Project ID: GFS-0805

# The University of Massachusetts Advanced Center for Clinical Education and Science (ACCES)

A Major Qualifying Project Report:

submitted to the Faculty

of the

#### WORCESTER POLYTECHNIC INSTITUTE

in partial fulfillment of the requirements for the

Degree of Bachelor of Science

Nicholas Ambrosino

Michael Chachakis

Orry Cummings

John Hehir

Date: February 28, 2008

Approved:

Professor Guillermo Salazar, Major Advisor

Professor Paramasivam Jayachandran, Co-Advisor

## **Abstract**

This project followed the construction processes of the University of Massachusetts Advanced Center for Clinical Education and Science. Our group's members attended weekly owner and subcontractor meetings to observe the planning, scheduling, budgeting, and building procedures. We also used Revit and Primavera computer programs to aid in our scheduling and budgeting developments. For the Capstone design aspect, we calculated a design solution to a problem with the steel trusses concerning additional dead loads that was encountered during the construction process.

## **Acknowledgements**

As a group, the four of us would like to thank Professor Salazar for all of his guidance throughout the duration of our project, as well as Professor Paramasivam

Jayachandran who helped us with the steel frame design of our structure. We would also like to thank those at Consigli Construction Company, Inc. for giving us the opportunity to proceed with this project by allowing us to participate in on site activities and discussions with its employees. Lastly, we thank the University Of Massachusetts

Medical School for helping us with any questions that we may have had throughout the process. Our report would not have been possible without the help of those mentioned.

## **Preface**

The following report describes the procedures carried out by the MQP group in order to complete this project. This report was written to help give students, as well as ourselves, a better understanding of the steps necessary in the construction and design of a building. This was done with the help of different computer programs, employees of a construction company, and our advisors.

We utilized the computer program "Autodesk Revit" and some of its components to help develop the report. We created 3D digital models of the building at different stages of the construction process eventually ending at the final product. These renderings are close approximations that mirror web shots of the actual construction at those specific stages. The final drawing reflects the design and most of its specifications. The information from the 3-D digital models, which was exported, allowed us to calculate detailed material quantities.

We also used the project scheduling program "Primavera" to develop a schedule of the existing building construction. We used Consigli's original baseline schedule as well as the weekly updated schedules. These schedules allowed us to illustrate the progress of the entire project. The schedule given at an owner's meeting on January 16, 2008 was the last one we were able to use. They also allowed to discover any significant events that delayed the project in any way.

We also used the computer program MASTAN2 v3.0. This program was used to conduct a structural analysis of the original design. With this information, we were able to design a new steel structure that could support the additional loadings. This allowed us to satisfy our Capstone Design Experience requirement. To complete this requirement,

we used MASTAN to create a computer model of the steel structure. We used this model to determine the effects of adding additional dead loads to an existing design. The building was originally designed to hold only a set amount of dead load, however, during later design stages of the project, the possibility of adding optical equipment not originally considered in the design emerged. For our requirement, we redesigned the floor structure to support additional load requirements. We designed new trusses with different sized members in order to achieve the necessary load capacity. MASTAN allowed us to design the model, see what could happen if these loads were added, and what necessary changes in the connections and beams were necessary.

Lastly, in order to further our knowledge of the project and construction management process we attended scheduled on-site construction meetings. This helped to better understand the organization and also assisted with the scheduling process. The report shows how we examined how the professionals deal with specific problems that surfaced during typical construction processes. We were also able to speak with members of Consigli and the University, answering any questions that we may have had about the project.

## **Table of Contents**

Abstract	2
Acknowledgements	3
Preface	4
List of Figures	8
Chapter 1: Introduction	9
Chapter 2: Project History	12
2.1 Planning History and Organization	12
2.2 Building Purpose	13
2.3 Construction Procedures	14
2.4 Project Setbacks	
Chapter 3 - Project Organization	18
3.1 Owner	18
3.2 Design-Builder	21
3.3 Subcontractors	23
BK Ironworks	23
East Coast Fireproofing	24
William F. Lynch Co.	24
Precast Specialties Corporation	25
Payette	25
Chapter 4: Construction Documentation	26
4.1 Submittals	26
4.2 RFI's	27
4.3 Change Orders	28
4.4 Meeting Minutes	29
Chapter 5- Building Information Modeling (BIM)	30
5.1 BIM Description	30
5.2 Autodesk Revit	
5.3 The BIM of the UMass ACCES building	
5.4 Conclusion	39
Chapter 6: Scheduling	40
6.1 Need for a schedule	40

6.2 Actual Schedule from Consigli	40
6.3 Primavera Scheduling	41
6.4 Baselines	45
6.5 Updated Schedule 1	47
6.6 Updated Schedule 2	48
6.7 Updated Schedule 3	50
6.8 Conclusion	51
Chapter 7- Quantity Survey	53
7.1 Need for estimating	53
7.2 Preliminary Quantity Survey by Hand Calculations	54
7.3 Quantity Survey using Revit	54
7.4 Comparison of all estimation	56
Chapter 8: Camera Loading Design	58
8.1 Introduction to situation	58
8.2 Steel Design Methodology	60
8.23 Recommendations	61
Chapter 9: Conclusion.	64
9.1 Analysis	64
9.2 Recommendations	65
9.3 Experience Gained	66
Bibliography	68
Appendix I: Meeting Minutes and Notes	70
Appendix II: Submittal and RFI Lists	. 100
Appendix III: Complete list of Subcontractors	. 106
Appendix IV: Project Schedules	. 109
Appendix V: 4-D Modeling	. 152
Appendix VI: Quantity Tables and Calculations	. 162
Appendix VII: Capstone Design Proposal	204
Appendix VIII: Camera Loading Design Calculations	. 209

## **List of Figures**

Figure 1: Completed Building Rendering	14
Figure 2: Warning window in Revit	31
Figure 3: 2D South View in Revit	32
Figure 4: Aerial photo during construction	34
Figure 5: Steel Columns	35
Figure 6: Steel Framing of Building	36
Figure 7: Final building rendering	37
Figure 8: Photo and model of construction progress in July 2007	38
Figure 9: Initial plan before run on Primavera	42
Figure 10: Initial plan after being run on Primavera	44
Figure 11: Updated schedule attached to original schedule	45
Figure 12: Updated schedule 1 attached to the original baseline	47
Figure 13: Updated schedule 2 attached to original baseline	48
Figure 14: Updated schedule 3 attached to original baseline	50
Figure 15: Finished schedule from second update	51
Figure 16: Finished schedule from third update	51
Figure 17: Exported Quantity values from Revit	55
Figure 18: Final quantity comparisons	56
Figure 19: Calculated final quantity values	57
Figure 20: Placement of 10K cameras from West view	58
Figure 21: "B" columns analyzed (yellow)	61
Figure 22: Critical columns and girders	62
Figure 23: Design changes	66

## **Chapter 1: Introduction**

For our project, we used a variety of methods and programs to gain understanding in building design and construction processes. We utilized the program "Autodesk Revit" and some of its components, as well as the program Primavera. "Revit" helped gain an understanding of the structural design of the building along with many other aspects of different construction processes. Primavera, on the other hand, gave us insight into the management side of the construction world. Both of these aspects of a construction project such as this one are very helpful in attempting to understand real world scenarios and practices.

The report also discusses a possible problem encountered by the Consigli construction team. This dealt with extra dead loads on three floors of the building. After the initial design, the addition of MRI cameras were discussed, this could cause a problem in that the floors were not originally designed to carry such large additional loads. The fact that this construction project is a design/build one, it caused even more problems with time delays and extra costs than if it had been a design/bid/build project. This is discussed in more detail later in the report.

Revit was used to help develop a detailed 3-D digital model of this project. First, we created a models of the building at different stages of the construction process, eventually ending at the final product. The models mirror web shots of the actual construction of the building at specific stages. These web shots were taken at the end of each month of construction- each rendering matches the actual picture for each month. The difference is that the rendering allows us to look at the building at every stage from any angle at any point in time- something a photograph cannot do. The photographs

simply allow us to see what the current progress on the building is from the exterior onlyyou cannot see what is underneath such things as the curtain wall and flooring.

The final Revit model reflects the design and all of its floor plans, architectural plans, and the different materials in the project. With these were able to use "Revit" and calculate detailed material quantities. With tools from "Revit" were also able to export the materials. We were also able to focus on essential aspects of the building, such as concrete, steel, and curtain wall quantities, when evaluating for the takeoff. Knowing the different kinds of materials, along with the quantity of those materials, helped us with the cost estimating aspect of our project. The use of Revit and all of its applications is discussed in more detail in Chapter Seven of the report.

We also used the project scheduling program "Primavera" to develop a schedule of the existing building construction. Since Consigli Construction, the design/builder for this project, uses this program to schedule their upcoming activities it proved helpful for us to attempt to reflect their current schedules. We used their initial schedule from the beginning of the project and compared it to updated versions that were created throughout the construction process. Our created schedules involve the main activities that we feel are vital to the building's construction. Along with building activities, the schedule entails design events and any other events preceding our involvement in the project. This allows us to illustrate the progress of the entire project and make any significant events known. We also created updated schedules with Primavera and compared it to the original planned schedule. By putting both the original schedule and the updated version onto the same file we were able to detect how far ahead or behind the construction progress was at the time and if they are above or below the budgeted cost at

any given time. This would prove to be helpful for many reasons. A Primavera analysis is discussed in further detail in Chapter Six of the report.

In order to further our knowledge of the project and construction management process we also attended as many of the scheduled on-site construction meetings as we could from September 2007 until January 2008. These meetings included anything of importance and were held between the owners, foremen, and subcontractors. This helped us to better understand the organization of a construction project, observe the project management process first hand, and to also assist us with scheduling procedures. We were able to examine how the professionals go about dealing with specific problems that come up in the typical construction progression. It also gave us a chance to speak with members of Consigli Construction and the University of Massachusetts representatives. They were very helpful throughout the project; answering to the best of their ability any questions that we had.

The fact that this construction project is a design/build and fast-tracked one, it could cause problems with time delays and extra costs. With a fast-tracked schedule, the building design is not completely finished even though construction has started.

## **Chapter 2: Project History**

## 2.1 Planning History and Organization

The University of Massachusetts Medical School is constructing a new building alongside Route 9 in Worcester, MA. The project is privately owned by the Worcester City Campus Corporation (WCCC). The WCCC is a publicly owned not-for-profit Massachusetts state government created board of trustees whose sole purpose is to oversee the well being of the students, patients, and employees of the University of Massachusetts Medical School's Worcester Campus. The WCCC works within the school and was created to help oversee projects (such as this one) and make sure that the school does not stray from its intended purpose.

The project was owner funded; the school is supplying all the necessary money for the building to be completed. For this project, the school decided, with guidance from the WCCC, that they wanted to go with a design build approach allowing them to construct the exterior even though they had not decided on the design of the interior. The UMASS owners decided that the best company to provide these services for this project would be Consigli Construction Company, based in Milford, MA. They have a history of working together and the UMASS owners felt that because of the quality of their previous projects, Consigli would do a quality job with this new project. There was one other major competitor that bid on the project, this company was Skanska Construction. Consigli was awarded the project due to positive past experiences between the two entities. Although Skanska is a solid construction company they were not able to underbid Consigli and this allowed Consigli to sign the contract to construct the new

University of Massachusetts Medical School building. Consigli then hired Payette Design to design the architectural and structural plans for the building.

## 2.2 Building Purpose

The building, named the University Of Massachusetts Advanced Center for Clinical Education and Sciences (ACCES) will be mainly used for teaching students new methods of practice. In order for the University to stay successful, it needed to expand and decided to create another building. They needed more space as the campus grows larger. The current campus is too small to include every facet of the learning process at the hospital. As a result, this new building was developed.

The building will be used by students as well as current doctors who want to sharpen and refresh their skills and learn new surgical methods. These trainings will include virtual reality, simulation mannequins, and the Standardized Patient Program. The building also houses the Clinical and Translational Science Department. This is a new, recently founded department whose goal is to shorten the time of implementation between a scientific breakthrough and its application, through either medicines or medical practices, into the real world. The first floor will also hold campus support services, which include anything from coffee shops to the credit union. The figure below shows a computer rendering of what the building is projected to look like <sup>1</sup>.

<sup>&</sup>lt;sup>1</sup> Consigli Construction Company Inc. Milford, MA 2005. http://www.consigli.com/about.html



Figure 1: Completed Building Rendering

#### 2.3 Construction Procedures

The ACCES building will be a 258 000 square-feet building consisting of seven stories. The inner core and outer shell is expected to be completed by summer of 2008. The entire building should be completed sometime in late 2009. However, this is assuming that there are no significant setbacks during the building's construction and design processes.

The original cost of this building was planned to be \$55.6 million. However, As of October 2007 the project is about \$3 million over. So far during the construction process there have been significant design and construction delays that have caused months to be added to the total timeline. Some delays include steel processes, as well as fire protection hardships and curtain wall placement. These delays have caused for frustration on both sides, Consigli Construction and the University of Massachusetts.

This building is still being designed even though it is already under construction in order to save time and money. The exterior and core (steel structure) designs have

been finalized, while the interior has not. Even though construction is well underway on the outside of the building, teams are still designing the inner workings and deciding what is going to go where. This means that the project is using a design/build project that utilizes a fast tracked procedure. Instead of following your typical design/bid/build procedure, where two companies provide design and construction services, this project is design/build. This means that only one company, Consigli in this case, is providing all the necessary paperwork. The fast track aspect means the building is not completely designed when construction starts. In this case, the interior design is not complete, even though exterior construction has begun. By doing this, the owners hope to save both time and money.. By overlapping the design and construction processes months can be taken off of the project's duration- and since time is money, a few million dollars can sometimes be saved as well. This occurs because the building is finished sooner, allowing for rents to be collected, or in this case, for the building to be opened and used. Construction loans are also paid back sooner, allowing for savings on interest rates to occur.

The designers have until summer of 2008 to finish the interior designs- this is when outer construction is expected to be completed- as long as there are not any additional significant delays.

## 2.4 Project Setbacks

However, almost no project can go on without some kind of setback. The ACCES building has had its share. There seems to have been delays in steel fabrication and erection, and in the frame and truss erection. There were problems with the steel connections as well; they had to be refabricated for the fittings to work properly. The

connections were insufficient in its load bearing capacities. They were not designed to be able to handle the additional loads the cameras brought on. As a result, they had to be redesigned so that they could support all of the loads and moments. In order to make up for this lost time, which has caused for about a three month delay, they are trying to speed up some of the critical path aspects of the construction process. For such things as the curtain wall and fireproofing process, second shifts have been added. In some instances, overtime has been worked, but this is kept to a minimum. The idea is to add shifts but to still only have to pay worker's regular straight pay and not overtime (which could be anything from time and half to double time to even triple time depending on the worker. Since there are unionized workers on this job, different rules apply to different trades. In this way they keep extra costs to a minimum. Overall, even with the extra shifts it seems that they are not catching up on the delays, they are still significantly behind.

There was also a problem with the original design loads for floors three, four, and five. Even though originally the designs called for one set of dead loads, the owners requested for a design change that could support additional equipment on these floors. This caused for a redesign for certain areas of the building. The additional equipment consisted of at least twelve 10 000 pound imaging cameras to these floors. The original design could not handle these additional loads and steps needed to be taken to fix the original design. The fact that the project is fast tracked did not help matters either. Due to the project being fast tracked, there is a strict time line that needs to be followed. One setback can cause for other areas of construction to be setback as well, creating a chain of

delays. This is discussed in more detail in Chapter 8: Camera Loading Design section of the report.

## **Chapter 3 - Project Organization**

#### **3.1 Owner**

This project was primarily funded by the University of Massachusetts Medical School (UMMS) and they will also occupy a majority of the space in the building. They were the acting owners and maintained a presence for on-site decisions throughout the entire project. Although there have been many problems on deciding what will be done with the unoccupied space, the UMASS group has been working with Consigli and Payette architects, who was hired by Consigli, to finalize all the inner designs. The weekly owner's meetings allowed both Consigli and UMASS to stay on the same page and work together as a cohesive unit.

Founded in 1962 UMMS was the Commonwealth of Massachusetts' first and only public medical school. The primary focus of this school was to provide affordable, high-quality medical education to state residents and to increase the number of primary care physicians practicing in underserved areas of the state. After 40 years of dedication from all the school's faculty and students, UMMS has become one of the nation's top 50 medical schools.

There are currently five University of Massachusetts campuses and the Worcester location is one of twenty-eight free standing, university based academic health science centers in the U.S. ranked fourth in the nation in primary care education. UMMS comprises three schools – the School of Medicine, Graduate School of Biomedical Sciences and the Graduate School of Nursing. Also the largest health care provider in Central Massachusetts, UMASS Memorial Health Care, is the clinical partner of UMMS.

In the new UMASS building UMMS will continue to develop their great reputation of health sciences education. While this is of great emphasis and importance to UMMS they are also working to develop their rapidly growing research department. UMMS has exploded onto the national scene as a major center for research, and in the past four decades, their researchers have made pivotal advances in HIV, cancer, diabetes, infectious disease, and in understanding the molecular basis of disease. UMMS also takes pride in their public services and the research that they have done has played an important role in the institution's public service. UMMS works with the public agencies to improve access and delivery of health care to at risk and uninsured populations. They do this by taking advantage of the institution's research, academic, management and clinical resources.

