			2	0	-5.168	0	0	0	35.66
4728			3	0	-.081	0	0	0	47.805
4729			4	0	5.006	0	0	0	36.435
4730			5	0	10.093	0	0	0	0
4731	3	M947	1	0	-8.144	0	0	0	0
4732			2	0	-4.579	0	0	0	31.831
4733			3	0	0	0	0	0	42.376
4734			4	0	4.376	0	0	0	32.218
4735			5	0	8.956	0	0	0	0
4736	3	M948	1	.003	-9.93	0	0	0	0
4737			2	.003	-5.757	0	0	0	39.489
4738			3	.003	-.162	0	0	0	53.234
4739			4	.003	5.635	0	0	0	40.652
4740			5	.003	11.23	0	0	0	0
4741	3	M949	1	0	-10.001	0	0	0	0
4742			2	0	-5.828	0	0	0	40.216
4743			3	0	-.03	0	0	0	53.718
4744			4	0	5.564	0	0	0	40.895
4745			5	0	11.362	0	0	0	0
4746	3	M950	1	0	-9.93	0	0	0	0
4747			2	0	-5.757	0	0	0	39.489
4748			3	0	-.162	0	0	0	53.234
4749			4	0	5.635	0	0	0	40.652
4750			5	0	11.23	0	0	0	0
4751	3	M951	1	0	-9.21	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4752			2	0	-5.138	0	0	0	36.096
4753			3	0	-.051	0	0	0	48.096
4754			4	0	5.036	0	0	0	36.581
4755			5	0	10.123	0	0	0	0
4756	3	M952	1	0	-9.21	0	0	0	0
4757			2	0	-5.138	0	0	0	36.096
4758			3	0	-.051	0	0	0	48.096
4759			4	0	5.036	0	0	0	36.581
4760			5	0	10.123	0	0	0	0
4761	3	M953	1	0	-10.001	0	0	0	0
4762			2	0	-5.828	0	0	0	40.216
4763			3	0	-.03	0	0	0	53.718
4764			4	0	5.564	0	0	0	40.895
4765			5	0	11.362	0	0	0	0
4766	3	M954	1	0	-9.93	0	0	0	0
4767			2	0	-5.757	0	0	0	39.489
4768			3	0	-.162	0	0	0	53.234
4769			4	0	5.635	0	0	0	40.652
4770			5	0	11.23	0	0	0	0
4771	3	M955	1	-.008	-9.849	0	0	0	0
4772			2	-.008	-5.879	0	0	0	39.489
4773			3	-.008	-.081	0	0	0	53.234
4774			4	-.008	5.513	0	0	0	40.652
4775			5	-.008	11.311	0	0	0	0
4776	3	M956	1	0	-8.032	0	0	0	0
4777			2	0	-4.468	0	0	0	31.685
4778			3	0	-.091	0	0	0	42.279
4779			4	0	4.488	0	0	0	32.17
4780			5	0	8.864	0	0	0	0
4781	3	M957	1	0	-8.144	0	0	0	0
4782			2	0	-4.579	0	0	0	31.831
4783			3	0	0	0	0	0	42.376
4784			4	0	4.376	0	0	0	32.218
4785			5	0	8.956	0	0	0	0
4786	3	M958	1	-.001	-8.052	0	0	0	0
4787			2	-.001	-4.488	0	0	0	31.394
4788			3	-.001	-.112	0	0	0	42.085
4789			4	-.001	4.468	0	0	0	32.073
4790			5	-.001	8.844	0	0	0	0
4791	3	M959	1	-.011	-9.21	0	0	0	0
4792			2	-.011	-5.138	0	0	0	36.096
4793			3	-.011	-.051	0	0	0	48.096
4794			4	-.011	5.036	0	0	0	36.581
4795			5	-.011	10.123	0	0	0	0
4796	3	M960	1	-.001	-8.144	0	0	0	0
4797			2	-.001	-4.579	0	0	0	31.831
4798			3	-.001	0	0	0	0	42.376
4799			4	-.001	4.376	0	0	0	32.218
4800			5	-.001	8.956	0	0	0	0
4801	3	M961	1	0	-8.032	0	0	0	0
4802			2	0	-4.468	0	0	0	31.685
4803			3	0	-.091	0	0	0	42.279
4804			4	0	4.488	0	0	0	32.17

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4805			5	0	8.864	0	0	0	0
4806	3	M962	1	-.007	-9.21	0	0	0	0
4807			2	-.007	-5.138	0	0	0	36.096
4808			3	-.007	-.051	0	0	0	48.096
4809			4	-.007	5.036	0	0	0	36.581
4810			5	-.007	10.123	0	0	0	0
4811	3	M963	1	0	-10.155	0	0	-.001	-21.354
4812			2	0	-6.286	0	0	0	19.645
4813			3	0	-1.199	0	0	0	37.128
4814			4	0	3.888	0	0	0	31.097
4815			5	0	8.975	0	0	0	0
4816	3	M964	1	.005	-33.298	0	0	0	0
4817			2	.005	-26.384	0	0	0	148.113
4818			3	.005	-8.304	0	0	0	232.771
4819			4	.005	21.552	0	0	0	208.12
4820			5	.005	66.634	0	0	0	0
4821	3	M965	1	0	-22.99	0	0	0	0
4822			2	0	-10.545	0	0	-.001	101.155
4823			3	0	-6.301	0	0	0	140.092
4824			4	0	8.143	0	0	0	112.048
4825			5	0	26.941	0	0	0	0
4826	3	M966	1	0	-7.479	0	0	0	0
4827			2	0	-4.323	0	0	0	29.131
4828			3	0	-.355	0	0	0	39.321
4829			4	0	4.222	0	0	0	29.419
4830			5	0	8.19	0	0	0	0
4831	3	M967	1	0	-9.824	0	0	0	0
4832			2	0	-6.059	0	0	0	39.635
4833			3	0	-.467	0	0	0	53.614
4834			4	0	5.734	0	0	0	40.211
4835			5	0	11.327	0	0	0	0
4836	3	M968	1	.002	-9.906	0	0	0	0
4837			2	.002	-6.039	0	0	0	39.299
4838			3	.002	-.548	0	0	0	53.614
4839			4	.002	5.755	0	0	0	40.259
4840			5	.002	11.245	0	0	0	0
4841	3	M969	1	.02	-8.738	0	0	0	0
4842			2	.02	-5.176	0	0	0	34.599
4843			3	.02	-.396	0	0	0	46.612
4844			4	.02	4.993	0	0	0	34.887
4845			5	.02	9.774	0	0	0	0
4846	3	M970	1	-.093	-8.738	0	0	0	0
4847			2	-.093	-5.176	0	0	0	34.599
4848			3	-.093	-.396	0	0	0	46.612
4849			4	-.093	4.993	0	0	0	34.887
4850			5	-.093	9.774	0	0	0	0
4851	3	M971	1	-.279	-8.738	0	0	0	0
4852			2	-.279	-5.176	0	0	0	34.599
4853			3	-.279	-.396	0	0	0	46.612
4854			4	-.279	4.993	0	0	0	34.887
4855			5	-.279	9.774	0	0	0	0
4856	3	M972	1	.749	-9.997	0	0	0	0
4857			2	.749	-6.029	0	0	0	40.067

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4858			3	.749	-.436	0	0	0	53.902
4859			4	.749	5.765	0	0	0	40.355
4860			5	.749	11.357	0	0	0	0
4861	3	M973	1	5.028	-8.931	0	0	0	0
4862			2	5.028	-5.166	0	0	0	34.743
4863			3	5.028	-.386	0	0	0	46.708
4864			4	5.028	5.004	0	0	0	34.935
4865			5	5.028	9.784	0	0	0	0
4866	3	M974	1	.717	-8.738	0	0	0	0
4867			2	.717	-5.176	0	0	0	34.599
4868			3	.717	-.396	0	0	0	46.612
4869			4	.717	4.993	0	0	0	34.887
4870			5	.717	9.774	0	0	0	0
4871	3	M975	1	-.574	-7.479	0	0	0	0
4872			2	-.574	-4.323	0	0	0	29.131
4873			3	-.574	-.355	0	0	0	39.321
4874			4	-.574	4.222	0	0	0	29.419
4875			5	-.574	8.19	0	0	0	0
4876	3	M976	1	.78	-8.738	0	0	0	0
4877			2	.78	-5.176	0	0	0	34.599
4878			3	.78	-.396	0	0	0	46.612
4879			4	.78	4.993	0	0	0	34.887
4880			5	.78	9.774	0	0	0	0
4881	3	M977	1	5.346	-8.738	0	0	0	0
4882			2	5.346	-5.176	0	0	0	34.599
4883			3	5.346	-.396	0	0	0	46.612
4884			4	5.346	4.993	0	0	0	34.887
4885			5	5.346	9.774	0	0	0	0
4886	3	M978	1	.853	-8.738	0	0	0	0
4887			2	.853	-5.176	0	0	0	34.599
4888			3	.853	-.396	0	0	0	46.612
4889			4	.853	4.993	0	0	0	34.887
4890			5	.853	9.774	0	0	0	0
4891	3	M979	1	-.3	-8.931	0	0	0	0
4892			2	-.3	-5.166	0	0	0	34.743
4893			3	-.3	-.386	0	0	0	46.708
4894			4	-.3	5.004	0	0	0	34.935
4895			5	-.3	9.784	0	0	0	0
4896	3	M980	1	-.117	-8.738	0	0	0	0
4897			2	-.117	-5.176	0	0	0	34.599
4898			3	-.117	-.396	0	0	0	46.612
4899			4	-.117	4.993	0	0	0	34.887
4900			5	-.117	9.774	0	0	0	0
4901	3	M981	1	.033	-10.017	0	0	0	0
4902			2	.033	-6.049	0	0	0	39.779
4903			3	.033	-.457	0	0	0	53.71
4904			4	.033	5.745	0	0	0	40.259
4905			5	.033	11.337	0	0	0	0
4906	3	M982	1	.003	-8.758	0	0	0	0
4907			2	.003	-5.196	0	0	0	34.311
4908			3	.003	-.416	0	0	0	46.42
4909			4	.003	4.973	0	0	0	34.791
4910			5	.003	9.753	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4911	3	M983	1	-.001	-7.479	0	0	0	0
4912			2	-.001	-4.323	0	0	0	29.131
4913			3	-.001	-.355	0	0	0	39.321
4914			4	-.001	4.222	0	0	0	29.419
4915			5	-.001	8.19	0	0	0	0
4916	3	M984	1	0	-9.997	0	0	0	0
4917			2	0	-6.029	0	0	0	40.067
4918			3	0	-.436	0	0	0	53.902
4919			4	0	5.765	0	0	0	40.355
4920			5	0	11.357	0	0	0	0
4921	3	M985	1	0	-23.67	0	0	0	0
4922			2	0	-10.849	0	0	-.002	103.221
4923			3	0	-6.605	0	0	0	143.977
4924			4	0	8.287	0	0	0	115.884
4925			5	0	27.523	0	0	0	0
4926	3	M986	1	0	-10.272	0	0	0	0
4927			2	0	-8.437	0	0	0	27.343
4928			3	0	5.049	0	0	0	44.167
4929			4	0	8	0	0	0	25.564
4930			5	0	9.936	0	0	0	0
4931	3	M987	1	0	-3.857	0	-.01	0	0
4932			2	0	-2.614	0	-.01	0	9.886
4933			3	0	.051	0	-.01	0	13.507
4934			4	0	2.512	0	-.01	0	9.657
4935			5	0	4.162	0	-.01	0	0
4936	3	M988	1	0	-5.36	0	-.003	0	0
4937			2	0	-3.507	0	-.003	0	13.155
4938			3	0	.173	0	-.003	0	17.866
4939			4	0	3.446	0	-.003	0	12.295
4940			5	0	5.096	0	-.003	0	0
4941	3	M989	1	.001	-5.41	0	.006	0	0
4942			2	.001	-3.558	0	.006	0	13.528
4943			3	.001	.122	0	.006	0	18.382
4944			4	.001	3.497	0	.006	0	12.926
4945			5	.001	5.248	0	.006	0	0
4946	3	M990	1	.011	-4.801	0	0	0	0
4947			2	.011	-3.05	0	0	0	11.836
4948			3	.011	.122	0	0	0	15.973
4949			4	.011	2.989	0	0	0	11.234
4950			5	.011	4.639	0	0	0	0
4951	3	M991	1	-.048	-4.801	0	.003	0	0
4952			2	-.048	-3.05	0	.003	0	11.607
4953			3	-.048	.122	0	.003	0	15.743
4954			4	-.048	2.989	0	.003	0	11.005
4955			5	-.048	4.639	0	.003	0	0
4956	3	M992	1	-.198	-4.416	0	.003	0	0
4957			2	-.198	-3.071	0	.003	0	11.435
4958			3	-.198	.102	0	.003	0	15.629
4959			4	-.198	2.969	0	.003	0	10.947
4960			5	-.198	4.619	0	.003	0	0
4961	3	M993	1	.49	-5.147	0	.003	0	0
4962			2	.49	-3.497	0	.003	0	13.241
4963			3	.49	.183	0	.003	0	17.923

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
4964			4	.49	3.456	0	.003	0	12.324
4965			5	.49	5.106	0	.003	0	0
4966	3	M994	1	5.325	-4.801	0	0	0	0
4967			2	5.325	-3.05	0	0	0	11.836
4968			3	5.325	.122	0	0	0	15.973
4969			4	5.325	2.989	0	0	0	11.234
4970			5	5.325	4.639	0	0	0	0
4971	3	M995	1	.492	-4.588	0	.002	0	0
4972			2	.492	-3.04	0	.002	0	11.693
4973			3	.492	.132	0	.002	0	15.801
4974			4	.492	3	0	.002	0	11.033
4975			5	.492	4.649	0	.002	0	0
4976	3	M996	1	-.424	-4.03	0	0	0	0
4977			2	-.424	-2.583	0	0	0	9.915
4978			3	-.424	.081	0	0	0	13.449
4979			4	-.424	2.543	0	0	0	9.513
4980			5	-.424	4.192	0	0	0	0
4981	3	M997	1	.533	-4.801	0	-.002	0	0
4982			2	.533	-3.05	0	-.002	0	11.607
4983			3	.533	.122	0	-.002	0	15.743
4984			4	.533	2.989	0	-.002	0	11.005
4985			5	.533	4.639	0	-.002	0	0
4986	3	M998	1	5.676	-4.801	0	0	0	0
4987			2	5.676	-3.05	0	0	0	11.836
4988			3	5.676	.122	0	0	0	15.973
4989			4	5.676	2.989	0	0	0	11.234
4990			5	5.676	4.639	0	0	0	0
4991	3	M999	1	.561	-4.801	0	0	0	0
4992			2	.561	-3.05	0	0	0	11.836
4993			3	.561	.122	0	0	0	15.973
4994			4	.561	2.989	0	0	0	11.234
4995			5	.561	4.639	0	0	0	0
4996	3	M1000	1	-.217	-4.801	0	0	0	0
4997			2	-.217	-3.05	0	0	0	11.836
4998			3	-.217	.122	0	0	0	15.973
4999			4	-.217	2.989	0	0	0	11.234
5000			5	-.217	4.639	0	0	0	0
5001	3	M1001	1	-.061	-4.801	0	0	0	0
5002			2	-.061	-3.05	0	0	0	11.836
5003			3	-.061	.122	0	0	0	15.973
5004			4	-.061	2.989	0	0	0	11.234
5005			5	-.061	4.639	0	0	0	0
5006	3	M1002	1	.023	-5.36	0	0	0	0
5007			2	.023	-3.507	0	0	0	13.385
5008			3	.023	.173	0	0	0	18.095
5009			4	.023	3.446	0	0	0	12.525
5010			5	.023	5.096	0	0	0	0
5011	3	M1003	1	.002	-4.974	0	.015	0	0
5012			2	.002	-3.02	0	.015	0	12.094
5013			3	.002	.152	0	.015	0	16.145
5014			4	.002	3.02	0	.015	0	11.32
5015			5	.002	4.669	0	.015	0	0
5016	3	M1004	1	0	-4.03	0	.014	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5017			2	0	-2.583	0	.014	0	9.915
5018			3	0	.081	0	.014	0	13.449
5019			4	0	2.543	0	.014	0	9.513
5020			5	0	4.192	0	.014	0	0
5021	3	M1005	1	0	-5.147	0	.009	0	0
5022			2	0	-3.497	0	.009	0	13.241
5023			3	0	.183	0	.009	0	17.923
5024			4	0	3.456	0	.009	0	12.324
5025			5	0	5.106	0	.009	0	0
5026	3	M1006	1	0	-11.315	0	.129	0	-5.112
5027			2	0	-9.176	0	.129	0	24.691
5028			3	0	4.931	0	.129	-.002	43.269
5029			4	0	7.78	0	.129	0	25.43
5030			5	0	9.818	0	.129	0	0
5031	3	M1007	1	0	-25.996	0	0	0	0
5032			2	0	-9.478	0	0	-.002	108.185
5033			3	0	-6.699	0	0	0	143.619
5034			4	0	9.474	0	0	0	108.788
5035			5	0	25.992	0	0	0	0
5036	3	M1008	1	0	-28.279	-.007	0	.002	60.389
5037			2	0	-23.575	.009	0	-.027	172.233
5038			3	0	11.774	.009	0	.015	187.151
5039			4	0	28.045	-.004	0	-.002	129.55
5040			5	0	30.922	0	0	0	0
5041	3	M1009	1	0	-213.931	0	0	0	0
5042			2	0	8.101	0	0	0	108.981
5043			3	0	10.669	0	0	0	80.996
5044			4	0	13.845	0	0	0	45.144
5045			5	0	17.022	0	0	0	0
5046	3	M1010	1	0	-51.343	0	0	0	0
5047			2	0	-.456	0	0	0	33.891
5048			3	0	2.111	0	0	0	30.935
5049			4	0	5.288	0	0	0	20.114
5050			5	0	8.465	0	0	0	0
5051	3	M1011	1	0	-38.913	0	0	0	0
5052			2	0	5.071	0	0	0	13.686
5053			3	0	7.638	0	0	0	-5.435
5054			4	0	10.815	0	0	0	-32.422
5055			5	0	13.992	0	0	0	-68.702
5056	3	M1012	1	0	-45.414	0	0	0	0
5057			2	0	-1.329	0	0	0	32.911
5058			3	0	1.746	0	0	0	31.767
5059			4	0	5.43	0	0	0	21.272
5060			5	0	9.114	0	0	0	0
5061	3	M1013	1	0	-33.792	0	0	0	0
5062			2	0	-1.38	0	0	0	25.785
5063			3	0	1.188	0	0	0	25.531
5064			4	0	4.364	0	0	0	17.412
5065			5	0	7.541	0	0	0	0
5066	3	M1014	1	0	-29.741	0	0	0	0
5067			2	0	-1.593	0	0	0	23.914
5068			3	0	.974	0	0	0	24.284
5069			4	0	4.151	0	0	0	16.788

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5070			5	0	7.328	0	0	0	0
5071	3	M1015	1	0	-28.584	0	0	0	0
5072			2	0	-2.365	0	0	0	25.488
5073			3	0	.508	0	0	0	27.491
5074			4	0	4.192	0	0	0	20.618
5075			5	0	12.952	0	0	0	0
5076	3	M1016	1	0	-17.418	0	0	0	0
5077			2	0	-2.365	0	0	0	18.065
5078			3	0	-.102	0	0	0	21.315
5079			4	0	2.568	0	0	0	17.709
5080			5	0	15.997	0	0	0	0
5081	3	M1017	1	0	-20.27	0	0	0	0
5082			2	0	-2.984	0	0	0	22.073
5083			3	0	-.112	0	0	0	25.888
5084			4	0	3.573	0	0	0	20.826
5085			5	0	15.784	0	0	0	0
5086	3	M1018	1	0	-13.987	0	0	0	0
5087			2	0	-2.486	0	0	0	16.788
5088			3	0	.081	0	0	0	19.771
5089			4	0	3.258	0	0	0	14.888
5090			5	0	7.653	0	0	0	0
5091	3	M1019	1	0	-8.587	0	0	0	0
5092			2	0	-2.263	0	0	0	12.661
5093			3	0	0	0	0	0	15.614
5094			4	0	2.669	0	0	0	11.711
5095			5	0	5.338	0	0	0	0
5096	3	M1020	1	0	-6.018	0	0	0	0
5097			2	0	-2.842	0	0	0	12.958
5098			3	0	-.274	0	0	0	16.98
5099			4	0	2.903	0	0	0	13.136
5100			5	0	6.079	0	0	0	0
5101	3	M1021	1	.002	-5.907	0	0	0	0
5102			2	.002	-2.73	0	0	0	12.631
5103			3	.002	-.162	0	0	0	16.327
5104			4	.002	2.913	0	0	0	12.186
5105			5	.002	5.176	0	0	0	0
5106	3	M1022	1	.042	-6.78	0	-.033	0	0
5107			2	.042	-3.095	0	-.033	0	14.442
5108			3	.042	-.223	0	-.033	0	18.584
5109			4	.042	3.461	0	-.033	0	13.849
5110			5	.042	5.521	0	-.033	0	0
5111	3	M1023	1	.093	-6.912	0	-.025	0	0
5112			2	.093	-3.227	0	-.025	0	14.828
5113			3	.093	-.152	0	-.025	0	19.237
5114			4	.093	3.532	0	-.025	0	14.294
5115			5	.093	5.592	0	-.025	0	0
5116	3	M1024	1	-.324	-5.937	0	-.014	0	0
5117			2	-.324	-2.76	0	-.014	0	12.72
5118			3	-.324	-.193	0	-.014	0	16.505
5119			4	-.324	2.984	0	-.014	0	12.423
5120			5	-.324	4.942	0	-.014	0	0
5121	3	M1025	1	-3.747	-7.724	0	.002	0	0
5122			2	-3.747	-3.532	0	.002	0	16.461

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5123			3	-3.747	-.152	0	.002	0	21.137
5124			4	-3.747	3.938	0	.002	0	15.482
5125			5	-3.747	5.998	0	.002	0	0
5126	3	M1026	1	-.324	-6.759	0	.018	0	0
5127			2	-.324	-3.075	0	.018	0	14.383
5128			3	-.324	-.203	0	.018	0	18.465
5129			4	-.324	3.481	0	.018	0	13.67
5130			5	-.324	5.541	0	.018	0	0
5131	3	M1027	1	.101	-5.937	0	.029	0	0
5132			2	.101	-2.76	0	.029	0	12.72
5133			3	.101	-.193	0	.029	0	16.505
5134			4	.101	2.984	0	.029	0	12.423
5135			5	.101	4.942	0	.029	0	0
5136	3	M1028	1	.102	-6.912	0	.037	0	0
5137			2	.102	-3.227	0	.037	0	14.828
5138			3	.102	-.152	0	.037	0	19.237
5139			4	.102	3.532	0	.037	0	14.294
5140			5	.102	5.592	0	.037	0	0
5141	3	M1029	1	.003	-5.968	0	0	0	0
5142			2	.003	-2.791	0	0	0	12.809
5143			3	.003	-.223	0	0	0	16.683
5144			4	.003	2.953	0	0	0	12.691
5145			5	.003	5.521	0	0	0	0
5146	3	M1030	1	0	-5.003	0	0	0	0
5147			2	0	-2.334	0	0	0	10.731
5148			3	0	-.274	0	0	0	14.011
5149			4	0	2.395	0	0	0	10.909
5150			5	0	5.064	0	0	0	0
5151	3	M1031	1	0	-5.115	0	0	0	0
5152			2	0	-2.446	0	0	0	11.058
5153			3	0	-.183	0	0	0	14.546
5154			4	0	2.486	0	0	0	11.176
5155			5	0	5.156	0	0	0	0
5156	3	M1032	1	.44	-5.044	0	0	0	0
5157			2	.44	-2.375	0	0	0	10.85
5158			3	.44	-.315	0	0	0	14.249
5159			4	.44	2.354	0	0	0	11.265
5160			5	.44	5.836	0	0	0	0
5161	3	M1033	1	0	-5.277	0	0	0	0
5162			2	0	-2.608	0	0	0	11.533
5163			3	0	-.345	0	0	0	15.496
5164			4	0	2.324	0	0	0	12.602
5165			5	0	8.241	0	0	0	0
5166	3	M1034	1	0	-7.115	0	0	0	0
5167			2	0	-3.43	0	0	0	15.422
5168			3	0	-.558	0	0	0	20.543
5169			4	0	3.126	0	0	0	16.788
5170			5	0	10.668	0	0	0	0
5171	3	M1035	1	0	-17.985	0	0	0	-100.226
5172			2	0	-11.865	0	0	0	-58.708
5173			3	0	-8.79	0	0	0	-29.035
5174			4	0	-5.105	0	0	0	-8.714
5175			5	0	0	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5176	3	M1036	1	0	-8.333	0	0	0	0
5177			2	0	-2.72	0	0	0	14.027
5178			3	0	-.152	0	0	0	17.693
5179			4	0	3.024	0	0	0	13.492
5180			5	0	6.201	0	0	0	0
5181	3	M1037	1	0	-9.622	0	0	0	0
5182			2	0	-3.095	0	0	0	16.105
5183			3	0	-.223	0	0	0	20.246
5184			4	0	3.461	0	0	0	15.511
5185			5	0	7.145	0	0	0	0
5186	3	M1038	1	0	-9.541	0	0	0	0
5187			2	0	-3.217	0	0	0	16.343
5188			3	0	-.142	0	0	0	20.721
5189			4	0	3.542	0	0	0	15.749
5190			5	0	7.226	0	0	0	0
5191	3	M1039	1	0	-35.884	0	0	-.001	-289.038
5192			2	0	-32.707	0	0	0	-188.724
5193			3	0	-30.14	0	0	0	-97.345
5194			4	0	-26.963	0	0	.001	-13.832
5195			5	0	-23.786	0	0	.002	60.389
5196	3	M1040	1	0	-5.643	0	0	0	0
5197			2	0	-1.857	0	0	0	9.543
5198			3	0	-.102	0	0	0	12.051
5199			4	0	2.06	0	0	0	9.187
5200			5	0	4.222	0	0	0	0
5201	3	M1041	1	0	-8.14	0	0	0	0
5202			2	0	-2.73	0	0	0	13.938
5203			3	0	-.162	0	0	0	17.633
5204			4	0	3.014	0	0	0	13.463
5205			5	0	6.191	0	0	0	0
5206	3	M1042	1	0	12.62	0	0	0	0
5207			2	0	7.736	0	0	0	-51.413
5208			3	0	.213	0	0	0	-69.811
5209			4	0	-7.31	0	0	0	-53.449
5210			5	0	-14.833	0	0	0	0
5211	3	M1043	1	0	9.017	0	0	0	0
5212			2	0	5.148	0	0	0	-35.951
5213			3	0	.061	0	0	0	-47.999
5214			4	0	-5.026	0	0	0	-36.532
5215			5	0	-10.113	0	0	0	0
5216	3	M1044	1	-.001	8.032	0	0	0	0
5217			2	-.001	4.468	0	0	0	-31.685
5218			3	-.001	.091	0	0	0	-42.279
5219			4	-.001	-4.488	0	0	0	-32.17
5220			5	-.001	-8.864	0	0	0	0
5221	3	M1045	1	-.006	10.022	0	0	0	0
5222			2	-.006	5.848	0	0	0	-39.925
5223			3	-.006	.051	0	0	0	-53.525
5224			4	-.006	-5.544	0	0	0	-40.798
5225			5	-.006	-11.341	0	0	0	0
5226	3	M1046	1	0	9.93	0	0	0	0
5227			2	0	5.757	0	0	0	-39.489
5228			3	0	.162	0	0	0	-53.234

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5229			4	0	-5.635	0	0	0	-40.652
5230			5	0	-11.23	0	0	0	0
5231	3	M1047	1	0	8.144	0	0	0	0
5232			2	0	4.579	0	0	0	-31.831
5233			3	0	0	0	0	0	-42.376
5234			4	0	-4.376	0	0	0	-32.218
5235			5	0	-8.956	0	0	0	0
5236	3	M1048	1	0	8.225	0	0	0	0
5237			2	0	4.458	0	0	0	-31.831
5238			3	0	.081	0	0	0	-42.376
5239			4	0	-4.498	0	0	0	-32.218
5240			5	0	-8.875	0	0	0	0
5241	3	M1049	1	0	8.144	0	0	0	0
5242			2	0	4.579	0	0	0	-31.831
5243			3	0	0	0	0	0	-42.376
5244			4	0	-4.376	0	0	0	-32.218
5245			5	0	-8.956	0	0	0	0
5246	3	M1050	1	-.001	9.21	0	0	0	0
5247			2	-.001	5.138	0	0	0	-36.096
5248			3	-.001	.051	0	0	0	-48.096
5249			4	-.001	-5.036	0	0	0	-36.581
5250			5	-.001	-10.123	0	0	0	0
5251	3	M1051	1	-.003	8.032	0	0	0	0
5252			2	-.003	4.468	0	0	0	-31.685
5253			3	-.003	.091	0	0	0	-42.279
5254			4	-.003	-4.488	0	0	0	-32.17
5255			5	-.003	-8.864	0	0	0	0
5256	3	M1052	1	0	8.144	0	0	0	0
5257			2	0	4.579	0	0	0	-31.831
5258			3	0	0	0	0	0	-42.376
5259			4	0	-4.376	0	0	0	-32.218
5260			5	0	-8.956	0	0	0	0
5261	3	M1053	1	.076	9.21	0	0	0	0
5262			2	.076	5.138	0	0	0	-36.096
5263			3	.076	.051	0	0	0	-48.096
5264			4	.076	-5.036	0	0	0	-36.581
5265			5	.076	-10.123	0	0	0	0
5266	3	M1054	1	0	10.155	0	0	.015	21.348
5267			2	0	6.286	0	0	.011	-19.649
5268			3	0	1.199	0	0	.007	-37.131
5269			4	0	-3.888	0	0	.004	-31.098
5270			5	0	-8.975	0	0	0	0
5271	3	M1055	1	-.084	13.828	0	0	0	0
5272			2	-.084	9.046	0	0	0	-57.52
5273			3	-.084	.406	0	0	0	-79.602
5274			4	-.084	-8.335	0	0	0	-61.349
5275			5	-.084	-17.077	0	0	0	0
5276	3	M1056	1	0	-9.449	0	0	0	0
5277			2	0	-5.795	0	0	0	36.126
5278			3	0	-.315	0	0	0	49.783
5279			4	0	5.47	0	0	0	38.182
5280			5	0	11.459	0	0	0	0
5281	3	M1057	1	0	-7.297	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5282			2	0	-4.049	0	0	0	26.534
5283			3	0	.01	0	0	0	35.713
5284			4	0	3.968	0	0	0	26.854
5285			5	0	7.926	0	0	0	0
5286	3	M1058	1	.44	-7.195	0	0	0	0
5287			2	.44	-4.049	0	0	0	26.488
5288			3	.44	-.091	0	0	0	35.713
5289			4	.44	3.968	0	0	0	26.899
5290			5	.44	8.028	0	0	0	0
5291	3	M1059	1	.385	-4.541	0	0	0	0
5292			2	.385	-2.682	0	0	0	11.468
5293			3	.385	-.01	0	0	0	15.472
5294			4	.385	2.661	0	0	0	11.528
5295			5	.385	4.724	0	0	0	0
5296	3	M1060	1	.051	-3.993	0	.003	0	0
5297			2	.051	-2.742	0	.003	0	10.804
5298			3	.051	-.071	0	.003	0	14.989
5299			4	.051	2.6	0	.003	0	11.226
5300			5	.051	4.46	0	.003	0	0
5301	3	M1061	1	-.018	-5.678	0	.007	0	0
5302			2	-.018	-4.021	0	.007	0	15.515
5303			3	-.018	.071	0	.007	0	21.512
5304			4	-.018	3.859	0	.007	0	15.787
5305			5	-.018	6.023	0	.007	0	0
5306	3	M1062	1	-.024	10.119	0	0	0	0
5307			2	-.024	5.948	0	0	0	-40.642
5308			3	-.024	.152	0	0	0	-55.053
5309			4	-.024	-5.643	0	0	0	-42.081
5310			5	-.024	-12.453	0	0	0	0
5311	3	M1063	1	.076	7.368	0	0	0	0
5312			2	.076	4.009	0	0	0	-28.604
5313			3	.076	.041	0	0	0	-38.074
5314			4	.076	-4.029	0	0	0	-28.556
5315			5	.076	-8.099	0	0	0	0
5316	3	M1064	1	.355	7.642	0	0	0	0
5317			2	.355	3.978	0	0	0	-29.083
5318			3	.355	-.091	0	0	0	-38.362
5319			4	.355	-4.059	0	0	0	-28.652
5320			5	.355	-8.028	0	0	0	0
5321	3	M1065	1	0	8.651	0	0	0	0
5322			2	0	4.996	0	0	0	-33.172
5323			3	0	-.487	0	0	0	-43.798
5324			4	0	-4.752	0	0	0	-31.878
5325			5	0	-8.408	0	0	0	0
5326	3	M1066	1	0	8.479	0	0	0	0
5327			2	0	5.026	0	0	0	-32.756
5328			3	0	-.457	0	0	0	-43.521
5329			4	0	-4.722	0	0	0	-31.74
5330			5	0	-8.377	0	0	0	0
5331	3	M1067	1	.023	9.281	0	0	0	0
5332			2	.023	5.625	0	0	0	-36.312
5333			3	.023	-.467	0	0	0	-48.232
5334			4	.023	-5.239	0	0	0	-35.25

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5335			5	.023	-9.403	0	0	0	0
5336	3	M1068	1	-.047	9.21	0	0	0	0
5337			2	-.047	5.655	0	0	0	-36.405
5338			3	-.047	-.538	0	0	0	-48.693
5339			4	-.047	-5.31	0	0	0	-35.389
5340			5	-.047	-9.271	0	0	0	0
5341	3	M1069	1	-1.687	9.078	0	0	0	0
5342			2	-1.687	5.625	0	0	0	-36.128
5343			3	-1.687	-.467	0	0	0	-48.047
5344			4	-1.687	-5.239	0	0	0	-35.065
5345			5	-1.687	-9.2	0	0	0	0
5346	3	M1070	1	7.911	7.697	0	0	0	0
5347			2	7.911	4.447	0	0	0	-29.292
5348			3	7.911	-.426	0	0	0	-38.994
5349			4	7.911	-4.184	0	0	0	-28.507
5350			5	7.911	-7.738	0	0	0	0
5351	3	M1071	1	41.126	6.773	0	0	0	0
5352			2	41.126	3.828	0	0	0	-25.504
5353			3	41.126	-.335	0	0	0	-33.729
5354			4	41.126	-3.585	0	0	0	-24.812
5355			5	41.126	-6.834	0	0	0	0
5356	3	M1072	1	6.227	7.342	0	0	0	0
5357			2	6.227	4.397	0	0	0	-29.107
5358			3	6.227	-.376	0	0	0	-38.348
5359			4	6.227	-4.133	0	0	0	-28.091
5360			5	6.227	-7.484	0	0	0	0
5361	3	M1073	1	-1.823	7.697	0	0	0	0
5362			2	-1.823	4.447	0	0	0	-29.292
5363			3	-1.823	-.426	0	0	0	-38.994
5364			4	-1.823	-4.184	0	0	0	-28.507
5365			5	-1.823	-7.738	0	0	0	0
5366	3	M1074	1	-3.06	8.885	0	0	0	0
5367			2	-3.06	6.041	0	0	0	-36.451
5368			3	-3.06	-.66	0	0	0	-50.356
5369			4	-3.06	-5.737	0	0	0	-35.065
5370			5	-3.06	-8.783	0	0	0	0
5371	3	M1075	1	-6.465	85.363	0	-.007	0	0
5372			2	-6.465	24.953	0	-.007	0	-221.606
5373			3	-6.465	-7.238	0	-.007	0	-263.163
5374			4	-6.465	-29.886	0	-.007	0	-169.888
5375			5	-6.465	-38.323	0	-.007	0	0
5376	3	M1076	1	-6.903	-54.697	0	.008	0	0
5377			2	-6.903	-19.562	0	.008	0	153.49
5378			3	-6.903	1.563	0	.008	0	198.055
5379			4	-6.903	23.197	0	.008	0	135.49
5380			5	-6.903	31.024	0	.008	0	0
5381	3	M1077	1	0	-29.329	0	0	0	0
5382			2	0	-12.515	0	0	0	130.796
5383			3	0	-9.286	0	0	0	182.11
5384			4	0	8.979	0	0	0	147.168
5385			5	0	34.705	0	0	0	0
5386	3	M1078	1	0	26.054	0	.002	0	0
5387			2	0	9.559	0	.002	.002	-109.115

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5388			3	0	-6.724	0	.002	0	-144.719
5389			4	0	-9.604	0	.002	.002	-108.504
5390			5	0	-25.897	0	.002	0	0
5391	3	M1079	1	0	7.81	0	.136	0	0
5392			2	0	-8.56	0	.136	.002	-28.617
5393			3	0	-24.92	0	.136	.001	14.62
5394			4	0	-44.203	-.01	.136	.005	130.071
5395			5	0	-47.892	-.01	.136	-.041	331.073
5396	3	M1080	1	0	45.567	-.005	0	.031	273.453
5397			2	0	42.906	-.005	0	.016	143.587
5398			3	0	6.748	0	0	0	24.238
5399			4	0	4.488	0	0	0	6.98
5400			5	0	0	0	0	0	0
5401	3	M1081	1	5.871	19.745	0	0	0	0
5402			2	5.871	16.55	0	0	0	-70.193
5403			3	5.871	2.064	0	0	.001	-100.599
5404			4	5.871	-15.904	0	0	.002	-81.549
5405			5	5.871	-26.611	0	0	0	0
5406	3	M1082	1	5.872	30.84	-.024	.001	0	0
5407			2	5.872	19.159	-.024	.001	-.067	-71.768
5408			3	5.872	-3.765	.023	.001	-.132	-105.949
5409			4	5.872	-19.503	.023	.001	-.066	-73.831
5410			5	5.872	-33.418	.023	.001	0	0
5411	3	M1083	1	6.283	19.935	0	0	0	0
5412			2	6.283	16.638	0	0	0	-71.184
5413			3	6.283	2.091	0	0	-.001	-101.725
5414			4	6.283	-15.978	0	0	-.002	-82.294
5415			5	6.283	-26.888	0	0	0	0
5416	3	M1084	1	6.283	29.936	.024	-.001	0	0
5417			2	6.283	18.357	.024	-.001	.067	-69.245
5418			3	6.283	-4.726	-.023	-.001	.132	-101.073
5419			4	6.283	-18.742	-.023	-.001	.066	-68.21
5420			5	6.283	-29.915	-.023	-.001	0	0
5421	3	M1085	1	.002	14.597	.29	0	0	0
5422			2	.002	11.19	.29	0	1.321	-60.791
5423			3	.002	-2.255	.223	0	.428	-80.264
5424			4	.002	-11.174	-.311	0	1.414	-59.931
5425			5	.002	-14.682	-.311	0	0	0
5426	3	M1086	1	.004	24.785	.155	0	0	0
5427			2	.004	22.191	.155	0	.707	-107.424
5428			3	.004	-5.869	.08	0	.404	-141.32
5429			4	.004	-22.044	-.167	0	.758	-107.217
5430			5	.004	-25.044	-.167	0	0	0
5431	3	M1087	1	0	32.541	0	0	0	0
5432			2	0	8.433	0	0	0	-137.405
5433			3	0	-8.549	0	0	0	-170.257
5434			4	0	-11.778	0	0	0	-122.426
5435			5	0	-27.389	0	0	0	0
5436	3	M1088	1	0	24.508	0	-.002	0	0
5437			2	0	9.022	0	-.002	0	-101.942
5438			3	0	-6.434	0	-.002	0	-135.382
5439			4	0	-9.112	0	-.002	0	-101.167
5440			5	0	-24.395	0	-.002	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5441	3	M1089	1	0	12.003	0	-.137	0	0
5442			2	0	9.43	.002	-.137	0	-47.065
5443			3	0	-18.699	.011	-.137	.009	-26.718
5444			4	0	-36.486	-.118	-.137	.057	61.318
5445			5	0	-39.87	-.118	-.137	-.464	228.14
5446	3	M1090	1	0	-76.879	-.074	0	.371	-152.356
5447			2	0	-79.439	-.074	0	.155	75.904
5448			3	0	-95.419	.01	0	-.057	312.578
5449			4	0	-97.473	.01	0	-.029	593.913
5450			5	0	-101.352	.01	0	0	884.338
5451	3	M1091	1	-.17	18.384	-.016	0	0	0
5452			2	-.17	16.454	-.016	0	-.054	-60.953
5453			3	-.17	1.955	.009	0	-.033	-78.862
5454			4	-.17	-15.374	.003	0	-.01	-58.894
5455			5	-.17	-18.522	.003	0	0	0
5456	3	M1092	1	-.181	5.656	-.03	.032	0	0
5457			2	-.181	3.828	-.03	.032	-.105	-16.761
5458			3	-.181	-10.762	.021	.032	-.055	9.678
5459			4	-.181	-27.767	.003	.032	-.009	73.357
5460			5	-.181	-31.929	.003	.032	0	176.303
5461	3	M1093	1	-.007	84.009	0	0	0	0
5462			2	-.007	1.751	0	0	0	-105.028
5463			3	-.007	-4.172	0	0	0	-99.472
5464			4	-.007	-9.689	0	0	0	-64.032
5465			5	-.007	-13.784	0	0	0	0
5466	3	M1094	1	-.012	5.142	0	0	0	0
5467			2	-.012	2.977	0	0	0	-13.518
5468			3	-.012	.406	0	0	0	-18.106
5469			4	-.012	-3.383	0	0	0	-13.153
5470			5	-.012	-5.142	0	0	0	0
5471	3	M1095	1	0	59.179	0	0	0	0
5472			2	0	3.821	0	0	0	-88.296
5473			3	0	-2.812	0	0	0	-91.724
5474			4	0	-9.039	0	0	0	-61.719
5475			5	0	-13.439	0	0	0	0
5476	3	M1096	1	0	5.589	0	0	0	0
5477			2	0	3.322	0	0	0	-14.584
5478			3	0	.447	0	0	0	-19.568
5479			4	0	-3.749	0	0	0	-14.006
5480			5	0	-5.507	0	0	0	0
5481	3	M1097	1	-.006	11.114	0	0	0	0
5482			2	-.006	6.308	0	0	0	-47.892
5483			3	-.006	-.325	0	0	0	-64.932
5484			4	-.006	-6.45	0	0	0	-48.484
5485			5	-.006	-10.952	0	0	0	0
5486	3	M1098	1	-.006	5.741	0	0	0	0
5487			2	-.006	3.271	0	0	0	-14.797
5488			3	-.006	.396	0	0	0	-19.872
5489			4	-.006	-3.799	0	0	0	-14.158
5490			5	-.006	-5.558	0	0	0	0
5491	3	M1099	1	.004	-33.632	0	-.135	0	-140.817
5492			2	.004	-27.419	0	-.135	0	14.55
5493			3	.004	-13.217	.001	-.135	.001	103.567

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5494			4	.004	12.05	0	-.135	.005	103.443
5495			5	.004	31.967	0	-.135	0	0
5496	3	M1100	1	.004	-27.866	0	0	0	0
5497			2	.004	-24.394	0	0	0	131.269
5498			3	.004	-6.022	0	0	.001	169.464
5499			4	.004	21.84	0	0	.003	119.554
5500			5	.004	26.023	0	0	0	0
5501	3	M1101	1	.003	-36.289	-.012	-.003	0	0
5502			2	.003	-13.13	.048	-.003	-.056	122.651
5503			3	.003	5.563	.265	-.003	.174	153.859
5504			4	.003	19.282	-.296	-.003	1.406	102.352
5505			5	.003	23.53	-.296	-.003	0	0
5506	3	M1102	1	.004	-26.211	-.01	0	0	0
5507			2	.004	-9.906	.046	0	-.045	116.299
5508			3	.004	6.796	.129	0	.174	156.782
5509			4	.004	23.101	-.163	0	.773	116.299
5510			5	.004	26.232	-.163	0	0	0
5511	3	M1103	1	.004	-28.075	.142	0	0	0
5512			2	.004	-24.606	.142	0	.705	131.648
5513			3	.004	6.917	-.036	0	.132	170.62
5514			4	.004	23.965	.009	0	-.047	126.341
5515			5	.004	27.231	.009	0	0	0
5516	3	M1104	1	0	-25.454	.255	-.001	0	0
5517			2	0	-20.361	.255	-.001	1.269	117.196
5518			3	0	-2.049	-.036	-.001	.123	171.637
5519			4	0	19.618	.011	-.001	-.057	139.457
5520			5	0	39.125	.011	-.001	0	0
5521	3	M1105	1	.004	-27.772	0	0	0	0
5522			2	.004	-24.199	0	0	.003	129.217
5523			3	.004	-4.672	0	0	0	169.958
5524			4	.004	12.82	0	0	0	126.797
5525			5	.004	27.832	0	0	0	0
5526	3	M1106	1	0	-63.926	0	-.001	0	0
5527			2	0	-39.543	0	-.001	.004	254.406
5528			3	0	.159	0	-.001	0	348.67
5529			4	0	32.988	0	-.001	0	261.191
5530			5	0	64.883	0	-.001	0	0
5531	3	M1107	1	6.284	-15.928	-1.701	-.083	0	0
5532			2	6.284	-48.8	6.21	-.083	-2.052	153.012
5533			3	-7.605	48.98	-4.454	.053	1.278	189.859
5534			4	-7.605	16.985	1.773	.053	-1.514	26.98
5535			5	-7.605	-.457	-.05	.053	0	0
5536	3	M1108	1	5.872	-11.829	1.705	.048	0	0
5537			2	5.872	-55.014	-6.206	.048	2.074	155.022
5538			3	-6.423	52.976	4.592	-.031	-2.727	205.079
5539			4	-6.423	18.072	-1.635	-.031	.789	33.102
5540			5	-6.423	.873	.187	-.031	0	0
5541	3	M1109	1	-1.948	10.487	0	0	0	0
5542			2	-1.948	7.528	0	0	0	-39.687
5543			3	-1.948	-.305	0	0	0	-56.673
5544			4	-1.948	-7.223	0	0	0	-39.383
5545			5	-1.948	-10.284	0	0	0	0
5546	3	M1110	1	-2.903	10.07	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5547			2	-2.903	7.431	0	0	0	-37.614
5548			3	-2.903	.325	0	0	0	-55.11
5549			4	-2.903	-7.492	0	0	0	-39.177
5550			5	-2.903	-10.638	0	0	0	0
5551	3	M1111	1	108.182	0	0	0	0	0
5552			2	108.29	0	0	0	0	0
5553			3	108.399	0	0	0	0	0
5554			4	108.508	0	0	0	0	0
5555			5	108.617	0	0	0	0	0
5556	3	M1112	1	105.118	-.009	0	0	0	.002
5557			2	105.226	-.009	0	0	0	.035
5558			3	105.335	-.009	0	0	0	.068
5559			4	105.444	-.009	0	0	0	.1
5560			5	105.552	-.009	0	0	0	.133
5561	3	M1113	1	49.22	.005	0	0	0	.134
5562			2	49.329	.005	0	0	0	.116
5563			3	49.438	.005	0	0	0	.098
5564			4	49.546	.005	0	0	0	.08
5565			5	49.655	.005	0	0	0	.061
5566	3	M1114	1	-.217	3.044	-.002	0	-.069	21.214
5567			2	-.109	3.044	-.002	0	-.075	10.558
5568			3	0	3.044	-.002	0	-.081	-.097
5569			4	.109	3.044	-.002	0	-.087	-10.752
5570			5	.217	3.044	-.002	0	-.093	-21.407
5571	3	M1115	1	113.14	0	0	0	0	0
5572			2	113.248	0	0	0	0	0
5573			3	113.357	0	0	0	0	0
5574			4	113.466	0	0	0	0	0
5575			5	113.575	0	0	0	0	0
5576	3	M1116	1	128.84	0	0	0	0	.002
5577			2	128.949	0	0	0	0	0
5578			3	129.058	0	0	0	0	0
5579			4	129.166	0	0	0	0	-.001
5580			5	129.275	0	0	0	0	-.002
5581	3	M1117	1	88.803	-.009	0	0	0	-.002
5582			2	88.912	-.009	0	0	0	.028
5583			3	89.021	-.009	0	0	0	.058
5584			4	89.129	-.009	0	0	0	.088
5585			5	89.238	-.009	0	0	0	.118
5586	3	M1118	1	71.515	0	0	0	0	0
5587			2	71.624	0	0	0	0	0
5588			3	71.733	0	0	0	0	0
5589			4	71.842	0	0	0	0	0
5590			5	71.95	0	0	0	0	0
5591	3	M1119	1	86.887	0	0	0	-.026	0
5592			2	86.996	0	0	0	-.026	.002
5593			3	87.105	0	0	0	-.027	.004
5594			4	87.213	0	0	0	-.028	.007
5595			5	87.322	0	0	0	-.029	.009
5596	3	M1120	1	-93.518	0	0	0	.026	0
5597			2	-93.409	0	0	0	.029	0
5598			3	-93.3	0	0	0	.031	0
5599			4	-93.191	0	0	0	.033	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5600			5	-93.083	0	0	0	.036	0
5601	3	M1121	1	12.402	0	0	0	0	0
5602			2	12.511	0	0	0	0	0
5603			3	12.62	0	0	0	0	-.001
5604			4	12.729	0	0	0	0	-.002
5605			5	12.837	0	0	0	0	-.002
5606	3	M1122	1	11.134	-.011	0	0	0	0
5607			2	11.242	-.011	0	0	0	.038
5608			3	11.351	-.011	0	0	0	.076
5609			4	11.46	-.011	0	0	0	.114
5610			5	11.569	-.011	0	0	0	.152
5611	3	M1123	1	68.381	0	0	0	0	0
5612			2	68.489	0	0	0	0	0
5613			3	68.598	0	0	0	0	0
5614			4	68.707	0	0	0	0	0
5615			5	68.816	0	0	0	-.001	0
5616	3	M1124	1	107.853	0	0	0	0	0
5617			2	107.961	0	0	0	0	.003
5618			3	108.07	0	0	0	-.001	.005
5619			4	108.179	0	0	0	-.002	.008
5620			5	108.288	0	0	0	-.003	.011
5621	3	M1125	1	66.43	0	0	0	0	0
5622			2	66.538	0	0	0	0	0
5623			3	66.647	0	0	0	.002	0
5624			4	66.756	0	0	0	.003	0
5625			5	66.865	0	0	0	.004	0
5626	3	M1126	1	64.597	0	0	0	0	0
5627			2	64.706	0	0	0	0	.003
5628			3	64.815	0	0	0	.003	.006
5629			4	64.923	0	0	0	.005	.01
5630			5	65.032	0	0	0	.007	.013
5631	3	M1127	1	66.731	0	0	0	0	.001
5632			2	66.84	0	0	0	.002	0
5633			3	66.949	0	0	0	.004	0
5634			4	67.058	0	0	0	.006	0
5635			5	67.166	0	0	0	.008	0
5636	3	M1128	1	30.666	.005	0	0	0	.047
5637			2	30.775	.005	0	0	.002	.03
5638			3	30.884	.005	0	0	.004	.012
5639			4	30.993	.005	0	0	.007	-.006
5640			5	31.101	.005	0	0	.009	-.024
5641	3	M1129	1	56.822	.002	.002	0	-.004	.026
5642			2	56.931	.002	.002	0	.002	.02
5643			3	57.039	.002	.002	0	.009	.014
5644			4	57.148	.002	.002	0	.015	.009
5645			5	57.257	.002	.002	0	.022	.003
5646	3	M1130	1	-.217	-6.739	0	0	.033	-35.903
5647			2	-.109	-6.739	0	0	.036	-12.317
5648			3	0	-6.739	0	0	.039	11.268
5649			4	.109	-6.739	0	0	.042	34.854
5650			5	.217	-6.739	0	0	.045	58.439
5651	3	M1131	1	61.559	0	.002	0	-.012	.002
5652			2	61.668	0	.002	0	-.007	.003

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5653			3	61.777	0	.002	0	-.001	.003
5654			4	61.886	0	.002	0	.004	.004
5655			5	61.994	0	.002	0	.01	.005
5656	3	M1132	1	64.654	0	0	0	-.001	0
5657			2	64.762	0	0	0	0	0
5658			3	64.871	0	0	0	.002	0
5659			4	64.98	0	0	0	.003	0
5660			5	65.088	0	0	0	.005	0
5661	3	M1133	1	62.948	-.001	0	0	.002	0
5662			2	63.056	-.001	0	0	.004	.003
5663			3	63.165	-.001	0	0	.005	.007
5664			4	63.274	-.001	0	0	.006	.011
5665			5	63.383	-.001	0	0	.007	.015
5666	3	M1134	1	66.227	0	0	0	0	0
5667			2	66.336	0	0	0	.002	0
5668			3	66.445	0	0	0	.004	0
5669			4	66.553	0	0	0	.006	0
5670			5	66.662	0	0	0	.009	0
5671	3	M1135	1	23.187	-.009	0	0	0	-.082
5672			2	23.296	-.009	0	0	.002	-.05
5673			3	23.405	-.009	0	0	.005	-.018
5674			4	23.513	-.009	0	0	.007	.014
5675			5	23.622	-.009	0	0	.01	.046
5676	3	M1136	1	50.904	-.005	.002	0	-.005	-.047
5677			2	51.012	-.005	.002	0	.001	-.031
5678			3	51.121	-.005	.002	0	.008	-.015
5679			4	51.23	-.005	.002	0	.014	0
5680			5	51.339	-.005	.002	0	.02	.017
5681	3	M1137	1	-.217	6.154	.005	0	-.28	33.09
5682			2	-.109	6.154	.005	0	-.264	11.55
5683			3	0	6.154	.005	0	-.247	-9.99
5684			4	.109	6.154	.005	0	-.23	-31.53
5685			5	.217	6.154	.005	0	-.213	-53.07
5686	3	M1138	1	67.347	0	0	0	.001	0
5687			2	67.455	0	0	0	0	0
5688			3	67.564	0	0	0	-.002	0
5689			4	67.673	0	0	0	-.003	0
5690			5	67.781	0	0	0	-.005	0
5691	3	M1139	1	73.616	-.001	-.011	0	.133	0
5692			2	73.724	-.001	-.011	0	.093	.004
5693			3	73.833	-.001	-.011	0	.054	.008
5694			4	73.942	-.001	-.011	0	.014	.013
5695			5	74.051	-.001	-.011	0	-.026	.017
5696	3	M1140	1	72.468	.011	0	0	0	.129
5697			2	72.577	.011	0	0	0	.089
5698			3	72.686	.011	0	0	.001	.049
5699			4	72.795	.011	0	0	.002	.009
5700			5	72.903	.011	0	0	.003	-.031
5701	3	M1141	1	-94.88	.677	-.449	0	4.94	7.577
5702			2	-94.771	.677	-.449	0	3.37	5.208
5703			3	-94.662	.677	-.449	0	1.8	2.838
5704			4	-94.554	.677	-.449	0	.23	.469
5705			5	-94.445	.677	-.449	0	-1.34	-1.901

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5706	3	M1142	1	29.295	0	0	0	.023	0
5707			2	29.404	0	0	0	.023	0
5708			3	29.512	0	0	0	.023	0
5709			4	29.621	0	0	0	.023	0
5710			5	29.73	0	0	0	.023	.001
5711	3	M1143	1	59.179	0	0	0	0	0
5712			2	59.288	0	0	0	0	0
5713			3	59.397	0	0	0	0	0
5714			4	59.506	0	0	0	0	.001
5715			5	59.614	0	0	0	0	.002
5716	3	M1144	1	84.009	.007	0	0	0	0
5717			2	84.117	.007	0	0	0	-.025
5718			3	84.226	.007	0	0	0	-.051
5719			4	84.335	.007	0	0	0	-.076
5720			5	84.444	.007	0	0	0	-.102
5721	3	M1145	1	104.109	0	0	0	0	0
5722			2	104.218	0	0	0	0	0
5723			3	104.327	0	0	0	0	0
5724			4	104.436	0	0	0	0	0
5725			5	104.544	0	0	0	0	0
5726	3	M1146	1	107.319	0	0	0	0	0
5727			2	107.428	0	0	0	0	0
5728			3	107.537	0	0	0	0	0
5729			4	107.645	0	0	0	0	0
5730			5	107.754	0	0	0	0	.002
5731	3	M1147	1	75.845	.006	0	0	0	0
5732			2	75.954	.006	0	0	0	-.019
5733			3	76.062	.006	0	0	0	-.038
5734			4	76.171	.006	0	0	0	-.058
5735			5	76.28	.006	0	0	0	-.078
5736	3	M1148	1	101.339	0	0	0	0	0
5737			2	101.448	0	0	0	0	0
5738			3	101.557	0	0	0	0	0
5739			4	101.665	0	0	0	0	0
5740			5	101.774	0	0	0	0	0
5741	3	M1149	1	98.543	0	0	0	0	-.002
5742			2	98.652	0	0	0	0	-.001
5743			3	98.76	0	0	0	0	0
5744			4	98.869	0	0	0	0	0
5745			5	98.978	0	0	0	0	.001
5746	3	M1150	1	50.749	-.011	0	0	0	-.135
5747			2	50.858	-.011	0	0	0	-.097
5748			3	50.967	-.011	0	0	0	-.06
5749			4	51.075	-.011	0	0	0	-.022
5750			5	51.184	-.011	0	0	0	.015
5751	3	M1151	1	-.217	-3.043	-.01	0	.575	-21.208
5752			2	-.109	-3.043	-.01	0	.542	-10.558
5753			3	0	-3.043	-.01	0	.508	.091
5754			4	.109	-3.043	-.01	0	.475	10.741
5755			5	.217	-3.043	-.01	0	.441	21.39
5756	3	M1152	1	32.758	0	.003	0	-.032	0
5757			2	32.867	0	.003	0	-.022	0
5758			3	32.976	0	.003	0	-.013	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5759			4	33.084	0	.003	0	-.004	0
5760			5	33.193	0	.003	0	.005	0
5761	3	M1153	1	45.984	0	0	0	0	0
5762			2	46.093	0	0	0	0	0
5763			3	46.202	0	0	0	0	0
5764			4	46.311	0	0	0	-.001	0
5765			5	46.419	0	0	0	-.002	0
5766	3	M1154	1	-.213	20.802	.015	0	-.103	35.911
5767			2	-.213	16.434	.015	0	-.021	-68.904
5768			3	-.213	4.311	.057	0	.276	-116.988
5769			4	-.213	-13.536	-.174	0	.968	-88.262
5770			5	-.213	-18.006	-.174	0	0	0
5771	3	M1155	1	.221	17.201	.173	.013	0	0
5772			2	.221	12.659	.173	.013	.93	-81.339
5773			3	.221	-.257	-.151	.013	.29	-105.259
5774			4	.221	-10.767	-.05	.013	-.012	-64.242
5775			5	.221	-19.886	.052	.013	.251	33.099
5776	3	M1156	1	0	-4.462	0	-.002	0	0
5777			2	0	-3.007	0	-.002	0	11.387
5778			3	0	.274	0	-.002	0	15.974
5779			4	0	2.541	0	-.002	0	12.057
5780			5	0	4.807	0	-.002	0	0
5781	3	M1157	1	0	-8.932	0	0	0	0
5782			2	0	-5.141	0	0	0	38.8
5783			3	0	-.335	0	0	0	52.127
5784			4	0	4.877	0	0	0	39.122
5785			5	0	10.089	0	0	0	0
5786	3	M1158	1	0	-4.756	0	-.003	0	0
5787			2	0	-2.997	0	-.003	0	11.752
5788			3	0	.386	0	-.003	0	16.035
5789			4	0	2.652	0	-.003	0	12.026
5790			5	0	4.716	0	-.003	0	0
5791	3	M1159	1	0	-8.678	0	0	0	0
5792			2	0	-5.192	0	0	0	38.369
5793			3	0	-.284	0	0	0	51.805
5794			4	0	4.928	0	0	0	38.961
5795			5	0	10.14	0	0	0	0
5796	3	M1160	1	0	-4.462	0	-.003	0	0
5797			2	0	-3.007	0	-.003	0	11.63
5798			3	0	.274	0	-.003	0	16.218
5799			4	0	2.541	0	-.003	0	12.3
5800			5	0	4.807	0	-.003	0	0
5801	3	M1161	1	0	-8.932	0	0	0	0
5802			2	0	-5.141	0	0	0	38.8
5803			3	0	-.335	0	0	0	52.127
5804			4	0	4.877	0	0	0	39.122
5805			5	0	10.089	0	0	0	0
5806	3	M1162	1	-.054	-6.208	0	.01	0	0
5807			2	-.054	-4.449	0	.01	0	16.107
5808			3	-.054	.558	0	.01	0	22.796
5809			4	-.054	3.941	0	.01	0	16.716
5810			5	-.054	6.309	0	.01	0	0
5811	3	M1163	1	-.038	-12.596	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5812			2	-.038	-8.095	0	0	0	57.953
5813			3	-.038	-.548	0	0	0	79.135
5814			4	-.038	7.506	0	0	0	59.728
5815			5	-.038	15.561	0	0	0	0
5816	3	M1164	1	.009	-4.624	0	.002	0	0
5817			2	.009	-2.967	0	.002	0	11.63
5818			3	.009	.315	0	.002	0	16.096
5819			4	.009	2.581	0	.002	0	12.057
5820			5	.009	4.645	0	.002	0	0
5821	3	M1165	1	-.005	-9.125	0	0	0	0
5822			2	-.005	-5.131	0	0	0	38.961
5823			3	-.005	-.325	0	0	0	52.235
5824			4	-.005	4.887	0	0	0	39.176
5825			5	-.005	10.099	0	0	0	0
5826	3	M1166	1	0	-4.756	0	-.002	0	0
5827			2	0	-2.997	0	-.002	0	11.752
5828			3	0	.386	0	-.002	0	16.035
5829			4	0	2.652	0	-.002	0	12.026
5830			5	0	4.716	0	-.002	0	0
5831	3	M1167	1	.003	-8.678	0	0	0	0
5832			2	.003	-5.192	0	0	0	38.369
5833			3	.003	-.284	0	0	0	51.805
5834			4	.003	4.928	0	0	0	38.961
5835			5	.003	10.14	0	0	0	0
5836	3	M1168	1	0	-62.3	0	0	0	0
5837			2	0	-37.809	0	0	0	489.138
5838			3	0	2.441	0	0	0	637.678
5839			4	0	34.768	0	0	0	459.199
5840			5	0	58.376	0	0	0	0
5841	3	M1169	1	0	-58.597	0	0	0	0
5842			2	0	-36.417	0	0	0	462.545
5843			3	0	.013	0	0	0	618.699
5844			4	0	36.109	0	0	0	463.399
5845			5	0	58.37	0	0	0	0
5846	3	M1170	1	0	33.457	0	0	0	0
5847			2	0	5.1	0	0	0	-66.883
5848			3	0	-1.533	0	0	0	-77.521
5849			4	0	-7.658	0	0	0	-54.671
5850			5	0	-11.957	0	0	0	0
5851	3	M1171	1	0	5.568	0	.002	0	0
5852			2	0	3.302	0	.002	0	-14.523
5853			3	0	.426	0	.002	0	-19.689
5854			4	0	-3.769	0	.002	0	-14.067
5855			5	0	-5.528	0	.002	0	0
5856	3	M1172	1	0	10.194	0	0	0	0
5857			2	0	5.818	0	0	0	-40.362
5858			3	0	.02	0	0	0	-53.815
5859			4	0	-5.574	0	0	0	-40.943
5860			5	0	-11.372	0	0	0	0
5861	3	M1173	1	0	29.295	0	-.023	0	0
5862			2	0	5.405	0	-.023	0	-63.333
5863			3	0	-1.228	0	-.023	0	-75.154
5864			4	0	-7.455	0	-.023	0	-53.541

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5865			5	0	-12.058	0	-.023	0	0
5866	3	M1174	1	0	5.812	0	0	0	0
5867			2	0	3.342	0	0	0	-15.254
5868			3	0	.467	0	0	0	-20.298
5869			4	0	-3.83	0	0	0	-14.767
5870			5	0	-5.69	0	0	0	0
5871	3	M1175	1	0	9.93	0	0	0	0
5872			2	0	5.757	0	0	0	-39.489
5873			3	0	.162	0	0	0	-53.234
5874			4	0	-5.635	0	0	0	-40.652
5875			5	0	-11.23	0	0	0	0
5876	3	M1176	1	0	21.133	0	0	0	0
5877			2	0	5.06	0	0	0	-52.411
5878			3	0	-.863	0	0	0	-64.394
5879			4	0	-6.379	0	0	0	-46.493
5880			5	0	-10.475	0	0	0	0
5881	3	M1177	1	0	5.142	0	0	0	0
5882			2	0	2.977	0	0	0	-13.518
5883			3	0	.406	0	0	0	-18.106
5884			4	0	-3.383	0	0	0	-13.153
5885			5	0	-5.142	0	0	0	0
5886	3	M1178	1	0	9.21	0	0	0	0
5887			2	0	5.138	0	0	0	-36.096
5888			3	0	.051	0	0	0	-48.096
5889			4	0	-5.036	0	0	0	-36.581
5890			5	0	-10.123	0	0	0	0
5891	3	M1179	1	0	15.926	0	0	0	0
5892			2	0	5.334	0	0	0	-48.053
5893			3	0	-.589	0	0	0	-61.489
5894			4	0	-6.105	0	0	0	-45.04
5895			5	0	-10.201	0	0	0	0
5896	3	M1180	1	0	5.172	0	-.001	0	0
5897			2	0	3.007	0	-.001	0	-13.366
5898			3	0	.436	0	-.001	0	-18.045
5899			4	0	-3.353	0	-.001	0	-13.183
5900			5	0	-5.315	0	-.001	0	0
5901	3	M1181	1	0	9.21	0	0	0	0
5902			2	0	5.138	0	0	0	-36.096
5903			3	0	.051	0	0	0	-48.096
5904			4	0	-5.036	0	0	0	-36.581
5905			5	0	-10.123	0	0	0	0
5906	3	M1182	1	0	18.154	0	.037	0	133.11
5907			2	0	12.536	0	.037	0	51.349
5908			3	0	5.903	0	.037	0	1.301
5909			4	0	-.222	0	.037	0	-15.26
5910			5	0	-4.521	0	.037	0	0
5911	3	M1183	1	0	5.568	0	-.002	0	0
5912			2	0	3.302	0	-.002	0	-14.523
5913			3	0	.426	0	-.002	0	-19.689
5914			4	0	-3.769	0	-.002	0	-14.067
5915			5	0	-5.528	0	-.002	0	0
5916	3	M1184	1	0	10.194	0	0	0	0
5917			2	0	5.818	0	0	0	-40.362

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5918			3	0	.02	0	0	0	-53.815
5919			4	0	-5.574	0	0	0	-40.943
5920			5	0	-11.372	0	0	0	0
5921	3	M1185	1	0	11.358	0	.048	0	0
5922			2	0	6.349	0	.048	0	-48.322
5923			3	0	-.284	0	.048	0	-65.147
5924			4	0	-6.511	0	.048	0	-48.537
5925			5	0	-11.114	0	.048	0	0
5926	3	M1186	1	-.001	5.832	0	-.001	0	0
5927			2	-.001	3.363	0	-.001	0	-15.072
5928			3	-.001	.487	0	-.001	0	-20.177
5929			4	-.001	-3.809	0	-.001	0	-14.706
5930			5	-.001	-5.67	0	-.001	0	0
5931	3	M1187	1	-.001	9.93	0	0	0	0
5932			2	-.001	5.757	0	0	0	-39.489
5933			3	-.001	.162	0	0	0	-53.234
5934			4	-.001	-5.635	0	0	0	-40.652
5935			5	-.001	-11.23	0	0	0	0
5936	3	M1188	1	0	8.983	0	0	0	0
5937			2	0	4.989	0	0	0	-37.993
5938			3	0	-.223	0	0	0	-51.159
5939			4	0	-5.131	0	0	0	-38.046
5940			5	0	-8.617	0	0	0	0
5941	3	M1189	1	-.001	4.716	0	0	0	0
5942			2	-.001	2.652	0	0	0	-12.026
5943			3	-.001	.386	0	0	0	-16.035
5944			4	-.001	-2.997	0	0	0	-11.752
5945			5	-.001	-4.756	0	0	0	0
5946	3	M1190	1	0	10.14	0	0	0	0
5947			2	0	5.638	0	0	0	-43.211
5948			3	0	-.284	0	0	0	-58.261
5949			4	0	-5.801	0	0	0	-43.426
5950			5	0	-9.896	0	0	0	0
5951	3	M1191	1	0	5.142	0	0	0	0
5952			2	0	2.977	0	0	0	-13.275
5953			3	0	.406	0	0	0	-17.862
5954			4	0	-3.383	0	0	0	-12.909
5955			5	0	-5.142	0	0	0	0
5956	3	M1192	1	0	13.875	0	.001	0	0
5957			2	0	8.359	0	.001	0	-61.503
5958			3	0	-.406	0	.001	0	-83.87
5959			4	0	-8.562	0	.001	0	-62.041
5960			5	0	-13.469	0	.001	0	0
5961	3	M1193	1	0	6.289	0	0	0	0
5962			2	0	4.023	0	0	0	-16.686
5963			3	0	.538	0	0	0	-23.161
5964			4	0	-4.469	0	0	0	-16.168
5965			5	0	-6.228	0	0	0	0
5966	3	M1194	1	0	-29.041	0	0	0	0
5967			2	0	-12.58	0	0	-.001	129.783
5968			3	0	-9.25	0	0	0	180.589
5969			4	0	9.119	0	0	0	145.738
5970			5	0	34.238	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
5971	3	M1195	1	0	-62.576	0	0	0	0
5972			2	0	-38.899	0	0	0	494.037
5973			3	0	-.004	0	0	0	660.744
5974			4	0	38.536	0	0	0	494.804
5975			5	0	62.325	0	0	0	0
5976	3	M1196	1	0	-68.282	0	0	0	0
5977			2	0	-40.367	0	0	0	521.527
5978			3	0	.184	0	0	0	693.811
5979			4	0	40.643	0	0	0	518.291
5980			5	0	65.107	0	0	0	0
5981	3	M1197	1	0	-38.484	0	0	0	-68.702
5982			2	0	-33.678	0	0	-.002	87.016
5983			3	0	-10.714	0	0	.001	140.613
5984			4	0	22.926	-.001	0	.005	116.761
5985			5	0	30.675	-.001	0	0	0
5986	3	M1198	1	0	-42.132	.001	.002	0	0
5987			2	0	-18.576	-.001	.002	.005	164.788
5988			3	0	-8.181	-.001	.002	0	223.006
5989			4	0	18.367	0	.002	.001	168.529
5990			5	0	42.918	0	.002	0	0
5991	3	M1199	1	.005	7.603	0	-.009	0	0
5992			2	.005	4.4	0	-.009	0	-22.569
5993			3	.005	-.223	0	-.009	0	-30.376
5994			4	.005	-4.644	0	-.009	0	-22.995
5995			5	.005	-7.643	0	-.009	0	0
5996	3	M1200	1	.003	12.748	0	0	0	0
5997			2	.003	7.44	0	0	0	-55.702
5998			3	.003	-.102	0	0	0	-75.53
5999			4	.003	-6.932	0	0	0	-55.754
6000			5	.003	-14.981	0	0	0	0
6001	3	M1201	1	0	5.755	0	-.003	0	0
6002			2	0	2.857	0	-.003	0	-15.925
6003			3	0	-.041	0	-.003	0	-21.139
6004			4	0	-3.142	0	-.003	0	-16.209
6005			5	0	-5.431	0	-.003	0	0
6006	3	M1202	1	0	8.758	0	0	0	0
6007			2	0	4.77	0	0	0	-37.421
6008			3	0	-.03	0	0	0	-49.789
6009			4	0	-4.628	0	0	0	-36.475
6010			5	0	-9.834	0	0	0	0
6011	3	M1203	1	0	5.654	0	.001	0	0
6012			2	0	2.959	0	.001	0	-16.138
6013			3	0	-.142	0	.001	0	-21.281
6014			4	0	-3.04	0	.001	0	-16.564
6015			5	0	-5.938	0	.001	0	0
6016	3	M1204	1	.002	9.012	0	0	0	0
6017			2	.002	4.719	0	0	0	-37.526
6018			3	.002	-.183	0	0	0	-49.894
6019			4	.002	-4.577	0	0	0	-36.633
6020			5	.002	-9.784	0	0	0	0
6021	3	M1205	1	-.017	6.304	0	0	0	0
6022			2	-.017	3.304	0	0	0	-17.808
6023			3	-.017	-.102	0	0	0	-23.697

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6024			4	-.017	-3.507	0	0	0	-18.234
6025			5	-.017	-6.1	0	0	0	0
6026	3	M1206	1	-.011	9.895	0	0	0	0
6027			2	-.011	5.399	0	0	0	-42.411
6028			3	-.011	-.112	0	0	0	-56.513
6029			4	-.011	-5.217	0	0	0	-41.466
6030			5	-.011	-11.134	0	0	0	0
6031	3	M1207	1	0	5.766	0	0	0	0
6032			2	0	2.868	0	0	0	-15.96
6033			3	0	-.03	0	0	0	-21.21
6034			4	0	-3.131	0	0	0	-16.316
6035			5	0	-5.623	0	0	0	0
6036	3	M1208	1	.002	8.758	0	0	0	0
6037			2	.002	4.77	0	0	0	-37.421
6038			3	.002	-.03	0	0	0	-49.789
6039			4	.002	-4.628	0	0	0	-36.475
6040			5	.002	-9.834	0	0	0	0
6041	3	M1209	1	0	5.461	0	.002	0	0
6042			2	0	2.969	0	.002	0	-16.032
6043			3	0	-.132	0	.002	0	-21.21
6044			4	0	-3.03	0	.002	0	-16.529
6045			5	0	-5.928	0	.002	0	0
6046	3	M1210	1	-.001	9.012	0	0	0	0
6047			2	-.001	4.719	0	0	0	-37.526
6048			3	-.001	-.183	0	0	0	-49.894
6049			4	-.001	-4.577	0	0	0	-36.633
6050			5	-.001	-9.784	0	0	0	0
6051	3	M1211	1	0	5.786	0	.005	0	0
6052			2	0	2.888	0	.005	0	-16.032
6053			3	0	-.01	0	.005	0	-21.352
6054			4	0	-3.111	0	.005	0	-16.529
6055			5	0	-5.603	0	.005	0	0
6056	3	M1212	1	0	8.758	0	0	0	0
6057			2	0	4.77	0	0	0	-37.421
6058			3	0	-.03	0	0	0	-49.789
6059			4	0	-4.628	0	0	0	-36.475
6060			5	0	-9.834	0	0	0	0
6061	3	M1213	1	0	6.638	0	0	0	0
6062			2	0	3.741	0	0	0	-19.513
6063			3	0	-.173	0	0	0	-26.041
6064			4	0	-3.883	0	0	0	-20.011
6065			5	0	-6.781	0	0	0	0
6066	3	M1214	1	0	10.86	0	0	0	0
6067			2	0	6.059	0	0	0	-46.929
6068			3	0	-.162	0	0	0	-62.922
6069			4	0	-5.775	0	0	0	-46.298
6070			5	0	-12.402	0	0	0	0
6071	3	M1215	1	0	6.781	0	-.002	0	0
6072			2	0	3.68	0	-.002	0	-19.727
6073			3	0	-.03	0	-.002	0	-26.468
6074			4	0	-3.944	0	-.002	0	-20.366
6075			5	0	-7.045	0	-.002	0	0
6076	3	M1216	1	0	11.164	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6077			2	0	6.059	0	0	0	-47.612
6078			3	0	-.061	0	0	0	-63.342
6079			4	0	-5.876	0	0	0	-46.404
6080			5	0	-12.504	0	0	0	0
6081	3	M1217	1	0	6.821	0	-.001	0	0
6082			2	0	3.72	0	-.001	0	-19.584
6083			3	0	-.193	0	-.001	0	-26.041
6084			4	0	-3.903	0	-.001	0	-19.94
6085			5	0	-6.598	0	-.001	0	0
6086	3	M1218	1	0	10.687	0	.026	0	0
6087			2	0	6.09	0	.026	0	-46.456
6088			3	0	-.132	0	.026	0	-62.607
6089			4	0	-5.744	0	.026	0	-46.141
6090			5	0	-12.372	0	.026	0	0
6091	3	M1219	1	0	6.304	0	0	0	0
6092			2	0	3.304	0	0	0	-17.808
6093			3	0	-.102	0	0	0	-23.697
6094			4	0	-3.507	0	0	0	-18.234
6095			5	0	-6.1	0	0	0	0
6096	3	M1220	1	0	9.895	0	0	0	0
6097			2	0	5.399	0	0	0	-42.411
6098			3	0	-.112	0	0	0	-56.513
6099			4	0	-5.217	0	0	0	-41.466
6100			5	0	-11.134	0	0	0	0
6101	3	M1221	1	0	6.486	0	.001	0	0
6102			2	0	3.284	0	.001	0	-18.163
6103			3	0	-.122	0	.001	0	-23.981
6104			4	0	-3.527	0	.001	0	-18.447
6105			5	0	-6.324	0	.001	0	0
6106	3	M1222	1	0	9.895	0	0	0	0
6107			2	0	5.399	0	0	0	-42.411
6108			3	0	-.112	0	0	0	-56.513
6109			4	0	-5.217	0	0	0	-41.466
6110			5	0	-11.134	0	0	0	0
6111	3	M1223	1	0	6.76	0	.003	0	0
6112			2	0	3.659	0	.003	0	-19.94
6113			3	0	-.051	0	.003	0	-26.61
6114			4	0	-3.964	0	.003	0	-20.437
6115			5	0	-7.065	0	.003	0	0
6116	3	M1224	1	-.001	11.123	0	-.027	0	0
6117			2	-.001	6.019	0	-.027	0	-47.402
6118			3	-.001	-.102	0	-.027	0	-62.922
6119			4	-.001	-5.917	0	-.027	0	-45.773
6120			5	-.001	-11.733	0	-.027	0	0
6121	3	M1225	1	0	6.821	0	.003	0	0
6122			2	0	3.72	0	.003	0	-19.584
6123			3	0	-.193	0	.003	0	-26.041
6124			4	0	-3.903	0	.003	0	-19.94
6125			5	0	-6.598	0	.003	0	0
6126	3	M1226	1	0	10.596	0	-.041	0	0
6127			2	0	5.998	0	-.041	0	-45.983
6128			3	0	-.223	0	-.041	0	-61.661
6129			4	0	-5.836	0	-.041	0	-44.723