Amongst their great efforts and commitments to the community UMMS has developed multiple programs that serve the people of the commonwealth. The Office of Community Programs, The Department of Family Medicine and Community Health, and Commonwealth Medicine are just a few of their many diverse programs. Within these programs UMMS can coordinate an extensive community outreach effort. This only reflects their belief that collaborations within the community can make for healthier, more productive neighborhoods. The Office of Community Programs (OCP) oversees the initiatives of many public centers that deal with a variety of health issues. The OCP brings resources and expertise to medically unreserved areas, communities that are experiencing health care problems or health care personnel shortages.<sup>2</sup>

\_

<sup>&</sup>lt;sup>2</sup> State of Massachusetts Government. Chapter 163 of the Acts of 1997: An Act Authorizing the Establishment in Central Massachusetts of a Health Care System Affiliated with the University of Massachusetts Medical School. November 25, 1997 (accessed February 17, 2008) http://www.mass.gov/legis/laws/seslaw97/sl970163.htm

The Department of Family Medicine and Community Health is also another very important signature program established by UMMS. This program provides clinical care to communities throughout Massachusetts, including many that are underserved. More than twenty years ago, UMMS was one of the pioneers in establishing a program in which first-year medical students are required to study health problems and health care services. They conducted these studies by spending two weeks in local communities faced with a variety of challenges. This helped the students to gain an understanding of the importance of the community context in health care through firsthand experience. The main purpose is to develop new doctors that have a realization of the problems that traditionally neglected populations face. Some of the groups that are mainly focused on in this program are racial minorities, patients with AIDS, poor families, substance abusers, the elderly, the homeless, the mentally disabled and abused children. This wide range of illnesses creates a sense of diversity from the UMMS graduates allowing there skills to develop in different areas.

While UMMS has served as a top New England health science education program they have exhibited their compassion by developing many public service programs. This new campus modernization program will further develop their ability to serve the community and develop well trained and educated doctors. The new building will be another affective tool in regards to medical education and research.<sup>3</sup>

-

<sup>&</sup>lt;sup>3</sup> University of Massachusetts Medical School: Campus Modernization: Advanced Center for Clinical Education and Science. http://www.umassmed.edu/campusmod/index.aspx

## 3.2 Design-Builder

Hired to work as the acting Design-Builder on this project was Consigli Construction

Co. The main reason for the hiring of this particular company by the UMASS group was
due to the fact that the two have a history of working together. On a previous UMMS
project they worked together and the project was very successful. The existing parking
garage that is located on the site that the UMMS building is being connected to was also
built by Consigli only 3 years prior to this new project. This multi-level parking garage
is located adjacent to and is connected directly to the new UMASS building. This only
made it fitting to have them continue what they had started and finish the complete
project. The bidding process went smoothly with only one other company putting in a
final bid. They failed to under bid Consigli and the previous experience Consigli and the
UMMS have had gave them a leg up. The selection of Consigli was a confident one
based on the fact that UMMS already knew the quality of work and professionalism that
they were getting involved in.

Established in 1905 Consigli Construction has made a name for itself throughout the Northeast as a well respected construction company. Consigli has become an established leader in the New England construction industry throughout the past century. It is now led by a fourth generation of the Consigli family, and provides construction management, general contracting, design-build and pre-construction planning services from its two offices in Portland, Maine and Milford, Massachusetts.

Established by Peter Consigli and his seven sons, the company was originally a small masonry contracting business. With his sons Peter Consigli renovated and built projects throughout the local area, and some of these projects still stand today and are very well-

known in the communities. Succeeding his father was Henry Consigli Sr. who would develop Consigli Construction into the company you see today. They continued to take on larger more complex projects dealing with general contracting and construction management. After a century the company has become a highly diversified construction company, and is ranked in the country's top 400 general contracting firms. Their client list has steadily grown over the years and involves many different aspects of construction.

On the UMMS building Consigli Construction had obtained a design build contract which gave them complete control of the design and the construction on the project. Consigli made the decision to hire the Payette Architecture Company and together they have worked to build this state of the art research and academic facility. Consigli had a wide range of responsibility on this project and it pushed them to test their abilities in the construction management field. The Project Manager on this project was William O'Rourke and the Project Engineer was Russell Peterson. We worked directly with these two Consigli members to develop the major portions of our project. With their cooperation we were able to obtain information that allowed us to develop our schedules and renderings. They were very helpful and supplied us with whatever information we requested and also gave a very informative site walkthrough. These two along with other Consigli members were available at all the Sub contractor meetings and owner meetings. Consigli has a long standing reputation of being a company that is hard working and made up of good people. This is something that we were able to experience with our project and were able to gain a lot of knowledge from watching them conduct themselves and their workers.

#### 3.3 Subcontractors

Consigli Construction was also responsible for the hiring of all the subcontractors on this project. A project of this size requires many different types of contractors which creates a very long and grueling process in the sub contractor selection process. Consigli has done many projects similar to this one which allows them to know what they are looking for in a particular sub contractor. On this particular project there were over fifty subcontractors used. This list ranged from the larger steel and concrete suppliers to the smaller companies that supplied the waterproofing and temporary construction fencing. While there are many different types of subcontractors used, listed below are the major contractors that had essential roles in the construction process and were major contributors to this project.

#### **BK Ironworks**

In this seven story steel frame building there was a large emphasis put on the steel aspect and the importance of the steel supplier. When constructing the frame they cannot afford to have delays with the pre fabricated steel beams and connections. BK Ironworks has been recognized as one of the best fabricators of structural steel in North America, and have been supplying structural steel since 1958. They are located in Quebec, Canada and supply steel throughout the Northeast United States and Canada. This long standing and successful history allowed them to be an easy choice for the steel supplier. Consigli has used BK Ironworks for many of their projects and found them to be the right choice for this new seven story building.<sup>4</sup>

<sup>&</sup>lt;sup>4</sup> B.K. Ironworks Industries. Harrisburg, PA http://www.bkiron.com/english/history

## **East Coast Fireproofing**

Many project managers will want to make sure the fireproofing for their building is going to be affective. This allows for the building to be safer and have more stability in the case of a fire. East Coast Fireproofing has been a leader in the Northeast for fireproofing since it was founded in 1979. They tend to focus on spray on fireproofing and spray applied thermal and acoustic insulation. The spray on technique of applying fireproofing allows for faster application which eventually saves time and money on a project. The effectiveness of the fireproofing is always important and the selection of the subcontractor will not be taken lightly. <sup>5</sup>

## William F. Lynch Co.

Another important aspect to the construction of large office buildings is the HVAC systems and the plumbing. Both of these systems were installed by William F. Lynch Co. This 50 year old company focuses on mechanical engineering services involving plumbing, heating, ventilation, and air conditioning systems. Their in house design team is very experienced and includes a diverse group of workers with all types of knowledge in construction and design. With seven floors the HVAC and plumbing system can get very complex and the subcontractor that is chosen must be able to handle a project of this magnitude.<sup>6</sup>

<sup>5</sup> East Coast Fireproofing. http://eastcoastfp.com/about.php

<sup>&</sup>lt;sup>6</sup> William F. Lynch Co., Inc.: Merrill Sheet Metal Co. Division: Engineers and contractors of plumbing, heating, ventilation, air conditioning systems. Worcester, MA. 2000. http://www.wflynchinc.com/Default.htm

## **Precast Specialties Corporation**

When dealing with precast concrete the supplier must be chosen very carefully. Precast concrete can save a lot of time on a project when used in the right way. In this building a large portion of the back wall was constructed using precast concrete. This concrete had to be fabricated and delivered on time to prevent delays in construction. The Precast was installed using a large crane, which caused the adjacent street to be closed for the construction of the back wall. Precast Specialties Corporation is a full service supplier of precast concrete products and is well known throughout New England. They specialize in architectural exterior wall panels and this is exactly what they were used for on this particular project. <sup>7</sup>

## **Payette**

This project was a design build which means the designing services were contracting out by Consigli Construction. The Architect Designer that was chosen for this project was Payette. Payette spans across three continents and does quality work all over the United States. They have specialized in designing highly technical buildings for healthcare and scientific research. The company history goes back as 1932 and was taken over by Tom Payette in 1965 and has been a well respected company since.<sup>8</sup>

<sup>&</sup>lt;sup>7</sup> Precast Specialties Corp. http://www.precastspecialtiescorp.com/

<sup>&</sup>lt;sup>8</sup> Payette. http://www.payette.com/WhoWeAre\_FirmProfile.aspx

## **Chapter 4: Construction Documentation**

#### 4.1 Submittals

Submittals are used by the architects and engineers in order to show what materials are needed for the project. It shows the architects and engineers know exactly what is going to be used to construct the building and give them assurance that their designs are being followed. It also tells the construction managers what to tell the subcontractors. It lets them know what materials are needed and also helps the managers decide which subcontractors to hire. Hiring the right subcontractors will help ensure that the construction of the building proceeds with as few setbacks as possible and to the highest quality, for the best value as well.

Submittals are also sometimes created by the subcontractors. This is done to show what changes they deem are necessary in order to complete the project correctly. Because a subcontractor cannot change anything on their own, they need to create a submittal to receive approval by the engineers and architects.

Every aspect of a construction material is included in this submittal. From the color, to the type of a certain material (an example is what kind of joints to use), to the kind of connection, to the brand, anything that is important to the construction process is included in this report.

This chain of command is very important in the construction of the building.

Submittals help keep communication open between every party. Constant communication is necessary if all parties involved want to keep the construction process continuing as smoothly as possible; any type of delay or mistake in the communication process can lead to large mistakes and problems out in the field that, depending on the

severity of the mistake, can cost the owners and Consigli construction thousands of extra dollars and possibly additional weeks on the schedule. This is due to the fact that Consigli was given one lump sum to finish the project. Consigli has a fixed price contract. This means that UMass paid Consigli one lump sum of money and it was up to Consigli to turn a profit with it. Two examples of a Submittal provided by Consigli Construction are included in the Appendix section three of this report.

#### 4.2 **RFI's**

A Request For Information (RFI) document is used by the contractor to clarify any confusion found within the contract documents. It is used to keep a record of the contracotr's questions and the responses by the architects or engineers. These are usually considered the predecessor to a change order or even a dispute. Before a contractor can continue with any construction, he must complete a RFI to correct any errors or conflicts.

This document also gives the construction managers an idea of what material shipments or work can be performed by the different subcontractors hired for this project. It also allows for the managers to compare the information from week to week and make important decisions about the construction process of the building. It allows for the project managers to know what exactly is happening with different subcontractors at that given moment.

Also, any change made by the project manager as a result of the RFI can be considered a change to the project's scope. This means that this specific change can affect an entire section of a building, either by creating a need to change a design, or to halt construction. An example of an RFI can be found in Section II of the Appendix.

## 4.3 Change Orders

A change order is the written record of any change requested by the tenants owners of the building. In this case, this would be the University Of Massachusetts Medical School. The change order also has the approval of the architects and the recommendations of the Construction Manager. Change orders are only created when the updates create changes in the original scope of the project. This change in scope could be from an error in the original, an omission, or an intentional change<sup>9</sup>.

A change order is helpful in that it allows for the construction team to keep track of the effect of these changes, whether they cause for time delays or a cause for going over budget. It also allows for a record in case there is a dispute later in the project.

These forms also allow for things such as additional cost to be accounted for when estimating the project's updated budget.

The payer of the change order can be determined in a few ways. Usually there is an agreement reached between the owners and construction managers. Either the owners will pay for it or it will come out of the original budget- this is sometimes dependent on whose fault the change order is (an example would be the owners adding deadloads to a floor, causing for design and construction changes). The architect is usually the one who determines the cost of the change order, this price is then relayed to the owner. The payment is then made with the architects approval with a Project Certificate of Payment<sup>10</sup>.

These legal documents are also good if the owners or tenants claim that things are being done without their knowledge, in order to gain more profit. A construction

<sup>10</sup> O'Brien, James Jerome. Construction Change Orders: Impact, Avoidance, Documentation

<sup>&</sup>lt;sup>9</sup> O'Brien, James Jerome. Construction Change Orders: Impact, Avoidance, Documentation

manager can decide to do things in an unapproved way with an unapproved company in order to lessen the cost (and possibly lower the quality) in order increase potential profit-change orders help prevent this by creating a log of all actions and changes. Change orders are also documents that are used as an update to the original schedule and budget. They should also tell how long this change will delay the project and how much it is supposed to cost.

## **4.4 Meeting Minutes**

During the construction meetings that our group attended, a packet was given out to all attendees. This packet contained what was called the "Meeting Minutes". This packet also provided an updated schedule of the project.

These "Meeting Minutes" provided a simple way to keep track of what was occurring during the construction process. Each week's problems and accomplishments were included within the "Minutes". In this way, Consigli was able to show the attendees where different problems were occurring, and when different milestones took place. They also provided a small look ahead into what was expected to happen in the coming week, the next week's meeting would tell whether or not these expectations were realized. Examples of the Meeting Minutes that we obtained are located in Section I of the Appendix.

## **Chapter 5- Building Information Modeling (BIM)**

## 5.1 BIM Description

BIM is becoming a very effective and widely used tool in the field of construction in recent years. It is a three dimensional model which contains many properties of the building including quantities, geographic information, special relationships and the size and shape of the building.

More and more companies are switching from the traditional computer aided drafting when designing a building to BIM, which has many advantages. Unlike the traditional CAD, BIM models actual parts and pieces of the building instead of simple lines which represent a part. It can be started from scratch or AutoCAD drawings can be used as a springboard for the model, making it very convenient for situations where some companies use 2D drawings. BIM model also has the potential to eliminate problems which have disrupted and slowed the construction process. Many of the construction documents which are used in a project such as drawings, procurement details, environmental conditions, submittal processes and other specs can be included in the model and easily changed if needed. 11

The parametric change engine is the key reason for the programs ease of use. The software and the user define constraints or relationships needed to maintain consistency. When making a change to the file, the engine uses what the information it receives to build a network of relationships between the elements that are affected by the change. The file can be modified by the design team, contractors, and the owner under proper control and coordination. This keeps the project very organized, curing many headaches

<a href="http://investors.autodesk.com/phoenix.zhtml?c=117861&p=irol-newsArticle&ID=261618&highlight=>.">http://investors.autodesk.com/phoenix.zhtml?c=117861&p=irol-newsArticle&ID=261618&highlight=>.</a>

<sup>&</sup>lt;sup>11</sup> "Autodesk to Acquire Revit Technology Corporation; Acquisition Adds Complementary Technology for Building Industry." Autodesk.Com. 21 Feb. 2002. 13 Feb. 2008

from coordination between subcontractors. An example of a common problem would be when two objects are supposed to be in the same area such as a pipe and a girder. Traditionally the structural drawings have their own file. If someone does not see a detail change from the structural and MEP drawings such as a water pipe which was designed to fit just under a beam, but the beam size was changed during construction on a design/build project such as this one, the problem would not be realized until the pipe was to be constructed. Because the model uses actual parts (every part is picked from a catalog to match its exact unique specifications), it is very easy to assess problems which may arise during construction without even going to the building or it having been built yet. The program will point out the problem with a pop-up warning box such as the one shown below, specifying the problem and explaining the solution the program made.

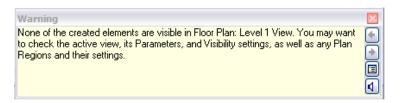


Figure 2: Warning window in Revit

You can literally walk up to the problem in the model and investigate clashes between systems and layout issues. These programs can also generate 2D drawings, just as the traditional CAD does. These can be made by simply orienting the model in the desired view. Since the building is one file, a change in one area will change in every view, a huge advantage over the traditional 2D methods for creating drawings which could not coordinate multiple views with one another.

The following figure is an example of a 2D drawing created from the BIM program Autodesk Revit. It is the southern view of the UMass ACCES building.

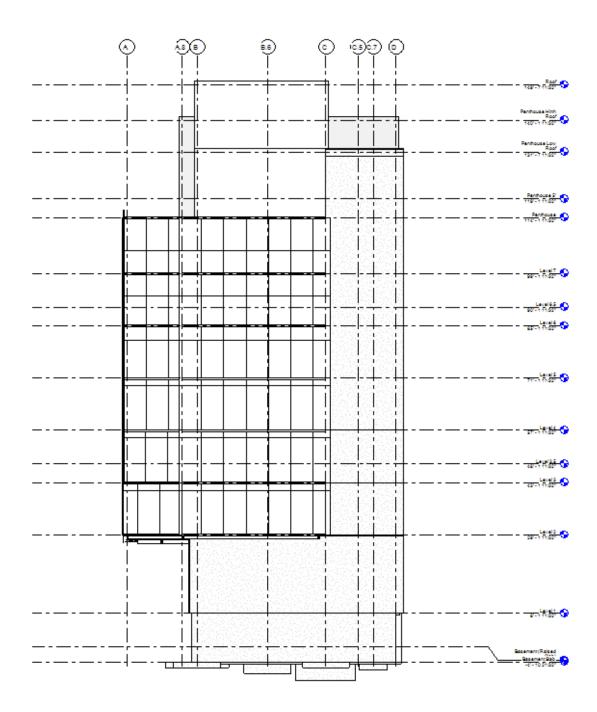


Figure 3: 2D South View in Revit

#### 5.2 Autodesk Revit

One of the most commonly used BIM programs is Autodesk Revit. The program was created in 1999 by a company named Charles River Software based out of Framingham, Massachusetts. It was then purchased by the Revit Technology Corporation in 2000 and finally bought by Autodesk from the Revit Technology Corporation for \$133 million in 2002. <sup>12</sup>Generally, when a project is started, the central file is shared over a network and can be edited by multiple users. For example, if the architects decide to change the dimensions of wall, they can do so and the engineers in a different office will have an automatic update of the change. One nice feature of the program is that if one person is making a change, it checks to see that someone else isn't editing the model at the same time which prevents two people from making the same change at the same time, which can also be controlled through work sets by assigning editing rights to only one responsible person in each team. The program also detects interference if different components of the building are taking up the same space and warns you before proceeding in the model. Because MEP, structure and architecture are all integrated in the same model, this is a very helpful tool. In the past, these problems would not be realized until actual construction. Contractors are using the BIM for cost estimating, site planning and logistics, and visualization of the different phases of the construction progress.

11

 $<sup>^{12}</sup>$  "Autodesk to Acquire Revit Technology Corporation; Acquisition Adds Complementary Technology for Building Industry." Autodesk.Com. 21 Feb. 2002. 13 Feb. 2008

## 5.3 The BIM of the UMass ACCES building

With the 2D drawings given to us by Consigli, we felt would we could use Revit to gain experience with BIM and make a valuable model of the building itself. Although we had no official training with the program, using the tutorials and help menus, we were able to get a feel for it and build a rather accurate model. From this model, we could extract quantities and in a way, see the past by looking at different stages of construction in 3 dimensions. This created a new dimension, time, establishing the model as 4D.

The first step in the modeling process was to create the foundation of the building. This came to be one of the most difficult stages in the entire process because of the incredible detail needed to create footings and slabs. The difficulty we came across was interpreting the structural drawings. There seemed to be multiple elevations for certain footings and many different slab shapes and elevations which were not only difficult to decipher, but also tricky to model. The main problem was that the footings were shown on the foundation drawing as being five to ten feet below the actual foundation slab, when the column schedule shows the columns that were supposed to be in the footings ended either at the slab or above. We decided to focus more time into the structure and shell of the building, leaving some details out in the foundation such as the exact

elevations of the footings, although the sizing was modeled correctly. While the final foundation in the model is rather simplified, it gives you a general feel for the shape and size of the actual building and gave us a good start to the structure.

The next and most time consuming stage in the



Figure 4: Aerial photo during construction

modeling process was creating the structure. With the given structural drawings, we could insert every structural column and beam into the model. This was a very tedious and long process. The structure was actually built as two separate buildings, north and south. The entire foundation was built initially, but the steel was constructed almost entirely in the south building before construction on the north began as seen in figure 8. This is a photo of the site in June 2007.

When constructing the building on Revit, the approach was slightly different. First, every column in the building was constructed. Most of the main columns were spliced twice, once five feet above the third floor, and again five feet above the sixth floor. The view below is the building after the columns were constructed. Many were floating because the frames had not been put in yet which would be supporting some of the columns.

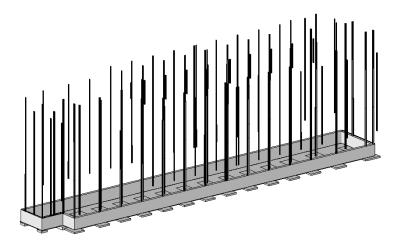


Figure 5: Steel Columns

The next step was to add the rest of the steel framing. Every beam was inserted starting with the first floor and moving upwards. This was not exactly how the building was constructed but it was an easier approach to modeling the building. The figure below shows the entire steel framing after the steel was inserted.

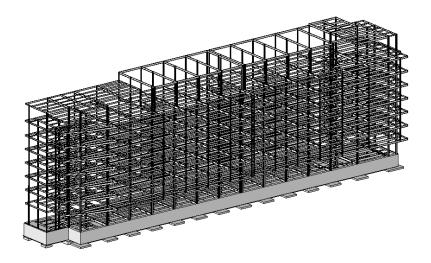


Figure 6: Steel Framing of Building

Before we could close the building, slabs for each floor were added according to the specifications. We constructed a typical floor slab was light weight 3 inch thick concrete slab on ½" metal decking as specified in Payette's structural drawings.

Closing the building was a rather easy process, but was very satisfying because it gave the building its recognizable look. Exterior walls were added which included the curtain wall, concrete retaining walls and CMU. A common interior wall was used for the entire building just to give it the look we wanted, not necessarily for the cost estimation. The BIM for this building was done with the intention of estimating concrete, steel and curtain wall, therefore estimates for the interior walls, doors, were not planned

to be performed. They were done mainly for cosmetic purposes and not as accurately as the steel, concrete and curtain wall. The final rendered model is shown in figure 7.

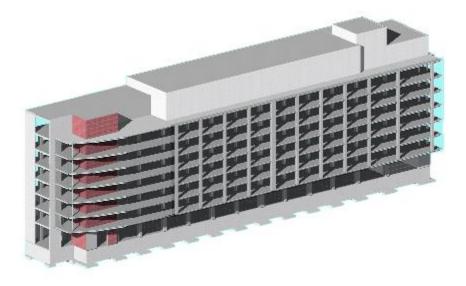


Figure 7: Final building rendering

The final step, in order to create the 4D model, was to create views on the model in each month of construction. Using the photos of the site for the past year, it was very easy to see what changes were made month to month and accurately portray them in the model. The program allows you to hide different materials in different views. We modeled the building from March 2007 to January 2008. Each view allowed us to actually go into the building and see what it would have looked like at that stage of construction. An example is shown below with a photo from July 2007 and the BIM for the same stage in construction. The full timeline is shown in appendix 5.

# **Aerial Shot July 2007**



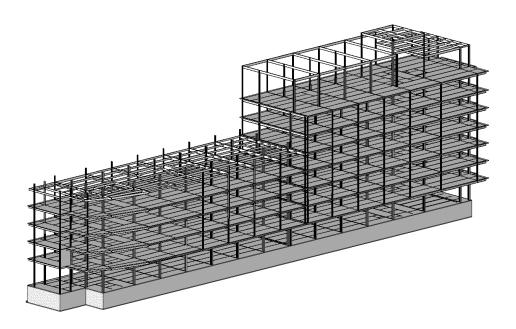


Figure 8: Photo and model of construction progress in July 2007

# **5.4 Conclusion**

The experience using Revit as a BIM was very worthwhile. It let us become familiar with the ins and outs of the entire building and allowed us to work with a state of the art program which will soon be used in many construction projects.

After using the program, though, we realize how much effort goes into making an entirely accurate model. Our model only really illustrated the steel structure, the walls, floors and foundation. Much more is put into an actual model used in the field and has to be extremely time consuming and difficult. We believe, though, that it is well worth the effort. With the proper training and experience, a model could feasibly be created which would be the main reference for subcontractors in any construction project.

# **Chapter 6: Scheduling**

#### 6.1 Need for a schedule

This section of our report showcases the scheduling aspect of a construction project. A schedule is an important part of a construction project such as this one. Without it, there would be confusion throughout the entire workforce. The base schedule, as well as its weekly updates, helps to organize every aspect of the design and construction process. Everything from when the first holes will be dug, to when the concrete will be poured (and by whom), to when the curtain wall will be in place is all within this master schedule. The schedule allows for the project managers to know what parts of the project need the most attention, who is the most behind schedule, as well as what needs to be done to bring the project back on track. Schedules that have a network built into them to show the relationships between activities also give the project manager a critical path. This is the path of activities that directly affect each other and could push back the finish date. It is important for the project manager to be able to make sure that the activities in the critical path get the most attention and are made sure to not encounter any delays.

# 6.2 Actual Schedule from Consigli

In order to build our own schedule, we needed the actual schedules used by Consigli Construction. At each of the meetings we attended, there were Meeting Minutes packets as well as that week's updated schedule. For each type of meeting, whether it was the owners or subcontractors, a new and different schedule was provided. With these schedules, our group created updated versions of the baseline schedule. The baseline schedule is the one that was created before any construction began. This is the original

schedule that contains the original plans for the project, if nothing had gone wrong this would have been the only necessary schedule.

With the baseline schedule as a starting point, the weekly updated schedules showed where the project began to lose its course. Each week it could be seen what process (and what subcontractors) were responsible for different setbacks. This proves extremely helpful to the project managers. Our job was to compare the original to the updates and see what went wrong.

#### 6.3 Primavera Scheduling

The scheduling part of our project was done with the help of the Primavera computer program. Primavera is a computer program that is being used more and more in the project management and construction industries. It provides a simple and easy way to create and update project schedules. Through this program it is possible to estimate when a project will be complete; it helps show a project's critical path, shows what changes occur when that critical path is changed, as well as many other traits. Instead of preparing a schedule by hand that can take days, the program takes a few hours. This computer program is a very helpful tool whose use will only expand as the years go on.

From a schedule that was created by Consigli, we were able to create our own initial plan for the project. We used Consigli's original baseline schedule and placed it into the Primavera program. From here we gathered the updated schedules from the weekly meetings that showed what parts of the building were and were not complete at that time. Instead of doing a new Primavera schedule for every week, we combined a month's worth of meeting schedules and combined them into one larger monthly schedule. This was done a total of three times. There is the original baseline schedule,

one for the month of August, one for the month of September, another for January, and another for February. Each monthly schedule also has the original baseline schedule attached to it. With this we were able to see where the schedule is ahead or behind the original schedule.

Here is a picture of what the initial schedule looked like before we ran the program:

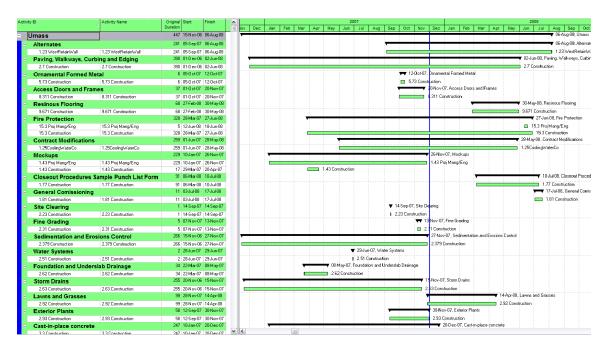


Figure 9: Initial plan before run on Primavera

Looking at Figure 2, the activities and their details (ID number, duration, start, and finish) are on the left while the overview of the schedule is on the right. The blue line going down the middle of the overview is the date that the schedule is being run. It can be changed depending on what day the project manager is running the program. The black lines are the activities while the green lines underneath them are the two sections (project management/engineering and construction). Some activities don't have the two subsections, just the construction aspect.

We ran it to make sure the dates stayed in place and here is where one of the first problems occurred. The dates would get pushed back in order to keep the actual duration and wouldn't start until the day that we ran it, therefore activities were ending in 2009 when they should have been done in early 2008. We fixed this problem by looking at each activity and deciding if it had started and finished by according to the current schedule. There still was a problem with activities that were still in the process of being completed. The date that they started would be the same but the finish date would again be pushed back to keep the activity duration intact. We then checked to make sure that the expected finish date would be kept the same and that solved everything. This method of scheduling isn't what most companies would want because it doesn't have a critical path so it doesn't really show what activities need to be done in order to start another. In the real world, companies decide what has to happen before another activity can begin. For example, the wall of the building can't be put into place until the steel is erected and the steel can't be erected unless the foundation is set. With our scheduling, the activities are set in stone and don't have connections with one another. There is no critical path and activities don't affect one another. The reason that this method is good for our project and comparison is that we want to see how the schedule progressed and if activities had the same start and end dates through the progression of the project. This is what the schedule after being run:

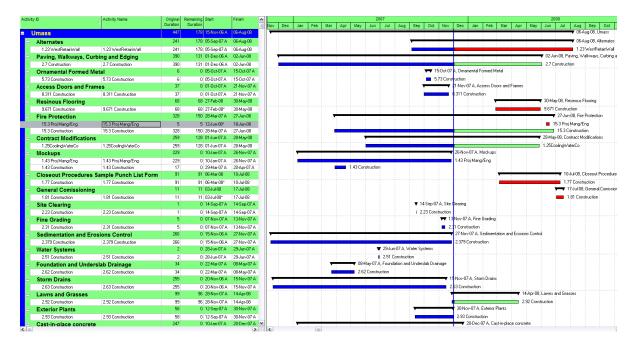


Figure 10: Initial plan after being run on Primavera

After being run the schedule looks a little different. Now instead of the green bars it has the activities being blue, green, or red. The blue portion of the activities means that the activities actually happened up to the time the updated schedule was created. The red and green show the amount of the activity that still needed to be finished before that activity was complete.

There was only one problem in creating this schedule as Consigli provided us with a good detailed initial baseline and we decided to take the major categories such as Fire Protection, Site Clearing, and Steel Metal Stairs and follow them through the construction process to see if there were any changes in their scheduling. In some categories there was a breakdown into two more categories which were Project Management/Engineering and Construction. After the initial plan was created, we looked at the schedules they provided us and tried to create updated schedules. There were some problems here as new activities were added and some were taken away. At the end of B

September. Another problem with the scheduling occurred here and we tried to tag two baselines to the original baseline. This would give us a good view of how each activity changed through the progress of the project. We started with the original and tried to tag the two updated schedules, but they wouldn't show up. When we tried to do the opposite there was no problem tagging the original baseline to an updated schedule. Then we tried to add another updated schedule onto it and the line wouldn't show. We ended up staying with three updated schedules with the original baseline tagged to each one. This makes it a little harder to see the overall progression of the project through the different updated schedules, but delays can be seen in each one.

#### 6.4 Baselines

Another problem with the scheduling occurred when we tried to tag two baselines to the original baseline. This would give us a good view of how each activity changed through the progress of the project. We started with the original and tried to tag the two updated schedules, but they wouldn't show up. When we tried to do the opposite there was no problem tagging the original baseline to an updated schedule.

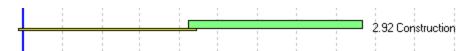


Figure 11: Updated schedule attached to original schedule

The example above shows us the two lines, each representing a schedule. The big green line represents the updated schedule while the little yellow line represents the original schedule. This example above shows that the finish date of the updated schedule is behind that of the original schedule. Since each block represents a month, this activity

seems to be behind schedule by two and a half months. After we had tagged the updated schedule to the original baseline, we tried to add another updated schedule onto it and the line wouldn't show. We ended up staying with three updated schedules with the original baseline tagged to each one. This makes it a little harder to see the overall progression of the project through the different updated schedules, but delays can be seen in each one.

#### Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct I 1.23 westhera 1.23 westheranwall aving, Walkways, Curbing and Edging 2.7 Construction 2.7 Construction 10-Sep-07 A 26-Aug-08 - 5.73 Co 311 Construction 28-Mar-07 A 27-Jun-08 12-Jun-08\* 18-Jun-08 ■ 15.3 Construction ■ 15.3 Proj Mang/Eng ontract Modifications 16-Jul-07 A 03-Dec-07 A 29-Mar-07 A 20-Apr-07 A 19-Nov-07 A 19-Nov-07 A ut Procedures Sample ucti 2.23 Construction 2.23 Construction 2.379 Construction . 2.51 Constructio dation and Underslab = 2.62 Construction

# 6.5 Updated Schedule 1

Figure 12: Updated schedule 1 attached to the original baseline

The project started in December 2006 with Project Management/Engineering of some of the activities such as the steel, concrete, and utilities (plumbing, electrical, ventilation, etc.). Right from the start there were delays as only unit masonry units, structural steel, gypsum board, and curtain walls all finished according to schedule. This wasn't a good start because the construction process was fast tracked which meant that the construction was started before the design/engineering was completed. By the first updated schedule it could be seen that some activities were going to be delayed because of the project management/engineering part being delayed. It seemed that Consigli tried to push up other activities that could be done earlier to try to save time. Activities such as storm drains and sediment erosion control were pushed up two months while the construction for unit masonry assembly and structural steel were pushed back.

What's interesting to note is that with the activities they pushed back, they didn't really change the finish date. This could be because they determined that they would be

able to finish that work in a shorter amount of time or because they figured that the allocated time for construction was more than what they needed. These activities weren't on the critical path because their duration can change and their finish dates stayed the same. From the original schedule, the structural steel was to start construction on the 23<sup>rd</sup> of April 2007 and end on the 21<sup>st</sup> of November 2007. In the updated schedule, the finish date was only 6 days later on November 27<sup>th</sup> 2007 but the start date was the 27<sup>th</sup> of July 2007. That's close to two months of construction that was originally planned before Consigli decided they didn't need that much time anymore. Another interesting note with the updated schedule is that the utilities moved back their project management/engineering start and finish dates, but decided that the construction aspect of the project could be pushed up. According to their schedules, the utilities were some of the last activities on this project. This is interesting because it shows that Consigli thought that the project was ahead of schedule and that they would be able to finish up the utilities sooner.