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6130			5	0	-10.636	0	-.041	0	0
6131	3	M1227	1	.004	6.598	0	0	0	0
6132			2	.004	3.7	0	0	0	-19.371
6133			3	.004	-.01	0	0	0	-26.184
6134			4	.004	-3.923	0	0	0	-20.153
6135			5	.004	-6.821	0	0	0	0
6136	3	M1228	1	.004	10.88	0	0	0	0
6137			2	.004	5.978	0	0	0	-46.981
6138			3	.004	-.142	0	0	0	-62.292
6139			4	.004	-5.958	0	0	0	-44.933
6140			5	.004	-10.758	0	0	0	0
6141	3	M1229	1	0	5.644	0	0	0	0
6142			2	0	2.949	0	0	0	-16.103
6143			3	0	-.152	0	0	0	-21.21
6144			4	0	-3.05	0	0	0	-16.458
6145			5	0	-5.745	0	0	0	0
6146	3	M1230	1	0	8.971	0	0	0	0
6147			2	0	4.679	0	0	0	-37.316
6148			3	0	-.223	0	0	0	-49.474
6149			4	0	-4.618	0	0	0	-36.002
6150			5	0	-9.012	0	0	0	0
6151	3	M1231	1	0	6.304	0	0	0	0
6152			2	0	3.304	0	0	0	-18.092
6153			3	0	-.102	0	0	0	-23.981
6154			4	0	-3.507	0	0	0	-18.519
6155			5	0	-6.507	0	0	0	0
6156	3	M1232	1	0	10.22	0	-.001	0	0
6157			2	0	5.318	0	-.001	0	-42.411
6158			3	0	-.193	0	-.001	0	-56.093
6159			4	0	-5.298	0	-.001	0	-40.625
6160			5	0	-9.997	0	-.001	0	0
6161	3	M1233	1	0	8.039	0	0	0	0
6162			2	0	4.735	0	0	0	-24.061
6163			3	0	-.193	0	0	0	-32.579
6164			4	0	-5.02	0	0	0	-24.452
6165			5	0	-8.222	0	0	0	0
6166	3	M1234	1	0	13.58	0	-.002	0	0
6167			2	0	7.866	0	-.002	0	-59.484
6168			3	0	-.284	0	-.002	0	-79.732
6169			4	0	-7.825	0	-.002	0	-56.857
6170			5	0	-13.336	0	-.002	0	0
6171	3	M1235	1	0	-30.332	0	0	0	0
6172			2	0	-12.894	0	0	0	136.616
6173			3	0	-10.172	0	0	0	190.246
6174			4	0	9.073	0	0	0	153.877
6175			5	0	36.033	0	0	0	0
6176	3	M1236	1	0	-95.162	0	0	0	0
6177			2	0	-32.999	0	0	0	793.806
6178			3	0	7.218	0	0	0	947.792
6179			4	0	52.845	0	0	0	587.868
6180			5	0	89.143	0	0	-.001	-289.038
6181	3	M1237	1	0	-80.407	0	0	0	0
6182			2	0	-21.547	0	0	0	626.571

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6183			3	0	16.169	0	0	0	655.854
6184			4	0	66.501	0	0	0	160.757
6185			5	0	104.125	0	0	0	-884.338
6186	3	M1238	1	0	34.594	0	0	0	0
6187			2	0	11.82	0	0	0	-107.61
6188			3	0	-2.629	0	0	0	-134.119
6189			4	0	-13.932	0	0	0	-90.556
6190			5	0	-18.941	0	0	0	0
6191	3	M1239	1	0	6.766	0	.042	0	0
6192			2	0	4.195	0	.042	0	-18.086
6193			3	0	.609	0	.042	0	-24.805
6194			4	0	-4.804	0	.042	0	-17.295
6195			5	0	-6.36	0	.042	0	0
6196	3	M1240	1	0	16.417	0	0	0	0
6197			2	0	11.837	0	0	0	-70.268
6198			3	0	1.573	0	0	0	-103.353
6199			4	0	-10.822	0	0	0	-82.241
6200			5	0	-23.218	0	0	0	0
6201	3	M1241	1	0	12.028	0	0	0	0
6202			2	0	4.786	0	0	0	-40.79
6203			3	0	-.426	0	0	0	-53.311
6204			4	0	-5.232	0	0	0	-39.499
6205			5	0	-9.226	0	0	0	0
6206	3	M1242	1	0	4.837	0	.037	0	0
6207			2	0	2.571	0	.037	0	-12.148
6208			3	0	.305	0	.037	0	-16.157
6209			4	0	-2.977	0	.037	0	-11.661
6210			5	0	-4.634	0	.037	0	0
6211	3	M1243	1	0	8.144	0	0	0	0
6212			2	0	4.579	0	0	0	-31.831
6213			3	0	0	0	0	0	-42.376
6214			4	0	-4.376	0	0	0	-32.218
6215			5	0	-8.956	0	0	0	0
6216	3	M1244	1	0	13.226	0	0	0	0
6217			2	0	5.476	0	0	0	-45.794
6218			3	0	-.447	0	0	0	-59.982
6219			4	0	-5.963	0	0	0	-44.287
6220			5	0	-10.059	0	0	0	0
6221	3	M1245	1	0	5.304	0	.029	0	0
6222			2	0	2.936	0	.029	0	-13.518
6223			3	0	.365	0	.029	0	-17.984
6224			4	0	-3.424	0	.029	0	-12.909
6225			5	0	-4.98	0	.029	0	0
6226	3	M1246	1	0	9.037	0	0	0	0
6227			2	0	5.168	0	0	0	-35.66
6228			3	0	.081	0	0	0	-47.805
6229			4	0	-5.006	0	0	0	-36.435
6230			5	0	-10.093	0	0	0	0
6231	3	M1247	1	0	14.251	0	0	0	0
6232			2	0	6.197	0	0	0	-50.743
6233			3	0	-.436	0	0	0	-66.761
6234			4	0	-6.664	0	0	0	-49.344
6235			5	0	-11.267	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6236	3	M1248	1	0	5.812	0	.018	0	0
6237			2	0	3.342	0	.018	0	-15.254
6238			3	0	.467	0	.018	0	-20.298
6239			4	0	-3.83	0	.018	0	-14.767
6240			5	0	-5.69	0	.018	0	0
6241	3	M1249	1	0	9.93	0	0	0	0
6242			2	0	5.757	0	0	0	-39.489
6243			3	0	.162	0	0	0	-53.234
6244			4	0	-5.635	0	0	0	-40.652
6245			5	0	-11.23	0	0	0	0
6246	3	M1250	1	0	13.419	0	0	0	0
6247			2	0	5.466	0	0	0	-45.955
6248			3	0	-.457	0	0	0	-60.09
6249			4	0	-5.973	0	0	0	-44.341
6250			5	0	-10.069	0	0	0	0
6251	3	M1251	1	0	5.142	0	.005	0	0
6252			2	0	2.977	0	.005	0	-13.518
6253			3	0	.406	0	.005	0	-18.106
6254			4	0	-3.383	0	.005	0	-13.153
6255			5	0	-5.142	0	.005	0	0
6256	3	M1252	1	0	9.21	0	0	0	0
6257			2	0	5.138	0	0	0	-36.096
6258			3	0	.051	0	0	0	-48.096
6259			4	0	-5.036	0	0	0	-36.581
6260			5	0	-10.123	0	0	0	0
6261	3	M1253	1	0	9.21	0	0	0	0
6262			2	0	5.138	0	0	0	-36.096
6263			3	0	.051	0	0	0	-48.096
6264			4	0	-5.036	0	0	0	-36.581
6265			5	0	-10.123	0	0	0	0
6266	3	M1254	1	0	19.796	0	.032	0	176.303
6267			2	0	13.873	0	.032	0	87.94
6268			3	0	7.951	0	.032	0	29.245
6269			4	0	2.434	0	.032	0	.434
6270			5	0	-1.458	0	.032	0	0
6271	3	M1255	1	0	5.142	0	-.01	0	0
6272			2	0	2.977	0	-.01	0	-13.275
6273			3	0	.406	0	-.01	0	-17.862
6274			4	0	-3.383	0	-.01	0	-12.909
6275			5	0	-5.142	0	-.01	0	0
6276	3	M1256	1	0	13.601	0	0	0	0
6277			2	0	5.446	0	0	0	-46.063
6278			3	0	-.477	0	0	0	-60.09
6279			4	0	-5.994	0	0	0	-44.233
6280			5	0	-9.886	0	0	0	0
6281	3	M1257	1	0	5.142	0	-.027	0	0
6282			2	0	2.977	0	-.027	0	-13.275
6283			3	0	.406	0	-.027	0	-17.862
6284			4	0	-3.383	0	-.027	0	-12.909
6285			5	0	-5.142	0	-.027	0	0
6286	3	M1258	1	0	9.017	0	0	0	0
6287			2	0	5.148	0	0	0	-35.951
6288			3	0	.061	0	0	0	-47.999

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6289			4	0	-5.026	0	0	0	-36.532
6290			5	0	-10.113	0	0	0	0
6291	3	M1259	1	0	10.485	0	0	0	0
6292			2	0	4.156	0	0	0	-35.249
6293			3	0	-.345	0	0	0	-45.994
6294			4	0	-4.542	0	0	0	-34.011
6295			5	0	-7.927	0	0	0	0
6296	3	M1260	1	0	4.391	0	-.044	0	0
6297			2	0	2.226	0	-.044	0	-10.839
6298			3	0	.264	0	-.044	0	-14.208
6299			4	0	-2.612	0	-.044	0	-10.321
6300			5	0	-4.269	0	-.044	0	0
6301	3	M1261	1	0	7.159	0	0	0	0
6302			2	0	3.899	0	0	0	-27.565
6303			3	0	.03	0	0	0	-36.657
6304			4	0	-3.838	0	0	0	-27.856
6305			5	0	-7.707	0	0	0	0
6306	3	M1262	1	0	13.601	0	0	0	0
6307			2	0	5.446	0	0	0	-46.493
6308			3	0	-.477	0	0	0	-60.52
6309			4	0	-5.994	0	0	0	-44.664
6310			5	0	-10.292	0	0	0	0
6311	3	M1263	1	0	5.304	0	-.062	0	0
6312			2	0	2.936	0	-.062	0	-13.762
6313			3	0	.365	0	-.062	0	-18.228
6314			4	0	-3.424	0	-.062	0	-13.153
6315			5	0	-4.98	0	-.062	0	0
6316	3	M1264	1	0	12.123	0	0	0	0
6317			2	0	7.747	0	0	0	-49.862
6318			3	0	.325	0	0	0	-68.744
6319			4	0	-7.198	0	0	0	-52.916
6320			5	0	-14.722	0	0	0	0
6321	3	M1265	1	0	-87.358	0	0	0	0
6322			2	0	-12.231	0	0	0	172.542
6323			3	0	8.689	0	0	0	176.017
6324			4	0	19.459	0	0	0	106.544
6325			5	0	24.34	0	0	0	0
6326	3	M1266	1	0	-6.439	0	-.05	0	0
6327			2	0	-4.681	0	-.05	0	17.327
6328			3	0	-.284	0	-.05	0	25.317
6329			4	0	4.62	0	-.05	0	18.263
6330			5	0	7.089	0	-.05	0	0
6331	3	M1267	1	0	-13.59	0	0	0	0
6332			2	0	-9.429	0	0	0	54.261
6333			3	0	.213	0	0	0	77.373
6334			4	0	9.247	0	0	0	54.535
6335			5	0	14.626	0	0	0	0
6336	3	M1268	1	.127	-15.052	0	0	0	0
6337			2	.127	-5.298	0	0	0	42.129
6338			3	.127	.193	0	0	0	54.094
6339			4	.127	5.785	0	0	0	39.875
6340			5	.127	9.956	0	0	0	0
6341	3	M1269	1	.092	-5.211	0	.005	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6342			2	.092	-3.758	0	.005	0	14.367
6343			3	.092	-.071	0	.005	0	20.062
6344			4	.092	3.615	0	.005	0	14.79
6345			5	.092	5.678	0	.005	0	0
6346	3	M1270	1	.042	-9.317	0	-.033	0	0
6347			2	.042	-5.663	0	-.033	0	35.533
6348			3	.042	-.183	0	-.033	0	48.595
6349			4	.042	5.399	0	-.033	0	36.766
6350			5	.042	10.982	0	-.033	0	0
6351	3	M1271	1	.101	-15.174	0	0	0	0
6352			2	.101	-5.318	0	0	0	42.273
6353			3	.101	.274	0	0	0	54.286
6354			4	.101	5.765	0	0	0	40.115
6355			5	.101	10.24	0	0	0	0
6356	3	M1272	1	.116	-5.434	0	.005	0	0
6357			2	.116	-3.676	0	.005	0	14.337
6358			3	.116	-.091	0	.005	0	20.062
6359			4	.116	3.595	0	.005	0	14.85
6360			5	.116	5.86	0	.005	0	0
6361	3	M1273	1	.093	-9.571	0	-.025	0	0
6362			2	.093	-5.613	0	-.025	0	36.264
6363			3	.093	-.03	0	-.025	0	49.052
6364			4	.093	5.45	0	-.025	0	36.949
6365			5	.093	10.931	0	-.025	0	0
6366	3	M1274	1	-.906	-13.062	0	0	0	0
6367			2	-.906	-4.628	0	0	0	36.613
6368			3	-.906	.152	0	0	0	47.187
6369			4	-.906	4.932	0	0	0	35.175
6370			5	-.906	9.104	0	0	0	0
6371	3	M1275	1	-.719	-4.977	0	.006	0	0
6372			2	-.719	-3.22	0	.006	0	12.978
6373			3	-.719	-.041	0	.006	0	17.827
6374			4	-.719	3.138	0	.006	0	13.22
6375			5	-.719	5.302	0	.006	0	0
6376	3	M1276	1	-.324	-8.383	0	-.014	0	0
6377			2	-.324	-4.831	0	-.014	0	31.376
6378			3	-.324	-.061	0	-.014	0	42.383
6379			4	-.324	4.709	0	-.014	0	31.924
6380			5	-.324	9.479	0	-.014	0	0
6381	3	M1277	1	-2.757	-17.174	0	0	0	0
6382			2	-2.757	-5.998	0	0	0	47.837
6383			3	-2.757	.305	0	0	0	61.288
6384			4	-2.757	6.607	0	0	0	44.959
6385			5	-2.757	11.286	0	0	0	0
6386	3	M1278	1	-3.094	-5.81	0	.006	0	0
6387			2	-3.094	-4.153	0	.006	0	15.907
6388			3	-3.094	-.061	0	.006	0	22.297
6389			4	-3.094	4.133	0	.006	0	16.24
6390			5	-3.094	6.094	0	.006	0	0
6391	3	M1279	1	-3.747	-10.505	0	.002	0	0
6392			2	-3.747	-6.445	0	.002	0	40.42
6393			3	-3.747	-.152	0	.002	0	55.264
6394			4	-3.747	6.14	0	.002	0	41.791

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6395			5	-3.747	12.433	0	.002	0	0
6396	3	M1280	1	-.911	-15.052	0	0	0	0
6397			2	-.911	-5.298	0	0	0	42.129
6398			3	-.911	.193	0	0	0	54.094
6399			4	-.911	5.785	0	0	0	39.875
6400			5	-.911	9.956	0	0	0	0
6401	3	M1281	1	-.721	-5.211	0	.007	0	0
6402			2	-.721	-3.758	0	.007	0	14.367
6403			3	-.721	-.071	0	.007	0	20.062
6404			4	-.721	3.615	0	.007	0	14.79
6405			5	-.721	5.678	0	.007	0	0
6406	3	M1282	1	-.324	-9.51	0	.018	0	0
6407			2	-.324	-5.653	0	.018	0	35.67
6408			3	-.324	-.173	0	.018	0	48.686
6409			4	-.324	5.41	0	.018	0	36.812
6410			5	-.324	10.992	0	.018	0	0
6411	3	M1283	1	.132	-13.032	0	0	0	0
6412			2	.132	-4.597	0	0	0	36.47
6413			3	.132	.183	0	0	0	46.899
6414			4	.132	4.963	0	0	0	34.743
6415			5	.132	8.931	0	0	0	0
6416	3	M1284	1	.138	-4.774	0	.007	0	0
6417			2	.138	-3.22	0	.007	0	12.857
6418			3	.138	-.041	0	.007	0	17.707
6419			4	.138	3.138	0	.007	0	13.099
6420			5	.138	5.099	0	.007	0	0
6421	3	M1285	1	.101	-8.21	0	.029	0	0
6422			2	.101	-4.861	0	.029	0	30.965
6423			3	.101	-.091	0	.029	0	42.108
6424			4	.101	4.679	0	.029	0	31.787
6425			5	.101	9.449	0	.029	0	0
6426	3	M1286	1	.161	-15.174	0	0	0	0
6427			2	.161	-5.318	0	0	0	42.273
6428			3	.161	.274	0	0	0	54.286
6429			4	.161	5.765	0	0	0	40.115
6430			5	.161	10.24	0	0	0	0
6431	3	M1287	1	.134	-5.434	0	.008	0	0
6432			2	.134	-3.676	0	.008	0	14.337
6433			3	.134	-.091	0	.008	0	20.062
6434			4	.134	3.595	0	.008	0	14.85
6435			5	.134	5.86	0	.008	0	0
6436	3	M1288	1	.102	-9.571	0	.037	0	0
6437			2	.102	-5.613	0	.037	0	36.264
6438			3	.102	-.03	0	.037	0	49.052
6439			4	.102	5.45	0	.037	0	36.949
6440			5	.102	10.931	0	.037	0	0
6441	3	M1289	1	.073	-17.163	0	0	0	0
6442			2	.073	-3.552	0	0	0	35.318
6443			3	.073	.518	0	0	0	42.583
6444			4	.073	4.486	0	0	0	30.858
6445			5	.073	7.845	0	0	0	0
6446	3	M1290	1	.049	-3.993	0	.005	0	0
6447			2	.049	-2.742	0	.005	0	10.804

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-...	z-z Moment[k-...
6448			3	.049	-.071	0	.005	0	14.989
6449			4	.049	2.6	0	.005	0	11.226
6450			5	.049	4.46	0	.005	0	0
6451	3	M1291	1	0	-7.297	0	0	0	0
6452			2	0	-4.049	0	0	0	26.534
6453			3	0	.01	0	0	0	35.713
6454			4	0	3.968	0	0	0	26.854
6455			5	0	7.926	0	0	0	0
6456	3	M1292	1	-.019	-10.921	0	0	0	0
6457			2	-.019	-3.907	0	0	0	30.81
6458			3	-.019	.061	0	0	0	39.801
6459			4	-.019	4.131	0	0	0	29.803
6460			5	-.019	7.794	0	0	0	0
6461	3	M1293	1	-.015	-4.348	0	.005	0	0
6462			2	-.015	-2.692	0	.005	0	11.136
6463			3	-.015	-.02	0	.005	0	15.17
6464			4	-.015	2.651	0	.005	0	11.257
6465			5	-.015	4.713	0	.005	0	0
6466	3	M1294	1	0	-7.195	0	0	0	0
6467			2	0	-4.049	0	0	0	26.488
6468			3	0	-.091	0	0	0	35.713
6469			4	0	3.968	0	0	0	26.899
6470			5	0	8.028	0	0	0	0
6471	3	M1295	1	-.005	-13.052	0	0	0	0
6472			2	-.005	-4.618	0	0	0	36.566
6473			3	-.005	.162	0	0	0	47.091
6474			4	-.005	4.943	0	0	0	35.031
6475			5	-.005	8.911	0	0	0	0
6476	3	M1296	1	0	-4.805	0	0	0	0
6477			2	0	-3.25	0	0	0	12.706
6478			3	0	-.071	0	0	0	17.646
6479			4	0	3.108	0	0	0	13.129
6480			5	0	5.272	0	0	0	0
6481	3	M1297	1	.003	-8.403	0	0	0	0
6482			2	.003	-4.851	0	0	0	31.102
6483			3	.003	-.081	0	0	0	42.2
6484			4	.003	4.689	0	0	0	31.833
6485			5	.003	9.459	0	0	0	0
6486	3	M1298	1	-.003	-13.002	0	0	0	0
6487			2	-.003	-4.567	0	0	0	36.326
6488			3	-.003	.213	0	0	0	46.612
6489			4	-.003	4.993	0	0	0	34.311
6490			5	-.003	8.758	0	0	0	0
6491	3	M1299	1	0	-4.592	0	0	0	0
6492			2	0	-3.138	0	0	0	12.344
6493			3	0	-.061	0	0	0	17.223
6494			4	0	3.118	0	0	0	12.676
6495			5	0	4.876	0	0	0	0
6496	3	M1300	1	.002	-8.21	0	0	0	0
6497			2	.002	-4.861	0	0	0	30.965
6498			3	.002	-.091	0	0	0	42.108
6499			4	.002	4.679	0	0	0	31.787
6500			5	.002	9.449	0	0	0	0

Member Section Forces (Continued)

	LC	Member Label	Sec	Axial[k]	y Shear[k]	z Shear[k]	Torque[k-ft]	y-y Moment[k-..	z-z Moment[k-...
6501	3	M1301	1	-.7	146.573	0	0	0	0
6502			2	-.7	9.433	0	0	0	-78.53
6503			3	-.7	8.316	0	0	0	-96.778
6504			4	-.7	-23.679	0	0	0	-50.607
6505			5	-.7	-24.896	0	0	0	0
6506	3	M1302	1	.234	68.553	-.002	0	0	0
6507			2	.234	44.983	.034	0	.151	-625.535
6508			3	.234	7.434	-.168	0	-.662	-840.985
6509			4	.234	-32.726	-.022	0	.163	-625.827
6510			5	.234	-70.001	-.001	0	0	0
6511	3	M1303	1	-.17	15.64	-.005	0	0	0
6512			2	-.17	13.667	-.005	0	-.017	-45.559
6513			3	-.17	-.041	-.009	0	-.04	-60.665
6514			4	-.17	-13.852	.014	0	-.044	-45.564
6515			5	-.17	-15.418	.014	0	0	0
6516	3	M1304	1	-.547	58.465	0	0	0	0
6517			2	-.547	8.828	0	0	0	-40.791
6518			3	-.547	7.711	0	0	0	-57.782
6519			4	-.547	-14.184	0	0	0	-30.906
6520			5	-.547	-15.402	0	0	0	0
6521	3	M1305	1	.212	67.6	-.003	0	0	0
6522			2	.212	44.405	.046	0	.204	-616.778
6523			3	.212	7.09	-.326	0	-1.23	-828.746
6524			4	.212	-32.289	-.071	0	.233	-616.626
6525			5	.212	-69.027	-.003	0	0	0
6526	3	M1306	1	-.181	15.154	-.006	0	0	0
6527			2	-.181	13.385	-.006	0	-.02	-44.565
6528			3	-.181	-.091	-.021	0	-.07	-59.271
6529			4	-.181	-13.515	.028	0	-.086	-44.373
6530			5	-.181	-15.183	.028	0	0	0
6531	3	M1307	1	54.645	-.934	0	0	0	0
6532			2	54.427	-.934	0	0	0	6.541
6533			3	107.234	-.934	0	0	0	-13.083
6534			4	107.017	-.934	0	0	0	-6.541
6535			5	106.799	-.934	0	0	0	0
6536	3	M1308	1	48.729	-.758	0	0	0	0
6537			2	48.512	-.758	0	0	0	5.309
6538			3	96.523	-.758	0	0	0	-10.618
6539			4	96.305	-.758	0	0	0	-5.309
6540			5	96.088	-.758	0	0	0	0
6541	3	M1309	1	56.064	.405	0	0	0	0
6542			2	55.846	.405	0	0	0	-2.832
6543			3	99.792	.405	0	0	0	-5.665
6544			4	99.574	.405	0	0	0	2.832
6545			5	99.357	.405	0	0	0	0
6546	3	M1310	1	53.336	.393	0	0	0	0
6547			2	53.118	.393	0	0	0	-2.75
6548			3	98.291	.393	0	0	0	-5.5
6549			4	98.074	.393	0	0	0	2.75
6550			5	97.856	.393	0	0	0	0