#### 6.6 Updated Schedule 2

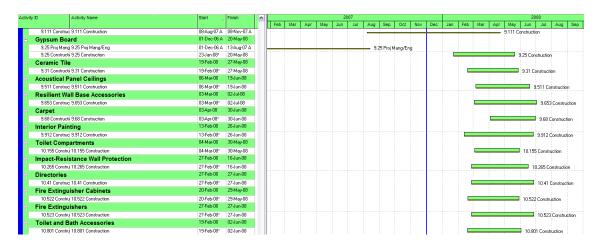


Figure 13: Updated schedule 2 attached to original baseline

Again as with the first updated schedule, the second updated schedule had the project management/engineering pushed back but this time it was only a couple days compared to a couple months between the original and first update. This was a good sign because it showed that the project was in fact still going according to the first updated schedule and that they would finish ahead of schedule. Many of the activities that didn't have a project management/engineering part were actually pushed ahead and scheduled earlier. The doors, frames, and walls were to be completed by October 2007 instead of May 2008 which was the original plan. This was what the schedule showed, but according to the meetings with the owners and subcontractors, the project was delayed. The steel still wasn't fully erected which caused a problem for other subcontractors. Again, even though the method we used for comparing schedules doesn't have a critical path, it's clear to see that some activities need to be completed or at least started before others could start. Since most of the building frame was completed, the landscaping was starting to take effect. They had originally planned to start the landscaping in the fall of 2007 and were right on schedule. Some activities still weren't updated since the original schedule. These were activities that were to take place in the building such as floor tiles, carpeting, and interior painting. Again this shows that Consigli felt that they weren't behind schedule and would finish on time.

#### . 2.51 Construction 28-Jun-07 A 29-Jun-07 A Foundation and Underslab Dr. 2.62 Constructi 2.62 Construction 2.63 Construction 2.93 Construction 3.3 Constructi 16-Jul-07 A 10-Sep-07 A 17-Dec-07 A 08-Feb-08 A 3.45 Proj Mang 4.81 Proj Mang 4.81 Proj Mang/Eng 4.81 Constructi 4.81 Construction 4.81 Proj Mang/Eng 01-Dec-06 A 30-Mar-07 A 21-Jan-08 A 24-Jan-08 A 4.81 Construction imension Stone Cladding 4.851 Proj Man 4.851 Proj Mang/Eng 4.851 Construct 4.851 Construction 07-May-07 A 25-Oct-07 A 04-Dec-07 A 21-Apr-08 uctural Streel 12 Proj Mang 5.12 Proj Mang/Eng 12 Constructi 5.12 Construction 01-Dec-06 A 09-May-07 A 27-Jul-07 A 27-Nov-07 A 5.12 Proi Mang/Eng 5.12 Consuc Metal Deck 5.12 Construction Man 5.512 Proj Mang/Eng struc 5.512 Construction

#### 6.7 Updated Schedule 3

Figure 14: Updated schedule 3 attached to original baseline

The third updated schedule is really interesting compared to the last two updates in that it shows that the project is really behind schedule. The thick green lines represent the updated schedule while the thin yellow lines represent the original schedule. Most if not all of the activities besides the interior activities such as floor tiles, carpeting, and interior painting were to be completed by the end of 2007. This updated schedule was created on January 23<sup>rd</sup> 2008, after the activities were to be completed. This means that activities were really not completed and had to be pushed back. In the earlier updates, some of the activities that were pushed back hadn't even started which meant that there was still time to change around the dates and see if the project could get back on track. Part of the project such as the glazed curtain walls were going as planned while other parts such as the metal wall panels were really behind schedule. With the activities greatly behind schedule, the project was on course to go past the original intended finish date. This could be seen at the meetings as Mr. Caputo, the foreman, tried to figure out the reasons

for the delays and the implications on the rest of the project. The only parts of the project that haven't been changed since the beginning was the interior activities such as the ones listed above. Since most of the activities weren't scheduled to start till February or March of 2008 and the schedule update was created on January 23<sup>rd</sup> 2008, there wasn't any need to delay or push back these activities. These activities can be done quickly but still depend on other parts of the project in order to start. An example of this would be the paving and edging of the walkways (activity 2.7 Construction):

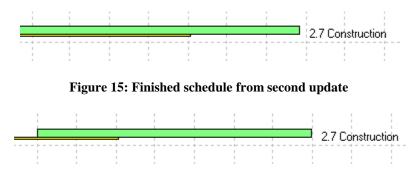


Figure 16: Finished schedule from third update

Figure 8 is a picture of the finish schedule from the second updated schedule while the Figure 9 is a picture of the finished schedule from the third updated schedule. It can be seen that the finish dated scheduled for the second update is earlier than the finish date of the third update because the finish update of the original stays the same. What's interesting about this is that the start date for the paving was October 15<sup>th</sup> 2007 for the second updated schedule while it was April 1<sup>st</sup> 2008. The paving and edging for the walkways would have to wait until other part of the construction were completed.

#### 6.8 Conclusion

Consigli was chosen for this project because of past experience with the owner.

The design and construction process for this building was to be a fast tracked meaning that the construction was going to start before the design was completed in order to try to

save time and money. The project originally started in December 2006 and was scheduled to finish in July 2008. Even though there were many delays and activities pushed back, the critical path wasn't affected enough to push the finish date back. By the updated schedule in January 2008, the finish date was the same even though there were many delays. The interior activities were the last scheduled activities and were to happen at the end of the project. It would seem that delays in the construction of the steel, concrete and framing would push the finish date past the expected finish date. Since we don't have any updated schedules past January, it's hard to tell if the interior activities were pushed back. It seems that Consigli again thinks they will be able to shorten the amount of work needed on the activities that were delayed and meet the deadline to have the project completed. The only real way to figure out if this was the case would be to see how the updated schedule looks like in March after the interior activities were scheduled to start. It's interesting to see how much a schedule changes as the project progresses. Many things can cause a delay in the activities such as an accident, weather, materials not coming on time, the labor not being done fast enough, and another activity affecting the start of another activity. If Consigli had provided us with the Critical Path and a network of how the activities were connected to one another, it would be easier to determine how and why certain activities were delayed. Primavera still provided us with a good idea of which activities were delayed and which were actually shorter than scheduled.

# **Chapter 7- Quantity Survey**

#### 7.1 Need for estimating

Cost estimation in a construction project is a very important and necessary step in project management. Using available data, cost engineers or estimators derive a base line of what the project will cost.

There are basically three types of estimates in every project. The design estimates include the screening estimates, preliminary estimates, detailed estimates and the engineers estimates based on plans and specifications. These estimations are done for the owner. Estimations that are done for the contractor include the bid estimates and the control estimates. Bid estimates are submitted to the owner during competitive bidding for a project and are figured out using subcontractor's quotes, quantity takeoffs and construction procedures. Control estimates are established to monitor the project when it is being constructed. These include budget estimation for financing, budgeted costs after contracting but prior to construction and estimated cost to completion during the progress of construction.

There are multiple approaches to estimating. The production function is used to relate the amount of output to the inputs of labor, material and equipment. This is done for multiple purposes. An example would be the size of a building compared to the labor hours per unit area. It is a mathematical formula used to try to reduce costs based on needs. Unit costs of quantities are established for each component of the project and a total cost is calculated after the unit cost is multiplied by the quantities of the project.

<sup>&</sup>lt;sup>13</sup> Hendrickson, Chris. "Cost Estimation." Project Management for Construction. 1998. Department of Civil and Environmental Engineering, Carnegie Mellon University. Feb. 2008 http://www.ce.cmu.edu/pmbook/05\_Cost\_Estimation.html

Our project did not estimate costs, but it estimated quantities which can be used to establish approximate costs. Hand estimates were done using the drawings given to us by Consigli and then compared to the BIM quantities. Assuming the hand estimates were very accurate, we could establish how precise the model was for calculating quantities of the entire building.

### 7.2 Preliminary Quantity Survey by Hand Calculations

Although our main source for estimating was using the information generated from BIM, we needed some way to establish just how accurate the model was. To do this, we used the architectural and structural drawings to calculate concrete, steel and curtain wall quantities of one half of the third floor. Because the building is rather large (258,000 ft<sup>2</sup>), it would have been very time consuming to hand estimate the entire building. Calculating just the one section was rather easy and could serve as a control for the BIM. This would give us an idea as to how well the model was done and approximately what percent the total quantities were off.

Prior to beginning the estimate of the third story quantities, we knew that the concrete estimate would be relatively inaccurate. There were many details in the concrete which could not be included in the model because of both inexperience with the program and difficulty deciphering the specifications in the drawings. The steel and curtain wall estimates, though, we believe are very accurate. This is proven with the comparison of the two estimation procedures of the south third floor.

### 7.3 Quantity Survey using Revit

One of the features of Revit is its ability to create exportable schedules of the materials used in the model. This made it very easy to extract total quantities of steel,

concrete and walls. By creating schedules in the program, you can specify what details you would like to see and the program puts them in an easy to read table. Figure 17 shows a steel schedule exported from Revit which gives the description of the member, the type of beam, the length and weight of the beam and the quantity of beams with the same attributes.

Assembly Code	Assembly Description	Structural Members	Туре	Description	Manufacturer	Model	Level	Length
		•						
HSS8X4X.3125								
B10	Superstructure	HSS-Hollow Structural Se	HSS8X4X.					11' - 11"
B10	Superstructure	HSS-Hollow Structural Se	HSS8X4X.					11' - 11"
B10	Superstructure	HSS-Hollow Structural Se	HSS8X4X.					11' - 11"
B10	Superstructure	HSS-Hollow Structural Se	HSS8X4X.					11' - 11"
B10	Superstructure	HSS-Hollow Structural Se	HSS8X4X.					11' - 11"
B10	Superstructure	HSS-Hollow Structural Se	HSS8X4X.					11' - 11"
HSS8X4X.3125: 6	i e							71' - 6"
W8X10								
B10	Superstructure	W-Wide Flange	W8X10					8' - 11"
B10	Superstructure	W-Wide Flange	W8X10					5' - 2"
B10	Superstructure	W-Wide Flange	W8X10					3' - 4"
B10	Superstructure	W-Wide Flange	W8X10					5' - 4"
B10	Superstructure	W-Wide Flange	W8X10					3' - 4"
B10	Superstructure	W-Wide Flange	W8X10					5' - 4"
B10	Superstructure	W-Wide Flange	W8X10					3' - 4"
B10	Superstructure	W-Wide Flange	W8X10					5' - 4"
B10	Superstructure	W-Wide Flange	W8X10					3' - 4"
B10	Superstructure	W-Wide Flange	W8X10					5' - 4"
B10	Superstructure	W-Wide Flange	W8X10					3' - 4"
B10	Superstructure	W-Wide Flange	W8X10					5' - 4"
B10	Superstructure	W-Wide Flange	W8X10					3' - 4"
B10	Superstructure	W-Wide Flange	W8X10					5' - 4"
W8X10: 14	· ·	·	·		·			66' - 1"
W8X18								
B10	Superstructure	W-Wide Flange	W8X18		1			53' - 2"
W8X18: 1	,	,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		·			53' - 2"
W10X15								
B10	Superstructure	W-Wide Flange	W10X15					9' - 4"
B10	Superstructure	W-Wide Flange	W10X15					9' - 4"
B10	Superstructure	W-Wide Flange	W10X15					11' - 0"
B10	Superstructure	W-Wide Flange	W10X15					16' - 6"
B10	Superstructure	W-Wide Flange	W10X15					16' - 6"
B10	Superstructure	W-Wide Flange	W10X15		<u> </u>			16' - 6"
B10	Superstructure	W-Wide Flange	W10X15		<u> </u>			16' - 6"
B10	Superstructure	W-Wide Flange	W10X15		·			16' - 6"
B10	Superstructure	W-Wide Flange	W10X15					16' - 6"
	Caparatructure	ao i lango						.0 -0

Figure 17: Exported Quantity values from Revit

We assumed using the total weights of the beams would give us a sum to use in our assessment of the Revit accuracy. Most every member in the building is a wide flange beam, which is described by its depth and weight per foot. (i.e. A W14X24 beam is 14 inches deep and 24 pounds per foot length.) Multiplying the total length by the

weight of the beam we can acquire the total weight of the beam. This process was used in both the hand estimates and the BIM estimates.

In order to estimate the concrete, Revit extracted the total area of the floor slab on the third floor. We knew the thickness of the concrete slab on each floor was 3.25 inches and could then multiply the square footage given by the program to find the total volume in ft<sup>3</sup>.

# 7.4 Comparison of all estimation

In order to discover how accurate the BIM was at estimating, we needed to establish a control variable to compare it to. To do this, we calculated quantities for steel and concrete on the south side third floor of the building. It was a relatively simple section of the building to use. The values are presented in figure 18.

	Hand Quantity	Revit Quantity	Percentage Different
Steel (tons)	58.09	57.31	1.4%
Concrete (ft <sup>3</sup> )	3716	3916	2.2%
Curtain Wall (ft <sup>2</sup> )	3590	3577	0.36%

Figure 18: Final quantity comparisons

In comparison, the hand estimates were rather close to the BIM quantities. We found that steel quantities had about a 1% difference, the concrete was about 2% different and the curtain wall was about equal. The differences may have to do with possible errors in modeling. The BIM had 1% less weight than the hand estimates. There may have been a member or two left out or the weight of the beams placed in the buildings may have been a little off. A major reason for the concrete inaccuracy was the fact that the dimensions of the slab on the structural drawings only went to the middle of the

outside columns, when the slab actually was a few inches larger. This could easily change the value +/- 2%. We were generally satisfied with the outcome. Knowing that the model was very accurate, we then extracted values for the entire building which could be used to approximate costs.

Using the "control" section of the building we were able to come up with a formula to find the total quantities of the entire building. We used the exported values from Revit for steel, concrete and curtain wall and added or subtracted the percent difference found in the hand estimates. This is assuming the quantities are consistently inaccurate by the same percentage the 3<sup>rd</sup> floor south was. Our final quantities are listed in figure 19.

	Entire Building	Percentage Added	Percentage of Value	Final Accepted
	Value		Added	Calculated Value
Steel	1191 tons	1.4%	16.7 tons	1,208 tons
Concrete	152,770 ft <sup>3</sup>	2.2%	3361 ft <sup>3</sup>	156,131 ft <sup>3</sup>
Curtain Wall	79,004 ft <sup>2</sup>	-0.36%	-284	78,720 ft <sup>2</sup>

Figure 19: Calculated final quantity values

As far as an estimating tool, Revit seems to be very effective. The ease of exporting quantities was surprising. The file could be opened up in Microsoft Excel and many calculations could be done without difficulty. If a known value for each material is assigned to that material, it would be very easy to calculate the total cost of at least the material in a project.

# **Chapter 8: Camera Loading Design**

#### 8.1 Introduction to situation

Our objective was to evaluate the structural capacity of the steel framing of the UMass ACCES building in Worcester and redesign the building's steel structure to accommodate an extra dead load that was not in the original design plans.

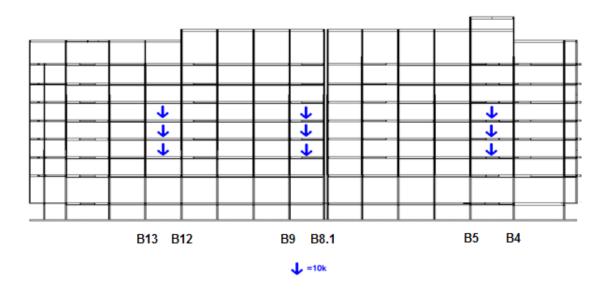


Figure 20: Placement of 10K cameras from West view

The capstone design portion of our group's MQP consists of analyzing and reevaluating the entire steel frame structure of the UMass building before and after the addition of at least three ten thousand pound cameras on floors three, four and five.

When the project was originally designed, the cameras were not part of the expected dead load. Because the project uses a design-build format, there were many factors that had not been determined when construction started. There are still some that are still being established. For example, the entire interior of the structure has yet to be designed even though the exterior construction is nearly complete. The main interior design factors being what each floor will be used for, whether it is for educational purposes, medical

practice, or as a common area. Early in construction the owner brought up the possibility of reserving three floors (floors three four and five) for medical use. One of the options for making this building one of the most up to date and high tech facilities in the country was to add a three cameras to each floor- with each camera weighing ten thousand pounds. With the current design, the trusses would fail under the added load. In the end they decided not to change the plans they had and would relocate the cameras or not use them at all. For our project, however, we continued as if they decided to use the cameras and the changes were deemed necessary. Even though our problem was not practiced in the real world, our created scenario would still give our group the desired experience and knowledge of the design and construction processes. By continuing in this way, each member still gains experience with tools and processes practiced on real world design and construction projects.

Our group determined what floor design would work to compensate for the additional camera load. We decided to find out if it would be better to redesign the columns as a whole or it would be better to simply add steel supports to the columns already in place. We wanted to see how much work it would have been to add the steel as well as how these changes would affect the budgeted cost. Also, we determined how this added construction affects the project's duration.

These problems are what can hinder projects, especially ones that are fast-tracked.

The project is already behind schedule and changing the floor plans would more than likely push construction deadlines even further behind schedule. We also conducted a structural review of the current load bearing capacity of the floor and steel frame as well

as the re- designed structural members. After these reviews, we calculated the cost and schedule impact of this work.

#### 8.2 Steel Design Methodology

The first step to the design process was analyzing the loading put on the building. Using a program recommended by Professor Jayachandran, MASTAN 2, we were able to model the frame of the building and apply the loads it undergoes. The program was copyrighted in 2008 by Professors Ronal D. Ziemian and William McGuire who are professors at Bucknell University and Cornell University, respectively.