Member Section Deflections

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1	3	M1	1	0	.122	0	1.694e-3	NC	NC
2			2	0	.569	0	1.694e-3	480.592	NC
3			3	0	.737	0	1.694e-3	339.294	NC
4			4	0	.515	0	1.694e-3	472.691	NC
5			5	0	0	0	1.694e-3	NC	NC
6	3	M2	1	0	.196	0	7.861e-4	NC	NC
7			2	0	.481	0	7.861e-4	687.212	NC
8			3	0	.567	0	7.861e-4	488.217	NC
9			4	0	.385	0	7.861e-4	682.802	NC
10			5	0	0	0	7.861e-4	NC	NC
11	3	M3	1	0	.21	0	-1.019e-4	NC	NC
12			2	0	.454	0	-1.019e-4	774.625	NC
13			3	0	.521	0	-1.019e-4	551.233	NC
14			4	0	.35	0	-1.019e-4	771.696	NC
15			5	0	0	0	-1.019e-4	NC	NC
16	3	M4	1	0	.18	0	0	NC	NC
17			2	0	.506	0	0	617.527	NC
18			3	0	.613	0	0	438.13	NC
19			4	0	.419	0	0	612.273	NC
20			5	0	0	0	0	NC	NC
21	3	M5	1	0	.151	0	-6.301e-4	NC	NC
22			2	0	.489	0	-6.301e-4	609.782	NC
23			3	0	.604	0	-6.301e-4	433.533	NC
24			4	0	.416	0	-6.301e-4	606.61	NC
25			5	0	0	0	-6.301e-4	NC	NC
26	3	M6	1	0	.097	0	2.268e-6	NC	NC
27			2	0	.444	0	2.268e-6	617.527	NC
28			3	0	.571	0	2.268e-6	438.13	NC
29			4	0	.399	0	2.268e-6	612.273	NC
30			5	0	0	0	2.268e-6	NC	NC
31	3	M7	1	0	.134	0	2.864e-4	NC	NC
32			2	0	.437	0	2.864e-4	681.377	NC
33			3	0	.54	0	2.864e-4	484.761	NC
34			4	0	.371	0	2.864e-4	678.545	NC
35			5	0	0	0	2.864e-4	NC	NC
36	3	M8	1	0	.134	0	-2.846e-4	NC	NC
37			2	0	.437	0	-2.846e-4	681.377	NC
38			3	0	.54	0	-2.846e-4	484.761	NC
39			4	0	.371	0	-2.846e-4	678.545	NC
40			5	0	0	0	-2.846e-4	NC	NC
41	3	M9	1	0	.097	0	-2.767e-6	NC	NC
42			2	0	.449	0	-2.767e-6	609.782	NC
43			3	0	.577	0	-2.767e-6	433.533	NC
44			4	0	.402	0	-2.767e-6	606.61	NC
45			5	0	0	0	-2.767e-6	NC	NC
46	3	M10	1	0	.149	0	5.655e-4	NC	NC
47			2	0	.483	0	5.655e-4	617.527	NC
48			3	0	.598	0	5.655e-4	438.13	NC
49			4	0	.412	0	5.655e-4	612.273	NC
50			5	0	0	0	5.655e-4	NC	NC
51	3	M11	1	0	.173	0	0	NC	NC
52			2	0	.501	0	0	617.527	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
53			3	0	.61	0	0	438.13	NC
54			4	0	.418	0	0	612.273	NC
55			5	0	0	0	0	NC	NC
56	3	M12	1	0	.219	0	5.159e-4	NC	NC
57			2	0	.454	0	5.159e-4	790.571	NC
58			3	0	.519	0	5.159e-4	560.433	NC
59			4	0	.348	0	5.159e-4	782.945	NC
60			5	0	0	0	5.159e-4	NC	NC
61	3	M13	1	0	.233	0	-1.446e-4	NC	NC
62			2	0	.47	0	-1.446e-4	774.625	NC
63			3	0	.532	0	-1.446e-4	551.233	NC
64			4	0	.355	0	-1.446e-4	771.696	NC
65			5	0	0	0	-1.446e-4	NC	NC
66	3	M14	1	0	.203	0	-8.19e-4	NC	NC
67			2	0	.445	0	-8.19e-4	782.176	NC
68			3	0	.514	0	-8.19e-4	555.706	NC
69			4	0	.346	0	-8.19e-4	777.207	NC
70			5	0	0	0	-8.19e-4	NC	NC
71	3	M15	1	.001	.141	0	0	NC	NC
72			2	0	.442	0	0	681.377	NC
73			3	0	.543	0	0	484.761	NC
74			4	0	.373	0	0	678.545	NC
75			5	0	0	0	0	NC	NC
76	3	M16	1	0	.119	0	-5.782e-4	NC	NC
77			2	0	.385	0	-5.782e-4	774.625	NC
78			3	0	.475	0	-5.782e-4	551.233	NC
79			4	0	.327	0	-5.782e-4	771.696	NC
80			5	0	0	0	-5.782e-4	NC	NC
81	3	M17	1	0	.081	0	-7.797e-4	NC	NC
82			2	0	.356	0	-7.797e-4	777.247	NC
83			3	0	.455	0	-7.797e-4	552.757	NC
84			4	0	.317	0	-7.797e-4	773.564	NC
85			5	0	0	0	-7.797e-4	NC	NC
86	3	M18	1	0	.033	0	-6.806e-4	NC	NC
87			2	0	.361	0	-6.806e-4	681.377	NC
88			3	0	.489	0	-6.806e-4	484.761	NC
89			4	0	.346	0	-6.806e-4	678.545	NC
90			5	0	0	0	-6.806e-4	NC	NC
91	3	M19	1	0	0	0	1.036e-4	NC	NC
92			2	0	.202	0	1.036e-4	1136.658	NC
93			3	0	.319	0	1.036e-4	719.067	NC
94			4	0	.241	0	1.036e-4	949.158	NC
95			5	0	0	0	1.036e-4	NC	NC
96	3	M20	1	0	.097	0	1.489e-3	NC	NC
97			2	0	1.661	0	1.489e-3	144.254	NC
98			3	0	2.379	0	1.489e-3	98.362	NC
99			4	0	1.764	0	1.489e-3	131.767	NC
100			5	0	0	0	1.489e-3	NC	NC
101	3	M21	1	0	.218	0	-3.206e-4	NC	NC
102			2	0	.48	0	-3.206e-4	717.54	NC
103			3	0	.554	0	-3.206e-4	509.774	NC
104			4	0	.372	0	-3.206e-4	715.086	NC
105			5	0	0	0	-3.206e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
106	3	M22	1	0	.186	0	0	NC	NC
107			2	0	.455	0	0	717.54	NC
108			3	0	.538	0	0	509.774	NC
109			4	0	.364	0	0	715.086	NC
110			5	0	0	0	0	NC	NC
111	3	M23	1	0	.308	0	-1.312e-3	NC	NC
112			2	0	.594	0	-1.312e-3	625.366	NC
113			3	0	.666	0	-1.312e-3	443.099	NC
114			4	0	.442	0	-1.312e-3	620.558	NC
115			5	0	0	0	-1.312e-3	NC	NC
116	3	M24	1	0	.354	0	4.918e-5	NC	NC
117			2	0	.581	0	4.918e-5	717.54	NC
118			3	0	.622	0	4.918e-5	509.774	NC
119			4	0	.406	0	4.918e-5	715.086	NC
120			5	0	0	0	4.918e-5	NC	NC
121	3	M25	1	0	.303	0	1.36e-3	NC	NC
122			2	0	.544	0	1.36e-3	717.54	NC
123			3	0	.597	0	1.36e-3	509.774	NC
124			4	0	.393	0	1.36e-3	715.086	NC
125			5	0	0	0	1.36e-3	NC	NC
126	3	M26	1	0	.18	0	0	NC	NC
127			2	0	.501	0	0	619.164	NC
128			3	0	.605	0	0	439.928	NC
129			4	0	.412	0	0	617.186	NC
130			5	0	0	0	0	NC	NC
131	3	M27	1	0	.282	0	-1.299e-3	NC	NC
132			2	0	.477	0	-1.299e-3	853.082	NC
133			3	0	.515	0	-1.299e-3	605.983	NC
134			4	0	.337	0	-1.299e-3	849.901	NC
135			5	0	0	0	-1.299e-3	NC	NC
136	3	M28	1	0	.33	0	-2.166e-4	NC	NC
137			2	0	.611	0	-2.166e-4	623.877	NC
138			3	0	.677	0	-2.166e-4	442.712	NC
139			4	0	.448	0	-2.166e-4	620.632	NC
140			5	0	0	0	-2.166e-4	NC	NC
141	3	M29	1	0	.291	0	1.21e-3	NC	NC
142			2	0	.581	0	1.21e-3	625.366	NC
143			3	0	.657	0	1.21e-3	443.099	NC
144			4	0	.438	0	1.21e-3	620.558	NC
145			5	0	0	0	1.21e-3	NC	NC
146	3	M30	1	0	.173	0	0	NC	NC
147			2	0	.446	0	0	717.54	NC
148			3	0	.532	0	0	509.774	NC
149			4	0	.361	0	0	715.086	NC
150			5	0	0	0	0	NC	NC
151	3	M31	1	0	.28	0	-1.193e-3	NC	NC
152			2	0	.526	0	-1.193e-3	717.54	NC
153			3	0	.585	0	-1.193e-3	509.774	NC
154			4	0	.387	0	-1.193e-3	715.086	NC
155			5	0	0	0	-1.193e-3	NC	NC
156	3	M32	1	0	.322	0	2.321e-5	NC	NC
157			2	0	.557	0	2.321e-5	717.54	NC
158			3	0	.606	0	2.321e-5	509.774	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
159			4	0	.398	0	2.321e-5	715.086	NC
160			5	0	0	0	2.321e-5	NC	NC
161	3	M33	1	0	.279	0	1.234e-3	NC	NC
162			2	0	.575	0	1.234e-3	619.164	NC
163			3	0	.655	0	1.234e-3	439.928	NC
164			4	0	.437	0	1.234e-3	617.186	NC
165			5	0	0	0	1.234e-3	NC	NC
166	3	M34	1	0	.168	0	0	NC	NC
167			2	0	.443	0	0	715.351	NC
168			3	0	.53	0	0	508.504	NC
169			4	0	.36	0	0	713.523	NC
170			5	0	0	0	0	NC	NC
171	3	M35	1	0	.245	0	-8.939e-4	NC	NC
172			2	0	.5	0	-8.939e-4	717.54	NC
173			3	0	.567	0	-8.939e-4	509.774	NC
174			4	0	.378	0	-8.939e-4	715.086	NC
175			5	0	0	0	-8.939e-4	NC	NC
176	3	M36	1	0	.273	0	2.085e-5	NC	NC
177			2	0	.471	0	2.085e-5	853.082	NC
178			3	0	.511	0	2.085e-5	605.983	NC
179			4	0	.335	0	2.085e-5	849.901	NC
180			5	0	0	0	2.085e-5	NC	NC
181	3	M37	1	0	.243	0	9.346e-4	NC	NC
182			2	0	.498	0	9.346e-4	717.54	NC
183			3	0	.566	0	9.346e-4	509.774	NC
184			4	0	.378	0	9.346e-4	715.086	NC
185			5	0	0	0	9.346e-4	NC	NC
186	3	M38	1	0	.164	0	0	NC	NC
187			2	0	.439	0	0	717.54	NC
188			3	0	.527	0	0	509.774	NC
189			4	0	.358	0	0	715.086	NC
190			5	0	0	0	0	NC	NC
191	3	M39	1	0	.257	0	-1.079e-3	NC	NC
192			2	0	.509	0	-1.079e-3	717.54	NC
193			3	0	.573	0	-1.079e-3	509.774	NC
194			4	0	.381	0	-1.079e-3	715.086	NC
195			5	0	0	0	-1.079e-3	NC	NC
196	3	M40	1	0	.294	0	-2.987e-5	NC	NC
197			2	0	.537	0	-2.987e-5	715.351	NC
198			3	0	.593	0	-2.987e-5	508.504	NC
199			4	0	.391	0	-2.987e-5	713.523	NC
200			5	0	0	0	-2.987e-5	NC	NC
201	3	M41	1	0	.259	0	1.036e-3	NC	NC
202			2	0	.51	0	1.036e-3	717.54	NC
203			3	0	.574	0	1.036e-3	509.774	NC
204			4	0	.382	0	1.036e-3	715.086	NC
205			5	0	0	0	1.036e-3	NC	NC
206	3	M42	1	0	.171	0	0	NC	NC
207			2	0	.493	0	0	622.222	NC
208			3	0	.599	0	0	441.755	NC
209			4	0	.409	0	0	619.454	NC
210			5	0	0	0	0	NC	NC
211	3	M43	1	0	.299	0	-1.046e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
212			2	0	.538	0	-1.046e-3	721.65	NC
213			3	0	.592	0	-1.046e-3	512.228	NC
214			4	0	.39	0	-1.046e-3	718.133	NC
215			5	0	0	0	-1.046e-3	NC	NC
216	3	M44	1	0	.328	0	-5.862e-5	NC	NC
217			2	0	.512	0	-5.862e-5	853.082	NC
218			3	0	.538	0	-5.862e-5	605.983	NC
219			4	0	.349	0	-5.862e-5	849.901	NC
220			5	0	0	0	-5.862e-5	NC	NC
221	3	M45	1	0	.289	0	1.166e-3	NC	NC
222			2	0	.583	0	1.166e-3	619.164	NC
223			3	0	.66	0	1.166e-3	439.928	NC
224			4	0	.44	0	1.166e-3	617.186	NC
225			5	0	0	0	1.166e-3	NC	NC
226	3	M46	1	0	.183	0	1.822e-6	NC	NC
227			2	0	.503	0	1.822e-6	620.631	NC
228			3	0	.607	0	1.822e-6	440.31	NC
229			4	0	.413	0	1.822e-6	617.112	NC
230			5	0	0	0	1.822e-6	NC	NC
231	3	M47	1	0	.317	0	-1.443e-3	NC	NC
232			2	0	.554	0	-1.443e-3	717.54	NC
233			3	0	.603	0	-1.443e-3	509.774	NC
234			4	0	.396	0	-1.443e-3	715.086	NC
235			5	0	0	0	-1.443e-3	NC	NC
236	3	M48	1	0	.37	0	1.825e-5	NC	NC
237			2	0	.644	0	1.825e-5	619.164	NC
238			3	0	.701	0	1.825e-5	439.928	NC
239			4	0	.46	0	1.825e-5	617.186	NC
240			5	0	0	0	1.825e-5	NC	NC
241	3	M49	1	0	.315	0	1.501e-3	NC	NC
242			2	0	.601	0	1.501e-3	620.631	NC
243			3	0	.672	0	1.501e-3	440.31	NC
244			4	0	.446	0	1.501e-3	617.112	NC
245			5	0	0	0	1.501e-3	NC	NC
246	3	M50	1	0	.176	0	0	NC	NC
247			2	0	.448	0	0	717.54	NC
248			3	0	.533	0	0	509.774	NC
249			4	0	.361	0	0	715.086	NC
250			5	0	0	0	0	NC	NC
251	3	M51	1	0	.194	0	-1.328e-4	NC	NC
252			2	0	.36	0	-1.328e-4	1056.335	NC
253			3	0	.399	0	-1.328e-4	751.123	NC
254			4	0	.264	0	-1.328e-4	1054.121	NC
255			5	0	0	0	-1.328e-4	NC	NC
256	3	M52	1	0	.192	0	2.317e-4	NC	NC
257			2	0	.461	0	2.317e-4	715.351	NC
258			3	0	.542	0	2.317e-4	508.504	NC
259			4	0	.366	0	2.317e-4	713.523	NC
260			5	0	0	0	2.317e-4	NC	NC
261	3	M53	1	0	.13	0	-2.767e-4	NC	NC
262			2	0	.19	0	-2.876e-4	3545.796	NC
263			3	0	.228	0	-2.986e-4	2528.025	NC
264			4	0	.234	0	-3.096e-4	3586.189	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
265			5	0	.218	0	-3.206e-4	NC	NC
266	3	M54	1	0	.131	0	2.33e-4	NC	NC
267			2	0	.191	0	2.387e-4	3592.224	NC
268			3	0	.228	0	2.443e-4	2561.115	NC
269			4	0	.235	0	2.5e-4	3637.492	NC
270			5	0	.22	0	2.556e-4	NC	NC
271	3	M55	1	0	.1	0	-5.542e-7	NC	NC
272			2	0	.159	0	-4.142e-7	3592.224	NC
273			3	0	.196	0	-2.741e-7	2561.115	NC
274			4	0	.202	0	-1.34e-7	3637.492	NC
275			5	0	.186	0	0	NC	NC
276	3	M56	1	0	.228	0	-1.477e-3	NC	NC
277			2	0	.292	0	-1.436e-3	3085.044	NC
278			3	0	.33	0	-1.394e-3	2196.488	NC
279			4	0	.332	0	-1.353e-3	3115.576	NC
280			5	0	.308	0	-1.312e-3	NC	NC
281	3	M57	1	0	.288	0	-2.738e-4	NC	NC
282			2	0	.344	0	-1.931e-4	3491.794	NC
283			3	0	.375	0	-1.123e-4	2495.78	NC
284			4	0	.376	0	-3.157e-5	3545.298	NC
285			5	0	.354	0	4.918e-5	NC	NC
286	3	M58	1	0	.263	0	8.869e-4	NC	NC
287			2	0	.311	0	1.005e-3	3609.246	NC
288			3	0	.336	0	1.124e-3	2571.716	NC
289			4	0	.331	0	1.242e-3	3651.106	NC
290			5	0	.303	0	1.36e-3	NC	NC
291	3	M59	1	0	.174	0	-1.173e-6	NC	NC
292			2	0	.218	0	-8.791e-7	3170.838	NC
293			3	0	.237	0	-5.85e-7	2261.861	NC
294			4	0	.22	0	-2.91e-7	3220.933	NC
295			5	0	.18	0	0	NC	NC
296	3	M60	1	0	.267	0	-1.205e-3	NC	NC
297			2	0	.303	0	-1.228e-3	4219.011	NC
298			3	0	.32	0	-1.252e-3	2996.834	NC
299			4	0	.31	0	-1.275e-3	4234.701	NC
300			5	0	.282	0	-1.299e-3	NC	NC
301	3	M61	1	0	.313	0	-2.511e-4	NC	NC
302			2	0	.36	0	-2.425e-4	3184.093	NC
303			3	0	.381	0	-2.339e-4	2270.126	NC
304			4	0	.368	0	-2.252e-4	3231.603	NC
305			5	0	.33	0	-2.166e-4	NC	NC
306	3	M62	1	0	.282	0	1.e-3	NC	NC
307			2	0	.328	0	1.053e-3	3085.044	NC
308			3	0	.348	0	1.105e-3	2196.488	NC
309			4	0	.332	0	1.158e-3	3115.576	NC
310			5	0	.291	0	1.21e-3	NC	NC
311	3	M63	1	0	.183	0	-1.425e-6	NC	NC
312			2	0	.219	0	-1.07e-6	3545.796	NC
313			3	0	.232	0	-7.14e-7	2528.025	NC
314			4	0	.214	0	-3.584e-7	3586.189	NC
315			5	0	.173	0	0	NC	NC
316	3	M64	1	.001	.271	0	-9.453e-4	NC	NC
317			2	.001	.311	0	-1.007e-3	3609.246	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
318			3	0	.328	0	-1.069e-3	2571.716	NC
319			4	0	.315	0	-1.131e-3	3651.106	NC
320			5	0	.28	0	-1.193e-3	NC	NC
321	3	M65	1	.001	.301	0	1.285e-4	NC	NC
322			2	.001	.343	0	1.022e-4	3649.403	NC
323			3	.001	.364	0	7.586e-5	2595.082	NC
324			4	0	.353	0	4.954e-5	3680.55	NC
325			5	0	.322	0	2.321e-5	NC	NC
326	3	M66	1	.001	.257	0	1.197e-3	NC	NC
327			2	0	.305	0	1.207e-3	3170.838	NC
328			3	0	.328	0	1.216e-3	2261.861	NC
329			4	0	.316	0	1.225e-3	3220.933	NC
330			5	0	.279	0	1.234e-3	NC	NC
331	3	M67	1	0	.153	0	-1.674e-6	NC	NC
332			2	0	.195	0	-1.257e-6	3545.796	NC
333			3	0	.214	0	-8.402e-7	2528.025	NC
334			4	0	.202	0	-4.233e-7	3586.189	NC
335			5	0	.168	0	0	NC	NC
336	3	M68	1	0	.196	0	-5.041e-4	NC	NC
337			2	0	.246	0	-6.015e-4	3592.224	NC
338			3	0	.274	0	-6.99e-4	2561.115	NC
339			4	0	.27	0	-7.965e-4	3637.492	NC
340			5	0	.245	0	-8.939e-4	NC	NC
341	3	M69	1	0	.212	0	1.883e-5	NC	NC
342			2	0	.259	0	1.933e-5	4229.651	NC
343			3	0	.288	0	1.984e-5	3011.359	NC
344			4	0	.29	0	2.034e-5	4266.168	NC
345			5	0	.273	0	2.085e-5	NC	NC
346	3	M70	1	0	.194	0	5.376e-4	NC	NC
347			2	0	.244	0	6.368e-4	3609.246	NC
348			3	0	.271	0	7.361e-4	2571.716	NC
349			4	0	.268	0	8.353e-4	3651.106	NC
350			5	0	.243	0	9.346e-4	NC	NC
351	3	M71	1	0	.149	0	-1.909e-6	NC	NC
352			2	0	.191	0	-1.434e-6	3545.796	NC
353			3	0	.21	0	-9.595e-7	2528.025	NC
354			4	0	.198	0	-4.846e-7	3586.189	NC
355			5	0	.164	0	0	NC	NC
356	3	M72	1	0	.232	0	-9.688e-4	NC	NC
357			2	0	.277	0	-9.963e-4	3545.796	NC
358			3	0	.298	0	-1.024e-3	2528.025	NC
359			4	0	.288	0	-1.051e-3	3586.189	NC
360			5	0	.257	0	-1.079e-3	NC	NC
361	3	M73	1	.001	.266	0	-4.42e-5	NC	NC
362			2	.001	.311	0	-4.062e-5	3545.796	NC
363			3	0	.333	0	-3.703e-5	2528.025	NC
364			4	0	.325	0	-3.345e-5	3586.189	NC
365			5	0	.294	0	-2.987e-5	NC	NC
366	3	M74	1	.001	.236	0	8.953e-4	NC	NC
367			2	.001	.28	0	9.304e-4	3545.796	NC
368			3	0	.301	0	9.655e-4	2528.025	NC
369			4	0	.291	0	1.001e-3	3586.189	NC
370			5	0	.259	0	1.036e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
371	3	M75	1	0	.159	0	-2.166e-6	NC	NC
372			2	0	.206	0	-1.627e-6	3134.608	NC
373			3	0	.226	0	-1.089e-6	2236.014	NC
374			4	0	.211	0	-5.513e-7	3180.642	NC
375			5	0	.171	0	0	NC	NC
376	3	M76	1	0	.238	0	-4.61e-4	NC	NC
377			2	0	.292	0	-6.073e-4	3491.794	NC
378			3	0	.323	0	-7.537e-4	2495.78	NC
379			4	0	.322	0	-9.e-4	3545.298	NC
380			5	0	.299	0	-1.046e-3	NC	NC
381	3	M77	1	0	.243	0	4.065e-4	NC	NC
382			2	0	.296	0	2.903e-4	4229.651	NC
383			3	0	.33	0	1.74e-4	3011.359	NC
384			4	0	.338	0	5.767e-5	4266.168	NC
385			5	0	.328	0	-5.862e-5	NC	NC
386	3	M78	1	0	.181	0	1.484e-3	NC	NC
387			2	0	.251	0	1.404e-3	3170.838	NC
388			3	0	.295	0	1.325e-3	2261.861	NC
389			4	0	.304	0	1.245e-3	3220.933	NC
390			5	0	.289	0	1.166e-3	NC	NC
391	3	M79	1	0	.06	0	9.51e-5	NC	NC
392			2	0	.135	0	7.178e-5	3085.044	NC
393			3	0	.183	0	4.846e-5	2196.488	NC
394			4	0	.196	0	2.514e-5	3115.576	NC
395			5	0	.183	0	1.822e-6	NC	NC
396	3	M80	1	0	.188	0	-1.434e-3	NC	NC
397			2	0	.259	0	-1.436e-3	3491.794	NC
398			3	0	.307	0	-1.438e-3	2495.78	NC
399			4	0	.323	0	-1.44e-3	3545.298	NC
400			5	0	.317	0	-1.443e-3	NC	NC
401	3	M81	1	0	.246	0	-1.505e-4	NC	NC
402			2	0	.319	0	-1.083e-4	3221.482	NC
403			3	0	.367	0	-6.61e-5	2296.773	NC
404			4	0	.381	0	-2.392e-5	3273.203	NC
405			5	0	.37	0	1.825e-5	NC	NC
406	3	M82	1	0	.208	0	1.15e-3	NC	NC
407			2	0	.278	0	1.238e-3	3085.044	NC
408			3	0	.323	0	1.326e-3	2196.488	NC
409			4	0	.331	0	1.413e-3	3115.576	NC
410			5	0	.315	0	1.501e-3	NC	NC
411	3	M83	1	0	.096	0	-1.134e-6	NC	NC
412			2	0	.155	0	-8.509e-7	3491.794	NC
413			3	0	.19	0	-5.676e-7	2495.78	NC
414			4	0	.194	0	-2.843e-7	3545.298	NC
415			5	0	.176	0	0	NC	NC
416	3	M84	1	0	.112	0	-1.186e-4	NC	NC
417			2	0	.159	0	-1.222e-4	5018.476	NC
418			3	0	.191	0	-1.257e-4	3583.079	NC
419			4	0	.2	0	-1.293e-4	5069.966	NC
420			5	0	.194	0	-1.328e-4	NC	NC
421	3	M85	1	0	.111	0	2.004e-4	NC	NC
422			2	0	.17	0	2.082e-4	3491.794	NC
423			3	0	.206	0	2.16e-4	2495.78	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
424			4	0	.21	0	2.239e-4	3545.298	NC
425			5	0	.192	0	2.317e-4	NC	NC
426	3	M86	1	0	.13	0	-2.751e-4	NC	NC
427			2	0	.258	0	-2.755e-4	1426.43	NC
428			3	0	.309	0	-2.759e-4	1015.628	NC
429			4	0	.258	0	-2.763e-4	1428.011	NC
430			5	0	.13	0	-2.767e-4	NC	NC
431	3	M87	1	0	.131	0	2.344e-4	NC	NC
432			2	0	.26	0	2.34e-4	1414.507	NC
433			3	0	.312	0	2.337e-4	1009.395	NC
434			4	0	.259	0	2.333e-4	1421.796	NC
435			5	0	.131	0	2.33e-4	NC	NC
436	3	M88	1	0	.1	0	0	NC	NC
437			2	0	.229	0	-1.415e-7	1414.507	NC
438			3	0	.281	0	-2.791e-7	1009.395	NC
439			4	0	.229	0	-4.166e-7	1421.796	NC
440			5	0	.1	0	-5.542e-7	NC	NC
441	3	M89	1	0	.199	0	-1.015e-3	NC	NC
442			2	0	.351	0	-1.131e-3	1258.435	NC
443			3	0	.417	0	-1.246e-3	895.608	NC
444			4	0	.366	0	-1.362e-3	1261.341	NC
445			5	0	.228	0	-1.477e-3	NC	NC
446	3	M90	1	0	.231	0	1.864e-4	NC	NC
447			2	0	.371	0	7.133e-5	1445.575	NC
448			3	0	.437	0	-4.372e-5	1026.168	NC
449			4	0	.401	0	-1.588e-4	1440.424	NC
450			5	0	.288	0	-2.738e-4	NC	NC
451	3	M91	1	0	.178	0	1.346e-3	NC	NC
452			2	0	.328	0	1.232e-3	1410.551	NC
453			3	0	.402	0	1.117e-3	1006.178	NC
454			4	0	.371	0	1.002e-3	1416.242	NC
455			5	0	.263	0	8.869e-4	NC	NC
456	3	M92	1	0	.059	0	0	NC	NC
457			2	0	.235	0	-2.992e-7	1239.758	NC
458			3	0	.323	0	-5.905e-7	883.481	NC
459			4	0	.292	0	-8.818e-7	1244.526	NC
460			5	0	.174	0	-1.173e-6	NC	NC
461	3	M93	1	0	.163	0	-1.397e-3	NC	NC
462			2	0	.298	0	-1.349e-3	1668.28	NC
463			3	0	.368	0	-1.301e-3	1190.12	NC
464			4	0	.35	0	-1.253e-3	1674.106	NC
465			5	0	.267	0	-1.205e-3	NC	NC
466	3	M94	1	0	.219	0	-4.437e-4	NC	NC
467			2	0	.39	0	-3.956e-4	1236.719	NC
468			3	0	.473	0	-3.474e-4	881.015	NC
469			4	0	.437	0	-2.993e-4	1240.269	NC
470			5	0	.313	0	-2.511e-4	NC	NC
471	3	M95	1	0	.202	0	8.124e-4	NC	NC
472			2	0	.366	0	8.593e-4	1262.818	NC
473			3	0	.445	0	9.063e-4	898.156	NC
474			4	0	.406	0	9.533e-4	1264.502	NC
475			5	0	.282	0	1.e-3	NC	NC
476	3	M96	1	.001	.114	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
477			2	.001	.261	0	-3.603e-7	1404.487	NC
478			3	0	.331	0	-7.152e-7	1000.06	NC
479			4	0	.296	0	-1.07e-6	1404.487	NC
480			5	0	.183	0	-1.425e-6	NC	NC
481	3	M97	1	.002	.22	0	-1.236e-3	NC	NC
482			2	.002	.362	0	-1.163e-3	1410.551	NC
483			3	.001	.426	0	-1.091e-3	1006.178	NC
484			4	.001	.387	0	-1.018e-3	1416.242	NC
485			5	.001	.271	0	-9.453e-4	NC	NC
486	3	M98	1	.002	.267	0	-1.617e-4	NC	NC
487			2	.002	.405	0	-8.913e-5	1414.507	NC
488			3	.002	.465	0	-1.658e-5	1009.395	NC
489			4	.001	.421	0	5.596e-5	1421.796	NC
490			5	.001	.301	0	1.285e-4	NC	NC
491	3	M99	1	.002	.24	0	9.109e-4	NC	NC
492			2	.001	.392	0	9.825e-4	1239.758	NC
493			3	.001	.455	0	1.054e-3	883.481	NC
494			4	.001	.399	0	1.126e-3	1244.526	NC
495			5	.001	.257	0	1.197e-3	NC	NC
496	3	M100	1	.001	.222	0	-7.677e-4	NC	NC
497			2	.001	.355	0	-8.18e-4	1404.487	NC
498			3	.001	.41	0	-8.683e-4	1000.06	NC
499			4	.001	.36	0	-9.186e-4	1404.487	NC
500			5	0	.232	0	-9.688e-4	NC	NC
501	3	M101	1	.002	.244	0	1.643e-4	NC	NC
502			2	.002	.38	0	1.122e-4	1404.487	NC
503			3	.001	.437	0	6.005e-5	1000.06	NC
504			4	.001	.39	0	7.922e-6	1404.487	NC
505			5	.001	.266	0	-4.42e-5	NC	NC
506	3	M102	1	.002	.202	0	1.11e-3	NC	NC
507			2	.002	.34	0	1.056e-3	1404.487	NC
508			3	.001	.401	0	1.003e-3	1000.06	NC
509			4	.001	.357	0	9.49e-4	1404.487	NC
510			5	.001	.236	0	8.953e-4	NC	NC
511	3	M103	1	.001	.113	0	0	NC	NC
512			2	.001	.273	0	-5.406e-7	1232.055	NC
513			3	.001	.344	0	-1.082e-6	876.321	NC
514			4	.001	.296	0	-1.624e-6	1231.244	NC
515			5	0	.159	0	-2.166e-6	NC	NC
516	3	M104	1	0	.231	0	-9.906e-4	NC	NC
517			2	0	.361	0	-8.582e-4	1428.011	NC
518			3	0	.414	0	-7.258e-4	1015.628	NC
519			4	0	.364	0	-5.934e-4	1426.43	NC
520			5	0	.238	0	-4.61e-4	NC	NC
521	3	M105	1	0	.26	0	-1.15e-4	NC	NC
522			2	0	.365	0	1.537e-5	1668.28	NC
523			3	0	.405	0	1.458e-4	1190.12	NC
524			4	0	.356	0	2.762e-4	1674.106	NC
525			5	0	.243	0	4.065e-4	NC	NC
526	3	M106	1	0	.23	0	9.718e-4	NC	NC
527			2	0	.363	0	1.1e-3	1252.008	NC
528			3	0	.41	0	1.228e-3	890.758	NC
529			4	0	.339	0	1.356e-3	1253.605	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
530			5	0	.181	0	1.484e-3	NC	NC
531	3	M107	1	0	.139	0	1.321e-7	NC	NC
532			2	0	.266	0	2.387e-5	1244.996	NC
533			3	0	.306	0	4.761e-5	885.76	NC
534			4	0	.226	0	7.136e-5	1245.824	NC
535			5	0	.06	0	9.51e-5	NC	NC
536	3	M108	1	0	.249	0	-1.138e-3	NC	NC
537			2	0	.362	0	-1.212e-3	1420.229	NC
538			3	0	.399	0	-1.286e-3	1009.395	NC
539			4	0	.332	0	-1.36e-3	1416.061	NC
540			5	0	.188	0	-1.434e-3	NC	NC
541	3	M109	1	0	.288	0	1.565e-4	NC	NC
542			2	0	.425	0	7.978e-5	1236.719	NC
543			3	0	.474	0	3.035e-6	881.015	NC
544			4	0	.403	0	-7.371e-5	1240.269	NC
545			5	0	.246	0	-1.505e-4	NC	NC
546	3	M110	1	0	.229	0	1.474e-3	NC	NC
547			2	0	.37	0	1.393e-3	1249.286	NC
548			3	0	.424	0	1.312e-3	888.252	NC
549			4	0	.359	0	1.231e-3	1248.908	NC
550			5	0	.208	0	1.15e-3	NC	NC
551	3	M111	1	0	.097	0	0	NC	NC
552			2	0	.225	0	-2.817e-7	1420.229	NC
553			3	0	.277	0	-5.659e-7	1009.395	NC
554			4	0	.225	0	-8.5e-7	1416.061	NC
555			5	0	.096	0	-1.134e-6	NC	NC
556	3	M112	1	0	.113	0	-1.164e-4	NC	NC
557			2	0	.201	0	-1.17e-4	2051.248	NC
558			3	0	.237	0	-1.175e-4	1462.565	NC
559			4	0	.201	0	-1.181e-4	2054.518	NC
560			5	0	.112	0	-1.186e-4	NC	NC
561	3	M113	1	0	.111	0	2.072e-4	NC	NC
562			2	0	.241	0	2.055e-4	1404.487	NC
563			3	0	.293	0	2.038e-4	1000.06	NC
564			4	0	.241	0	2.021e-4	1404.487	NC
565			5	0	.111	0	2.004e-4	NC	NC
566	3	M114	1	0	.213	0	-3.806e-4	NC	NC
567			2	0	.231	0	-3.542e-4	3497.856	NC
568			3	0	.226	0	-3.279e-4	2472.939	NC
569			4	0	.19	0	-3.015e-4	3480.407	NC
570			5	0	.13	0	-2.751e-4	NC	NC
571	3	M115	1	0	.219	0	1.697e-4	NC	NC
572			2	0	.236	0	1.859e-4	3503.111	NC
573			3	0	.23	0	2.021e-4	2472.939	NC
574			4	0	.192	0	2.182e-4	3475.22	NC
575			5	0	.131	0	2.344e-4	NC	NC
576	3	M116	1	0	.191	0	2.812e-7	NC	NC
577			2	0	.207	0	2.099e-7	3503.111	NC
578			3	0	.2	0	1.386e-7	2472.939	NC
579			4	0	.162	0	6.734e-8	3475.22	NC
580			5	0	.1	0	0	NC	NC
581	3	M117	1	0	.296	0	-1.06e-3	NC	NC
582			2	0	.314	0	-1.049e-3	3175.836	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
583			3	0	.308	0	-1.038e-3	2232.202	NC
584			4	0	.267	0	-1.026e-3	3132.907	NC
585			5	0	.199	0	-1.015e-3	NC	NC
586	3	M118	1	0	.327	0	2.422e-4	NC	NC
587			2	0	.342	0	2.282e-4	3523.996	NC
588			3	0	.333	0	2.143e-4	2493.66	NC
589			4	0	.293	0	2.003e-4	3515.118	NC
590			5	0	.231	0	1.864e-4	NC	NC
591	3	M119	1	0	.267	0	1.497e-3	NC	NC
592			2	0	.284	0	1.459e-3	3464.082	NC
593			3	0	.278	0	1.422e-3	2442.075	NC
594			4	0	.24	0	1.384e-3	3423.33	NC
595			5	0	.178	0	1.346e-3	NC	NC
596	3	M120	1	0	.137	0	2.947e-7	NC	NC
597			2	0	.162	0	2.19e-7	3052.681	NC
598			3	0	.161	0	1.434e-7	2154.783	NC
599			4	0	.123	0	6.775e-8	3031.48	NC
600			5	0	.059	0	0	NC	NC
601	3	M121	1	0	.231	0	-1.193e-3	NC	NC
602			2	0	.247	0	-1.244e-3	4109.473	NC
603			3	0	.244	0	-1.295e-3	2901.322	NC
604			4	0	.213	0	-1.346e-3	4071.144	NC
605			5	0	.163	0	-1.397e-3	NC	NC
606	3	M122	1	0	.275	0	-1.571e-4	NC	NC
607			2	0	.304	0	-2.287e-4	3133.757	NC
608			3	0	.309	0	-3.004e-4	2207.024	NC
609			4	0	.277	0	-3.721e-4	3100.369	NC
610			5	0	.219	0	-4.437e-4	NC	NC
611	3	M123	1	0	.234	0	1.208e-3	NC	NC
612			2	0	.268	0	1.109e-3	3208.609	NC
613			3	0	.278	0	1.01e-3	2257.961	NC
614			4	0	.252	0	9.112e-4	3176.31	NC
615			5	0	.202	0	8.124e-4	NC	NC
616	3	M124	1	.001	.119	0	2.233e-7	NC	NC
617			2	.001	.156	0	1.661e-7	3523.996	NC
618			3	.001	.171	0	1.09e-7	2493.66	NC
619			4	.001	.154	0	5.184e-8	3515.118	NC
620			5	.001	.114	0	0	NC	NC
621	3	M125	1	.002	.193	0	-7.637e-4	NC	NC
622			2	.002	.239	0	-8.818e-4	3464.082	NC
623			3	.002	.262	0	-9.999e-4	2442.075	NC
624			4	.002	.253	0	-1.118e-3	3423.33	NC
625			5	.002	.22	0	-1.236e-3	NC	NC
626	3	M126	1	.002	.214	0	2.183e-4	NC	NC
627			2	.002	.266	0	1.233e-4	3503.111	NC
628			3	.002	.296	0	2.832e-5	2472.939	NC
629			4	.002	.293	0	-6.668e-5	3475.22	NC
630			5	.002	.267	0	-1.617e-4	NC	NC
631	3	M127	1	.002	.168	0	1.164e-3	NC	NC
632			2	.002	.231	0	1.1e-3	3052.681	NC
633			3	.002	.267	0	1.037e-3	2154.783	NC
634			4	.002	.267	0	9.741e-4	3031.48	NC
635			5	.002	.24	0	9.109e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
636	3	M128	1	.002	.149	0	-1.054e-3	NC	NC
637			2	.002	.206	0	-9.827e-4	3543.029	NC
638			3	.002	.24	0	-9.111e-4	2504.593	NC
639			4	.001	.242	0	-8.394e-4	3528.708	NC
640			5	.001	.222	0	-7.677e-4	NC	NC
641	3	M129	1	.002	.191	0	-2.389e-4	NC	NC
642			2	.002	.243	0	-1.381e-4	3523.996	NC
643			3	.002	.272	0	-3.728e-5	2493.66	NC
644			4	.002	.269	0	6.351e-5	3515.118	NC
645			5	.002	.244	0	1.643e-4	NC	NC
646	3	M130	1	.002	.176	0	6.165e-4	NC	NC
647			2	.002	.221	0	7.398e-4	3523.996	NC
648			3	.002	.243	0	8.632e-4	2493.66	NC
649			4	.002	.234	0	9.866e-4	3515.118	NC
650			5	.002	.202	0	1.11e-3	NC	NC
651	3	M131	1	.002	.117	0	-2.658e-7	NC	NC
652			2	.002	.158	0	-1.991e-7	3182.709	NC
653			3	.002	.175	0	-1.323e-7	2249.071	NC
654			4	.001	.157	0	-6.562e-8	3175.466	NC
655			5	.001	.113	0	0	NC	NC
656	3	M132	1	0	.251	0	-1.166e-3	NC	NC
657			2	0	.283	0	-1.123e-3	3644.774	NC
658			3	0	.294	0	-1.079e-3	2566.675	NC
659			4	0	.274	0	-1.035e-3	3606.99	NC
660			5	0	.231	0	-9.906e-4	NC	NC
661	3	M133	1	0	.287	0	-2.226e-4	NC	NC
662			2	0	.313	0	-1.957e-4	4109.473	NC
663			3	0	.32	0	-1.688e-4	2901.322	NC
664			4	0	.3	0	-1.419e-4	4071.144	NC
665			5	0	.26	0	-1.15e-4	NC	NC
666	3	M134	1	0	.26	0	9.478e-4	NC	NC
667			2	0	.297	0	9.538e-4	3052.681	NC
668			3	0	.308	0	9.598e-4	2154.783	NC
669			4	0	.282	0	9.658e-4	3031.48	NC
670			5	0	.23	0	9.718e-4	NC	NC
671	3	M135	1	0	.168	0	-2.962e-7	NC	NC
672			2	0	.205	0	-1.891e-7	3110.964	NC
673			3	0	.216	0	-8.204e-8	2192.81	NC
674			4	0	.191	0	0	3083.396	NC
675			5	0	.139	0	1.321e-7	NC	NC
676	3	M136	1	0	.299	0	-1.425e-3	NC	NC
677			2	0	.325	0	-1.353e-3	3579.007	NC
678			3	0	.328	0	-1.282e-3	2525.85	NC
679			4	0	.3	0	-1.21e-3	3555.312	NC
680			5	0	.249	0	-1.138e-3	NC	NC
681	3	M137	1	0	.353	0	-2.786e-5	NC	NC
682			2	0	.381	0	1.824e-5	3070.576	NC
683			3	0	.383	0	6.433e-5	2168.508	NC
684			4	0	.348	0	1.104e-4	3051.873	NC
685			5	0	.288	0	1.565e-4	NC	NC
686	3	M138	1	0	.303	0	1.39e-3	NC	NC
687			2	0	.328	0	1.411e-3	3110.964	NC
688			3	0	.328	0	1.432e-3	2192.81	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
689			4	0	.292	0	1.453e-3	3083.396	NC
690			5	0	.229	0	1.474e-3	NC	NC
691	3	M139	1	0	.173	0	-2.349e-7	NC	NC
692			2	0	.192	0	-1.756e-7	3523.996	NC
693			3	0	.189	0	-1.163e-7	2493.66	NC
694			4	0	.154	0	-5.69e-8	3515.118	NC
695			5	0	.097	0	0	NC	NC
696	3	M140	1	0	.188	0	-9.545e-5	NC	NC
697			2	0	.197	0	-1.007e-4	4969.689	NC
698			3	0	.189	0	-1.059e-4	3509.217	NC
699			4	0	.159	0	-1.112e-4	4913.744	NC
700			5	0	.113	0	-1.164e-4	NC	NC
701	3	M141	1	0	.185	0	2.523e-4	NC	NC
702			2	0	.205	0	2.41e-4	3523.996	NC
703			3	0	.203	0	2.298e-4	2493.66	NC
704			4	0	.168	0	2.185e-4	3515.118	NC
705			5	0	.111	0	2.072e-4	NC	NC
706	3	M142	1	0	.199	-.001	-6.178e-4	NC	NC
707			2	0	.436	0	-5.585e-4	910.243	NC
708			3	0	.535	0	-4.992e-4	646.202	NC
709			4	0	.444	0	-4.399e-4	905.849	NC
710			5	0	.213	0	-3.806e-4	NC	NC
711	3	M143	1	0	.214	-.001	5.128e-5	NC	NC
712			2	0	.447	0	8.089e-5	917.277	NC
713			3	0	.543	0	1.105e-4	651.334	NC
714			4	0	.45	0	1.401e-4	913.693	NC
715			5	0	.219	0	1.697e-4	NC	NC
716	3	M144	1	0	.189	-.001	-1.383e-5	NC	NC
717			2	0	.421	-.001	-1.03e-5	917.277	NC
718			3	0	.516	0	-6.775e-6	651.334	NC
719			4	0	.423	0	-3.247e-6	913.693	NC
720			5	0	.191	0	2.812e-7	NC	NC
721	3	M145	1	0	.326	-.002	-1.454e-3	NC	NC
722			2	0	.589	-.001	-1.356e-3	786.58	NC
723			3	0	.692	0	-1.257e-3	557.936	NC
724			4	0	.575	0	-1.159e-3	782.208	NC
725			5	0	.296	0	-1.06e-3	NC	NC
726	3	M146	1	0	.375	-.002	1.224e-4	NC	NC
727			2	0	.597	-.001	1.524e-4	907.155	NC
728			3	0	.681	0	1.823e-4	644.413	NC
729			4	0	.574	0	2.123e-4	903.649	NC
730			5	0	.327	0	2.422e-4	NC	NC
731	3	M147	1	0	.313	-.002	1.64e-3	NC	NC
732			2	0	.536	-.001	1.605e-3	904.088	NC
733			3	0	.62	0	1.569e-3	642.634	NC
734			4	0	.514	0	1.533e-3	901.459	NC
735			5	0	.267	0	1.497e-3	NC	NC
736	3	M148	1	0	.165	-.002	-1.792e-5	NC	NC
737			2	0	.423	-.001	-1.337e-5	801.463	NC
738			3	0	.524	0	-8.813e-6	569.046	NC
739			4	0	.41	0	-4.259e-6	798.725	NC
740			5	0	.137	0	2.947e-7	NC	NC
741	3	M149	1	0	.256	-.002	-9.839e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
742			2	0	.448	-.001	-1.036e-3	1075.315	NC
743			3	0	.522	0	-1.089e-3	763.941	NC
744			4	0	.436	0	-1.141e-3	1071.599	NC
745			5	0	.231	0	-1.193e-3	NC	NC
746	3	M150	1	0	.283	-.002	3.356e-4	NC	NC
747			2	0	.55	-.002	2.124e-4	791.375	NC
748			3	0	.657	-.001	8.926e-5	562.395	NC
749			4	0	.546	0	-3.391e-5	789.361	NC
750			5	0	.275	0	-1.571e-4	NC	NC
751	3	M151	1	0	.195	-.002	2.126e-3	NC	NC
752			2	0	.475	-.002	1.896e-3	786.58	NC
753			3	0	.595	-.001	1.667e-3	557.936	NC
754			4	0	.496	0	1.437e-3	782.208	NC
755			5	0	.234	0	1.208e-3	NC	NC
756	3	M152	1	.002	.007	-.002	-6.936e-6	NC	NC
757			2	.002	.305	-.002	-5.147e-6	786.997	NC
758			3	.002	.434	-.001	-3.357e-6	573.041	NC
759			4	.002	.351	0	-1.567e-6	814.608	NC
760			5	.001	.119	0	2.233e-7	NC	NC
761	3	M153	1	.003	.008	-.002	-1.02e-5	NC	NC
762			2	.003	.175	-.002	-1.986e-4	1424.804	NC
763			3	.002	.265	-.001	-3.869e-4	1046.975	NC
764			4	.002	.261	0	-5.753e-4	1504.309	NC
765			5	.002	.193	0	-7.637e-4	NC	NC
766	3	M154	1	.003	.01	-.002	5.187e-5	NC	NC
767			2	.003	.115	-.001	9.348e-5	2619.667	NC
768			3	.003	.186	0	1.351e-4	1924.066	NC
769			4	.003	.214	0	1.767e-4	2761.527	NC
770			5	.002	.214	0	2.183e-4	NC	NC
771	3	M155	1	.002	.012	-.001	1.515e-5	NC	NC
772			2	.002	.074	0	3.023e-4	4985.923	NC
773			3	.002	.121	0	5.894e-4	3642.193	NC
774			4	.002	.151	0	8.765e-4	5217.66	NC
775			5	.002	.168	0	1.164e-3	NC	NC
776	3	M156	1	.002	.011	.001	-2.035e-5	NC	NC
777			2	.002	.066	0	-2.789e-4	5606.976	NC
778			3	.002	.108	0	-5.374e-4	4086.338	NC
779			4	.002	.134	0	-7.959e-4	5834.541	NC
780			5	.002	.149	0	-1.054e-3	NC	NC
781	3	M157	1	.003	.01	.002	-4.474e-5	NC	NC
782			2	.003	.109	.002	-9.327e-5	2625.372	NC
783			3	.002	.174	.001	-1.418e-4	1918.156	NC
784			4	.002	.197	0	-1.903e-4	2738.3	NC
785			5	.002	.191	0	-2.389e-4	NC	NC
786	3	M158	1	.003	.008	.003	7.212e-6	NC	NC
787			2	.003	.169	.002	1.595e-4	1444.908	NC
788			3	.002	.254	.001	3.118e-4	1059.413	NC
789			4	.002	.247	0	4.641e-4	1520.36	NC
790			5	.002	.176	0	6.165e-4	NC	NC
791	3	M159	1	.002	.007	.003	2.318e-6	NC	NC
792			2	.002	.338	.002	1.672e-6	700.188	NC
793			3	.002	.48	.001	1.026e-6	508.365	NC
794			4	.002	.384	0	3.803e-7	721.96	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
795			5	.002	.117	0	-2.658e-7	NC	NC
796	3	M160	1	0	.229	.003	-2.107e-3	NC	NC
797			2	0	.466	.002	-1.872e-3	916.829	NC
798			3	0	.566	.001	-1.637e-3	651.48	NC
799			4	0	.478	0	-1.402e-3	914.716	NC
800			5	0	.251	0	-1.166e-3	NC	NC
801	3	M161	1	0	.301	.003	-8.493e-4	NC	NC
802			2	0	.494	.002	-6.926e-4	1079.657	NC
803			3	0	.571	.001	-5.36e-4	766.455	NC
804			4	0	.488	0	-3.793e-4	1074.695	NC
805			5	0	.287	0	-2.226e-4	NC	NC
806	3	M162	1	0	.299	.002	6.643e-4	NC	NC
807			2	0	.554	.002	7.352e-4	801.463	NC
808			3	0	.653	.001	8.061e-4	569.046	NC
809			4	0	.536	0	8.769e-4	798.725	NC
810			5	0	.26	0	9.478e-4	NC	NC
811	3	M163	1	0	.215	.002	9.857e-6	NC	NC
812			2	0	.473	.002	7.319e-6	786.58	NC
813			3	0	.572	.001	4.78e-6	557.936	NC
814			4	0	.452	0	2.242e-6	782.208	NC
815			5	0	.168	0	-2.962e-7	NC	NC
816	3	M164	1	0	.363	.002	-1.553e-3	NC	NC
817			2	0	.581	.002	-1.521e-3	907.155	NC
818			3	0	.661	.001	-1.489e-3	644.413	NC
819			4	0	.55	0	-1.457e-3	903.649	NC
820			5	0	.299	0	-1.425e-3	NC	NC
821	3	M165	1	0	.417	.002	1.435e-4	NC	NC
822			2	0	.666	.002	1.007e-4	803.193	NC
823			3	0	.758	.001	5.782e-5	570.441	NC
824			4	0	.634	0	1.498e-5	801.118	NC
825			5	0	.353	0	-2.786e-5	NC	NC
826	3	M166	1	0	.345	.002	1.868e-3	NC	NC
827			2	0	.604	.001	1.749e-3	786.58	NC
828			3	0	.705	0	1.629e-3	557.936	NC
829			4	0	.585	0	1.51e-3	782.208	NC
830			5	0	.303	0	1.39e-3	NC	NC
831	3	M167	1	0	.175	.002	7.516e-6	NC	NC
832			2	0	.409	.001	5.578e-6	907.155	NC
833			3	0	.504	0	3.641e-6	644.413	NC
834			4	0	.409	0	1.703e-6	903.649	NC
835			5	0	.173	0	-2.349e-7	NC	NC
836	3	M168	1	0	.185	.002	7.574e-5	NC	NC
837			2	0	.346	.001	3.294e-5	1322.421	NC
838			3	0	.413	0	-9.856e-6	939.685	NC
839			4	0	.349	0	-5.265e-5	1316.237	NC
840			5	0	.188	0	-9.545e-5	NC	NC
841	3	M169	1	0	.172	.002	4.957e-4	NC	NC
842			2	0	.409	.001	4.349e-4	907.155	NC
843			3	0	.508	0	3.74e-4	644.413	NC
844			4	0	.417	0	3.131e-4	903.649	NC
845			5	0	.185	0	2.523e-4	NC	NC
846	3	M170	1	0	0	0	-6.178e-4	NC	NC
847			2	0	.281	0	-6.178e-4	911.665	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
848			3	0	.424	0	-6.178e-4	651.164	NC
849			4	0	.379	0	-6.178e-4	917.458	NC
850			5	0	.199	-.001	-6.178e-4	NC	NC
851	3	M171	1	0	0	0	5.128e-5	NC	NC
852			2	0	.285	0	5.128e-5	911.665	NC
853			3	0	.432	0	5.128e-5	651.164	NC
854			4	0	.391	0	5.128e-5	917.458	NC
855			5	0	.214	-.001	5.128e-5	NC	NC
856	3	M172	1	0	0	0	-1.383e-5	NC	NC
857			2	0	.28	0	-1.383e-5	905.227	NC
858			3	0	.421	0	-1.383e-5	645.949	NC
859			4	0	.374	-.001	-1.383e-5	908.637	NC
860			5	0	.189	-.001	-1.383e-5	NC	NC
861	3	M173	1	0	0	0	-1.454e-3	NC	NC
862			2	0	.349	0	-1.454e-3	790.441	NC
863			3	0	.537	0	-1.454e-3	564.767	NC
864			4	0	.51	-.001	-1.454e-3	796.769	NC
865			5	0	.326	-.002	-1.454e-3	NC	NC
866	3	M174	1	0	0	0	1.224e-4	NC	NC
867			2	0	.326	0	1.224e-4	909.462	NC
868			3	0	.513	0	1.224e-4	649.369	NC
869			4	0	.512	-.001	1.224e-4	914.356	NC
870			5	0	.375	-.002	1.224e-4	NC	NC
871	3	M175	1	0	0	0	1.64e-3	NC	NC
872			2	0	.312	0	1.64e-3	905.227	NC
873			3	0	.483	0	1.64e-3	645.949	NC
874			4	0	.467	-.001	1.64e-3	908.637	NC
875			5	0	.313	-.002	1.64e-3	NC	NC
876	3	M176	1	0	0	0	-1.792e-5	NC	NC
877			2	0	.31	0	-1.792e-5	785.52	NC
878			3	0	.459	0	-1.792e-5	561.531	NC
879			4	0	.391	-.001	-1.792e-5	791.768	NC
880			5	0	.165	-.002	-1.792e-5	NC	NC
881	3	M177	1	0	0	0	-9.839e-4	NC	NC
882			2	0	.26	0	-9.839e-4	1076.951	NC
883			3	0	.403	0	-9.839e-4	767.475	NC
884			4	0	.388	-.001	-9.839e-4	1078.143	NC
885			5	0	.256	-.002	-9.839e-4	NC	NC
886	3	M178	1	0	0	0	3.356e-4	NC	NC
887			2	0	.341	0	3.356e-4	780.735	NC
888			3	0	.52	-.001	3.356e-4	557.649	NC
889			4	0	.482	-.002	3.356e-4	785.19	NC
890			5	0	.283	-.002	3.356e-4	NC	NC
891	3	M179	1	0	.005	0	3.795e-4	NC	NC
892			2	0	.499	0	8.161e-4	473.414	NC
893			3	0	.721	0	1.253e-3	340.192	NC
894			4	0	.582	-.001	1.689e-3	485.641	NC
895			5	0	.195	-.002	2.126e-3	NC	NC
896	3	M180	1	0	.004	0	-4.08e-4	NC	NC
897			2	0	.477	0	-8.328e-4	507.139	NC
898			3	0	.695	0	-1.258e-3	364.871	NC
899			4	0	.577	.002	-1.683e-3	521.669	NC
900			5	0	.229	.003	-2.107e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
901	3	M181	1	0	0	0	-1.34e-4	NC	NC
902			2	0	.271	0	-3.128e-4	1076.951	NC
903			3	0	.426	.001	-4.916e-4	767.475	NC
904			4	0	.422	.002	-6.705e-4	1078.143	NC
905			5	0	.301	.003	-8.493e-4	NC	NC
906	3	M182	1	0	0	0	7.493e-4	NC	NC
907			2	0	.344	0	7.281e-4	785.52	NC
908			3	0	.526	.001	7.068e-4	561.531	NC
909			4	0	.491	.002	6.856e-4	791.768	NC
910			5	0	.299	.002	6.643e-4	NC	NC
911	3	M183	1	0	0	0	9.857e-6	NC	NC
912			2	0	.322	0	9.857e-6	788.784	NC
913			3	0	.482	.001	9.857e-6	563.415	NC
914			4	0	.427	.002	9.857e-6	794.428	NC
915			5	0	.215	.002	9.857e-6	NC	NC
916	3	M184	1	0	0	0	-1.412e-3	NC	NC
917			2	0	.323	0	-1.448e-3	909.462	NC
918			3	0	.507	.001	-1.483e-3	649.369	NC
919			4	0	.503	.002	-1.518e-3	914.356	NC
920			5	0	.363	.002	-1.553e-3	NC	NC
921	3	M185	1	0	0	0	-1.348e-4	NC	NC
922			2	0	.375	0	-6.522e-5	780.735	NC
923			3	0	.587	.001	4.354e-6	557.649	NC
924			4	0	.582	.002	7.393e-5	785.19	NC
925			5	0	.417	.002	1.435e-4	NC	NC
926	3	M186	1	0	0	0	1.325e-3	NC	NC
927			2	0	.354	0	1.461e-3	788.784	NC
928			3	0	.547	0	1.597e-3	563.415	NC
929			4	0	.524	.001	1.732e-3	794.428	NC
930			5	0	.345	.002	1.868e-3	NC	NC
931	3	M187	1	0	0	0	4.718e-6	NC	NC
932			2	0	.276	0	5.418e-6	909.462	NC
933			3	0	.413	0	6.117e-6	649.369	NC
934			4	0	.362	.001	6.817e-6	914.356	NC
935			5	0	.175	.002	7.516e-6	NC	NC
936	3	M188	1	0	0	0	-6.966e-5	NC	NC
937			2	0	.205	0	-3.331e-5	1333.573	NC
938			3	0	.314	0	3.04e-6	951.115	NC
939			4	0	.297	.001	3.939e-5	1336.647	NC
940			5	0	.185	.002	7.574e-5	NC	NC
941	3	M189	1	0	0	0	3.429e-4	NC	NC
942			2	0	.275	0	3.811e-4	909.462	NC
943			3	0	.411	0	4.193e-4	649.369	NC
944			4	0	.36	.001	4.575e-4	914.356	NC
945			5	0	.172	.002	4.957e-4	NC	NC
946	3	M190	1	0	0	0	-6.178e-4	NC	NC
947			2	0	.292	0	-6.178e-4	481.203	NC
948			3	0	.346	0	-6.178e-4	405.212	NC
949			4	0	.223	0	-6.178e-4	630.978	NC
950			5	0	0	0	-6.178e-4	NC	NC
951	3	M191	1	0	0	0	5.128e-5	NC	NC
952			2	0	.095	0	5.128e-5	1475.798	NC
953			3	0	.121	0	5.128e-5	1163.425	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
954			4	0	.081	0	5.128e-5	1729.208	NC
955			5	0	0	0	5.128e-5	NC	NC
956	3	M192	1	0	0	0	-1.383e-5	NC	NC
957			2	0	.089	0	-1.383e-5	1570.49	NC
958			3	0	.114	0	-1.383e-5	1230.596	NC
959			4	0	.077	0	-1.383e-5	1821.703	NC
960			5	0	0	0	-1.383e-5	NC	NC
961	3	M193	1	0	0	0	-1.454e-3	NC	NC
962			2	0	.098	0	-1.454e-3	1436.575	NC
963			3	0	.126	0	-1.454e-3	1117.21	NC
964			4	0	.085	0	-1.454e-3	1646.433	NC
965			5	0	0	0	-1.454e-3	NC	NC
966	3	M194	1	0	0	0	1.224e-4	NC	NC
967			2	0	.078	0	1.224e-4	1801.695	NC
968			3	0	.101	0	1.224e-4	1391.246	NC
969			4	0	.069	0	1.224e-4	2039.933	NC
970			5	0	0	0	1.224e-4	NC	NC
971	3	M195	1	0	0	0	1.64e-3	NC	NC
972			2	0	.072	0	1.64e-3	1938.692	NC
973			3	0	.095	0	1.64e-3	1484.252	NC
974			4	0	.065	0	1.64e-3	2164.389	NC
975			5	0	0	0	1.64e-3	NC	NC
976	3	M196	1	0	0	0	-1.792e-5	NC	NC
977			2	0	.077	0	-1.792e-5	1828.842	NC
978			3	0	.101	0	-1.792e-5	1386.314	NC
979			4	0	.07	0	-1.792e-5	2007.776	NC
980			5	0	0	0	-1.792e-5	NC	NC
981	3	M197	1	0	0	0	-9.839e-4	NC	NC
982			2	0	.052	0	-9.839e-4	2711.498	NC
983			3	0	.069	0	-9.839e-4	2028.812	NC
984			4	0	.048	0	-9.839e-4	2918.893	NC
985			5	0	0	0	-9.839e-4	NC	NC
986	3	M198	1	0	0	0	3.356e-4	NC	NC
987			2	0	.064	0	3.356e-4	2188.604	NC
988			3	0	.087	0	3.356e-4	1617.809	NC
989			4	0	.061	0	3.356e-4	2306.984	NC
990			5	0	0	0	3.356e-4	NC	NC
991	3	M199	1	0	0	0	3.795e-4	NC	NC
992			2	0	.051	0	3.795e-4	2824.666	NC
993			3	0	.071	0	3.795e-4	2049.393	NC
994			4	0	.052	0	3.795e-4	2892.27	NC
995			5	0	.005	0	3.795e-4	NC	NC
996	3	M200	1	0	0	0	-9.732e-3	NC	NC
997			2	0	.038	0	-9.732e-3	3671.329	NC
998			3	0	.054	0	-9.732e-3	2616.599	NC
999			4	0	.038	0	-9.732e-3	3658.978	NC
1000			5	0	0	0	-9.732e-3	NC	NC
1001	3	M201	1	0	0	0	-6.329e-3	NC	NC
1002			2	0	.045	0	-6.329e-3	3127.878	NC
1003			3	0	.063	0	-6.329e-3	2229.46	NC
1004			4	0	.045	0	-6.329e-3	3114.443	NC
1005			5	0	0	0	-6.329e-3	NC	NC
1006	3	M202	1	0	0	0	6.161e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1007			2	0	.045	0	1.056e-3	3151.03	NC
1008			3	0	.062	0	1.496e-3	2248.273	NC
1009			4	0	.045	0	1.936e-3	3146.472	NC
1010			5	0	0	0	2.377e-3	NC	NC
1011	3	M203	1	0	0	0	4.009e-3	NC	NC
1012			2	0	.052	0	4.009e-3	2724.572	NC
1013			3	0	.072	0	4.009e-3	1942.114	NC
1014			4	0	.052	0	4.009e-3	2710.989	NC
1015			5	0	0	0	4.009e-3	NC	NC
1016	3	M204	1	0	0	0	7.771e-3	NC	NC
1017			2	0	.053	0	7.771e-3	2661.038	NC
1018			3	0	.074	0	7.771e-3	1896.602	NC
1019			4	0	.053	0	7.771e-3	2651.307	NC
1020			5	0	0	0	7.771e-3	NC	NC
1021	3	M205	1	0	0	0	-1.276e-6	NC	NC
1022			2	0	.045	0	-1.276e-6	3127.878	NC
1023			3	0	.063	0	-1.276e-6	2229.46	NC
1024			4	0	.045	0	-1.276e-6	3114.443	NC
1025			5	0	0	0	-1.276e-6	NC	NC
1026	3	M206	1	0	0	0	3.525e-5	NC	NC
1027			2	0	.091	0	2.638e-5	2389.944	NC
1028			3	0	.147	0	1.751e-5	1706.147	NC
1029			4	0	.155	0	8.638e-6	2389.944	NC
1030			5	0	.129	0	-2.334e-7	NC	NC
1031	3	M207	1	0	0	0	1.042e-6	NC	NC
1032			2	0	.052	0	1.042e-6	2724.572	NC
1033			3	0	.072	0	1.042e-6	1942.114	NC
1034			4	0	.052	0	1.042e-6	2710.989	NC
1035			5	0	0	0	1.042e-6	NC	NC
1036	3	M208	1	0	0	0	-6.432e-3	NC	NC
1037			2	0	.045	0	-6.432e-3	3127.878	NC
1038			3	0	.063	0	-6.432e-3	2229.46	NC
1039			4	0	.045	0	-6.432e-3	3114.443	NC
1040			5	0	0	0	-6.432e-3	NC	NC
1041	3	M209	1	0	0	0	-3.183e-3	NC	NC
1042			2	0	.053	0	-3.183e-3	2661.038	NC
1043			3	0	.074	0	-3.183e-3	1896.602	NC
1044			4	0	.053	0	-3.183e-3	2651.307	NC
1045			5	0	0	0	-3.183e-3	NC	NC
1046	3	M210	1	0	0	0	-7.856e-4	NC	NC
1047			2	0	.045	0	-1.125e-3	3139.411	NC
1048			3	0	.063	0	-1.465e-3	2238.827	NC
1049			4	0	.045	0	-1.805e-3	3130.375	NC
1050			5	0	0	0	-2.145e-3	NC	NC
1051	3	M211	1	0	0	0	4.718e-3	NC	NC
1052			2	0	.037	0	4.718e-3	3793.37	NC
1053			3	0	.052	0	4.718e-3	2704.021	NC
1054			4	0	.037	0	4.718e-3	3773.627	NC
1055			5	0	0	0	4.718e-3	NC	NC
1056	3	M212	1	0	0	0	7.033e-3	NC	NC
1057			2	0	.038	0	7.033e-3	3671.329	NC
1058			3	0	.054	0	7.033e-3	2616.599	NC
1059			4	0	.038	0	7.033e-3	3658.978	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1060			5	0	0	0	7.033e-3	NC	NC
1061	3	M213	1	0	0	0	-2.473e-4	NC	NC
1062			2	0	.038	0	-2.875e-4	3793.37	NC
1063			3	0	.054	0	-3.276e-4	2704.021	NC
1064			4	0	.041	0	-3.678e-4	3773.627	NC
1065			5	0	.004	0	-4.08e-4	NC	NC
1066	3	M214	1	0	0	0	3.416e-4	NC	NC
1067			2	0	.038	0	2.227e-4	3671.329	NC
1068			3	0	.054	0	1.038e-4	2616.599	NC
1069			4	0	.038	0	-1.507e-5	3658.978	NC
1070			5	0	0	0	-1.34e-4	NC	NC
1071	3	M215	1	0	0	0	8.058e-4	NC	NC
1072			2	0	.052	0	7.917e-4	2724.572	NC
1073			3	0	.072	0	7.776e-4	1942.114	NC
1074			4	0	.052	0	7.634e-4	2710.989	NC
1075			5	0	0	0	7.493e-4	NC	NC
1076	3	M216	1	0	0	0	9.857e-6	NC	NC
1077			2	0	.057	0	9.857e-6	2467.861	NC
1078			3	0	.079	0	9.857e-6	1782.408	NC
1079			4	0	.056	0	9.857e-6	2510.586	NC
1080			5	0	0	0	9.857e-6	NC	NC
1081	3	M217	1	0	0	0	-1.319e-3	NC	NC
1082			2	0	.045	0	-1.342e-3	3127.878	NC
1083			3	0	.063	0	-1.366e-3	2229.46	NC
1084			4	0	.045	0	-1.389e-3	3114.443	NC
1085			5	0	0	0	-1.412e-3	NC	NC
1086	3	M218	1	0	0	0	-3.198e-4	NC	NC
1087			2	0	.052	0	-2.735e-4	2724.572	NC
1088			3	0	.072	0	-2.273e-4	1942.114	NC
1089			4	0	.052	0	-1.81e-4	2710.989	NC
1090			5	0	0	0	-1.348e-4	NC	NC
1091	3	M219	1	0	0	0	9.635e-4	NC	NC
1092			2	0	.053	0	1.054e-3	2661.038	NC
1093			3	0	.074	0	1.144e-3	1896.602	NC
1094			4	0	.053	0	1.234e-3	2651.307	NC
1095			5	0	0	0	1.325e-3	NC	NC
1096	3	M220	1	0	0	0	2.858e-6	NC	NC
1097			2	0	.045	0	3.323e-6	3127.878	NC
1098			3	0	.063	0	3.788e-6	2229.46	NC
1099			4	0	.045	0	4.253e-6	3114.443	NC
1100			5	0	0	0	4.718e-6	NC	NC
1101	3	M221	1	0	0	0	-1.663e-4	NC	NC
1102			2	0	.03	0	-1.421e-4	4623.353	NC
1103			3	0	.043	0	-1.18e-4	3295.372	NC
1104			4	0	.03	0	-9.382e-5	4603.783	NC
1105			5	0	0	0	-6.966e-5	NC	NC
1106	3	M222	1	0	0	0	2.413e-4	NC	NC
1107			2	0	.045	0	2.667e-4	3127.878	NC
1108			3	0	.063	0	2.921e-4	2229.46	NC
1109			4	0	.045	0	3.175e-4	3114.443	NC
1110			5	0	0	0	3.429e-4	NC	NC
1111	3	M223	1	0	-.115	0	-1.586e-3	NC	NC
1112			2	0	-.573	0	-1.586e-3	470.71	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1113			3	0	-.745	0	-1.586e-3	333.39	NC
1114			4	0	-.521	0	-1.586e-3	465.427	NC
1115			5	0	0	0	-1.586e-3	NC	NC
1116	3	M224	1	0	-.184	0	-7.3e-4	NC	NC
1117			2	0	-.473	0	-7.3e-4	683.405	NC
1118			3	0	-.563	0	-7.3e-4	485.939	NC
1119			4	0	-.383	0	-7.3e-4	679.989	NC
1120			5	0	0	0	-7.3e-4	NC	NC
1121	3	M225	1	0	-.197	0	1.017e-4	NC	NC
1122			2	0	-.442	0	1.017e-4	777.247	NC
1123			3	0	-.513	0	1.017e-4	552.757	NC
1124			4	0	-.345	0	1.017e-4	773.564	NC
1125			5	0	0	0	1.017e-4	NC	NC
1126	3	M226	1	0	-.168	0	0	NC	NC
1127			2	0	-.5	0	0	612.811	NC
1128			3	0	-.611	0	0	435.345	NC
1129			4	0	-.418	0	0	608.847	NC
1130			5	0	0	0	0	NC	NC
1131	3	M227	1	0	-.141	0	5.891e-4	NC	NC
1132			2	0	-.477	0	5.891e-4	617.527	NC
1133			3	0	-.594	0	5.891e-4	438.13	NC
1134			4	0	-.41	0	5.891e-4	612.273	NC
1135			5	0	0	0	5.891e-4	NC	NC
1136	3	M228	1	0	-.09	0	4.32e-7	NC	NC
1137			2	0	-.444	0	4.32e-7	608.167	NC
1138			3	0	-.575	0	4.32e-7	432.596	NC
1139			4	0	-.401	0	4.32e-7	605.46	NC
1140			5	0	0	0	4.32e-7	NC	NC
1141	3	M229	1	0	-.125	0	-2.674e-4	NC	NC
1142			2	0	-.43	0	-2.674e-4	681.377	NC
1143			3	0	-.535	0	-2.674e-4	484.761	NC
1144			4	0	-.369	0	-2.674e-4	678.545	NC
1145			5	0	0	0	-2.674e-4	NC	NC
1146	3	M230	1	0	-.125	0	2.676e-4	NC	NC
1147			2	0	-.43	0	2.676e-4	681.377	NC
1148			3	0	-.535	0	2.676e-4	484.761	NC
1149			4	0	-.369	0	2.676e-4	678.545	NC
1150			5	0	0	0	2.676e-4	NC	NC
1151	3	M231	1	0	-.09	0	0	NC	NC
1152			2	0	-.439	0	0	617.527	NC
1153			3	0	-.568	0	0	438.13	NC
1154			4	0	-.397	0	0	612.273	NC
1155			5	0	0	0	0	NC	NC
1156	3	M232	1	0	-.139	0	-5.28e-4	NC	NC
1157			2	0	-.481	0	-5.28e-4	608.167	NC
1158			3	0	-.599	0	-5.28e-4	432.596	NC
1159			4	0	-.413	0	-5.28e-4	605.46	NC
1160			5	0	0	0	-5.28e-4	NC	NC
1161	3	M233	1	0	-.161	0	0	NC	NC
1162			2	0	-.492	0	0	617.527	NC
1163			3	0	-.604	0	0	438.13	NC
1164			4	0	-.415	0	0	612.273	NC
1165			5	0	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1166	3	M234	1	0	-.205	0	-4.913e-4	NC	NC
1167			2	0	-.449	0	-4.913e-4	774.625	NC
1168			3	0	-.518	0	-4.913e-4	551.233	NC
1169			4	0	-.348	0	-4.913e-4	771.696	NC
1170			5	0	0	0	-4.913e-4	NC	NC
1171	3	M235	1	0	-.218	0	1.24e-4	NC	NC
1172			2	0	-.459	0	1.24e-4	774.625	NC
1173			3	0	-.525	0	1.24e-4	551.233	NC
1174			4	0	-.351	0	1.24e-4	771.696	NC
1175			5	0	0	0	1.24e-4	NC	NC
1176	3	M236	1	0	-.191	0	7.515e-4	NC	NC
1177			2	0	-.439	0	7.515e-4	774.625	NC
1178			3	0	-.511	0	7.515e-4	551.233	NC
1179			4	0	-.345	0	7.515e-4	771.696	NC
1180			5	0	0	0	7.515e-4	NC	NC
1181	3	M237	1	.001	-.134	0	0	NC	NC
1182			2	.001	-.437	0	0	681.377	NC
1183			3	0	-.54	0	0	484.761	NC
1184			4	0	-.371	0	0	678.545	NC
1185			5	0	0	0	0	NC	NC
1186	3	M238	1	0	-.124	0	3.885e-4	NC	NC
1187			2	0	-.388	0	3.885e-4	777.247	NC
1188			3	0	-.477	0	3.885e-4	552.757	NC
1189			4	0	-.327	0	3.885e-4	773.564	NC
1190			5	0	0	0	3.885e-4	NC	NC
1191	3	M239	1	0	-.095	0	7.064e-4	NC	NC
1192			2	0	-.367	0	7.064e-4	774.625	NC
1193			3	0	-.463	0	7.064e-4	551.233	NC
1194			4	0	-.321	0	7.064e-4	771.696	NC
1195			5	0	0	0	7.064e-4	NC	NC
1196	3	M240	1	0	-.047	0	8.275e-4	NC	NC
1197			2	0	-.372	0	8.275e-4	681.377	NC
1198			3	0	-.496	0	8.275e-4	484.761	NC
1199			4	0	-.35	0	8.275e-4	678.545	NC
1200			5	0	0	0	8.275e-4	NC	NC
1201	3	M241	1	0	0	0	3.898e-4	NC	NC
1202			2	0	-.201	0	3.898e-4	1137.578	NC
1203			3	0	-.319	0	3.898e-4	719.488	NC
1204			4	0	-.241	0	3.898e-4	949.616	NC
1205			5	0	0	0	3.898e-4	NC	NC
1206	3	M242	1	0	-.073	0	-1.373e-3	NC	NC
1207			2	0	-.607	0	-1.373e-3	415.078	NC
1208			3	0	-.819	0	-1.373e-3	292.774	NC
1209			4	0	-.581	0	-1.373e-3	407.671	NC
1210			5	0	0	0	-1.373e-3	NC	NC
1211	3	M243	1	0	-.263	0	-5.326e-4	NC	NC
1212			2	0	-.674	0	-5.326e-4	480.592	NC
1213			3	0	-.807	0	-5.326e-4	339.294	NC
1214			4	0	-.551	0	-5.326e-4	472.691	NC
1215			5	0	0	0	-5.326e-4	NC	NC
1216	3	M244	1	0	-.266	0	4.066e-4	NC	NC
1217			2	0	-.455	0	4.066e-4	897.443	NC
1218			3	0	-.492	0	4.066e-4	638.831	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1219			4	0	-.323	0	4.066e-4	894.492	NC
1220			5	0	0	0	4.066e-4	NC	NC
1221	3	M245	1	0	-.222	0	1.231e-3	NC	NC
1222			2	0	-.502	0	1.231e-3	683.405	NC
1223			3	0	-.582	0	1.231e-3	485.939	NC
1224			4	0	-.392	0	1.231e-3	679.989	NC
1225			5	0	0	0	1.231e-3	NC	NC
1226	3	M246	1	0	-.118	0	0	NC	NC
1227			2	0	-.425	0	0	681.377	NC
1228			3	0	-.532	0	0	484.761	NC
1229			4	0	-.367	0	0	678.545	NC
1230			5	0	0	0	0	NC	NC
1231	3	M247	1	0	-.154	0	-2.807e-4	NC	NC
1232			2	0	-.452	0	-2.807e-4	681.377	NC
1233			3	0	-.55	0	-2.807e-4	484.761	NC
1234			4	0	-.376	0	-2.807e-4	678.545	NC
1235			5	0	0	0	-2.807e-4	NC	NC
1236	3	M248	1	0	-.154	0	2.852e-4	NC	NC
1237			2	0	-.487	0	2.852e-4	617.527	NC
1238			3	0	-.6	0	2.852e-4	438.13	NC
1239			4	0	-.413	0	2.852e-4	612.273	NC
1240			5	0	0	0	2.852e-4	NC	NC
1241	3	M249	1	0	-.117	0	0	NC	NC
1242			2	0	-.422	0	0	687.212	NC
1243			3	0	-.528	0	0	488.217	NC
1244			4	0	-.365	0	0	682.802	NC
1245			5	0	0	0	0	NC	NC
1246	3	M250	1	0	-.159	0	-3.267e-4	NC	NC
1247			2	0	-.415	0	-3.267e-4	774.625	NC
1248			3	0	-.495	0	-3.267e-4	551.233	NC
1249			4	0	-.337	0	-3.267e-4	771.696	NC
1250			5	0	0	0	-3.267e-4	NC	NC
1251	3	M251	1	0	-.159	0	4.904e-4	NC	NC
1252			2	0	-.453	0	4.904e-4	687.212	NC
1253			3	0	-.549	0	4.904e-4	488.217	NC
1254			4	0	-.375	0	4.904e-4	682.802	NC
1255			5	0	0	0	4.904e-4	NC	NC
1256	3	M252	1	0	-.102	0	1.363e-3	NC	NC
1257			2	0	-.553	0	1.363e-3	480.592	NC
1258			3	0	-.727	0	1.363e-3	339.294	NC
1259			4	0	-.51	0	1.363e-3	472.691	NC
1260			5	0	0	0	1.363e-3	NC	NC
1261	3	M253	1	0	.136	0	8.5e-5	NC	NC
1262			2	0	.362	0	1.241e-4	829.161	NC
1263			3	0	.435	0	1.631e-4	588.718	NC
1264			4	0	.296	0	2.022e-4	824.697	NC
1265			5	0	0	0	2.413e-4	NC	NC
1266	3	M254	1	0	.13	0	-3.15e-4	NC	NC
1267			2	0	.274	0	-2.778e-4	1220.426	NC
1268			3	0	.314	0	-2.407e-4	867.321	NC
1269			4	0	.21	0	-2.035e-4	1215.583	NC
1270			5	0	0	0	-1.663e-4	NC	NC
1271	3	M255	1	0	.102	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1272			2	0	.337	0	7.118e-7	829.161	NC
1273			3	0	.418	0	1.427e-6	588.718	NC
1274			4	0	.287	0	2.143e-6	824.697	NC
1275			5	0	0	0	2.858e-6	NC	NC
1276	3	M256	1	0	.162	0	4.076e-4	NC	NC
1277			2	0	.421	0	5.466e-4	721.307	NC
1278			3	0	.503	0	6.855e-4	511.187	NC
1279			4	0	.342	0	8.245e-4	715.326	NC
1280			5	0	0	0	9.635e-4	NC	NC
1281	3	M257	1	0	.156	0	-6.044e-4	NC	NC
1282			2	0	.416	0	-5.332e-4	723.054	NC
1283			3	0	.5	0	-4.621e-4	512.256	NC
1284			4	0	.34	0	-3.909e-4	716.65	NC
1285			5	0	0	0	-3.198e-4	NC	NC
1286	3	M258	1	0	.083	0	-1.174e-3	NC	NC
1287			2	0	.459	0	-1.211e-3	544.509	NC
1288			3	0	.603	0	-1.247e-3	384.88	NC
1289			4	0	.421	0	-1.283e-3	539.807	NC
1290			5	0	0	0	-1.319e-3	NC	NC
1291	3	M259	1	0	.046	0	8.927e-4	NC	NC
1292			2	0	.433	0	8.71e-4	541.222	NC
1293			3	0	.588	0	8.493e-4	382.475	NC
1294			4	0	.414	0	8.276e-4	536.166	NC
1295			5	0	0	0	8.058e-4	NC	NC
1296	3	M260	1	0	.114	0	1.073e-3	NC	NC
1297			2	0	.305	0	8.903e-4	985.556	NC
1298			3	0	.365	0	7.074e-4	700.274	NC
1299			4	0	.249	0	5.245e-4	981.365	NC
1300			5	0	0	0	3.416e-4	NC	NC
1301	3	M261	1	0	.162	0	-8.792e-8	NC	NC
1302			2	0	.341	0	-6.189e-5	985.575	NC
1303			3	0	.39	0	-1.237e-4	700.274	NC
1304			4	0	.261	0	-1.855e-4	981.347	NC
1305			5	0	0	0	-2.473e-4	NC	NC
1306	3	M262	1	0	.563	0	7.033e-3	NC	NC
1307			2	0	.642	0	7.033e-3	985.556	NC
1308			3	0	.59	0	7.033e-3	700.274	NC
1309			4	0	.361	0	7.033e-3	981.365	NC
1310			5	0	0	0	7.033e-3	NC	NC
1311	3	M263	1	0	.879	0	4.718e-3	NC	NC
1312			2	0	.879	0	4.718e-3	985.575	NC
1313			3	0	.748	0	4.718e-3	700.274	NC
1314			4	0	.44	0	4.718e-3	981.347	NC
1315			5	0	0	0	4.718e-3	NC	NC
1316	3	M264	1	0	1.046	0	1.306e-3	NC	NC
1317			2	0	1.043	0	7.832e-4	834.141	NC
1318			3	0	.888	0	2.603e-4	591.688	NC
1319			4	0	.522	0	-2.626e-4	828.373	NC
1320			5	0	0	0	-7.856e-4	NC	NC
1321	3	M265	1	0	.972	0	-3.183e-3	NC	NC
1322			2	0	1.031	0	-3.183e-3	715.595	NC
1323			3	0	.911	0	-3.183e-3	507.82	NC
1324			4	0	.547	0	-3.183e-3	711.174	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1325			5	0	0	0	-3.183e-3	NC	NC
1326	3	M266	1	0	.642	0	-6.432e-3	NC	NC
1327			2	0	.74	0	-6.432e-3	836.841	NC
1328			3	0	.685	0	-6.432e-3	593.247	NC
1329			4	0	.421	0	-6.432e-3	830.285	NC
1330			5	0	0	0	-6.432e-3	NC	NC
1331	3	M267	1	0	.159	0	1.042e-6	NC	NC
1332			2	0	.418	0	1.042e-6	723.054	NC
1333			3	0	.501	0	1.042e-6	512.256	NC
1334			4	0	.341	0	1.042e-6	716.65	NC
1335			5	0	0	0	1.042e-6	NC	NC
1336	3	M268	1	0	.188	0	8.985e-5	NC	NC
1337			2	0	.48	0	7.62e-5	636.718	NC
1338			3	0	.573	0	6.255e-5	450.796	NC
1339			4	0	.39	0	4.89e-5	630.453	NC
1340			5	0	0	0	3.525e-5	NC	NC
1341	3	M269	1	0	.172	0	-1.276e-6	NC	NC
1342			2	0	.389	0	-1.276e-6	829.161	NC
1343			3	0	.453	0	-1.276e-6	588.718	NC
1344			4	0	.305	0	-1.276e-6	824.697	NC
1345			5	0	0	0	-1.276e-6	NC	NC
1346	3	M270	1	0	.697	0	7.771e-3	NC	NC
1347			2	0	.825	0	7.771e-3	715.595	NC
1348			3	0	.774	0	7.771e-3	507.82	NC
1349			4	0	.478	0	7.771e-3	711.174	NC
1350			5	0	0	0	7.771e-3	NC	NC
1351	3	M271	1	0	1.124	0	4.009e-3	NC	NC
1352			2	0	1.141	0	4.009e-3	725.082	NC
1353			3	0	.983	0	4.009e-3	513.424	NC
1354			4	0	.582	0	4.009e-3	718.08	NC
1355			5	0	0	0	4.009e-3	NC	NC
1356	3	M272	1	0	1.219	0	-2.092e-3	NC	NC
1357			2	0	1.173	0	-1.415e-3	836.841	NC
1358			3	0	.974	0	-7.381e-4	593.247	NC
1359			4	0	.565	0	-6.097e-5	830.285	NC
1360			5	0	0	0	6.161e-4	NC	NC
1361	3	M273	1	0	.998	0	-6.329e-3	NC	NC
1362			2	0	1.009	0	-6.329e-3	829.161	NC
1363			3	0	.866	0	-6.329e-3	588.718	NC
1364			4	0	.511	0	-6.329e-3	824.697	NC
1365			5	0	0	0	-6.329e-3	NC	NC
1366	3	M274	1	0	.57	0	-9.732e-3	NC	NC
1367			2	0	1.042	0	-9.732e-3	351.477	NC
1368			3	0	1.122	0	-9.732e-3	258.129	NC
1369			4	0	.719	0	-9.732e-3	374.529	NC
1370			5	0	0	0	-9.732e-3	NC	NC
1371	3	M275	1	0	.883	0	-1.459e-2	NC	NC
1372			2	0	1.11	0	-1.337e-2	468.296	NC
1373			3	0	1.142	0	-1.216e-2	343.791	NC
1374			4	0	.937	0	-1.095e-2	493.529	NC
1375			5	0	.57	0	-9.732e-3	NC	NC
1376	3	M276	1	0	1.497	0	-8.902e-3	NC	NC
1377			2	0	1.42	0	-8.259e-3	2984.139	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1378			3	0	1.315	0	-7.616e-3	2110.696	NC
1379			4	0	1.171	0	-6.973e-3	2957.518	NC
1380			5	0	.998	0	-6.329e-3	NC	NC
1381	3	M277	1	0	1.79	0	-2.566e-3	NC	NC
1382			2	0	1.693	0	-2.448e-3	3146.791	NC
1383			3	0	1.569	0	-2.329e-3	2224.031	NC
1384			4	0	1.408	0	-2.211e-3	3126.394	NC
1385			5	0	1.219	0	-2.092e-3	NC	NC
1386	3	M278	1	0	1.62	0	6.12e-3	NC	NC
1387			2	0	1.549	0	5.592e-3	2699	NC
1388			3	0	1.447	0	5.064e-3	1905.58	NC
1389			4	0	1.302	0	4.537e-3	2677.205	NC
1390			5	0	1.124	0	4.009e-3	NC	NC
1391	3	M279	1	0	.989	0	1.136e-2	NC	NC
1392			2	0	.969	0	1.046e-2	2695.647	NC
1393			3	0	.918	0	9.564e-3	1903.312	NC
1394			4	0	.824	0	8.668e-3	2671.567	NC
1395			5	0	.697	0	7.771e-3	NC	NC
1396	3	M280	1	0	.227	0	0	NC	NC
1397			2	0	.261	0	-3.215e-7	3016.244	NC
1398			3	0	.266	0	-6.398e-7	2136.252	NC
1399			4	0	.233	0	-9.581e-7	3000.443	NC
1400			5	0	.172	0	-1.276e-6	NC	NC
1401	3	M281	1	0	.236	0	2.67e-4	NC	NC
1402			2	0	.283	0	2.227e-4	2431.858	NC
1403			3	0	.295	0	1.784e-4	1718.021	NC
1404			4	0	.259	0	1.341e-4	2419.658	NC
1405			5	0	.188	0	8.985e-5	NC	NC
1406	3	M282	1	0	.189	0	0	NC	NC
1407			2	0	.235	0	2.625e-7	2699	NC
1408			3	0	.249	0	5.224e-7	1905.58	NC
1409			4	0	.22	0	7.823e-7	2677.205	NC
1410			5	0	.159	0	1.042e-6	NC	NC
1411	3	M283	1	0	.759	0	-7.577e-3	NC	NC
1412			2	0	.777	0	-7.291e-3	3042.911	NC
1413			3	0	.767	0	-7.004e-3	2154.119	NC
1414			4	0	.719	0	-6.718e-3	3026.83	NC
1415			5	0	.642	0	-6.432e-3	NC	NC
1416	3	M284	1	0	1.147	0	-3.765e-3	NC	NC
1417			2	0	1.157	0	-3.619e-3	2695.647	NC
1418			3	0	1.135	0	-3.474e-3	1903.312	NC
1419			4	0	1.069	0	-3.329e-3	2671.567	NC
1420			5	0	.972	0	-3.183e-3	NC	NC
1421	3	M285	1	0	1.236	0	1.437e-3	NC	NC
1422			2	0	1.235	0	1.405e-3	3060.902	NC
1423			3	0	1.207	0	1.372e-3	2162.434	NC
1424			4	0	1.14	0	1.339e-3	3032.901	NC
1425			5	0	1.046	0	1.306e-3	NC	NC
1426	3	M286	1	0	1.048	0	5.384e-3	NC	NC
1427			2	0	1.046	0	5.217e-3	3540.145	NC
1428			3	0	1.02	0	5.051e-3	2511.504	NC
1429			4	0	.962	0	4.884e-3	3528.264	NC
1430			5	0	.879	0	4.718e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1431	3	M287	1	0	.686	0	8.079e-3	NC	NC
1432			2	0	.695	0	7.818e-3	3609.022	NC
1433			3	0	.681	0	7.556e-3	2548.786	NC
1434			4	0	.634	0	7.295e-3	3570.157	NC
1435			5	0	.563	0	7.033e-3	NC	NC
1436	3	M288	1	0	.224	0	0	NC	NC
1437			2	0	.25	0	0	3452.284	NC
1438			3	0	.252	0	-4.248e-8	2453.615	NC
1439			4	0	.219	0	-6.52e-8	3446.625	NC
1440			5	0	.162	0	-8.792e-8	NC	NC
1441	3	M289	1	0	.195	0	9.416e-4	NC	NC
1442			2	0	.215	0	9.745e-4	3609.022	NC
1443			3	0	.211	0	1.007e-3	2548.786	NC
1444			4	0	.174	0	1.04e-3	3570.157	NC
1445			5	0	.114	0	1.073e-3	NC	NC
1446	3	M290	1	0	.121	0	1.61e-3	NC	NC
1447			2	0	.17	0	1.431e-3	2111.547	NC
1448			3	0	.18	0	1.251e-3	1485.746	NC
1449			4	0	.133	0	1.072e-3	2091.173	NC
1450			5	0	.046	0	8.927e-4	NC	NC
1451	3	M291	1	0	.209	0	-2.373e-3	NC	NC
1452			2	0	.372	0	-2.073e-3	945.549	NC
1453			3	0	.421	0	-1.774e-3	668.666	NC
1454			4	0	.309	0	-1.474e-3	941.73	NC
1455			5	0	.083	0	-1.174e-3	NC	NC
1456	3	M292	1	0	.307	0	-4.63e-4	NC	NC
1457			2	0	.418	0	-4.983e-4	1231.058	NC
1458			3	0	.441	0	-5.337e-4	874.136	NC
1459			4	0	.343	0	-5.69e-4	1229.383	NC
1460			5	0	.156	0	-6.044e-4	NC	NC
1461	3	M293	1	0	.268	0	1.371e-3	NC	NC
1462			2	0	.388	0	1.13e-3	1252.993	NC
1463			3	0	.421	0	8.891e-4	888.574	NC
1464			4	0	.335	0	6.483e-4	1249.184	NC
1465			5	0	.162	0	4.076e-4	NC	NC
1466	3	M294	1	0	.128	0	0	NC	NC
1467			2	0	.252	0	0	1400.327	NC
1468			3	0	.3	0	0	992.813	NC
1469			4	0	.24	0	0	1391.019	NC
1470			5	0	.102	0	0	NC	NC
1471	3	M295	1	0	.147	0	-1.366e-4	NC	NC
1472			2	0	.232	0	-1.812e-4	2060.741	NC
1473			3	0	.264	0	-2.258e-4	1462.976	NC
1474			4	0	.223	0	-2.704e-4	2051.703	NC
1475			5	0	.13	0	-3.15e-4	NC	NC
1476	3	M296	1	0	.145	0	2.733e-4	NC	NC
1477			2	0	.272	0	2.263e-4	1417.579	NC
1478			3	0	.323	0	1.792e-4	1005.368	NC
1479			4	0	.268	0	1.321e-4	1410.65	NC
1480			5	0	.136	0	8.5e-5	NC	NC
1481	3	M297	1	0	-.145	0	-2.733e-4	NC	NC
1482			2	0	-.425	0	-2.733e-4	717.54	NC
1483			3	0	-.517	0	-2.733e-4	509.774	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1484			4	0	-.353	0	-2.733e-4	715.086	NC
1485			5	0	0	0	-2.733e-4	NC	NC
1486	3	M298	1	0	-.147	0	1.366e-4	NC	NC
1487			2	0	-.326	0	1.366e-4	1051.598	NC
1488			3	0	-.377	0	1.366e-4	748.37	NC
1489			4	0	-.253	0	1.366e-4	1050.727	NC
1490			5	0	0	0	1.366e-4	NC	NC
1491	3	M299	1	0	-.128	0	0	NC	NC
1492			2	0	-.412	0	0	717.54	NC
1493			3	0	-.509	0	0	509.774	NC
1494			4	0	-.349	0	0	715.086	NC
1495			5	0	0	0	0	NC	NC
1496	3	M300	1	0	-.268	0	-1.371e-3	NC	NC
1497			2	0	-.567	0	-1.371e-3	619.164	NC
1498			3	0	-.649	0	-1.371e-3	439.928	NC
1499			4	0	-.434	0	-1.371e-3	617.186	NC
1500			5	0	0	0	-1.371e-3	NC	NC
1501	3	M301	1	0	-.307	0	4.63e-4	NC	NC
1502			2	0	-.595	0	4.63e-4	620.631	NC
1503			3	0	-.668	0	4.63e-4	440.31	NC
1504			4	0	-.444	0	4.63e-4	617.112	NC
1505			5	0	0	0	4.63e-4	NC	NC
1506	3	M302	1	0	-.209	0	2.373e-3	NC	NC
1507			2	0	-.728	0	2.373e-3	397.014	NC
1508			3	0	-.928	0	2.373e-3	275.535	NC
1509			4	0	-.659	0	2.373e-3	374.005	NC
1510			5	0	0	0	2.373e-3	NC	NC
1511	3	M303	1	0	-.121	0	-1.61e-3	NC	NC
1512			2	0	-.546	0	-1.61e-3	498.98	NC
1513			3	0	-.708	0	-1.61e-3	350.339	NC
1514			4	0	-.496	0	-1.61e-3	486.61	NC
1515			5	0	0	0	-1.61e-3	NC	NC
1516	3	M304	1	0	-.195	0	-9.416e-4	NC	NC
1517			2	0	-.405	0	-9.416e-4	876.673	NC
1518			3	0	-.461	0	-9.416e-4	624.708	NC
1519			4	0	-.307	0	-9.416e-4	876.973	NC
1520			5	0	0	0	-9.416e-4	NC	NC
1521	3	M305	1	0	-.224	0	0	NC	NC
1522			2	0	-.43	0	0	867.379	NC
1523			3	0	-.478	0	0	619.178	NC
1524			4	0	-.317	0	0	870.123	NC
1525			5	0	0	0	0	NC	NC
1526	3	M306	1	0	-.686	0	-8.079e-3	NC	NC
1527			2	0	-.773	0	-8.079e-3	876.673	NC
1528			3	0	-.706	0	-8.079e-3	624.708	NC
1529			4	0	-.43	0	-8.079e-3	876.973	NC
1530			5	0	0	0	-8.079e-3	NC	NC
1531	3	M307	1	0	-1.048	0	-5.384e-3	NC	NC
1532			2	0	-1.047	0	-5.384e-3	867.379	NC
1533			3	0	-.89	0	-5.384e-3	619.178	NC
1534			4	0	-.523	0	-5.384e-3	870.123	NC
1535			5	0	0	0	-5.384e-3	NC	NC
1536	3	M308	1	0	-1.236	0	-1.437e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1537			2	0	-1.236	0	-1.437e-3	733.193	NC
1538			3	0	-1.052	0	-1.437e-3	522.637	NC
1539			4	0	-.618	0	-1.437e-3	733.847	NC
1540			5	0	0	0	-1.437e-3	NC	NC
1541	3	M309	1	0	-1.147	0	3.765e-3	NC	NC
1542			2	0	-1.217	0	3.765e-3	636.446	NC
1543			3	0	-1.074	0	3.765e-3	453.062	NC
1544			4	0	-.644	0	3.765e-3	635.634	NC
1545			5	0	0	0	3.765e-3	NC	NC
1546	3	M310	1	0	-.759	0	7.577e-3	NC	NC
1547			2	0	-.877	0	7.577e-3	737.484	NC
1548			3	0	-.811	0	7.577e-3	525.217	NC
1549			4	0	-.497	0	7.577e-3	737.056	NC
1550			5	0	0	0	7.577e-3	NC	NC
1551	3	M311	1	0	-.189	0	0	NC	NC
1552			2	0	-.496	0	0	639.911	NC
1553			3	0	-.593	0	0	455.082	NC
1554			4	0	-.403	0	0	638.128	NC
1555			5	0	0	0	0	NC	NC
1556	3	M312	1	0	-.236	0	-2.67e-4	NC	NC
1557			2	0	-.562	0	-2.67e-4	580.482	NC
1558			3	0	-.662	0	-2.67e-4	410.491	NC
1559			4	0	-.448	0	-2.67e-4	573.87	NC
1560			5	0	0	0	-2.67e-4	NC	NC
1561	3	M313	1	0	-.227	0	0	NC	NC
1562			2	0	-.481	0	0	730.907	NC
1563			3	0	-.549	0	0	521.303	NC
1564			4	0	-.367	0	0	732.2	NC
1565			5	0	0	0	0	NC	NC
1566	3	M314	1	0	-.989	0	-1.136e-2	NC	NC
1567			2	0	-1.098	0	-1.136e-2	636.446	NC
1568			3	0	-.995	0	-1.136e-2	453.062	NC
1569			4	0	-.604	0	-1.136e-2	635.634	NC
1570			5	0	0	0	-1.136e-2	NC	NC
1571	3	M315	1	0	-1.62	0	-6.12e-3	NC	NC
1572			2	0	-1.57	0	-6.12e-3	639.911	NC
1573			3	0	-1.308	0	-6.12e-3	455.082	NC
1574			4	0	-.76	0	-6.12e-3	638.128	NC
1575			5	0	0	0	-6.12e-3	NC	NC
1576	3	M316	1	0	-1.79	0	2.566e-3	NC	NC
1577			2	0	-1.647	0	2.566e-3	744.181	NC
1578			3	0	-1.323	0	2.566e-3	529.191	NC
1579			4	0	-.753	0	2.566e-3	741.976	NC
1580			5	0	0	0	2.566e-3	NC	NC
1581	3	M317	1	0	-1.497	0	8.902e-3	NC	NC
1582			2	0	-1.433	0	8.902e-3	730.907	NC
1583			3	0	-1.184	0	8.902e-3	521.303	NC
1584			4	0	-.684	0	8.902e-3	732.2	NC
1585			5	0	0	0	8.902e-3	NC	NC
1586	3	M318	1	0	-.883	0	1.459e-2	NC	NC
1587			2	0	-3.268	0	1.459e-2	87.038	NC
1588			3	0	-4.129	0	1.459e-2	61.507	NC
1589			4	0	-2.871	0	1.459e-2	85.591	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1590			5	0	0	0	1.459e-2	NC	NC
1591	3	M319	1	0	.22	0	2.556e-4	NC	NC
1592			2	0	.481	0	2.556e-4	717.54	NC
1593			3	0	.555	0	2.556e-4	509.774	NC
1594			4	0	.372	0	2.556e-4	715.086	NC
1595			5	0	0	0	2.556e-4	NC	NC
1596	3	M320	1	0	-.189	0	-2.754e-4	NC	NC
1597			2	0	-.464	0	-2.778e-4	792.053	NC
1598			3	0	-.573	0	-2.802e-4	565.996	NC
1599			4	0	-.46	0	-2.826e-4	799.395	NC
1600			5	0	-.186	0	-2.85e-4	NC	NC
1601	3	M321	1	0	-.189	0	2.737e-4	NC	NC
1602			2	0	-.462	0	2.732e-4	799.215	NC
1603			3	0	-.571	0	2.726e-4	570.275	NC
1604			4	0	-.459	0	2.721e-4	804.763	NC
1605			5	0	-.187	0	2.715e-4	NC	NC
1606	3	M322	1	0	-.153	0	6.195e-6	NC	NC
1607			2	0	-.456	0	6.136e-6	720.093	NC
1608			3	0	-.577	0	6.077e-6	513.584	NC
1609			4	0	-.453	0	6.017e-6	724.411	NC
1610			5	0	-.151	0	5.958e-6	NC	NC
1611	3	M323	1	0	-.127	0	6.07e-4	NC	NC
1612			2	0	-.431	0	6.123e-4	715.615	NC
1613			3	0	-.553	0	6.176e-4	510.127	NC
1614			4	0	-.427	0	6.229e-4	720.059	NC
1615			5	0	-.123	0	6.282e-4	NC	NC
1616	3	M324	1	0	-.071	0	6.765e-6	NC	NC
1617			2	0	-.371	0	6.711e-6	723.634	NC
1618			3	0	-.491	0	6.657e-6	515.991	NC
1619			4	0	-.367	0	6.603e-6	727.995	NC
1620			5	0	-.065	0	6.549e-6	NC	NC
1621	3	M325	1	0	-.034	0	4.739e-4	NC	NC
1622			2	0	-.278	0	4.637e-4	893.312	NC
1623			3	0	-.376	0	4.536e-4	637.324	NC
1624			4	0	-.275	0	4.434e-4	898.729	NC
1625			5	0	-.032	0	4.332e-4	NC	NC
1626	3	M326	1	0	-.014	0	-9.001e-5	NC	NC
1627			2	0	-.226	0	-9.401e-5	1031.669	NC
1628			3	0	-.31	0	-9.802e-5	736.505	NC
1629			4	0	-.224	0	-1.02e-4	1037.702	NC
1630			5	0	-.013	0	-1.06e-4	NC	NC
1631	3	M327	1	0	-.048	0	-6.678e-4	NC	NC
1632			2	0	-.289	0	-6.647e-4	905.381	NC
1633			3	0	-.385	0	-6.616e-4	646.656	NC
1634			4	0	-.287	0	-6.585e-4	912.203	NC
1635			5	0	-.047	0	-6.555e-4	NC	NC
1636	3	M328	1	0	-.09	0	-7.208e-4	NC	NC
1637			2	0	-.334	0	-7.139e-4	893.312	NC
1638			3	0	-.432	0	-7.07e-4	637.324	NC
1639			4	0	-.332	0	-7.001e-4	898.729	NC
1640			5	0	-.088	0	-6.932e-4	NC	NC
1641	3	M329	1	0	-.124	0	9.676e-6	NC	NC
1642			2	0	-.432	0	9.5e-6	706.009	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1643			3	0	-.557	0	9.323e-6	501.841	NC
1644			4	0	-.427	0	9.146e-6	712.401	NC
1645			5	0	-.119	0	8.97e-6	NC	NC
1646	3	M330	1	0	0	0	1.799e-3	NC	NC
1647			2	0	-.995	0	1.352e-3	238.016	NC
1648			3	0	-1.407	0	9.045e-4	170.602	NC
1649			4	0	-1.038	0	4.572e-4	242.8	NC
1650			5	0	-.124	0	9.921e-6	NC	NC
1651	3	M331	1	0	0	0	-1.467e-3	NC	NC
1652			2	0	.963	0	-1.103e-3	245.953	NC
1653			3	0	1.36	0	-7.387e-4	176.443	NC
1654			4	0	1.001	0	-3.743e-4	251.667	NC
1655			5	0	.119	0	-9.904e-6	NC	NC
1656	3	M332	1	0	.18	0	0	NC	NC
1657			2	0	.21	0	0	3016.502	NC
1658			3	0	.196	0	0	2133.608	NC
1659			4	0	.123	0	0	2919.443	NC
1660			5	0	0	0	0	NC	NC
1661	3	M333	1	0	-.18	0	0	NC	NC
1662			2	0	-.168	0	9.943e-8	NC	NC
1663			3	0	-.153	0	2.123e-7	9392.252	NC
1664			4	0	-.127	0	3.251e-7	NC	NC
1665			5	0	-.097	0	4.379e-7	NC	NC
1666	3	M334	1	0	-.097	0	4.379e-7	NC	NC
1667			2	0	-.127	0	3.384e-8	6105.321	NC
1668			3	0	-.138	0	-3.702e-7	4375.789	NC
1669			4	0	-.127	0	-7.743e-7	6105.321	NC
1670			5	0	-.097	0	-1.178e-6	NC	NC
1671	3	M335	1	0	-.097	0	-1.178e-6	NC	NC
1672			2	0	-.125	0	-2.82e-5	NC	NC
1673			3	0	-.15	0	-5.522e-5	9154.263	NC
1674			4	0	-.163	0	-8.224e-5	NC	NC
1675			5	0	-.173	0	-1.093e-4	NC	NC
1676	3	M336	1	0	-.173	0	-1.093e-4	NC	NC
1677			2	0	-.219	0	-4.744e-3	3914.08	NC
1678			3	0	-.232	0	-3.176e-3	2815.166	NC
1679			4	0	-.203	0	-1.609e-3	3927.523	NC
1680			5	0	-.141	-.001	-4.103e-5	NC	NC
1681	3	M337	1	0	-.141	-.001	-4.103e-5	NC	NC
1682			2	0	-.119	0	-7.686e-4	NC	NC
1683			3	0	-.081	0	-1.496e-3	NC	NC
1684			4	0	-.033	0	-2.224e-3	NC	NC
1685			5	0	0	0	-2.951e-3	NC	NC
1686	3	M338	1	0	0	0	-2.951e-3	NC	NC
1687			2	0	-.037	0	-2.951e-3	3812.435	NC
1688			3	0	-.098	0	-2.951e-3	1437.65	NC
1689			4	0	-.153	0	-2.951e-3	920.451	NC
1690			5	0	-.209	0	-2.951e-3	672.722	NC
1691	3	M339	1	0	-.153	0	1.674e-6	NC	NC
1692			2	0	-.182	0	1.249e-6	6348.086	NC
1693			3	0	-.193	0	8.242e-7	4551.408	NC
1694			4	0	-.182	0	3.993e-7	6354.235	NC
1695			5	0	-.153	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1696	3	M340	1	0	-.153	0	0	NC	NC
1697			2	0	-.142	0	-1.09e-6	NC	NC
1698			3	0	-.126	0	-2.155e-6	9562.042	NC
1699			4	0	-.1	0	-3.22e-6	NC	NC
1700			5	0	-.071	0	-4.284e-6	NC	NC
1701	3	M341	1	0	-.149	0	1.909e-6	NC	NC
1702			2	0	-.179	0	1.45e-6	6254.528	NC
1703			3	0	-.191	0	9.91e-7	4486.87	NC
1704			4	0	-.179	0	5.319e-7	6264.846	NC
1705			5	0	-.151	0	7.284e-8	NC	NC
1706	3	M342	1	0	-.151	0	7.284e-8	NC	NC
1707			2	0	-.138	0	1.343e-6	NC	NC
1708			3	0	-.122	0	2.613e-6	9536.69	NC
1709			4	0	-.095	0	3.884e-6	NC	NC
1710			5	0	-.065	0	5.154e-6	NC	NC
1711	3	M343	1	0	-.153	0	5.264e-6	NC	NC
1712			2	0	-.196	0	5.336e-6	4978.374	NC
1713			3	0	-.212	0	5.409e-6	3583.147	NC
1714			4	0	-.194	0	5.482e-6	5000.792	NC
1715			5	0	-.149	0	5.554e-6	NC	NC
1716	3	M344	1	0	-.168	0	3.291e-6	NC	NC
1717			2	0	-.244	0	3.266e-6	2841.582	NC
1718			3	0	-.273	0	3.242e-6	2043.707	NC
1719			4	0	-.242	0	3.217e-6	2842.261	NC
1720			5	0	-.164	0	3.193e-6	NC	NC
1721	3	M345	1	0	.227	0	-8.641e-7	NC	NC
1722			2	0	1.306	0	-8.641e-7	304.271	NC
1723			3	0	1.805	0	-8.641e-7	204.281	NC
1724			4	0	1.365	0	-8.641e-7	264.277	NC
1725			5	0	0	0	-8.641e-7	NC	NC
1726	3	M346	1	0	.172	0	-1.378e-6	NC	NC
1727			2	0	.914	0	-1.378e-6	440.174	NC
1728			3	0	1.238	0	-1.378e-6	299.919	NC
1729			4	0	.903	0	-1.378e-6	401.819	NC
1730			5	0	0	0	-1.378e-6	NC	NC
1731	3	M347	1	0	-.227	0	8.641e-7	NC	NC
1732			2	0	-.235	0	8.656e-7	7996.288	NC
1733			3	0	-.236	0	8.67e-7	5059.216	NC
1734			4	0	-.216	0	8.685e-7	7976.435	NC
1735			5	0	-.189	0	8.699e-7	NC	NC
1736	3	M348	1	0	-.172	0	1.378e-6	NC	NC
1737			2	0	-.183	0	1.376e-6	NC	NC
1738			3	0	-.188	0	1.375e-6	6343.303	NC
1739			4	0	-.176	0	1.374e-6	NC	NC
1740			5	0	-.159	0	1.372e-6	NC	NC
1741	3	M349	1	0	0	0	0	NC	NC
1742			2	0	-.115	0	0	3095.703	NC
1743			3	0	-.184	0	0	2269.896	NC
1744			4	0	-.197	0	0	3218.162	NC
1745			5	0	-.168	0	0	NC	NC
1746	3	M350	1	0	-.168	0	0	NC	NC
1747			2	0	-.157	0	2.326e-7	NC	NC
1748			3	0	-.142	0	4.706e-7	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1749			4	0	-.118	0	7.087e-7	NC	NC
1750			5	0	-.09	0	9.468e-7	NC	NC
1751	3	M351	1	0	-.09	0	9.468e-7	NC	NC
1752			2	0	-.118	0	7.096e-7	6524.755	NC
1753			3	0	-.129	0	4.725e-7	4671.449	NC
1754			4	0	-.118	0	2.353e-7	6511.315	NC
1755			5	0	-.09	0	0	NC	NC
1756	3	M352	1	0	-.09	0	0	NC	NC
1757			2	0	-.116	0	6.515e-8	NC	NC
1758			3	0	-.139	0	1.322e-7	9830.065	NC
1759			4	0	-.152	0	1.992e-7	NC	NC
1760			5	0	-.161	0	2.662e-7	NC	NC
1761	3	M353	1	0	-.161	0	2.662e-7	NC	NC
1762			2	0	-.205	0	2.463e-6	4198.063	NC
1763			3	0	-.218	0	4.659e-6	3019.665	NC
1764			4	0	-.191	0	6.855e-6	4211.945	NC
1765			5	0	-.134	.001	9.052e-6	NC	NC
1766	3	M354	1	0	-.134	.001	9.052e-6	NC	NC
1767			2	0	-.124	0	7.436e-4	8836.997	NC
1768			3	0	-.095	0	1.478e-3	7564.574	NC
1769			4	0	-.047	0	2.213e-3	NC	NC
1770			5	0	0	0	2.947e-3	NC	NC
1771	3	M355	1	0	0	0	2.947e-3	NC	NC
1772			2	0	-.022	0	2.658e-3	6473.386	NC
1773			3	0	-.074	0	2.368e-3	1891.982	NC
1774			4	0	-.134	0	2.078e-3	1050.049	NC
1775			5	0	-.193	0	1.789e-3	726.785	NC
1776	3	M356	1	0	-.193	0	1.789e-3	NC	NC
1777			2	0	-.258	0	1.343e-3	2574.375	NC
1778			3	0	-.266	0	8.977e-4	1956.913	NC
1779			4	0	-.213	0	4.522e-4	2843.236	NC
1780			5	0	-.118	0	6.704e-6	NC	NC
1781	3	M357	1	0	-.118	0	6.704e-6	NC	NC
1782			2	0	-.147	0	5.031e-6	6287.625	NC
1783			3	0	-.159	0	3.358e-6	4489.991	NC
1784			4	0	-.147	0	1.685e-6	6230.324	NC
1785			5	0	-.117	0	0	NC	NC
1786	3	M358	1	0	-.117	0	0	NC	NC
1787			2	0	-.159	0	0	3203.993	NC
1788			3	0	-.159	0	0	2266.348	NC
1789			4	0	-.103	0	0	3100.327	NC
1790			5	0	0	0	0	NC	NC
1791	3	M359	1	0	-.189	0	8.699e-7	NC	NC
1792			2	0	-.918	0	8.129e-7	465.193	NC
1793			3	0	-1.244	0	7.558e-7	322.891	NC
1794			4	0	-.954	0	6.987e-7	453.286	NC
1795			5	0	-.224	0	6.417e-7	NC	NC
1796	3	M360	1	0	-.159	0	1.372e-6	NC	NC
1797			2	0	-.777	0	9.851e-7	542.425	NC
1798			3	0	-1.053	0	5.978e-7	375.128	NC
1799			4	0	-.797	0	2.105e-7	526.713	NC
1800			5	0	-.162	0	-1.768e-7	NC	NC
1801	3	M361	1	0	-.224	0	6.417e-7	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1802			2	0	-.199	0	6.417e-7	5396.318	NC
1803			3	0	-.155	0	6.417e-7	3881.79	NC
1804			4	0	-.087	0	6.417e-7	5360.285	NC
1805			5	0	0	0	6.417e-7	NC	NC
1806	3	M362	1	0	-.162	0	-1.768e-7	1026.96	NC
1807			2	0	-.119	0	-1.609e-7	1397.333	NC
1808			3	0	-.071	0	-1.449e-7	2354.612	NC
1809			4	0	-.025	0	-1.29e-7	6680.439	NC
1810			5	0	0	0	-1.13e-7	NC	NC
1811	3	M363	1	0	0	0	0	NC	NC
1812			2	0	-.209	0	0	1435.605	NC
1813			3	0	-.307	0	0	1047.588	NC
1814			4	0	-.268	0	0	1479.998	NC
1815			5	0	-.128	0	0	NC	NC
1816	3	M364	1	0	-.128	0	0	NC	NC
1817			2	0	-.143	0	0	7892.99	NC
1818			3	0	-.148	0	0	5562.685	NC
1819			4	0	-.139	0	0	7552.398	NC
1820			5	0	-.117	0	0	NC	NC
1821	3	M365	1	0	0	0	-1.13e-7	NC	NC
1822			2	0	-.083	0	-8.873e-8	4424.507	NC
1823			3	0	-.156	0	-6.441e-8	2420.614	NC
1824			4	0	-.162	0	-4.01e-8	2980.685	NC
1825			5	0	-.102	0	0	NC	NC
1826	3	M366	1	0	-.102	0	0	NC	NC
1827			2	0	-.124	0	0	8097.462	NC
1828			3	0	-.135	0	0	5701.191	NC
1829			4	0	-.133	0	0	7733.603	NC
1830			5	0	-.118	0	0	NC	NC
1831	3	M367	1	.002	-.215	0	-1.726e-7	NC	NC
1832			2	.002	-.363	0	-1.305e-7	1612.45	NC
1833			3	.002	-.417	0	-8.832e-8	1145.724	NC
1834			4	.002	-.345	0	-4.618e-8	1594.489	NC
1835			5	.002	-.175	0	0	NC	NC
1836	3	M368	1	.002	-.175	0	0	NC	NC
1837			2	.002	-.184	0	0	7707.041	NC
1838			3	.002	-.181	0	0	5429.391	NC
1839			4	.002	-.164	0	0	7368.423	NC
1840			5	.001	-.134	0	0	NC	NC
1841	3	M369	1	0	-.168	0	-5.301e-7	NC	NC
1842			2	0	-.299	0	-3.998e-7	1958.296	NC
1843			3	0	-.353	0	-2.696e-7	1392.493	NC
1844			4	0	-.303	0	-1.393e-7	1937.419	NC
1845			5	0	-.173	0	0	NC	NC
1846	3	M370	1	0	-.173	0	0	NC	NC
1847			2	0	-.185	0	0	9301.876	NC
1848			3	0	-.189	0	0	6559.09	NC
1849			4	0	-.18	0	0	8910.631	NC
1850			5	0	-.161	0	0	NC	NC
1851	3	M371	1	0	-.139	0	-4.078e-6	NC	NC
1852			2	0	-.249	0	-3.091e-6	2111.369	NC
1853			3	0	-.288	0	-2.105e-6	1500.209	NC
1854			4	0	-.229	0	-1.119e-6	2086.553	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1855			5	0	-.097	0	-1.322e-7	NC	NC
1856	3	M372	1	0	-.097	0	-1.322e-7	NC	NC
1857			2	0	-.109	0	-1.008e-7	9959.358	NC
1858			3	0	-.114	0	-6.938e-8	7038.412	NC
1859			4	0	-.107	0	-3.795e-8	9578.254	NC
1860			5	0	-.09	0	0	NC	NC
1861	3	M373	1	0	-.06	0	1.914e-4	NC	NC
1862			2	0	-.188	0	1.455e-4	2131.096	NC
1863			3	0	-.246	0	9.949e-5	1516.796	NC
1864			4	0	-.208	0	5.352e-5	2110.989	NC
1865			5	0	-.096	0	7.553e-6	NC	NC
1866	3	M374	1	0	-.096	0	7.553e-6	NC	NC
1867			2	0	-.109	0	5.773e-6	NC	NC
1868			3	0	-.113	0	3.993e-6	7135.366	NC
1869			4	0	-.106	0	2.212e-6	9688.237	NC
1870			5	0	-.09	0	4.32e-7	NC	NC
1871	3	M375	1	0	-.183	0	-9.809e-7	NC	NC
1872			2	0	-.317	0	-7.404e-7	1872.838	NC
1873			3	0	-.37	0	-4.999e-7	1331.618	NC
1874			4	0	-.315	0	-2.594e-7	1852.817	NC
1875			5	0	-.176	0	0	NC	NC
1876	3	M376	1	0	-.176	0	0	NC	NC
1877			2	0	-.19	0	0	8866.606	NC
1878			3	0	-.195	0	0	6253.629	NC
1879			4	0	-.187	0	0	8495.816	NC
1880			5	0	-.168	0	0	NC	NC
1881	3	M377	1	-.002	.215	0	1.726e-7	NC	NC
1882			2	-.002	.299	0	-3.154e-6	1766.316	NC
1883			3	-.003	.301	0	-6.481e-6	1264.012	NC
1884			4	-.003	.195	0	-9.808e-6	1769.689	NC
1885			5	-.003	.007	.002	-1.314e-5	NC	NC
1886	3	M378	1	0	.168	0	5.301e-7	NC	NC
1887			2	0	.26	0	-1.255e-6	2298.387	NC
1888			3	0	.287	0	-3.041e-6	1660.749	NC
1889			4	0	.232	0	-4.826e-6	2354.855	NC
1890			5	0	.117	.002	-6.612e-6	NC	NC
1891	3	M379	1	0	.139	0	4.078e-6	NC	NC
1892			2	0	.23	0	1.778e-6	2477.121	NC
1893			3	0	.26	0	-5.212e-7	1789.154	NC
1894			4	0	.214	0	-2.821e-6	2537.567	NC
1895			5	0	.113	.001	-5.12e-6	NC	NC
1896	3	M380	1	0	.06	0	-1.914e-4	NC	NC
1897			2	0	.181	0	-1.474e-4	2499.415	NC
1898			3	0	.243	0	-1.034e-4	1806.339	NC
1899			4	0	.228	0	-5.932e-5	2562.621	NC
1900			5	0	.159	0	-1.528e-5	NC	NC
1901	3	M381	1	0	.183	0	9.809e-7	NC	NC
1902			2	0	.289	0	0	2197.612	NC
1903			3	0	.328	0	-9.251e-7	1587.743	NC
1904			4	0	.28	0	-1.878e-6	2252.062	NC
1905			5	0	.171	0	-2.831e-6	NC	NC
1906	3	M382	1	0	.117	.002	-6.612e-6	NC	NC
1907			2	0	.176	.002	-6.596e-6	3154.612	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1908			3	0	.191	.002	-6.581e-6	2281.83	NC
1909			4	0	.149	.002	-6.565e-6	3232.041	NC
1910			5	0	.065	0	-6.549e-6	NC	NC
1911	3	M383	1	0	.113	.001	-5.12e-6	NC	NC
1912			2	0	.203	.002	-5.329e-6	2840.395	NC
1913			3	0	.244	.002	-5.539e-6	2030.232	NC
1914			4	0	.222	.001	-5.748e-6	2840.836	NC
1915			5	0	.151	0	-5.958e-6	NC	NC
1916	3	M384	1	0	.159	0	-1.528e-5	NC	NC
1917			2	0	.237	.001	-1.285e-5	2861.47	NC
1918			3	0	.266	.001	-1.042e-5	2045.269	NC
1919			4	0	.232	0	-7.985e-6	2861.093	NC
1920			5	0	.149	0	-5.554e-6	NC	NC
1921	3	M385	1	0	.171	0	-2.831e-6	NC	NC
1922			2	0	.259	0	-2.921e-6	2522.843	NC
1923			3	0	.294	0	-3.012e-6	1803.456	NC
1924			4	0	.256	0	-3.102e-6	2522.55	NC
1925			5	0	.164	0	-3.193e-6	NC	NC
1926	3	M386	1	0	.168	0	-3.291e-6	NC	NC
1927			2	0	.278	0	-2.798e-6	2194.555	NC
1928			3	0	.321	0	-2.306e-6	1585.508	NC
1929			4	0	.279	0	-1.813e-6	2225.539	NC
1930			5	0	.173	0	-1.321e-6	NC	NC
1931	3	M387	1	0	.153	0	-5.264e-6	NC	NC
1932			2	0	.257	.001	-4.152e-6	2484.625	NC
1933			3	0	.301	.001	-3.039e-6	1795.066	NC
1934			4	0	.27	.001	-1.927e-6	2519.133	NC
1935			5	0	.183	0	-8.15e-7	NC	NC
1936	3	M388	1	0	.153	0	-6.195e-6	NC	NC
1937			2	0	.24	.002	-5.776e-6	2478.187	NC
1938			3	0	.267	.002	-5.357e-6	1791.423	NC
1939			4	0	.219	.002	-4.939e-6	2515.234	NC
1940			5	0	.114	.001	-4.52e-6	NC	NC
1941	3	M389	1	0	.071	0	-6.765e-6	NC	NC
1942			2	0	.168	.002	-5.957e-6	2797.799	NC
1943			3	0	.214	.002	-5.149e-6	1995.608	NC
1944			4	0	.193	.002	-4.342e-6	2767.27	NC
1945			5	0	.119	.001	-3.534e-6	NC	NC
1946	3	M390	1	0	.173	0	-1.321e-6	NC	NC
1947			2	0	.285	0	-1.008e-6	2172.929	NC
1948			3	0	.33	0	-6.944e-7	1559.332	NC
1949			4	0	.288	0	-3.812e-7	2178.073	NC
1950			5	0	.18	0	-6.806e-8	NC	NC
1951	3	M391	1	0	.183	0	-8.15e-7	NC	NC
1952			2	0	.278	0	1.918e-5	2474.305	NC
1953			3	0	.314	0	3.918e-5	1773.391	NC
1954			4	0	.273	0	5.918e-5	2471.752	NC
1955			5	0	.174	0	7.917e-5	NC	NC
1956	3	M392	1	0	.114	.001	-4.52e-6	NC	NC
1957			2	0	.198	0	-2.757e-5	2470.169	NC
1958			3	0	.222	0	-5.062e-5	1770.589	NC
1959			4	0	.17	0	-7.368e-5	2472.816	NC
1960			5	0	.059	0	-9.673e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
1961	3	M393	1	0	.119	.001	-3.534e-6	NC	NC
1962			2	0	.229	0	-2.693e-6	2271.826	NC
1963			3	0	.275	0	-1.853e-6	1629.296	NC
1964			4	0	.238	0	-1.012e-6	2274.773	NC
1965			5	0	.137	0	-1.714e-7	NC	NC
1966	3	M394	1	.002	.007	.002	-9.663e-6	NC	NC
1967			2	.002	.186	0	-7.328e-6	1726.141	NC
1968			3	.002	.278	0	-4.994e-6	1255.601	NC
1969			4	.002	.262	0	-2.659e-6	1769.883	NC
1970			5	.002	.165	0	-3.244e-7	NC	NC
1971	3	M395	1	0	.18	0	-6.806e-8	NC	NC
1972			2	0	.303	0	-5.186e-8	2040.294	NC
1973			3	0	.354	0	-3.567e-8	1452.71	NC
1974			4	0	.308	0	0	2014.218	NC
1975			5	0	.186	0	0	NC	NC
1976	3	M396	1	0	.174	0	7.917e-5	NC	NC
1977			2	0	.263	0	1.435e-3	2305.266	NC
1978			3	0	.288	0	2.766e-3	1641.614	NC
1979			4	0	.228	0	1.424e-3	2277.878	NC
1980			5	0	.1	0	8.18e-5	NC	NC
1981	3	M397	1	0	.059	0	-9.673e-5	NC	NC
1982			2	0	.177	0	-1.752e-3	2307.478	NC
1983			3	0	.231	0	-3.375e-3	1644.207	NC
1984			4	0	.199	0	-1.737e-3	2282.683	NC
1985			5	0	.1	0	-9.983e-5	NC	NC
1986	3	M398	1	0	.137	0	-1.714e-7	NC	NC
1987			2	0	.267	0	-1.354e-7	2131.2	NC
1988			3	0	.327	0	-9.935e-8	1517.767	NC
1989			4	0	.295	0	-6.335e-8	2104.623	NC
1990			5	0	.191	0	0	NC	NC
1991	3	M399	1	.002	.165	0	-3.244e-7	NC	NC
1992			2	.002	.312	0	-2.506e-7	1761.938	NC
1993			3	.002	.375	0	-1.768e-7	1254.694	NC
1994			4	.002	.326	0	-1.031e-7	1739.261	NC
1995			5	.001	.189	0	0	NC	NC
1996	3	M400	1	0	.186	0	0	NC	NC
1997			2	0	.213	0	0	5849.853	NC
1998			3	0	.223	0	0	4199.544	NC
1999			4	0	.21	0	0	5859.975	NC
2000			5	0	.18	0	0	NC	NC
2001	3	M401	1	0	.1	0	8.18e-5	NC	NC
2002			2	0	.125	0	6.192e-5	6599.829	NC
2003			3	0	.134	0	4.204e-5	4741.56	NC
2004			4	0	.123	0	2.215e-5	6618.164	NC
2005			5	0	.097	0	2.268e-6	NC	NC
2006	3	M402	1	0	.1	0	-9.983e-5	NC	NC
2007			2	0	.125	0	-7.556e-5	6613.478	NC
2008			3	0	.134	0	-5.13e-5	4746.921	NC
2009			4	0	.123	0	-2.703e-5	6621.697	NC
2010			5	0	.097	0	-2.767e-6	NC	NC
2011	3	M403	1	0	.191	0	0	NC	NC
2012			2	0	.214	0	0	6120.28	NC
2013			3	0	.22	0	0	4392.725	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2014			4	0	.205	0	0	6125.572	NC
2015			5	0	.173	0	0	NC	NC
2016	3	M404	1	.001	.189	0	0	NC	NC
2017			2	.001	.21	0	0	5047.082	NC
2018			3	.001	.211	0	0	3619.467	NC
2019			4	.001	.186	0	0	5047.073	NC
2020			5	.001	.141	0	0	NC	NC
2021	3	M405	1	0	-.065	0	5.154e-6	NC	NC
2022			2	0	-.025	0	3.036e-4	6382.843	NC
2023			3	0	-.028	0	3.846e-4	6843.748	NC
2024			4	0	-.079	0	1.949e-4	NC	NC
2025			5	0	-.119	0	5.249e-6	4660.46	NC
2026	3	M406	1	0	-.071	0	-4.284e-6	NC	NC
2027			2	0	-.028	0	-2.737e-4	5896.053	NC
2028			3	0	-.029	0	-3.469e-4	6103.767	NC
2029			4	0	-.081	0	-1.757e-4	NC	NC
2030			5	0	-.124	0	-4.634e-6	4763.038	NC
2031	3	M407	1	0	-.124	0	1.529e-6	NC	NC
2032			2	0	-.154	0	1.849e-6	7102.989	NC
2033			3	0	-.168	0	2.17e-6	4937.626	NC
2034			4	0	-.157	0	2.49e-6	6876.269	NC
2035			5	0	-.129	0	2.81e-6	NC	NC
2036	3	M408	1	0	-.129	0	2.259e-6	NC	NC
2037			2	0	-.153	0	1.747e-6	7567.292	NC
2038			3	0	-.161	0	1.235e-6	5422.467	NC
2039			4	0	-.148	0	7.224e-7	7770.31	NC
2040			5	0	-.119	0	2.102e-7	NC	NC
2041	3	M409	1	0	.153	0	2.243e-3	NC	NC
2042			2	0	.592	0	2.243e-3	480.592	NC
2043			3	0	.752	0	2.243e-3	339.294	NC
2044			4	0	.523	0	2.243e-3	472.691	NC
2045			5	0	0	0	2.243e-3	NC	NC
2046	3	M410	1	0	.258	0	1.335e-3	NC	NC
2047			2	0	.527	0	1.335e-3	687.212	NC
2048			3	0	.598	0	1.335e-3	488.217	NC
2049			4	0	.4	0	1.335e-3	682.802	NC
2050			5	0	0	0	1.335e-3	NC	NC
2051	3	M411	1	0	.304	0	4.474e-4	NC	NC
2052			2	0	.524	0	4.474e-4	774.625	NC
2053			3	0	.568	0	4.474e-4	551.233	NC
2054			4	0	.373	0	4.474e-4	771.696	NC
2055			5	0	0	0	4.474e-4	NC	NC
2056	3	M412	1	0	.305	0	0	NC	NC
2057			2	0	.6	0	0	617.527	NC
2058			3	0	.676	0	0	438.13	NC
2059			4	0	.451	0	0	612.273	NC
2060			5	0	0	0	0	NC	NC
2061	3	M413	1	0	.236	0	-1.193e-3	NC	NC
2062			2	0	.553	0	-1.193e-3	609.782	NC
2063			3	0	.647	0	-1.193e-3	433.533	NC
2064			4	0	.437	0	-1.193e-3	606.61	NC
2065			5	0	0	0	-1.193e-3	NC	NC
2066	3	M414	1	0	.145	0	-2.41e-6	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2067			2	0	.48	0	-2.41e-6	617.527	NC
2068			3	0	.596	0	-2.41e-6	438.13	NC
2069			4	0	.411	0	-2.41e-6	612.273	NC
2070			5	0	0	0	-2.41e-6	NC	NC
2071	3	M415	1	0	.182	0	2.868e-4	NC	NC
2072			2	0	.473	0	2.868e-4	681.377	NC
2073			3	0	.564	0	2.868e-4	484.761	NC
2074			4	0	.383	0	2.868e-4	678.545	NC
2075			5	0	0	0	2.868e-4	NC	NC
2076	3	M416	1	0	.183	0	-2.842e-4	NC	NC
2077			2	0	.473	0	-2.842e-4	681.377	NC
2078			3	0	.564	0	-2.842e-4	484.761	NC
2079			4	0	.383	0	-2.842e-4	678.545	NC
2080			5	0	0	0	-2.842e-4	NC	NC
2081	3	M417	1	0	.145	0	2.939e-6	NC	NC
2082			2	0	.485	0	2.939e-6	609.782	NC
2083			3	0	.601	0	2.939e-6	433.533	NC
2084			4	0	.414	0	2.939e-6	606.61	NC
2085			5	0	0	0	2.939e-6	NC	NC
2086	3	M418	1	0	.233	0	1.093e-3	NC	NC
2087			2	0	.546	0	1.093e-3	617.527	NC
2088			3	0	.64	0	1.093e-3	438.13	NC
2089			4	0	.433	0	1.093e-3	612.273	NC
2090			5	0	0	0	1.093e-3	NC	NC
2091	3	M419	1	0	.293	0	0	NC	NC
2092			2	0	.591	0	0	617.527	NC
2093			3	0	.67	0	0	438.13	NC
2094			4	0	.448	0	0	612.273	NC
2095			5	0	0	0	0	NC	NC
2096	3	M420	1	0	.33	0	3.531e-4	NC	NC
2097			2	0	.543	0	3.531e-4	777.247	NC
2098			3	0	.58	0	3.531e-4	552.757	NC
2099			4	0	.379	0	3.531e-4	773.564	NC
2100			5	0	0	0	3.531e-4	NC	NC
2101	3	M421	1	0	.335	0	-3.063e-4	NC	NC
2102			2	0	.547	0	-3.063e-4	774.625	NC
2103			3	0	.583	0	-3.063e-4	551.233	NC
2104			4	0	.381	0	-3.063e-4	771.696	NC
2105			5	0	0	0	-3.063e-4	NC	NC
2106	3	M422	1	0	.297	0	-9.801e-4	NC	NC
2107			2	0	.516	0	-9.801e-4	782.176	NC
2108			3	0	.561	0	-9.801e-4	555.706	NC
2109			4	0	.369	0	-9.801e-4	777.207	NC
2110			5	0	0	0	-9.801e-4	NC	NC
2111	3	M423	1	-.002	.226	0	0	NC	NC
2112			2	-.002	.506	0	0	681.377	NC
2113			3	-.001	.586	0	0	484.761	NC
2114			4	0	.394	0	0	678.545	NC
2115			5	0	0	0	0	NC	NC
2116	3	M424	1	0	.178	0	-1.057e-3	NC	NC
2117			2	0	.429	0	-1.057e-3	774.625	NC
2118			3	0	.505	0	-1.057e-3	551.233	NC
2119			4	0	.342	0	-1.057e-3	771.696	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2120			5	0	0	0	-1.057e-3	NC	NC
2121	3	M425	1	0	.115	0	-1.199e-3	NC	NC
2122			2	0	.381	0	-1.199e-3	777.247	NC
2123			3	0	.472	0	-1.199e-3	552.757	NC
2124			4	0	.325	0	-1.199e-3	773.564	NC
2125			5	0	0	0	-1.199e-3	NC	NC
2126	3	M426	1	0	.047	0	-1.002e-3	NC	NC
2127			2	0	.372	0	-1.002e-3	681.377	NC
2128			3	0	.496	0	-1.002e-3	484.761	NC
2129			4	0	.349	0	-1.002e-3	678.545	NC
2130			5	0	0	0	-1.002e-3	NC	NC
2131	3	M427	1	0	0	0	-7.995e-5	NC	NC
2132			2	0	.182	0	-7.995e-5	1261.331	NC
2133			3	0	.296	0	-7.995e-5	774.408	NC
2134			4	0	.227	0	-7.995e-5	1008.621	NC
2135			5	0	0	0	-7.995e-5	NC	NC
2136	3	M428	1	0	.084	0	1.306e-3	NC	NC
2137			2	0	1.652	0	1.306e-3	144.254	NC
2138			3	0	2.372	0	1.306e-3	98.362	NC
2139			4	0	1.76	0	1.306e-3	131.767	NC
2140			5	0	0	0	1.306e-3	NC	NC
2141	3	M429	1	0	.344	0	-3.459e-4	NC	NC
2142			2	0	.574	0	-3.459e-4	717.54	NC
2143			3	0	.617	0	-3.459e-4	509.774	NC
2144			4	0	.403	0	-3.459e-4	715.086	NC
2145			5	0	0	0	-3.459e-4	NC	NC
2146	3	M430	1	0	.315	0	0	NC	NC
2147			2	0	.552	0	0	717.54	NC
2148			3	0	.602	0	0	509.774	NC
2149			4	0	.396	0	0	715.086	NC
2150			5	0	0	0	0	NC	NC
2151	3	M431	1	0	.433	0	-1.246e-3	NC	NC
2152			2	0	.687	0	-1.246e-3	625.366	NC
2153			3	0	.728	0	-1.246e-3	443.099	NC
2154			4	0	.474	0	-1.246e-3	620.558	NC
2155			5	0	0	0	-1.246e-3	NC	NC
2156	3	M432	1	0	.474	0	1.144e-4	NC	NC
2157			2	0	.672	0	1.144e-4	717.54	NC
2158			3	0	.682	0	1.144e-4	509.774	NC
2159			4	0	.436	0	1.144e-4	715.086	NC
2160			5	0	0	0	1.144e-4	NC	NC
2161	3	M433	1	0	.42	0	1.426e-3	NC	NC
2162			2	0	.631	0	1.426e-3	717.54	NC
2163			3	0	.655	0	1.426e-3	509.774	NC
2164			4	0	.422	0	1.426e-3	715.086	NC
2165			5	0	0	0	1.426e-3	NC	NC
2166	3	M434	1	0	.292	0	0	NC	NC
2167			2	0	.586	0	0	619.164	NC
2168			3	0	.662	0	0	439.928	NC
2169			4	0	.441	0	0	617.186	NC
2170			5	0	0	0	0	NC	NC
2171	3	M435	1	0	.393	0	-1.281e-3	NC	NC
2172			2	0	.561	0	-1.281e-3	853.082	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2173			3	0	.571	0	-1.281e-3	605.983	NC
2174			4	0	.365	0	-1.281e-3	849.901	NC
2175			5	0	0	0	-1.281e-3	NC	NC
2176	3	M436	1	0	.441	0	-1.992e-4	NC	NC
2177			2	0	.694	0	-1.992e-4	623.877	NC
2178			3	0	.733	0	-1.992e-4	442.712	NC
2179			4	0	.476	0	-1.992e-4	620.632	NC
2180			5	0	0	0	-1.992e-4	NC	NC
2181	3	M437	1	0	.4	0	1.227e-3	NC	NC
2182			2	0	.663	0	1.227e-3	625.366	NC
2183			3	0	.712	0	1.227e-3	443.099	NC
2184			4	0	.466	0	1.227e-3	620.558	NC
2185			5	0	0	0	1.227e-3	NC	NC
2186	3	M438	1	0	.282	0	0	NC	NC
2187			2	0	.527	0	0	717.54	NC
2188			3	0	.586	0	0	509.774	NC
2189			4	0	.388	0	0	715.086	NC
2190			5	0	0	0	0	NC	NC
2191	3	M439	1	0	.388	0	-1.18e-3	NC	NC
2192			2	0	.607	0	-1.18e-3	717.54	NC
2193			3	0	.639	0	-1.18e-3	509.774	NC
2194			4	0	.414	0	-1.18e-3	715.086	NC
2195			5	0	0	0	-1.18e-3	NC	NC
2196	3	M440	1	.001	.428	0	3.624e-5	NC	NC
2197			2	0	.637	0	3.624e-5	717.54	NC
2198			3	0	.659	0	3.624e-5	509.774	NC
2199			4	0	.424	0	3.624e-5	715.086	NC
2200			5	0	0	0	3.624e-5	NC	NC
2201	3	M441	1	.001	.385	0	1.247e-3	NC	NC
2202			2	0	.655	0	1.247e-3	619.164	NC
2203			3	0	.708	0	1.247e-3	439.928	NC
2204			4	0	.464	0	1.247e-3	617.186	NC
2205			5	0	0	0	1.247e-3	NC	NC
2206	3	M442	1	.001	.274	0	0	NC	NC
2207			2	0	.522	0	0	715.351	NC
2208			3	0	.583	0	0	508.504	NC
2209			4	0	.386	0	0	713.523	NC
2210			5	0	0	0	0	NC	NC
2211	3	M443	1	0	.349	0	-8.81e-4	NC	NC
2212			2	0	.578	0	-8.81e-4	717.54	NC
2213			3	0	.62	0	-8.81e-4	509.774	NC
2214			4	0	.405	0	-8.81e-4	715.086	NC
2215			5	0	0	0	-8.81e-4	NC	NC
2216	3	M444	1	0	.377	0	3.381e-5	NC	NC
2217			2	0	.549	0	3.381e-5	853.082	NC
2218			3	0	.563	0	3.381e-5	605.983	NC
2219			4	0	.361	0	3.381e-5	849.901	NC
2220			5	0	0	0	3.381e-5	NC	NC
2221	3	M445	1	0	.346	0	9.475e-4	NC	NC
2222			2	0	.575	0	9.475e-4	717.54	NC
2223			3	0	.618	0	9.475e-4	509.774	NC
2224			4	0	.404	0	9.475e-4	715.086	NC
2225			5	0	0	0	9.475e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2226	3	M446	1	.001	.266	0	0	NC	NC
2227			2	0	.516	0	0	717.54	NC
2228			3	0	.578	0	0	509.774	NC
2229			4	0	.384	0	0	715.086	NC
2230			5	0	0	0	0	NC	NC
2231	3	M447	1	.001	.36	0	-1.098e-3	NC	NC
2232			2	0	.586	0	-1.098e-3	717.54	NC
2233			3	0	.625	0	-1.098e-3	509.774	NC
2234			4	0	.407	0	-1.098e-3	715.086	NC
2235			5	0	0	0	-1.098e-3	NC	NC
2236	3	M448	1	.001	.398	0	-4.87e-5	NC	NC
2237			2	0	.616	0	-4.87e-5	715.351	NC
2238			3	0	.645	0	-4.87e-5	508.504	NC
2239			4	0	.417	0	-4.87e-5	713.523	NC
2240			5	0	0	0	-4.87e-5	NC	NC
2241	3	M449	1	.001	.364	0	1.017e-3	NC	NC
2242			2	0	.589	0	1.017e-3	717.54	NC
2243			3	0	.627	0	1.017e-3	509.774	NC
2244			4	0	.408	0	1.017e-3	715.086	NC
2245			5	0	0	0	1.017e-3	NC	NC
2246	3	M450	1	0	.278	0	0	NC	NC
2247			2	0	.573	0	0	622.222	NC
2248			3	0	.652	0	0	441.755	NC
2249			4	0	.436	0	0	619.454	NC
2250			5	0	0	0	0	NC	NC
2251	3	M451	1	0	.408	0	-1.079e-3	NC	NC
2252			2	0	.62	0	-1.079e-3	721.65	NC
2253			3	0	.647	0	-1.079e-3	512.228	NC
2254			4	0	.418	0	-1.079e-3	718.133	NC
2255			5	0	0	0	-1.079e-3	NC	NC
2256	3	M452	1	0	.439	0	-9.085e-5	NC	NC
2257			2	0	.595	0	-9.085e-5	853.082	NC
2258			3	0	.594	0	-9.085e-5	605.983	NC
2259			4	0	.377	0	-9.085e-5	849.901	NC
2260			5	0	0	0	-9.085e-5	NC	NC
2261	3	M453	1	0	.402	0	1.134e-3	NC	NC
2262			2	0	.668	0	1.134e-3	619.164	NC
2263			3	0	.716	0	1.134e-3	439.928	NC
2264			4	0	.468	0	1.134e-3	617.186	NC
2265			5	0	0	0	1.134e-3	NC	NC
2266	3	M454	1	0	.297	0	-6.512e-6	NC	NC
2267			2	0	.589	0	-6.512e-6	620.631	NC
2268			3	0	.664	0	-6.512e-6	440.31	NC
2269			4	0	.442	0	-6.512e-6	617.112	NC
2270			5	0	0	0	-6.512e-6	NC	NC
2271	3	M455	1	0	.433	0	-1.468e-3	NC	NC
2272			2	0	.641	0	-1.468e-3	717.54	NC
2273			3	0	.661	0	-1.468e-3	509.774	NC
2274			4	0	.425	0	-1.468e-3	715.086	NC
2275			5	0	0	0	-1.468e-3	NC	NC
2276	3	M456	1	0	.488	0	-6.79e-6	NC	NC
2277			2	0	.732	0	-6.79e-6	619.164	NC
2278			3	0	.76	0	-6.79e-6	439.928	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2279			4	0	.489	0	-6.79e-6	617.186	NC
2280			5	0	0	0	-6.79e-6	NC	NC
2281	3	M457	1	0	.434	0	1.476e-3	NC	NC
2282			2	0	.691	0	1.476e-3	620.631	NC
2283			3	0	.732	0	1.476e-3	440.31	NC
2284			4	0	.476	0	1.476e-3	617.112	NC
2285			5	0	0	0	1.476e-3	NC	NC
2286	3	M458	1	0	.297	0	0	NC	NC
2287			2	0	.538	0	0	717.54	NC
2288			3	0	.593	0	0	509.774	NC
2289			4	0	.391	0	0	715.086	NC
2290			5	0	0	0	0	NC	NC
2291	3	M459	1	0	.313	0	-1.008e-4	NC	NC
2292			2	0	.449	0	-1.008e-4	1056.335	NC
2293			3	0	.458	0	-1.008e-4	751.123	NC
2294			4	0	.293	0	-1.008e-4	1054.121	NC
2295			5	0	0	0	-1.008e-4	NC	NC
2296	3	M460	1	0	.31	0	2.637e-4	NC	NC
2297			2	0	.549	0	2.637e-4	715.351	NC
2298			3	0	.601	0	2.637e-4	508.504	NC
2299			4	0	.395	0	2.637e-4	713.523	NC
2300			5	0	0	0	2.637e-4	NC	NC
2301	3	M461	1	0	.179	0	-2.872e-4	NC	NC
2302			2	0	.258	0	-3.019e-4	3545.796	NC
2303			3	0	.315	0	-3.166e-4	2528.025	NC
2304			4	0	.341	0	-3.312e-4	3586.189	NC
2305			5	0	.344	0	-3.459e-4	NC	NC
2306	3	M462	1	0	.18	0	2.224e-4	NC	NC
2307			2	0	.26	0	2.244e-4	3592.224	NC
2308			3	0	.317	0	2.264e-4	2561.115	NC
2309			4	0	.343	0	2.283e-4	3637.492	NC
2310			5	0	.347	0	2.303e-4	NC	NC
2311	3	M463	1	0	.15	0	-1.718e-6	NC	NC
2312			2	0	.229	0	-1.286e-6	3592.224	NC
2313			3	0	.285	0	-8.528e-7	2561.115	NC
2314			4	0	.311	0	-4.202e-7	3637.492	NC
2315			5	0	.315	0	0	NC	NC
2316	3	M464	1	0	.294	0	-1.736e-3	NC	NC
2317			2	0	.373	0	-1.614e-3	3085.044	NC
2318			3	0	.425	0	-1.491e-3	2196.488	NC
2319			4	0	.442	0	-1.369e-3	3115.576	NC
2320			5	0	.433	0	-1.246e-3	NC	NC
2321	3	M465	1	0	.371	0	-5.33e-4	NC	NC
2322			2	0	.436	0	-3.711e-4	3491.794	NC
2323			3	0	.477	0	-2.093e-4	2495.78	NC
2324			4	0	.487	0	-4.746e-5	3545.298	NC
2325			5	0	.474	0	1.144e-4	NC	NC
2326	3	M466	1	0	.362	0	6.279e-4	NC	NC
2327			2	0	.414	0	8.273e-4	3609.246	NC
2328			3	0	.444	0	1.027e-3	2571.716	NC
2329			4	0	.443	0	1.226e-3	3651.106	NC
2330			5	0	.42	0	1.426e-3	NC	NC
2331	3	M467	1	0	.288	0	-5.006e-7	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2332			2	0	.332	0	-3.732e-7	3170.838	NC
2333			3	0	.35	0	-2.458e-7	2261.861	NC
2334			4	0	.333	0	-1.184e-7	3220.933	NC
2335			5	0	.292	0	0	NC	NC
2336	3	M468	1	0	.384	0	-1.253e-3	NC	NC
2337			2	0	.419	0	-1.26e-3	4219.011	NC
2338			3	0	.434	0	-1.267e-3	2996.834	NC
2339			4	0	.423	0	-1.274e-3	4234.701	NC
2340			5	0	.393	0	-1.281e-3	NC	NC
2341	3	M469	1	0	.432	0	-2.989e-4	NC	NC
2342			2	0	.477	0	-2.739e-4	3184.093	NC
2343			3	0	.496	0	-2.49e-4	2270.126	NC
2344			4	0	.481	0	-2.241e-4	3231.603	NC
2345			5	0	.441	0	-1.992e-4	NC	NC
2346	3	M470	1	0	.405	0	9.526e-4	NC	NC
2347			2	0	.448	0	1.021e-3	3085.044	NC
2348			3	0	.464	0	1.09e-3	2196.488	NC
2349			4	0	.445	0	1.159e-3	3115.576	NC
2350			5	0	.4	0	1.227e-3	NC	NC
2351	3	M471	1	0	.309	0	-6.208e-7	NC	NC
2352			2	0	.341	0	-4.61e-7	3545.796	NC
2353			3	0	.349	0	-3.012e-7	2528.025	NC
2354			4	0	.326	0	-1.413e-7	3586.189	NC
2355			5	0	.282	0	0	NC	NC
2356	3	M472	1	.001	.389	0	-8.247e-4	NC	NC
2357			2	.001	.427	0	-9.135e-4	3609.246	NC
2358			3	.001	.441	0	-1.002e-3	2571.716	NC
2359			4	0	.425	0	-1.091e-3	3651.106	NC
2360			5	0	.388	0	-1.18e-3	NC	NC
2361	3	M473	1	.002	.413	0	2.492e-4	NC	NC
2362			2	.002	.454	0	1.959e-4	3649.403	NC
2363			3	.002	.473	0	1.427e-4	2595.082	NC
2364			4	.001	.461	0	8.947e-5	3680.55	NC
2365			5	.001	.428	0	3.624e-5	NC	NC
2366	3	M474	1	.002	.361	0	1.318e-3	NC	NC
2367			2	.002	.41	0	1.3e-3	3170.838	NC
2368			3	.002	.433	0	1.282e-3	2261.861	NC
2369			4	.001	.421	0	1.265e-3	3220.933	NC
2370			5	.001	.385	0	1.247e-3	NC	NC
2371	3	M475	1	.002	.25	0	-7.22e-7	NC	NC
2372			2	.002	.294	0	-5.367e-7	3545.796	NC
2373			3	.002	.316	0	-3.514e-7	2528.025	NC
2374			4	.002	.306	0	-1.661e-7	3586.189	NC
2375			5	.001	.274	0	0	NC	NC
2376	3	M476	1	0	.293	0	-4.931e-4	NC	NC
2377			2	0	.345	0	-5.901e-4	3592.224	NC
2378			3	0	.374	0	-6.871e-4	2561.115	NC
2379			4	0	.373	0	-7.84e-4	3637.492	NC
2380			5	0	.349	0	-8.81e-4	NC	NC
2381	3	M477	1	0	.308	0	2.976e-5	NC	NC
2382			2	0	.357	0	3.078e-5	4229.651	NC
2383			3	0	.387	0	3.179e-5	3011.359	NC
2384			4	0	.391	0	3.28e-5	4266.168	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2385			5	0	.377	0	3.381e-5	NC	NC
2386	3	M478	1	0	.29	0	5.485e-4	NC	NC
2387			2	0	.341	0	6.483e-4	3609.246	NC
2388			3	0	.37	0	7.48e-4	2571.716	NC
2389			4	0	.369	0	8.478e-4	3651.106	NC
2390			5	0	.346	0	9.475e-4	NC	NC
2391	3	M479	1	.002	.244	0	-8.226e-7	NC	NC
2392			2	.002	.288	0	-6.12e-7	3545.796	NC
2393			3	.002	.309	0	-4.014e-7	2528.025	NC
2394			4	.001	.299	0	-1.908e-7	3586.189	NC
2395			5	.001	.266	0	0	NC	NC
2396	3	M480	1	.002	.329	0	-1.006e-3	NC	NC
2397			2	.002	.375	0	-1.029e-3	3545.796	NC
2398			3	.002	.398	0	-1.052e-3	2528.025	NC
2399			4	.002	.39	0	-1.075e-3	3586.189	NC
2400			5	.001	.36	0	-1.098e-3	NC	NC
2401	3	M481	1	.002	.365	0	-8.126e-5	NC	NC
2402			2	.002	.411	0	-7.312e-5	3545.796	NC
2403			3	.002	.435	0	-6.498e-5	2528.025	NC
2404			4	.002	.428	0	-5.684e-5	3586.189	NC
2405			5	.001	.398	0	-4.87e-5	NC	NC
2406	3	M482	1	.002	.337	0	8.582e-4	NC	NC
2407			2	.002	.382	0	8.979e-4	3545.796	NC
2408			3	.001	.404	0	9.376e-4	2528.025	NC
2409			4	.001	.395	0	9.773e-4	3586.189	NC
2410			5	.001	.364	0	1.017e-3	NC	NC
2411	3	M483	1	.001	.263	0	-9.496e-7	NC	NC
2412			2	.001	.31	0	-7.071e-7	3134.608	NC
2413			3	0	.331	0	-4.646e-7	2236.014	NC
2414			4	0	.316	0	-2.222e-7	3180.642	NC
2415			5	0	.278	0	0	NC	NC
2416	3	M484	1	0	.31	0	-3.128e-5	NC	NC
2417			2	0	.373	0	-2.931e-4	3491.794	NC
2418			3	0	.413	0	-5.549e-4	2495.78	NC
2419			4	0	.422	0	-8.167e-4	3545.298	NC
2420			5	0	.408	0	-1.079e-3	NC	NC
2421	3	M485	1	0	.294	0	8.363e-4	NC	NC
2422			2	0	.362	0	6.045e-4	4229.651	NC
2423			3	0	.411	0	3.727e-4	3011.359	NC
2424			4	0	.434	0	1.409e-4	4266.168	NC
2425			5	0	.439	0	-9.085e-5	NC	NC
2426	3	M486	1	0	.207	0	1.913e-3	NC	NC
2427			2	0	.298	0	1.718e-3	3170.838	NC
2428			3	0	.364	0	1.524e-3	2261.861	NC
2429			4	0	.395	0	1.329e-3	3220.933	NC
2430			5	0	.402	0	1.134e-3	NC	NC
2431	3	M487	1	0	.06	0	-3.638e-4	NC	NC
2432			2	0	.163	0	-2.745e-4	3085.044	NC
2433			3	0	.241	0	-1.852e-4	2196.488	NC
2434			4	0	.282	0	-9.584e-5	3115.576	NC
2435			5	0	.297	0	-6.512e-6	NC	NC
2436	3	M488	1	0	.2	0	-1.622e-3	NC	NC
2437			2	0	.297	0	-1.584e-3	3491.794	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2438			3	0	.371	0	-1.545e-3	2495.78	NC
2439			4	0	.413	0	-1.506e-3	3545.298	NC
2440			5	0	.433	0	-1.468e-3	NC	NC
2441	3	M489	1	0	.27	0	-3.391e-4	NC	NC
2442			2	0	.366	0	-2.56e-4	3221.482	NC
2443			3	0	.438	0	-1.73e-4	2296.773	NC
2444			4	0	.475	0	-8.988e-5	3273.203	NC
2445			5	0	.488	0	-6.79e-6	NC	NC
2446	3	M490	1	0	.244	0	9.617e-4	NC	NC
2447			2	0	.335	0	1.09e-3	3085.044	NC
2448			3	0	.401	0	1.219e-3	2196.488	NC
2449			4	0	.43	0	1.347e-3	3115.576	NC
2450			5	0	.434	0	1.476e-3	NC	NC
2451	3	M491	1	0	.144	0	-3.551e-6	NC	NC
2452			2	0	.221	0	-2.66e-6	3491.794	NC
2453			3	0	.275	0	-1.769e-6	2495.78	NC
2454			4	0	.297	0	-8.776e-7	3545.298	NC
2455			5	0	.297	0	0	NC	NC
2456	3	M492	1	0	.159	0	-9.722e-5	NC	NC
2457			2	0	.224	0	-9.813e-5	5018.476	NC
2458			3	0	.274	0	-9.903e-5	3583.079	NC
2459			4	0	.301	0	-9.994e-5	5069.966	NC
2460			5	0	.313	0	-1.008e-4	NC	NC
2461	3	M493	1	0	.157	0	2.218e-4	NC	NC
2462			2	0	.234	0	2.323e-4	3491.794	NC
2463			3	0	.288	0	2.427e-4	2495.78	NC
2464			4	0	.31	0	2.532e-4	3545.298	NC
2465			5	0	.31	0	2.637e-4	NC	NC
2466	3	M494	1	0	.179	0	-2.853e-4	NC	NC
2467			2	0	.307	0	-2.858e-4	1426.43	NC
2468			3	0	.358	0	-2.862e-4	1015.628	NC
2469			4	0	.306	0	-2.867e-4	1428.011	NC
2470			5	0	.179	0	-2.872e-4	NC	NC
2471	3	M495	1	0	.181	0	2.243e-4	NC	NC
2472			2	0	.309	0	2.238e-4	1414.507	NC
2473			3	0	.361	0	2.234e-4	1009.395	NC
2474			4	0	.309	0	2.229e-4	1421.796	NC
2475			5	0	.18	0	2.224e-4	NC	NC
2476	3	M496	1	0	.15	0	0	NC	NC
2477			2	0	.279	0	-4.423e-7	1414.507	NC
2478			3	0	.331	0	-8.676e-7	1009.395	NC
2479			4	0	.279	0	-1.293e-6	1421.796	NC
2480			5	0	.15	0	-1.718e-6	NC	NC
2481	3	M497	1	0	.237	0	-8.133e-4	NC	NC
2482			2	0	.396	0	-1.044e-3	1258.435	NC
2483			3	0	.469	0	-1.275e-3	895.608	NC
2484			4	0	.425	0	-1.506e-3	1261.341	NC
2485			5	0	.294	0	-1.736e-3	NC	NC
2486	3	M498	1	0	.256	0	3.879e-4	NC	NC
2487			2	0	.413	0	1.577e-4	1420.229	NC
2488			3	0	.494	0	-7.252e-5	1009.395	NC
2489			4	0	.471	0	-3.027e-4	1416.061	NC
2490			5	0	.371	0	-5.33e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2491	3	M499	1	0	.19	0	1.548e-3	NC	NC
2492			2	0	.362	0	1.318e-3	1410.551	NC
2493			3	0	.457	0	1.088e-3	1006.178	NC
2494			4	0	.448	0	8.579e-4	1416.242	NC
2495			5	0	.362	0	6.279e-4	NC	NC
2496	3	M500	1	0	.059	0	0	NC	NC
2497			2	0	.264	0	-1.281e-7	1239.758	NC
2498			3	0	.38	0	-2.523e-7	883.481	NC
2499			4	0	.377	0	-3.764e-7	1244.526	NC
2500			5	0	.288	0	-5.006e-7	NC	NC
2501	3	M501	1	0	.176	0	-1.635e-3	NC	NC
2502			2	0	.338	0	-1.54e-3	1668.28	NC
2503			3	0	.433	0	-1.444e-3	1190.12	NC
2504			4	0	.441	0	-1.348e-3	1674.106	NC
2505			5	0	.384	0	-1.253e-3	NC	NC
2506	3	M502	1	0	.245	0	-6.818e-4	NC	NC
2507			2	0	.44	0	-5.861e-4	1236.719	NC
2508			3	0	.546	0	-4.903e-4	881.015	NC
2509			4	0	.533	0	-3.946e-4	1240.269	NC
2510			5	0	.432	0	-2.989e-4	NC	NC
2511	3	M503	1	0	.244	0	5.742e-4	NC	NC
2512			2	0	.428	0	6.688e-4	1262.818	NC
2513			3	0	.527	0	7.634e-4	898.156	NC
2514			4	0	.509	0	8.58e-4	1264.502	NC
2515			5	0	.405	0	9.526e-4	NC	NC
2516	3	M504	1	0	.172	0	0	NC	NC
2517			2	0	.336	0	-1.66e-7	1404.487	NC
2518			3	0	.423	0	-3.176e-7	1000.06	NC
2519			4	0	.405	0	-4.692e-7	1404.487	NC
2520			5	0	.309	0	-6.208e-7	NC	NC
2521	3	M505	1	.002	.287	0	-1.407e-3	NC	NC
2522			2	.002	.442	0	-1.261e-3	1410.551	NC
2523			3	.002	.519	0	-1.116e-3	1006.178	NC
2524			4	.001	.493	0	-9.701e-4	1416.242	NC
2525			5	.001	.389	0	-8.247e-4	NC	NC
2526	3	M506	1	.003	.345	0	-3.321e-4	NC	NC
2527			2	.003	.491	0	-1.868e-4	1414.507	NC
2528			3	.002	.559	0	-4.147e-5	1009.395	NC
2529			4	.002	.524	0	1.039e-4	1421.796	NC
2530			5	.002	.413	0	2.492e-4	NC	NC
2531	3	M507	1	.003	.328	0	7.404e-4	NC	NC
2532			2	.003	.483	0	8.849e-4	1239.758	NC
2533			3	.003	.551	0	1.029e-3	883.481	NC
2534			4	.002	.5	0	1.174e-3	1244.526	NC
2535			5	.002	.361	0	1.318e-3	NC	NC
2536	3	M508	1	.003	.308	0	-5.93e-4	NC	NC
2537			2	.003	.443	0	-6.963e-4	1404.487	NC
2538			3	.003	.501	0	-7.995e-4	1000.06	NC
2539			4	.002	.454	0	-9.027e-4	1404.487	NC
2540			5	.002	.329	0	-1.006e-3	NC	NC
2541	3	M509	1	.003	.321	0	3.39e-4	NC	NC
2542			2	.003	.462	0	2.339e-4	1404.487	NC
2543			3	.003	.525	0	1.289e-4	1000.06	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2544			4	.002	.484	0	2.38e-5	1404.487	NC
2545			5	.002	.365	0	-8.126e-5	NC	NC
2546	3	M510	1	.003	.269	0	1.285e-3	NC	NC
2547			2	.002	.416	0	1.178e-3	1404.487	NC
2548			3	.002	.485	0	1.071e-3	1000.06	NC
2549			4	.002	.45	0	9.648e-4	1404.487	NC
2550			5	.002	.337	0	8.582e-4	NC	NC
2551	3	M511	1	.002	.17	0	0	NC	NC
2552			2	.002	.341	0	-2.373e-7	1232.055	NC
2553			3	.002	.424	0	-4.747e-7	876.321	NC
2554			4	.001	.388	0	-7.122e-7	1231.244	NC
2555			5	.001	.263	0	-9.496e-7	NC	NC
2556	3	M512	1	0	.295	0	-1.084e-3	NC	NC
2557			2	0	.426	0	-8.209e-4	1428.011	NC
2558			3	0	.482	0	-5.577e-4	1015.628	NC
2559			4	0	.434	0	-2.945e-4	1426.43	NC
2560			5	0	.31	0	-3.128e-5	NC	NC
2561	3	M513	1	0	.328	0	-2.085e-4	NC	NC
2562			2	0	.429	0	5.267e-5	1668.28	NC
2563			3	0	.464	0	3.139e-4	1190.12	NC
2564			4	0	.412	0	5.751e-4	1674.106	NC
2565			5	0	.294	0	8.363e-4	NC	NC
2566	3	M514	1	0	.303	0	8.783e-4	NC	NC
2567			2	0	.425	0	1.137e-3	1252.008	NC
2568			3	0	.46	0	1.396e-3	890.758	NC
2569			4	0	.376	0	1.655e-3	1253.605	NC
2570			5	0	.207	0	1.913e-3	NC	NC
2571	3	M515	1	0	.218	0	-2.626e-7	NC	NC
2572			2	0	.325	0	-9.115e-5	1244.996	NC
2573			3	0	.345	0	-1.82e-4	885.76	NC
2574			4	0	.246	0	-2.729e-4	1245.824	NC
2575			5	0	.06	0	-3.638e-4	NC	NC
2576	3	M516	1	0	.32	0	-1.018e-3	NC	NC
2577			2	0	.419	0	-1.169e-3	1420.229	NC
2578			3	0	.441	0	-1.32e-3	1009.395	NC
2579			4	0	.359	0	-1.471e-3	1416.061	NC
2580			5	0	.2	0	-1.622e-3	NC	NC
2581	3	M517	1	0	.351	0	2.773e-4	NC	NC
2582			2	0	.478	0	1.232e-4	1236.719	NC
2583			3	0	.518	0	-3.094e-5	881.015	NC
2584			4	0	.437	0	-1.85e-4	1240.269	NC
2585			5	0	.27	0	-3.391e-4	NC	NC
2586	3	M518	1	0	.285	0	1.595e-3	NC	NC
2587			2	0	.421	0	1.437e-3	1249.286	NC
2588			3	0	.47	0	1.278e-3	888.252	NC
2589			4	0	.4	0	1.12e-3	1248.908	NC
2590			5	0	.244	0	9.617e-4	NC	NC
2591	3	M519	1	0	.145	0	0	NC	NC
2592			2	0	.273	0	-8.897e-7	1420.229	NC
2593			3	0	.325	0	-1.777e-6	1009.395	NC
2594			4	0	.273	0	-2.664e-6	1416.061	NC
2595			5	0	.144	0	-3.551e-6	NC	NC
2596	3	M520	1	0	.16	0	-9.278e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2597			2	0	.248	0	-9.389e-5	2051.248	NC
2598			3	0	.284	0	-9.5e-5	1462.565	NC
2599			4	0	.248	0	-9.611e-5	2054.518	NC
2600			5	0	.159	0	-9.722e-5	NC	NC
2601	3	M521	1	0	.157	0	2.309e-4	NC	NC
2602			2	0	.287	0	2.286e-4	1404.487	NC
2603			3	0	.339	0	2.263e-4	1000.06	NC
2604			4	0	.287	0	2.241e-4	1404.487	NC
2605			5	0	.157	0	2.218e-4	NC	NC
2606	3	M522	1	0	.339	0	-4.78e-4	NC	NC
2607			2	0	.338	0	-4.298e-4	3497.856	NC
2608			3	0	.314	0	-3.817e-4	2472.939	NC
2609			4	0	.258	0	-3.335e-4	3480.407	NC
2610			5	0	.179	0	-2.853e-4	NC	NC
2611	3	M523	1	0	.35	0	7.227e-5	NC	NC
2612			2	0	.346	0	1.103e-4	3503.111	NC
2613			3	0	.32	0	1.483e-4	2472.939	NC
2614			4	0	.262	0	1.863e-4	3475.22	NC
2615			5	0	.181	0	2.243e-4	NC	NC
2616	3	M524	1	0	.327	0	0	NC	NC
2617			2	0	.322	0	0	3503.111	NC
2618			3	0	.294	0	0	2472.939	NC
2619			4	0	.234	0	0	3475.22	NC
2620			5	0	.15	0	0	NC	NC
2621	3	M525	1	0	.416	0	-8.024e-4	NC	NC
2622			2	0	.414	0	-8.051e-4	3175.836	NC
2623			3	0	.387	0	-8.078e-4	2232.202	NC
2624			4	0	.325	0	-8.106e-4	3132.907	NC
2625			5	0	.237	0	-8.133e-4	NC	NC
2626	3	M526	1	0	.431	0	5.e-4	NC	NC
2627			2	0	.426	0	4.72e-4	3523.996	NC
2628			3	0	.398	0	4.44e-4	2493.66	NC
2629			4	0	.338	0	4.159e-4	3515.118	NC
2630			5	0	.256	0	3.879e-4	NC	NC
2631	3	M527	1	0	.355	0	1.755e-3	NC	NC
2632			2	0	.353	0	1.703e-3	3464.082	NC
2633			3	0	.328	0	1.651e-3	2442.075	NC
2634			4	0	.271	0	1.6e-3	3423.33	NC
2635			5	0	.19	0	1.548e-3	NC	NC
2636	3	M528	1	0	.209	0	1.019e-7	NC	NC
2637			2	0	.216	0	7.542e-8	3052.681	NC
2638			3	0	.197	0	4.898e-8	2154.783	NC
2639			4	0	.141	0	0	3031.48	NC
2640			5	0	.059	0	0	NC	NC
2641	3	M529	1	0	.301	0	-1.139e-3	NC	NC
2642			2	0	.303	0	-1.263e-3	4109.473	NC
2643			3	0	.285	0	-1.387e-3	2901.322	NC
2644			4	0	.241	0	-1.511e-3	4071.144	NC
2645			5	0	.176	0	-1.635e-3	NC	NC
2646	3	M530	1	0	.341	0	-1.026e-4	NC	NC
2647			2	0	.361	0	-2.474e-4	3133.757	NC
2648			3	0	.355	0	-3.922e-4	2207.024	NC
2649			4	0	.313	0	-5.37e-4	3100.369	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2650			5	0	.245	0	-6.818e-4	NC	NC
2651	3	M531	1	0	.297	0	1.262e-3	NC	NC
2652			2	0	.326	0	1.09e-3	3208.609	NC
2653			3	0	.33	0	9.183e-4	2257.961	NC
2654			4	0	.3	0	7.463e-4	3176.31	NC
2655			5	0	.244	0	5.742e-4	NC	NC
2656	3	M532	1	.001	.178	0	5.353e-7	NC	NC
2657			2	.001	.215	0	3.978e-7	3523.996	NC
2658			3	.001	.229	0	2.604e-7	2493.66	NC
2659			4	.001	.212	0	1.23e-7	3515.118	NC
2660			5	0	.172	0	0	NC	NC
2661	3	M533	1	.002	.248	0	-6.915e-4	NC	NC
2662			2	.002	.297	0	-8.702e-4	3464.082	NC
2663			3	.002	.323	0	-1.049e-3	2442.075	NC
2664			4	.002	.317	0	-1.228e-3	3423.33	NC
2665			5	.002	.287	0	-1.407e-3	NC	NC
2666	3	M534	1	.004	.265	0	2.905e-4	NC	NC
2667			2	.003	.323	0	1.349e-4	3503.111	NC
2668			3	.003	.36	0	-2.079e-5	2472.939	NC
2669			4	.003	.364	0	-1.765e-4	3475.22	NC
2670			5	.003	.345	0	-3.321e-4	NC	NC
2671	3	M535	1	.004	.215	0	1.236e-3	NC	NC
2672			2	.004	.287	0	1.112e-3	3052.681	NC
2673			3	.003	.334	0	9.882e-4	2154.783	NC
2674			4	.003	.344	0	8.643e-4	3031.48	NC
2675			5	.003	.328	0	7.404e-4	NC	NC
2676	3	M536	1	.004	.192	0	-1.147e-3	NC	NC
2677			2	.004	.259	0	-1.009e-3	3543.029	NC
2678			3	.004	.304	0	-8.703e-4	2504.593	NC
2679			4	.003	.318	0	-7.316e-4	3528.708	NC
2680			5	.003	.308	0	-5.93e-4	NC	NC
2681	3	M537	1	.004	.238	0	-3.319e-4	NC	NC
2682			2	.004	.298	0	-1.642e-4	3523.996	NC
2683			3	.004	.334	0	3.539e-6	2493.66	NC
2684			4	.003	.339	0	1.713e-4	3515.118	NC
2685			5	.003	.321	0	3.39e-4	NC	NC
2686	3	M538	1	.003	.229	0	5.234e-4	NC	NC
2687			2	.003	.277	0	7.137e-4	3523.996	NC
2688			3	.003	.303	0	9.04e-4	2493.66	NC
2689			4	.003	.297	0	1.094e-3	3515.118	NC
2690			5	.003	.269	0	1.285e-3	NC	NC
2691	3	M539	1	.002	.175	0	-3.907e-7	NC	NC
2692			2	.002	.216	0	-2.93e-7	3182.709	NC
2693			3	.002	.233	0	-1.953e-7	2249.071	NC
2694			4	.002	.214	0	-9.756e-8	3175.466	NC
2695			5	.002	.17	0	0	NC	NC
2696	3	M540	1	0	.323	0	-1.353e-3	NC	NC
2697			2	0	.353	0	-1.286e-3	3644.774	NC
2698			3	0	.362	0	-1.219e-3	2566.675	NC
2699			4	0	.339	0	-1.151e-3	3606.99	NC
2700			5	0	.295	0	-1.084e-3	NC	NC
2701	3	M541	1	0	.368	0	-4.093e-4	NC	NC
2702			2	0	.391	0	-3.591e-4	4109.473	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2703			3	0	.395	0	-3.089e-4	2901.322	NC
2704			4	0	.371	0	-2.587e-4	4071.144	NC
2705			5	0	.328	0	-2.085e-4	NC	NC
2706	3	M542	1	0	.352	0	7.612e-4	NC	NC
2707			2	0	.384	0	7.904e-4	3052.681	NC
2708			3	0	.39	0	8.197e-4	2154.783	NC
2709			4	0	.36	0	8.49e-4	3031.48	NC
2710			5	0	.303	0	8.783e-4	NC	NC
2711	3	M543	1	0	.271	0	0	NC	NC
2712			2	0	.302	0	-6.345e-8	3110.964	NC
2713			3	0	.307	0	-1.298e-7	2192.81	NC
2714			4	0	.276	0	-1.962e-7	3083.396	NC
2715			5	0	.218	0	-2.626e-7	NC	NC
2716	3	M544	1	0	.407	0	-1.493e-3	NC	NC
2717			2	0	.423	0	-1.375e-3	3579.007	NC
2718			3	0	.417	0	-1.256e-3	2525.85	NC
2719			4	0	.38	0	-1.137e-3	3555.312	NC
2720			5	0	.32	0	-1.018e-3	NC	NC
2721	3	M545	1	0	.465	0	-9.664e-5	NC	NC
2722			2	0	.481	0	-3.168e-6	3070.576	NC
2723			3	0	.471	0	9.031e-5	2168.508	NC
2724			4	0	.424	0	1.838e-4	3051.873	NC
2725			5	0	.351	0	2.773e-4	NC	NC
2726	3	M546	1	0	.419	0	1.322e-3	NC	NC
2727			2	0	.429	0	1.39e-3	3110.964	NC
2728			3	0	.414	0	1.458e-3	2192.81	NC
2729			4	0	.363	0	1.527e-3	3083.396	NC
2730			5	0	.285	0	1.595e-3	NC	NC
2731	3	M547	1	0	.293	0	4.956e-8	NC	NC
2732			2	0	.295	0	3.65e-8	3523.996	NC
2733			3	0	.274	0	0	2493.66	NC
2734			4	0	.221	0	0	3515.118	NC
2735			5	0	.145	0	0	NC	NC
2736	3	M548	1	0	.306	0	-3.577e-5	NC	NC
2737			2	0	.297	0	-5.003e-5	4969.689	NC
2738			3	0	.272	0	-6.428e-5	3509.217	NC
2739			4	0	.224	0	-7.853e-5	4913.744	NC
2740			5	0	.16	0	-9.278e-5	NC	NC
2741	3	M549	1	0	.3	0	3.119e-4	NC	NC
2742			2	0	.303	0	2.917e-4	3523.996	NC
2743			3	0	.283	0	2.714e-4	2493.66	NC
2744			4	0	.231	0	2.511e-4	3515.118	NC
2745			5	0	.157	0	2.309e-4	NC	NC
2746	3	M550	1	0	.297	.002	-8.378e-4	NC	NC
2747			2	0	.541	.002	-7.478e-4	910.243	NC
2748			3	0	.646	.001	-6.579e-4	646.202	NC
2749			4	0	.563	0	-5.68e-4	905.849	NC
2750			5	0	.339	0	-4.78e-4	NC	NC
2751	3	M551	1	0	.324	.002	-1.687e-4	NC	NC
2752			2	0	.562	.002	-1.085e-4	917.277	NC
2753			3	0	.663	.001	-4.822e-5	651.334	NC
2754			4	0	.576	0	1.203e-5	913.693	NC
2755			5	0	.35	0	7.227e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2756	3	M552	1	0	.311	.003	-9.442e-6	NC	NC
2757			2	0	.547	.002	-7.079e-6	917.277	NC
2758			3	0	.645	.001	-4.716e-6	651.334	NC
2759			4	0	.555	0	-2.352e-6	913.693	NC
2760			5	0	.327	0	0	NC	NC
2761	3	M553	1	0	.44	.003	-1.309e-3	NC	NC
2762			2	0	.704	.002	-1.182e-3	786.58	NC
2763			3	0	.808	.001	-1.055e-3	557.936	NC
2764			4	0	.693	0	-9.289e-4	782.208	NC
2765			5	0	.416	0	-8.024e-4	NC	NC
2766	3	M554	1	0	.479	.003	2.68e-4	NC	NC
2767			2	0	.701	.002	3.26e-4	907.155	NC
2768			3	0	.785	.001	3.84e-4	644.413	NC
2769			4	0	.678	0	4.42e-4	903.649	NC
2770			5	0	.431	0	5.e-4	NC	NC
2771	3	M555	1	0	.408	.003	1.786e-3	NC	NC
2772			2	0	.63	.002	1.778e-3	904.088	NC
2773			3	0	.712	.002	1.77e-3	642.634	NC
2774			4	0	.604	0	1.763e-3	901.459	NC
2775			5	0	.355	0	1.755e-3	NC	NC
2776	3	M556	1	0	.252	.003	-1.238e-5	NC	NC
2777			2	0	.506	.003	-9.257e-6	801.463	NC
2778			3	0	.604	.002	-6.137e-6	569.046	NC
2779			4	0	.485	0	-3.018e-6	798.725	NC
2780			5	0	.209	0	1.019e-7	NC	NC
2781	3	M557	1	0	.324	.004	-6.363e-4	NC	NC
2782			2	0	.515	.003	-7.619e-4	1075.315	NC
2783			3	0	.59	.002	-8.876e-4	763.941	NC
2784			4	0	.505	0	-1.013e-3	1071.599	NC
2785			5	0	.301	0	-1.139e-3	NC	NC
2786	3	M558	1	0	.332	.004	6.832e-4	NC	NC
2787			2	0	.603	.003	4.868e-4	791.375	NC
2788			3	0	.714	.002	2.903e-4	562.395	NC
2789			4	0	.608	0	9.383e-5	789.361	NC
2790			5	0	.341	0	-1.026e-4	NC	NC
2791	3	M559	1	0	.22	.004	2.473e-3	NC	NC
2792			2	0	.509	.003	2.171e-3	786.58	NC
2793			3	0	.639	.002	1.868e-3	557.936	NC
2794			4	0	.549	0	1.565e-3	782.208	NC
2795			5	0	.297	0	1.262e-3	NC	NC
2796	3	M560	1	.002	.01	.004	-7.311e-5	NC	NC
2797			2	.002	.322	.003	-5.47e-5	786.997	NC
2798			3	.001	.465	.002	-3.629e-5	573.041	NC
2799			4	.001	.397	0	-1.788e-5	814.608	NC
2800			5	.001	.178	0	5.353e-7	NC	NC
2801	3	M561	1	.003	.013	.003	-6.372e-5	NC	NC
2802			2	.003	.192	.002	-2.207e-4	1424.804	NC
2803			3	.003	.294	.002	-3.776e-4	1046.975	NC
2804			4	.003	.303	0	-5.345e-4	1504.309	NC
2805			5	.002	.248	0	-6.915e-4	NC	NC
2806	3	M562	1	.004	.017	.003	7.112e-5	NC	NC
2807			2	.004	.133	.002	1.26e-4	2619.667	NC
2808			3	.004	.214	.001	1.808e-4	1924.066	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2809			4	.004	.254	0	2.357e-4	2761.527	NC
2810			5	.004	.265	0	2.905e-4	NC	NC
2811	3	M563	1	.005	.021	.002	-5.765e-5	NC	NC
2812			2	.004	.092	.002	2.657e-4	4985.923	NC
2813			3	.004	.149	.001	5.891e-4	3642.193	NC
2814			4	.004	.188	0	9.125e-4	5217.66	NC
2815			5	.004	.215	0	1.236e-3	NC	NC
2816	3	M564	1	.005	.02	0	4.535e-5	NC	NC
2817			2	.005	.083	0	-2.529e-4	5606.976	NC
2818			3	.004	.133	0	-5.511e-4	4086.338	NC
2819			4	.004	.168	0	-8.493e-4	5834.541	NC
2820			5	.004	.192	0	-1.147e-3	NC	NC
2821	3	M565	1	.005	.016	0	-5.989e-5	NC	NC
2822			2	.005	.126	0	-1.279e-4	2625.372	NC
2823			3	.004	.201	0	-1.959e-4	1918.156	NC
2824			4	.004	.235	0	-2.639e-4	2738.3	NC
2825			5	.004	.238	0	-3.319e-4	NC	NC
2826	3	M566	1	.004	.013	-.001	4.318e-5	NC	NC
2827			2	.004	.186	0	1.632e-4	1444.908	NC
2828			3	.004	.283	0	2.833e-4	1059.413	NC
2829			4	.004	.288	0	4.033e-4	1520.36	NC
2830			5	.003	.229	0	5.234e-4	NC	NC
2831	3	M567	1	.003	.011	-.002	5.854e-5	NC	NC
2832			2	.003	.355	-.001	4.381e-5	700.188	NC
2833			3	.003	.511	0	2.907e-5	508.365	NC
2834			4	.002	.428	0	1.434e-5	721.96	NC
2835			5	.002	.175	0	-3.907e-7	NC	NC
2836	3	M568	1	0	.272	-.002	-2.653e-3	NC	NC
2837			2	0	.516	-.001	-2.328e-3	916.829	NC
2838			3	0	.624	0	-2.003e-3	651.48	NC
2839			4	0	.543	0	-1.678e-3	914.716	NC
2840			5	0	.323	0	-1.353e-3	NC	NC
2841	3	M569	1	0	.37	-.002	-1.395e-3	NC	NC
2842			2	0	.566	-.001	-1.149e-3	1079.657	NC
2843			3	0	.646	0	-9.022e-4	766.455	NC
2844			4	0	.566	0	-6.558e-4	1074.695	NC
2845			5	0	.368	0	-4.093e-4	NC	NC
2846	3	M570	1	0	.401	-.002	1.184e-4	NC	NC
2847			2	0	.653	-.001	2.791e-4	801.463	NC
2848			3	0	.749	0	4.398e-4	569.046	NC
2849			4	0	.63	0	6.005e-4	798.725	NC
2850			5	0	.352	0	7.612e-4	NC	NC
2851	3	M571	1	0	.349	-.002	1.247e-5	NC	NC
2852			2	0	.6	-.001	9.353e-6	786.58	NC
2853			3	0	.691	0	6.236e-6	557.936	NC
2854			4	0	.562	0	3.12e-6	782.208	NC
2855			5	0	.271	0	0	NC	NC
2856	3	M572	1	0	.492	-.001	-1.465e-3	NC	NC
2857			2	0	.705	-.001	-1.472e-3	907.155	NC
2858			3	0	.779	0	-1.479e-3	644.413	NC
2859			4	0	.663	0	-1.486e-3	903.649	NC
2860			5	0	.407	0	-1.493e-3	NC	NC
2861	3	M573	1	0	.54	-.001	2.321e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2862			2	0	.786	-.001	1.499e-4	803.193	NC
2863			3	0	.875	0	6.774e-5	570.441	NC
2864			4	0	.749	0	-1.445e-5	801.118	NC
2865			5	0	.465	0	-9.664e-5	NC	NC
2866	3	M574	1	0	.462	-.001	1.957e-3	NC	NC
2867			2	0	.721	0	1.798e-3	786.58	NC
2868			3	0	.821	0	1.639e-3	557.936	NC
2869			4	0	.702	0	1.48e-3	782.208	NC
2870			5	0	.419	0	1.322e-3	NC	NC
2871	3	M575	1	0	.287	-.001	9.443e-6	NC	NC
2872			2	0	.523	0	7.095e-6	907.155	NC
2873			3	0	.62	0	4.746e-6	644.413	NC
2874			4	0	.527	0	2.398e-6	903.649	NC
2875			5	0	.293	0	4.956e-8	NC	NC
2876	3	M576	1	0	.286	-.001	2.982e-4	NC	NC
2877			2	0	.452	0	2.147e-4	1322.421	NC
2878			3	0	.522	0	1.312e-4	939.685	NC
2879			4	0	.462	0	4.772e-5	1316.237	NC
2880			5	0	.306	0	-3.577e-5	NC	NC
2881	3	M577	1	0	.262	-.001	7.182e-4	NC	NC
2882			2	0	.506	0	6.166e-4	907.155	NC
2883			3	0	.611	0	5.151e-4	644.413	NC
2884			4	0	.526	0	4.135e-4	903.649	NC
2885			5	0	.3	0	3.119e-4	NC	NC
2886	3	M578	1	0	0	0	-8.378e-4	NC	NC
2887			2	0	.306	0	-8.378e-4	911.665	NC
2888			3	0	.473	.001	-8.378e-4	651.164	NC
2889			4	0	.453	.002	-8.378e-4	917.458	NC
2890			5	0	.297	.002	-8.378e-4	NC	NC
2891	3	M579	1	0	0	0	-1.687e-4	NC	NC
2892			2	0	.313	0	-1.687e-4	911.665	NC
2893			3	0	.487	.001	-1.687e-4	651.164	NC
2894			4	0	.474	.002	-1.687e-4	917.458	NC
2895			5	0	.324	.002	-1.687e-4	NC	NC
2896	3	M580	1	0	0	0	-9.442e-6	NC	NC
2897			2	0	.311	0	-9.442e-6	905.227	NC
2898			3	0	.482	.001	-9.442e-6	645.949	NC
2899			4	0	.466	.002	-9.442e-6	908.637	NC
2900			5	0	.311	.003	-9.442e-6	NC	NC
2901	3	M581	1	0	0	0	-1.309e-3	NC	NC
2902			2	0	.377	0	-1.309e-3	790.441	NC
2903			3	0	.594	.001	-1.309e-3	564.767	NC
2904			4	0	.595	.002	-1.309e-3	796.769	NC
2905			5	0	.44	.003	-1.309e-3	NC	NC
2906	3	M582	1	0	0	0	2.68e-4	NC	NC
2907			2	0	.352	0	2.68e-4	909.462	NC
2908			3	0	.565	.002	2.68e-4	649.369	NC
2909			4	0	.59	.002	2.68e-4	914.356	NC
2910			5	0	.479	.003	2.68e-4	NC	NC
2911	3	M583	1	0	0	0	1.786e-3	NC	NC
2912			2	0	.335	0	1.786e-3	905.227	NC
2913			3	0	.531	.002	1.786e-3	645.949	NC
2914			4	0	.539	.002	1.786e-3	908.637	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2915			5	0	.408	.003	1.786e-3	NC	NC
2916	3	M584	1	0	0	0	-1.238e-5	NC	NC
2917			2	0	.332	0	-1.238e-5	785.52	NC
2918			3	0	.502	.002	-1.238e-5	561.531	NC
2919			4	0	.456	.003	-1.238e-5	791.768	NC
2920			5	0	.252	.003	-1.238e-5	NC	NC
2921	3	M585	1	0	0	0	-6.363e-4	NC	NC
2922			2	0	.277	0	-6.363e-4	1076.951	NC
2923			3	0	.437	.002	-6.363e-4	767.475	NC
2924			4	0	.439	.003	-6.363e-4	1078.143	NC
2925			5	0	.324	.004	-6.363e-4	NC	NC
2926	3	M586	1	0	0	0	6.832e-4	NC	NC
2927			2	0	.353	0	6.832e-4	780.735	NC
2928			3	0	.545	.002	6.832e-4	557.649	NC
2929			4	0	.518	.003	6.832e-4	785.19	NC
2930			5	0	.332	.004	6.832e-4	NC	NC
2931	3	M587	1	0	.008	.009	4.015e-4	NC	NC
2932			2	0	.507	.008	9.195e-4	473.414	NC
2933			3	0	.735	.006	1.437e-3	340.192	NC
2934			4	0	.602	.005	1.955e-3	485.641	NC
2935			5	0	.22	.004	2.473e-3	NC	NC
2936	3	M588	1	0	.007	-.008	-4.926e-4	NC	NC
2937			2	0	.49	-.006	-1.033e-3	507.139	NC
2938			3	0	.718	-.005	-1.573e-3	364.871	NC
2939			4	0	.611	-.003	-2.113e-3	521.669	NC
2940			5	0	.272	-.002	-2.653e-3	NC	NC
2941	3	M589	1	0	0	0	-2.479e-4	NC	NC
2942			2	0	.289	0	-5.347e-4	1076.951	NC
2943			3	0	.46	0	-8.215e-4	767.475	NC
2944			4	0	.473	-.001	-1.108e-3	1078.143	NC
2945			5	0	.37	-.002	-1.395e-3	NC	NC
2946	3	M590	1	0	0	0	5.848e-4	NC	NC
2947			2	0	.369	0	4.682e-4	785.52	NC
2948			3	0	.576	0	3.516e-4	561.531	NC
2949			4	0	.567	-.001	2.35e-4	791.768	NC
2950			5	0	.401	-.002	1.184e-4	NC	NC
2951	3	M591	1	0	0	0	1.247e-5	NC	NC
2952			2	0	.355	0	1.247e-5	788.784	NC
2953			3	0	.55	0	1.247e-5	563.415	NC
2954			4	0	.528	-.001	1.247e-5	794.428	NC
2955			5	0	.349	-.002	1.247e-5	NC	NC
2956	3	M592	1	0	0	0	-1.371e-3	NC	NC
2957			2	0	.355	0	-1.394e-3	909.462	NC
2958			3	0	.571	0	-1.418e-3	649.369	NC
2959			4	0	.6	-.001	-1.441e-3	914.356	NC
2960			5	0	.492	-.001	-1.465e-3	NC	NC
2961	3	M593	1	0	0	0	-1.659e-4	NC	NC
2962			2	0	.406	0	-6.638e-5	780.735	NC
2963			3	0	.649	0	3.312e-5	557.649	NC
2964			4	0	.674	-.001	1.326e-4	785.19	NC
2965			5	0	.54	-.001	2.321e-4	NC	NC
2966	3	M594	1	0	0	0	1.25e-3	NC	NC
2967			2	0	.383	0	1.427e-3	788.784	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
2968			3	0	.606	0	1.604e-3	563.415	NC
2969			4	0	.612	0	1.78e-3	794.428	NC
2970			5	0	.462	-.001	1.957e-3	NC	NC
2971	3	M595	1	0	0	0	5.923e-6	NC	NC
2972			2	0	.304	0	6.803e-6	909.462	NC
2973			3	0	.469	0	7.683e-6	649.369	NC
2974			4	0	.446	0	8.563e-6	914.356	NC
2975			5	0	.287	-.001	9.443e-6	NC	NC
2976	3	M596	1	0	0	0	5.13e-5	NC	NC
2977			2	0	.23	0	1.13e-4	1333.573	NC
2978			3	0	.365	0	1.747e-4	951.115	NC
2979			4	0	.372	0	2.365e-4	1336.647	NC
2980			5	0	.286	-.001	2.982e-4	NC	NC
2981	3	M597	1	0	0	0	4.639e-4	NC	NC
2982			2	0	.298	0	5.274e-4	909.462	NC
2983			3	0	.456	0	5.91e-4	649.369	NC
2984			4	0	.428	0	6.546e-4	914.356	NC
2985			5	0	.262	-.001	7.182e-4	NC	NC
2986	3	M598	1	0	0	0	-8.378e-4	NC	NC
2987			2	0	.292	0	-8.378e-4	481.203	NC
2988			3	0	.346	0	-8.378e-4	405.212	NC
2989			4	0	.223	0	-8.378e-4	630.978	NC
2990			5	0	0	0	-8.378e-4	NC	NC
2991	3	M599	1	0	0	0	-1.687e-4	NC	NC
2992			2	0	.095	0	-1.687e-4	1475.798	NC
2993			3	0	.121	0	-1.687e-4	1163.425	NC
2994			4	0	.081	0	-1.687e-4	1729.208	NC
2995			5	0	0	0	-1.687e-4	NC	NC
2996	3	M600	1	0	0	0	-9.442e-6	NC	NC
2997			2	0	.089	0	-9.442e-6	1570.49	NC
2998			3	0	.114	0	-9.442e-6	1230.596	NC
2999			4	0	.077	0	-9.442e-6	1821.703	NC
3000			5	0	0	0	-9.442e-6	NC	NC
3001	3	M601	1	0	0	0	-1.309e-3	NC	NC
3002			2	0	.098	0	-1.309e-3	1436.575	NC
3003			3	0	.126	0	-1.309e-3	1117.21	NC
3004			4	0	.085	0	-1.309e-3	1646.433	NC
3005			5	0	0	0	-1.309e-3	NC	NC
3006	3	M602	1	0	0	0	2.68e-4	NC	NC
3007			2	0	.078	0	2.68e-4	1801.695	NC
3008			3	0	.101	0	2.68e-4	1391.246	NC
3009			4	0	.069	0	2.68e-4	2039.933	NC
3010			5	0	0	0	2.68e-4	NC	NC
3011	3	M603	1	0	0	0	1.786e-3	NC	NC
3012			2	0	.072	0	1.786e-3	1938.692	NC
3013			3	0	.095	0	1.786e-3	1484.252	NC
3014			4	0	.065	0	1.786e-3	2164.389	NC
3015			5	0	0	0	1.786e-3	NC	NC
3016	3	M604	1	0	0	0	-1.238e-5	NC	NC
3017			2	0	.077	0	-1.238e-5	1828.842	NC
3018			3	0	.101	0	-1.238e-5	1386.314	NC
3019			4	0	.07	0	-1.238e-5	2007.776	NC
3020			5	0	0	0	-1.238e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3021	3	M605	1	0	0	0	-6.363e-4	NC	NC
3022			2	0	.052	0	-6.363e-4	2711.498	NC
3023			3	0	.069	0	-6.363e-4	2028.812	NC
3024			4	0	.048	0	-6.363e-4	2918.893	NC
3025			5	0	0	0	-6.363e-4	NC	NC
3026	3	M606	1	0	0	0	6.832e-4	NC	NC
3027			2	0	.064	0	6.832e-4	2188.604	NC
3028			3	0	.087	0	6.832e-4	1617.809	NC
3029			4	0	.061	0	6.832e-4	2306.984	NC
3030			5	0	0	0	6.832e-4	NC	NC
3031	3	M607	1	0	0	0	4.015e-4	NC	NC
3032			2	0	.052	.002	4.015e-4	2824.666	NC
3033			3	0	.073	.004	4.015e-4	2049.393	NC
3034			4	0	.055	.007	4.015e-4	2892.27	NC
3035			5	0	.008	.009	4.015e-4	NC	NC
3036	3	M608	1	0	0	0	-9.945e-3	NC	NC
3037			2	0	.038	0	-9.945e-3	3671.329	NC
3038			3	0	.054	0	-9.945e-3	2616.599	NC
3039			4	0	.038	0	-9.945e-3	3658.978	NC
3040			5	0	0	0	-9.945e-3	NC	NC
3041	3	M609	1	0	0	0	-6.529e-3	NC	NC
3042			2	0	.045	0	-6.529e-3	3127.878	NC
3043			3	0	.063	0	-6.529e-3	2229.46	NC
3044			4	0	.045	0	-6.529e-3	3114.443	NC
3045			5	0	0	0	-6.529e-3	NC	NC
3046	3	M610	1	0	0	0	-6.25e-3	NC	NC
3047			2	0	.043	0	-6.897e-3	3254.79	NC
3048			3	0	.06	0	-7.543e-3	2332.075	NC
3049			4	0	.043	0	-8.19e-3	3284.428	NC
3050			5	0	0	0	-8.836e-3	NC	NC
3051	3	M611	1	0	0	0	-4.353e-3	NC	NC
3052			2	0	.241	0	-5.669e-3	2850.514	NC
3053			3	0	.453	0	-6.985e-3	2044.643	NC
3054			4	0	.625	0	-8.301e-3	2884.586	NC
3055			5	0	.769	0	-9.617e-3	NC	NC
3056	3	M612	1	0	0	0	2.162e-3	NC	NC
3057			2	0	.341	0	1.3e-3	2763.573	NC
3058			3	0	.651	0	4.383e-4	1980.037	NC
3059			4	0	.92	0	-4.235e-4	2793.177	NC
3060			5	0	1.16	0	-1.285e-3	NC	NC
3061	3	M613	1	0	0	0	4.454e-3	NC	NC
3062			2	0	.288	0	5.177e-3	3221.803	NC
3063			3	0	.549	0	5.9e-3	2305.864	NC
3064			4	0	.776	0	6.623e-3	3244.25	NC
3065			5	0	.976	0	7.346e-3	NC	NC
3066	3	M614	1	.002	0	0	5.483e-5	NC	NC
3067			2	.002	.112	0	4.074e-5	2505.901	NC
3068			3	.002	.19	0	2.665e-5	1800.435	NC
3069			4	.002	.223	0	1.255e-5	2548.093	NC
3070			5	.002	.223	0	-1.543e-6	NC	NC
3071	3	M615	1	0	0	0	-3.636e-3	NC	NC
3072			2	0	.267	0	-4.226e-3	2869.107	NC
3073			3	0	.504	0	-4.816e-3	2059.814	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3074			4	0	.702	0	-5.406e-3	2910.12	NC
3075			5	0	.871	0	-5.997e-3	NC	NC
3076	3	M616	1	0	0	0	-8.366e-4	NC	NC
3077			2	0	.289	0	1.933e-5	3221.803	NC
3078			3	0	.553	0	8.753e-4	2305.864	NC
3079			4	0	.781	0	1.731e-3	3244.25	NC
3080			5	0	.983	0	2.587e-3	NC	NC
3081	3	M617	1	0	0	0	4.314e-3	NC	NC
3082			2	0	.198	0	5.507e-3	2763.573	NC
3083			3	0	.366	0	6.7e-3	1980.037	NC
3084			4	0	.493	0	7.893e-3	2793.177	NC
3085			5	0	.591	0	9.086e-3	NC	NC
3086	3	M618	1	0	0	0	5.297e-3	NC	NC
3087			2	0	.044	0	5.966e-3	3185.64	NC
3088			3	0	.062	0	6.636e-3	2276.313	NC
3089			4	0	.044	0	7.305e-3	3193.456	NC
3090			5	0	0	0	7.975e-3	NC	NC
3091	3	M619	1	0	0	0	4.404e-3	NC	NC
3092			2	0	.037	0	4.404e-3	3793.37	NC
3093			3	0	.052	0	4.404e-3	2704.021	NC
3094			4	0	.037	0	4.404e-3	3773.627	NC
3095			5	0	0	0	4.404e-3	NC	NC
3096	3	M620	1	0	0	0	6.609e-3	NC	NC
3097			2	0	.038	0	6.609e-3	3671.329	NC
3098			3	0	.054	0	6.609e-3	2616.599	NC
3099			4	0	.038	0	6.609e-3	3658.978	NC
3100			5	0	0	0	6.609e-3	NC	NC
3101	3	M621	1	0	0	0	-2.985e-4	NC	NC
3102			2	0	.039	-.002	-3.471e-4	3793.37	NC
3103			3	0	.056	-.004	-3.956e-4	2704.021	NC
3104			4	0	.043	-.006	-4.441e-4	3773.627	NC
3105			5	0	.007	-.008	-4.926e-4	NC	NC
3106	3	M622	1	0	0	0	5.148e-4	NC	NC
3107			2	0	.038	0	3.241e-4	3671.329	NC
3108			3	0	.054	0	1.335e-4	2616.599	NC
3109			4	0	.038	0	-5.721e-5	3658.978	NC
3110			5	0	0	0	-2.479e-4	NC	NC
3111	3	M623	1	0	0	0	8.948e-4	NC	NC
3112			2	0	.052	0	8.173e-4	2724.572	NC
3113			3	0	.072	0	7.398e-4	1942.114	NC
3114			4	0	.052	0	6.623e-4	2710.989	NC
3115			5	0	0	0	5.848e-4	NC	NC
3116	3	M624	1	0	0	0	1.247e-5	NC	NC
3117			2	0	.057	0	1.247e-5	2467.861	NC
3118			3	0	.079	0	1.247e-5	1782.408	NC
3119			4	0	.056	0	1.247e-5	2510.586	NC
3120			5	0	0	0	1.247e-5	NC	NC
3121	3	M625	1	0	0	0	-1.308e-3	NC	NC
3122			2	0	.045	0	-1.324e-3	3127.878	NC
3123			3	0	.063	0	-1.339e-3	2229.46	NC
3124			4	0	.045	0	-1.355e-3	3114.443	NC
3125			5	0	0	0	-1.371e-3	NC	NC
3126	3	M626	1	0	0	0	-4.304e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3127			2	0	.052	0	-3.643e-4	2724.572	NC
3128			3	0	.072	0	-2.982e-4	1942.114	NC
3129			4	0	.052	0	-2.32e-4	2710.989	NC
3130			5	0	0	0	-1.659e-4	NC	NC
3131	3	M627	1	0	0	0	7.801e-4	NC	NC
3132			2	0	.053	0	8.976e-4	2661.038	NC
3133			3	0	.074	0	1.015e-3	1896.602	NC
3134			4	0	.053	0	1.133e-3	2651.307	NC
3135			5	0	0	0	1.25e-3	NC	NC
3136	3	M628	1	0	0	0	3.583e-6	NC	NC
3137			2	0	.045	0	4.168e-6	3127.878	NC
3138			3	0	.063	0	4.753e-6	2229.46	NC
3139			4	0	.045	0	5.338e-6	3114.443	NC
3140			5	0	0	0	5.923e-6	NC	NC
3141	3	M629	1	0	0	0	-1.128e-4	NC	NC
3142			2	0	.03	0	-7.179e-5	4623.353	NC
3143			3	0	.043	0	-3.076e-5	3295.372	NC
3144			4	0	.03	0	1.027e-5	4603.783	NC
3145			5	0	0	0	5.13e-5	NC	NC
3146	3	M630	1	0	0	0	2.948e-4	NC	NC
3147			2	0	.045	0	3.37e-4	3127.878	NC
3148			3	0	.063	0	3.793e-4	2229.46	NC
3149			4	0	.045	0	4.216e-4	3114.443	NC
3150			5	0	0	0	4.639e-4	NC	NC
3151	3	M631	1	0	-.144	0	-2.097e-3	NC	NC
3152			2	0	-.595	0	-2.097e-3	470.71	NC
3153			3	0	-.759	0	-2.097e-3	333.39	NC
3154			4	0	-.528	0	-2.097e-3	465.427	NC
3155			5	0	0	0	-2.097e-3	NC	NC
3156	3	M632	1	0	-.242	0	-1.242e-3	NC	NC
3157			2	0	-.517	0	-1.242e-3	683.405	NC
3158			3	0	-.592	0	-1.242e-3	485.939	NC
3159			4	0	-.397	0	-1.242e-3	679.989	NC
3160			5	0	0	0	-1.242e-3	NC	NC
3161	3	M633	1	0	-.284	0	-4.097e-4	NC	NC
3162			2	0	-.508	0	-4.097e-4	777.247	NC
3163			3	0	-.557	0	-4.097e-4	552.757	NC
3164			4	0	-.367	0	-4.097e-4	773.564	NC
3165			5	0	0	0	-4.097e-4	NC	NC
3166	3	M634	1	0	-.284	0	0	NC	NC
3167			2	0	-.587	0	0	612.811	NC
3168			3	0	-.669	0	0	435.345	NC
3169			4	0	-.448	0	0	608.847	NC
3170			5	0	0	0	0	NC	NC
3171	3	M635	1	0	-.22	0	1.116e-3	NC	NC
3172			2	0	-.536	0	1.116e-3	617.527	NC
3173			3	0	-.633	0	1.116e-3	438.13	NC
3174			4	0	-.429	0	1.116e-3	612.273	NC
3175			5	0	0	0	1.116e-3	NC	NC
3176	3	M636	1	0	-.135	0	-9.385e-7	NC	NC
3177			2	0	-.478	0	-9.385e-7	608.167	NC
3178			3	0	-.597	0	-9.385e-7	432.596	NC
3179			4	0	-.412	0	-9.385e-7	605.46	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3180			5	0	0	0	-9.385e-7	NC	NC
3181	3	M637	1	0	-.17	0	-2.672e-4	NC	NC
3182			2	0	-.464	0	-2.672e-4	681.377	NC
3183			3	0	-.558	0	-2.672e-4	484.761	NC
3184			4	0	-.38	0	-2.672e-4	678.545	NC
3185			5	0	0	0	-2.672e-4	NC	NC