Becoming familiar was the program was the most important step to beginning our analysis. After going through the tutorial which came with the program, constructing the structure of the building was very simple. We first made the basic shape of the building by establishing nodes and elements. The next step was specifying what qualities each element was by inserting the area, I and Z for each beam size. Finally we needed to define the steel characteristics which we assumed to be E equaling 29000 ksi, v = 0.3 and Density being 0.000284 kips/in. These properties, along with assigning each member the correct size, allowed the program to do an elastic analysis of the building and we could determine if the loading was too large to handle.

The model was a 2D interpretation of the B section columns of the building. The overhang on the front of the building produced a moment that also had to be accounted for in the model. We calculated the loading at the front of the building and used it to calculate the moment where each column was. The moment force, along with the dead, live and wind loads, were all applied to the model in order to create an accurate analysis of the steel frame. When the first order elastic analysis was performed, we discovered

that the resulting forces on the columns were much lower than it should have been for the actual size of the columns. We found that the entire dead load was not actually given to us in the structural drawings from Consigli because it did not include the actual weights of the materials in the building. We tried to receive this information from them but the steel design was done by another contractor and Consigli did not have the numbers we needed. We decided that we would design the column and beams according to the analysis done in MASTAN, even though the model did not include the full dead load.

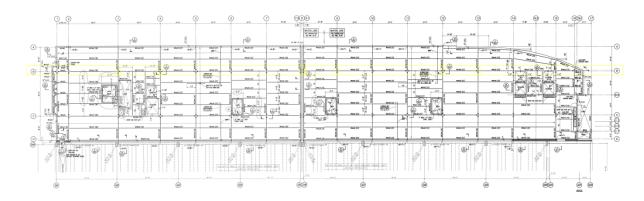


Figure 21: "B" columns analyzed (yellow)

#### 8.23 Recommendations

First we wanted to look at the axial loading on the columns. We determined that columns B4, B5, B8.1, B9, B12, and B13 were the only columns that would be affected by the loading due to the new cameras. We checked to see if the column size was sufficient to hold the loading. First we checked the column sizes needed for the loading without the cameras. We used the ASD method and found that columns B8.1, B12, B13 should be a W14x159, B4 a W14x21, B3 a W14x176, and B9 a W14x90. After finding out the column sizes before the loading, we put the loading on and did the analysis through MASTAN again. The axial loading only went up 15 kips per column so we

checked our results earlier to see if any of the columns maximum load was within 15 kips of the actual load. None of the columns were within the range of 15 kips so there was no need to increase the size of the columns.

Next we wanted to design the beams from the analysis through MASTAN. We got the results and figured out that beams B12 to B13, B3 to B4, and B8.1 to B9 would be the most affected by the new loading. We looked at the deflection, shear, and moments of the beam to see if they would fail. Beam B12-B13 was designed to be a W14x120 through the moment analysis, but after doing the shear and deflection analysis the beam size had to be changed to W12x126. For the beam B3-B4, the moment analysis gave us a beam size of W21x93 which passed both the deflection and shear tests. For the B8.1-B9, the moment gave us a beam size of W14x48 which had to be changed to W18x60 because it failed the shear and deflection tests. The final designs for the beams were B12-B13:W12x126, B3-B4:W21x93, and B8.1-B9:W14x48.

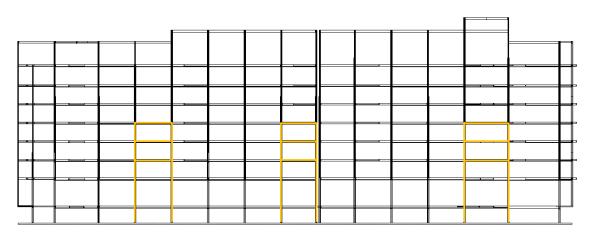


Figure 22: Critical columns and girders

Using the numbers we found using the structural analysis on Mastan, calculations showed that the addition of the cameras would not effect the critical columns enough to

require a size change. Using this information, we conclude that the actual columns would not experience enough of a load change to need a size change either. However, the beams in which the cameras are placed on top of would need a change in size. Since the floors are similar and the beams that are effected are the same size on the three floors, we needed only to redesign three of the beams.

# **Chapter 9: Conclusion**

#### 9.1 Analysis

For the scheduling part of this project, it showed early that the project was behind schedule but Consigli still figured they would be able to finish the project by the finish date that was originally planned. Many activities' start dates were delayed, but Consigli figured out a way to finish the activities in a shorter amount of time. This could be because they brought in more labor, the activities were able to happen at the same time, activities weren't located on the critical path, activities had a high number of float days or overtime was added to the activities. Since the last schedule showed activities starting in March of 2008, it would have been interesting to see how an updated schedule from the end of March would look compared to the original schedule. It was interesting to see how the project progressed and how Consigli dealt with the delays. Almost all the start and finish dates of the activities had to be rearranged which shows that what is originally planned on a project doesn't necessarily mean that that's what's going to happen. Many times a delay on one activity has an effect on another activity which creates a domino effect causing the overall finish date of the project to be pushed back. Some causes can't be helped while other types of delays would have a lesser chance by the selection of the subcontractor. Some subcontractors are very efficient and good at what they do. Since this is the case, they are able to charge more for their services. This is the decision that the owner or construction manager must make when picking subcontractors. While one may provide the best quality and is least likely to have a delay, their cost might be a bit pricy compared to another subcontractor that does the job for a cheaper cost but not to the level that the first subcontractor could do. This decision is probably the biggest influence on a project schedule and it seems to have affected the finish date of this project.

Using the BIM program, we were able to determine quantities for steel, concrete and curtain wall rather accurately. The program also allowed us to create a 4D rendering of the project. This means that the model displayed the building at multiple stages during the construction process. In order to do this we had pictures of the site as it was being built and created a timeline for each picture. From there a portion of the model was "completed" to show how much of the total project was finished. Since we had different stages we could also look at the schedule and see how the model compared to the schedule. Activities such as the steel and concrete could be shown through time on the model and if someone wanted to look at a certain date they would be able to see how the activity was coming along and see what percentage should be completed according to the schedule. From here they could look at the model and get an idea of what the actual building would look like.

Using Revit as an estimation tool, we discovered that the model was relatively accurate. Comparing hand calculations to values exported by the program for one half of one floor, a very small difference established the model as accurate and a practical tool estimate the entire buildings material quantities.

#### 9.2 Recommendations

After performing structural analysis on the UMass building with the program MASTAN 2.0, we were able to conclude that the columns were structurally sound to hold the potential nine cameras if they were placed on the third, fourth and fifth floors. Since we placed them directly on the beams in between the columns that were affected, these

were the only beams that were affected by the new loadings and did have to be redesigned. All nine girders were analyzed checking shear, moment and deflection and were all assigned new sizes to accommodate the loads of the cameras. Because the floors were designed so similarly, the original size of the girders in each section were the same, so they were redesigned to be the same size. The designed changes made are shown below.

# Redesigned Beam Sizes

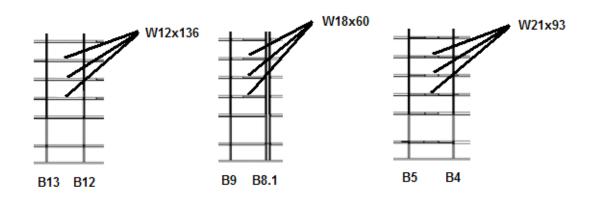


Figure 23: Design changes

### 9.3 Experience Gained

Through this project, we were able to learn about many aspects of the construction process. A few design procedures were learned as well. By being able to use such programs as Primavera, Revit, and MASTAN2 v3.0, we were able to see how companies dealt with everyday problems and procedures. Each program helped us gain valuable knowledge of the working world. These three programs helped us become familiar with methods that are being used more and more in the everyday world. They have given us experience that will be useful on the job and in our real world experiences,

not just in the classroom. These skills give us a slight edge against students who are competing for job opportunities within the same field we are in the near future.

Being able to design a Revit rendering, or calculate an estimated cost, or determine the necessary material quantities, or create a computer model of a structure's frame and apply different loads and forces to it (and determine its consequences), or being able to read or create a Primavera construction schedule, all will have a positive impact for us when we apply for our future careers.

This project has also given us good knowledge of real world processes and methods. By observing Consigli Construction we were able to see how professional engineers accomplish goals, handle problems, and basically work from week to week. Through these encounters, we know going into a job how different situations are taken care of on a regular basis. These additional skills will prove to be necessary to succeed in the coming years.

# **Bibliography**

- Anumba, C.J. Concurrent Engineering: Research and Applications: Integrating Concurrent

  Engineering Concepts in a Steelwork Construction Project. Department of Civil and

  Building Engineering, Loughborough University, Loughborough, LE11 3TU, UK. Dec. 8,

  1999. (accessed Feb. 17, 2008)

  http://www.lboro.ac.uk/departments/cv/projects/lexic/pdf/Integrating-CE-concepts-in-a-steelwork-construction-projectspdf.pdf
- "Autodesk to Acquire Revit Technology Corporation; Acquisition Adds Complementary

  Technology for Building Industry." <u>Autodesk.Com</u>. 21 Feb. 2002. 13 Feb. 2008

  <a href="http://investors.autodesk.com/phoenix.zhtml?c=117861&p=irol-newsArticle&ID=261618&highlight=>.">http://investors.autodesk.com/phoenix.zhtml?c=117861&p=irol-newsArticle&ID=261618&highlight=>.</a>
- B.K. Ironworks Industries. Harrisburg, PA http://www.bkiron.com/english/history
- Construction Software: From ABCA Forms: The Importance of Change Orders. ABCA Forms
  Inc. 2007. (accessed Feb. 17, 2008) http://www.abcaforms.com/education4.html

Consigli Construction Company Inc. Milford, MA 2005. http://www.consigli.com/about.html

- East Coast Fireproofing. http://eastcoastfp.com/about.php
- Hendrickson, Chris. "Cost Estimation." <u>Project Management for Construction</u>. 1998. Department of Civil and Environmental Engineering, Carnegie Mellon University. Feb. 2008 http://www.ce.cmu.edu/pmbook/05\_Cost\_Estimation.html
- McCormac, Jack C. *Structural Steel Design: Fourth Edition*. Pearson-Prentice Hall. Upper Saddle River, New Jersey 07458. 2008.
- O'Brien, James Jerome. *Construction Change Orders: Impact, Avoidance, Documentation*.

  McGraw-Hill Professional. 1998.

  http://books.google.com/books?id=R4K9ivnU1uoC&pg=PA66&lpg=PA66&dq=request

+for+information+construction+document+description&source=web&ots=qXZCL3vOh8 &sig=lXxnksiPfU31TQ-O5e5huG2Z-Oo&hl=en#PPA67,M1 (accessed on Feb. 27, 2008)

PAYETTE. http://www.payette.com/WhoWeAre\_FirmProfile.aspx

Precast Specialties Corp. http://www.precastspecialtiescorp.com/

- State of Massachusetts Government. Chapter 163 of the Acts of 1997: An Act Authorizing the Establishment in Central Massachusetts of a Health Care System Affiliated with the University of Massachusetts Medical School. November 25, 1997 (accessed February 17, 2008) http://www.mass.gov/legis/laws/seslaw97/sl970163.htm
- Steel Construction Manual: Thirteenth Edition. American Institute of Steel Construction Inc.
  United States of America. 2006
- University of Massachusetts Medical School: Campus Modernization: Advanced Center for Clinical Education and Science. http://www.umassmed.edu/campusmod/index.aspx
  University of Massachusetts Medical School. http://www.umassmed.edu/index.aspx
- William F. Lynch Co., Inc.: Merrill Sheet Metal Co. Division: Engineers and contractors of plumbing, heating, ventilation, air conditioning systems. Worcester, MA. 2000. http://www.wflynchinc.com/Default.htm

# **Appendix I: Meeting Minutes and Notes**



72 Sumner Street Milford, MA 01757 r. 508.473.2580 £ 508.473.3588

84 Middle Street Portland, ME 04101 t. 207.773.3000 f. 207.773.2800

Meeting Minutes

Subcontractor Project Manager Meeting (Bi-Weekly)

Meeting: Sub Project Manager #8

Job: 598 UMASS AECPC

Location: 55 North Lake Ave. Worcester, MA 01605

Date: 8/22/07 Start Time: 8:00

Attended

Y	O'Rourke, William (CONSIGLI CONSTRUCTION CC	Г	Beachman, Kevin (CONSIGLI CONSTRUCTION CO
⊽	Peterson, Russell (CONSIGLI CONSTRUCTION CO	V	Adams, Nathan (CONSIGLI CONSTRUCTION CO.,
V	Martineau, Don (WILLIAM F. LYNCH CO.)	17	Lewis, Brian (COGHLIN ELECTRICAL CONTRACTO
V	Witham, Lee (SALEM GLASS CO.)	V	Cray, Michael (J.C. CANNISTRARO, LLC)
Γ	Chipman, Bob (Capone Iron Corporation)	ᄫ	Melvin, Robert (PERFORMANCE CONTRACTING, I
⊽	Aceto, Frank (J.H. LYNCH)	Γ.	Ratigan, Peter (OTIS ELEVATOR)
П	Rainville, Pierre-Yves (B.K.Ironworks)	₽	Dakhlian, Mark (PERFORMANCE CONTRACTING,
	McCormick, Tom (EMPIRE MASONRY CORPORAT	F	Robert, Steven (GREENWOOD INDUSTRIES INC)
Г	Taglienti, John (FAST COAST FIREPROOFING CO		

ltem	Description	Responsible	Due Date	Closed
1-1	Document Control	Peterson, Russell		П
	8/22/07: CCC noted a meeting regarding ASI #14			
	8/8/07: CCC has distributed the document log CCC noted that ASI #14 is forthcoming.			
1-2	RFI's	Nathan Adams		П
	8/22/07: RFI's Outstanding: - RFI #200 - Sprinkler Requirements - RFI #210 - EPT-10 - RFI's #217 & 218- Curtainwall Clarifications - RFI #220 - Site Lighting - RFI #221 - Duct Liner			
	8/8/07: RFI's Pending: Misc. Metals- RFI #177 - Countertop Supports, Ca Upcoming RFI's: - Salem Glass- Revolving Door Transom & Level 1 - Coghlin- Electrical Requirements for Security			
1-3	Submittals	Peterson, Russell		Г
	8/22/07: Outstanding Submittals: - Site- Precast Tunnel Hatch - Expansion Joint S/D's - Granite Cladding Record Shops - Roof Flashing, Copings, etc MEP Penthouse Coordination Drawings Upcoming Submittals: - Drywall- Firesafing and Wood Blocking Resubmitt - Roofing- Roof Expansion Joint Resubmittal - Site- Precast 'T' section to be resubmitted on.	tal		·

Page 1 of 4

#### Meeting Minutes

Subcontractor Project Manager Meeting (Bi-Weekly)

Job: 598 UMASS AECPC

Meeting: Sub Project Manager # 8

tem Description Responsible Due Date Closed 8/8/07: Outstanding Submittals: - HVAC - Electrical- Light Poles - Drywall- Cold Formed Metal Framing- need to go to Empire for coordination of the granite connection engineering - Expansion Joints Upcoming Submittals: - Salem Glass- Curtainwall Record Shops - Salem Glass- Revolving Door - Cannistraro- Revised Fire Protection S/D's @ Overhang and West Parking Garage Entrance - PCI- Fire Safing and Wood Blocking resubmittals 1-4 William O'Rourke Schedule Г 8/22/07: CCC to provide a full schedule to WF Lynch and Coghlin for their review and comment. A meeting for schedule review to be scheduled for next Weds. at 10am, CCC to confirm. - CCC has completed the South side concrete deck placements. - North side concrete deck placements in progress. Levels 2 and 3 are complete. Levels 1 and 4 to be complete by Friday. Levels 5 thru 8 to be completed by the end of next week. - Salem Glass began installing the curtainwall clips. Panels to be hoisted to Garage Roof on East Coast Fireproofing in progress on South side. Starting 3rd floor today. - Empire Masonry started the D-line CMU install this week. - BRI began installing the support steel and clips for the Precast Panels. Precast erection to begin on 9/10/07 on the South Elevation. 8/8/07: CCC has placed concrete deck on levels 1, 2, and 3. Deck pours for level 4 and Penthouse level by this Friday. Levels 5, 6, 7, and the Penthouse to be place next week. - Curtainwall materials to start arriving on site this Friday or Monday. Hoisting to the Parking Garage Roof next week. - Fireproofing to start today. Basement level first. - Chilled Water Loop precast tunnel sections started this week. - Roofing to begin on the South side of the building in 2 weeks. - Stair #2 to be continued at the end of next week 1-5 William O'Rourke Requisitions 8/22/07: The July Requisition is in the process of being signed by the owner. 8/8/07: CCC reminded everyone that pencil req's need to be received by the 20th of the month. - CCC also reminded everyone about the certified payrolls, transfer of title, are required for stored materials 5/30/07: CCC requested that all Original Requisitions sent to the Milford office be sent to the attention of Joe McMorrow. 5/16/07: Schedule of Values to be reviewed & approved by Consigli. - Pencil Requisitions to be e-mailed or faxed to Bill O'Rourke or Kevin Beachman by the 20th of the month. - Original requisitions to be received by the Milford Office by the 25th of the month 1-6 William O'Rourke **Change Orders** Г 8/22/07: CCC reminded all subs to provide all backup when changes are submitted. - WF Lynch to submit the Underslab drainage change pricing - PCI to submit the Plaster and Vapor Barrier change pricing. - Coghlin to submit the VFD's change pricing. - Salem Glass to submit the ASI #9 change pricing.