3186	3	M638	1	0	-.17	0	2.678e-4	NC	NC
3187			2	0	-.464	0	2.678e-4	681.377	NC
3188			3	0	-.558	0	2.678e-4	484.761	NC
3189			4	0	-.38	0	2.678e-4	678.545	NC
3190			5	0	0	0	2.678e-4	NC	NC
3191	3	M639	1	0	-.135	0	0	NC	NC
3192			2	0	-.472	0	0	617.527	NC
3193			3	0	-.591	0	0	438.13	NC
3194			4	0	-.408	0	0	612.273	NC
3195			5	0	0	0	0	NC	NC
3196	3	M640	1	0	-.217	0	-1.023e-3	NC	NC
3197			2	0	-.54	0	-1.023e-3	608.167	NC
3198			3	0	-.638	0	-1.023e-3	432.596	NC
3199			4	0	-.433	0	-1.023e-3	605.46	NC
3200			5	0	0	0	-1.023e-3	NC	NC
3201	3	M641	1	0	-.273	0	0	NC	NC
3202			2	0	-.576	0	0	617.527	NC
3203			3	0	-.66	0	0	438.13	NC
3204			4	0	-.443	0	0	612.273	NC
3205			5	0	0	0	0	NC	NC
3206	3	M642	1	0	-.309	0	-3.394e-4	NC	NC
3207			2	0	-.527	0	-3.394e-4	774.625	NC
3208			3	0	-.57	0	-3.394e-4	551.233	NC
3209			4	0	-.374	0	-3.394e-4	771.696	NC
3210			5	0	0	0	-3.394e-4	NC	NC
3211	3	M643	1	0	-.314	0	2.759e-4	NC	NC
3212			2	0	-.531	0	2.759e-4	774.625	NC
3213			3	0	-.573	0	2.759e-4	551.233	NC
3214			4	0	-.375	0	2.759e-4	771.696	NC
3215			5	0	0	0	2.759e-4	NC	NC
3216	3	M644	1	0	-.278	0	9.034e-4	NC	NC
3217			2	0	-.505	0	9.034e-4	774.625	NC
3218			3	0	-.555	0	9.034e-4	551.233	NC
3219			4	0	-.367	0	9.034e-4	771.696	NC
3220			5	0	0	0	9.034e-4	NC	NC
3221	3	M645	1	0	-.213	0	0	NC	NC
3222			2	0	-.496	0	0	681.377	NC
3223			3	0	-.579	0	0	484.761	NC
3224			4	0	-.391	0	0	678.545	NC
3225			5	0	0	0	0	NC	NC
3226	3	M646	1	0	-.155	0	1.173e-3	NC	NC
3227			2	0	-.411	0	1.173e-3	777.247	NC
3228			3	0	-.492	0	1.173e-3	552.757	NC
3229			4	0	-.335	0	1.173e-3	773.564	NC
3230			5	0	0	0	1.173e-3	NC	NC
3231	3	M647	1	0	-.089	0	1.165e-3	NC	NC
3232			2	0	-.362	0	1.165e-3	774.625	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3233			3	0	-.46	0	1.165e-3	551.233	NC
3234			4	0	-.319	0	1.165e-3	771.696	NC
3235			5	0	0	0	1.165e-3	NC	NC
3236	3	M648	1	0	-.027	0	7.432e-4	NC	NC
3237			2	0	-.356	0	7.432e-4	681.377	NC
3238			3	0	-.486	0	7.432e-4	484.761	NC
3239			4	0	-.344	0	7.432e-4	678.545	NC
3240			5	0	0	0	7.432e-4	NC	NC
3241	3	M649	1	0	0	0	-4.55e-4	NC	NC
3242			2	0	-.182	0	-4.55e-4	1262.131	NC
3243			3	0	-.296	0	-4.55e-4	774.753	NC
3244			4	0	-.227	0	-4.55e-4	1008.987	NC
3245			5	0	0	0	-4.55e-4	NC	NC
3246	3	M650	1	0	-.166	0	-3.096e-3	NC	NC
3247			2	0	-.677	0	-3.096e-3	415.078	NC
3248			3	0	-.866	0	-3.096e-3	292.774	NC
3249			4	0	-.604	0	-3.096e-3	407.671	NC
3250			5	0	0	0	-3.096e-3	NC	NC
3251	3	M651	1	0	-.431	0	5.293e-4	NC	NC
3252			2	0	-.8	0	5.293e-4	480.592	NC
3253			3	0	-.891	0	5.293e-4	339.294	NC
3254			4	0	-.593	0	5.293e-4	472.691	NC
3255			5	0	0	0	5.293e-4	NC	NC
3256	3	M652	1	0	-.391	0	1.22e-3	NC	NC
3257			2	0	-.549	0	1.22e-3	897.443	NC
3258			3	0	-.554	0	1.22e-3	638.831	NC
3259			4	0	-.354	0	1.22e-3	894.492	NC
3260			5	0	0	0	1.22e-3	NC	NC
3261	3	M653	1	0	-.313	0	1.886e-3	NC	NC
3262			2	0	-.57	0	1.886e-3	683.405	NC
3263			3	0	-.628	0	1.886e-3	485.939	NC
3264			4	0	-.415	0	1.886e-3	679.989	NC
3265			5	0	0	0	1.886e-3	NC	NC
3266	3	M654	1	0	-.175	0	0	NC	NC
3267			2	0	-.468	0	0	681.377	NC
3268			3	0	-.56	0	0	484.761	NC
3269			4	0	-.382	0	0	678.545	NC
3270			5	0	0	0	0	NC	NC
3271	3	M655	1	0	-.212	0	-2.883e-4	NC	NC
3272			2	0	-.495	0	-2.883e-4	681.377	NC
3273			3	0	-.579	0	-2.883e-4	484.761	NC
3274			4	0	-.391	0	-2.883e-4	678.545	NC
3275			5	0	0	0	-2.883e-4	NC	NC
3276	3	M656	1	0	-.212	0	2.776e-4	NC	NC
3277			2	0	-.531	0	2.776e-4	617.527	NC
3278			3	0	-.629	0	2.776e-4	438.13	NC
3279			4	0	-.427	0	2.776e-4	612.273	NC
3280			5	0	0	0	2.776e-4	NC	NC
3281	3	M657	1	0	-.176	0	0	NC	NC
3282			2	0	-.466	0	0	687.212	NC
3283			3	0	-.558	0	0	488.217	NC
3284			4	0	-.38	0	0	682.802	NC
3285			5	0	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3286	3	M658	1	0	-.203	0	-6.808e-5	NC	NC
3287			2	0	-.448	0	-6.808e-5	774.625	NC
3288			3	0	-.517	0	-6.808e-5	551.233	NC
3289			4	0	-.348	0	-6.808e-5	771.696	NC
3290			5	0	0	0	-6.808e-5	NC	NC
3291	3	M659	1	0	-.189	0	7.49e-4	NC	NC
3292			2	0	-.475	0	7.49e-4	687.212	NC
3293			3	0	-.564	0	7.49e-4	488.217	NC
3294			4	0	-.383	0	7.49e-4	682.802	NC
3295			5	0	0	0	7.49e-4	NC	NC
3296	3	M660	1	0	-.117	0	1.622e-3	NC	NC
3297			2	0	-.564	0	1.622e-3	480.592	NC
3298			3	0	-.734	0	1.622e-3	339.294	NC
3299			4	0	-.514	0	1.622e-3	472.691	NC
3300			5	0	0	0	1.622e-3	NC	NC
3301	3	M661	1	0	.191	0	3.468e-5	NC	NC
3302			2	0	.404	0	9.97e-5	829.161	NC
3303			3	0	.462	0	1.647e-4	588.718	NC
3304			4	0	.31	0	2.298e-4	824.697	NC
3305			5	0	0	0	2.948e-4	NC	NC
3306	3	M662	1	0	.182	0	-3.653e-4	NC	NC
3307			2	0	.313	0	-3.022e-4	1220.426	NC
3308			3	0	.34	0	-2.391e-4	867.321	NC
3309			4	0	.223	0	-1.76e-4	1215.583	NC
3310			5	0	0	0	-1.128e-4	NC	NC
3311	3	M663	1	0	.152	0	0	NC	NC
3312			2	0	.374	0	8.827e-7	829.161	NC
3313			3	0	.443	0	1.783e-6	588.718	NC
3314			4	0	.3	0	2.683e-6	824.697	NC
3315			5	0	0	0	3.583e-6	NC	NC
3316	3	M664	1	0	.187	0	5.706e-5	NC	NC
3317			2	0	.44	0	2.378e-4	721.307	NC
3318			3	0	.516	0	4.186e-4	511.187	NC
3319			4	0	.349	0	5.993e-4	715.326	NC
3320			5	0	0	0	7.801e-4	NC	NC
3321	3	M665	1	0	.161	0	-8.375e-4	NC	NC
3322			2	0	.42	0	-7.357e-4	723.054	NC
3323			3	0	.502	0	-6.34e-4	512.256	NC
3324			4	0	.342	0	-5.322e-4	716.65	NC
3325			5	0	0	0	-4.304e-4	NC	NC
3326	3	M666	1	0	.078	0	-1.212e-3	NC	NC
3327			2	0	.455	0	-1.236e-3	544.509	NC
3328			3	0	.6	0	-1.26e-3	384.88	NC
3329			4	0	.42	0	-1.284e-3	539.807	NC
3330			5	0	0	0	-1.308e-3	NC	NC
3331	3	M667	1	0	.069	0	1.372e-3	NC	NC
3332			2	0	.451	0	1.253e-3	541.222	NC
3333			3	0	.599	0	1.133e-3	382.475	NC
3334			4	0	.42	0	1.014e-3	536.166	NC
3335			5	0	0	0	8.948e-4	NC	NC
3336	3	M668	1	0	.172	0	1.688e-3	NC	NC
3337			2	0	.348	0	1.395e-3	985.556	NC
3338			3	0	.395	0	1.102e-3	700.274	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3339			4	0	.263	0	8.082e-4	981.365	NC
3340			5	0	0	0	5.148e-4	NC	NC
3341	3	M669	1	0	.252	0	0	NC	NC
3342			2	0	.408	0	-7.462e-5	985.575	NC
3343			3	0	.434	0	-1.493e-4	700.274	NC
3344			4	0	.283	0	-2.239e-4	981.347	NC
3345			5	0	0	0	-2.985e-4	NC	NC
3346	3	M670	1	0	.629	0	6.609e-3	NC	NC
3347			2	0	.691	0	6.609e-3	985.556	NC
3348			3	0	.623	0	6.609e-3	700.274	NC
3349			4	0	.377	0	6.609e-3	981.365	NC
3350			5	0	0	0	6.609e-3	NC	NC
3351	3	M671	1	0	.925	0	4.404e-3	NC	NC
3352			2	0	.913	0	4.404e-3	985.575	NC
3353			3	0	.771	0	4.404e-3	700.274	NC
3354			4	0	.451	0	4.404e-3	981.347	NC
3355			5	0	0	0	4.404e-3	NC	NC
3356	3	M672	1	0	1.079	0	1.177e-3	NC	NC
3357			2	0	1.069	0	2.207e-3	834.141	NC
3358			3	0	.905	0	3.237e-3	591.688	NC
3359			4	0	.531	0	4.267e-3	828.373	NC
3360			5	0	0	0	5.297e-3	NC	NC
3361	3	M673	1	0	1.009	0	-3.027e-3	NC	NC
3362			2	0	1.058	0	-1.192e-3	715.595	NC
3363			3	0	.93	0	6.437e-4	507.82	NC
3364			4	0	.556	0	2.479e-3	711.174	NC
3365			5	0	0	0	4.314e-3	NC	NC
3366	3	M674	1	0	.696	0	-6.104e-3	NC	NC
3367			2	0	.78	0	-4.787e-3	836.841	NC
3368			3	0	.712	0	-3.47e-3	593.247	NC
3369			4	0	.434	0	-2.153e-3	830.285	NC
3370			5	0	0	0	-8.366e-4	NC	NC
3371	3	M675	1	0	.237	0	-3.85e-6	NC	NC
3372			2	0	.476	0	-9.119e-4	723.054	NC
3373			3	0	.54	0	-1.82e-3	512.256	NC
3374			4	0	.361	0	-2.728e-3	716.65	NC
3375			5	0	0	0	-3.636e-3	NC	NC
3376	3	M676	1	.001	.269	0	1.416e-4	NC	NC
3377			2	.001	.541	0	1.199e-4	636.718	NC
3378			3	.002	.614	0	9.82e-5	450.796	NC
3379			4	.002	.41	0	7.652e-5	630.453	NC
3380			5	.002	0	0	5.483e-5	NC	NC
3381	3	M677	1	0	.257	0	4.536e-6	NC	NC
3382			2	0	.453	0	1.117e-3	829.161	NC
3383			3	0	.495	0	2.229e-3	588.718	NC
3384			4	0	.326	0	3.341e-3	824.697	NC
3385			5	0	0	0	4.454e-3	NC	NC
3386	3	M678	1	0	.764	0	7.465e-3	NC	NC
3387			2	0	.875	0	6.139e-3	715.595	NC
3388			3	0	.808	0	4.813e-3	507.82	NC
3389			4	0	.495	0	3.488e-3	711.174	NC
3390			5	0	0	0	2.162e-3	NC	NC
3391	3	M679	1	0	1.172	0	3.745e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3392			2	0	1.177	0	1.721e-3	725.082	NC
3393			3	0	1.007	0	-3.041e-4	513.424	NC
3394			4	0	.594	0	-2.329e-3	718.08	NC
3395			5	0	0	0	-4.353e-3	NC	NC
3396	3	M680	1	0	1.25	0	-2.272e-3	NC	NC
3397			2	0	1.196	0	-3.266e-3	836.841	NC
3398			3	0	.989	0	-4.261e-3	593.247	NC
3399			4	0	.573	0	-5.256e-3	830.285	NC
3400			5	0	0	0	-6.25e-3	NC	NC
3401	3	M681	1	0	1.019	0	-6.529e-3	NC	NC
3402			2	0	1.025	0	-6.529e-3	829.161	NC
3403			3	0	.877	0	-6.529e-3	588.718	NC
3404			4	0	.517	0	-6.529e-3	824.697	NC
3405			5	0	0	0	-6.529e-3	NC	NC
3406	3	M682	1	0	.58	0	-9.945e-3	NC	NC
3407			2	0	1.05	0	-9.945e-3	351.477	NC
3408			3	0	1.127	0	-9.945e-3	258.129	NC
3409			4	0	.722	0	-9.945e-3	374.529	NC
3410			5	0	0	0	-9.945e-3	NC	NC
3411	3	M683	1	0	.895	0	-1.482e-2	NC	NC
3412			2	0	1.121	0	-1.36e-2	468.296	NC
3413			3	0	1.153	0	-1.238e-2	343.791	NC
3414			4	0	.948	0	-1.116e-2	493.529	NC
3415			5	0	.58	0	-9.945e-3	NC	NC
3416	3	M684	1	0	1.52	0	-9.134e-3	NC	NC
3417			2	0	1.443	0	-8.483e-3	2984.139	NC
3418			3	0	1.338	0	-7.832e-3	2110.696	NC
3419			4	0	1.193	0	-7.181e-3	2957.518	NC
3420			5	0	1.019	0	-6.529e-3	NC	NC
3421	3	M685	1	0	1.824	0	-2.799e-3	NC	NC
3422			2	0	1.726	0	-2.667e-3	3146.791	NC
3423			3	0	1.601	0	-2.535e-3	2224.031	NC
3424			4	0	1.439	0	-2.403e-3	3126.394	NC
3425			5	0	1.25	0	-2.272e-3	NC	NC
3426	3	M686	1	0	1.678	0	5.746e-3	NC	NC
3427			2	0	1.604	0	5.245e-3	2699	NC
3428			3	0	1.5	0	4.745e-3	1905.58	NC
3429			4	0	1.352	0	4.245e-3	2677.205	NC
3430			5	0	1.172	0	3.745e-3	NC	NC
3431	3	M687	1	0	1.075	0	1.091e-2	NC	NC
3432			2	0	1.05	0	1.005e-2	2695.647	NC
3433			3	0	.995	0	9.187e-3	1903.312	NC
3434			4	0	.895	0	8.326e-3	2671.567	NC
3435			5	0	.764	0	7.465e-3	NC	NC
3436	3	M688	1	0	.34	0	-3.155e-7	NC	NC
3437			2	0	.367	0	8.973e-7	3016.244	NC
3438			3	0	.366	0	2.11e-6	2136.252	NC
3439			4	0	.325	0	3.323e-6	3000.443	NC
3440			5	0	.257	0	4.536e-6	NC	NC
3441	3	M689	1	0	.339	0	4.102e-4	NC	NC
3442			2	0	.38	0	3.431e-4	2431.858	NC
3443			3	0	.387	0	2.759e-4	1718.021	NC
3444			4	.001	.346	0	2.087e-4	2419.658	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3445			5	.001	.269	0	1.416e-4	NC	NC
3446	3	M690	1	0	.282	0	-6.166e-8	NC	NC
3447			2	0	.324	0	-1.009e-6	2699	NC
3448			3	0	.334	0	-1.956e-6	1905.58	NC
3449			4	0	.302	0	-2.903e-6	2677.205	NC
3450			5	0	.237	0	-3.85e-6	NC	NC
3451	3	M691	1	0	.819	0	-7.14e-3	NC	NC
3452			2	0	.835	0	-6.881e-3	3042.911	NC
3453			3	0	.824	0	-6.622e-3	2154.119	NC
3454			4	0	.774	0	-6.363e-3	3026.83	NC
3455			5	0	.696	0	-6.104e-3	NC	NC
3456	3	M692	1	0	1.185	0	-3.576e-3	NC	NC
3457			2	0	1.194	0	-3.439e-3	2695.647	NC
3458			3	0	1.172	0	-3.301e-3	1903.312	NC
3459			4	0	1.106	0	-3.164e-3	2671.567	NC
3460			5	0	1.009	0	-3.027e-3	NC	NC
3461	3	M693	1	0	1.272	0	1.212e-3	NC	NC
3462			2	0	1.27	0	1.203e-3	3060.902	NC
3463			3	0	1.242	0	1.194e-3	2162.434	NC
3464			4	0	1.175	0	1.186e-3	3032.901	NC
3465			5	0	1.079	0	1.177e-3	NC	NC
3466	3	M694	1	0	1.104	0	4.874e-3	NC	NC
3467			2	0	1.099	0	4.756e-3	3540.145	NC
3468			3	0	1.071	0	4.639e-3	2511.504	NC
3469			4	0	1.01	0	4.521e-3	3528.264	NC
3470			5	0	.925	0	4.404e-3	NC	NC
3471	3	M695	1	0	.773	0	7.398e-3	NC	NC
3472			2	0	.777	0	7.201e-3	3609.022	NC
3473			3	0	.757	0	7.003e-3	2548.786	NC
3474			4	0	.705	0	6.806e-3	3570.157	NC
3475			5	0	.629	0	6.609e-3	NC	NC
3476	3	M696	1	0	.349	0	1.479e-7	NC	NC
3477			2	0	.366	0	1.17e-7	3452.284	NC
3478			3	0	.358	0	8.616e-8	2453.615	NC
3479			4	0	.317	0	5.528e-8	3446.625	NC
3480			5	0	.252	0	0	NC	NC
3481	3	M697	1	0	.285	0	1.69e-3	NC	NC
3482			2	0	.296	0	1.689e-3	3609.022	NC
3483			3	0	.285	0	1.689e-3	2548.786	NC
3484			4	0	.24	0	1.689e-3	3570.157	NC
3485			5	0	.172	0	1.688e-3	NC	NC
3486	3	M698	1	0	.166	0	2.358e-3	NC	NC
3487			2	0	.21	0	2.111e-3	2111.547	NC
3488			3	0	.214	0	1.865e-3	1485.746	NC
3489			4	0	.162	0	1.618e-3	2091.173	NC
3490			5	0	.069	0	1.372e-3	NC	NC
3491	3	M699	1	0	.225	0	-2.624e-3	NC	NC
3492			2	0	.382	0	-2.271e-3	945.549	NC
3493			3	0	.426	0	-1.918e-3	668.666	NC
3494			4	0	.31	0	-1.565e-3	941.73	NC
3495			5	0	.078	0	-1.212e-3	NC	NC
3496	3	M700	1	0	.339	0	-7.136e-4	NC	NC
3497			2	0	.443	0	-7.446e-4	1231.058	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3498			3	0	.46	0	-7.756e-4	874.136	NC
3499			4	0	.355	0	-8.065e-4	1229.383	NC
3500			5	0	.161	0	-8.375e-4	NC	NC
3501	3	M701	1	0	.315	0	1.12e-3	NC	NC
3502			2	0	.43	0	8.541e-4	1252.993	NC
3503			3	0	.458	0	5.885e-4	888.574	NC
3504			4	0	.366	0	3.228e-4	1249.184	NC
3505			5	0	.187	0	5.706e-5	NC	NC
3506	3	M702	1	0	.191	0	0	NC	NC
3507			2	0	.313	0	0	1400.327	NC
3508			3	0	.357	0	0	992.813	NC
3509			4	0	.294	0	0	1391.019	NC
3510			5	0	.152	0	0	NC	NC
3511	3	M703	1	0	.209	0	-1.01e-4	NC	NC
3512			2	0	.292	0	-1.671e-4	2060.741	NC
3513			3	0	.321	0	-2.332e-4	1462.976	NC
3514			4	0	.278	0	-2.993e-4	2051.703	NC
3515			5	0	.182	0	-3.653e-4	NC	NC
3516	3	M704	1	0	.205	0	3.089e-4	NC	NC
3517			2	0	.331	0	2.403e-4	1417.579	NC
3518			3	0	.381	0	1.718e-4	1005.368	NC
3519			4	0	.325	0	1.032e-4	1410.65	NC
3520			5	0	.191	0	3.468e-5	NC	NC
3521	3	M705	1	0	-.205	0	-3.089e-4	NC	NC
3522			2	0	-.47	0	-3.089e-4	717.54	NC
3523			3	0	-.547	0	-3.089e-4	509.774	NC
3524			4	0	-.368	0	-3.089e-4	715.086	NC
3525			5	0	0	0	-3.089e-4	NC	NC
3526	3	M706	1	0	-.209	0	1.01e-4	NC	NC
3527			2	0	-.373	0	1.01e-4	1051.598	NC
3528			3	0	-.408	0	1.01e-4	748.37	NC
3529			4	0	-.268	0	1.01e-4	1050.727	NC
3530			5	0	0	0	1.01e-4	NC	NC
3531	3	M707	1	0	-.191	0	0	NC	NC
3532			2	0	-.46	0	0	717.54	NC
3533			3	0	-.541	0	0	509.774	NC
3534			4	0	-.365	0	0	715.086	NC
3535			5	0	0	0	0	NC	NC
3536	3	M708	1	0	-.315	0	-1.12e-3	NC	NC
3537			2	0	-.603	0	-1.12e-3	619.164	NC
3538			3	0	-.673	0	-1.12e-3	439.928	NC
3539			4	0	-.446	0	-1.12e-3	617.186	NC
3540			5	0	0	0	-1.12e-3	NC	NC
3541	3	M709	1	0	-.339	0	7.136e-4	NC	NC
3542			2	0	-.619	0	7.136e-4	620.631	NC
3543			3	0	-.684	0	7.136e-4	440.31	NC
3544			4	0	-.452	0	7.136e-4	617.112	NC
3545			5	0	0	0	7.136e-4	NC	NC
3546	3	M710	1	0	-.225	0	2.624e-3	NC	NC
3547			2	0	-.74	0	2.624e-3	397.014	NC
3548			3	0	-.936	0	2.624e-3	275.535	NC
3549			4	0	-.663	0	2.624e-3	374.005	NC
3550			5	0	0	0	2.624e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3551	3	M711	1	0	-.166	0	-2.358e-3	NC	NC
3552			2	0	-.579	0	-2.358e-3	498.98	NC
3553			3	0	-.731	0	-2.358e-3	350.339	NC
3554			4	0	-.508	0	-2.358e-3	486.61	NC
3555			5	0	0	0	-2.358e-3	NC	NC
3556	3	M712	1	0	-.285	0	-1.69e-3	NC	NC
3557			2	0	-.472	0	-1.69e-3	876.673	NC
3558			3	0	-.506	0	-1.69e-3	624.708	NC
3559			4	0	-.33	0	-1.69e-3	876.973	NC
3560			5	0	0	0	-1.69e-3	NC	NC
3561	3	M713	1	0	-.349	0	-1.479e-7	NC	NC
3562			2	0	-.523	0	-1.479e-7	867.379	NC
3563			3	0	-.541	0	-1.479e-7	619.178	NC
3564			4	0	-.348	0	-1.479e-7	870.123	NC
3565			5	0	0	0	-1.479e-7	NC	NC
3566	3	M714	1	0	-.773	0	-7.398e-3	NC	NC
3567			2	0	-.839	0	-7.398e-3	876.673	NC
3568			3	0	-.75	0	-7.398e-3	624.708	NC
3569			4	0	-.452	0	-7.398e-3	876.973	NC
3570			5	0	0	0	-7.398e-3	NC	NC
3571	3	M715	1	0	-1.104	0	-4.874e-3	NC	NC
3572			2	0	-1.089	0	-4.874e-3	867.379	NC
3573			3	0	-.918	0	-4.874e-3	619.178	NC
3574			4	0	-.537	0	-4.874e-3	870.123	NC
3575			5	0	0	0	-4.874e-3	NC	NC
3576	3	M716	1	0	-1.272	0	-1.212e-3	NC	NC
3577			2	0	-1.263	0	-1.212e-3	733.193	NC
3578			3	0	-1.07	0	-1.212e-3	522.637	NC
3579			4	0	-.627	0	-1.212e-3	733.847	NC
3580			5	0	0	0	-1.212e-3	NC	NC
3581	3	M717	1	0	-1.185	0	3.576e-3	NC	NC
3582			2	0	-1.245	0	3.576e-3	636.446	NC
3583			3	0	-1.093	0	3.576e-3	453.062	NC
3584			4	0	-.653	0	3.576e-3	635.634	NC
3585			5	0	0	0	3.576e-3	NC	NC
3586	3	M718	1	0	-.819	0	7.14e-3	NC	NC
3587			2	0	-.922	0	7.14e-3	737.484	NC
3588			3	0	-.841	0	7.14e-3	525.217	NC
3589			4	0	-.512	0	7.14e-3	737.056	NC
3590			5	0	0	0	7.14e-3	NC	NC
3591	3	M719	1	0	-.282	0	6.166e-8	NC	NC
3592			2	0	-.566	0	6.166e-8	639.911	NC
3593			3	0	-.639	0	6.166e-8	455.082	NC
3594			4	0	-.426	0	6.166e-8	638.128	NC
3595			5	0	0	0	6.166e-8	NC	NC
3596	3	M720	1	0	-.339	0	-4.102e-4	NC	NC
3597			2	0	-.639	0	-4.102e-4	580.482	NC
3598			3	0	-.713	0	-4.102e-4	410.491	NC
3599			4	0	-.474	0	-4.102e-4	573.87	NC
3600			5	0	0	0	-4.102e-4	NC	NC
3601	3	M721	1	0	-.34	0	3.155e-7	NC	NC
3602			2	0	-.565	0	3.155e-7	730.907	NC
3603			3	0	-.605	0	3.155e-7	521.303	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3604			4	0	-.395	0	3.155e-7	732.2	NC
3605			5	0	0	0	3.155e-7	NC	NC
3606	3	M722	1	0	-1.075	0	-1.091e-2	NC	NC
3607			2	0	-1.162	0	-1.091e-2	636.446	NC
3608			3	0	-1.038	0	-1.091e-2	453.062	NC
3609			4	0	-.625	0	-1.091e-2	635.634	NC
3610			5	0	0	0	-1.091e-2	NC	NC
3611	3	M723	1	0	-1.678	0	-5.746e-3	NC	NC
3612			2	0	-1.613	0	-5.746e-3	639.911	NC
3613			3	0	-1.337	0	-5.746e-3	455.082	NC
3614			4	0	-.775	0	-5.746e-3	638.128	NC
3615			5	0	0	0	-5.746e-3	NC	NC
3616	3	M724	1	0	-1.824	0	2.799e-3	NC	NC
3617			2	0	-1.673	0	2.799e-3	744.181	NC
3618			3	0	-1.341	0	2.799e-3	529.191	NC
3619			4	0	-.762	0	2.799e-3	741.976	NC
3620			5	0	0	0	2.799e-3	NC	NC
3621	3	M725	1	0	-1.52	0	9.134e-3	NC	NC
3622			2	0	-1.451	0	9.134e-3	730.907	NC
3623			3	0	-1.195	0	9.134e-3	521.303	NC
3624			4	0	-.69	0	9.134e-3	732.2	NC
3625			5	0	0	0	9.134e-3	NC	NC
3626	3	M726	1	0	-.895	0	1.482e-2	NC	NC
3627			2	0	-3.277	0	1.482e-2	87.038	NC
3628			3	0	-4.135	0	1.482e-2	61.507	NC
3629			4	0	-2.873	0	1.482e-2	85.591	NC
3630			5	0	0	0	1.482e-2	NC	NC
3631	3	M727	1	0	.347	0	2.303e-4	NC	NC
3632			2	0	.577	0	2.303e-4	717.54	NC
3633			3	0	.619	0	2.303e-4	509.774	NC
3634			4	0	.404	0	2.303e-4	715.086	NC
3635			5	0	0	0	2.303e-4	NC	NC
3636	3	M728	1	0	-.286	.002	-2.797e-4	NC	NC
3637			2	0	-.561	.002	-2.833e-4	792.053	NC
3638			3	0	-.67	.002	-2.87e-4	565.996	NC
3639			4	0	-.556	.002	-2.907e-4	799.395	NC
3640			5	0	-.281	.002	-2.943e-4	NC	NC
3641	3	M729	1	0	-.287	.002	2.695e-4	NC	NC
3642			2	0	-.559	.002	2.677e-4	799.215	NC
3643			3	0	-.668	.002	2.658e-4	570.275	NC
3644			4	0	-.555	.002	2.64e-4	804.763	NC
3645			5	0	-.282	.002	2.622e-4	NC	NC
3646	3	M730	1	0	-.251	.002	1.462e-5	NC	NC
3647			2	0	-.553	.002	1.51e-5	720.093	NC
3648			3	0	-.674	.002	1.558e-5	513.584	NC
3649			4	0	-.55	.002	1.606e-5	724.411	NC
3650			5	0	-.247	.002	1.654e-5	NC	NC
3651	3	M731	1	0	-.197	.003	1.019e-3	NC	NC
3652			2	0	-.5	.003	1.031e-3	715.615	NC
3653			3	0	-.621	.003	1.043e-3	510.127	NC
3654			4	0	-.495	.003	1.054e-3	720.059	NC
3655			5	0	-.189	.003	1.066e-3	NC	NC
3656	3	M732	1	0	-.113	.003	1.629e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3657			2	0	-.412	.003	1.681e-5	723.634	NC
3658			3	0	-.531	.003	1.734e-5	515.991	NC
3659			4	0	-.405	.003	1.787e-5	727.995	NC
3660			5	0	-.102	.003	1.84e-5	NC	NC
3661	3	M733	1	.001	-.055	.003	7.4e-4	NC	NC
3662			2	0	-.299	.003	7.216e-4	893.312	NC
3663			3	0	-.395	.003	7.032e-4	637.324	NC
3664			4	0	-.294	.003	6.848e-4	898.729	NC
3665			5	0	-.05	.003	6.664e-4	NC	NC
3666	3	M734	1	.003	-.026	.003	-8.425e-5	NC	NC
3667			2	.002	-.237	.003	-9.19e-5	1031.669	NC
3668			3	0	-.321	.003	-9.955e-5	736.505	NC
3669			4	0	-.234	.003	-1.072e-4	1037.702	NC
3670			5	-.001	-.023	.003	-1.149e-4	NC	NC
3671	3	M735	1	0	-.07	.003	-9.816e-4	NC	NC
3672			2	0	-.311	.003	-9.766e-4	905.381	NC
3673			3	0	-.406	.003	-9.716e-4	646.656	NC
3674			4	0	-.307	.003	-9.666e-4	912.203	NC
3675			5	0	-.067	.003	-9.617e-4	NC	NC
3676	3	M736	1	0	-.136	.003	-1.226e-3	NC	NC
3677			2	0	-.379	.003	-1.214e-3	893.312	NC
3678			3	0	-.476	.003	-1.202e-3	637.324	NC
3679			4	0	-.375	.003	-1.19e-3	898.729	NC
3680			5	0	-.131	.003	-1.178e-3	NC	NC
3681	3	M737	1	0	-.2	.002	8.955e-6	NC	NC
3682			2	0	-.507	.002	9.658e-6	706.009	NC
3683			3	0	-.631	.002	1.036e-5	501.841	NC
3684			4	0	-.5	.002	1.106e-5	712.401	NC
3685			5	0	-.192	.002	1.177e-5	NC	NC
3686	3	M738	1	0	0	0	-6.589e-3	NC	NC
3687			2	0	-.859	0	-4.94e-3	283.562	NC
3688			3	0	-1.235	0	-3.291e-3	202.035	NC
3689			4	.001	-.955	.001	-1.643e-3	284.944	NC
3690			5	.002	-.2	.002	6.239e-6	NC	NC
3691	3	M739	1	0	0	0	5.776e-3	NC	NC
3692			2	0	.832	0	4.329e-3	292.747	NC
3693			3	0	1.196	0	2.883e-3	208.483	NC
3694			4	.001	.923	.001	1.437e-3	294.44	NC
3695			5	.002	.192	.002	-9.188e-6	NC	NC
3696	3	M740	1	0	.305	0	0	NC	NC
3697			2	0	.304	0	0	3016.502	NC
3698			3	0	.259	0	0	2133.608	NC
3699			4	0	.154	0	0	2919.443	NC
3700			5	0	0	0	0	NC	NC
3701	3	M741	1	0	-.305	0	0	NC	NC
3702			2	0	-.274	0	3.564e-7	NC	NC
3703			3	0	-.239	0	6.937e-7	9392.252	NC
3704			4	0	-.194	0	1.031e-6	NC	NC
3705			5	0	-.145	0	1.368e-6	NC	NC
3706	3	M742	1	0	-.145	0	1.368e-6	NC	NC
3707			2	0	-.175	0	1.278e-6	6105.321	NC
3708			3	0	-.187	0	1.188e-6	4375.789	NC
3709			4	0	-.175	0	1.098e-6	6105.321	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3710			5	0	-.145	0	1.008e-6	NC	NC
3711	3	M743	1	0	-.145	0	1.008e-6	NC	NC
3712			2	0	-.192	0	8.012e-6	NC	NC
3713			3	0	-.234	0	1.502e-5	9154.263	NC
3714			4	0	-.265	0	2.202e-5	NC	NC
3715			5	0	-.293	0	2.902e-5	NC	NC
3716	3	M744	1	0	-.293	0	2.902e-5	NC	NC
3717			2	0	-.331	0	2.535e-5	3920.079	NC
3718			3	0	-.335	0	2.167e-5	2818.571	NC
3719			4	0	-.297	0	1.799e-5	3931.616	NC
3720			5	0	-.226	.002	1.431e-5	NC	NC
3721	3	M745	1	0	-.226	.002	1.431e-5	NC	NC
3722			2	0	-.178	0	-5.928e-4	NC	NC
3723			3	0	-.115	0	-1.2e-3	NC	NC
3724			4	0	-.047	0	-1.807e-3	NC	NC
3725			5	0	0	0	-2.414e-3	NC	NC
3726	3	M746	1	0	0	0	-2.414e-3	NC	NC
3727			2	0	-.03	0	-2.414e-3	4620.65	NC
3728			3	0	-.085	0	-2.414e-3	1656.123	NC
3729			4	0	-.133	0	-2.414e-3	1053.981	NC
3730			5	0	-.183	0	-2.414e-3	767.472	NC
3731	3	M747	1	-.002	-.25	0	7.22e-7	NC	NC
3732			2	-.002	-.279	0	5.493e-7	6348.086	NC
3733			3	-.002	-.291	0	3.766e-7	4551.408	NC
3734			4	-.002	-.28	0	2.039e-7	6354.235	NC
3735			5	-.002	-.251	0	0	NC	NC
3736	3	M748	1	-.002	-.251	0	0	NC	NC
3737			2	-.003	-.225	0	-9.344e-7	NC	NC
3738			3	-.003	-.196	0	-1.9e-6	9562.042	NC
3739			4	-.003	-.156	0	-2.866e-6	NC	NC
3740			5	-.003	-.113	0	-3.831e-6	NC	NC
3741	3	M749	1	-.002	-.244	0	8.226e-7	NC	NC
3742			2	-.002	-.274	0	5.98e-7	6254.528	NC
3743			3	-.002	-.286	0	3.734e-7	4486.87	NC
3744			4	-.002	-.275	0	1.488e-7	6264.846	NC
3745			5	-.002	-.247	0	-7.586e-8	NC	NC
3746	3	M750	1	-.002	-.247	0	-7.586e-8	NC	NC
3747			2	-.002	-.22	0	6.096e-7	NC	NC
3748			3	-.003	-.189	0	1.295e-6	9536.689	NC
3749			4	-.003	-.147	0	1.981e-6	NC	NC
3750			5	-.003	-.102	0	2.666e-6	NC	NC
3751	3	M751	1	0	-.25	.002	1.259e-5	NC	NC
3752			2	0	-.292	0	1.272e-5	4978.373	NC
3753			3	0	-.308	0	1.286e-5	3583.147	NC
3754			4	0	-.289	0	1.3e-5	5000.792	NC
3755			5	0	-.244	.002	1.313e-5	NC	NC
3756	3	M752	1	0	-.274	.001	7.705e-6	NC	NC
3757			2	0	-.349	0	7.946e-6	2841.582	NC
3758			3	0	-.377	0	8.186e-6	2043.707	NC
3759			4	0	-.345	0	8.427e-6	2842.261	NC
3760			5	0	-.266	.001	8.667e-6	NC	NC
3761	3	M753	1	0	.34	0	-1.824e-6	NC	NC
3762			2	0	1.379	0	-1.041e-6	307.424	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3763			3	0	1.846	0	-2.582e-7	206.17	NC
3764			4	0	1.385	0	-4.074e-8	265.951	NC
3765			5	0	0	0	-4.074e-8	NC	NC
3766	3	M754	1	0	.257	0	-2.951e-6	NC	NC
3767			2	0	.972	0	-1.683e-6	443.49	NC
3768			3	0	1.274	0	-4.157e-7	301.782	NC
3769			4	0	.922	0	-6.367e-8	403.121	NC
3770			5	0	0	0	-6.367e-8	NC	NC
3771	3	M755	1	0	-.34	0	1.824e-6	NC	NC
3772			2	0	-.343	0	1.827e-6	7996.293	NC
3773			3	0	-.339	0	1.83e-6	5059.216	NC
3774			4	0	-.314	0	1.833e-6	7976.43	NC
3775			5	0	-.282	0	1.836e-6	NC	NC
3776	3	M756	1	0	-.257	0	2.951e-6	NC	NC
3777			2	0	-.266	0	2.958e-6	NC	NC
3778			3	0	-.269	.001	2.964e-6	6343.303	NC
3779			4	0	-.256	0	2.971e-6	NC	NC
3780			5	0	-.237	0	2.978e-6	NC	NC
3781	3	M757	1	0	0	0	0	NC	NC
3782			2	0	-.145	0	0	3086.275	NC
3783			3	0	-.242	0	0	2266.511	NC
3784			4	0	-.284	0	0	3214.759	NC
3785			5	0	-.284	0	0	NC	NC
3786	3	M758	1	0	-.284	0	0	NC	NC
3787			2	0	-.255	0	7.262e-7	NC	NC
3788			3	0	-.223	0	1.442e-6	NC	NC
3789			4	0	-.181	0	2.157e-6	NC	NC
3790			5	0	-.135	0	2.873e-6	NC	NC
3791	3	M759	1	0	-.135	0	2.873e-6	NC	NC
3792			2	0	-.163	0	2.162e-6	6524.755	NC
3793			3	0	-.174	0	1.451e-6	4671.449	NC
3794			4	0	-.163	0	7.393e-7	6511.315	NC
3795			5	0	-.135	0	0	NC	NC
3796	3	M760	1	0	-.135	0	0	NC	NC
3797			2	0	-.178	0	0	NC	NC
3798			3	0	-.218	0	-5.429e-8	9830.065	NC
3799			4	0	-.247	0	-9.548e-8	NC	NC
3800			5	0	-.273	0	-1.367e-7	NC	NC
3801	3	M761	1	0	-.273	0	-1.367e-7	NC	NC
3802			2	0	-.309	0	-1.255e-6	4198.063	NC
3803			3	0	-.314	0	-2.373e-6	3019.665	NC
3804			4	0	-.279	0	-3.492e-6	4211.945	NC
3805			5	0	-.213	0	-4.61e-6	NC	NC
3806	3	M762	1	0	-.213	0	-4.61e-6	989.992	NC
3807			2	0	-.155	0	5.993e-4	1360.675	NC
3808			3	0	-.089	0	1.203e-3	2381.244	NC
3809			4	0	-.027	0	1.807e-3	7917.29	NC
3810			5	0	0	0	2.411e-3	NC	NC
3811	3	M763	1	0	0	0	2.411e-3	NC	NC
3812			2	0	-.061	0	2.174e-3	2309.824	NC
3813			3	0	-.168	0	1.938e-3	836.151	NC
3814			4	0	-.296	0	1.702e-3	474.998	NC
3815			5	0	-.435	0	1.465e-3	322.5	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3816	3	M764	1	0	-.435	0	1.465e-3	NC	NC
3817			2	0	-.433	0	1.102e-3	3453.142	NC
3818			3	0	-.391	0	7.379e-4	2515.15	NC
3819			4	0	-.301	0	3.743e-4	3562.369	NC
3820			5	0	-.175	0	1.058e-5	NC	NC
3821	3	M765	1	0	-.175	0	1.058e-5	NC	NC
3822			2	0	-.205	0	7.961e-6	6287.625	NC
3823			3	0	-.217	0	5.344e-6	4489.991	NC
3824			4	0	-.205	0	2.728e-6	6230.324	NC
3825			5	0	-.176	0	1.117e-7	NC	NC
3826	3	M766	1	0	-.176	0	1.117e-7	NC	NC
3827			2	0	-.203	0	1.117e-7	3203.993	NC
3828			3	0	-.188	0	1.117e-7	2266.348	NC
3829			4	0	-.117	0	1.117e-7	3100.327	NC
3830			5	0	0	0	1.117e-7	NC	NC
3831	3	M767	1	0	-.282	0	1.836e-6	NC	NC
3832			2	0	-.968	0	1.029e-6	500.132	NC
3833			3	0	-1.277	0	2.221e-7	348.285	NC
3834			4	0	-1.018	0	-3.038e-7	487.867	NC
3835			5	0	-.349	0	-7.425e-7	NC	NC
3836	3	M768	1	0	-.237	0	2.978e-6	NC	NC
3837			2	0	-.824	0	1.716e-6	574.139	NC
3838			3	0	-1.086	0	4.539e-7	397.855	NC
3839			4	0	-.849	0	1.485e-6	557.382	NC
3840			5	0	-.252	0	3.226e-6	NC	NC
3841	3	M769	1	0	-.349	0	-7.425e-7	NC	NC
3842			2	0	-.293	0	-7.425e-7	5396.328	NC
3843			3	0	-.217	0	-7.425e-7	3881.795	NC
3844			4	0	-.118	0	-7.425e-7	5360.283	NC
3845			5	0	0	0	-7.425e-7	NC	NC
3846	3	M770	1	0	-.252	0	3.226e-6	663.052	NC
3847			2	0	-.181	0	2.911e-6	922.181	NC
3848			3	0	-.107	0	2.596e-6	1561.089	NC
3849			4	0	-.04	0	2.281e-6	4194.978	NC
3850			5	0	0	0	1.966e-6	NC	NC
3851	3	M771	1	0	0	0	0	NC	NC
3852			2	0	-.225	0	0	1435.608	NC
3853			3	0	-.339	0	0	1047.591	NC
3854			4	0	-.315	0	0	1480.001	NC
3855			5	0	-.191	0	0	NC	NC
3856	3	M772	1	0	-.191	0	0	NC	NC
3857			2	0	-.206	0	0	7892.994	NC
3858			3	0	-.21	0	0	5562.685	NC
3859			4	0	-.199	0	0	7552.394	NC
3860			5	0	-.176	0	0	NC	NC
3861	3	M773	1	0	0	0	1.966e-6	NC	NC
3862			2	0	-.078	0	1.486e-6	6348.958	NC
3863			3	0	-.161	0	1.006e-6	2986.64	NC
3864			4	0	-.187	0	5.252e-7	3489.676	NC
3865			5	0	-.152	0	4.488e-8	NC	NC
3866	3	M774	1	0	-.152	0	4.488e-8	NC	NC
3867			2	0	-.175	0	3.423e-8	8097.453	NC
3868			3	0	-.189	0	0	5701.191	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3869			4	0	-.188	0	0	7733.611	NC
3870			5	0	-.175	0	0	NC	NC
3871	3	M775	1	-.002	-.349	0	-1.23e-6	NC	NC
3872			2	-.001	-.492	0	-9.277e-7	1612.452	NC
3873			3	-.001	-.54	0	-6.258e-7	1145.725	NC
3874			4	-.001	-.462	0	-3.238e-7	1594.49	NC
3875			5	-.001	-.287	0	0	NC	NC
3876	3	M776	1	-.001	-.287	0	0	NC	NC
3877			2	-.001	-.287	0	0	7707.051	NC
3878			3	-.001	-.277	0	0	5429.391	NC
3879			4	-.001	-.251	0	0	7368.414	NC
3880			5	0	-.213	0	0	NC	NC
3881	3	M777	1	0	-.271	0	-1.805e-6	NC	NC
3882			2	0	-.407	0	-1.361e-6	1958.294	NC
3883			3	0	-.465	0	-9.173e-7	1392.493	NC
3884			4	0	-.419	0	-4.736e-7	1937.42	NC
3885			5	0	-.293	0	0	NC	NC
3886	3	M778	1	0	-.293	0	0	NC	NC
3887			2	0	-.304	0	0	9301.87	NC
3888			3	0	-.305	0	0	6559.09	NC
3889			4	0	-.294	0	0	8910.636	NC
3890			5	0	-.273	0	0	NC	NC
3891	3	M779	1	0	-.218	0	9.881e-6	NC	NC
3892			2	0	-.32	0	7.473e-6	2111.372	NC
3893			3	0	-.351	0	5.064e-6	1500.209	NC
3894			4	0	-.285	0	2.656e-6	2086.55	NC
3895			5	0	-.145	0	2.479e-7	NC	NC
3896	3	M780	1	0	-.145	0	2.479e-7	NC	NC
3897			2	0	-.157	0	1.892e-7	9959.354	NC
3898			3	0	-.16	0	1.304e-7	7038.412	NC
3899			4	0	-.152	0	7.172e-8	9578.257	NC
3900			5	0	-.135	0	0	NC	NC
3901	3	M781	1	0	-.06	0	-6.977e-4	NC	NC
3902			2	0	-.2	0	-5.28e-4	2131.093	NC
3903			3	0	-.27	0	-3.582e-4	1516.796	NC
3904			4	0	-.244	0	-1.885e-4	2110.992	NC
3905			5	0	-.144	0	-1.871e-5	NC	NC
3906	3	M782	1	0	-.144	0	-1.871e-5	NC	NC
3907			2	0	-.156	0	-1.427e-5	NC	NC
3908			3	0	-.16	0	-9.826e-6	7135.366	NC
3909			4	0	-.152	0	-5.382e-6	9688.238	NC
3910			5	0	-.135	0	-9.385e-7	NC	NC
3911	3	M783	1	0	-.297	0	-4.445e-7	NC	NC
3912			2	0	-.433	0	-3.362e-7	1872.839	NC
3913			3	0	-.488	0	-2.279e-7	1331.618	NC
3914			4	0	-.434	0	-1.195e-7	1852.816	NC
3915			5	0	-.297	0	0	NC	NC
3916	3	M784	1	0	-.297	0	0	NC	NC
3917			2	0	-.31	0	0	8866.607	NC
3918			3	0	-.314	0	0	6253.629	NC
3919			4	0	-.304	0	0	8495.815	NC
3920			5	0	-.284	0	0	NC	NC
3921	3	M785	1	.002	.349	0	1.23e-6	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3922			2	.002	.401	0	1.089e-6	1766.318	NC
3923			3	.002	.37	0	9.477e-7	1264.012	NC
3924			4	.002	.231	0	8.067e-7	1769.684	NC
3925			5	.002	.011	.003	6.657e-7	NC	NC
3926	3	M786	1	0	.271	0	1.805e-6	NC	NC
3927			2	0	.352	0	8.688e-7	2298.387	NC
3928			3	0	.368	0	-6.684e-8	1660.749	NC
3929			4	0	.301	0	-1.003e-6	2354.857	NC
3930			5	0	.175	.002	-1.938e-6	NC	NC
3931	3	M787	1	0	.218	0	-9.881e-6	NC	NC
3932			2	0	.303	0	-7.88e-6	2477.123	NC
3933			3	0	.328	0	-5.879e-6	1789.153	NC
3934			4	0	.277	0	-3.877e-6	2537.56	NC
3935			5	0	.17	.002	-1.876e-6	NC	NC
3936	3	M788	1	0	.06	0	6.977e-4	NC	NC
3937			2	0	.207	0	5.313e-4	2499.411	NC
3938			3	0	.294	0	3.65e-4	1806.344	NC
3939			4	0	.306	0	1.986e-4	2562.64	NC
3940			5	0	.263	.001	3.229e-5	NC	NC
3941	3	M789	1	0	.297	0	4.445e-7	NC	NC
3942			2	0	.402	0	7.837e-7	2197.613	NC
3943			3	0	.439	0	1.123e-6	1587.742	NC
3944			4	0	.389	0	1.462e-6	2252.054	NC
3945			5	0	.278	0	1.801e-6	NC	NC
3946	3	M790	1	0	.175	.002	-1.938e-6	NC	NC
3947			2	0	.229	.003	-6.053e-6	3154.622	NC
3948			3	0	.238	.004	-1.017e-5	2281.834	NC
3949			4	0	.191	.004	-1.428e-5	3232.041	NC
3950			5	0	.102	.003	-1.84e-5	NC	NC
3951	3	M791	1	0	.17	.002	-1.876e-6	NC	NC
3952			2	0	.269	.003	-5.542e-6	2840.39	NC
3953			3	0	.321	.003	-9.208e-6	2030.232	NC
3954			4	0	.308	.003	-1.287e-5	2840.842	NC
3955			5	0	.247	.002	-1.654e-5	NC	NC
3956	3	M792	1	0	.263	.001	3.229e-5	NC	NC
3957			2	0	.338	.002	2.094e-5	2861.472	NC
3958			3	0	.365	.002	9.581e-6	2045.269	NC
3959			4	0	.328	.002	-1.776e-6	2861.091	NC
3960			5	0	.244	.002	-1.313e-5	NC	NC
3961	3	M793	1	0	.278	0	1.801e-6	NC	NC
3962			2	0	.365	.001	-8.16e-7	2522.843	NC
3963			3	0	.398	.001	-3.433e-6	1803.456	NC
3964			4	0	.36	.001	-6.05e-6	2522.55	NC
3965			5	0	.266	.001	-8.667e-6	NC	NC
3966	3	M794	1	0	.274	.001	-7.705e-6	NC	NC
3967			2	0	.385	.001	-5.34e-6	2194.556	NC
3968			3	0	.428	.001	-2.974e-6	1585.508	NC
3969			4	0	.387	0	-6.089e-7	2225.538	NC
3970			5	0	.282	0	1.757e-6	NC	NC
3971	3	M795	1	0	.25	.002	-1.259e-5	NC	NC
3972			2	0	.361	.002	-8.954e-6	2484.622	NC
3973			3	0	.413	.002	-5.318e-6	1795.066	NC
3974			4	0	.389	.001	-1.683e-6	2519.137	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
3975			5	0	.309	0	1.952e-6	NC	NC
3976	3	M796	1	0	.251	.002	-1.462e-5	NC	NC
3977			2	0	.328	.003	-9.921e-6	2478.191	NC
3978			3	0	.345	.003	-5.225e-6	1791.423	NC
3979			4	0	.286	.002	-5.302e-7	2515.229	NC
3980			5	0	.172	0	4.165e-6	NC	NC
3981	3	M797	1	0	.113	.003	-1.629e-5	NC	NC
3982			2	0	.214	.004	-1.14e-5	2797.8	NC
3983			3	0	.265	.004	-6.517e-6	1995.611	NC
3984			4	0	.248	.002	-1.633e-6	2767.277	NC
3985			5	0	.178	.001	3.252e-6	NC	NC
3986	3	M798	1	0	.282	0	1.757e-6	NC	NC
3987			2	0	.395	0	1.316e-6	2172.928	NC
3988			3	0	.441	0	8.756e-7	1559.331	NC
3989			4	0	.4	0	4.351e-7	2178.073	NC
3990			5	0	.292	0	0	NC	NC
3991	3	M799	1	0	.309	0	1.952e-6	NC	NC
3992			2	0	.401	0	-4.982e-6	2474.304	NC
3993			3	0	.434	0	-1.192e-5	1773.391	NC
3994			4	0	.39	0	-1.885e-5	2471.752	NC
3995			5	0	.288	0	-2.578e-5	NC	NC
3996	3	M800	1	0	.172	0	4.165e-6	NC	NC
3997			2	0	.241	0	1.081e-5	2470.177	NC
3998			3	0	.251	0	1.746e-5	1770.593	NC
3999			4	0	.184	0	2.411e-5	2472.818	NC
4000			5	0	.059	0	3.075e-5	NC	NC
4001	3	M801	1	0	.178	.001	3.252e-6	NC	NC
4002			2	0	.291	0	2.402e-6	2271.824	NC
4003			3	0	.341	0	1.553e-6	1629.295	NC
4004			4	0	.307	0	7.031e-7	2274.773	NC
4005			5	0	.209	0	-1.466e-7	NC	NC
4006	3	M802	1	-.004	.01	.002	9.92e-6	NC	NC
4007			2	-.004	.21	0	7.455e-6	1726.142	NC
4008			3	-.004	.322	0	4.99e-6	1255.603	NC
4009			4	-.004	.327	0	2.524e-6	1769.886	NC
4010			5	-.003	.252	0	5.92e-8	NC	NC
4011	3	M803	1	0	.292	0	0	NC	NC
4012			2	0	.42	0	0	2040.292	NC
4013			3	0	.474	0	0	1452.71	NC
4014			4	0	.432	0	0	2014.22	NC
4015			5	0	.315	0	0	NC	NC
4016	3	M804	1	0	.288	0	-2.578e-5	NC	NC
4017			2	0	.361	0	-2.912e-5	2304.962	NC
4018			3	0	.371	0	-3.246e-5	1641.378	NC
4019			4	0	.294	0	-3.579e-5	2277.571	NC
4020			5	0	.15	0	-3.913e-5	NC	NC
4021	3	M805	1	0	.059	0	3.075e-5	NC	NC
4022			2	0	.19	0	3.499e-5	2307.786	NC
4023			3	0	.256	0	3.922e-5	1644.444	NC
4024			4	0	.236	0	4.345e-5	2282.988	NC
4025			5	0	.15	0	4.768e-5	NC	NC
4026	3	M806	1	0	.209	0	-1.466e-7	NC	NC
4027			2	0	.355	0	-1.12e-7	2131.199	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4028			3	0	.432	0	-7.737e-8	1517.767	NC
4029			4	0	.415	0	-4.277e-8	2104.624	NC
4030			5	0	.327	0	0	NC	NC
4031	3	M807	1	-.003	.252	0	5.92e-8	NC	NC
4032			2	-.003	.408	0	4.331e-8	1761.939	NC
4033			3	-.003	.479	0	0	1254.694	NC
4034			4	-.003	.439	0	0	1739.261	NC
4035			5	-.003	.311	0	0	NC	NC
4036	3	M808	1	0	.315	0	0	NC	NC
4037			2	0	.341	0	0	5849.854	NC
4038			3	0	.35	0	0	4199.544	NC
4039			4	0	.336	0	0	5859.974	NC
4040			5	0	.305	0	0	NC	NC
4041	3	M809	1	0	.15	0	-3.913e-5	NC	NC
4042			2	0	.174	0	-2.995e-5	6599.829	NC
4043			3	0	.183	0	-2.077e-5	4741.56	NC
4044			4	0	.172	0	-1.159e-5	6618.165	NC
4045			5	0	.145	0	-2.41e-6	NC	NC
4046	3	M810	1	0	.15	0	4.768e-5	NC	NC
4047			2	0	.174	0	3.65e-5	6613.473	NC
4048			3	0	.183	0	2.531e-5	4746.921	NC
4049			4	0	.172	0	1.412e-5	6621.702	NC
4050			5	0	.145	0	2.939e-6	NC	NC
4051	3	M811	1	0	.327	0	0	NC	NC
4052			2	0	.346	0	0	6120.28	NC
4053			3	0	.348	0	0	4392.725	NC
4054			4	0	.329	0	0	6125.571	NC
4055			5	0	.293	0	0	NC	NC
4056	3	M812	1	-.003	.311	0	0	NC	NC
4057			2	-.002	.323	0	0	5047.085	NC
4058			3	-.002	.315	0	0	3619.467	NC
4059			4	-.002	.281	0	0	5047.071	NC
4060			5	-.002	.226	0	0	NC	NC
4061	3	M813	1	-.003	-.102	0	2.666e-6	NC	NC
4062			2	-.003	-.041	0	3.764e-4	4133.533	NC
4063			3	-.003	-.042	0	4.776e-4	4208.283	NC
4064			4	-.003	-.116	0	2.397e-4	NC	NC
4065			5	-.002	-.192	0	1.764e-6	2828.417	NC
4066	3	M814	1	-.003	-.113	0	-3.831e-6	NC	NC
4067			2	-.003	-.045	.002	-2.824e-4	3771.377	NC
4068			3	-.003	-.044	.002	-3.574e-4	3704.489	NC
4069			4	-.003	-.12	0	-1.788e-4	NC	NC
4070			5	-.002	-.2	0	-3.275e-7	2907.424	NC
4071	3	M815	1	-.002	-.2	.001	4.707e-6	NC	NC
4072			2	-.002	-.228	.001	6.683e-6	9021.315	NC
4073			3	-.002	-.244	.001	8.659e-6	6380.307	NC
4074			4	-.002	-.24	.001	1.063e-5	9053.604	NC
4075			5	-.002	-.223	.001	1.261e-5	NC	NC
4076	3	M816	1	.002	-.223	.001	9.327e-6	NC	NC
4077			2	.002	-.236	.001	8.156e-6	9588.625	NC
4078			3	.002	-.237	.001	6.985e-6	6732.803	NC
4079			4	.002	-.221	.001	5.813e-6	9493.064	NC
4080			5	.002	-.192	0	4.642e-6	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4081	3	M817	1	.305	0	0	0	NC	NC
4082			2	.274	0	0	0	NC	NC
4083			3	.243	0	0	0	NC	NC
4084			4	.211	0	0	0	NC	NC
4085			5	.18	0	0	0	NC	NC
4086	3	M818	1	.145	0	0	0	NC	NC
4087			2	.133	0	0	0	NC	NC
4088			3	.121	0	0	0	NC	NC
4089			4	.109	0	0	0	NC	NC
4090			5	.097	0	0	0	NC	NC
4091	3	M819	1	.145	0	0	0	NC	NC
4092			2	.133	0	0	0	NC	NC
4093			3	.121	0	0	0	NC	NC
4094			4	.109	0	0	0	NC	NC
4095			5	.097	0	0	0	NC	NC
4096	3	M820	1	.293	0	0	0	NC	NC
4097			2	.263	-.002	0	0	NC	NC
4098			3	.233	-.003	0	0	NC	NC
4099			4	.203	-.003	0	0	NC	NC
4100			5	.173	0	0	0	NC	NC
4101	3	M821	1	.226	.002	0	0	NC	NC
4102			2	.205	0	0	0	NC	NC
4103			3	.184	0	0	0	NC	NC
4104			4	.162	-.002	0	0	NC	NC
4105			5	.141	-.001	0	0	NC	NC
4106	3	M822	1	0	0	0	1.022e-6	NC	NC
4107			2	0	.031	-.003	2.901e-6	5362.66	NC
4108			3	0	-.011	-.004	4.781e-6	NC	NC
4109			4	0	-.048	-.003	6.66e-6	3481.216	NC
4110			5	0	0	0	8.539e-6	NC	NC
4111	3	M823	1	.315	0	0	0	NC	NC
4112			2	.282	0	0	0	NC	NC
4113			3	.25	0	0	0	NC	NC
4114			4	.218	0	0	0	NC	NC
4115			5	.186	0	0	0	NC	NC
4116	3	M824	1	.15	0	0	0	NC	NC
4117			2	.138	0	-.002	0	NC	NC
4118			3	.125	0	-.003	0	NC	NC
4119			4	.113	0	-.002	0	NC	NC
4120			5	.1	0	0	0	NC	NC
4121	3	M825	1	.15	0	0	0	NC	NC
4122			2	.138	0	.002	0	NC	NC
4123			3	.125	0	.003	0	NC	NC
4124			4	.113	0	.003	0	NC	NC
4125			5	.1	0	0	0	NC	NC
4126	3	M826	1	.327	0	0	0	NC	NC
4127			2	.293	0	0	0	NC	NC
4128			3	.259	0	0	0	NC	NC
4129			4	.225	0	0	0	NC	NC
4130			5	.191	0	0	0	NC	NC
4131	3	M827	1	.311	.003	0	0	NC	NC
4132			2	.28	.002	0	0	NC	NC
4133			3	.25	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4134			4	.219	0	0	0	NC	NC
4135			5	.189	-.001	0	0	NC	NC
4136	3	M828	1	.292	0	0	0	NC	NC
4137			2	.264	0	0	0	NC	NC
4138			3	.236	0	0	0	NC	NC
4139			4	.208	0	0	0	NC	NC
4140			5	.18	0	0	0	NC	NC
4141	3	M829	1	.288	0	0	0	NC	NC
4142			2	.259	0	-.001	0	NC	NC
4143			3	.231	0	-.002	0	NC	NC
4144			4	.202	0	-.002	0	NC	NC
4145			5	.174	0	0	0	NC	NC
4146	3	M830	1	.059	0	0	0	NC	NC
4147			2	.059	0	.002	0	NC	NC
4148			3	.059	0	.003	0	NC	NC
4149			4	.059	0	.003	0	NC	NC
4150			5	.059	0	0	0	NC	NC
4151	3	M831	1	.209	0	0	0	NC	NC
4152			2	.191	0	0	0	NC	NC
4153			3	.173	0	0	0	NC	NC
4154			4	.155	0	0	0	NC	NC
4155			5	.137	0	0	0	NC	NC
4156	3	M832	1	.252	.003	0	0	NC	NC
4157			2	.23	.002	0	0	NC	NC
4158			3	.209	0	0	0	NC	NC
4159			4	.187	0	0	0	NC	NC
4160			5	.165	-.002	0	0	NC	NC
4161	3	M833	1	.282	0	0	0	NC	NC
4162			2	.255	0	0	0	NC	NC
4163			3	.228	0	0	0	NC	NC
4164			4	.2	0	0	0	NC	NC
4165			5	.173	0	0	0	NC	NC
4166	3	M834	1	.309	0	0	0	NC	NC
4167			2	.278	0	0	0	NC	NC
4168			3	.246	0	0	0	NC	NC
4169			4	.215	0	0	0	NC	NC
4170			5	.183	0	0	0	NC	NC
4171	3	M835	1	.172	0	0	0	NC	NC
4172			2	.157	0	.001	0	NC	NC
4173			3	.143	0	.001	0	NC	NC
4174			4	.129	0	.001	0	NC	NC
4175			5	.114	0	.001	0	NC	NC
4176	3	M836	1	.178	0	.001	0	NC	NC
4177			2	.163	0	.001	0	NC	NC
4178			3	.148	0	.002	0	NC	NC
4179			4	.133	0	.002	0	NC	NC
4180			5	.119	0	.001	0	NC	NC
4181	3	M837	1	.274	0	.001	0	NC	NC
4182			2	.247	0	.001	0	NC	NC
4183			3	.221	0	0	0	NC	NC
4184			4	.195	0	0	0	NC	NC
4185			5	.168	0	0	0	NC	NC
4186	3	M838	1	.25	0	.002	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4187			2	.226	0	.002	0	NC	NC
4188			3	.202	0	.001	0	NC	NC
4189			4	.177	0	0	0	NC	NC
4190			5	.153	0	0	0	NC	NC
4191	3	M839	1	.251	0	.002	0	NC	NC
4192			2	.227	0	.002	0	NC	NC
4193			3	.202	0	.001	0	NC	NC
4194			4	.178	0	.001	0	NC	NC
4195			5	.153	0	0	0	NC	NC
4196	3	M840	1	.113	0	.003	0	NC	NC
4197			2	.102	0	.002	0	NC	NC
4198			3	.092	0	.002	0	NC	NC
4199			4	.081	0	.001	0	NC	NC
4200			5	.071	0	0	0	NC	NC
4201	3	M841	1	.2	0	.002	0	NC	NC
4202			2	.181	0	.002	0	NC	NC
4203			3	.162	0	.002	0	NC	NC
4204			4	.143	0	.001	0	NC	NC
4205			5	.124	0	0	0	NC	NC
4206	3	M842	1	0	0	0	-1.041e-6	NC	NC
4207			2	0	-.225	.001	-2.91e-6	748.291	NC
4208			3	0	-.235	.002	-4.779e-6	713.464	NC
4209			4	0	-.129	.001	-6.647e-6	1305.416	NC
4210			5	0	0	0	-8.516e-6	NC	NC
4211	3	M843	1	.223	0	.002	0	NC	NC
4212			2	.2	0	.002	0	NC	NC
4213			3	.176	0	.001	0	NC	NC
4214			4	.153	0	0	0	NC	NC
4215			5	.129	0	0	0	NC	NC
4216	3	M844	1	.266	0	.001	0	NC	NC
4217			2	.241	0	0	0	NC	NC
4218			3	.215	0	0	0	NC	NC
4219			4	.189	0	0	0	NC	NC
4220			5	.164	0	0	0	NC	NC
4221	3	M845	1	.244	0	.002	0	NC	NC
4222			2	.22	0	.002	0	NC	NC
4223			3	.197	0	.001	0	NC	NC
4224			4	.173	0	0	0	NC	NC
4225			5	.149	0	0	0	NC	NC
4226	3	M846	1	.247	0	.002	0	NC	NC
4227			2	.223	0	.002	0	NC	NC
4228			3	.199	0	.001	0	NC	NC
4229			4	.175	0	0	0	NC	NC
4230			5	.151	0	0	0	NC	NC
4231	3	M847	1	.102	0	.003	0	NC	NC
4232			2	.093	0	.002	0	NC	NC
4233			3	.084	0	.001	0	NC	NC
4234			4	.074	0	.001	0	NC	NC
4235			5	.065	0	0	0	NC	NC
4236	3	M848	1	.192	0	.002	0	NC	NC
4237			2	.174	0	.002	0	NC	NC
4238			3	.156	0	.001	0	NC	NC
4239			4	.138	0	.001	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4240			5	.119	0	0	0	NC	NC
4241	3	M849	1	0	0	0	1.545e-6	NC	NC
4242			2	0	.203	-.007	3.25e-6	829.112	NC
4243			3	0	.213	-.009	4.955e-6	790.512	NC
4244			4	0	.116	-.006	6.659e-6	1446.352	NC
4245			5	0	0	0	8.364e-6	NC	NC
4246	3	M850	1	.278	0	0	0	NC	NC
4247			2	.251	0	0	0	NC	NC
4248			3	.224	0	0	0	NC	NC
4249			4	.197	0	0	0	NC	NC
4250			5	.171	0	0	0	NC	NC
4251	3	M851	1	.263	0	.001	0	NC	NC
4252			2	.237	0	.002	0	NC	NC
4253			3	.211	0	.002	0	NC	NC
4254			4	.185	0	.002	0	NC	NC
4255			5	.159	0	0	0	NC	NC
4256	3	M852	1	.17	0	.002	0	NC	NC
4257			2	.156	0	.002	0	NC	NC
4258			3	.142	0	.002	0	NC	NC
4259			4	.127	0	.002	0	NC	NC
4260			5	.113	0	.001	0	NC	NC
4261	3	M853	1	.175	0	.002	0	NC	NC
4262			2	.16	0	.002	0	NC	NC
4263			3	.146	0	.002	0	NC	NC
4264			4	.131	0	.002	0	NC	NC
4265			5	.117	0	.002	0	NC	NC
4266	3	M854	1	.297	0	0	0	NC	NC
4267			2	.269	0	0	0	NC	NC
4268			3	.24	0	0	0	NC	NC
4269			4	.212	0	0	0	NC	NC
4270			5	.183	0	0	0	NC	NC
4271	3	M855	1	.06	0	0	0	NC	NC
4272			2	.06	-.009	.018	0	NC	9370.405
4273			3	.06	-.009	.019	0	NC	8997.56
4274			4	.06	-.005	.01	0	NC	NC
4275			5	.06	0	0	0	NC	NC
4276	3	M856	1	.218	0	0	0	NC	NC
4277			2	.199	0	0	0	NC	NC
4278			3	.179	0	0	0	NC	NC
4279			4	.159	0	0	0	NC	NC
4280			5	.139	0	0	0	NC	NC
4281	3	M857	1	.271	0	0	0	NC	NC
4282			2	.246	0	0	0	NC	NC
4283			3	.22	0	0	0	NC	NC
4284			4	.194	0	0	0	NC	NC
4285			5	.168	0	0	0	NC	NC
4286	3	M858	1	.349	-.002	0	0	NC	NC
4287			2	.316	0	0	0	NC	NC
4288			3	.282	0	0	0	NC	NC
4289			4	.249	.002	0	0	NC	NC
4290			5	.215	.002	0	0	NC	NC
4291	3	M859	1	.297	0	0	0	NC	NC
4292			2	.266	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4293			3	.236	0	0	0	NC	NC
4294			4	.206	0	0	0	NC	NC
4295			5	.176	0	0	0	NC	NC
4296	3	M860	1	.144	0	0	0	NC	NC
4297			2	.132	0	0	0	NC	NC
4298			3	.12	0	0	0	NC	NC
4299			4	.108	0	0	0	NC	NC
4300			5	.096	0	0	0	NC	NC
4301	3	M861	1	.145	0	0	0	NC	NC
4302			2	.133	0	0	0	NC	NC
4303			3	.121	0	0	0	NC	NC
4304			4	.109	0	0	0	NC	NC
4305			5	.097	0	0	0	NC	NC
4306	3	M862	1	.293	0	0	0	NC	NC
4307			2	.263	0	0	0	NC	NC
4308			3	.233	0	0	0	NC	NC
4309			4	.203	0	0	0	NC	NC
4310			5	.173	0	0	0	NC	NC
4311	3	M863	1	.287	-.001	0	0	NC	NC
4312			2	.259	0	0	0	NC	NC
4313			3	.231	0	0	0	NC	NC
4314			4	.203	.001	0	0	NC	NC
4315			5	.175	.002	0	0	NC	NC
4316	3	M864	1	.284	0	0	0	NC	NC
4317			2	.255	0	0	0	NC	NC
4318			3	.226	0	0	0	NC	NC
4319			4	.197	0	0	0	NC	NC
4320			5	.168	0	0	0	NC	NC
4321	3	M865	1	.135	0	0	0	NC	NC
4322			2	.124	0	0	0	NC	NC
4323			3	.112	0	0	0	NC	NC
4324			4	.101	0	0	0	NC	NC
4325			5	.09	0	0	0	NC	NC
4326	3	M866	1	.135	0	0	0	NC	NC
4327			2	.124	0	0	0	NC	NC
4328			3	.112	0	0	0	NC	NC
4329			4	.101	0	0	0	NC	NC
4330			5	.09	0	0	0	NC	NC
4331	3	M867	1	.273	0	0	0	NC	NC
4332			2	.245	0	0	0	NC	NC
4333			3	.217	0	0	0	NC	NC
4334			4	.189	0	0	0	NC	NC
4335			5	.161	0	0	0	NC	NC
4336	3	M868	1	.213	0	0	0	NC	NC
4337			2	.193	0	0	0	NC	NC
4338			3	.173	0	0	0	NC	NC
4339			4	.154	.001	0	0	NC	NC
4340			5	.134	.001	0	0	NC	NC
4341	3	M869	1	0	0	0	-1.474e-6	NC	NC
4342			2	0	-.031	.014	-3.232e-6	5368.713	NC
4343			3	0	.011	.018	-4.99e-6	NC	9469.671
4344			4	0	.048	.013	-6.748e-6	3486.708	NC
4345			5	0	0	0	-8.507e-6	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4346	3	M870	1	.175	0	0	0	NC	NC
4347			2	.161	0	0	0	NC	NC
4348			3	.147	0	0	0	NC	NC
4349			4	.132	0	0	0	NC	NC
4350			5	.118	0	0	0	NC	NC
4351	3	M871	1	.176	0	0	0	NC	NC
4352			2	.161	0	0	0	NC	NC
4353			3	.147	0	0	0	NC	NC
4354			4	.132	0	0	0	NC	NC
4355			5	.117	0	0	0	NC	NC
4356	3	M872	1	.152	0	0	0	NC	NC
4357			2	.139	0	0	0	NC	NC
4358			3	.127	0	0	0	NC	NC
4359			4	.114	0	0	0	NC	NC
4360			5	.102	0	0	0	NC	NC
4361	3	M873	1	.191	0	0	0	NC	NC
4362			2	.176	0	0	0	NC	NC
4363			3	.16	0	0	0	NC	NC
4364			4	.144	0	0	0	NC	NC
4365			5	.128	0	0	0	NC	NC
4366	3	M874	1	.252	0	0	0	NC	NC
4367			2	.229	0	0	0	NC	NC
4368			3	.207	0	0	0	NC	NC
4369			4	.185	0	0	0	NC	NC
4370			5	.162	0	0	0	NC	NC
4371	3	M875	1	.349	0	0	0	NC	NC
4372			2	.318	0	0	0	NC	NC
4373			3	.287	0	0	0	NC	NC
4374			4	.255	0	0	0	NC	NC
4375			5	.224	0	0	0	NC	NC
4376	3	M876	1	.237	0	0	0	NC	NC
4377			2	.217	0	0	0	NC	NC
4378			3	.198	0	0	0	NC	NC
4379			4	.178	0	0	0	NC	NC
4380			5	.159	0	0	0	NC	NC
4381	3	M877	1	.282	0	0	0	NC	NC
4382			2	.259	0	0	0	NC	NC
4383			3	.236	0	0	0	NC	NC
4384			4	.212	0	0	0	NC	NC
4385			5	.189	0	0	0	NC	NC
4386	3	M878	1	.257	0	0	0	NC	NC
4387			2	.236	0	0	0	NC	NC
4388			3	.214	0	0	0	NC	NC
4389			4	.193	0	0	0	NC	NC
4390			5	.172	0	0	0	NC	NC
4391	3	M879	1	.34	0	0	0	NC	NC
4392			2	.312	0	0	0	NC	NC
4393			3	.284	0	0	0	NC	NC
4394			4	.255	0	0	0	NC	NC
4395			5	.227	0	0	0	NC	NC
4396	3	M880	1	.18	0	0	0	NC	NC
4397			2	.135	0	0	0	NC	NC
4398			3	.09	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4399			4	.045	0	0	0	NC	NC
4400			5	0	0	0	0	NC	NC
4401	3	M881	1	.097	0	0	0	NC	NC
4402			2	.073	0	0	0	NC	NC
4403			3	.048	0	0	0	NC	NC
4404			4	.024	0	0	0	NC	NC
4405			5	0	0	0	0	NC	NC
4406	3	M882	1	.097	0	0	0	NC	NC
4407			2	.073	0	0	0	NC	NC
4408			3	.048	0	0	0	NC	NC
4409			4	.024	0	0	0	NC	NC
4410			5	0	0	0	0	NC	NC
4411	3	M883	1	.173	0	0	0	NC	NC
4412			2	.13	.003	0	0	NC	NC
4413			3	.087	.003	0	0	NC	NC
4414			4	.043	.002	0	0	NC	NC
4415			5	0	0	0	0	NC	NC
4416	3	M884	1	.141	-.001	0	0	NC	NC
4417			2	.106	0	0	0	NC	NC
4418			3	.07	0	0	0	NC	NC
4419			4	.035	0	0	0	NC	NC
4420			5	0	0	0	0	NC	NC
4421	3	M885	1	0	0	0	8.539e-6	NC	NC
4422			2	0	.08	.003	1.432e-5	2097.273	NC
4423			3	0	.092	.004	2.01e-5	1835.343	NC
4424			4	0	.057	.003	2.588e-5	2937.061	NC
4425			5	0	0	0	3.166e-5	NC	NC
4426	3	M886	1	.186	0	0	0	NC	NC
4427			2	.139	0	0	0	NC	NC
4428			3	.093	0	0	0	NC	NC
4429			4	.046	0	0	0	NC	NC
4430			5	0	0	0	0	NC	NC
4431	3	M887	1	.1	0	0	0	NC	NC
4432			2	.075	0	.002	0	NC	NC
4433			3	.05	0	.003	0	NC	NC
4434			4	.025	0	.002	0	NC	NC
4435			5	0	0	0	0	NC	NC
4436	3	M888	1	.1	0	0	0	NC	NC
4437			2	.075	0	-.003	0	NC	NC
4438			3	.05	0	-.003	0	NC	NC
4439			4	.025	0	-.002	0	NC	NC
4440			5	0	0	0	0	NC	NC
4441	3	M889	1	.191	0	0	0	NC	NC
4442			2	.143	0	0	0	NC	NC
4443			3	.095	0	0	0	NC	NC
4444			4	.048	0	0	0	NC	NC
4445			5	0	0	0	0	NC	NC
4446	3	M890	1	.189	-.001	0	0	NC	NC
4447			2	.141	-.002	0	0	NC	NC
4448			3	.094	-.001	0	0	NC	NC
4449			4	.047	0	0	0	NC	NC
4450			5	0	0	0	0	NC	NC
4451	3	M891	1	.18	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4452			2	.135	0	0	0	NC	NC
4453			3	.09	0	0	0	NC	NC
4454			4	.045	0	0	0	NC	NC
4455			5	0	0	0	0	NC	NC
4456	3	M892	1	.174	0	0	0	NC	NC
4457			2	.13	0	.002	0	NC	NC
4458			3	.087	0	.002	0	NC	NC
4459			4	.043	0	.002	0	NC	NC
4460			5	0	0	0	0	NC	NC
4461	3	M893	1	.059	0	0	0	NC	NC
4462			2	.044	0	-.003	0	NC	NC
4463			3	.03	0	-.003	0	NC	NC
4464			4	.015	0	-.002	0	NC	NC
4465			5	0	0	0	0	NC	NC
4466	3	M894	1	.137	0	0	0	NC	NC
4467			2	.102	0	0	0	NC	NC
4468			3	.068	0	0	0	NC	NC
4469			4	.034	0	0	0	NC	NC
4470			5	0	0	0	0	NC	NC
4471	3	M895	1	.165	-.002	0	0	NC	NC
4472			2	.124	-.002	0	0	NC	NC
4473			3	.083	-.002	0	0	NC	NC
4474			4	.041	-.001	0	0	NC	NC
4475			5	0	0	0	0	NC	NC
4476	3	M896	1	.173	0	0	0	NC	NC
4477			2	.13	0	0	0	NC	NC
4478			3	.087	0	0	0	NC	NC
4479			4	.043	0	0	0	NC	NC
4480			5	0	0	0	0	NC	NC
4481	3	M897	1	.183	0	0	0	NC	NC
4482			2	.137	0	0	0	NC	NC
4483			3	.092	0	0	0	NC	NC
4484			4	.046	0	0	0	NC	NC
4485			5	0	0	0	0	NC	NC
4486	3	M898	1	.114	0	.001	0	NC	NC
4487			2	.086	0	0	0	NC	NC
4488			3	.057	0	0	0	NC	NC
4489			4	.029	0	0	0	NC	NC
4490			5	0	0	0	0	NC	NC
4491	3	M899	1	.119	0	.001	0	NC	NC
4492			2	.089	0	.001	0	NC	NC
4493			3	.059	0	0	0	NC	NC
4494			4	.03	0	0	0	NC	NC
4495			5	0	0	0	0	NC	NC
4496	3	M900	1	.168	0	0	0	NC	NC
4497			2	.126	0	0	0	NC	NC
4498			3	.084	0	0	0	NC	NC
4499			4	.042	0	0	0	NC	NC
4500			5	0	0	0	0	NC	NC
4501	3	M901	1	.153	0	0	0	NC	NC
4502			2	.115	0	0	0	NC	NC
4503			3	.077	0	0	0	NC	NC
4504			4	.038	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4505			5	0	0	0	0	NC	NC
4506	3	M902	1	.153	0	0	0	NC	NC
4507			2	.115	0	0	0	NC	NC
4508			3	.077	0	0	0	NC	NC
4509			4	.038	0	0	0	NC	NC
4510			5	0	0	0	0	NC	NC
4511	3	M903	1	.071	0	0	0	NC	NC
4512			2	.053	0	0	0	NC	NC
4513			3	.035	0	0	0	NC	NC
4514			4	.018	0	0	0	NC	NC
4515			5	0	0	0	0	NC	NC
4516	3	M904	1	.124	0	0	0	NC	NC
4517			2	.093	0	0	0	NC	NC
4518			3	.062	0	0	0	NC	NC
4519			4	.031	0	0	0	NC	NC
4520			5	0	0	0	0	NC	NC
4521	3	M905	1	0	0	0	-8.516e-6	NC	NC
4522			2	0	.065	-.001	-8.516e-6	2604.3	NC
4523			3	0	.074	-.002	-8.516e-6	2278.762	NC
4524			4	0	.046	0	-8.516e-6	3646.02	NC
4525			5	0	0	0	-8.516e-6	NC	NC
4526	3	M906	1	.129	0	0	0	NC	NC
4527			2	.097	0	0	0	NC	NC
4528			3	.064	0	0	0	NC	NC
4529			4	.032	0	0	0	NC	NC
4530			5	0	0	0	0	NC	NC
4531	3	M907	1	.164	0	0	0	NC	NC
4532			2	.123	0	0	0	NC	NC
4533			3	.082	0	0	0	NC	NC
4534			4	.041	0	0	0	NC	NC
4535			5	0	0	0	0	NC	NC
4536	3	M908	1	.149	0	0	0	NC	NC
4537			2	.112	0	0	0	NC	NC
4538			3	.075	0	0	0	NC	NC
4539			4	.037	0	0	0	NC	NC
4540			5	0	0	0	0	NC	NC
4541	3	M909	1	.151	0	0	0	NC	NC
4542			2	.113	0	0	0	NC	NC
4543			3	.075	0	0	0	NC	NC
4544			4	.038	0	0	0	NC	NC
4545			5	0	0	0	0	NC	NC
4546	3	M910	1	.065	0	0	0	NC	NC
4547			2	.049	0	0	0	NC	NC
4548			3	.033	0	0	0	NC	NC
4549			4	.016	0	0	0	NC	NC
4550			5	0	0	0	0	NC	NC
4551	3	M911	1	.119	0	0	0	NC	NC
4552			2	.09	0	0	0	NC	NC
4553			3	.06	0	0	0	NC	NC
4554			4	.03	0	0	0	NC	NC
4555			5	0	0	0	0	NC	NC
4556	3	M912	1	0	0	0	8.364e-6	NC	NC
4557			2	0	-.058	.005	8.364e-6	2885.271	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4558			3	0	-.067	.006	8.364e-6	2524.612	NC
4559			4	0	-.042	.004	8.364e-6	4039.38	NC
4560			5	0	0	0	8.364e-6	NC	NC
4561	3	M913	1	.171	0	0	0	NC	NC
4562			2	.128	0	0	0	NC	NC
4563			3	.085	0	0	0	NC	NC
4564			4	.043	0	0	0	NC	NC
4565			5	0	0	0	0	NC	NC
4566	3	M914	1	.159	0	0	0	NC	NC
4567			2	.12	0	0	0	NC	NC
4568			3	.08	0	0	0	NC	NC
4569			4	.04	0	0	0	NC	NC
4570			5	0	0	0	0	NC	NC
4571	3	M915	1	.113	0	.001	0	NC	NC
4572			2	.085	0	.001	0	NC	NC
4573			3	.057	0	0	0	NC	NC
4574			4	.028	0	0	0	NC	NC
4575			5	0	0	0	0	NC	NC
4576	3	M916	1	.117	0	.002	0	NC	NC
4577			2	.087	0	.001	0	NC	NC
4578			3	.058	0	0	0	NC	NC
4579			4	.029	0	0	0	NC	NC
4580			5	0	0	0	0	NC	NC
4581	3	M917	1	.183	0	0	0	NC	NC
4582			2	.137	0	0	0	NC	NC
4583			3	.091	0	0	0	NC	NC
4584			4	.046	0	0	0	NC	NC
4585			5	0	0	0	0	NC	NC
4586	3	M918	1	.06	0	0	0	NC	NC
4587			2	.045	.002	-.005	0	NC	NC
4588			3	.03	.003	-.006	0	NC	NC
4589			4	.015	.002	-.004	0	NC	NC
4590			5	0	0	0	0	NC	NC
4591	3	M919	1	.139	0	0	0	NC	NC
4592			2	.104	0	0	0	NC	NC
4593			3	.07	0	0	0	NC	NC
4594			4	.035	0	0	0	NC	NC
4595			5	0	0	0	0	NC	NC
4596	3	M920	1	.168	0	0	0	NC	NC
4597			2	.126	0	0	0	NC	NC
4598			3	.084	0	0	0	NC	NC
4599			4	.042	0	0	0	NC	NC
4600			5	0	0	0	0	NC	NC
4601	3	M921	1	.215	.002	0	0	NC	NC
4602			2	.161	.002	0	0	NC	NC
4603			3	.108	.002	0	0	NC	NC
4604			4	.054	.001	0	0	NC	NC
4605			5	0	0	0	0	NC	NC
4606	3	M922	1	.176	0	0	0	NC	NC
4607			2	.132	0	0	0	NC	NC
4608			3	.088	0	0	0	NC	NC
4609			4	.044	0	0	0	NC	NC
4610			5	0	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4611	3	M923	1	.096	0	0	0	NC	NC
4612			2	.072	0	0	0	NC	NC
4613			3	.048	0	0	0	NC	NC
4614			4	.024	0	0	0	NC	NC
4615			5	0	0	0	0	NC	NC
4616	3	M924	1	.097	0	0	0	NC	NC
4617			2	.073	0	0	0	NC	NC
4618			3	.048	0	0	0	NC	NC
4619			4	.024	0	0	0	NC	NC
4620			5	0	0	0	0	NC	NC
4621	3	M925	1	.173	0	0	0	NC	NC
4622			2	.13	0	0	0	NC	NC
4623			3	.086	0	0	0	NC	NC
4624			4	.043	0	0	0	NC	NC
4625			5	0	0	0	0	NC	NC
4626	3	M926	1	.175	.002	0	0	NC	NC
4627			2	.131	.002	0	0	NC	NC
4628			3	.088	.001	0	0	NC	NC
4629			4	.044	0	0	0	NC	NC
4630			5	0	0	0	0	NC	NC
4631	3	M927	1	.168	0	0	0	NC	NC
4632			2	.126	0	0	0	NC	NC
4633			3	.084	0	0	0	NC	NC
4634			4	.042	0	0	0	NC	NC
4635			5	0	0	0	0	NC	NC
4636	3	M928	1	.09	0	0	0	NC	NC
4637			2	.067	0	0	0	NC	NC
4638			3	.045	0	0	0	NC	NC
4639			4	.022	0	0	0	NC	NC
4640			5	0	0	0	0	NC	NC
4641	3	M929	1	.09	0	0	0	NC	NC
4642			2	.067	0	0	0	NC	NC
4643			3	.045	0	0	0	NC	NC
4644			4	.022	0	0	0	NC	NC
4645			5	0	0	0	0	NC	NC
4646	3	M930	1	.161	0	0	0	NC	NC
4647			2	.121	0	0	0	NC	NC
4648			3	.081	0	0	0	NC	NC
4649			4	.04	0	0	0	NC	NC
4650			5	0	0	0	0	NC	NC
4651	3	M931	1	.134	.001	0	0	NC	NC
4652			2	.1	.001	0	0	NC	NC
4653			3	.067	0	0	0	NC	NC
4654			4	.033	0	0	0	NC	NC
4655			5	0	0	0	0	NC	NC
4656	3	M932	1	0	0	0	-8.507e-6	NC	NC
4657			2	0	-.08	-.012	-1.43e-5	2100.403	NC
4658			3	0	-.091	-.016	-2.009e-5	1838.082	NC
4659			4	0	-.057	-.012	-2.588e-5	2941.444	NC
4660			5	0	0	0	-3.168e-5	NC	NC
4661	3	M933	1	.118	0	0	0	NC	NC
4662			2	.088	0	0	0	NC	NC
4663			3	.059	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4664			4	.029	0	0	0	NC	NC
4665			5	0	0	0	0	NC	NC
4666	3	M934	1	.117	0	0	0	NC	NC
4667			2	.088	0	0	0	NC	NC
4668			3	.059	0	0	0	NC	NC
4669			4	.029	0	0	0	NC	NC
4670			5	0	0	0	0	NC	NC
4671	3	M935	1	.102	0	0	0	NC	NC
4672			2	.076	0	0	0	NC	NC
4673			3	.051	0	0	0	NC	NC
4674			4	.025	0	0	0	NC	NC
4675			5	0	0	0	0	NC	NC
4676	3	M936	1	.128	0	0	0	NC	NC
4677			2	.096	0	0	0	NC	NC
4678			3	.064	0	0	0	NC	NC
4679			4	.032	0	0	0	NC	NC
4680			5	0	0	0	0	NC	NC
4681	3	M937	1	.162	0	0	0	NC	NC
4682			2	.122	0	0	0	NC	NC
4683			3	.081	0	0	0	NC	NC
4684			4	.041	0	0	0	NC	NC
4685			5	0	0	0	0	NC	NC
4686	3	M938	1	.224	0	0	0	NC	NC
4687			2	.168	0	0	0	NC	NC
4688			3	.112	0	0	0	NC	NC
4689			4	.056	0	0	0	NC	NC
4690			5	0	0	0	0	NC	NC
4691	3	M939	1	.159	0	0	0	NC	NC
4692			2	.119	0	0	0	NC	NC
4693			3	.079	0	0	0	NC	NC
4694			4	.04	0	0	0	NC	NC
4695			5	0	0	0	0	NC	NC
4696	3	M940	1	.189	0	0	0	NC	NC
4697			2	.142	0	0	0	NC	NC
4698			3	.095	0	0	0	NC	NC
4699			4	.047	0	0	0	NC	NC
4700			5	0	0	0	0	NC	NC
4701	3	M941	1	.172	0	0	0	NC	NC
4702			2	.129	0	0	0	NC	NC
4703			3	.086	0	0	0	NC	NC
4704			4	.043	0	0	0	NC	NC
4705			5	0	0	0	0	NC	NC
4706	3	M942	1	.227	0	0	0	NC	NC
4707			2	.17	0	0	0	NC	NC
4708			3	.114	0	0	0	NC	NC
4709			4	.057	0	0	0	NC	NC
4710			5	0	0	0	0	NC	NC
4711	3	M943	1	0	0	0	-3.855e-5	NC	NC
4712			2	0	0	-.706	-2.382e-5	NC	411.537
4713			3	0	0	-1.151	-9.088e-6	NC	257.528
4714			4	0	0	-.946	5.642e-6	NC	343.52
4715			5	0	-.002	-.223	2.037e-5	NC	NC
4716	3	M944	1	0	-.002	-.223	2.037e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4717			2	0	0	-.831	7.046e-5	NC	388.987
4718			3	0	0	-.993	1.205e-4	NC	292.756
4719			4	0	0	-.61	1.706e-4	NC	465.815
4720			5	0	0	0	2.207e-4	NC	NC
4721	3	M945	1	0	.165	0	2.482e-3	NC	NC
4722			2	0	.438	0	2.482e-3	729.208	NC
4723			3	0	.528	0	2.482e-3	514.864	NC
4724			4	0	.361	0	2.482e-3	717.343	NC
4725			5	0	0	0	2.482e-3	NC	NC
4726	3	M946	1	0	.285	0	1.636e-3	NC	NC
4727			2	0	.434	0	1.636e-3	1038.053	NC
4728			3	0	.453	0	1.636e-3	737.497	NC
4729			4	0	.293	0	1.636e-3	1031.49	NC
4730			5	0	0	0	1.636e-3	NC	NC
4731	3	M947	1	0	.35	0	8.14e-4	NC	NC
4732			2	0	.459	0	8.14e-4	1167.883	NC
4733			3	0	.451	0	8.14e-4	831.098	NC
4734			4	0	.285	0	8.14e-4	1163.54	NC
4735			5	0	0	0	8.14e-4	NC	NC
4736	3	M948	1	0	.374	0	0	NC	NC
4737			2	0	.526	0	0	934.2	NC
4738			3	0	.533	0	0	662.845	NC
4739			4	0	.341	0	0	926.357	NC
4740			5	0	0	0	0	NC	NC
4741	3	M949	1	0	1.009	0	7.849e-3	NC	NC
4742			2	0	1.005	0	7.849e-3	922.638	NC
4743			3	0	.854	0	7.849e-3	655.982	NC
4744			4	0	.502	0	7.849e-3	917.902	NC
4745			5	0	0	0	7.849e-3	NC	NC
4746	3	M950	1	0	1.453	0	5.15e-3	NC	NC
4747			2	0	1.335	0	5.15e-3	934.2	NC
4748			3	0	1.072	0	5.15e-3	662.845	NC
4749			4	0	.611	0	5.15e-3	926.357	NC
4750			5	0	0	0	5.15e-3	NC	NC
4751	3	M951	1	0	1.674	0	1.757e-3	NC	NC
4752			2	0	1.478	0	1.757e-3	1029.369	NC
4753			3	0	1.15	0	1.757e-3	732.354	NC
4754			4	0	.642	0	1.757e-3	1025.153	NC
4755			5	0	0	0	1.757e-3	NC	NC
4756	3	M952	1	0	1.672	0	-1.822e-3	NC	NC
4757			2	0	1.476	0	-1.822e-3	1029.369	NC
4758			3	0	1.149	0	-1.822e-3	732.354	NC
4759			4	0	.642	0	-1.822e-3	1025.153	NC
4760			5	0	0	0	-1.822e-3	NC	NC
4761	3	M953	1	0	1.447	0	-5.214e-3	NC	NC
4762			2	0	1.334	0	-5.214e-3	922.638	NC
4763			3	0	1.073	0	-5.214e-3	655.982	NC
4764			4	0	.611	0	-5.214e-3	917.902	NC
4765			5	0	0	0	-5.214e-3	NC	NC
4766	3	M954	1	0	.98	0	-7.98e-3	NC	NC
4767			2	0	.98	0	-7.98e-3	934.2	NC
4768			3	0	.836	0	-7.98e-3	662.845	NC
4769			4	0	.492	0	-7.98e-3	926.357	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4770			5	0	0	0	-7.98e-3	NC	NC
4771	3	M955	1	0	.36	0	0	NC	NC
4772			2	0	.515	0	0	934.2	NC
4773			3	0	.526	0	0	662.845	NC
4774			4	0	.337	0	0	926.357	NC
4775			5	0	0	0	0	NC	NC
4776	3	M956	1	0	.384	0	1.373e-4	NC	NC
4777			2	0	.484	0	1.373e-4	1171.77	NC
4778			3	0	.467	0	1.373e-4	833.357	NC
4779			4	0	.293	0	1.373e-4	1166.31	NC
4780			5	0	0	0	1.373e-4	NC	NC
4781	3	M957	1	0	.379	0	-4.735e-4	NC	NC
4782			2	0	.48	0	-4.735e-4	1167.883	NC
4783			3	0	.465	0	-4.735e-4	831.098	NC
4784			4	0	.292	0	-4.735e-4	1163.54	NC
4785			5	0	0	0	-4.735e-4	NC	NC
4786	3	M958	1	0	.333	0	-1.098e-3	NC	NC
4787			2	0	.444	0	-1.098e-3	1179.074	NC
4788			3	0	.44	0	-1.098e-3	837.727	NC
4789			4	0	.279	0	-1.098e-3	1171.71	NC
4790			5	0	0	0	-1.098e-3	NC	NC
4791	3	M959	1	0	.258	0	0	NC	NC
4792			2	0	.416	0	0	1029.369	NC
4793			3	0	.442	0	0	732.354	NC
4794			4	0	.288	0	0	1025.153	NC
4795			5	0	0	0	0	NC	NC
4796	3	M960	1	0	.193	0	-1.323e-3	NC	NC
4797			2	0	.341	0	-1.323e-3	1167.883	NC
4798			3	0	.372	0	-1.323e-3	831.098	NC
4799			4	0	.245	0	-1.323e-3	1163.54	NC
4800			5	0	0	0	-1.323e-3	NC	NC
4801	3	M961	1	0	.118	0	-1.362e-3	NC	NC
4802			2	0	.284	0	-1.362e-3	1171.77	NC
4803			3	0	.334	0	-1.362e-3	833.357	NC
4804			4	0	.226	0	-1.362e-3	1166.31	NC
4805			5	0	0	0	-1.362e-3	NC	NC
4806	3	M962	1	0	.044	0	-1.021e-3	NC	NC
4807			2	0	.256	0	-1.021e-3	1029.369	NC
4808			3	0	.335	0	-1.021e-3	732.354	NC
4809			4	0	.235	0	-1.021e-3	1025.153	NC
4810			5	0	0	0	-1.021e-3	NC	NC
4811	3	M963	1	0	0	0	7.232e-5	NC	NC
4812			2	0	.148	0	7.232e-5	1545.823	NC
4813			3	0	.228	0	7.232e-5	1005.738	NC
4814			4	0	.17	0	7.232e-5	1345.09	NC
4815			5	0	0	0	7.232e-5	NC	NC
4816	3	M964	1	0	.064	0	9.915e-4	NC	NC
4817			2	0	1.088	0	9.915e-4	220.491	NC
4818			3	0	1.556	0	9.915e-4	150.366	NC
4819			4	0	1.154	0	9.915e-4	201.46	NC
4820			5	0	0	0	9.915e-4	NC	NC
4821	3	M965	1	0	.338	0	7.166e-8	NC	NC
4822			2	0	.307	0	7.166e-8	4201.446	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4823			3	0	.245	0	7.166e-8	2971.155	NC
4824			4	0	.14	0	7.166e-8	4066.362	NC
4825			5	0	0	0	7.166e-8	NC	NC
4826	3	M966	1	0	.405	0	-8.372e-4	NC	NC
4827			2	0	.48	0	-8.372e-4	1284.729	NC
4828			3	0	.451	0	-8.372e-4	912.651	NC
4829			4	0	.278	0	-8.372e-4	1280.023	NC
4830			5	0	0	0	-8.372e-4	NC	NC
4831	3	M967	1	0	.435	0	-1.108e-4	NC	NC
4832			2	0	.567	0	-1.108e-4	944.074	NC
4833			3	0	.556	0	-1.108e-4	669.964	NC
4834			4	0	.35	0	-1.108e-4	939.228	NC
4835			5	0	0	0	-1.108e-4	NC	NC
4836	3	M968	1	0	.406	0	8.467e-4	NC	NC
4837			2	0	.544	0	8.467e-4	946.298	NC
4838			3	0	.541	0	8.467e-4	670.542	NC
4839			4	0	.343	0	8.467e-4	939.117	NC
4840			5	0	0	0	8.467e-4	NC	NC
4841	3	M969	1	0	.325	0	4.968e-8	NC	NC
4842			2	0	.453	0	4.968e-8	1083.676	NC
4843			3	0	.457	0	4.968e-8	769.927	NC
4844			4	0	.291	0	4.968e-8	1080.026	NC
4845			5	0	0	0	4.968e-8	NC	NC
4846	3	M970	1	0	.395	0	-7.76e-4	NC	NC
4847			2	0	.506	0	-7.76e-4	1083.676	NC
4848			3	0	.492	0	-7.76e-4	769.927	NC
4849			4	0	.309	0	-7.76e-4	1080.026	NC
4850			5	0	0	0	-7.76e-4	NC	NC
4851	3	M971	1	0	.422	0	4.085e-5	NC	NC
4852			2	0	.526	0	4.085e-5	1083.676	NC
4853			3	0	.505	0	4.085e-5	769.927	NC
4854			4	0	.315	0	4.085e-5	1080.026	NC
4855			5	0	0	0	4.085e-5	NC	NC
4856	3	M972	1	0	.392	0	8.535e-4	NC	NC
4857			2	0	.536	0	8.535e-4	937.035	NC
4858			3	0	.536	0	8.535e-4	665.805	NC
4859			4	0	.341	0	8.535e-4	934.08	NC
4860			5	0	0	0	8.535e-4	NC	NC
4861	3	M973	1	.003	.316	0	6.215e-8	NC	NC
4862			2	.002	.447	0	6.215e-8	1080.42	NC
4863			3	.001	.453	0	6.215e-8	768.038	NC
4864			4	0	.289	0	6.215e-8	1077.699	NC
4865			5	0	0	0	6.215e-8	NC	NC
4866	3	M974	1	0	.366	0	-5.763e-4	NC	NC
4867			2	0	.484	0	-5.763e-4	1083.676	NC
4868			3	0	.478	0	-5.763e-4	769.927	NC
4869			4	0	.301	0	-5.763e-4	1080.026	NC
4870			5	0	0	0	-5.763e-4	NC	NC
4871	3	M975	1	0	.384	0	3.894e-5	NC	NC
4872			2	0	.464	0	3.894e-5	1284.729	NC
4873			3	0	.44	0	3.894e-5	912.651	NC
4874			4	0	.273	0	3.894e-5	1280.023	NC
4875			5	0	0	0	3.894e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4876	3	M976	1	0	.362	0	6.535e-4	NC	NC
4877			2	0	.481	0	6.535e-4	1083.676	NC
4878			3	0	.475	0	6.535e-4	769.927	NC
4879			4	0	.3	0	6.535e-4	1080.026	NC
4880			5	0	0	0	6.535e-4	NC	NC
4881	3	M977	1	.003	.308	0	7.364e-8	NC	NC
4882			2	.002	.44	0	7.364e-8	1083.676	NC
4883			3	.002	.448	0	7.364e-8	769.927	NC
4884			4	0	.287	0	7.364e-8	1080.026	NC
4885			5	0	0	0	7.364e-8	NC	NC
4886	3	M978	1	0	.372	0	-7.611e-4	NC	NC
4887			2	0	.488	0	-7.611e-4	1083.676	NC
4888			3	0	.481	0	-7.611e-4	769.927	NC
4889			4	0	.303	0	-7.611e-4	1080.026	NC
4890			5	0	0	0	-7.611e-4	NC	NC
4891	3	M979	1	0	.399	0	-5.629e-5	NC	NC
4892			2	0	.509	0	-5.629e-5	1080.42	NC
4893			3	0	.495	0	-5.629e-5	768.038	NC
4894			4	0	.31	0	-5.629e-5	1077.699	NC
4895			5	0	0	0	-5.629e-5	NC	NC
4896	3	M980	1	0	.377	0	6.598e-4	NC	NC
4897			2	0	.492	0	6.598e-4	1083.676	NC
4898			3	0	.483	0	6.598e-4	769.927	NC
4899			4	0	.304	0	6.598e-4	1080.026	NC
4900			5	0	0	0	6.598e-4	NC	NC
4901	3	M981	1	0	.32	0	8.581e-8	NC	NC
4902			2	0	.481	0	8.581e-8	941.602	NC
4903			3	0	.499	0	8.581e-8	668.534	NC
4904			4	0	.322	0	8.581e-8	937.468	NC
4905			5	0	0	0	8.581e-8	NC	NC
4906	3	M982	1	0	.411	0	-7.657e-4	NC	NC
4907			2	0	.516	0	-7.657e-4	1089.789	NC
4908			3	0	.499	0	-7.657e-4	773.578	NC
4909			4	0	.312	0	-7.657e-4	1084.557	NC
4910			5	0	0	0	-7.657e-4	NC	NC
4911	3	M983	1	0	.434	0	-1.017e-4	NC	NC
4912			2	0	.502	0	-1.017e-4	1284.729	NC
4913			3	0	.465	0	-1.017e-4	912.651	NC
4914			4	0	.286	0	-1.017e-4	1280.023	NC
4915			5	0	0	0	-1.017e-4	NC	NC
4916	3	M984	1	0	.411	0	7.214e-4	NC	NC
4917			2	0	.55	0	7.214e-4	937.035	NC