Page 2 of 4

Subcontractor Project Manager Meeting (Bi-Weekly)

Job: 598 UMASS AECPC

Meeting: Sub Project Manager #8

Item	Description	Responsible	Due Date	Closed
	- JH Lynch to submit on the entrance drive chang	e pricing.		
	8/8/07: CCC owes the Chilled Water Loop Changrage - Curtainwall- Lee noted an add for ASI #9 that he credit.			
1-7	Subcontracts/ Bonds/ Insurance	William O'Rourke		<b>—</b>
	8/22/07: WF Lynch's insurance certificate expires	on 9/1/07		
	8/8/07- CCC noted that they would like to have the file.	e Subcontractors Subs Insurance Certificates on		
1-8	Misc. Issues			
	8/22/07: Cannistraro requested that WF Lynch loc any possible issues.	ok at the coordination drawing for levels 2-5 to flag		
	- CCC to provide the Precast Concrete Shop draw	rings to PCI for the Interior panals at Stair #1.		
	8/8/07: CCC noted that all subcontractors working type and size lifts they intend to use. These lifts no similar to the ones other subs have already approv			
	<ul> <li>CCC noted that the fireproofer is starting this were ahead of the fireproofer that is in the way will be contained.</li> </ul>	ek. Any and all conduit/piping that was installed		
	7/25/07: CCC noted that the coordination for the G formed metal framing shop drawings is critical.	Granite Cladding anchor points with the cold		
	Empire Masonry noted that as long as the physic accepted shop drawings, they can get the connect			
	<ul> <li>CCC also noted that the equipment pads need to</li> <li>Coghlin noted that the Electrical Room on level 1</li> <li>Cannistraro noted that the Equipment pads for th pumps are installed.</li> </ul>	on the South side needs a pad.		
	- Cannistraro noted that the Fire Protection Coordi the FTP site for WF Lynch and Coghlin to review.	nation for levels 3,4, and 5 have been posted on		
	- Coghlin noted that a coordination meeting with Si some of the panels.	emens will be necessary to confirm who will own		
	- Coghlin noted that the electrical rough-in for the oscurity coordinated drawings.	doors and hardware will need to be done by		
3-1	Elevator Entrances	Nathan Adams		
	7/11/07: CCC has received a price from Capone ar fabrication.	nd plans to move forward with dimensions and		
	6/27/07: Nothing has been received from Capone I	ron yet.		
7-1	Tel-Data Change			П
	8/8/07: CCC noted that the owner has directed a cl - Each level 1 thru 7 will have (2) tel-data closets. L approval.			
	<ul> <li>- Basement level tel-data closet is going to have Cl</li> <li>- More information is forthcoming.</li> </ul>	MU walls.		

Page 3 of 4

Subcontractor Project Manager Meeting (Bi-Weekly)

Job: 598 UMASS AECPC

Meeting: Sub Project Manager # 8

tem	Description	Responsible	Due Date Closed
8-1	OSHA		П
		ay be paying a visit to the site some time between 8/1/07 and t Managers should inform their field personnel of this.	
8-2	Frothing of the Steam/Chilled W	ater System	r:
	8/22/07: WF Lynch noted that they change request.	need a spec for the frothing requirements to get pricing for the	

Next meeting at 8:00 on Wednesday, September 5, 2007.

The preceding is assumed to be a complete and correct account of the items discussed, directions given, and conclusions drawn, unless this office is notified to the contrary by the next regular meeting. If no notification is received, these minutes will be deemed an accurate account of the meeting.

Prepared by: Peterson, Russell

Copy To:



84 Middle Street | Portland, MB | 04104 h. 207, 773 3600 | f. 207, 773,2800

#### Meeting Minutes

Weekly Subcontractor Foremans Meeting

Job: 598 UMASS AECPC Location: 55 North Lake Ave Worcester, MA 01605 Meeting: Subcontractor # 21 Date: 9/10/07

Start Time: 10:00

#### Attended

굣 Caputo, Mike (CONSIGLI CONSTRUCTION CO., INC) O'Rourke, William (CONSIGLI CONSTRUCTION CO., INC Г

V Forsythe, Bill (J.H. LYNCH)

₹ Cahill, James (WILLIAM F. LYNCH CO.)

Г Gemme, Dan (CONSIGLI CONSTRUCTION CO., INC)

Adams, Nathan (CONSIGLI CONSTRUCTION CO., INC) ₩

Laroche, Jack (J.C. CANNISTRARO, LLC)

Fortin, Alain (EMPIRE MASONRY CORPORATION)

Beachman, Kevin (CONSIGLI CONSTRUCTION CO., INC V

Peterson, Russell (CONSIGLI CONSTRUCTION CO., INC Vizzo, John (COGHLIN ELECTRICAL CONTRACTORS)

V V LaRochelle, Brian (Builders Resource, Inc.) (Stee 1)

₩ Pineo, Rich (PERFORMANCE CONTRACTING, INC.) г

Sheehan, Bob (CONSIGLI CONSTRUCTION CO., INC)

Roche, Mike (SALEM GLASS CO.)

Item	Description	Responsible	Due Date	Closed
1-1	Safety	Mike Caputo		Г
	separately. No Major concerns at this ti	site this morning. A few minor issues were addressed me. eing addressed. New facilities will start coming onsite		
	8/29/07: An iron worker pulled some sh decking. It was a lost time accident.  - All of the roof & penthouse have been  - Protection will be set up at stair 2 to pr  - Grading will be done at night around it  - Foreman need to let Mike know when unload & the logistics.			
1-2	Three Week Look Ahead	Mike Caputo		Г
		tunnel is being fabricated this week, once it's set in place place. Excavation will continue for the tunnel this week.		

- BRI will provide a layout for the crane to set up at the south side of the building, so lynch can

excavate it properly for the crane pad.

- Curtain wall will be delivered onsite to set on top of the parking garage this Friday.
- The elevator mezzanines will be poured in the next few weeks
- CMU will be installed up to the second floor by the end of this week.
- Precast steel is ongoing to the second floor of the south side this week.
- The roofer will be loading material Friday to start his work on the high roof Monday.
- The high roof parapet on the northern side will be completed by Friday this week.
- The secondary curtain wall clips are starting to be installed this week
- Framing the walls on all floors is waiting on the architect's clarification which is expected today.
- Storm lines are ongoing, following the fireproofer.
- Transformers & generator in the penthouse will be set the 18th & 19th.
- Transformers will be set in the basement this week.

8/27/07: Concrete pours this week are scheduled for the 5th floor today, 6th floor Tuesday, 7th floor Wednesday, and penthouse Thursday or Friday.

- CMU is going up through the 1st floor within the next two days. Iron workers will work off the mason's staging to install the elevator beams once the CMU gets closet to the second floor
- Roof blocking & framing will be starting on the north side of the penthouse

Page 1 of 2

Weekly Subcontractor Foremans Meeting

Responsible

Job: 598 UMASS AECPC

Description

item

Prepared by:

Copy To:

Nathan Adams

Meeting: Subcontractor #21

Due Date

Closed

			0.000
	Electrical rooms will be one of the first rooms framed on each floor to keep work open for Coughlin.		
	Concrete forms will be stripped at the busduct block outs so that the deck can be cut.		
	- Control lines will be set as the fire proofer progresses for framing layout.		
	- Roof drains will be connected as the fire proofer progresses so that nothing has to be done		
	temporarily once the roof is installed.		
	- Curtain wall clips will be welded on at the 8 to 1 line on the west side so workers will have to stay		
	clear.		
	8/20/07: CMU is being installed at the south side elevator and along D line.		
	- Roof decking on the north side will be completed by the end of the week.		
	- Stair 2 will be completed Wednesday or Thursday this week.		
	<ul> <li>South side roof blocking will be completed by the end of the week.</li> <li>The roofer is scheduled to start on the 31st however this is all contingent on fan curbs being</li> </ul>		
	installed		
	- The basement sub station will be set this week		
	- Salem Glass will be installing clips the structural steel this week going from west to south to east		
	on the 2nd & 3rd floor with a boom lift.		
	- The penthouse won't be weather tight enough for the substation until after labor day, this is driven		
	by the roof installation		
	<ul> <li>Roofer is looking to start after labor day, but fan curbs and roof davits need to be in place.</li> </ul>		
1-3	Subcontractor Coordination Mike Caputo		г
3-1	Deliveries		_
	CCC has distributed a memo directing all subs and vendors to enter and exit the UMass Campus		
	via the Plantation St campus entrance.		
6-1	Parking		Γ
	4/30/07: Parking is prohibited in the parking garage. All personnel working on the AECPC site are to		
	park in the site employee parking lot or in the near future when directed, in the upper UMass		
	parking lots west of the site towards Plantation St.		
18-1	Fuel Oil Tank		Г
	8/13/07: The fuel oil tank will sit on a cradle. the finish of the floor will be painted. The cradle will		•
	be set in place & grouted, and then the floor will finish to the cradle.		
	wa see at France or Brookers' and tries and trees are minute to the original		
19-1	Precast Installation		Γ
	BRI needs a copy of the structural steel drawing showing the structural vertical tubing for precast.		
ext mee	ting at 10:00 on .		
	the is assumed to be a complete and appropriate assume of the items discussed disastices since and associations	drawn	
ne prece	ding is assumed to be a complete and correct account of the items discussed, directions given, and conclusions s office is notified to the contrary by the next regular meeting. If no notification is received, these minutes will be	urawn, deemed	
	s office is notified to the contrary by the next regular meeting. In no notification is received, these minutes will be te account of the meeting.	ucciiicu	

Page 2 of 2



72 Sumner Street Milford, MA 01757 t. 508.473.2580 f. 508.473.3588

Lynch, Brian (WILLIAM F. LYNCH CO.)

Bear, Andrew (Heritage Restoration, Inc)

a list of changes to CCC.

Job: 598 UMASS AECPC

84 Middle Street Portland, ME 04101 t. 207.773.3000 f. 207.773.2800

## Meeting Minutes

Subcontractor Project Manager Meeting (Bi-Weekly)

Meeting: Sub Project Manager # 17

Spates, Adam (Bass Associates) -> Brother-Shawn

DeVries, Paul (OTIS ELEVATOR)

Location: 362 Plantation Street Date: 1/2/08 Start Time: 10:00 Worcester, MA 01605 Attended Beachman, Kevin (CONSIGLI CONSTRUCTION CO O'Rourke, William (CONSIGLI CONSTRUCTION CC Adams, Nathan (CONSIGLI CONSTRUCTION CO., Peterson, Russell (CONSIGLI CONSTRUCTION CO Lewis, Brian (COGHLIN ELECTRICAL CONTRACTO Martineau, Don (WILLIAM F. LYNCH CO.) Witham, Lee (SALEM GLASS CO.) Cray, Michael (J.C. CANNISTRARO, LLC) Aceto, Frank (J.H. Lynch & Sons, Inc.) Melvin, Robert (PERFORMANCE CONTRACTING, I Ratigan, Peter (OTIS ELEVATOR) Dakhlian, Mark (PERFORMANCE CONTRACTING, Robert, Steven (GREENWOOD INDUSTRIES INC) McCormick, Tom (EMPIRE MASONRY CORPORAT Owens, John (J.C. CANNISTRARO, LLC) Sheehan, Bob (CONSIGLI CONSTRUCTION CO., It

#### Due Date Closed Description Responsible Item 1-1 Peterson, Russell Document Control/ ASI's 1/2/08: Frank noted that he has not been able to log onto the ftp site. CCC to have their IT • Frank + IT department contact Frank to get him into the ftp site. - Coghlin noted some ceiling changes that they did not receive any information on. Brian to forward

- Cannistraro requested CAD files of Stair #1 for their riser coordination.

- CCC noted that they would try to get the CAD files of the Stair #1 shop drawings for Cannistraro.

12/12/07: CCC reminded everyone that attended the meeting that they should review the ASI's that have been posted on the FTP site to date if they have not already.

- CCC also noted that there has been a problem with some of the subs not getting the updated ASI's, RFI's and SK's to their guys in the field. CCC stressed the importance of this to the PM's.

1-2 Nathan Adams 1/2/08: Outstanding RFI's:

- RFI #278 - Vestibule 808 Air Exhaust Duct

- RFI #280 - Punched Window Sill Angles

12/12/07: Outstanding RFI's - RFI #276 - Elevator Security HR's - RFI #277 - Lighting Type D-4 Pendant Length

1-3 Peterson, Russell Г Submittals

1/2/08: Outstanding Submittals to be submitted by Subs:

- Salem Glass - Curtainwall Radius Revision & Automatic Door Opener

- WF Lynch - Glycol

- Coghlin - PQM's & Electrical (D Tags > 500) Ly CCC to Control F Suburity is necessary 12/12/07:

Submittals recently back from A/E review:

Kawneer revised curtainwall- South Elevation

- Curtainwall Insulation

Page 1 of 5

Subcontractor Project Manager Meeting (Bi-Weekly)

Job: 598 UMASS AECPC

Meeting: Sub Project Manager # 17

Item	Description Responsible Due Date Closed
	- Stair #1 Shop Drawings - Sump/Ejector Pump
	Submittals Due Soon: - Controls Re-submittal - due 12/17/07
1-4	Schedule William O'Rourke
	1/2/08: -Hydro att turnel - Backfill next week. Insulating row.  - CCC has completed the temp protection for the building and the temp heat is on. Heaters run from 6pm to 6am everyday. So GO Loading Lock - Monday Nort week.  - Cannistraro will be moving to the 1st floor, South on Friday this week. Cannistraro noted that they will need a cleared area to work. Cauleing O Recast Complete toward on the control of the fire pump in the next few weeks. The pump needs to be installed in order to test the FP system. Netal Recals - east eleventing O expension joint now.  - CCC noted that the loading dock drain will be installed next week along with the slab cutting. Curtain wall of Radius - Coghlin will have a shut down with National Grid for the entire building on Saturday 1/26/08 for the + South Flythys permanent power cut over.  - WF Lynch to move to the tunnel to complete the welding corrections and pipe connections after the last section of the trench is completed in the next couple of weeks. Filey. #5 flat forms running Frances to be Set Aus evel. Morring to North Next week.
1-5	Requisitions William O'Rourke
	Requisitions  William O'Rourke  1/2/08: CCC noted that the December Req is being finalized to be submitted to the owner.  - CCC also noted that the November Req has been approved but it has not yet been paid.  - Cortifical Ray זכן כ REMINDER: Schedule of Values to be reviewed & approved by Consigli.  - Pencil Requisitions to be e-mailed or faxed to Bill O'Rourke or Kevin Beachman by the 20th of the month.  - Original requisitions to be received by the Milford Office (Chris Pilla) by the 25th of the month
1-6	Change Orders William O'Rourke · Coghlin Biodirectional - Pending
	1/2/08: CCC noted that the Change Orders for the Security and Loading Dock were submitted today, and the Tel-data change order will be submitted next week. Constrant or over hang credit - CCC noted that the ASI #31 change order is being submitted for the changes shown on the ASI 31 drawings. Since last meetry - Submitted to Owner - Security + tel data - Loading dock - tunnel crossing 12/12/07: CCC is currently reviewing some change orders submitted by Coghlin. ICC for review changes w/ Salem - JH Lynch asked about the status of their submitted CO's. CCC to respond.
1-7	Subcontracts/ Bonds/ Insurance William O'Rourke Bass + Heritage recreated.
	1/2/08: CCC noted that the only Insurance Certificate updates that have not been received are from Bass Assoc. and from Heritage.
	11/28/07: Expiring Insurance Certificates - ML McDonald- 12/9 - JH Lynch- 12/31 - Salem Glass- 12/31 - Bass Assoc, - Workers Comp- 12/31 - Heritage- 1/1 - WF Lynch- 1/1, Workers Comp - Coghlin- 1/1
	REMINDER: CCC noted that they would like to have the Subcontractors Subs Insurance Certificates on file.

Page 2 of 5

Subcontractor Project Manager Meeting (Bi-Weekly)

Job: 598 UMASS AECPC

Meeting: Sub Project Manager # 17

Item	Description Responsible Due Date Closed
3-1	Elevators/ Elevator Entrances Nathan Adams - but noted access issues  1/2/08: CCC to talk to Continental bronze about the Stainless Steel Frame Covers. For France Cover insta
	12/12/07: Coghlin & PCI are both progressing with the work for the elevator machine rooms.
7-1	Tel-Data Change Submitted to owner
	12/12/07: CCC to review pricing with WF Lynch today.  - Coghlin is starting the work this week.
	11/28/07: CCC is putting the tel-data change pricing package together to submit to the owner.
8-1	Site Safety/ OSHA . Wenthy tool Box talk. By CCC 10/31/07: Accident on site last Thursday. Carpenter for PCI fell from scaffold, fractured skull.
	8/22/07: CCC noted that OSHA may be paying a visit to the site some time between 8/1/07 and 9/15/07. CCC noted that all Project Managers should inform their field personnel of this.
8-2	Frothing of the Steam/Chilled Water System - Meeting held last over.  1/2/08: CCC received the drain plan from WF Lynch. CCC to review with WF Lynch.  12/12/07: CCC requested the Loop Condensate Drain Plan from WF Lynch.
	12/12/07: CCC requested the Loop Condensate Drain Plan from WF Lynch.  - WF Lynch noted that the plan will be submitted by next week. Lynch to provide plan
9-1	Material Delivery Schedules - Granite Expansion Soint materials - yesterday
	1/2/08: CCC requested that material delivery dates for any major equipment and materials for the ASI #31 tel-data change be submitted so that CCC can incorporate those dates into the projects material delivery schedule Roth Fixtures to be put on Floors before Glass.
	12/12/07: CCC to review material delivery dates with both WF Lynch and Coghlin.
10-1	MEP Coordination WF Lynch noted that I Low was an 15500 at Elevator Lobby  1/2/08: CCC noted that they have received the record coordination drawings from WF Lynch.  Don noted that there are some existing coordination issues with Cannistraro on the 6th and 7th Floors with the elevations of some of the Fire Protection piping.
	12/12/07: CCC requested the record drawings from WF Lynch.
11-1	LEED . In Progress
	1/2/08: CCC noted that they were still waiting for the majority of the Subs to submit the LEED GMF forms that were previously provided. CCC noted that this information needs to be received by 1/31/08.
	12/12/07: CCC noted that some of the GMF forms have been submitted. Most of the GMF forms and backup are still pending.
	11/28/07: Green Material Certification Forms were provided to the attendees of the meeting. Completed spreadsheets are due by 12/14/07.
12-1	No Smoking in the Building. Susking in the building has become a problem again.
	10/17/07: Starting Monday October 22, 2007 Smoking will be prohibited in the Building. Everyone will get one warning, after that warning, with any reoccurrence that person will be thrown off the job.  15t warning was given to everyone on 51th - next time removal.
	Page 3 of 5

Subcontractor Project Manager Meeting (Bi-Weekly)

Job: 598 UMASS AECPC

Meeting: Sub Project Manager # 17

em	Description	Responsible	Due Date	Closed
	- No trash is allowed to be place	ced on the horizontal curtainwall mullions at any time, for any reason,		
	for any period of time.  - CCC asked that this informat	ion be passed along to all of the Subs foreman and employees.		
12-2	Phase 2 Steam/Chilled Wate			
	and an estimate for the phase	s has given the go-ahead to proceed on the Construction Documents 2 loop extension. looking for the work on the tunnel to begin in March 2008.		
	12/12/07: CCC noted that an a submitted Order of Magnitude	answer is still pending from the owner after their review of the		
12-3	Subcontractor Parking			E
	10/31/07: Parking in the site p incident with someone on site - Everyone else needs to park	arking lot has been designated for foreman only now. After an CCC changed the lot designation to be foreman only. down at the lake.		
13-1	Loading Dock Plumbing Cha	ange		П
		ork is in progress and the Change Order price will be submitted.		
		electrical and plumbing work in the loading dock will start after the ng for the loading dock roof is removed.		
13-2	Level 1 Curtainwall Support	Framing · CCC to discuss w/ Saleur after	meetin	7 <sub>E</sub>
	1/2/08: CCC noted that the fra - Lee noted that the fabrication installed.	uming along B-line is being installed now.  n of the curtainwall for this area is complete and is ready to be  proceed on the design and shop drawings for the interior curtainwall		
	12/12/07: Salem Glass noted - CCC to review with PCI and	a need for blocking for the top mullion of the curtainwall to fasten to. Salem.		
14-1	Controls · Feb 5th	8 Am review Controls package with sameeting scheduled for 1/9/08 to review the controls package with	1 Durie	VE.
7	the Owner.	need to coordinate thier work with the final approved Controls		
/	12/12/07: CCC noted that the	Controls re-submittal is expected to be back from review by 12/17/07.	_	
(14-2	As-Builts . WF Lynch	needs to Submit tunnel / trench piping As-builts	, tor Next	wells.
	January. VFD damper 1  - The group noted that update  - WF Lunch to e	vner has requested an as-built review with WF Lynch for the end of No Volk brian needs to the an week drives at CAD files will need to be provided for As-built's sonform w Siemens to provide list of items.  AutoCAD drawings for ASI #31 were provided to the MEP substast	A-5 to	nult res
15-1	Shafts 1-4 Ductwork Insulat	ion		V
	1/2/08: Work on-going. meeti	ng item to be closed		

Page 80

Page 4 of 5

Subcontractor Project Manager Meeting (Bi-Weekly)

Job: 598 UMASS AECPC

Meeting: Sub Project Manager # 17

Due Date Closed Description Responsible tem 11/28/07: CCC noted that owners concern with the insulation being put on some of the ductwork in the shafts before the ductwork is tested. - WF Lynch noted that the Insulator requested that they insulate as the ductwork goes in for access and ease of operation. WF Lynch noted that if the duct shaft does not pass the testing the insulator is well aware that his work will need to be removed to access the leaking areas and patched back. - WF Lynch also noted that the exaust ducts do not need to be insulated. Deficiency Log

WF Lynch submitted comments

1/2/08: Group Reviewed the Deficiency Log attached.

On RDK's Field Report. 17-1 Hacken on Site this week 17-2 Fire Protection Issues 1/2/08: CCC noted that the Engineer has required the Sprinkler Main expansion joint at the basement level. - Cannnistraro asked about the fire protection start date in the tunnel. CCC noted that it is unknown at this point due to the welding that needs to be finished up inside the tunnel. - CCC asked Cannistraro to look into possibly installing the sprinkler line without the heads. Cannistraro to confirm.

Next meeting at 10:00 on Wednesday, January 23, 2008.

The preceding is assumed to be a complete and correct account of the items discussed, directions given, and conclusions drawn, unless this office is notified to the contrary by the next regular meeting. If no notification is received, these minutes will be deemed an accurate account of the meeting.

Prepared by: Peterson, Russell

Copy To:

· Stand by Electric Room - Ceiling Height confirmation warting for wf Lynches ductwork.

#HVAC Ductwork not covered.

. ASI #14 - expansion joints > meterials need to be released.

· Coghlin provided the festing reports for the 13.8 power.

. Granite Patching

Page 5 of 5



72 Sumner Street Milford, MA 01757 t. 508.473.2580 £ 508.473.3588

84 Middle Street Portland, ME 04101 t. 207.773.3000 f. 207.773.2800

#### Meeting Minutes

#### Weekly Owner's Meeting

Job: 598 UMASS AECPC

Location: 55 North Lake Ave.

Worcester, MA 01605

Meeting: Owner Weekly # 32

Date: 9/4/07 Start Time: 8:00

#### Attended

· LLC I I G	cu		
7	Caputo, Mike (CONSIGLI CONSTRUCTION CO., IN	V	O'Rourke, William (CONSIGLI CONSTRUCTION CC
7	Beachman, Kevin (CONSIGLI CONSTRUCTION CO	₽	Baker, John (UMass Medical School)
V	Gartner, Dieter (PAYETTE ASSOCIATES)	V	Collins, Robin (PMA Consultants)
₹	Mardini, Monther (PMA Consultants)	₽	Bucciaglia, Antone (UMass Medical School)
V	Peterson, Russell (CONSIGLI CONSTRUCTION CO	R	McCarthy, Brian (UMass Medical School)
V	Tsaknopoulos, Bill (Worcester City Campus Corpora	V	Castano, Ellie (UMass Medical School)
	Armington, Mark (UMass Medical School)		MacDonald, Kevin (UMass Medical School)
	Sheehan, Bob (CONSIGLI CONSTRUCTION CO., IN	· [	Adams, Nathan (CONSIGLI CONSTRUCTION CO.,
. [	Walker, Michael (CONSIGLI CONSTRUCTION CO.,	П	McEvoy, Joe (COMMONWEALTH OF MASS)

Item	Description	Responsible	Due Date Closed
1-1	Schedule Update	Mike Caputo	
	<ul> <li>JH Lynch will be setting the last turn</li> </ul>	ok ahead, the following activities were discussed: nel sections in the next week or so. They will start g	etting out

- into the road tonight with the machine to dig for those tunnel sections. Two lanes of South Rd, to be shut down tonight at 7.
- Coghlin to cut the electrical ductbank tonight for Jh Lynch to proceed.
- WF Lynch continues the installation of the piping in the tunnel.
- JH Lynch to backfill the North side foundation wall of the building early this week during the night shift.
- CCC completed the North Penthouse slab on Friday.
- CCC to pour the South Penthouse pads and curbs this week.
- Precast erection to begin on the south elevation tentatively scheduled for 9/12/07.
- East Elevation Precast Erection tentatively scheduled for Oct. 6, 7, and 8 (Columbus Day Weekend).
- Empire Masonry is currently up to the first floor level for the D-line wall and the South elevator shaft.
- BRI is currently finishing up the Structural Steel Punch List and the Precast Connection Steel on the South Elevation.
- Capone Iron has erected Stair #2 up to the Penthouse floor.

   PCI continues to install the roof blocking and penthouse parapet framing on the North.
- PCI began framing the A-Level partitions on the South side.
- East Coast Fireproofing is currently up to the South-6th level. 5th completed last week.
- CCC noted that the Roof installation to begin earlier than shown on the 3 month look ahead (Oct. 1) tentative start: 9/17/07.
- Salem Glass continues to install the curtainwall clips. The South side primary clips are complete on the South and West elevations. East elevation clips began late last week.
- WF Lynch continues to install the water, vent, and sanitary waste riser pipes.
   WF Lynch to begin the HVAC ductwork in the next couple of weeks.
- Coghlin has completed the electrical temp lighting for the entire building.
- Coghlin is installing the 13.8kV substation at A-Level in the North Electric Room today.

8/28/07: CCC distributed a 3 month look ahead, the following activities were discussed:

- JH Lynch to continue to excavate for the CW Loop Tunnel tonight. (6) precast sections to be set this Thursday night.
- Coghlin to connect the temp power for the quad light poles. Power cut-over scheduled for next

Page 1 of 7

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly #32

	Description	Responsible	Due Date Closed
		ing 40' pipe sections into the completed tunnel sections tomorrow.  ing and pipe connections inside the tunnel.	
		nd in South Rd. Monday night. nydrant and drainage work along to building sporadically during the	
	night shift this month.  - CCC to form the Penthous	e curbs and pads this week.	
	<ul> <li>Precast Concrete Panels to</li> </ul>	concrete deck today, 7th floor tomorrow, and the Penthouse on Frid begin installation around 9/10/07.	
	level this week.	ed the first 8' lift of the CMU wall on d-line, they will be up on the 1st	
		ially complete, a small punchlist remains. #2 installation yesterday. Stair #2 rough erection to be complete in 2	2
	North.	f blocking and parapet framing on the South, they have started on th	ie
	- Salem Glass continues to i		
	yesterday, the other half in 2		
	- WF Lynch continues the dr	protection on the 2nd level this week. ain leader install.	
1-2	Steam/Chilled Water Tunne	el Robin Collins	
	confirm.	eting with Swiss Logic will be scheduled for next week. CCC to	
		led start is tentative for the first week of October.	
	for the trench crossing of So	ss Logic has been contracted to do the necessary pneumatic tube w uth Rd. Ili confirm that the tunnel sections be installed straight. John would li	
		Antone) or a report showing that it is.	ike
-3	Elevators	Dieter Gartner	Г
	9/4/07: Pending.		
	8/28/07: CCC is waiting for a	Summary Report of the EMS System from Otis.	
-4	Change Requests		
	9/4/07: CCC to forward some - UMass requested that a chain 2 weeks.	change orders to Rob today. ange order and costs be submitted for the ANF-12 and LEED change	es,
-2	Security	Robin Collins	J
	9/4/07: Dieter noted that he is - UMass requested a review of - Rob to provide the hardward		
	- Nate noted that the Fail Safe addressed for code and safet		
		or egress are to be fail safe and all other doors with card readers like fail secure.	<b>)</b>
	the Tel-Data rooms are to be		
2	Building Design	Dieter Gartner	П

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 32

Item	Description (1994) (1994) (1994) (1994)	Responsible	Due Date Closed
	8/28/07: Pending; Dieter to provide Dieter also working on the glass energy report.		
	8/14/07: Dieter promised the Building Evaluation - Dieter noted that Johns request to incorporate L		
5-3	Subcontractor Awards	William O'Rourke	
	9/4/07: The following subcontracts will be awards - N/A	ed to:	
	The following subcontracts have not been awards - Div. 10 Specialties - Flooring	ed yet and will be soon:	
5-4	Submittals & RFI's	Peterson, Russell	r i
	9/4/07: - Electrical Submittals - Basement Coordination Drawings - Tunnel Hach and Sealent Submittals - Roof Davits - HVAC Submittals - RFI #226 - Insulation @ Spandrel - RFI #228 - Penthouse Curb Clarifications - RFI's 229 & 230 - Framing and Drywall RFI's		
8-1	D.Y.S. Stop Work Order		
	9/4/07: CCC to contact Haley & Aldrich today abo wall.	ut the schedule on the borings at the retaining	
	8/28/07: CCC to provide dates for test borings John noted that Tim's meeting with DYS was pos	sitive.	
8-2	Retaining Wall		П
	9/4/07: No Change		
8-4	Mass Electric 9/4/07: On-Going		□
	8/28/07: National Grid continues with their work or	n Belmont Street.	
8-5	Commissioning	•	<b></b>
	9/4/07: No Change		
11-1	Schematic Design Comments		<u></u>
	9/4/07: On-going, Rob is reviewing the comments.		
11-2	Mitigation Plan		<b>.</b>
	8/7/07: CCC noted that Fireproofing work will be 10 - CCC noted that there is a possibility of more ledgwith the tunnel.		

Page 3 of 7

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 32

item	Description Responsible	Due Date	Closed
	4/10/07: John Baker noted: - No work on site before 7am - No Jack-Hammering with out 24hrs notice to DYS - Full notification of vibratory rolling 5 days in advance for the West side of the site.		
12-2	Addition of Steel for Future Equipment		Б
	9/4/07: CCC to provide price this week.		13
13-1	Door & Hardware Issues		<b>₽</b>
	8/21/07: Rob responded- no EPT-10		
	8/14/07: Rob to respond to the EPT-10 issue.		
	7/24/07: Rob and John noted that they were going to look into the requirements for the energizing with Bill T Nate to provide information on this to UMass.	e EPT-10 door	
13-5	Programming Update		П
	9/4/07: On-Going - Building Name Clarification: Advanced Clinical Education and Science Building.		
	8/28/07: Dieter noted that in a meeting on Friday with the Dean and other executives or name of the AECPC building was changed to ACES (Advanced Clinical, Educational, Building).  - CCC did not receive an official notice on this matter. John to look into it.  - Dieter noted that the programming most likely will not be finished until November som	and Sciences ACCE	3
14-1	Structural Steel Inspection and Testing		C .
	9/4/07: South side trusses being checked today. Report Pending.		1
	8/28/07: CCC is gathering data for the deflection of the trusses. The North side is not y	et complete.	
	8/21/07: CCC noted that after all of the concrete decks on the south side of the buildin the maximum truss deflection was only 1/8".  - John requested a report showing that the deflection of the trusses is in tolerance with engineers approval.	• • • • • • • • • • • • • • • • • • • •	
17-1	Information Systems John Baker		Г
	9/4/07: Rob waiting for response from meeting partisapents, he will forward the meeting there after.	g minutes	* *
	8/28/07: Rob noted that the School and Hospital held a meeting last week to discuss the Rob to forward the information to CCC.	ne I.S. issue.	
19-1	Subcontractor Parking		Г
	9/4/07: Bill T to confirm in Mid-September.		
	8/21/07: CCC noted to Bill T last week that 50 to 60 spots will be needed Bill T noted that he will not know about his availability for parking until school starts ba	ack up.	
20-3	Loop Condensate Drain Line	ř	