4918			3	0	.546	0	7.214e-4	665.805	NC
4919			4	0	.346	0	7.214e-4	934.08	NC
4920			5	0	0	0	7.214e-4	NC	NC
4921	3	M985	1	0	.344	0	2.453e-5	NC	NC
4922			2	0	.313	0	2.453e-5	4096.423	NC
4923			3	0	.25	0	2.453e-5	2890.377	NC
4924			4	0	.143	0	2.453e-5	3947.058	NC
4925			5	0	0	0	2.453e-5	NC	NC
4926	3	M986	1	0	.343	0	2.297e-6	NC	NC
4927			2	0	.349	0	1.74e-6	NC	NC
4928			3	0	.351	0	1.184e-6	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4929			4	0	.346	0	6.279e-7	NC	NC
4930			5	0	.338	0	7.166e-8	NC	NC
4931	3	M987	1	0	.495	0	-1.972e-3	NC	NC
4932			2	0	.494	0	-1.688e-3	6347.318	NC
4933			3	0	.48	0	-1.405e-3	4508.866	NC
4934			4	0	.449	0	-1.121e-3	6370.477	NC
4935			5	0	.405	0	-8.372e-4	NC	NC
4936	3	M988	1	0	.571	0	-4.77e-4	NC	NC
4937			2	0	.565	0	-3.854e-4	4812.561	NC
4938			3	0	.543	0	-2.939e-4	3431.125	NC
4939			4	0	.497	0	-2.023e-4	4883.329	NC
4940			5	0	.435	0	-1.108e-4	NC	NC
4941	3	M989	1	0	.528	0	1.497e-3	NC	NC
4942			2	0	.527	0	1.334e-3	4664.927	NC
4943			3	0	.508	0	1.172e-3	3321.366	NC
4944			4	0	.466	0	1.009e-3	4710.45	NC
4945			5	0	.406	0	8.467e-4	NC	NC
4946	3	M990	1	0	.378	0	2.839e-6	NC	NC
4947			2	0	.39	0	2.142e-6	5350.575	NC
4948			3	0	.387	0	1.444e-6	3814.728	NC
4949			4	0	.363	0	7.471e-7	5410.548	NC
4950			5	0	.325	0	4.968e-8	NC	NC
4951	3	M991	1	0	.433	0	-4.695e-4	NC	NC
4952			2	0	.449	0	-5.461e-4	5444.773	NC
4953			3	0	.449	0	-6.228e-4	3879.591	NC
4954			4	0	.429	0	-6.994e-4	5506.889	NC
4955			5	0	.395	0	-7.76e-4	NC	NC
4956	3	M992	1	0	.438	0	4.148e-4	NC	NC
4957			2	0	.459	0	3.213e-4	5504.364	NC
4958			3	0	.465	0	2.278e-4	3914.265	NC
4959			4	0	.45	0	1.343e-4	5550.569	NC
4960			5	0	.422	0	4.085e-5	NC	NC
4961	3	M993	1	0	.385	0	1.202e-3	NC	NC
4962			2	0	.415	0	1.115e-3	4792.811	NC
4963			3	0	.428	0	1.028e-3	3418.811	NC
4964			4	0	.418	0	9.405e-4	4867.439	NC
4965			5	0	.392	0	8.535e-4	NC	NC
4966	3	M994	1	.005	.291	0	3.311e-6	NC	NC
4967			2	.004	.323	0	2.499e-6	5350.575	NC
4968			3	.004	.339	0	1.686e-6	3814.728	NC
4969			4	.003	.335	0	8.743e-7	5410.548	NC
4970			5	.003	.316	0	6.215e-8	NC	NC
4971	3	M995	1	0	.319	0	-3.2e-4	NC	NC
4972			2	0	.356	0	-3.841e-4	5419.507	NC
4973			3	0	.378	0	-4.482e-4	3863.856	NC
4974			4	0	.379	0	-5.122e-4	5486.69	NC
4975			5	0	.366	0	-5.763e-4	NC	NC
4976	3	M996	1	0	.329	0	3.395e-5	NC	NC
4977			2	0	.364	0	3.52e-5	6363.023	NC
4978			3	0	.386	0	3.644e-5	4530.308	NC
4979			4	0	.391	0	3.769e-5	6416.912	NC
4980			5	0	.384	0	3.894e-5	NC	NC
4981	3	M997	1	0	.316	0	3.852e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
4982			2	0	.352	0	4.523e-4	5444.773	NC
4983			3	0	.374	0	5.193e-4	3879.591	NC
4984			4	0	.375	0	5.864e-4	5506.889	NC
4985			5	0	.362	0	6.535e-4	NC	NC
4986	3	M998	1	.005	.284	0	3.771e-6	NC	NC
4987			2	.005	.315	0	2.847e-6	5350.575	NC
4988			3	.004	.331	0	1.923e-6	3814.728	NC
4989			4	.004	.327	0	9.981e-7	5410.548	NC
4990			5	.003	.308	0	7.364e-8	NC	NC
4991	3	M999	1	0	.35	0	-8.195e-4	NC	NC
4992			2	0	.381	0	-8.049e-4	5350.575	NC
4993			3	0	.396	0	-7.903e-4	3814.728	NC
4994			4	0	.391	0	-7.757e-4	5410.548	NC
4995			5	0	.372	0	-7.611e-4	NC	NC
4996	3	M1000	1	0	.382	0	-1.466e-4	NC	NC
4997			2	0	.411	0	-1.241e-4	5350.575	NC
4998			3	0	.426	0	-1.015e-4	3814.728	NC
4999			4	0	.42	0	-7.888e-5	5410.548	NC
5000			5	0	.399	0	-5.629e-5	NC	NC
5001	3	M1001	1	0	.366	0	5.998e-4	NC	NC
5002			2	0	.394	0	6.148e-4	5350.575	NC
5003			3	0	.407	0	6.298e-4	3814.728	NC
5004			4	0	.4	0	6.448e-4	5410.548	NC
5005			5	0	.377	0	6.598e-4	NC	NC
5006	3	M1002	1	0	.309	0	4.324e-6	NC	NC
5007			2	0	.341	0	3.265e-6	4738.82	NC
5008			3	0	.355	0	2.205e-6	3380.292	NC
5009			4	0	.346	0	1.145e-6	4807.42	NC
5010			5	0	.32	0	8.581e-8	NC	NC
5011	3	M1003	1	0	.272	0	9.375e-4	NC	NC
5012			2	0	.332	0	5.117e-4	5270.359	NC
5013			3	0	.377	0	8.591e-5	3766.834	NC
5014			4	0	.401	0	-3.399e-4	5349.835	NC
5015			5	0	.411	0	-7.657e-4	NC	NC
5016	3	M1004	1	0	.215	0	1.417e-3	NC	NC
5017			2	0	.291	0	1.038e-3	6363.023	NC
5018			3	0	.354	0	6.578e-4	4530.308	NC
5019			4	0	.4	0	2.781e-4	6416.912	NC
5020			5	0	.434	0	-1.017e-4	NC	NC
5021	3	M1005	1	0	.111	0	1.758e-3	NC	NC
5022			2	0	.215	0	1.499e-3	4792.811	NC
5023			3	0	.301	0	1.24e-3	3418.811	NC
5024			4	0	.364	0	9.805e-4	4867.439	NC
5025			5	0	.411	0	7.214e-4	NC	NC
5026	3	M1006	1	0	0	0	1.43e-3	NC	NC
5027			2	0	.092	0	1.078e-3	NC	NC
5028			3	0	.182	0	7.271e-4	NC	NC
5029			4	0	.264	0	3.758e-4	NC	NC
5030			5	0	.344	0	2.453e-5	NC	NC
5031	3	M1007	1	0	.335	0	-1.482e-5	NC	NC
5032			2	0	.392	0	-1.104e-5	4260.368	NC
5033			3	0	.418	0	-7.268e-6	3058.73	NC
5034			4	0	.405	0	-3.493e-6	4251.953	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5035			5	0	.362	0	2.814e-7	NC	NC
5036	3	M1008	1	0	0	0	-1.482e-5	NC	NC
5037			2	0	.153	0	-1.482e-5	3073.66	NC
5038			3	0	.258	0	-1.482e-5	2328.506	NC
5039			4	0	.314	0	-1.482e-5	3351.602	NC
5040			5	0	.335	0	-1.482e-5	NC	NC
5041	3	M1009	1	0	0	0	0	NC	NC
5042			2	0	.191	0	0	734.903	NC
5043			3	0	.227	0	0	618.608	NC
5044			4	0	.146	0	0	963.003	NC
5045			5	0	0	0	0	NC	NC
5046	3	M1010	1	0	0	0	0	NC	NC
5047			2	0	.065	0	0	2163.291	NC
5048			3	0	.082	0	0	1710.078	NC
5049			4	0	.055	0	0	2546.468	NC
5050			5	0	0	0	0	NC	NC
5051	3	M1011	1	0	0	0	2.725e-5	NC	NC
5052			2	0	-.003	0	2.725e-5	NC	NC
5053			3	0	-.024	0	2.725e-5	5896.752	NC
5054			4	0	-.036	0	2.725e-5	3891.199	NC
5055			5	0	0	0	2.725e-5	NC	NC
5056	3	M1012	1	0	0	0	0	NC	NC
5057			2	0	.065	0	0	2171.698	NC
5058			3	0	.083	0	0	1689.057	NC
5059			4	0	.056	0	0	2489.392	NC
5060			5	0	0	0	0	NC	NC
5061	3	M1013	1	0	0	0	0	NC	NC
5062			2	0	.051	0	0	2737.69	NC
5063			3	0	.066	0	0	2112.414	NC
5064			4	0	.045	0	0	3096.004	NC
5065			5	0	0	0	0	NC	NC
5066	3	M1014	1	0	0	0	0	NC	NC
5067			2	0	.048	0	0	2916.389	NC
5068			3	0	.063	0	0	2233.689	NC
5069			4	0	.043	0	0	3258.268	NC
5070			5	0	0	0	0	NC	NC
5071	3	M1015	1	0	0	0	0	NC	NC
5072			2	0	.053	0	0	2630.793	NC
5073			3	0	.071	0	0	1972.848	NC
5074			4	0	.05	0	0	2812.715	NC
5075			5	0	0	0	0	NC	NC
5076	3	M1016	1	0	0	0	0	NC	NC
5077			2	0	.04	0	0	3489.874	NC
5078			3	0	.055	0	0	2541.982	NC
5079			4	0	.04	0	0	3511.921	NC
5080			5	0	0	0	0	NC	NC
5081	3	M1017	1	0	0	0	0	NC	NC
5082			2	0	.049	0	0	2888.169	NC
5083			3	0	.067	0	0	2110.436	NC
5084			4	0	.048	0	0	2941.661	NC
5085			5	0	0	0	0	NC	NC
5086	3	M1018	1	-.003	0	0	-9.322e-5	NC	NC
5087			2	-.003	.039	.006	-9.322e-5	3844.816	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5088			3	-.003	.054	.011	-9.322e-5	2819.506	NC
5089			4	-.003	.042	.017	-9.322e-5	3992.075	8162.243
5090			5	-.003	.009	.023	-9.322e-5	NC	6121.682
5091	3	M1019	1	0	0	0	0	NC	NC
5092			2	0	.028	0	0	4997.065	NC
5093			3	0	.039	0	0	3624.531	NC
5094			4	0	.027	0	0	5119.794	NC
5095			5	0	0	0	0	NC	NC
5096	3	M1020	1	0	0	0	-1.317e-2	NC	NC
5097			2	0	.03	0	-1.317e-2	4721.501	NC
5098			3	0	.042	0	-1.317e-2	3365.327	NC
5099			4	0	.03	0	-1.317e-2	4701.535	NC
5100			5	0	0	0	-1.317e-2	NC	NC
5101	3	M1021	1	0	0	0	-1.715e-3	NC	NC
5102			2	0	.029	0	-1.715e-3	4909.975	NC
5103			3	0	.04	0	-1.715e-3	3517.705	NC
5104			4	0	.028	0	-1.715e-3	4953.956	NC
5105			5	0	0	0	-1.715e-3	NC	NC
5106	3	M1022	1	0	0	0	-5.394e-3	NC	NC
5107			2	0	.066	0	-4.436e-3	4308.764	NC
5108			3	0	.112	0	-3.477e-3	3090.335	NC
5109			4	0	.132	0	-2.519e-3	4359.528	NC
5110			5	0	.133	0	-1.56e-3	NC	NC
5111	3	M1023	1	0	0	0	-3.803e-3	NC	NC
5112			2	0	.089	0	-3.091e-3	4179.155	NC
5113			3	0	.157	0	-2.379e-3	2994.04	NC
5114			4	0	.198	0	-1.667e-3	4223.301	NC
5115			5	0	.22	0	-9.552e-4	NC	NC
5116	3	M1024	1	0	0	0	-2.002e-3	NC	NC
5117			2	.001	.093	0	-1.599e-3	4861.011	NC
5118			3	.001	.169	0	-1.196e-3	3478.804	NC
5119			4	.001	.221	0	-7.938e-4	4894.331	NC
5120			5	.001	.256	0	-3.912e-4	NC	NC
5121	3	M1025	1	.005	0	0	2.676e-4	NC	NC
5122			2	.005	.103	0	2.009e-4	3794.366	NC
5123			3	.006	.183	0	1.341e-4	2725.882	NC
5124			4	.006	.233	0	6.74e-5	3857.44	NC
5125			5	.006	.262	0	6.514e-7	NC	NC
5126	3	M1026	1	0	0	0	2.593e-3	NC	NC
5127			2	.001	.094	0	2.075e-3	4336.467	NC
5128			3	.001	.168	0	1.557e-3	3112.935	NC
5129			4	.001	.217	0	1.039e-3	4397.558	NC
5130			5	.001	.246	0	5.214e-4	NC	NC
5131	3	M1027	1	0	0	0	4.446e-3	NC	NC
5132			2	0	.078	0	3.606e-3	4861.011	NC
5133			3	0	.139	0	2.765e-3	3478.804	NC
5134			4	0	.177	0	1.925e-3	4894.331	NC
5135			5	0	.198	0	1.085e-3	NC	NC
5136	3	M1028	1	0	0	0	5.797e-3	NC	NC
5137			2	0	.061	0	4.741e-3	4179.155	NC
5138			3	0	.102	0	3.684e-3	2994.04	NC
5139			4	0	.116	0	2.627e-3	4223.301	NC
5140			5	0	.111	0	1.571e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5141	3	M1029	1	0	0	0	1.661e-3	NC	NC
5142			2	0	.029	0	1.661e-3	4807.312	NC
5143			3	0	.041	0	1.661e-3	3434.928	NC
5144			4	0	.029	0	1.661e-3	4818.92	NC
5145			5	0	0	0	1.661e-3	NC	NC
5146	3	M1030	1	0	0	0	5.759e-3	NC	NC
5147			2	0	.025	0	5.759e-3	5707.172	NC
5148			3	0	.035	0	5.759e-3	4068.198	NC
5149			4	0	.025	0	5.759e-3	5678.025	NC
5150			5	0	0	0	5.759e-3	NC	NC
5151	3	M1031	1	0	0	0	6.02e-3	NC	NC
5152			2	0	.025	0	6.02e-3	5526.903	NC
5153			3	0	.036	0	6.02e-3	3939.067	NC
5154			4	0	.025	0	6.02e-3	5508.647	NC
5155			5	0	0	0	6.02e-3	NC	NC
5156	3	M1032	1	0	0	0	2.874e-5	NC	NC
5157			2	0	.027	-.005	3.337e-5	5609.091	NC
5158			3	0	.039	-.009	3.801e-5	3988.756	NC
5159			4	0	.031	-.014	4.264e-5	5543.829	NC
5160			5	0	.008	-.018	4.727e-5	NC	7632.051
5161	3	M1033	1	0	0	0	1.647e-3	NC	NC
5162			2	0	.027	0	1.647e-3	5176.284	NC
5163			3	0	.038	0	1.647e-3	3656.977	NC
5164			4	0	.028	0	1.647e-3	5035.614	NC
5165			5	0	0	0	1.647e-3	NC	NC
5166	3	M1034	1	0	0	0	1.62e-3	NC	NC
5167			2	0	.036	0	1.62e-3	3887.806	NC
5168			3	0	.051	0	1.62e-3	2749.647	NC
5169			4	0	.037	0	1.62e-3	3786.297	NC
5170			5	0	0	0	1.62e-3	NC	NC
5171	3	M1035	1	0	0	0	0	NC	NC
5172			2	0	.068	0	0	2079.197	NC
5173			3	0	.222	0	0	632.739	NC
5174			4	0	.42	0	0	334.586	NC
5175			5	0	.631	0	0	222.374	NC
5176	3	M1036	1	0	0	0	0	NC	NC
5177			2	0	.032	0	0	4452.626	NC
5178			3	0	.044	0	0	3206.825	NC
5179			4	0	.031	0	0	4506.774	NC
5180			5	0	0	0	0	NC	NC
5181	3	M1037	1	0	0	0	0	NC	NC
5182			2	0	.036	0	0	3882.258	NC
5183			3	0	.05	0	0	2796.706	NC
5184			4	0	.036	0	0	3927.979	NC
5185			5	0	0	0	0	NC	NC
5186	3	M1038	1	0	0	0	0	NC	NC
5187			2	0	.037	0	0	3813.427	NC
5188			3	0	.051	0	0	2744.254	NC
5189			4	0	.036	0	0	3857.532	NC
5190			5	0	0	0	0	NC	NC
5191	3	M1039	1	0	0	0	-1.482e-5	NC	NC
5192			2	0	-.284	0	-1.482e-5	494.948	NC
5193			3	0	-.291	0	-1.482e-5	481.939	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5194			4	0	-.156	0	-1.482e-5	898.278	NC
5195			5	0	0	0	-1.482e-5	NC	NC
5196	3	M1040	1	0	0	0	0	NC	NC
5197			2	0	.021	0	0	6541.053	NC
5198			3	0	.03	0	0	4709.879	NC
5199			4	0	.021	0	0	6618.937	NC
5200			5	0	0	0	0	NC	NC
5201	3	M1041	1	0	0	0	0	NC	NC
5202			2	0	.031	0	0	4473.857	NC
5203			3	0	.044	0	0	3219.461	NC
5204			4	0	.031	0	0	4522.386	NC
5205			5	0	0	0	0	NC	NC
5206	3	M1042	1	0	-.154	0	-2.319e-3	NC	NC
5207			2	0	-.437	0	-2.319e-3	714.368	NC
5208			3	0	-.53	0	-2.319e-3	505.996	NC
5209			4	0	-.363	0	-2.319e-3	706.431	NC
5210			5	0	0	0	-2.319e-3	NC	NC
5211	3	M1043	1	0	-.266	0	-1.528e-3	NC	NC
5212			2	0	-.421	0	-1.528e-3	1032.387	NC
5213			3	0	-.445	0	-1.528e-3	734.107	NC
5214			4	0	-.29	0	-1.528e-3	1027.303	NC
5215			5	0	0	0	-1.528e-3	NC	NC
5216	3	M1044	1	0	-.327	0	-7.587e-4	NC	NC
5217			2	0	-.441	0	-7.587e-4	1171.77	NC
5218			3	0	-.439	0	-7.587e-4	833.357	NC
5219			4	0	-.278	0	-7.587e-4	1166.31	NC
5220			5	0	0	0	-7.587e-4	NC	NC
5221	3	M1045	1	0	-.349	0	0	NC	NC
5222			2	0	-.509	0	0	927.161	NC
5223			3	0	-.522	0	0	658.687	NC
5224			4	0	-.336	0	0	921.243	NC
5225			5	0	0	0	0	NC	NC
5226	3	M1046	1	0	-.336	0	0	NC	NC
5227			2	0	-.497	0	0	934.2	NC
5228			3	0	-.514	0	0	662.845	NC
5229			4	0	-.331	0	0	926.357	NC
5230			5	0	0	0	0	NC	NC
5231	3	M1047	1	0	-.36	0	-1.524e-4	NC	NC
5232			2	0	-.466	0	-1.524e-4	1167.883	NC
5233			3	0	-.456	0	-1.524e-4	831.098	NC
5234			4	0	-.287	0	-1.524e-4	1163.54	NC
5235			5	0	0	0	-1.524e-4	NC	NC
5236	3	M1048	1	0	-.356	0	4.187e-4	NC	NC
5237			2	0	-.464	0	4.187e-4	1167.883	NC
5238			3	0	-.454	0	4.187e-4	831.098	NC
5239			4	0	-.286	0	4.187e-4	1163.54	NC
5240			5	0	0	0	4.187e-4	NC	NC
5241	3	M1049	1	0	-.315	0	1.002e-3	NC	NC
5242			2	0	-.432	0	1.002e-3	1167.883	NC
5243			3	0	-.433	0	1.002e-3	831.098	NC
5244			4	0	-.276	0	1.002e-3	1163.54	NC
5245			5	0	0	0	1.002e-3	NC	NC
5246	3	M1050	1	0	-.246	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5247			2	0	-.407	0	0	1029.369	NC
5248			3	0	-.436	0	0	732.354	NC
5249			4	0	-.285	0	0	1025.153	NC
5250			5	0	0	0	0	NC	NC
5251	3	M1051	1	0	-.196	0	1.078e-3	NC	NC
5252			2	0	-.343	0	1.078e-3	1171.77	NC
5253			3	0	-.373	0	1.078e-3	833.357	NC
5254			4	0	-.246	0	1.078e-3	1166.31	NC
5255			5	0	0	0	1.078e-3	NC	NC
5256	3	M1052	1	0	-.133	0	1.259e-3	NC	NC
5257			2	0	-.296	0	1.259e-3	1167.883	NC
5258			3	0	-.342	0	1.259e-3	831.098	NC
5259			4	0	-.23	0	1.259e-3	1163.54	NC
5260			5	0	0	0	1.259e-3	NC	NC
5261	3	M1053	1	0	-.06	0	1.181e-3	NC	NC
5262			2	0	-.268	0	1.181e-3	1029.369	NC
5263			3	0	-.343	0	1.181e-3	732.354	NC
5264			4	0	-.239	0	1.181e-3	1025.153	NC
5265			5	0	0	0	1.181e-3	NC	NC
5266	3	M1054	1	0	0	0	4.971e-4	NC	NC
5267			2	0	-.148	0	4.971e-4	1545.635	NC
5268			3	0	-.228	0	4.971e-4	1005.647	NC
5269			4	0	-.17	0	4.971e-4	1344.988	NC
5270			5	0	0	0	4.971e-4	NC	NC
5271	3	M1055	1	0	.069	0	2.394e-5	NC	NC
5272			2	0	-.312	0	2.394e-5	630.702	NC
5273			3	0	-.481	0	2.394e-5	444.903	NC
5274			4	0	-.353	0	2.394e-5	619.546	NC
5275			5	0	0	0	2.394e-5	NC	NC
5276	3	M1056	1	0	.095	0	1.62e-3	NC	NC
5277			2	0	.273	0	1.62e-3	1071.648	NC
5278			3	0	.333	0	1.62e-3	757.002	NC
5279			4	0	.228	0	1.62e-3	1055.297	NC
5280			5	0	0	0	1.62e-3	NC	NC
5281	3	M1057	1	0	.198	0	1.647e-3	NC	NC
5282			2	0	.294	0	1.647e-3	1484.287	NC
5283			3	0	.304	0	1.647e-3	1054.693	NC
5284			4	0	.196	0	1.647e-3	1478.086	NC
5285			5	0	0	0	1.647e-3	NC	NC
5286	3	M1058	1	0	.272	0	2.279e-7	NC	NC
5287			2	0	.35	0	7.356e-6	1484.314	NC
5288			3	0	.341	0	1.448e-5	1054.693	NC
5289			4	0	.214	0	2.161e-5	1478.06	NC
5290			5	0	0	0	2.874e-5	NC	NC
5291	3	M1059	1	0	.378	0	1.297e-7	NC	NC
5292			2	0	.379	0	1.542e-7	5198.152	NC
5293			3	0	.364	0	1.788e-7	3694.607	NC
5294			4	0	.326	0	2.034e-7	5189.784	NC
5295			5	0	.272	0	2.279e-7	NC	NC
5296	3	M1060	1	0	.293	0	2.019e-3	NC	NC
5297			2	0	.296	0	1.926e-3	5429.713	NC
5298			3	0	.283	0	1.833e-3	3835.242	NC
5299			4	0	.249	0	1.74e-3	5372.331	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5300			5	0	.198	0	1.647e-3	NC	NC
5301	3	M1061	1	0	.161	0	2.434e-3	NC	NC
5302			2	0	.182	0	2.231e-3	3794.551	NC
5303			3	0	.181	0	2.027e-3	2685.312	NC
5304			4	0	.149	0	1.824e-3	3779.607	NC
5305			5	0	.095	0	1.62e-3	NC	NC
5306	3	M1062	1	0	-.161	0	-2.434e-3	NC	NC
5307			2	0	-.368	0	-2.434e-3	916.978	NC
5308			3	0	-.43	0	-2.434e-3	649.998	NC
5309			4	0	-.29	0	-2.434e-3	907.427	NC
5310			5	0	0	0	-2.434e-3	NC	NC
5311	3	M1063	1	0	-.293	0	-2.019e-3	NC	NC
5312			2	0	-.392	0	-2.019e-3	1319.606	NC
5313			3	0	-.388	0	-2.019e-3	940.335	NC
5314			4	0	-.245	0	-2.019e-3	1320.049	NC
5315			5	0	0	0	-2.019e-3	NC	NC
5316	3	M1064	1	0	-.378	0	-1.297e-7	NC	NC
5317			2	0	-.457	0	-1.297e-7	1305.87	NC
5318			3	0	-.432	0	-1.297e-7	932.162	NC
5319			4	0	-.268	0	-1.297e-7	1309.926	NC
5320			5	0	0	0	-1.297e-7	NC	NC
5321	3	M1065	1	0	-.326	.005	-2.906e-4	NC	NC
5322			2	0	-.508	.005	-2.951e-4	1196.468	NC
5323			3	0	-.579	.005	-2.996e-4	854.951	NC
5324			4	0	-.503	.005	-3.04e-4	1207.393	NC
5325			5	0	-.321	.005	-3.085e-4	NC	NC
5326	3	M1066	1	0	-.329	.005	2.447e-4	NC	NC
5327			2	0	-.509	.006	2.417e-4	1207.125	NC
5328			3	0	-.58	.006	2.387e-4	861.318	NC
5329			4	0	-.505	.006	2.356e-4	1215.378	NC
5330			5	0	-.324	.006	2.326e-4	NC	NC
5331	3	M1067	1	0	-.294	.006	2.193e-5	NC	NC
5332			2	0	-.493	.006	2.26e-5	1089.233	NC
5333			3	0	-.572	.006	2.326e-5	776.852	NC
5334			4	0	-.49	.006	2.393e-5	1095.677	NC
5335			5	0	-.289	.006	2.459e-5	NC	NC
5336	3	M1068	1	0	-.24	.006	1.18e-3	NC	NC
5337			2	0	-.439	.006	1.202e-3	1082.551	NC
5338			3	0	-.518	.006	1.223e-3	771.693	NC
5339			4	0	-.432	.006	1.244e-3	1089.183	NC
5340			5	0	-.229	.006	1.265e-3	NC	NC
5341	3	M1069	1	0	-.132	.006	2.456e-5	NC	NC
5342			2	0	-.328	.006	2.53e-5	1094.518	NC
5343			3	0	-.404	.007	2.605e-5	780.443	NC
5344			4	0	-.319	.007	2.679e-5	1101.024	NC
5345			5	0	-.117	.007	2.753e-5	NC	NC
5346	3	M1070	1	.004	-.074	.007	8.206e-4	NC	NC
5347			2	.003	-.234	.007	7.951e-4	1346.876	NC
5348			3	.001	-.296	.007	7.695e-4	960.892	NC
5349			4	0	-.227	.007	7.44e-4	1354.905	NC
5350			5	0	-.063	.007	7.184e-4	NC	NC
5351	3	M1071	1	.014	-.036	.007	-8.362e-5	NC	NC
5352			2	.009	-.176	.007	-9.78e-5	1551.469	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5353			3	.003	-.231	.007	-1.12e-4	1107.546	NC
5354			4	-.003	-.173	.007	-1.262e-4	1560.364	NC
5355			5	-.009	-.032	.007	-1.403e-4	NC	NC
5356	3	M1072	1	.005	-.089	.007	-1.112e-3	NC	NC
5357			2	.004	-.248	.007	-1.106e-3	1364.765	NC
5358			3	.003	-.31	.007	-1.1e-3	974.724	NC
5359			4	.002	-.244	.007	-1.094e-3	1374.872	NC
5360			5	.001	-.083	.007	-1.088e-3	NC	NC
5361	3	M1073	1	.001	-.162	.006	-1.388e-3	NC	NC
5362			2	.002	-.322	.006	-1.374e-3	1346.876	NC
5363			3	.002	-.386	.006	-1.359e-3	960.892	NC
5364			4	.002	-.318	.007	-1.344e-3	1354.905	NC
5365			5	.003	-.154	.007	-1.329e-3	NC	NC
5366	3	M1074	1	0	-.236	.006	2.499e-5	NC	NC
5367			2	0	-.437	.006	2.533e-5	1068.211	NC
5368			3	0	-.518	.006	2.567e-5	759.324	NC
5369			4	0	-.43	.006	2.601e-5	1077.753	NC
5370			5	0	-.224	.006	2.635e-5	NC	NC
5371	3	M1075	1	0	0	0	-1.251e-3	NC	NC
5372			2	0	-1.316	.001	-9.32e-4	182.563	NC
5373			3	.002	-1.82	.002	-6.134e-4	134.756	NC
5374			4	.003	-1.346	.004	-2.948e-4	196.246	NC
5375			5	.004	-.236	.005	2.372e-5	NC	NC
5376	3	M1076	1	0	0	0	1.396e-3	NC	NC
5377			2	.001	.974	.001	1.04e-3	249.972	NC
5378			3	.002	1.381	.002	6.849e-4	180.728	NC
5379			4	.003	1.054	.004	3.294e-4	258.862	NC
5380			5	.004	.224	.005	-2.607e-5	NC	NC
5381	3	M1077	1	0	.374	0	6.898e-8	NC	NC
5382			2	0	.35	0	6.898e-8	3254.34	NC
5383			3	0	.286	0	6.898e-8	2295.32	NC
5384			4	0	.166	0	6.898e-8	3130.934	NC
5385			5	0	0	0	6.898e-8	NC	NC
5386	3	M1078	1	0	-.36	0	-1.364e-5	NC	NC
5387			2	0	-.385	0	-2.208e-5	4232.709	NC
5388			3	0	-.379	0	-3.053e-5	3041.423	NC
5389			4	0	-.333	0	-3.897e-5	4241.583	NC
5390			5	0	-.258	0	-4.741e-5	NC	NC
5391	3	M1079	1	0	-.258	0	-4.741e-5	819.127	NC
5392			2	0	-.193	0	-6.237e-4	1095.88	NC
5393			3	0	-.118	0	-1.2e-3	1793.475	NC
5394			4	0	-.044	0	-1.776e-3	4803.656	NC
5395			5	0	0	0	-2.353e-3	NC	NC
5396	3	M1080	1	0	0	0	-2.353e-3	NC	NC
5397			2	0	-.025	0	-2.353e-3	5726.709	NC
5398			3	0	-.065	0	-2.353e-3	2161.419	NC
5399			4	0	-.102	0	-2.353e-3	1382.994	NC
5400			5	0	-.139	0	-2.353e-3	1010.407	NC
5401	3	M1081	1	-.005	-.291	0	-3.311e-6	NC	NC
5402			2	-.005	-.319	0	-2.547e-6	6641.727	NC
5403			3	-.005	-.332	0	-1.783e-6	4639.691	NC
5404			4	-.006	-.322	0	-1.02e-6	6298.468	NC
5405			5	-.006	-.294	0	-2.558e-7	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5406	3	M1082	1	-.006	-.294	0	-2.558e-7	NC	NC
5407			2	-.006	-.27	0	-3.028e-6	8009.456	NC
5408			3	-.006	-.239	0	-5.801e-6	5102.141	NC
5409			4	-.006	-.189	0	-8.574e-6	8007.848	NC
5410			5	-.006	-.132	0	-1.135e-5	NC	NC
5411	3	M1083	1	-.005	-.284	0	-3.771e-6	NC	NC
5412			2	-.005	-.313	0	-2.812e-6	6564.063	NC
5413			3	-.006	-.326	0	-1.852e-6	4589.071	NC
5414			4	-.006	-.317	0	-8.928e-7	6233.606	NC
5415			5	-.006	-.289	0	6.674e-8	NC	NC
5416	3	M1084	1	-.006	-.289	0	6.674e-8	NC	NC
5417			2	-.006	-.262	0	3.499e-6	8410.832	NC
5418			3	-.006	-.228	0	6.93e-6	5375.298	NC
5419			4	-.007	-.176	0	1.036e-5	8477.722	NC
5420			5	-.007	-.117	0	1.379e-5	NC	NC
5421	3	M1085	1	0	-.291	.005	1.794e-5	NC	NC
5422			2	0	-.319	0	1.901e-5	7353.875	NC
5423			3	0	-.329	0	2.008e-5	5292.602	NC
5424			4	0	-.315	0	2.116e-5	7385.773	NC
5425			5	0	-.284	.005	2.223e-5	NC	NC
5426	3	M1086	1	0	-.316	.003	1.083e-5	NC	NC
5427			2	0	-.366	0	1.113e-5	4224.698	NC
5428			3	0	-.384	0	1.143e-5	3038.268	NC
5429			4	0	-.361	0	1.173e-5	4225.677	NC
5430			5	0	-.308	.003	1.203e-5	NC	NC
5431	3	M1087	1	0	0	0	0	NC	NC
5432			2	0	-.155	0	0	3349.862	NC
5433			3	0	-.267	0	0	2454.405	NC
5434			4	0	-.327	0	0	3478.303	NC
5435			5	0	-.349	0	0	NC	NC
5436	3	M1088	1	0	-.336	0	0	NC	NC
5437			2	0	-.36	0	8.294e-6	4525.555	NC
5438			3	0	-.356	0	1.657e-5	3252.475	NC
5439			4	0	-.315	0	2.485e-5	4538.735	NC
5440			5	0	-.246	0	3.313e-5	NC	NC
5441	3	M1089	1	0	-.246	0	3.313e-5	NC	NC
5442			2	0	-.196	0	6.132e-4	NC	NC
5443			3	0	-.133	0	1.193e-3	NC	NC
5444			4	0	-.06	0	1.773e-3	NC	NC
5445			5	0	0	0	2.353e-3	NC	NC
5446	3	M1090	1	0	0	0	2.353e-3	NC	NC
5447			2	0	.039	0	2.353e-3	3623.823	NC
5448			3	0	.069	0	2.353e-3	2033.955	NC
5449			4	0	.068	0	2.353e-3	2076.636	NC
5450			5	0	0	0	2.353e-3	NC	NC
5451	3	M1091	1	0	-.378	0	-2.549e-6	NC	NC
5452			2	0	-.303	0	-2.549e-6	8610.143	NC
5453			3	0	-.216	0	-2.549e-6	6268.117	NC
5454			4	0	-.114	0	-2.549e-6	8726.177	NC
5455			5	0	0	0	-2.549e-6	NC	NC
5456	3	M1092	1	0	-.272	0	-2.147e-5	612.139	NC
5457			2	0	-.206	0	-1.278e-4	808.288	NC
5458			3	0	-.135	0	-2.341e-4	1235.115	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5459			4	0	-.063	0	-3.404e-4	2650.575	NC
5460			5	0	0	0	-4.468e-4	NC	NC
5461	3	M1093	1	0	-.403	0	-1.219e-6	NC	NC
5462			2	0	-1.056	0	-9.097e-7	379.555	NC
5463			3	0	-1.223	0	-6.007e-7	297.807	NC
5464			4	0	-.926	0	-2.918e-7	443.18	NC
5465			5	0	-.335	0	0	NC	NC
5466	3	M1094	1	0	-.335	0	0	NC	NC
5467			2	0	-.345	0	0	4420.645	NC
5468			3	0	-.336	0	0	3144.875	NC
5469			4	0	-.301	0	0	4433.601	NC
5470			5	0	-.246	0	0	NC	NC
5471	3	M1095	1	0	-.309	0	-1.788e-6	NC	NC
5472			2	0	-.911	0	-1.335e-6	432.31	NC
5473			3	0	-1.106	0	-8.824e-7	330.346	NC
5474			4	0	-.874	0	-4.295e-7	483.836	NC
5475			5	0	-.362	0	0	NC	NC
5476	3	M1096	1	0	-.362	0	0	NC	NC
5477			2	0	-.39	0	0	4102.363	NC
5478			3	0	-.398	0	0	2919.262	NC
5479			4	0	-.377	0	0	4126.149	NC
5480			5	0	-.336	0	0	NC	NC
5481	3	M1097	1	0	-.344	0	1.899e-6	NC	NC
5482			2	0	-.714	0	1.43e-6	694.896	NC
5483			3	0	-.868	0	9.601e-7	494.002	NC
5484			4	0	-.724	0	4.906e-7	694.367	NC
5485			5	0	-.363	0	0	NC	NC
5486	3	M1098	1	0	-.363	0	0	NC	NC
5487			2	0	-.395	0	0	4044.902	NC
5488			3	0	-.406	0	0	2879.96	NC
5489			4	0	-.388	0	0	4073.25	NC
5490			5	0	-.349	0	0	NC	NC
5491	3	M1099	1	0	0	0	-2.674e-3	NC	NC
5492			2	0	.111	0	-2.023e-3	7072.274	NC
5493			3	0	.215	0	-1.371e-3	3948.348	NC
5494			4	0	.281	0	-7.196e-4	4864.053	NC
5495			5	0	.309	0	-6.802e-5	NC	NC
5496	3	M1100	1	0	.344	0	-1.899e-6	NC	NC
5497			2	0	.411	0	-1.62e-7	3269.94	NC
5498			3	0	.434	0	1.575e-6	2361.815	NC
5499			4	0	.398	0	3.312e-6	3349.585	NC
5500			5	0	.32	0	5.05e-6	NC	NC
5501	3	M1101	1	0	.309	0	-6.802e-5	NC	NC
5502			2	0	.366	0	-5.657e-5	3623.652	NC
5503			3	0	.382	0	-4.512e-5	2679.056	NC
5504			4	0	.349	0	-3.368e-5	3888.731	NC
5505			5	0	.284	.005	-2.223e-5	NC	NC
5506	3	M1102	1	0	.32	0	5.05e-6	NC	NC
5507			2	0	.378	0	7.802e-7	3753.73	NC
5508			3	0	.399	0	-3.489e-6	2683.647	NC
5509			4	0	.371	0	-7.759e-6	3753.305	NC
5510			5	0	.308	.003	-1.203e-5	NC	NC
5511	3	M1103	1	0	.316	.003	-1.083e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5512			2	0	.391	0	-7.566e-6	3268.479	NC
5513			3	0	.422	0	-4.299e-6	2360.927	NC
5514			4	0	.395	0	-1.032e-6	3313.336	NC
5515			5	0	.325	0	2.235e-6	NC	NC
5516	3	M1104	1	0	.291	.005	-1.794e-5	NC	NC
5517			2	0	.385	0	-1.23e-5	3312.835	NC
5518			3	0	.438	0	-6.669e-6	2296.555	NC
5519			4	0	.433	0	-1.034e-6	3095.226	NC
5520			5	0	.378	0	4.602e-6	NC	NC
5521	3	M1105	1	0	.325	0	2.235e-6	NC	NC
5522			2	0	.403	0	1.71e-6	3237.257	NC
5523			3	0	.435	0	1.186e-6	2322.926	NC
5524			4	0	.409	0	6.61e-7	3243.713	NC
5525			5	0	.338	0	1.364e-7	NC	NC
5526	3	M1106	1	0	.378	0	4.602e-6	NC	NC
5527			2	0	.521	0	9.723e-6	1576.854	NC
5528			3	0	.573	0	1.484e-5	1127.739	NC
5529			4	0	.505	0	1.996e-5	1564.34	NC
5530			5	0	.343	0	2.509e-5	NC	NC
5531	3	M1107	1	-.007	-.117	0	1.379e-5	NC	NC
5532			2	-.007	-.053	-.003	4.35e-4	3948.616	NC
5533			3	-.007	-.054	-.004	5.488e-4	4030.127	NC
5534			4	-.007	-.137	.003	2.801e-4	NC	NC
5535			5	-.006	-.224	0	1.134e-5	2364.003	NC
5536	3	M1108	1	-.006	-.132	0	-1.135e-5	NC	NC
5537			2	-.007	-.062	.007	-2.577e-4	3615.617	NC
5538			3	-.007	-.059	.01	-3.241e-4	3440.723	NC
5539			4	-.006	-.145	.002	-1.668e-4	NC	NC
5540			5	-.006	-.236	0	-9.41e-6	2442.049	NC
5541	3	M1109	1	-.006	-.236	.003	6.073e-6	NC	NC
5542			2	-.005	-.258	.003	6.961e-6	NC	NC
5543			3	-.005	-.271	.003	7.849e-6	9451.835	NC
5544			4	-.005	-.271	.003	8.736e-6	NC	NC
5545			5	-.005	-.262	.004	9.624e-6	NC	NC
5546	3	M1110	1	.005	-.262	.003	1.011e-5	NC	NC
5547			2	.005	-.267	.003	8.603e-6	NC	NC
5548			3	.006	-.263	.003	7.101e-6	9981.703	NC
5549			4	.006	-.248	.003	5.598e-6	NC	NC
5550			5	.006	-.224	.003	4.095e-6	NC	NC
5551	3	M1111	1	.374	0	0	0	NC	NC
5552			2	.357	0	0	0	NC	NC
5553			3	.339	0	0	0	NC	NC
5554			4	.322	0	0	0	NC	NC
5555			5	.305	0	0	0	NC	NC
5556	3	M1112	1	.36	0	0	0	NC	NC
5557			2	.343	0	0	0	NC	NC
5558			3	.326	0	0	0	NC	NC
5559			4	.31	0	0	0	NC	NC
5560			5	.293	0	0	0	NC	NC
5561	3	M1113	1	.258	0	0	0	NC	NC
5562			2	.25	.002	0	0	NC	NC
5563			3	.242	.002	0	0	NC	NC
5564			4	.234	.002	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5565			5	.226	.002	0	0	NC	NC
5566	3	M1114	1	0	0	0	-8.35e-7	NC	NC
5567			2	0	.034	.002	-3.707e-7	4885.365	NC
5568			3	0	-.001	.003	9.357e-8	NC	NC
5569			4	0	-.036	.002	5.579e-7	4625.903	NC
5570			5	0	0	0	1.022e-6	NC	NC
5571	3	M1115	1	.386	0	0	0	NC	NC
5572			2	.368	0	0	0	NC	NC
5573			3	.351	0	0	0	NC	NC
5574			4	.333	0	0	0	NC	NC
5575			5	.315	0	0	0	NC	NC
5576	3	M1116	1	.409	0	0	0	NC	NC
5577			2	.388	0	0	0	NC	NC
5578			3	.368	0	0	0	NC	NC
5579			4	.348	0	0	0	NC	NC
5580			5	.327	0	0	0	NC	NC
5581	3	M1117	1	.368	0	0	0	NC	NC
5582			2	.353	.001	0	0	NC	NC
5583			3	.339	.002	0	0	NC	NC
5584			4	.325	.003	0	0	NC	NC
5585			5	.311	.003	0	0	NC	NC
5586	3	M1118	1	.338	0	0	0	NC	NC
5587			2	.327	0	0	0	NC	NC
5588			3	.315	0	0	0	NC	NC
5589			4	.304	0	0	0	NC	NC
5590			5	.292	0	0	0	NC	NC
5591	3	M1119	1	.343	0	0	0	NC	NC
5592			2	.329	0	0	0	NC	NC
5593			3	.316	0	.001	0	NC	NC
5594			4	.302	0	0	0	NC	NC
5595			5	.288	0	0	0	NC	NC
5596	3	M1120	1	0	0	0	0	NC	NC
5597			2	.015	0	0	0	NC	NC
5598			3	.03	0	-.001	0	NC	NC
5599			4	.044	0	0	0	NC	NC
5600			5	.059	0	0	0	NC	NC
5601	3	M1121	1	.217	0	0	0	NC	NC
5602			2	.215	0	0	0	NC	NC
5603			3	.213	0	0	0	NC	NC
5604			4	.211	0	0	0	NC	NC
5605			5	.209	0	0	0	NC	NC
5606	3	M1122	1	.259	0	0	0	NC	NC
5607			2	.257	.002	0	0	NC	NC
5608			3	.255	.003	0	0	NC	NC
5609			4	.254	.003	0	0	NC	NC
5610			5	.252	.003	0	0	NC	NC
5611	3	M1123	1	.325	0	0	0	NC	NC
5612			2	.314	0	0	0	NC	NC
5613			3	.304	0	0	0	NC	NC
5614			4	.293	0	0	0	NC	NC
5615			5	.282	0	0	0	NC	NC
5616	3	M1124	1	.378	0	0	0	NC	NC
5617			2	.361	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5618			3	.343	0	0	0	NC	NC
5619			4	.326	0	0	0	NC	NC
5620			5	.309	0	0	0	NC	NC
5621	3	M1125	1	.316	0	.003	0	NC	NC
5622			2	.305	0	.003	0	NC	NC
5623			3	.295	0	.002	0	NC	NC
5624			4	.284	0	.002	0	NC	NC
5625			5	.274	0	.001	0	NC	NC
5626	3	M1126	1	.291	0	.005	0	NC	NC
5627			2	.281	0	.004	0	NC	NC
5628			3	.271	0	.003	0	NC	NC
5629			4	.26	0	.003	0	NC	NC
5630			5	.25	0	.002	0	NC	NC
5631	3	M1127	1	.294	0	.006	0	NC	NC
5632			2	.283	0	.005	0	NC	NC
5633			3	.272	0	.004	0	NC	NC
5634			4	.262	0	.003	0	NC	NC
5635			5	.251	0	.002	0	NC	NC
5636	3	M1128	1	.132	0	.006	0	NC	NC
5637			2	.127	0	.005	0	NC	NC
5638			3	.122	0	.004	0	NC	NC
5639			4	.118	0	.003	0	NC	NC
5640			5	.113	0	.003	0	NC	NC
5641	3	M1129	1	.236	0	.006	0	NC	NC
5642			2	.227	0	.005	0	NC	NC
5643			3	.218	0	.004	0	NC	NC
5644			4	.209	0	.003	0	NC	NC
5645			5	.2	0	.002	0	NC	NC
5646	3	M1130	1	0	0	0	8.471e-7	NC	NC
5647			2	0	.034	-.001	3.751e-7	4954.618	NC
5648			3	0	.15	-.002	-9.685e-8	1123.381	NC
5649			4	0	.19	-.001	-5.688e-7	882.283	NC
5650			5	0	0	0	-1.041e-6	NC	NC
5651	3	M1131	1	.262	0	.006	0	NC	NC
5652			2	.253	0	.005	0	NC	NC
5653			3	.243	0	.004	0	NC	NC
5654			4	.233	0	.003	0	NC	NC
5655			5	.223	0	.002	0	NC	NC
5656	3	M1132	1	.308	0	.003	0	NC	NC
5657			2	.297	0	.003	0	NC	NC
5658			3	.287	0	.002	0	NC	NC
5659			4	.277	0	.002	0	NC	NC
5660			5	.266	0	.001	0	NC	NC
5661	3	M1133	1	.284	0	.005	0	NC	NC
5662			2	.274	0	.004	0	NC	NC
5663			3	.264	0	.003	0	NC	NC
5664			4	.254	0	.003	0	NC	NC
5665			5	.244	0	.002	0	NC	NC
5666	3	M1134	1	.289	0	.006	0	NC	NC
5667			2	.279	0	.005	0	NC	NC
5668			3	.268	0	.004	0	NC	NC
5669			4	.258	0	.003	0	NC	NC
5670			5	.247	0	.002	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5671	3	M1135	1	.117	0	.007	0	NC	NC
5672			2	.113	0	.006	0	NC	NC
5673			3	.11	0	.005	0	NC	NC
5674			4	.106	0	.004	0	NC	NC
5675			5	.102	0	.003	0	NC	NC
5676	3	M1136	1	.224	0	.006	0	NC	NC
5677			2	.216	0	.005	0	NC	NC
5678			3	.208	0	.004	0	NC	NC
5679			4	.2	0	.003	0	NC	NC
5680			5	.192	0	.002	0	NC	NC
5681	3	M1137	1	0	0	0	9.316e-6	NC	NC
5682			2	0	-.028	.007	7.373e-6	6006.396	NC
5683			3	0	-.133	.01	5.43e-6	1267.126	NC
5684			4	0	-.171	.007	3.488e-6	983.002	NC
5685			5	0	0	0	1.545e-6	NC	NC
5686	3	M1138	1	.32	0	0	0	NC	NC
5687			2	.31	0	0	0	NC	NC
5688			3	.299	0	0	0	NC	NC
5689			4	.288	0	0	0	NC	NC
5690			5	.278	0	0	0	NC	NC
5691	3	M1139	1	.309	0	0	0	NC	NC
5692			2	.298	0	-.002	0	NC	NC
5693			3	.286	0	-.001	0	NC	NC
5694			4	.274	0	0	0	NC	NC
5695			5	.263	0	.001	0	NC	NC
5696	3	M1140	1	.344	0	0	0	NC	NC
5697			2	.332	0	0	0	NC	NC
5698			3	.321	0	0	0	NC	NC
5699			4	.309	0	0	0	NC	NC
5700			5	.297	0	0	0	NC	NC
5701	3	M1141	1	0	0	0	0	NC	NC
5702			2	.015	.036	-.069	0	4652.403	2450.568
5703			3	.03	.038	-.071	0	4460.373	2372.375
5704			4	.045	.021	-.038	0	8240.487	4460.123
5705			5	.06	0	0	0	NC	NC
5706	3	M1142	1	.237	0	.005	0	NC	NC
5707			2	.232	0	.003	0	NC	NC
5708			3	.228	0	.001	0	NC	NC
5709			4	.223	0	0	0	NC	NC
5710			5	.218	0	0	0	NC	NC
5711	3	M1143	1	.309	0	0	0	NC	NC
5712			2	.3	0	0	0	NC	NC
5713			3	.29	0	0	0	NC	NC
5714			4	.281	0	0	0	NC	NC
5715			5	.271	0	0	0	NC	NC
5716	3	M1144	1	.403	0	0	0	NC	NC
5717			2	.389	0	0	0	NC	NC
5718			3	.376	-.001	0	0	NC	NC
5719			4	.363	-.002	0	0	NC	NC
5720			5	.349	-.002	0	0	NC	NC
5721	3	M1145	1	.363	0	0	0	NC	NC
5722			2	.346	0	0	0	NC	NC
5723			3	.33	0	0	0	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5724			4	.313	0	0	0	NC	NC
5725			5	.297	0	0	0	NC	NC
5726	3	M1146	1	.362	0	0	0	NC	NC
5727			2	.345	0	0	0	NC	NC
5728			3	.328	0	0	0	NC	NC
5729			4	.31	0	0	0	NC	NC
5730			5	.293	0	0	0	NC	NC
5731	3	M1147	1	.335	0	0	0	NC	NC
5732			2	.323	0	0	0	NC	NC
5733			3	.311	-.001	0	0	NC	NC
5734			4	.299	-.001	0	0	NC	NC
5735			5	.287	-.001	0	0	NC	NC
5736	3	M1148	1	.349	0	0	0	NC	NC
5737			2	.333	0	0	0	NC	NC
5738			3	.317	0	0	0	NC	NC
5739			4	.301	0	0	0	NC	NC
5740			5	.284	0	0	0	NC	NC
5741	3	M1149	1	.336	0	0	0	NC	NC
5742			2	.32	0	0	0	NC	NC
5743			3	.305	0	0	0	NC	NC
5744			4	.289	0	0	0	NC	NC
5745			5	.273	0	0	0	NC	NC
5746	3	M1150	1	.246	0	0	0	NC	NC
5747			2	.238	0	0	0	NC	NC
5748			3	.23	-.001	0	0	NC	NC
5749			4	.221	-.001	0	0	NC	NC
5750			5	.213	0	0	0	NC	NC
5751	3	M1151	1	0	0	0	-9.348e-6	NC	NC
5752			2	0	-.034	-.015	-7.379e-6	4880.095	NC
5753			3	0	.001	-.02	-5.411e-6	NC	8402.067
5754			4	0	.036	-.015	-3.442e-6	4635.607	NC
5755			5	0	0	0	-1.474e-6	NC	NC
5756	3	M1152	1	.272	0	0	0	NC	NC
5757			2	.267	0	0	0	NC	NC
5758			3	.262	0	0	0	NC	NC
5759			4	.257	0	0	0	NC	NC
5760			5	.252	0	0	0	NC	NC
5761	3	M1153	1	.378	0	0	0	NC	NC
5762			2	.371	0	0	0	NC	NC
5763			3	.364	0	0	0	NC	NC
5764			4	.356	0	0	0	NC	NC
5765			5	.349	0	0	0	NC	NC
5766	3	M1154	1	0	0	0	3.474e-5	NC	NC
5767			2	0	-.122	0	3.063e-5	4738.575	NC
5768			3	0	-.215	0	2.651e-5	3208.859	NC
5769			4	0	-.257	.001	2.24e-5	4416.335	NC
5770			5	0	-.262	.006	1.828e-5	NC	NC
5771	3	M1155	1	0	-.262	.006	1.828e-5	NC	NC
5772			2	0	-.249	.001	-4.673e-5	4973.79	NC
5773			3	0	-.202	0	-1.117e-4	3632.457	NC
5774			4	0	-.114	0	-1.767e-4	5328.325	NC
5775			5	0	0	0	-2.417e-4	NC	NC
5776	3	M1156	1	0	.315	0	-1.002e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5777			2	0	.362	0	-9.361e-4	5053.924	NC
5778			3	0	.393	0	-8.702e-4	3570.533	NC
5779			4	0	.401	0	-8.043e-4	4999.991	NC
5780			5	0	.391	0	-7.385e-4	NC	NC
5781	3	M1157	1	0	.391	0	-7.385e-4	NC	NC
5782			2	0	.588	0	-7.385e-4	863.252	NC
5783			3	0	.611	0	-7.385e-4	613.042	NC
5784			4	0	.394	0	-7.385e-4	858.694	NC
5785			5	0	0	0	-7.385e-4	NC	NC
5786	3	M1158	1	0	.356	0	-4.187e-4	NC	NC
5787			2	0	.401	0	-3.435e-4	4983.332	NC
5788			3	0	.428	0	-2.684e-4	3538.545	NC
5789			4	0	.432	0	-1.932e-4	4972.333	NC
5790			5	0	.418	0	-1.18e-4	NC	NC
5791	3	M1159	1	0	.418	0	-1.18e-4	NC	NC
5792			2	0	.606	0	-1.18e-4	869.188	NC
5793			3	0	.622	0	-1.18e-4	616.62	NC
5794			4	0	.399	0	-1.18e-4	863.327	NC
5795			5	0	0	0	-1.18e-4	NC	NC
5796	3	M1160	1	0	.36	0	1.524e-4	NC	NC
5797			2	0	.4	0	2.367e-4	4962.471	NC
5798			3	0	.424	0	3.21e-4	3508.614	NC
5799			4	0	.423	0	4.052e-4	4910.463	NC
5800			5	0	.405	0	4.895e-4	NC	NC
5801	3	M1161	1	0	.405	0	4.895e-4	NC	NC
5802			2	0	.598	0	4.895e-4	863.252	NC
5803			3	0	.617	0	4.895e-4	613.042	NC
5804			4	0	.397	0	4.895e-4	858.694	NC
5805			5	0	0	0	4.895e-4	NC	NC
5806	3	M1162	1	0	.06	0	-1.181e-3	NC	NC
5807			2	0	.124	0	-1.488e-3	3567.924	NC
5808			3	0	.163	0	-1.795e-3	2521.537	NC
5809			4	0	.17	0	-2.101e-3	3551.364	NC
5810			5	0	.153	0	-2.408e-3	NC	NC
5811	3	M1163	1	0	.153	0	-2.408e-3	NC	NC
5812			2	0	.559	0	-2.408e-3	571.763	NC
5813			3	0	.705	0	-2.408e-3	404.5	NC
5814			4	0	.488	0	-2.408e-3	565.43	NC
5815			5	0	0	0	-2.408e-3	NC	NC
5816	3	M1164	1	0	.133	0	-1.259e-3	NC	NC
5817			2	0	.193	0	-1.331e-3	4993.304	NC
5818			3	0	.236	0	-1.403e-3	3539.303	NC
5819			4	0	.256	0	-1.474e-3	4969.077	NC
5820			5	0	.258	0	-1.546e-3	NC	NC
5821	3	M1165	1	0	.258	0	-1.546e-3	NC	NC
5822			2	0	.489	0	-1.546e-3	860.652	NC
5823			3	0	.545	0	-1.546e-3	611.535	NC
5824			4	0	.361	0	-1.546e-3	856.843	NC
5825			5	0	0	0	-1.546e-3	NC	NC
5826	3	M1166	1	0	.196	0	-1.078e-3	NC	NC
5827			2	0	.255	0	-1.005e-3	4983.332	NC
5828			3	0	.296	0	-9.315e-4	3538.545	NC
5829			4	0	.314	0	-8.581e-4	4972.333	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5830			5	0	.314	0	-7.847e-4	NC	NC
5831	3	M1167	1	0	.314	0	-7.847e-4	NC	NC
5832			2	0	.529	0	-7.847e-4	869.188	NC
5833			3	0	.57	0	-7.847e-4	616.62	NC
5834			4	0	.373	0	-7.847e-4	863.327	NC
5835			5	0	0	0	-7.847e-4	NC	NC
5836	3	M1168	1	0	.362	0	2.814e-7	NC	NC
5837			2	0	1.284	0	2.207e-7	491.837	NC
5838			3	0	1.645	0	1.6e-7	353.677	NC
5839			4	0	1.269	0	9.927e-8	500.55	NC
5840			5	0	.363	0	3.856e-8	NC	NC
5841	3	M1169	1	0	.336	0	0	NC	NC
5842			2	0	1.229	0	0	509.69	NC
5843			3	0	1.59	0	0	363.454	NC
5844			4	0	1.236	0	0	509.454	NC
5845			5	0	.349	0	0	NC	NC
5846	3	M1170	1	0	0	0	7.706e-3	NC	NC
5847			2	0	-.711	0	7.706e-3	540.84	NC
5848			3	0	-1.116	0	7.706e-3	400.944	NC
5849			4	0	-1.163	0	7.706e-3	576.95	NC
5850			5	0	-.963	0	7.706e-3	NC	NC
5851	3	M1171	1	0	-.963	0	7.706e-3	NC	NC
5852			2	0	-.986	0	7.648e-3	4098.077	NC
5853			3	0	-.989	0	7.589e-3	2911.477	NC
5854			4	0	-.963	0	7.531e-3	4112.878	NC
5855			5	0	-.916	0	7.472e-3	NC	NC
5856	3	M1172	1	0	-.916	0	7.472e-3	NC	NC
5857			2	0	-.936	0	7.472e-3	920.227	NC
5858			3	0	-.808	0	7.472e-3	654.582	NC
5859			4	0	-.479	0	7.472e-3	916.185	NC
5860			5	0	0	0	7.472e-3	NC	NC
5861	3	M1173	1	0	-.237	.005	5.391e-5	NC	NC
5862			2	0	-.982	.004	1.281e-3	563.925	NC
5863			3	0	-1.437	.003	2.509e-3	415.231	NC
5864			4	0	-1.545	.001	3.736e-3	595.057	NC
5865			5	0	-1.412	0	4.963e-3	NC	NC
5866	3	M1174	1	0	-1.412	0	4.963e-3	NC	NC
5867			2	0	-1.434	0	4.943e-3	3931.035	NC
5868			3	0	-1.434	0	4.923e-3	2799.767	NC
5869			4	0	-1.405	0	4.902e-3	3949.482	NC
5870			5	0	-1.354	0	4.882e-3	NC	NC
5871	3	M1175	1	0	-1.354	0	4.882e-3	NC	NC
5872			2	0	-1.261	0	4.882e-3	934.2	NC
5873			3	0	-1.023	0	4.882e-3	662.845	NC
5874			4	0	-.586	0	4.882e-3	926.357	NC
5875			5	0	0	0	4.882e-3	NC	NC
5876	3	M1176	1	0	0	0	1.638e-3	NC	NC
5877			2	0	-.786	0	1.638e-3	669.385	NC
5878			3	0	-1.332	0	1.638e-3	488.309	NC
5879			4	0	-1.582	0	1.638e-3	696.101	NC
5880			5	0	-1.622	0	1.638e-3	NC	NC
5881	3	M1177	1	0	-1.622	0	1.638e-3	NC	NC
5882			2	0	-1.64	0	1.655e-3	4420.645	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5883			3	0	-1.639	0	1.672e-3	3144.875	NC
5884			4	0	-1.611	0	1.689e-3	4433.601	NC
5885			5	0	-1.564	0	1.706e-3	NC	NC
5886	3	M1178	1	0	-1.564	0	1.706e-3	NC	NC
5887			2	0	-1.396	0	1.706e-3	1029.369	NC
5888			3	0	-1.095	0	1.706e-3	732.354	NC
5889			4	0	-.615	0	1.706e-3	1025.153	NC
5890			5	0	0	0	1.706e-3	NC	NC
5891	3	M1179	1	0	0	0	-1.815e-3	NC	NC
5892			2	0	-.76	0	-1.815e-3	714.577	NC
5893			3	0	-1.301	0	-1.815e-3	515.627	NC
5894			4	0	-1.56	0	-1.815e-3	730.635	NC
5895			5	0	-1.616	0	-1.815e-3	NC	NC
5896	3	M1180	1	0	-1.616	0	-1.815e-3	NC	NC
5897			2	0	-1.636	0	-1.772e-3	4445.822	NC
5898			3	0	-1.636	0	-1.73e-3	3156.626	NC
5899			4	0	-1.611	0	-1.688e-3	4442.238	NC
5900			5	0	-1.566	0	-1.645e-3	NC	NC
5901	3	M1181	1	0	-1.566	0	-1.645e-3	NC	NC
5902			2	0	-1.397	0	-1.645e-3	1029.369	NC
5903			3	0	-1.096	0	-1.645e-3	732.354	NC
5904			4	0	-.615	0	-1.645e-3	1025.153	NC
5905			5	0	0	0	-1.645e-3	NC	NC
5906	3	M1182	1	0	0	0	2.674e-3	NC	NC
5907			2	0	-.161	0	7.536e-4	1580.305	NC
5908			3	0	-.579	0	-1.167e-3	439.081	NC
5909			4	0	-1.017	0	-3.088e-3	250.133	NC
5910			5	0	-1.396	0	-5.009e-3	182.258	NC
5911	3	M1183	1	0	-1.396	0	-5.009e-3	NC	NC
5912			2	0	-1.422	0	-4.962e-3	4098.077	NC
5913			3	0	-1.427	0	-4.916e-3	2911.477	NC
5914			4	0	-1.403	0	-4.869e-3	4112.878	NC
5915			5	0	-1.359	0	-4.822e-3	NC	NC
5916	3	M1184	1	0	-1.359	0	-4.822e-3	NC	NC
5917			2	0	-1.269	0	-4.822e-3	920.227	NC
5918			3	0	-1.03	0	-4.822e-3	654.582	NC
5919			4	0	-.59	0	-4.822e-3	916.185	NC
5920			5	0	0	0	-4.822e-3	NC	NC
5921	3	M1185	1	0	-.174	0	2.545e-3	NC	NC
5922			2	0	-.742	0	2.928e-5	690.676	NC
5923			3	0	-1.09	0	-2.486e-3	491.5	NC
5924			4	0	-1.139	0	-5.002e-3	691.262	NC
5925			5	0	-.97	0	-7.517e-3	NC	NC
5926	3	M1186	1	0	-.97	0	-7.517e-3	NC	NC
5927			2	0	-1	0	-7.475e-3	3963.549	NC
5928			3	0	-1.008	0	-7.433e-3	2819.273	NC
5929			4	0	-.987	0	-7.391e-3	3973.961	NC
5930			5	0	-.944	0	-7.349e-3	NC	NC
5931	3	M1187	1	0	-.944	0	-7.349e-3	NC	NC
5932			2	0	-.953	0	-7.349e-3	934.2	NC
5933			3	0	-.818	0	-7.349e-3	662.845	NC
5934			4	0	-.483	0	-7.349e-3	926.357	NC
5935			5	0	0	0	-7.349e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5936	3	M1188	1	0	-.313	0	-8.532e-4	NC	NC
5937			2	0	-.61	0	-8.33e-4	879.265	NC
5938			3	0	-.734	0	-8.127e-4	625.926	NC
5939			4	0	-.623	0	-7.924e-4	880.74	NC
5940			5	0	-.341	0	-7.721e-4	NC	NC
5941	3	M1189	1	0	-.341	0	-7.721e-4	NC	NC
5942			2	0	-.367	0	-7.688e-4	4972.333	NC
5943			3	0	-.375	0	-7.654e-4	3538.545	NC
5944			4	0	-.36	0	-7.62e-4	4983.332	NC
5945			5	0	-.327	0	-7.587e-4	NC	NC
5946	3	M1190	1	0	-.249	0	-1.506e-3	NC	NC
5947			2	0	-.586	0	-1.527e-3	772.527	NC
5948			3	0	-.727	0	-1.547e-3	549.803	NC
5949			4	0	-.6	0	-1.568e-3	773.26	NC
5950			5	0	-.278	0	-1.588e-3	NC	NC
5951	3	M1191	1	0	-.278	0	-1.588e-3	NC	NC
5952			2	0	-.307	0	-1.573e-3	4493.072	NC
5953			3	0	-.317	0	-1.558e-3	3194.53	NC
5954			4	0	-.301	0	-1.543e-3	4506.456	NC
5955			5	0	-.266	0	-1.528e-3	NC	NC
5956	3	M1192	1	0	-.143	0	-2.178e-3	NC	NC
5957			2	0	-.618	0	-2.241e-3	540.201	NC
5958			3	0	-.815	0	-2.303e-3	383.737	NC
5959			4	0	-.628	0	-2.365e-3	540.258	NC
5960			5	0	-.162	0	-2.428e-3	NC	NC
5961	3	M1193	1	0	-.162	0	-2.428e-3	NC	NC
5962			2	0	-.201	0	-2.4e-3	3526.757	NC
5963			3	0	-.216	0	-2.373e-3	2499.643	NC
5964			4	0	-.197	0	-2.346e-3	3540.364	NC
5965			5	0	-.154	0	-2.319e-3	NC	NC
5966	3	M1194	1	0	.363	0	3.856e-8	NC	NC
5967			2	0	.341	0	3.856e-8	3278.984	NC
5968			3	0	.279	0	3.856e-8	2313.621	NC
5969			4	0	.163	0	3.856e-8	3157.37	NC
5970			5	0	0	0	3.856e-8	NC	NC
5971	3	M1195	1	0	.36	0	1.364e-5	NC	NC
5972			2	0	1.314	0	1.025e-5	477.253	NC
5973			3	0	1.7	0	6.854e-6	340.326	NC
5974			4	0	1.321	0	3.461e-6	477.055	NC
5975			5	0	.374	0	6.898e-8	NC	NC
5976	3	M1196	1	0	.409	0	-2.538e-7	NC	NC
5977			2	0	1.404	0	-1.882e-7	453.423	NC
5978			3	0	1.798	0	-1.227e-7	323.869	NC
5979			4	0	1.39	0	-5.715e-8	454.42	NC
5980			5	0	.386	0	0	NC	NC
5981	3	M1197	1	0	0	0	2.725e-5	NC	NC
5982			2	0	.138	0	2.725e-5	4547.473	NC
5983			3	0	.251	0	2.725e-5	3128.879	NC
5984			4	0	.326	0	2.725e-5	4191.488	NC
5985			5	0	.368	0	2.725e-5	NC	NC
5986	3	M1198	1	0	.368	0	2.725e-5	NC	NC
5987			2	0	.456	0	2.037e-5	2731.872	NC
5988			3	0	.497	0	1.35e-5	1952.988	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
5989			4	0	.477	0	6.621e-6	2709.843	NC
5990			5	0	.409	0	-2.538e-7	NC	NC
5991	3	M1199	1	0	-.044	0	1.021e-3	NC	NC
5992			2	0	-.142	0	1.345e-3	2245.43	NC
5993			3	0	-.197	0	1.669e-3	1594.393	NC
5994			4	0	-.19	0	1.993e-3	2235.335	NC
5995			5	0	-.138	0	2.317e-3	NC	NC
5996	3	M1200	1	0	-.138	0	2.317e-3	NC	NC
5997			2	0	-.508	0	2.317e-3	615.076	NC
5998			3	0	-.638	0	2.317e-3	436.943	NC
5999			4	0	-.44	0	2.317e-3	613.346	NC
6000			5	0	0	0	2.317e-3	NC	NC
6001	3	M1201	1	0	-.118	0	1.362e-3	NC	NC
6002			2	0	-.204	0	1.464e-3	3201.724	NC
6003			3	0	-.258	0	1.565e-3	2278.414	NC
6004			4	0	-.271	0	1.667e-3	3188.517	NC
6005			5	0	-.251	0	1.769e-3	NC	NC
6006	3	M1202	1	0	-.251	0	1.769e-3	NC	NC
6007			2	0	-.456	0	1.769e-3	926.892	NC
6008			3	0	-.501	0	1.769e-3	661.106	NC
6009			4	0	-.33	0	1.769e-3	930.484	NC
6010			5	0	0	0	1.769e-3	NC	NC
6011	3	M1203	1	0	-.193	0	1.323e-3	NC	NC
6012			2	0	-.279	0	1.279e-3	3161.544	NC
6013			3	0	-.334	0	1.235e-3	2249.599	NC
6014			4	0	-.346	0	1.191e-3	3140.177	NC
6015			5	0	-.326	0	1.147e-3	NC	NC
6016	3	M1204	1	0	-.326	0	1.147e-3	NC	NC
6017			2	0	-.514	0	1.147e-3	923.39	NC
6018			3	0	-.54	0	1.147e-3	659.033	NC
6019			4	0	-.349	0	1.147e-3	927.472	NC
6020			5	0	0	0	1.147e-3	NC	NC
6021	3	M1205	1	0	-.258	0	0	NC	NC
6022			2	0	-.344	0	0	2857.444	NC
6023			3	0	-.395	0	0	2031.486	NC
6024			4	0	-.399	0	-3.692e-8	2841.117	NC
6025			5	0	-.368	0	-4.93e-8	NC	NC
6026	3	M1206	1	0	-.368	0	-4.93e-8	NC	NC
6027			2	0	-.645	0	-5.175e-8	816.653	NC
6028			3	0	-.74	0	-5.42e-8	582.385	NC
6029			4	0	-.589	0	-5.666e-8	819.441	NC
6030			5	0	-.259	0	-5.911e-8	NC	NC
6031	3	M1207	1	0	-.333	0	1.098e-3	NC	NC
6032			2	0	-.416	0	1.112e-3	3190.521	NC
6033			3	0	-.468	0	1.127e-3	2269.353	NC
6034			4	0	-.478	0	1.142e-3	3173.077	NC
6035			5	0	-.455	0	1.156e-3	NC	NC
6036	3	M1208	1	0	-.455	0	1.156e-3	NC	NC
6037			2	0	-.609	0	1.156e-3	926.892	NC
6038			3	0	-.603	0	1.156e-3	661.106	NC
6039			4	0	-.381	0	1.156e-3	930.484	NC
6040			5	0	0	0	1.156e-3	NC	NC
6041	3	M1209	1	0	-.379	0	4.735e-4	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6042			2	0	-.461	0	4.023e-4	3176.871	NC
6043			3	0	-.512	0	3.311e-4	2258.503	NC
6044			4	0	-.521	0	2.599e-4	3151.029	NC
6045			5	0	-.497	0	1.887e-4	NC	NC
6046	3	M1210	1	0	-.497	0	1.887e-4	NC	NC
6047			2	0	-.642	0	1.887e-4	923.39	NC
6048			3	0	-.625	0	1.887e-4	659.033	NC
6049			4	0	-.392	0	1.887e-4	927.472	NC
6050			5	0	0	0	1.887e-4	NC	NC
6051	3	M1211	1	0	-.384	0	-1.373e-4	NC	NC
6052			2	0	-.461	0	-2.944e-4	3169.056	NC
6053			3	0	-.505	0	-4.515e-4	2252.162	NC
6054			4	0	-.507	0	-6.086e-4	3144.735	NC
6055			5	0	-.477	0	-7.658e-4	NC	NC
6056	3	M1212	1	0	-.477	0	-7.658e-4	NC	NC
6057			2	0	-.626	0	-7.658e-4	926.892	NC
6058			3	0	-.614	0	-7.658e-4	661.106	NC
6059			4	0	-.386	0	-7.658e-4	930.484	NC
6060			5	0	0	0	-7.658e-4	NC	NC
6061	3	M1213	1	0	-.36	0	0	NC	NC
6062			2	0	-.437	0	0	2604.536	NC
6063			3	0	-.475	0	0	1850.197	NC
6064			4	0	-.462	0	-3.932e-8	2588.086	NC
6065			5	0	-.409	0	-5.255e-8	NC	NC
6066	3	M1214	1	0	-.409	0	-5.255e-8	NC	NC
6067			2	0	-.699	0	0	734.97	NC
6068			3	0	-.787	0	4.612e-8	523.463	NC
6069			4	0	-.602	0	9.545e-8	735.867	NC
6070			5	0	-.217	0	1.448e-7	NC	NC
6071	3	M1215	1	0	-.98	0	7.98e-3	NC	NC
6072			2	0	-1.064	0	8.063e-3	2568.54	NC
6073			3	0	-1.11	0	8.146e-3	1822.828	NC
6074			4	0	-1.103	0	8.228e-3	2546.958	NC
6075			5	0	-1.057	0	8.311e-3	NC	NC
6076	3	M1216	1	0	-1.057	0	8.311e-3	NC	NC
6077			2	0	-1.133	0	8.311e-3	728.477	NC
6078			3	0	-1.006	0	8.311e-3	519.63	NC
6079			4	0	-.604	0	8.311e-3	731.376	NC
6080			5	0	0	0	8.311e-3	NC	NC
6081	3	M1217	1	0	-1.447	0	5.214e-3	NC	NC
6082			2	0	-1.535	0	5.257e-3	2601.628	NC
6083			3	0	-1.585	0	5.3e-3	1850.197	NC
6084			4	0	-1.583	0	5.343e-3	2590.965	NC
6085			5	0	-1.542	0	5.387e-3	NC	NC
6086	3	M1218	1	0	-1.542	0	5.387e-3	NC	NC
6087			2	0	-1.492	0	4.047e-3	740.162	NC
6088			3	0	-1.243	0	2.707e-3	526.546	NC
6089			4	0	-.721	0	1.367e-3	739.698	NC
6090			5	0	0	0	2.743e-5	NC	NC
6091	3	M1219	1	0	-1.672	0	1.822e-3	NC	NC
6092			2	0	-1.756	0	1.821e-3	2857.444	NC
6093			3	0	-1.805	0	1.82e-3	2031.486	NC
6094			4	0	-1.806	0	1.819e-3	2841.117	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6095			5	0	-1.772	0	1.818e-3	NC	NC
6096	3	M1220	1	0	-1.772	0	1.818e-3	NC	NC
6097			2	0	-1.633	0	1.818e-3	816.653	NC
6098			3	0	-1.312	0	1.818e-3	582.385	NC
6099			4	0	-.746	0	1.818e-3	819.441	NC
6100			5	0	0	0	1.818e-3	NC	NC
6101	3	M1221	1	0	-1.674	0	-1.757e-3	NC	NC
6102			2	0	-1.757	0	-1.803e-3	2813.524	NC
6103			3	0	-1.805	0	-1.849e-3	2003.53	NC
6104			4	0	-1.805	0	-1.894e-3	2803.32	NC
6105			5	0	-1.768	0	-1.94e-3	NC	NC
6106	3	M1222	1	0	-1.768	0	-1.94e-3	NC	NC
6107			2	0	-1.63	0	-1.94e-3	816.653	NC
6108			3	0	-1.311	0	-1.94e-3	582.385	NC
6109			4	0	-.745	0	-1.94e-3	819.441	NC
6110			5	0	0	0	-1.94e-3	NC	NC
6111	3	M1223	1	0	-1.453	0	-5.15e-3	NC	NC
6112			2	0	-1.538	0	-5.237e-3	2549.937	NC
6113			3	0	-1.584	0	-5.324e-3	1811.719	NC
6114			4	0	-1.577	0	-5.41e-3	2533.261	NC
6115			5	0	-1.531	0	-5.497e-3	NC	NC
6116	3	M1224	1	0	-1.531	0	-5.497e-3	NC	NC
6117			2	0	-1.572	0	-4.129e-3	733.602	NC
6118			3	0	-1.411	0	-2.761e-3	523.801	NC
6119			4	0	-.976	0	-1.393e-3	738.585	NC
6120			5	0	-.343	0	-2.509e-5	NC	NC
6121	3	M1225	1	0	-1.009	0	-7.849e-3	NC	NC
6122			2	0	-1.086	0	-7.967e-3	2601.628	NC
6123			3	0	-1.125	0	-8.086e-3	1850.197	NC
6124			4	0	-1.112	0	-8.204e-3	2590.965	NC
6125			5	0	-1.059	0	-8.323e-3	NC	NC
6126	3	M1226	1	0	-1.059	0	-8.323e-3	NC	NC
6127			2	0	-1.213	0	-6.25e-3	752.176	NC
6128			3	0	-1.168	0	-4.177e-3	536.282	NC
6129			4	0	-.857	0	-2.104e-3	756.499	NC
6130			5	0	-.351	0	-3.037e-5	NC	NC
6131	3	M1227	1	0	-.374	0	0	NC	NC
6132			2	0	-.441	0	0	2605.095	NC
6133			3	0	-.471	0	0	1845.939	NC
6134			4	0	-.448	0	0	2578.12	NC
6135			5	0	-.386	0	0	NC	NC
6136	3	M1228	1	0	-.386	0	0	NC	NC
6137			2	0	-.709	0	-3.794e-8	741.943	NC
6138			3	0	-.831	0	-7.075e-8	530.185	NC
6139			4	0	-.682	0	-1.036e-7	749.141	NC
6140			5	0	-.338	0	-1.364e-7	NC	NC
6141	3	M1229	1	0	-.35	0	-8.14e-4	NC	NC
6142			2	0	-.406	0	-8.19e-4	3172.545	NC
6143			3	0	-.431	0	-8.24e-4	2258.503	NC
6144			4	0	-.413	0	-8.29e-4	3155.297	NC
6145			5	0	-.363	0	-8.34e-4	NC	NC
6146	3	M1230	1	0	-.363	0	-8.34e-4	NC	NC
6147			2	0	-.616	0	-8.369e-4	931.641	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6148			3	0	-.708	0	-8.398e-4	665.757	NC
6149			4	0	-.586	0	-8.426e-4	939.095	NC
6150			5	0	-.308	0	-8.455e-4	NC	NC
6151	3	M1231	1	0	-.285	0	-1.636e-3	NC	NC
6152			2	0	-.347	0	-1.65e-3	2816.926	NC
6153			3	0	-.374	0	-1.664e-3	2003.53	NC
6154			4	0	-.353	0	-1.678e-3	2799.951	NC
6155			5	0	-.295	0	-1.692e-3	NC	NC
6156	3	M1232	1	0	-.295	0	-1.692e-3	NC	NC
6157			2	0	-.585	0	-1.64e-3	821.83	NC
6158			3	0	-.693	0	-1.587e-3	587.629	NC
6159			4	0	-.557	0	-1.535e-3	829.791	NC
6160			5	0	-.244	0	-1.483e-3	NC	NC
6161	3	M1233	1	0	-.165	0	-2.482e-3	NC	NC
6162			2	0	-.247	0	-2.505e-3	2102.411	NC
6163			3	0	-.281	0	-2.529e-3	1491.706	NC
6164			4	0	-.25	0	-2.552e-3	2092.973	NC
6165			5	0	-.171	0	-2.575e-3	NC	NC
6166	3	M1234	1	0	-.171	0	-2.575e-3	NC	NC
6167			2	0	-.589	0	-2.465e-3	583.509	NC
6168			3	0	-.752	0	-2.355e-3	416.414	NC
6169			4	0	-.569	0	-2.245e-3	589.369	NC
6170			5	0	-.14	0	-2.135e-3	NC	NC
6171	3	M1235	1	0	.386	0	0	NC	NC
6172			2	0	.363	0	0	3119.948	NC
6173			3	0	.296	0	0	2199.958	NC
6174			4	0	.172	0	0	3000.003	NC
6175			5	0	0	0	0	NC	NC
6176	3	M1236	1	0	0	0	-1.482e-5	NC	NC
6177			2	0	2.284	0	-1.482e-5	256.42	NC
6178			3	0	3.076	0	-1.482e-5	190.374	NC
6179			4	0	2.081	0	-1.482e-5	281.401	NC
6180			5	0	0	0	-1.482e-5	NC	NC
6181	3	M1237	1	0	0	0	-2.353e-3	NC	NC
6182			2	0	1.556	0	-2.353e-3	376.343	NC
6183			3	0	1.941	0	-2.353e-3	301.631	NC
6184			4	0	1.102	0	-2.353e-3	531.606	NC
6185			5	0	0	0	-2.353e-3	NC	NC
6186	3	M1238	1	0	0	0	1.564e-2	NC	NC
6187			2	0	-1.093	0	1.564e-2	327.852	NC
6188			3	0	-1.698	0	1.564e-2	239.052	NC
6189			4	0	-1.69	0	1.564e-2	344.391	NC
6190			5	0	-1.268	0	1.564e-2	NC	NC
6191	3	M1239	1	0	-1.268	0	1.564e-2	NC	NC
6192			2	0	-1.215	0	1.439e-2	3278.308	NC
6193			3	0	-1.137	0	1.315e-2	2328.682	NC
6194			4	0	-1.022	0	1.19e-2	3301.573	NC
6195			5	0	-.882	0	1.066e-2	NC	NC
6196	3	M1240	1	0	-.882	0	1.066e-2	NC	NC
6197			2	0	-1.124	0	1.066e-2	495.029	NC
6198			3	0	-1.106	0	1.066e-2	344.614	NC
6199			4	0	-.703	0	1.066e-2	474.875	NC
6200			5	0	0	0	1.066e-2	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6201	3	M1241	1	0	0	0	1.242e-2	NC	NC
6202			2	0	-.826	0	1.242e-2	831.9	NC
6203			3	0	-1.467	0	1.242e-2	596.868	NC
6204			4	0	-1.863	0	1.242e-2	842.418	NC
6205			5	0	-2.082	0	1.242e-2	NC	NC
6206	3	M1242	1	0	-2.082	0	1.242e-2	NC	NC
6207			2	0	-1.947	0	1.133e-2	4941.547	NC
6208			3	0	-1.795	0	1.024e-2	3523.248	NC
6209			4	0	-1.619	0	9.146e-3	4973.294	NC
6210			5	0	-1.426	0	8.056e-3	NC	NC
6211	3	M1243	1	0	-1.426	0	8.056e-3	NC	NC
6212			2	0	-1.266	0	8.056e-3	1167.883	NC
6213			3	0	-.989	0	8.056e-3	831.098	NC
6214			4	0	-.554	0	8.056e-3	1163.54	NC
6215			5	0	0	0	8.056e-3	NC	NC
6216	3	M1244	1	0	0	0	8.216e-3	NC	NC
6217			2	0	-1.013	0	8.216e-3	740.499	NC
6218			3	0	-1.818	0	8.216e-3	531.031	NC
6219			4	0	-2.348	0	8.216e-3	749.927	NC
6220			5	0	-2.678	0	8.216e-3	NC	NC
6221	3	M1245	1	0	-2.678	0	8.216e-3	NC	NC
6222			2	0	-2.49	0	7.353e-3	4445.096	NC
6223			3	0	-2.283	0	6.49e-3	3169.508	NC
6224			4	0	-2.05	0	5.627e-3	4481.328	NC
6225			5	0	-1.797	0	4.763e-3	NC	NC
6226	3	M1246	1	0	-1.797	0	4.763e-3	NC	NC
6227			2	0	-1.569	0	4.763e-3	1038.053	NC
6228			3	0	-1.209	0	4.763e-3	737.497	NC
6229			4	0	-.672	0	4.763e-3	1031.49	NC
6230			5	0	0	0	4.763e-3	NC	NC
6231	3	M1247	1	0	0	0	3.038e-3	NC	NC
6232			2	0	-1.139	0	3.038e-3	666.513	NC
6233			3	0	-2.048	0	3.038e-3	477.358	NC
6234			4	0	-2.65	0	3.038e-3	673.695	NC
6235			5	0	-3.03	0	3.038e-3	NC	NC
6236	3	M1248	1	0	-3.03	0	3.038e-3	NC	NC
6237			2	0	-2.802	0	2.495e-3	3931.035	NC
6238			3	0	-2.552	0	1.952e-3	2799.767	NC
6239			4	0	-2.273	0	1.409e-3	3949.482	NC
6240			5	0	-1.971	0	8.66e-4	NC	NC
6241	3	M1249	1	0	-1.971	0	8.66e-4	NC	NC
6242			2	0	-1.724	0	8.66e-4	934.2	NC
6243			3	0	-1.332	0	8.66e-4	662.845	NC
6244			4	0	-.74	0	8.66e-4	926.357	NC
6245			5	0	0	0	8.66e-4	NC	NC
6246	3	M1250	1	0	0	0	-2.245e-3	NC	NC
6247			2	0	-1.107	0	-2.245e-3	738.585	NC
6248			3	0	-2.005	0	-2.245e-3	529.9	NC
6249			4	0	-2.628	0	-2.245e-3	748.515	NC
6250			5	0	-3.051	0	-2.245e-3	NC	NC
6251	3	M1251	1	0	-3.051	0	-2.245e-3	NC	NC
6252			2	0	-2.796	0	-2.4e-3	4420.645	NC
6253			3	0	-2.522	0	-2.555e-3	3144.875	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6254			4	0	-2.222	0	-2.71e-3	4433.601	NC
6255			5	0	-1.902	0	-2.866e-3	NC	NC
6256	3	M1252	1	0	-1.902	0	-2.866e-3	NC	NC
6257			2	0	-1.649	0	-2.866e-3	1029.369	NC
6258			3	0	-1.264	0	-2.866e-3	732.354	NC
6259			4	0	-.699	0	-2.866e-3	1025.153	NC
6260			5	0	0	0	-2.866e-3	NC	NC
6261	3	M1253	1	0	-1.617	0	-5.915e-3	NC	NC
6262			2	0	-1.435	0	-5.915e-3	1029.369	NC
6263			3	0	-1.121	0	-5.915e-3	732.354	NC
6264			4	0	-.628	0	-5.915e-3	1025.153	NC
6265			5	0	0	0	-5.915e-3	NC	NC
6266	3	M1254	1	0	0	0	-4.468e-4	NC	NC
6267			2	0	-.285	0	-2.105e-3	891.924	NC
6268			3	0	-1.002	0	-3.764e-3	253.934	NC
6269			4	0	-1.87	0	-5.423e-3	136.057	NC
6270			5	0	-2.752	0	-7.082e-3	92.435	NC
6271	3	M1255	1	0	-2.752	0	-7.082e-3	NC	NC
6272			2	0	-2.5	0	-6.79e-3	4493.072	NC
6273			3	0	-2.229	0	-6.498e-3	3194.53	NC
6274			4	0	-1.932	0	-6.207e-3	4506.456	NC
6275			5	0	-1.617	0	-5.915e-3	NC	NC
6276	3	M1256	1	0	0	0	-1.099e-2	NC	NC
6277			2	0	-.893	0	-1.099e-2	738.049	NC
6278			3	0	-1.576	0	-1.099e-2	529.9	NC
6279			4	0	-1.984	0	-1.099e-2	749.067	NC
6280			5	0	-2.192	0	-1.099e-2	NC	NC
6281	3	M1257	1	0	-2.192	0	-1.099e-2	NC	NC
6282			2	0	-1.971	0	-1.018e-2	4493.072	NC
6283			3	0	-1.732	0	-9.376e-3	3194.53	NC
6284			4	0	-1.466	0	-8.57e-3	4506.456	NC
6285			5	0	-1.181	0	-7.764e-3	NC	NC
6286	3	M1258	1	0	-1.181	0	-7.764e-3	NC	NC
6287			2	0	-1.108	0	-7.764e-3	1032.387	NC
6288			3	0	-.903	0	-7.764e-3	734.107	NC
6289			4	0	-.518	0	-7.764e-3	1027.303	NC
6290			5	0	0	0	-7.764e-3	NC	NC
6291	3	M1259	1	0	0	0	-1.326e-2	NC	NC
6292			2	0	-.662	0	-1.326e-2	963.456	NC
6293			3	0	-1.163	0	-1.326e-2	691.479	NC
6294			4	0	-1.454	0	-1.326e-2	976.36	NC
6295			5	0	-1.591	0	-1.326e-2	NC	NC
6296	3	M1260	1	0	-1.591	0	-1.326e-2	NC	NC
6297			2	0	-1.413	0	-1.197e-2	5575.563	NC
6298			3	0	-1.219	0	-1.069e-2	3985.26	NC
6299			4	0	-1.005	0	-9.399e-3	5625.806	NC
6300			5	0	-.775	0	-8.112e-3	NC	NC
6301	3	M1261	1	0	-.775	0	-8.112e-3	NC	NC
6302			2	0	-.751	0	-8.112e-3	1349.472	NC
6303			3	0	-.626	0	-8.112e-3	960.619	NC
6304			4	0	-.364	0	-8.112e-3	1345.121	NC
6305			5	0	0	0	-8.112e-3	NC	NC
6306	3	M1262	1	0	0	0	-1.448e-2	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6307			2	0	-.573	0	-1.448e-2	731.814	NC
6308			3	0	-.934	0	-1.448e-2	525.515	NC
6309			4	0	-1.018	0	-1.448e-2	742.467	NC
6310			5	0	-.901	0	-1.448e-2	NC	NC
6311	3	M1263	1	0	-.901	0	-1.448e-2	NC	NC
6312			2	0	-.803	0	-1.265e-2	4374.195	NC
6313			3	0	-.686	0	-1.083e-2	3120.622	NC
6314			4	0	-.542	0	-9.002e-3	4409.277	NC
6315			5	0	-.379	0	-7.177e-3	NC	NC
6316	3	M1264	1	0	-.379	0	-7.177e-3	NC	NC
6317			2	0	-.599	0	-7.177e-3	729.208	NC
6318			3	0	-.635	0	-7.177e-3	514.864	NC
6319			4	0	-.414	0	-7.177e-3	717.343	NC
6320			5	0	0	0	-7.177e-3	NC	NC
6321	3	M1265	1	0	0	0	-1.9e-2	NC	NC
6322			2	0	1.124	0	-1.9e-2	257.483	NC
6323			3	0	1.635	0	-1.9e-2	197.363	NC
6324			4	0	1.5	0	-1.9e-2	294.055	NC
6325			5	0	.972	0	-1.9e-2	NC	NC
6326	3	M1266	1	0	.972	0	-1.9e-2	NC	NC
6327			2	0	.94	0	-1.754e-2	3298.167	NC
6328			3	0	.884	0	-1.608e-2	2315.513	NC
6329			4	0	.791	0	-1.462e-2	3253.657	NC
6330			5	0	.672	0	-1.317e-2	NC	NC
6331	3	M1267	1	0	.672	0	-1.317e-2	NC	NC
6332			2	0	.809	0	-1.317e-2	708.759	NC
6333			3	0	.767	0	-1.317e-2	500.732	NC
6334			4	0	.473	0	-1.317e-2	707.692	NC
6335			5	0	0	0	-1.317e-2	NC	NC
6336	3	M1268	1	0	0	0	-1.072e-2	NC	NC
6337			2	0	.941	0	-1.072e-2	913.828	NC
6338			3	0	1.731	0	-1.072e-2	658.048	NC
6339			4	0	2.323	0	-1.072e-2	930.215	NC
6340			5	0	2.772	0	-1.072e-2	NC	NC
6341	3	M1269	1	0	2.772	0	-1.072e-2	NC	NC
6342			2	0	2.672	0	-1.087e-2	4079.958	NC
6343			3	0	2.551	0	-1.101e-2	2880.95	NC
6344			4	0	2.402	0	-1.115e-2	4047.473	NC
6345			5	0	2.232	0	-1.129e-2	NC	NC
6346	3	M1270	1	0	2.232	0	-1.129e-2	NC	NC
6347			2	0	1.871	0	-9.819e-3	1097.164	NC
6348			3	0	1.394	0	-8.344e-3	776.956	NC
6349			4	0	.757	0	-6.869e-3	1086.707	NC
6350			5	0	0	0	-5.394e-3	NC	NC
6351	3	M1271	1	0	0	0	-7.569e-3	NC	NC
6352			2	0	1.1	0	-7.569e-3	910.491	NC
6353			3	0	2.048	0	-7.569e-3	655.294	NC
6354			4	0	2.797	0	-7.569e-3	925.438	NC
6355			5	0	3.403	0	-7.569e-3	NC	NC
6356	3	M1272	1	0	3.403	0	-7.569e-3	NC	NC
6357			2	0	3.312	0	-7.723e-3	4074.96	NC
6358			3	0	3.202	0	-7.877e-3	2877.568	NC
6359			4	0	3.062	0	-8.03e-3	4039.068	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6360			5	0	2.901	0	-8.184e-3	NC	NC
6361	3	M1273	1	0	2.901	0	-8.184e-3	NC	NC
6362			2	0	2.375	0	-7.089e-3	1082.994	NC
6363			3	0	1.732	0	-5.993e-3	768.585	NC
6364			4	0	.926	0	-4.898e-3	1076.391	NC
6365			5	0	0	0	-3.803e-3	NC	NC
6366	3	M1274	1	0	0	0	-3.813e-3	NC	NC
6367			2	0	1.152	0	-3.813e-3	1047.507	NC
6368			3	0	2.173	0	-3.813e-3	753.001	NC
6369			4	0	3.021	0	-3.813e-3	1061.412	NC
6370			5	0	3.744	0	-3.813e-3	NC	NC
6371	3	M1275	1	0	3.744	0	-3.813e-3	NC	NC
6372			2	0	3.659	0	-3.979e-3	4551.956	NC
6373			3	0	3.555	0	-4.146e-3	3224.222	NC
6374			4	0	3.426	0	-4.313e-3	4528.484	NC
6375			5	0	3.278	0	-4.479e-3	NC	NC
6376	3	M1276	1	0	3.278	0	-4.479e-3	NC	NC
6377			2	0	2.631	0	-3.86e-3	1252.287	NC
6378			3	0	1.882	0	-3.24e-3	889.191	NC
6379			4	0	.993	0	-2.621e-3	1245.645	NC
6380			5	0	0	0	-2.002e-3	NC	NC
6381	3	M1277	1	0	0	0	1.419e-3	NC	NC
6382			2	0	1.24	0	1.419e-3	806.479	NC
6383			3	0	2.308	0	1.419e-3	581.107	NC
6384			4	.001	3.152	0	1.419e-3	822.213	NC
6385			5	.002	3.835	0	1.419e-3	NC	NC
6386	3	M1278	1	.002	3.835	0	1.419e-3	NC	NC
6387			2	.002	3.77	0	1.234e-3	3681.282	NC
6388			3	.002	3.682	0	1.049e-3	2600.976	NC
6389			4	.002	3.562	0	8.635e-4	3663.049	NC
6390			5	.003	3.419	0	6.784e-4	NC	NC
6391	3	M1279	1	.003	3.419	0	6.784e-4	NC	NC
6392			2	.003	2.788	0	5.757e-4	965.002	NC
6393			3	.004	2.026	0	4.73e-4	683.27	NC
6394			4	.004	1.081	0	3.703e-4	955.616	NC
6395			5	.005	0	0	2.676e-4	NC	NC
6396	3	M1280	1	0	0	0	6.597e-3	NC	NC
6397			2	0	1.134	0	6.597e-3	913.828	NC
6398			3	0	2.116	0	6.597e-3	658.048	NC
6399			4	0	2.901	0	6.597e-3	930.215	NC
6400			5	0	3.543	0	6.597e-3	NC	NC
6401	3	M1281	1	0	3.543	0	6.597e-3	NC	NC
6402			2	0	3.488	0	6.393e-3	4079.958	NC
6403			3	0	3.412	0	6.189e-3	2880.95	NC
6404			4	0	3.308	0	5.985e-3	4047.473	NC
6405			5	0	3.182	0	5.781e-3	NC	NC
6406	3	M1282	1	0	3.182	0	5.781e-3	NC	NC
6407			2	0	2.584	0	4.984e-3	1094.136	NC
6408			3	0	1.87	0	4.187e-3	775.211	NC
6409			4	0	.995	0	3.39e-3	1084.57	NC
6410			5	0	0	0	2.593e-3	NC	NC
6411	3	M1283	1	0	0	0	1.049e-2	NC	NC
6412			2	0	.963	0	1.049e-2	1053.985	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6413			3	0	1.796	0	1.049e-2	758.325	NC
6414			4	0	2.457	0	1.049e-2	1070.454	NC
6415			5	0	2.993	0	1.049e-2	NC	NC
6416	3	M1284	1	0	2.993	0	1.049e-2	NC	NC
6417			2	0	2.947	0	1.027e-2	4591.561	NC
6418			3	0	2.883	0	1.005e-2	3250.762	NC
6419			4	0	2.794	0	9.836e-3	4567.68	NC
6420			5	0	2.686	0	9.617e-3	NC	NC
6421	3	M1285	1	0	2.686	0	9.617e-3	NC	NC
6422			2	0	2.185	0	8.324e-3	1263.71	NC
6423			3	0	1.584	0	7.032e-3	895.928	NC
6424			4	0	.844	0	5.739e-3	1253.959	NC
6425			5	0	0	0	4.446e-3	NC	NC
6426	3	M1286	1	0	0	0	1.321e-2	NC	NC
6427			2	0	.806	0	1.321e-2	910.491	NC
6428			3	0	1.46	0	1.321e-2	655.294	NC
6429			4	0	1.916	0	1.321e-2	925.438	NC
6430			5	0	2.227	0	1.321e-2	NC	NC
6431	3	M1287	1	0	2.227	0	1.321e-2	NC	NC
6432			2	0	2.2	0	1.298e-2	4074.96	NC
6433			3	0	2.151	0	1.276e-2	2877.568	NC
6434			4	0	2.074	0	1.253e-2	4039.068	NC
6435			5	0	1.976	0	1.23e-2	NC	NC
6436	3	M1288	1	0	1.976	0	1.23e-2	NC	NC
6437			2	0	1.682	0	1.067e-2	1082.994	NC
6438			3	0	1.269	0	9.048e-3	768.585	NC
6439			4	0	.695	0	7.423e-3	1076.391	NC
6440			5	0	0	0	5.797e-3	NC	NC
6441	3	M1289	1	0	0	0	6.615e-3	NC	NC
6442			2	0	.38	0	6.615e-3	1125.794	NC
6443			3	0	.632	0	6.615e-3	824.023	NC
6444			4	0	.728	0	6.615e-3	1174.06	NC
6445			5	0	.713	0	6.615e-3	NC	NC
6446	3	M1290	1	0	.713	0	6.615e-3	NC	NC
6447			2	0	.705	0	6.466e-3	5429.713	NC
6448			3	0	.682	0	6.317e-3	3835.242	NC
6449			4	0	.638	0	6.169e-3	5372.331	NC
6450			5	0	.577	0	6.02e-3	NC	NC
6451	3	M1291	1	0	.577	0	6.02e-3	NC	NC
6452			2	0	.579	0	6.02e-3	1484.287	NC
6453			3	0	.493	0	6.02e-3	1054.693	NC
6454			4	0	.29	0	6.02e-3	1478.086	NC
6455			5	0	0	0	6.02e-3	NC	NC
6456	3	M1292	1	0	0	0	6.347e-3	NC	NC
6457			2	0	.44	0	6.347e-3	1242.052	NC
6458			3	0	.77	0	6.347e-3	892.315	NC
6459			4	0	.954	0	6.347e-3	1256.668	NC
6460			5	0	1.031	0	6.347e-3	NC	NC
6461	3	M1293	1	0	1.031	0	6.347e-3	NC	NC
6462			2	0	1.017	0	6.2e-3	5328.002	NC
6463			3	0	.987	0	6.053e-3	3780.174	NC
6464			4	0	.935	0	5.906e-3	5310.451	NC
6465			5	0	.867	0	5.759e-3	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6466	3	M1294	1	0	.867	0	5.759e-3	NC	NC
6467			2	0	.796	0	5.759e-3	1484.314	NC
6468			3	0	.638	0	5.759e-3	1054.693	NC
6469			4	0	.363	0	5.759e-3	1478.06	NC
6470			5	0	0	0	5.759e-3	NC	NC
6471	3	M1295	1	0	0	0	1.661e-3	NC	NC
6472			2	0	.55	0	1.661e-3	1049.704	NC
6473			3	0	.968	0	1.661e-3	754.816	NC
6474			4	0	1.214	0	1.661e-3	1064.555	NC
6475			5	0	1.335	0	1.661e-3	NC	NC
6476	3	M1296	1	0	1.335	0	1.661e-3	NC	NC
6477			2	0	1.317	0	1.661e-3	4618.274	NC
6478			3	0	1.282	0	1.661e-3	3263.111	NC
6479			4	0	1.221	0	1.661e-3	4576.695	NC
6480			5	0	1.142	0	1.661e-3	NC	NC
6481	3	M1297	1	0	1.142	0	1.661e-3	NC	NC
6482			2	0	1.028	0	1.661e-3	1259.694	NC
6483			3	0	.813	0	1.661e-3	893.609	NC
6484			4	0	.458	0	1.661e-3	1251.114	NC
6485			5	0	0	0	1.661e-3	NC	NC
6486	3	M1298	1	0	0	0	-1.715e-3	NC	NC
6487			2	0	.687	0	-1.715e-3	1060.544	NC
6488			3	0	1.243	0	-1.715e-3	763.725	NC
6489			4	0	1.629	0	-1.715e-3	1079.651	NC
6490			5	0	1.892	0	-1.715e-3	NC	NC
6491	3	M1299	1	0	1.892	0	-1.715e-3	NC	NC
6492			2	0	1.777	0	-1.715e-3	4745.731	NC
6493			3	0	1.644	0	-1.715e-3	3354.545	NC
6494			4	0	1.487	0	-1.715e-3	4715.472	NC
6495			5	0	1.311	0	-1.715e-3	NC	NC
6496	3	M1300	1	0	1.311	0	-1.715e-3	NC	NC
6497			2	0	1.154	0	-1.715e-3	1263.71	NC
6498			3	0	.897	0	-1.715e-3	895.928	NC
6499			4	0	.5	0	-1.715e-3	1253.959	NC
6500			5	0	0	0	-1.715e-3	NC	NC
6501	3	M1301	1	0	0	0	-2.549e-6	NC	NC
6502			2	0	-.482	0	-2.549e-6	NC	NC
6503			3	0	-.96	0	-2.549e-6	7003.081	NC
6504			4	0	-1.428	0	-2.549e-6	NC	NC
6505			5	0	-1.892	0	-2.549e-6	NC	NC
6506	3	M1302	1	0	-1.892	0	-2.549e-6	NC	NC
6507			2	0	-3.34	0	-2.549e-6	331.202	NC
6508			3	0	-3.84	.002	-2.549e-6	236.03	NC
6509			4	0	-3.062	0	-2.549e-6	330.979	NC
6510			5	0	-1.335	0	-2.549e-6	NC	NC
6511	3	M1303	1	0	-1.335	0	-2.549e-6	NC	NC
6512			2	0	-1.108	0	-2.549e-6	NC	NC
6513			3	0	-.874	0	-2.549e-6	8629.325	NC
6514			4	0	-.63	0	-2.549e-6	NC	NC
6515			5	0	-.378	0	-2.549e-6	NC	NC
6516	3	M1304	1	0	0	0	-2.147e-5	NC	NC
6517			2	0	-.333	0	-2.147e-5	NC	NC
6518			3	0	-.664	0	-2.147e-5	NC	NC

Member Section Deflections (Continued)

	LC	Member Label	Sec	x [in]	y [in]	z [in]	x Rotate[rad]	(n) L/y Ratio	(n) L/z Ratio
6519			4	0	-.989	0	-2.147e-5	NC	NC
6520			5	0	-1.311	0	-2.147e-5	NC	NC
6521	3	M1305	1	0	-1.311	0	-2.147e-5	NC	NC
6522			2	0	-2.833	0	-2.147e-5	335.998	NC
6523			3	0	-3.421	.003	-2.147e-5	239.475	NC
6524			4	0	-2.749	0	-2.147e-5	335.836	NC
6525			5	0	-1.142	0	-2.147e-5	NC	NC
6526	3	M1306	1	0	-1.142	0	-2.147e-5	NC	NC
6527			2	0	-.936	0	-2.147e-5	NC	NC
6528			3	0	-.724	0	-2.147e-5	8836.068	NC
6529			4	0	-.502	0	-2.147e-5	NC	NC
6530			5	0	-.272	0	-2.147e-5	NC	NC
6531	3	M1307	1	-1.79	0	0	0	NC	NC
6532			2	-1.807	.087	0	1.508e-7	3866.29	NC
6533			3	-1.824	0	0	2.885e-7	NC	NC
6534			4	-1.858	-.087	0	2.885e-7	3871.602	NC
6535			5	-1.892	0	0	2.885e-7	NC	NC
6536	3	M1308	1	-1.219	0	0	0	NC	NC
6537			2	-1.235	.07	0	2.274e-7	4764.08	NC
6538			3	-1.25	0	0	4.377e-7	NC	NC
6539			4	-1.281	-.07	0	4.377e-7	4770.381	NC
6540			5	-1.311	0	0	4.377e-7	NC	NC
6541	3	M1309	1	-1.236	0	0	4.768e-8	NC	NC
6542			2	-1.254	-.038	0	-7.146e-8	8942.578	NC
6543			3	-1.272	0	0	-1.906e-7	NC	NC
6544			4	-1.303	.038	0	-1.906e-7	8925.7	NC
6545			5	-1.335	0	0	-1.906e-7	NC	NC
6546	3	M1310	1	-1.046	0	0	6.686e-8	NC	NC
6547			2	-1.063	-.037	0	-1.232e-7	9210.441	NC
6548			3	-1.079	0	0	-3.133e-7	NC	NC
6549			4	-1.111	.037	0	-3.133e-7	9190.387	NC
6550			5	-1.142	0	0	-3.133e-7	NC	NC

Appendix 11:

Analysis of a typical floor bay

Calculation of Loads:

Dead Loads:

Beam weight = 42 plf
Floor fill weight = 40 psf
Concrete fill = 35 psf
Partitions = 20 psf
HVAC = 10 psf
Finishes = 30 psf

Beam weight + 135 psf

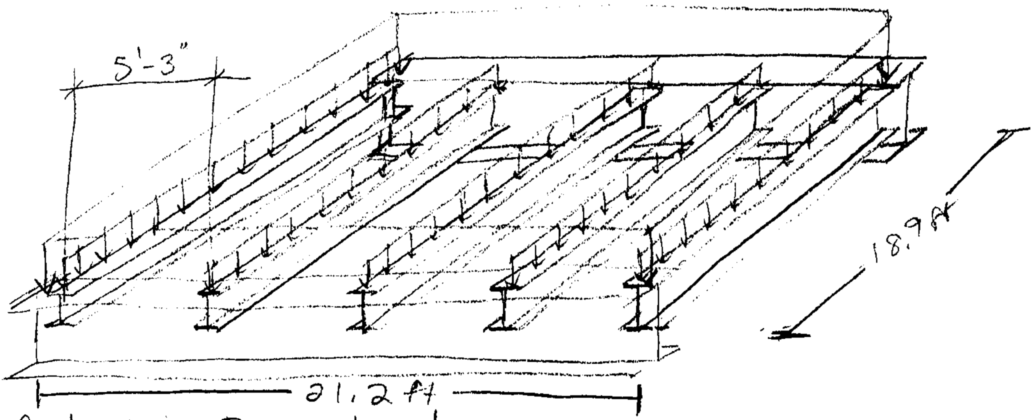
Live Loads:
100 psf

Load Combinations:

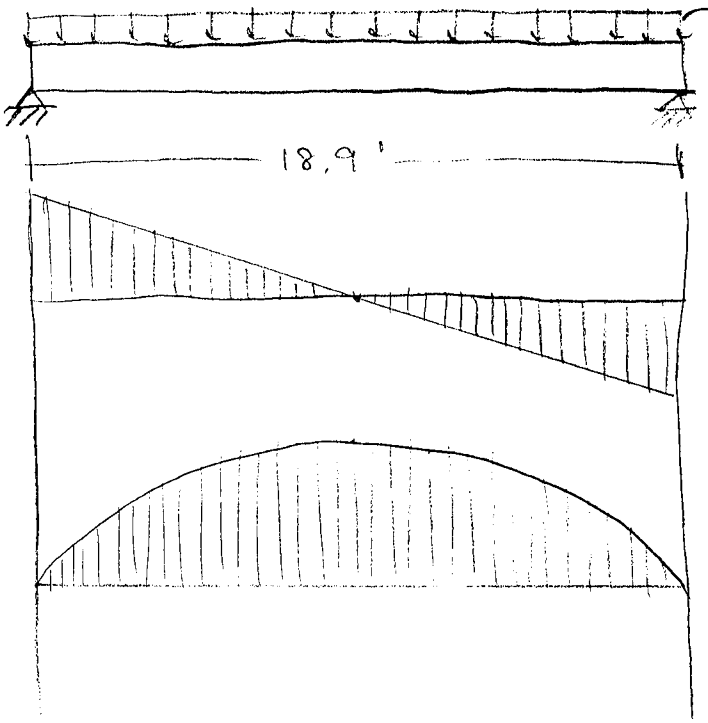
$1.2(DL) + 1.6(LL) + \text{self wt.}$

$1.2(185) + 1.6(100) + \text{self wt.}$

$= 322 \text{ psf} + \text{self weight.}$



Calculate Beam Loads:



$w = 42 \text{ plf} + (322 \text{ psf} \times 5.25 \text{ f}$

$= 1.733 \text{ ksf}$

$V = \frac{w_u L}{2} = \frac{1.733(18.9)}{2}$

$V = 16.37 \text{ kips}$

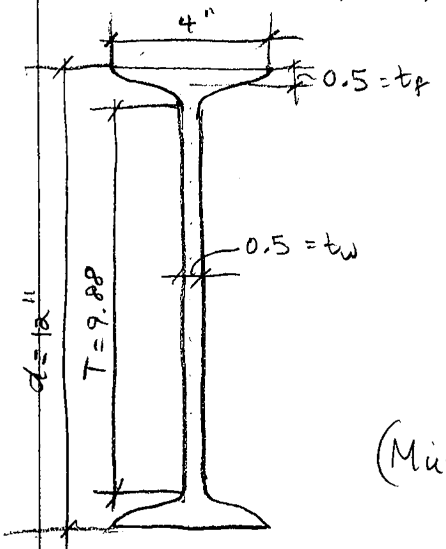
$M = \frac{w_u L^2}{8} = \frac{1.733(18.9)^2}{8}$

$M = 77.36 \text{ ft-kips}$

Assume beam is a 12" × 42 lb I-beam with properties

$D = 12$ $t_w = 0.5$ $t_f = 0.5$ $I_y = 7.6$ $S_y = 3.8$ $Z_y = 4.69$

$A = 12.6$ $b_f = 4$ $I_x = 247.8$ $S_x = 41.3$ $Z_x = 38.13$ $T = 9.88$



Assume beam is fully braced laterally so that $L_b = 0$.

$$\phi M_n = \phi F_y Z$$

$$\phi M_n = \frac{(38.13\ in^3)(36\ ksi)(\phi = 0.9)}{12\ in/1\ ft} = 102.95\ \text{ft-kips}$$

$(M_u = 77.36) < (\phi M_n = 102.95)$ OK. ✓

Determine maximum deflection.

$$\Delta_{max} = \frac{5 w_o L^4}{384 E I} = \frac{5\left(\frac{1.733}{12}\right)(18.9 \times 12)^4}{384(29000)(247.8)} = .692\ in$$

Compare to RISA values:

$V = 17.25$ kips

$M = 81.67$ kips-ft $\Delta = .714$ in

These values are comparable to those obtained in the RISA model. Discripencies can be accounted for by an approximation of the historical 12 × 42 lb beam with a contemporary W12 × 45 beam.

Compare to allowable deflection limit

$$\Delta = \frac{L}{240} = \frac{(18.9)(12\ in)}{240} = .945$$

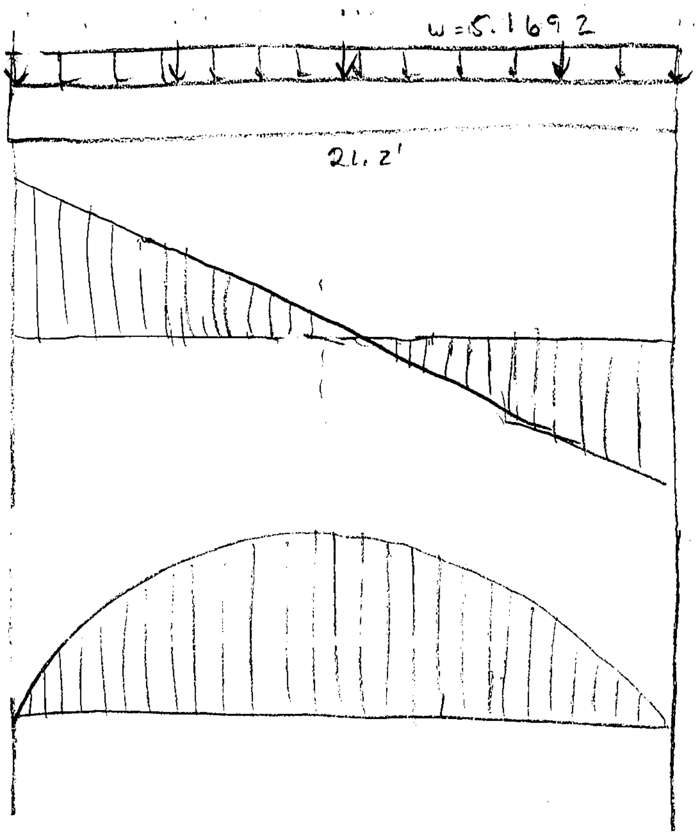
$.714 < .945$, satisfies deflection limit.

Girder Analysis

Calculate Girder Loads:

$$\text{Girder trib width} = \frac{18.9'}{2} + \frac{11.3}{2} = 15.6$$

$$w = 146\text{ plf} + (322 \times 15.6) = 5.1692 \text{ klf}$$



$$V = \frac{w_u L}{2} = \frac{5.1692\,(21.2)}{2}$$

$$V = 54.79 \text{ kips}$$

$$M = \frac{w_u L^2}{8} = \frac{5.1692\,(21.2)^2}{8}$$

$$M = 290.41 \text{ ft-kips}$$

RISA values:

V = 51.3 kip

M = 290.56 ft-kips.

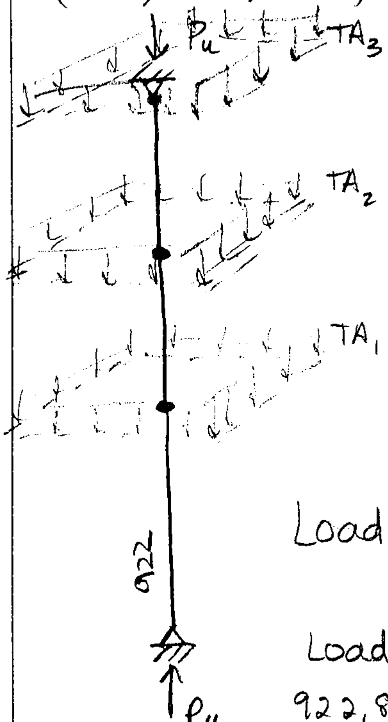
Calculate Capacity:

$$\phi M_n = \phi F_y Z$$

$$\phi M_n = \frac{(36\text{ ksi})(0.9)(418)}{12\text{ in/ft}} = 1128.6$$

$$\Delta = \frac{5\left(\frac{5.1692}{2}\right)(21.2)^4}{29000(384)(4580)} = .177$$, compared to RISA = .176

Calculate Column loads for column stacks (922, 859, 1145) and (917, 854, 1140).



$$\text{Tributary area} = \left[\left(\left(\frac{30.2-18.9}{2}\right)+\frac{18.9}{2}\right)\times\left(\frac{21.2}{2}+\frac{12}{2}\right)\right]$$

$$TA_2 = TA_1 = (15.1 ft)(16.6 ft) = 250.7 ft^2$$

$$TA_3 = \left[\left(\frac{21.2}{2}+\frac{12}{2}\right)\times\left(\left(\frac{92-30.2}{2}\right)+\frac{18.9}{2}\right)\right]$$

$$TA_3 = (16.6 ft)(30.9 ft) = 512.94$$

Loads: DL = 135 psf RL = 30 psf
LL = 100 psf

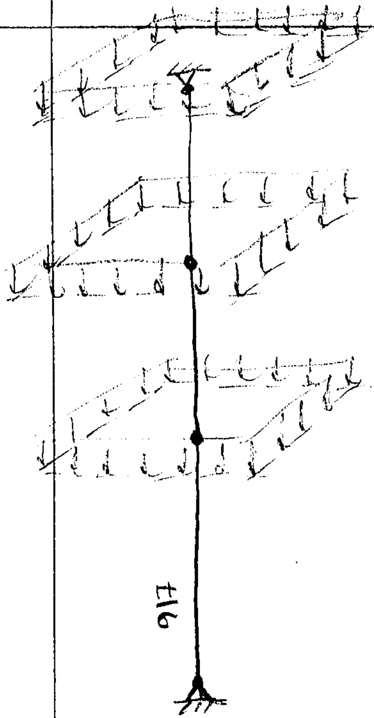
Load Combinations:
922, 859: $1.2(135)+1.6(100) = 322$ psf
1145: $1.2(135)+1.6(30) = 210$ psf

$$P_{u(1145)} = TA_3(210) = \frac{(512.9)(210)}{1000} = 108 \text{ lbs} \approx 104$$

$$P_u(859) = \left[(TA_2)(322) + P_{u(1145)}\right] = (250.7)(322)+108 = 189 \text{ lbs} \approx 190$$

$$P_u(922) = \left[(TA_3)(322) + P_{u(859)}\right] = (250.7)(322)+189 = 270 \text{ lbs} \approx 297$$

These values are all comparable to those obtained through the Risa model. Discrepancies in values can be attributed to the fact that in this hand computation, the weight of the beams and columns are not included. For the computations of the column capacities, we will use the values obtained in the model for our Pu.



$$\text{Tributary area} = \left[\left(\left(\frac{30.2-18.9}{2}\right) + \frac{18.9}{2}\right) \times \left(\frac{21.2}{2} + \frac{20}{2}\right)\right]$$

$$TA_2 = TA_1 = (15.1\,ft)(20.6\,ft) = 311.1\,ft^2$$

$$TA_3 = TA_1 = TA_2$$

Loads: DL = 135 psf RL = 30 psf

LL = 100 psf

Load Combinations:

(917, 854): 1.2(135) + 1.6(100) = 322 psf

(1140): 1.2(135) + 1.6(30) = 210 psf

$$P_{u(1140)} = TA_3(210) = (311.1)(210) = 65.3 \approx 72.9$$

$$P_{u(854)} = TA_2(322) + P_{u(1140)} = 165.5 \approx 180.8$$

$$P_{u(917)} = TA_1(322) + P_{u(917)} = 265.7 \approx 288.5$$

These values again are slightly lower than the model, but again, the gravity loads of the beams and columns are not included. Again, the RISA values of P_u will be utilized for hand computations of column capacity.

We will next test for the column capacities of the critical columns M922 and M1145. Column M922 is an 8"-½" Z-bar column and M1145 is a 6"-¼" Z bar column. These capacities will be compared to the calculated Axial loads. We will assume that the columns act purely in bending because they are subjected only to gravity loads. (The exterior bearing walls are assumed to carry all lateral-wind and seismic- loads.)

Critical Column: Column M917

Column Formulas

$A = 21.49 \text{ in}^2$
$F_y = 36 \text{ ksi}$
$E = 29,000 \text{ ksi}$
$L = 15 \times 12 = 180 \text{ in}$
$r^2 = 6.44 \text{ in}^4$

$$P_n = A_g F_{cr}$$

$$\phi P_n = \phi A_g F_{cr} \quad \text{with } \phi = 0.85$$

Calculate:

$$\lambda_c = \frac{KL}{r\pi}\sqrt{\frac{F_y}{E}} = \frac{(1)(12\times 11)}{\sqrt{6.44}\pi}\sqrt{\frac{36}{29,000}} = .5833556$$

$$F_{cr} = (0.658^{\lambda_c^2}) F_y \text{ for } \lambda_c \leq 1.5$$

$$F_{cr} = (0.658^{(.5833556^2)})36 = 31.22 \text{ ksi}$$

$$\phi P_n = (\phi = 0.85)(A_g = 21.49 \text{ in}^2)(F_{cr} = 31.22 \text{ ksi})$$

$$\phi P_n = 570.29 \text{ kips}$$

$$(P_u = 288.5) < (\phi P_n = 570.29) \quad \text{OK.} \checkmark$$

Critical Column: Column M1145

$A = 9.26 \text{ in}^2$ $L = 14$
$F_y = 36 \text{ ksi}$ $\phi = 0.85$
$E = 29,000 \text{ ksi}$ $r_y^2 = 3.43 \text{ in}^4$

$$\lambda_c = \frac{KL}{r\pi}\sqrt{\frac{F_y}{E}} = \frac{(1)(12\times 14)}{\sqrt{3.43}\pi}\sqrt{\frac{36}{29,000}} = 1.017336$$

$$F_{cr} = (0.658^{\lambda_c^2}) F_y \text{ for } \lambda_c \leq 1.5$$

$$F_{cr} = (0.658^{(1.017336^2)})36 = 23.34 \text{ ksi}$$

$$\phi P_n = (\phi = .85)(A_g = 9.26 \text{ in}^2)(F_{cr} = 23.34 \text{ ksi})$$

$$\phi P_n = 183.74 \text{ kips}$$

$$(P_u = 104) < (\phi P_n = 183.74) \quad \text{OK.} \checkmark$$

Both the column sizes are acceptable and do not exceed capacity.

Analysis of Library floor beams

Calculation of loads:

Dead loads:
Beam weight
Floor fill weight = 35 psf
Concrete = 45 psf
Partitions = 20 psf
Finishes = 20 psf

~~Beam~~ weight + 120 psf

Live loads:
100 psf

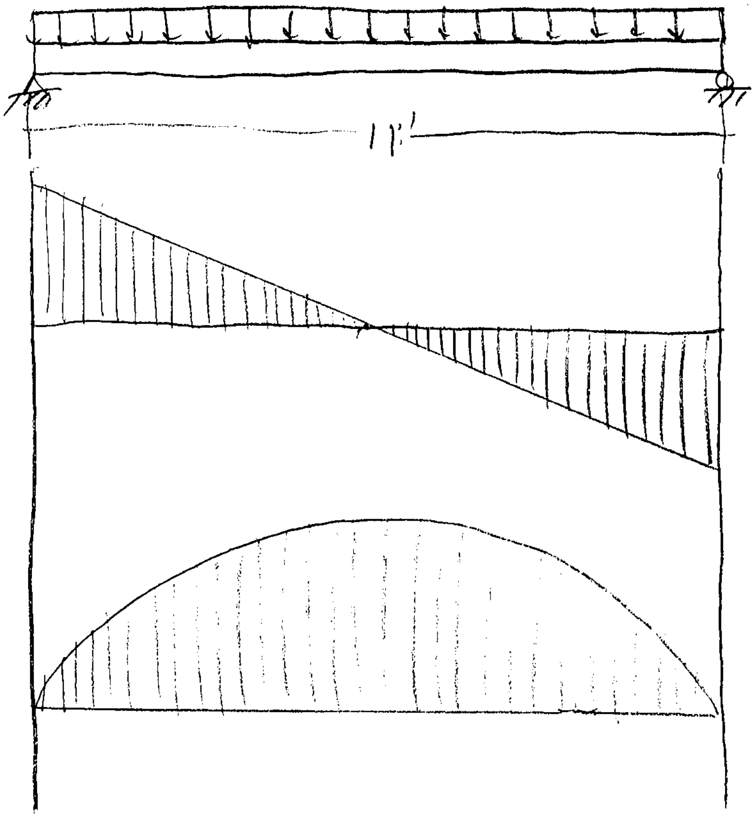
Load Combinations:
$1.2(DL) + 1.6(LL)$
$1.2(120) + 1.6(100)$
$= 304$ psf

Beams in Library are designated as:

L = 0-12'; 6 x 13.5 lbs (Say L = 11')
L = 12'-30; 12" x 42 lbs (Say L = 29')
L = 30+; 15" x 50 lbs (Say L = 40')

Calculate w_u: (6 x 3.5)

$w_u = (304\,psf \times 3') + 13.5\,plf$
$= .9255$ klf



$$V_{max} = \frac{w_u L}{2} = \frac{(.9255)(11)}{2} = 5.09\ k$$

$$M_{max} = \frac{(.9255)(11)^2}{8} = 14.00\ ft\text{-}kips$$

Assume beam is an 6'×13.5 lb. with properties

$D = 6'$ $I_x = 21.4$ $Z_x = 5.844$ Assume beam is fully braced laterally

$A = 4.05$ $I_y = 1.6$ $Z_y = 1.031$

$$\phi M_n = \phi F_y Z$$

$$\phi M_n = \frac{(0.9)(30)(5.844)}{12} = 13.15'$$

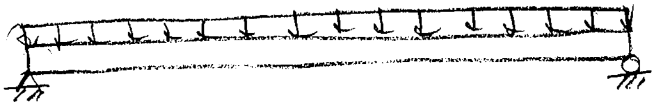
The moment capacity is exceed by the allowable load. We can assume that either a) a larger member is used for all spans less than 11 ft, or that 6×13.5 lb beams are used for shorter spans, The allowable braced span, given $\omega_u = .9255$, can be calculated as

$$M_u \leq 13.15$$

$$\frac{\omega_u L^2}{8} \leq 13.15 \quad \therefore \quad \frac{(.9755)(L^2)}{8} \leq 13.15$$

$$L \leq \sqrt{\frac{(13.15)(8)}{(.9255)}} = 10.66 \text{ ft.}$$

Determine if the 12×42 beam is adequate for spans up to 30 ft.



$w_u = (304 \times 3') + 42$ plf

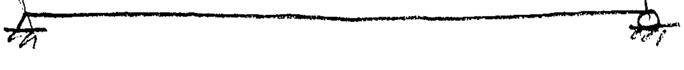
$= 1.954$ klf

$$\phi M_n = \frac{(0.9)(30)(38.13)}{12} = 85.79 \text{ ft-kips}$$

$$M_u \leq 85.79 \leq \frac{w_u L^2}{8}$$

$$L = \sqrt{\frac{(85.79)(8)}{(.954)}} = 26.82 \text{ ft}$$

No, a 12x beam is not adequate for 30 ft spans. Determine the maximum length of a 15×50 lb beam.



$w_u = (304 \times 3) + 50$ plf

$w_u = .962$ klf

$$\phi M_n = \frac{(0.9)(30)(65.89)}{12} = 148.25 \text{ ft-kips}$$

$$M_u \leq 148.25 \leq \frac{w_u L^2}{8}$$

$$L = \sqrt{\frac{(148.25)(8)}{(.962)}} = 35.11 \text{ ft.}$$

15 × 50lb beams cannot exceed 35.16 ft.

If we were to assume a larger beam size for spans 0-12, let us try the 8×18 I-beam.

$$w_u = (304 \times 3) + 18.4 = .9304 \text{ klf}$$

$$\phi M_n = \frac{(0.9)(30\text{ksi})(14.4)}{12} = 32.4 \text{ ft-kips}$$

$$M_u \leq \frac{w_u L^2}{8}$$

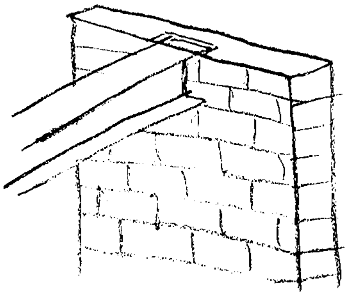
$$L \leq \sqrt{\frac{(32.4)(8)}{(.9304)}} = 16.69 \text{ ft.}$$

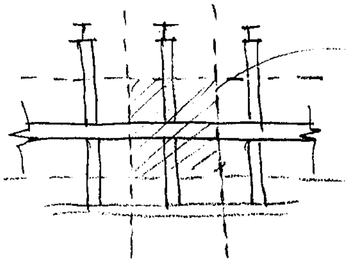
The 8 × 18 beam would be adequate for the proposed 12'-0" maximum span.

Analysis of Interior Axially Loaded Bearing Wall

Determine axial load P

Evaluate loads on western wall of main corridor.





tributary area = $\left(\frac{18.}{2} + \frac{11.7}{2}\right) \times \left(6.1\right) = 90.58$ ft²

$P_3 = (210 \text{ psf} \times 90.585) + (12810) = 31.83$ kips

$P_2 = (322 \text{ psf} \times 90.585) + (128k0) + P_3 = 73.81$ kips

$P_1 = (322 \text{ psf} \times 90.585) + (10065) + P_2 + P_3 = \boxed{113.04 \text{ kips}}$

Determine the capacity of the bearing wall / the allowable design load.

$f'_m = 2400$ psi (compressive strength)

$E_m = 1.8 \times 10^6$ psi.

$\phi P_n = 0.85 f'_m b(t - 2\cancel{e})^{7\,0}$

Step 1: Compute effective height.

$kh = 0.8h = 0.8(11'-0'') = 105.6$ in

$r = \sqrt{I/A} = 0.29t = 0.29(18) = 5.22$

$kh/r = \frac{105.6}{5.22} = 20.23 < 99.$ Therefore

$F_a = \frac{f'_m}{4}\left[1 - \left(\frac{kh}{140r}\right)^2\right] = \frac{2400}{4}\left[1 - \left(\frac{105.6}{(140)(5.22)}\right)^2\right]$

$= 587.47$ psi

For concentric loading

$P = A_n F_a = (12 \times 18)(587.47) = 126,894$ plf

but the condition $P \leq (1/4) P_e$ must be satisfied

$P_e = \text{Euler bucking load} = \frac{\pi^2 E_m I}{(kh)^2}\left(1 - 0.577\frac{e}{r}\right)^3$

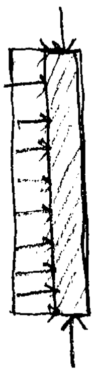
$= \frac{\pi^2 (1.8 \times 10^6)}{(105.6)^2}(3375) \times \left(1 - .577\left(\frac{0}{435}\right)\right)^3 = 5376.73$ kips

Checking $P < P_e/4$:

$$P = 126.89 \text{ klf} <? \frac{5376.73}{4} = 1344.18 \text{ OK} \checkmark.$$

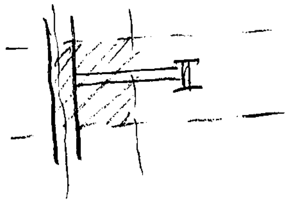
Use $P = 126.89$ kips / linear foot.

<u>Analysis of Exterior Bearing Wall, Subject to Axial and Bending Forces</u>



First task: Compute wind loads on the structure (refer to wind loads spreadsheet).

Second task: Compute axial loads.



Tributary area $= \left(\frac{20'}{2}\right)(5') = 50$ ft.

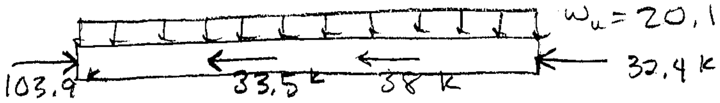
$P_3 = (210 \text{ psf}) \times 50 + (20' \times 45 \text{plf}) + (5 \times 2.5 \times 14 \times 1$

p

$P_3 = 32.4$ kips

$P_2 = (322\text{psf} \times 50) + (20 + 45) + (5 \times 2.5 \times 14 \times 120) + P_3 = 70.4$ kips

$P_1 = (322 * 50) + (20 \times 45) + (5 \times 2.5 \times 14 \times 120) + P_2 + P_3 = 103.9$ kips



$w_u = 20.16 \times 5' = 100.8$ plf

We can approach this in two separate ways. The first approach will examine the effects of the axial and wind load on the segmented bottom half. We can again assume this is sufficient because the beams are tied to the exterior wall. However, we will then test the effect of wind on the overall height of the structure to determine its impact.

The first approach for this is to verify the comp. allowable load. This is done in a similar fashion to the previous step.

$kh = 0.8(11 \times 12) = 105.6''$

$r = \sqrt{I/A} = 0.29t = 0.29(30'') = 8.7$

$kh/r = \frac{105.6}{8.7} = 12.14 < 99$ OK.

$F_a = \frac{f'_m}{4}\left[1-\left(\frac{kh}{140r}\right)^2\right] = \frac{2400}{4}\left[1-\left(\frac{105.6}{140(8.7)}\right)^2\right] = 595.5$ p

Determine moment at midheight due to the wind

$M = \frac{w_u L^2}{8} = \frac{.1008(11^2)}{8} = 1.5246$ ft-kips

P at mid height $= (70.4) + (322 \times 50) + (20 \times 45) + (5 \times 2.5 \times 5.5 \times 120)$

$= 95,650$ lbs/ft

$f_t = \frac{-P}{A_n} + \frac{My}{I} = \frac{-95,650}{(30 \times 12)} + \frac{1,524.6(12)(30/2)}{(8.7^2)(30 \times 12)}$

$f_t = -265.694 + 10.0713 = -255.62$ psi $<$ allowable flexural tension value of $+25$ psi. $\Rightarrow$ thickness is OK.

Using $F_b = f'_m/3 = 667$ psi, the unity equation gives us

$\frac{f_a}{F_a} + \frac{f_b}{F_b} = \frac{P/A}{F_a} + \frac{M/S}{F_b} = \frac{265.69}{595.5} + \frac{10.0713}{667} = .4613.$

The wall size and thickness is satisfactory.

Also check if $P_u \leq 1/4 P_e$ to provide safety against buckling.

$P_e = \frac{\pi^2 E_m I}{h^2}\left(1 - 0.577\frac{e}{r}\right)^3 = \frac{\pi^2(1.8 \times 10^3)(12 \times 30^3/12)}{(11 \times 12)^2}(1-0)^3$

$\frac{P_e}{4} = \frac{27529 \text{ kips/ft}}{4} = 6882.27$ kips/ft

The next step is to evaluate the effect of the wind over the entire length of the exterior bearing wall.

Determine the moment at midheight:

$$M = \frac{w_u L^2}{8} = \frac{.1008(39^2)}{8} = 19,165 \text{ ft-lbs}$$

$$\frac{My}{I} = \frac{19,165(30/2)(12)}{\left(12 \times \frac{30^2}{12}\right)} = 127.77 \text{ psi.}$$

If we were to assume the same P/A value from the previous part we substitute this equation into

$$f_t = -P/A_n + My/I = -265.694 + 127.77 = -137.93 \text{ psi}$$

$$-137.93 < +25 \text{ psi, OK for tension.}$$

Using this to determine our unity equation

$$\frac{f_a}{F_a} + \frac{f_b}{F_b} = \frac{265.694}{595.5} + \frac{127.77}{667} = .6377 < \underset{\text{value}}{1.33} \text{ permitte}$$

<u>OK</u>.

Appendix 12:

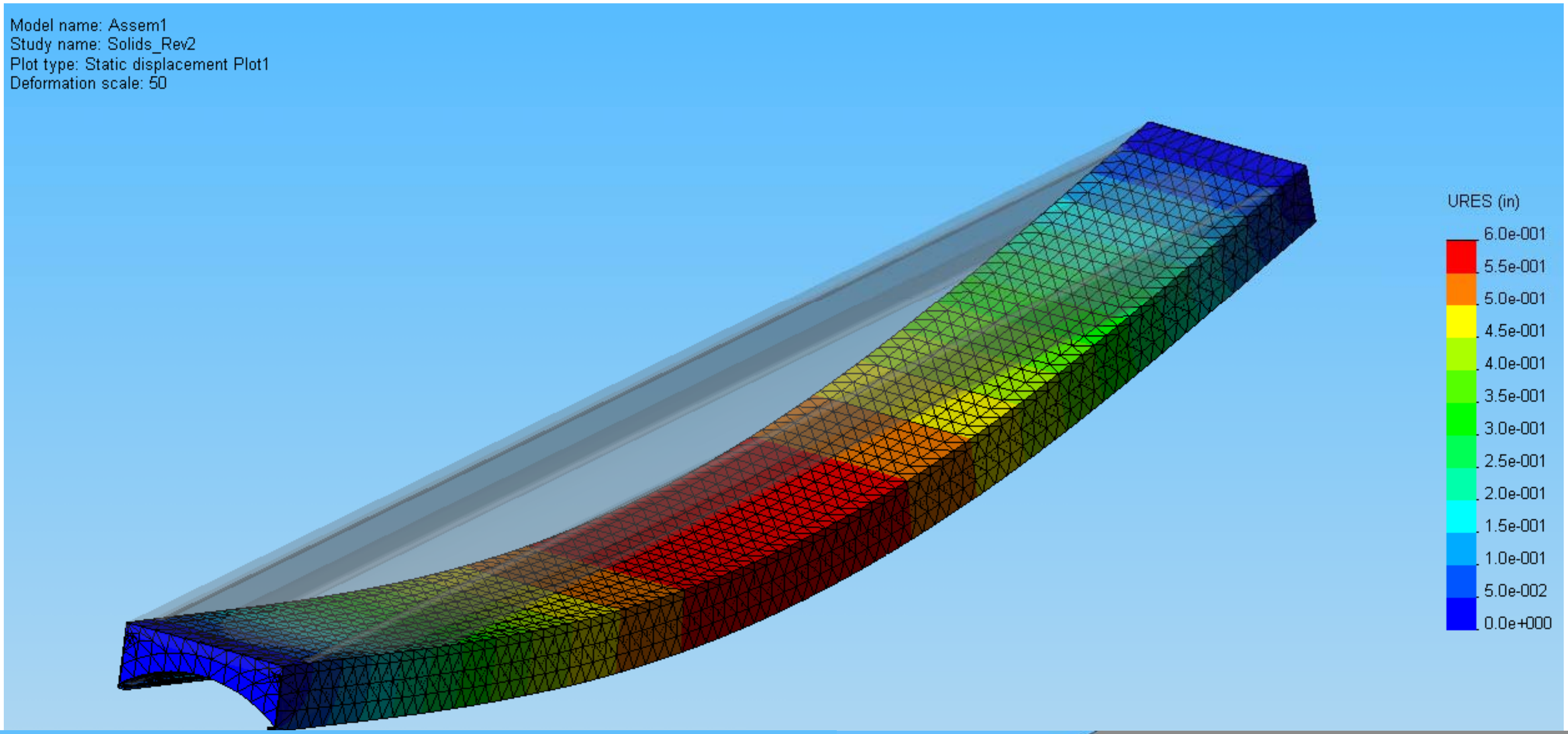
FEA RESULTS

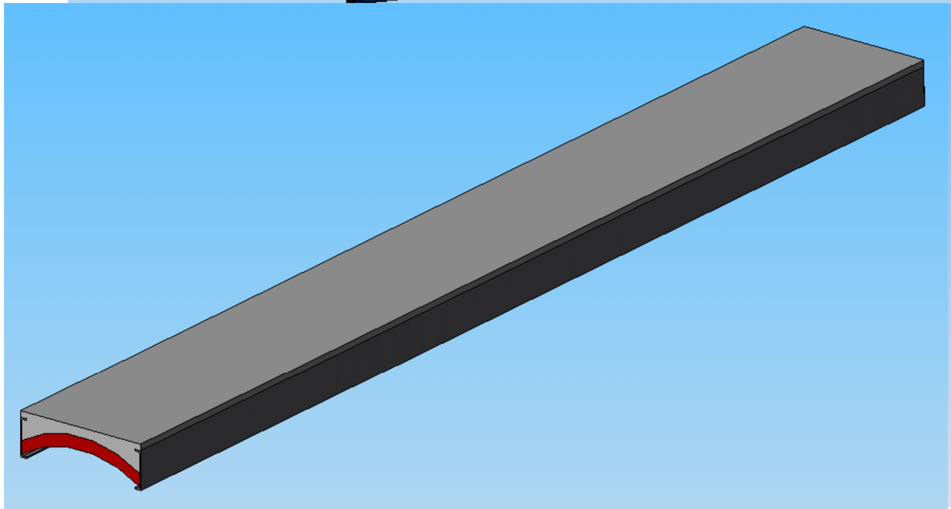
Feb 27 2008

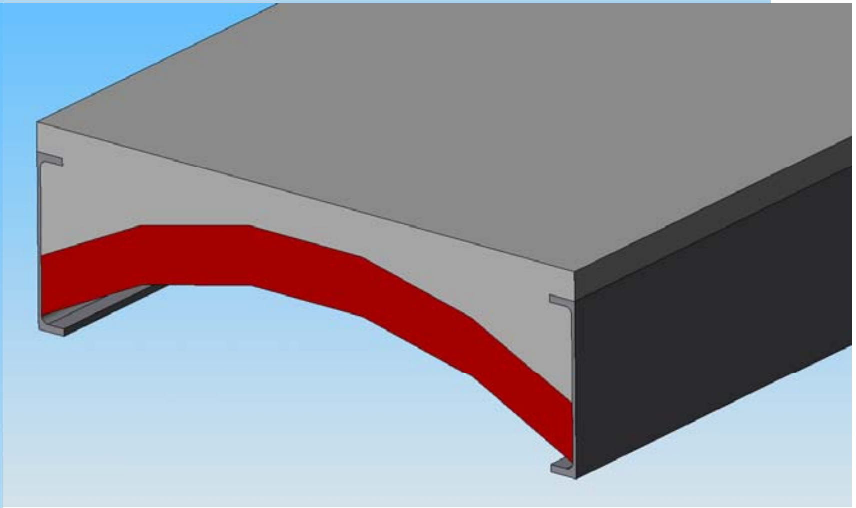
Setup Information

- 4-Piece Assembly:
  - I beams (2X)
  - Brick Arch
  - Concrete Fill
- FEA Constraints:
  - Pin joints at ends of I-beams
  - All contacting faces bonded
  - Gravity load 100 pounds per square foot “live load” (WTF civils?)
  - Symmetrical constraint at center plane of I-beams

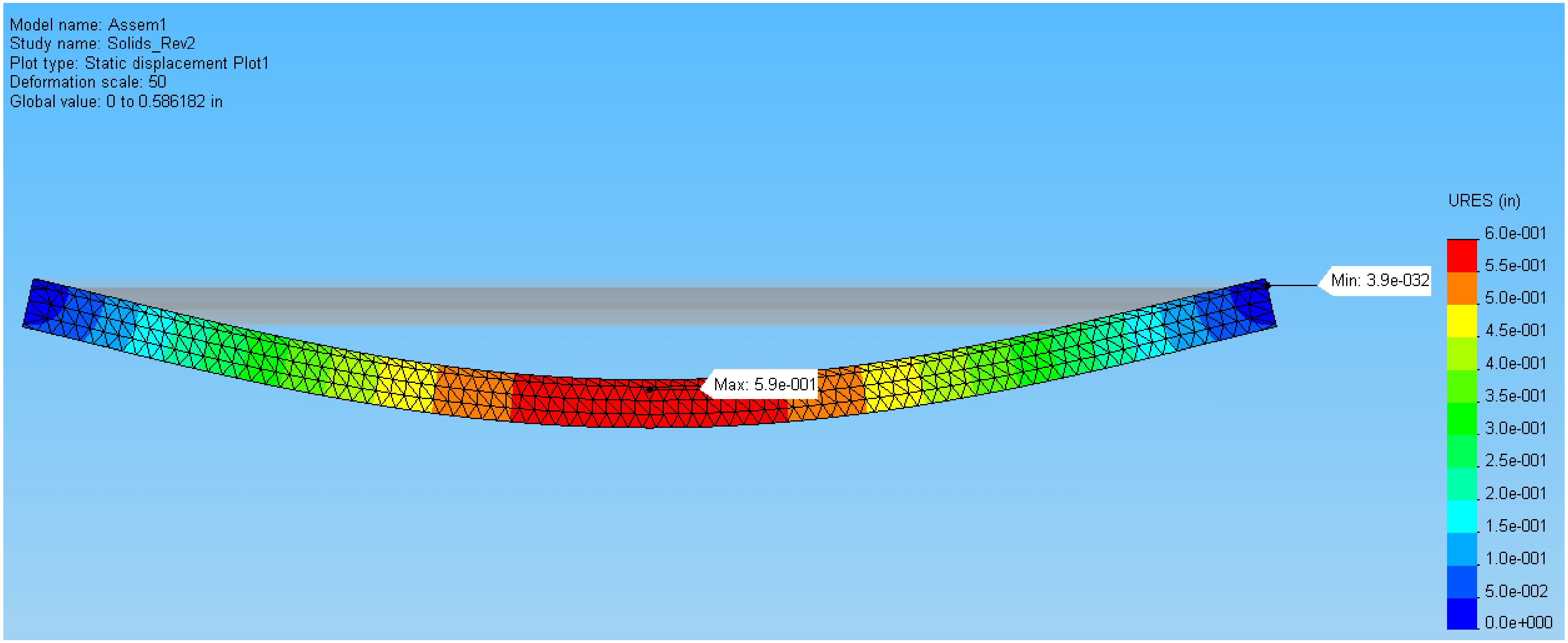
Overview


Model name: Assem1
Study name: Solids_Rev2
Plot type: Static displacement Plot1
Deformation scale: 50
URES (in)
6.0e-001
5.5e-001
5.0e-001
4.5e-001
4.0e-001
3.5e-001
3.0e-001
2.5e-001
2.0e-001
1.5e-001
1.0e-001
5.0e-002
0.0e+000



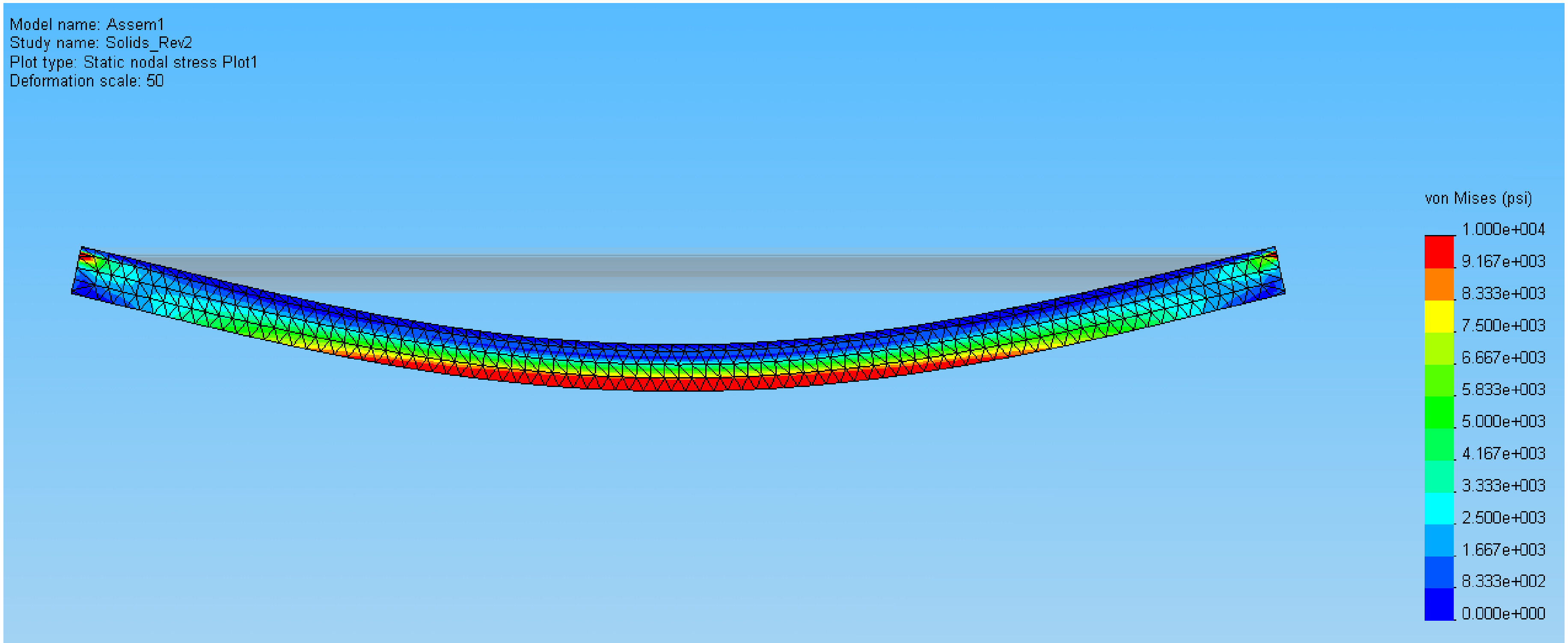


Displacement Results



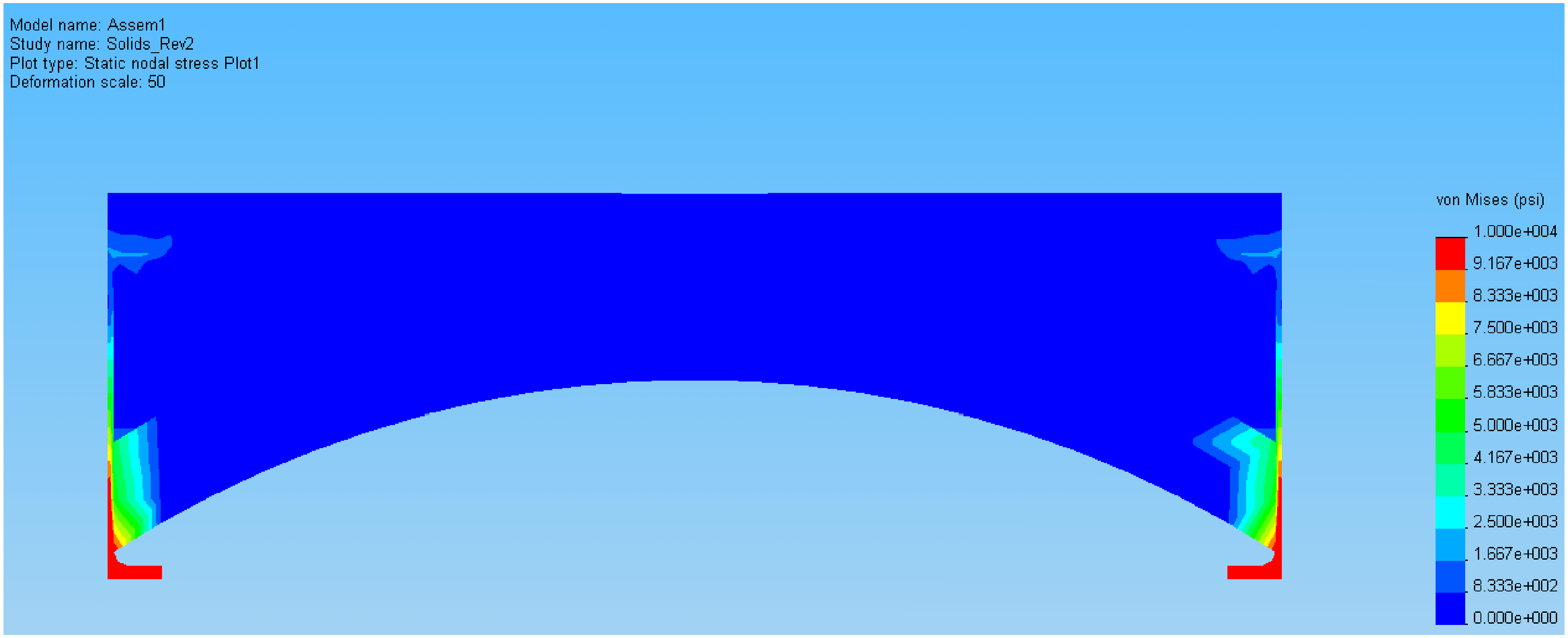
Model name: Assem1
Study name: Solids_Rev2
Plot type: Static displacement Plot1
Deformation scale: 50
Global value: 0 to 0.586182 in

Stress Results



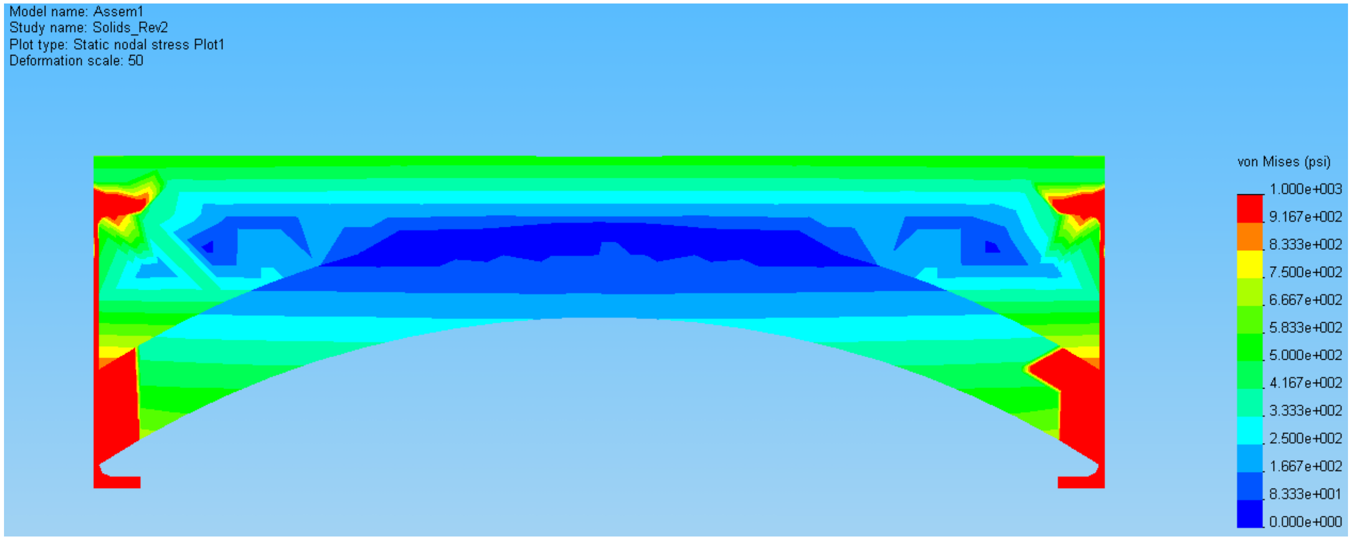
Model name: Assem1
Study name: Solids_Rev2
Plot type: Static nodal stress Plot1
Deformation scale: 50

Stress: Section View at Center



Maximum Stress at Center Section:

10,000 psi



Appendix 13:

Chapter #	**Chapter Title**	**Scope of Chapter**	**Relevant (Y/N)**	**Noteworth Finding**
1	Administration	This chapter outlines all of the matters that the Code shall control.	Y	Among the list of matters that the Code controls, one of them is the rehabilitation and maintenance of existing buildings. This is our area of concern.
2	Definitions	Defines terms used in the Code	Y	
3	Use or Occupancy	Controls the classification of all buildings and structures as to use	Y	The proposed law school fall into use group B - Business (780 CMR 304)
Table 313.1.2	Fire Resistance Rating Requirements for Fire Separation Assemblies Between Fire Areas	This table is especially valuable for structures with more than one use group. Each use group is designated a fire resistance rating. The Table displayes the fire resistance rating for the use groups	Y	The proposed law school falls into one use group whose fire resistance rating is 2 hours.
4	Special Use and Occupancy	In addition to the general requirements of 780 CMR, the provisions of this chapter control all buildings and structures designed	N	The proposed law school is not considered a special occupancy.
5	General Building Limitations	Controls the height and area of all structures to be erected and additions to existing structures based on type of construction, use group, and fire-fighting purposes.	N	Height and area limitations need not be determined as we are not constructing a new building or making additions to the old building.
6	Types of Construction	Controls the classification of all buildings as to type of construction. All structures erected or to be erected, altered or extended in height or area shall be classified in one of five construction types. This classification is important in	Y	The courthouse is most likely of types 1 and 2 construction in which the walls, partitions, structure elements, floors, ceilings, roofs, and exits are constructed of approved non-combustible materials.
7	Fire Resistant Materials and Construction	Governs the design and installation of all materials and methods of construction in respect to required fire resistance rating and flameresistance, as determined by the potential fire hazard of the use and occupancy of the building, the location and function of fire resistive elements, and installation of	Y	The information in this chapter may be useful during the restoration phase of the building, but determining the materials and methods of construction for such restoration is outside the scope of our project.
8	Interior Finishes	Controls the use of interior finish and trim of buildings so as to restrict the spread of flame or be flame resistant under the provisions of the Code.	Y	Again, while the information in this chapter may be useful during the restoration phase of the building, research into the topic is outside the scope of our project.

Chapter #	**Chapter Title**	**Scope of Chapter**	**Relevant (Y/N)**	**Noteworth Finding**
9	Fire Protection Systems	Specifies where fire protection systems are required and shall apply to the design, installation, maintenance, and operation of all fire protection systems in all buildings and structures.	Y	For the business use group, an automatic fire suppression system shall be provided throughout all portions or uses of a building of 12,000 sf or greater. Since our building is existing, automatic fire suppression systems may only need to be provided in spaces greater than 12,000 sf that have changed use or have undergone *substantial* renovation. It is likely that our structure will undergo substantial renovation, and therefore need to comply with the provisions of this chapter.
10	Means of Egress	Controls the design , construction, and arrangement of building elements required to provide a reasonably safe means of egress from all structures. The provisions in this chapter are intended for safe egress out of the building during an	Y	We found that even existing buildings must comply with this chapter to provide safe and adequate means of egress.
11	Accessibility	States that all public buildings shall be designed to be accessible to, functional and safe for use by the physically handicapped people in conformanc with the Massachusetts Architectural Access Board's Rules	Y	We found that the proposed law school must comply with the provisions of this chapter.
12	Interior Environment	Governs the means of light, ventilation, sound transimission control and rat-proofing required in all buildings.	Y	We did not find any exemptions from these provisions within this chapter nor within chapter 34 (concerning existing buildings). Therefore, we assume that the proposed law school would have to comply with the provisions in this chapter.
13	Energy Conservation	Sets forth requirements for the effective use of energy in structures, which shall be designed and constructed to comply with the requirements stated in Appendix J.	N	The provisions in this chapter can not require the removal, alteration, or abandonment of a lawfully existing building, unless mentioned specifically. However, 780 CMR 3407.0 (concerning existing buildings) does establish energy provisions for existing buildings.
14	Exterior Wall Coverings	Establishes the minimum requirements for exterior walls.	N	We do no believe that the provisions in this chapter have any influence on our building as it is an existing building.
15	Roofs and Roof Structures	Governs the materials, design, construction, and quality of roofs and roof coverings.	N	We do no believe that the provisions in this chapter have any influence on our building as it is an existing building.
16	Structural Loads	Controls the structural design of all buildings and structures to be erected	N	There are separate structural requirements specifically for existing buildings. These requirements are located in 780 CMR 3408.0.

Chapter #	Chapter Title	Scope of Chapter	Relevant (Y/N)	Noteworth Finding
34	Repair, Alterations, Additions, and Change of Use of Existing Buildings	Provisions intend to maintain or increase public safety, health, and general welfare in existing buildings by permitting repair, alteration, additions, and/or change of use without requiring full compliance with the code for new construction	Y	The provisions in this chapter are very important to our projects since we are dealing with existing conditions rather than new construction. Additionally, exceptions for historic buildings are also within this chapter.
780 CMR 3400.3	Applicability	Determines the applicability of buildings to use 780 CMR 34 based on the proposed continuation of a use group or a change in use group.	Y	The building of focus in our project qualifies to use 780 CMR 34 for many reasons including: 1. Continuation of the same use group (both a courthouse and law school fall into the business use group). 2. It qualifies as a totally or partially preserved historic building in accordance with 780 CMR 3409. 3. Structural requirements for additions, and for existing buildings subject to repair, alteration, and/or change of use shall be in accordance with the provisions of this chapter. Additionally, a building must have been legally occupied and/or used for a period of at least five years (our building fulfills this requirement).
780 CMR 3403.0	Hazard Index	A hazard index is associated with each use group. In order to determine the applicable provisions of 780 CMR 34, the hazard index of the existing use group shall be subtracted from the hazard index of the proposed use group. The difference between the two is used	Y	Since we are not proposing a change in use group, the hazard index will be zero. This tells us, though, that we can follow the requirements for continuation of the same use group.
780 CMR 3404.0	Requirements for Continuation of the Same Use Group or Change to a use Group Resulting in a Change in Hazard Index of One or Less	The requirements of this section apply to all repairs and alterations to existing buildings having a continuation of the same use group or to existing buildings changed in use group of one or less hazard index.	Y	In general, many of the provisions allow for the replacement of individual components of a system without requiring that system to comply fully with the code for new construction. However, if alterations or repairs have the effect of replacing a building system as a whole, they shall fully comply with the code for new construction.
780 CMR 3408.0	Structural Requirements For Existing Buildings	Provides structural requirements for existing buildings in two categories. One category is buildings constructed on or after January 1, 1975, the other is buildings constructed prior to that date.	Y	For the structural systems of buildings constructed prior to January 1, 1975 (as is our case) they shall conform to 780 CMR 3408.0 and the building code applicable at the time of the original permit.

Chapter #	**Chapter Title**	**Scope of Chapter**	**Relevant (Y/N)**	**Noteworth Finding**
780 CMR 3409.0	Historic Buildings	The provisions of this section govern all buildings and structures in the state that are legally designated as historic buildings. They preempt all other regulations of 780 CMR governing the reconstruction alterations, change of use and occupancy, repairs, maintenance, and additions for the	Y	Much of the information in this section has been presented in section 2.3.2 *Massachusetts State Building Code: Sixth Edition* of our paper. From the information presented in 780 CMR 3409.0, the building is a partially preserved building.

Appendix 14:

Existing Building
Prop. Basement Plan

Scale
1/8" = 1'

Date
3-15-54

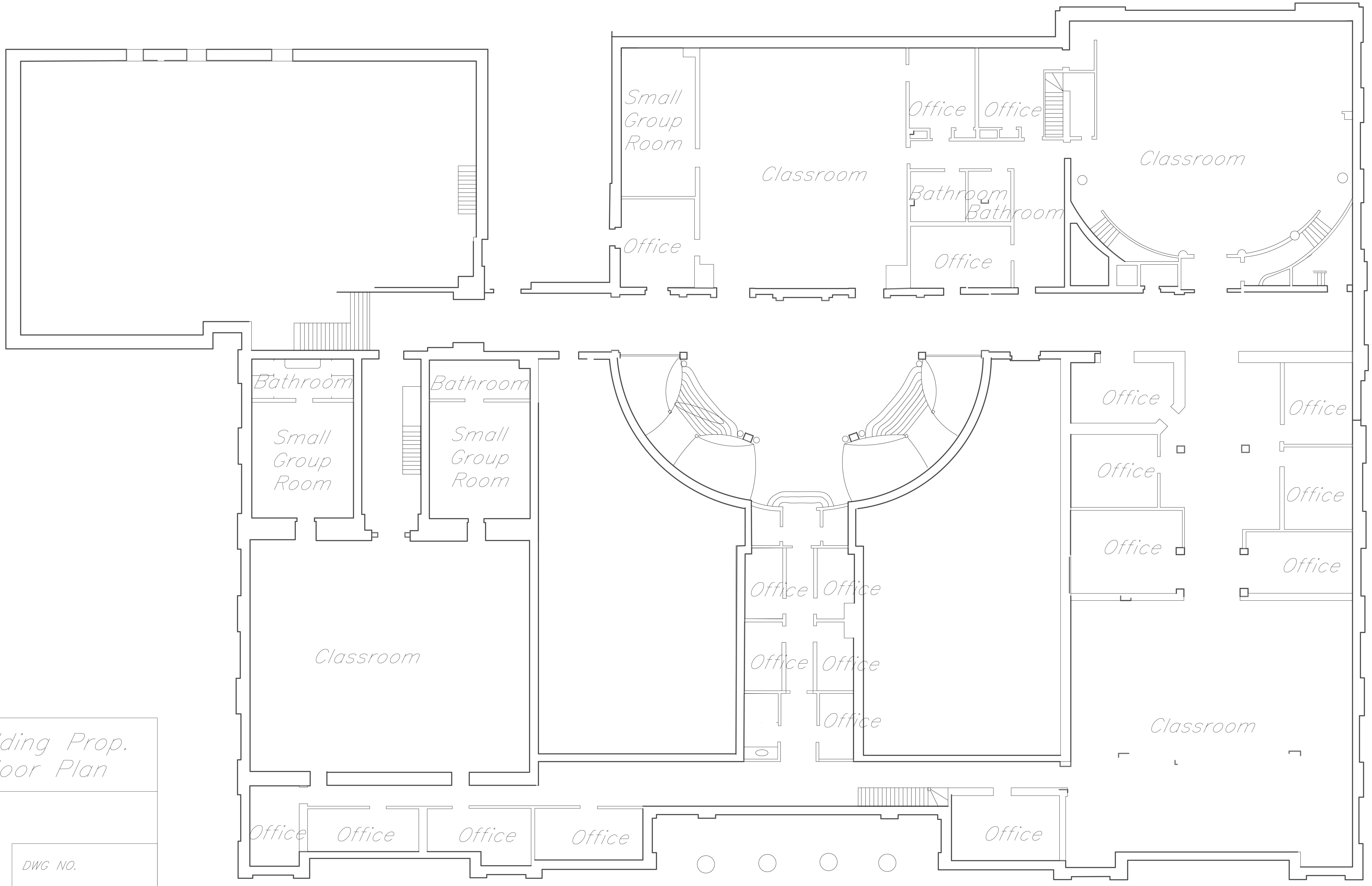
DWG NO.
A-102

Existing Building
Prop. 1st Floor Plan

Scale
1/8" = 1'

Date
3-15-54

DWG NO.
A-104

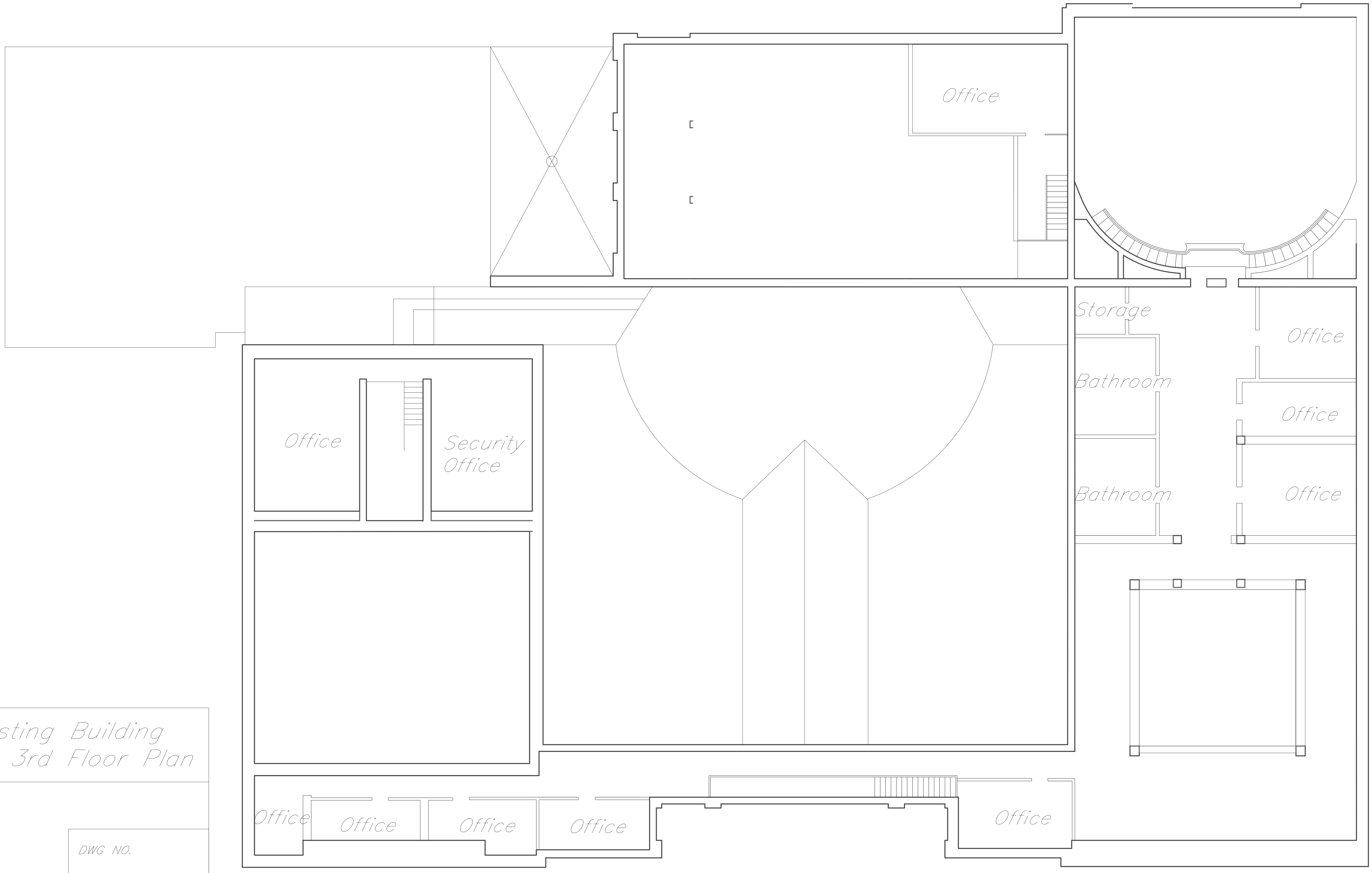


Ex. Building Prop.
2nd Floor Plan

Scale
1/8" = 1'

Date
3-15-54

DWG NO.



Existing Building
Prop. 3rd Floor Plan

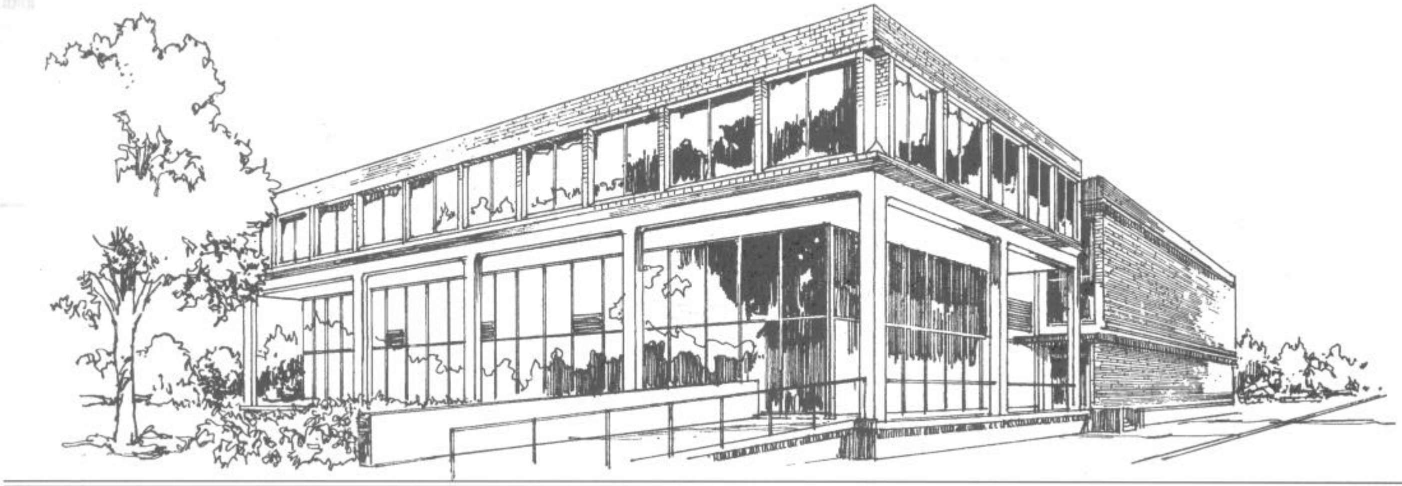
Scale
1/8" = 1'

Date
3-15-54

DWG NO.

Appendix 15:

COMMERCIAL/INDUSTRIAL/ INSTITUTIONAL | M.190 | Courthouse, 2-3 Story



Costs per square foot of floor area

Exterior Wall	S.F. Area	30000	40000	45000	50000	60000	70000	80000	90000	100000
	L.F. Perimeter	410	493	535	533	600	666	733	800	795
Limestone with Concrete Block Back-up	R/Conc. Frame	221.95	211.70	208.35	202.40	197.85	194.55	192.15	190.25	186.15
	Steel Frame	219.95	209.70	206.35	200.45	195.90	192.55	190.25	188.25	184.25
Face Brick with Concrete Block Back-up	R/Conc. Frame	204.20	195.70	192.95	188.60	184.90	182.20	180.30	178.75	175.85
	Steel Frame	202.30	193.75	190.95	186.70	182.95	180.30	178.35	176.75	173.95
Stone with Concrete Block Back-up	R/Conc. Frame	207.75	198.85	195.95	191.35	187.50	184.70	182.65	181.00	177.95
	Steel Frame	205.75	196.90	194.00	189.45	185.55	182.75	180.75	179.00	175.95
Perimeter Adj., Add or Deduct	Per 100 L.F.	12.00	8.95	7.95	7.20	6.05	5.10	4.50	3.95	3.65
Story Hgt. Adj., Add or Deduct	Per 1 Ft.	3.90	3.50	3.35	3.05	2.85	2.70	2.65	2.45	2.25
***For Basement**, add $ 27.20 per square foot of basement area*										

The above costs were calculated using the basic specifications shown on the facing page. These costs should be adjusted where necessary for design alternatives and owner's requirements. Reported completed project costs, for this type of structure, range from $ 122.80 to $ 229.10 per S.F.

Common additives

Description	Unit	$ Cost
Benches, Hardwood	L.F.	97.50 - 179
Clock System		
20 room	Each	15,400
50 room	Each	37,400
Closed Circuit Surveillance, One station		
Camera and monitor	Each	1750
For additional camera stations, add	Each	940
Directory Boards, Plastic, glass covered		
30" x 20"	Each	580
36" x 48"	Each	1450
Aluminum, 24" x 18"	Each	570
36" x 24"	Each	635
48" x 32"	Each	925
48" x 60"	Each	1950
Elevators, Hydraulic passenger, 2 stops		
1500# capacity	Each	55,100
2500# capacity	Each	57,800
3500# capacity	Each	62,100
Additional stop, add	Each	9000

Description	Unit	$ Cost
Emergency Lighting, 25 watt, battery operated		
Lead battery	Each	278
Nickel cadmium	Each	800
Flagpoles, Complete		
Aluminum, 20' high	Each	1425
40' high	Each	3200
70' high	Each	9975
Fiberglass, 23' high	Each	1725
39'-5" high	Each	3250
59' high	Each	8200
Intercom System, 25 station capacity		
Master station	Each	2500
Intercom outlets	Each	160
Handset	Each	440
Safe, Office type, 4 hour rating		
30" x 18" x 18"	Each	4075
62" x 33" x 20"	Each	8850
Smoke Detectors		
Ceiling type	Each	174
Duct type	Each	445

Model costs calculated for a 3 story building with 12′ story height and 60,000 square feet of floor area

Courthouse, 2-3 Story

				Unit	Unit Cost	Cost Per S.F.	% Of Sub-Total
A. SUBSTRUCTURE							
1010	Standard Foundations	Poured concrete; strip and spread footings		S.F. Ground	3.60	1.20	2.6%
1020	Special Foundations	N/A		—	—	—	
1030	Slab on Grade	4″ reinforced concrete with vapor barrier and granular base		S.F. Slab	4.63	1.54	
2010	Basement Excavation	Site preparation for slab and trench for foundation wall and footing		S.F. Ground	.15	.05	
2020	Basement Walls	4′ foundation wall		L.F. Wall	65	.80	
B. SHELL							
	B10 Superstructure						
1010	Floor Construction	Concrete slab with metal deck and beams		S.F. Floor	26.06	17.37	16.9%
1020	Roof Construction	Concrete slab with metal deck and beams		S.F. Roof	17.31	5.77	
	B20 Exterior Enclosure						
2010	Exterior Walls	Face brick with concrete block backup	*75% of wall*	S.F. Wall	31.63	8.54	11.3%
2020	Exterior Windows	Horizontal pivoted steel	*25% of wall*	Each	664	6.64	
2030	Exterior Doors	Double aluminum and glass and hollow metal		Each	2895	.29	
	B30 Roofing						
3010	Roof Coverings	Built-up tar and gravel with flashing; perlite/EPS composite insulation		S.F. Roof	5.13	1.71	1.3%
3020	Roof Openings	N/A		—	—	—	
C. INTERIORS							
1010	Partitions	Plaster on metal studs	*10 S.F. Floor/L.F. Partition*	S.F. Partition	11.88	11.88	33.4%
1020	Interior Doors	Single leaf wood	*100 S.F. Floor/Door*	Each	533	5.33	
1030	Fittings	Toilet partitions		S.F. Floor	.27	.27	
2010	Stair Construction	Concrete filled metal pan		Flight	16,950	2.82	
3010	Wall Finishes	70% paint, 20% wood paneling, 10% vinyl wall covering		S.F. Surface	2.26	4.51	
3020	Floor Finishes	60% hardwood, 20% terrazzo, 20% carpet		S.F. Floor	12.14	12.14	
3030	Ceiling Finishes	Gypsum plaster on metal lath, suspended		S.F. Ceiling	8.75	8.75	
D. SERVICES							
	D10 Conveying						
1010	Elevators & Lifts	Five hydraulic passenger elevators		Each	107,760	8.98	6.6%
1020	Escalators & Moving Walks	N/A		—	—	—	
	D20 Plumbing						
2010	Plumbing Fixtures	Toilet and service fixtures, supply and drainage	*1 Fixture/665 S.F. Floor*	Each	1643	2.47	4.7%
2020	Domestic Water Distribution	Electric water heater		S.F. Floor	3.64	3.64	
2040	Rain Water Drainage	Roof drains		S.F. Roof	.93	.31	
	D30 HVAC						
3010	Energy Supply	N/A		—	—	—	13.7 %
3020	Heat Generating Systems	Included in D3050		—	—	—	
3030	Cooling Generating Systems	N/A		—	—	—	
3050	Terminal & Package Units	Multizone unit, gas heating, electric cooling		S.F. Floor	18.80	18.80	
3090	Other HVAC Sys. & Equipment	N/A		—	—	—	
	D40 Fire Protection						
4010	Sprinklers	Wet pipe sprinkler system		S.F. Floor	2.26	2.26	1.7%
4020	Standpipes	N/A		—	—	—	
	D50 Electrical						
5010	Electrical Service/Distribution	800 ampere service, panel board and feeders		S.F. Floor	1.13	1.13	7.8%
5020	Lighting & Branch Wiring	Fluorescent fixtures, receptacles, switches, A.C. and misc. power		S.F. Floor	8.68	8.68	
5030	Communications & Security	Alarm systems, internet wiring, and emergency lighting		S.F. Floor	.71	.71	
5090	Other Electrical Systems	Emergency generator, 15 kW		S.F. Floor	.19	.19	
E. EQUIPMENT & FURNISHINGS							
1010	Commercial Equipment	N/A		—	—	—	0.0 %
1020	Institutional Equipment	N/A		—	—	—	
1030	Vehicular Equipment	N/A		—	—	—	
1090	Other Equipment	N/A		—	—	—	
F. SPECIAL CONSTRUCTION							
1020	Integrated Construction	N/A		—	—	—	0.0 %
1040	Special Facilities	N/A		—	—	—	
G. BUILDING SITEWORK		**N/A**					
					Sub-Total	136.78	**100%**
	CONTRACTOR FEES (General Requirements: 10%, Overhead: 5%, Profit: 10%)				*25%*	34.20	
	ARCHITECT FEES				*7%*	11.97	
					Total Building Cost	**182.95**	

Appendix 16:

CII APPRAISAL

5. DATE:

1. SUBJECT PROPERTY:

6. APPRAISER:

2. BUILDING:

3. ADDRESS:

4. BUILDING USE:

7. YEAR BUILT:

8. EXTERIOR WALL CONSTRUCTION:

9. FRAME:

10. GROUND FLOOR AREA: S.F.

11. GROSS FLOOR AREA (EXCL. BASEMENT): S.F.

12. NUMBER OF STORIES:

13. STORY HEIGHT:

14. PERIMETER: L.F.

15. BASEMENT AREA: S.F.

16. GENERAL COMMENTS:

	NO.	DESCRIPTION	UNIT	UNIT COST	NEW SF COST	MODEL SF COST	+/- CHANGE
A SUBSTRUCTURE							
A	1010	Standard Foundations Bay size:	S.F. Gnd.				
A	1030	Slab on Grade Material: Thickness:	S.F. Slab				
A	2010	Basement Excavation Depth: Area:	S.F. Gnd.				
A	2020	Basement Walls	L.F. Walls				
B SHELL							
	B10 Superstructure						
B	1010	Floor Construction Elevated floors:	S.F. Floor				
			S.F. Floor				
B	1020	Roof Construction	S.F. Roof				
	B20 Exterior Enclosure						
B	2010	Exterior walls Material: Thickness: *% of wall*	S.F. Walls				
		Material: Thickness: *% of wall*	S.F. Walls				
B	2020	Exterior Windows Type: *% of wall*	S.F. Wind.				
		Type: *% of wall* Each	S.F. Wind.				
B	2030	Exterior Doors Type: Number:	Each				
		Type: Number:	Each				
	B30 Roofing						
B	3010	Roof Coverings Material:	S.F. Roof				
		Material:	S.F. Roof				
B	3020	Roof Openings	S.F. Opng.				
C INTERIORS							
C	1010	Partitions: Material: Density:	S.F. Part.				
		Material: Density:					
C	1020	Interior Doors Type: Number:	Each				
C	1030	Fittings	Each				
C	2010	Stair Construction	Flight				
C	3010	Wall Finishes Material: % of Wall	S.F. Walls				
		Material:	S.F. Walls				
C	3020	Floor Finishes Material:	S.F. Floor				
		Material:	S.F. Floor				
		Material:	S.F. Floor				
C	3030	Ceiling Finishes Material:	S.F. Ceil.				

	NO.	SYSTEM/COMPONENT	DESCRIPTION	UNIT	UNIT COST	NEW S.F. COST	MODEL S.F. COST	+/- CHANGE
D SERVICES								
	D10 Conveying							
D	1010	Elevators & Lifts	Type: Capacity: Stops:	Each				
D	1020	Escalators & Moving Walks	Type:	Each				
	D20 Plumbing							
D	2010	Plumbing		Each				
D	2020	Domestic Water Distribution		S.F. Floor				
D	2040	Rain Water Drainage		S.F. Roof				
	D30 HVAC							
D	3010	Energy Supply		Each				
D	3020	Heat Generating Systems	Type:	S.F. Floor				
D	3030	Cooling Generating Systems	Type:	S.F. Floor				
D	3090	Other HVAC Sys. & Equipment		Each				
	D40 Fire Protection							
D	4010	Sprinklers		S.F. Floor				
D	4020	Standpipes		S.F. Floor				
	D50 Electrical							
D	5010	Electrical Service/Distribution		S.F. Floor				
D	5020	Lighting & Branch Wiring		S.F. Floor				
D	5030	Communications & Security		S.F. Floor				
D	5090	Other Electrical Systems		S.F. Floor				
E EQUIPMENT & FURNISHINGS								
E	1010	Commercial Equipment		Each				
E	1020	Institutional Equipment		Each				
E	1030	Vehicular Equipment		Each				
E	1090	Other Equipment		Each				
F SPECIAL CONSTRUCTION								
F	1020	Integrated Construction		S.F.				
F	1040	Special Facilities		S.F.				
G BUILDING SITEWORK								
	ITEM						**Total Change**	

17 Model 020 total ___ $ ______

18 Adjusted S.F. cost ___ $ ______ item 17 +/- changes

19 Building area - from item 11 ______ S.F. x adjusted S.F. cost.......... $

20 Basement area - from item 15 ______ S.F. x S.F. cost $ .... $

21 Base building sub-total - item 20 + item 19 .... $

22 Miscellaneous addition (quality, etc.) .... $

23 Sub-total - item 22 + 21 .... $

24 General conditions -25 % of item 23 .... $

25 Sub-total - item 24 + item 23.......... $

26 Architects fees ______ % of item 25 .... $

27 Sub-total - item 26 + item 27 .... $

28 Location modifier x

29 Local replacement cost - item 28 x item 27 .... $

30 Depreciation ______ % of item 29 .... $

31 Depreciated local replacement cost - item 29 less item 30 .... $

32 Exclusions .... $

33 Net depreciated replacement cost - item 31 less item 32 .... $

Base Cost per square foot floor area: *(from square foot table)*

Specify source: Page: ________, Model # __________, Area __________ S.F., Exterior wall __________, Frame __________ ☐

Adjustments for exterior wall variation:

Size Adjustment:
(Interpolate)

Height Adjustment: __________ + __________ = __________

Adjusted Base Cost per square foot: ☐

Building Cost $ __________ x __________ = __________
Adjusted Base Cost per square foot *Floor Area*

Basement Cost $ __________ x __________ = __________
Basement Cost *Basement Area*

Lump Sum Additions

TOTAL BUILDING COST *(Sum of above costs)* __________

Modifications: *(complexity, workmanship, size)* +/- __________ % __________

Location Modifier: City __________ Date __________ x __________

Local cost of replacement __________

Less depreciation: __________ - __________

Local cost of replacement less depreciation $ __________

Appendix 17:

CII APPRAISAL

5. DATE: 2·20·08
1. SUBJECT PROPERTY:
6. APPRAISER: COURTNEY RHEAULT
2. BUILDING: WORCESTER COUNTY COURTHOUSE
3. ADDRESS: 2 MAIN STREET, WORCESTER MA 01608
4. BUILDING USE: LAW SCHOOL (PROPOSED)
7. YEAR BUILT:

SEE AUTOCAD
DRAWINGS

8. EXTERIOR WALL CONSTRUCTION: N/A ALREADY EXISTING
9. FRAME: N/A ALREADY EXISTING
10. GROUND FLOOR AREA: 34,500 S.F.
11. GROSS FLOOR AREA (EXCL. BASEMENT): 79,750 S.F.
12. NUMBER OF STORIES: 3
13. STORY HEIGHT: 16.33'
14. PERIMETER: 870' L.F.
15. BASEMENT AREA: 35,800 S.F.
16. GENERAL COMMENTS:

THIS APPRAISAL IS FOR THE RENOVATION OF THE OLD WORCESTER COUNTY COURTHOUSE INTO THE PROPOSED LAW SCHOOL. THE SQUARE FOOTAGE REFLECTS THE LIBRARY AND 1898 BUILDING ONLY. IT DOES NOT INCLUDE THE 1954 BUILDING. WE PLAN TO ADD ADDITIONAL COSTS FOR THE DEMOLITION OF THE 1954 BUILDING. ALSO, WE PLAN TO FINISH THE BASEMENT AND THEREFORE WILL TREAT THAT AREA AS FLOOR AREA. THE TOTAL SQUARE FOOTAGE IS 116,000 Sq. ft. WE USED THE COURTHOUSE MODEL FOR OUR CALCULATIONS.

	NO.	DESCRIPTION	UNIT	UNIT COST	NEW SF COST	MODEL SF COST	+/- CHANGE
A SUBSTRUCTURE							
A	1010	**Standard Foundations** Bay size:	S.F. Gnd.				
A	1030	**Slab on Grade** Material: Thickness:	S.F. Slab				
A	2010	**Basement Excavation** Depth: Area:	S.F. Gnd.		N/A		
A	2020	**Basement Walls**	L.F. Walls				
B SHELL							
	B10 Superstructure						
B	1010	**Floor Construction** Elevated floors:	S.F. Floor				
			S.F. Floor		N/A		
B	1020	**Roof Construction**	S.F. Roof				
	B20 Exterior Enclosure						
B	2010	**Exterior walls** Material: Thickness: % of wall	S.F. Walls				
		Material: Thickness: % of wall	S.F. Walls				
B	2020	**Exterior Windows** Type: % of wall	S.F. Wind.				
		Type: % of wall Each	S.F. Wind.		N/A		
B	2030	**Exterior Doors** Type: Number:	Each				
		Type: Number:	Each				
	B30 Roofing						
B	3010	**Roof Coverings** Material:	S.F. Roof				
		Material:	S.F. Roof		N/A		
B	3020	**Roof Openings**	S.F. Opng.				
C INTERIORS							
C	1010	**Partitions:** Material: plaster on metal studs Density: 10 S.F. FLOOR / L.F. PARtition	S.F. Part.	11.88	11.88		
		Material: Density:					
C	1020	**Interior Doors** Type: Single leaf wood Number: 100SF floor/door	Each	533	5.33		
C	1030	**Fittings** Toilet partitions	~~Each~~ S.F. FLOOR	.27	.27		
C	2010	**Stair Construction**	Flight		N/A		
C	3010	**Wall Finishes** Material: 20% wood paneling 70% paint 10% vinyl wall covering % of Wall	S.F. Walls	2.26	4.52		
		Material:	S.F. Walls				
C	3020	**Floor Finishes** Material: 60% hardwood, 20% terrazzo	S.F. Floor	12.14	12.14		
		Material: 20% carpet	S.F. Floor				
		Material:	S.F. Floor				
C	3030	**Ceiling Finishes** Material: gypsum plaster on metal lath, suspended + extra for historic ceilings	S.F. Ceil.	8.75	12.00		

	NO.	SYSTEM/COMPONENT	DESCRIPTION	UNIT	UNIT COST	NEW S.F. COST	MODEL S.F. COST	+/- CHANGE
D SERVICES								
	D10 Conveying							
D	1010	Elevators & Lifts 1	Type: hydraulic passenger Capacity: Stops:	Each	107,760	.93		
D	1020	Escalators & Moving Walks	Type:	Each		N/A		
	D20 Plumbing							
D	2010	Plumbing	toilet + service fixtures, supply + drainage 1 fixture / 665 S.F. Floor	Each	1,643	2.47		
D	2020	Domestic Water Distribution	Electric water heater	S.F. Floor	3.64	3.64		
D	2040	Rain Water Drainage		S.F. Roof				
	D30 HVAC							
D	3010	Energy Supply	N/A	Each		N/A		
D	3020	Heat Generating Systems	Type:	S.F. Floor		N/A		
D	3030	Cooling Generating Systems	Type:	S.F. Floor		N/A		
D	3090	Other HVAC Sys. & Equipment	terminal package units, multizone unit, gas heating, electric cooling	~~Each~~ S.F. Floor	18.80	18.80		
	D40 Fire Protection							
D	4010	Sprinklers	wet pipe sprinkler system	S.F. Floor	2.26	2.26		
D	4020	Standpipes	N/A	S.F. Floor		N/A		
	D50 Electrical							
D	5010	Electrical Service/Distribution	800 ampere service, panel board + feeders	S.F. Floor	1.13	1.13		
D	5020	Lighting & Branch Wiring	flourecent fixtures, receptacles, switches, A.C. etc.	S.F. Floor	8.68	8.68		
D	5030	Communications & Security	alarm systems, internet wiring etc.	S.F. Floor	.71	.71		
D	5090	Other Electrical Systems	emergency generator, 15 KW	S.F. Floor	.19	.19		
E EQUIPMENT & FURNISHINGS								
E	1010	Commercial Equipment		Each		N/A		
E	1020	Institutional Equipment		Each				
E	1030	Vehicular Equipment		Each				
E	1090	Other Equipment		Each				
F SPECIAL CONSTRUCTION								
F	1020	Integrated Construction		S.F.				
F	1040	Special Facilities		S.F.				
G BUILDING SITEWORK								

ITEM		
	$ 84.95 per S.F.	Total Change
~~17~~	Model 020 total ___ $ —	
~~18~~	Adjusted S.F. cost ___ $ — item 17 +/- changes	
19	Building area - from item 11 116,000 S.F. x adjusted S.F. cost	$ 9,854,200
~~20~~	Basement area - from item 15 — S.F. x S.F. cost $	$ —
21	Base building sub-total - item 20 + item 19	$ 9,854,200
22	Miscellaneous addition (quality, etc.)	$ 316,828
23	Sub-total - item 22 + 21	$ 10,171,028
24	General conditions -25 % of item 23	$ 2,542,757
25	Sub-total - item 24 + item 23	$ 12,713,785
26	Architects fees 4.9 safe % of item 25	$ 622,976
27	Sub-total - item 26 + item 27	$ 13,336,761
28	Location modifier	x 1.08
29	Local replacement cost - item 28 x item 27	$ 14,403,702
30	Depreciation ___ % of item 29	$ —
31	Depreciated local replacement cost - item 29 less item 30	$ —
32	Exclusions	$
33	Net depreciated replacement cost - item 31 less item 32	$ 14,403,702

Did not use adjustments

already included

Did not include Depreciation

cost to demolish 1954 building and construct parking lot

Base Cost per square foot floor area: *(from square foot table)*

Specify source: Page: 118, Model # M.190, Area 60,000 S.F., Exterior wall FACE BRICK Frame STEEL 182.95

Adjustments for exterior wall variation:

Size Adjustment: *(Interpolate)* new square footage = 116,000 S.F.

~~Height Adjustment:~~ ______ + ______ = ______

Adjusted Base Cost per square foot: 84.95

Building Cost $ 84.95 *Adjusted Base Cost per square foot* x 116,000 *Floor Area* = 9,854,200

~~Basement Cost~~ $ ______ *Basement Cost* x ______ *Basement Area* = already included

Lump Sum Additions Demolition of 1954 building

Square footage of 1954 buildings = $\frac{81,290}{5}$ S.F. = footprint = 16,258 S.F.

16,258 SF.
x 60 Ft. height
975,480 cu.ft.

$0.28/cuft x 975,480 cuft = $273,134 for demo

Parking lot in site of 1954 building

16,000 SF divided by typical lot size (10'x20' = 200 SF)

16,000 SF / 200 SF per lot = 80 parking spots

80 parking spots times $546.17 per spot = $43,694

add for general cond. 2,542,757

add for arch. fees. 622,976

TOTAL BUILDING COST *(Sum of above costs)* 13,336,761

Modifications: *(complexity, workmanship, size)* +/- ______ % ______ ← don't know this value

Location Modifier: City Worcester, MA Date 2.20.08 x 1.08

Local cost of replacement 14,403,702

Less depreciation: N/A - ______

Local cost of replacement less depreciation $ 14,403,702 total cost of work, not including historical/workmanship factor