Page 4 of 7

#### Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 32

ltem	Description Responsible	Due Date Closed
	8/28/07: CCC noted that a meeting will be necessary to finalize the frothing plan.  - UMass noted that next week would be a good time for a meeting.  - CCC to provide Rob the schedule by the end of the week.	
	8/21/07: Jim Murphy, WF Lynch, and CCC met last Weds.  - Lynch is working on a number.  - Rob noted that Jim Murphy wants to wait as long as possible to clean out the piping in the AECPC. Jim also noted that the piping should not be dormant for an extended period of time to collect rust again.  - Jim is also concerned with the Power Plant having a max load during this process in the middle of the summer.	
23-1	East Parking Garage Entrance	
	7/24/07: Loading dock work to be postponed due to the Precast Panel Installation.	J
	7/17/07: John wants to have a meeting to go over the plans surrounding this area and material delivery to the building during fit out.	
	7/3/07: John noted that the east entrance to the parking garage will be effected with traffic after the exterior envelope of the building is completed. He noted that the materials being delivered to the building will have to be loaded in the building through the loading dock. This will impact the traffic flow on the east entrance due to two-way traffic. John requested a plan to of when and how CCC plans to load the building with materials for the remaining duration of the project and potentially, the fit out.	
24-1	Building Controls	
	7/24/07: John noted that the meeting can take place after RDK reviews the submittal.	
	7/17/07: John noted that the UMass Commissioning agent be involved in this meeting.	
	7/10/07: John Baker requested that we sit down with Siemens to go through the system logic, how it ties in with UMass network, and functionality of the system. Once the submittal is put together the meeting will be scheduled.	
25-1	Gas Meter Location	
	8/28/07: Pending.	
	8/14/07: Dieter noted that a sketch will be issued for the meter location.	
	7/24/07: Dieter noted that the sizing of the meter and loading is unknown.  - Bill noted that according to the Gas Company, you cannot stub the gas into the building without sizing the piping.  - John noted that you can stub it in the building but it cannot be live.  - CCC/ Payette to confirm	
25-3	Curtainwall Storage on the Parking Garage Roof	П
	8/28/07: Half of the curtainwall panels that are to be stored on the top of the garage were hoisted up yesterday. The other half in 2 weeks.	•
27-1	National Grid Rebates	<b>L</b>
	8/21/07: UMass/PMA met with National Grid last week.  - Rob noted the the conclusion between all parties was that with the rebates that will be available for this building (lighting) it is too early to start the process. Fit-up would be the best time.	
	8/7/07: UMass noted that Mark Armington is meeting with National Grid to review the oppertunities	
		Page 5 of 7

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 32

available for the rebates.  7/31/07: A list & documentation on all equipment cuts needs to be put together for UMass to an for rebates.  27-2 LEED Update  7/31/07: Dieter sent documentation regarding LEED to Rob about a month ago. This was forwarded to John Baker.  28-1 Testing and Sign-Offs  8/28/07: Hydrostatic Testing- CCC to provide the procedure and pressure results on the tunnel piping.  - CCC to submit the sign off form to cross South Rd. with the trench.  8/21/07: The tunnel section that has been installed in front of the LRB has been signed off.  - (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing and	
for rebates.  27-2 LEED Update 7/31/07: Dieter sent documentation regarding LEED to Rob about a month ago. This was forwarded to John Baker.  28-1 Testing and Sign-Offs 8/28/07: Hydrostatic Testing- CCC to provide the procedure and pressure results on the tunnel piping CCC to submit the sign off form to cross South Rd. with the trench.  8/21/07: The tunnel section that has been installed in front of the LRB has been signed off (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing and	
7/31/07: Dieter sent documentation regarding LEED to Rob about a month ago. This was forwarded to John Baker.  28-1 Testing and Sign-Offs 8/28/07: Hydrostatic Testing- CCC to provide the procedure and pressure results on the tunnel piping CCC to submit the sign off form to cross South Rd. with the trench.  8/21/07: The tunnel section that has been installed in front of the LRB has been signed off (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing and	, <b>J</b> .
forwarded to John Baker.  Testing and Sign-Offs  8/28/07: Hydrostatic Testing- CCC to provide the procedure and pressure results on the tunnel piping.  - CCC to submit the sign off form to cross South Rd. with the trench.  8/21/07: The tunnel section that has been installed in front of the LRB has been signed off.  - (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing and	
8/28/07: Hydrostatic Testing- CCC to provide the procedure and pressure results on the tunnel piping.  - CCC to submit the sign off form to cross South Rd. with the trench.  8/21/07: The tunnel section that has been installed in front of the LRB has been signed off.  - (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing and	
piping CCC to submit the sign off form to cross South Rd. with the trench.  8/21/07: The tunnel section that has been installed in front of the LRB has been signed off (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing an	12.
- CCC to submit the sign off form to cross South Rd. with the trench.  8/21/07: The tunnel section that has been installed in front of the LRB has been signed off.  - (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing and	12.
- (2) additional sign-offs will be need to complete the Loop Tunnel/Trench (1. Road Crossing and	12.
The Trench to the Building).	
<ul> <li>Fireproofing testing- Yankee Testing is on site reviewing the thickness as the fireproofer spray.</li> <li>After the material has cured (28 days), density testing and pull testing will be performed.</li> <li>John requested that Rob put together a list of all testing that needs to be performed for the AECPC and identify when the UMass Commissioning agent need to be involved.</li> </ul>	i.
<ul><li>8/7/07: UMass requested notice of dates for Equipment testing.</li><li>Sign-Offs for the structure of the tunnel and trench prior to testing utilities.</li></ul>	
29-1 Campus Loop Tunnel Extension Phase 2	П
8/28/07: CCC has requested a walkthru with Mark Armington to go over the rough scope.	
8/21/07: A schematic design and a preliminary estimate will be completed by the end of Nov. as the direction of the Thursday meeting (8/16/07).	per
8/14/07: Dieter noted that UMass has asked for preliminary design and pricing from CCC/Payett for a tunnel extension to the Lakeside addition of the Hospital.  - Rob noted that this issue may be discussed further on Thursday with Tim.	;
31-1 Pneumatic Tube	Γ
8/28/07: John requested that the Pneumatic Tube Subject be put back in the meeting minutes so that the issue is not forgotten about.  - Dieter noted that UMass has the quantities.	
<ul> <li>The location of where the pneumatic tube will be located is still pending due to the decision of the Phase 2 Campus Loop Tunnel.</li> <li>Rob noted the decision of the pneumatic tube will have to be made in line with the phase 2 tunnels.</li> </ul>	
decision.	oi.
31-2 Precast Erection- Columbus Day Weekend	<u>.</u>
<ul> <li>8/28/07: CCC noted that the erection of the Precast Concrete Panels on the East Elevation will have to be done from South Rd. This will shut down 2 lanes of traffic.</li> <li>CCC is proposing to do this work over Columbus Day weekend October 6-8.</li> <li>The crane will stay in the road all weekend.</li> <li>Parts of the Parking Garage will have to be closed as well. CCC to talk to Bill T.</li> </ul>	
<ul> <li>John noted that he felt this is a good idea due to the holiday weekend and the smaller amounts traffic.</li> </ul>	of

Page 6 of 7

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 32

Next meeting at 8:00 on Tuesday, September 11, 2007.

The preceding is assumed to be a complete and correct account of the items discussed, directions given, and conclusions drawn, unless this office is notified to the contrary by the next regular meeting. If no notification is received, these minutes will be deemed an accurate account of the meeting.

Prepared by: Peterson, Russell

Copy To:



72 Sumner Street Milford, MA 01757 t. 508.473.2580 f. 508.473.3588

Portland, ME 04101 f. 207.773.2800 t. 207.773.3000

#### Meeting Minutes

#### Weekly Owner's Meeting

Job: 598 UMASS AECPC Location: 55 North Lake Ave.

Worcester, MA 01605

Meeting: Owner Weekly #34

Date: 9/18/07 Start Time: 8:00

#### Attended

V	Caputo, Mike (CONSIGLI CONSTRUCTION CO., IN	▽	O'Rourke, William (CONSIGLI CONSTRUCTION CC
⋉	Beachman, Kevin (CONSIGLI CONSTRUCTION CO	V	Baker, John (UMass Medical School)
V	Gartner, Dieter (PAYETTE ASSOCIATES)X	V	Collins, Robin (PMA Consultants)
V	Mardini, Monther (PMA Consultants)	P	Bucciaglia, Antone (UMass Medical School)
Г	Peterson, Russell (CONSIGLI CONSTRUCTION CO	Γ.	McCarthy, Brian (UMass Medical School)
Г	Tsaknopoulos, Bill (Worcester City Campus Corpora	<b>V</b>	Castano, Ellie (UMass Medical School)
	Armington, Mark (UMass Medical School)		MacDonald, Kevin (UMass Medical School)
Г	Sheehan, Bob (CONSIGLI CONSTRUCTION CO., In	V	Adams, Nathan (CONSIGLI CONSTRUCTION CO.,
Γ	Walker, Michael (CONSIGLI CONSTRUCTION CO.,		McEvoy, Joe (COMMONWEALTH OF MASS)

Item	Description	Responsible	Due Date Closed
1-1	Schedule Update	Mike Caputo	

9/18/07: -The tunnel is on hold this week until the T section is casted, there were a few rebar design issues to be resolved.

- The road excavation crossing will take about 1.5 - 2 weeks to complete.

- The loading dock will be started once precast is installed & CMU is loaded for the south elevators.

- The remaining penthouse curbs & elevator mezzanine slab will be poured this week

- The CMU will be completed on D line up to the 2nd floor

- The north elevator CMU is stating one the mezzanine slab is poured.

- Stair 2 is now being installed up to the elevator mezzanine.

- The roofing material is stocked & will be starting Monday next week.

- The fireproffer is up to the 7th floor on the south side of the building.

- 2nd floor framing is starting & will be going up to 7th

- The north storm risers are being installed now.

- The generator arrived today & will be set in the penthouse, the substation will be going in today / tomorrow. The rough in to these will start.

- The penthouse framing & densglass are starting at the north end of the building.

- Steam, & chilled water risers are starting to be installed inside the building.

9/11/07: CCC distributed a 3 month look ahead, the following activities were discussed:

- JH Lynch has run into allo of ledge wile digging for the CW Loop tunnel. Remaining sections of the tunnel to the Junction Box will be set on Mon. and Tues. of next week.

- WF Lynch is currently welding the piping that has been set into place in the tunnel to date.

Coghlin is currently working on installing the ppermanentpower and fire alarm for the tunnel.
 JH Lynch to begin excavating for the trench sections the last week of September.

- JH Lynch is iinstallingthe trench drain at the loading dock today. Concrete to pour it in will come tomorrow.
- CCC completed the South housekeeping pads last week. North housekeeping pads to be completed this Thursday.
  - BRI has completed the South Precast Support Steel. North tthebe complete this week.

- BRI to begin the Precast Concrete Panel install next Weds.

- Empire Masonry to complete the first level of the D-line wall and the South Elevator Shaft this week.
- PCI to begin placing the wall studs at the penthouse for the exterior Granite at the North elevator machine room.
- Greenwood to begin the roofing install on Monday. Roofing start may be delayed due to the HVAC roof curbs not being here yet.

Page 1 of 8

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 34

Item	Description	Responsible	Due Date	Closed
	with swing staging. More panels to be - Cannistraro to ffinisthe fore protecti - WF Lynch installed the Fuel Oil tan! - WF Lynch is currently installing the the building. - Coohlin set the 500k VA transforme	inwall clips on the building, east elevation is being installed e hoisted to the Parking Garage Roof on FFriday on on the 3rd floor South this week.		
				_
1-2	Steam/Chilled Water Tunnel 9/18/07: There was a meeting with St coordinate sleeve.	Robin Collins wiss Log, the pipe is onsite, Umass will advise & CCC to		Γ
	9/11/07: CCC noted that there is a m - Antone noted that when Coghlin go notified so that he can make arrange	eeting scheduled with Swiss Log for this Thursday @ 2pm. es to tie in the fire alarm system for the tunnel, he needs to be ments.		
	confirm.	h Swiss Logic will be scheduled for next week. CCC to is tentative for the first week of October.		
1-3	west for an	Dieter Gartner		Г
1-3	Elevators 9/18/07: CCC to set up a meeting wit			Pi
	9/11/07: Pending.			
		ry Report of the EMS System from Otis.		
1-4	Change Requests 9/18/07: Bill is reviewign payette bact	c-up & will forward it to Rob.		
	9/11/07: CCC to forward the revised of - UMass noted that there will be a poupgrade of the Fire Alarm System to	ssibility of some upcoming Fire Alarm changes for a possible		
	9/4/07: CCC to forward some change - UMass requested that a change ord in 2 weeks.	orders to Rob today. ler and costs be submitted for the ANF-12 and LEED changes,		
4-2	Security	Robin Collins		Г
	9/18/07: Dieter to provide drawings by	y the end of the week.		
	9/11/07: Dieter noted that the drawing	gs will be provided tentatively for the end of this week.		
	9/4/07: Dieter noted that he is updatir - UMass requested a review of the dr - Rob to provide the hardware require	awings and changes.		
	addressed for code and safety reason	nardware vs. the Fail Secure Door Hardware issue needs to be as. s are to be fail safe and all other doors with card readers like		

Page 2 of 8

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly #34

Item	Description	Responsible	Due Date Closed
5-2	Building Design	Dieter Gartner	П
	9/18/07: All building envelope note	es & calc's have been compiled & forwarded to Bill.	
	9/11/07: Dieter noted that he has a Dieter suggested that a meeting	he information together and he needs to review it with CCC. be set up for next week to review the document.	
	8/28/07: Pending; Dieter to provideduced - Dieter also working on the glass		
	8/14/07: Dieter promised the Build - Dieter noted that Johns request t	ing Evaluation Performance Report by Mid-September. o incorporate LEED into the document is being looked at.	
5-3	Subcontractor Awards	William O'Rourke	<b>C</b>
	9/18/07: Remaining contracts will	be forwarded to Rob.	
	9/11/07: Rob noted that he is miss	ing a number of subcontracts.	
	9/4/07: The following subcontract	s will be awarded to:	
	The following subcontracts have n - Div. 10 Specialties - Flooring	ot been awarded yet and will be soon:	
5-4	Submittals & RFI's	Peterson, Russell	Г
	9/18/07:	to be returned for completion of the controls submittal.	
	9/11/07: - Electrical Lighting Submittals - Basement Coordination Drawing: - Tunnel Sealant Submittals - HVAC Submittals- VAV's - RFI #229 - Framing and Drywall - RFI #233 - Expansion Joint Color	RFI's	
8-1	D.Y.S. Stop Work Order		⊏
	9/18/07: Borings are to be done to the works. And $h + \rho = 7$	morrow so a design can be worked out. Full negotiations are in holde Machin - deley	ı
		orings (5) will be completed next week.	
	9/4/07: CCC to contact Haley & Alewall.	drich today about the schedule on the borings at the retaining	
8-2	Retaining Wall		
	9/11/07: No Change	·	
8-4	Mass Electric		Ē
		that the transformer is coming earlier than what Coughlin has	

Page 3 of 8

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly #34

Item	Description Responsible Due Date	Closed
	9/11/07: UMass to contact National Grid to get things moving.  1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	r OR
	8/28/07: National Grid continues with their work on Belmont Street.	
8-5	Commissioning Dieter Gartner	П
	9/18/07: The electrical portion of ASI 14 is coming this week.	
	9/11/07: Rob noted that he needs ASI #14 for the commissioning agent Payette noted that it will be here next week.	
11-1	Schematic Design Comments	Г
	9/18/07: The review to be finalized by Rob & forwarded to Bill.	
	9/11/07: Rob has completed his review of the schematic design and will issue his comments in the	
	next week or so.	
	next week or so.  9/4/07: On-going, Rob is reviewing the comments.  (New freproof - 5 10 3 + 54 modsy push bly dimiley	
11-2	Mitigation Plan	□ .
	8/7/07: CCC noted that Fireproofing work will be 10 hr days and on Saturdays starting this week.  - CCC noted that there is a possibility of more ledge to be encountered when crossing South Rd. with the tunnel.	
	4/10/07: John Baker noted:  - No work on site before 7am  - No Jack-Hammering with out 24hrs notice to DYS  - Full notification of vibratory rolling 5 days in advance for the West side of the site.	
12-2	Addition of Steel for Future Equipment	
	9/18/07: The steel provisions for the equipment was reviewed Thursday & now will be revised & presented again this Thursday.	
	9/11/07: CCC to present this information to Tim on Thursday.	
13-5	Programming Update	
	9/18/07: Oncology update is scheduled for Friday.	
	9/11/07: On-going	
	9/4/07: On-Going - Building Name Clarification: Advanced Clinical Education and Science Building.	
	8/28/07: Dieter noted that in a meeting on Friday with the Dean and other executives of UMass the name of the AECPC building was changed to ACES (Advanced Clinical, Educational, and Sciences	
	Building) CCC did not receive an official notice on this matter. John to look into it Dieter noted that the programming most likely will not be finished until November sometime.	
14-1	Structural Steel Inspection and Testing	Б
	9/18/07: Deflection reports will be forwarded this week.	
	9/11/07: CCC to forward a summary of the deflection of the trusses by next week.	

Page 4 of 8

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 34

tem	Description	Responsible	Due Date	Closed
	<ul> <li>John asked for the Plumbness report Monther to provide the report to John.</li> </ul>	rt. CCC noted that the plumbness report has been provided.		
	9/4/07: South side trusses being chec	cked today. Report Pending.		
	8/28/07: CCC is gathering data for the	e deflection of the trusses. The North side is not yet complete.		
	the maximum truss deflection was only	e concrete decks on the south side of the building were place ly 1/8". at the deflection of the trusses is in tolerance with the		
17-1	Information Systems	John Baker		П
	9/18/07: Rob to forward conduit riser	information for Is closets.		
	there after.	meeting participants, he will forward the meeting minutes		
	<ul> <li>CCC noted that Ed Manzello and the for the requirements for each I.S. Clos</li> </ul>	e Hospital's design direction is the factor driving the decision set on each floor.		
	8/28/07: Rob noted that the School ar - Rob to forward the information to CC	nd Hospital held a meeting last week to discuss the I.S. issue.		
19-1	Subcontractor Parking			П
	9/18/07: No more parking is available.			
	9/4/07: Bill T to confirm in Mid-Septem	nber.		
	8/21/07: CCC noted to Bill T last week - Bill T noted that he will not know about	k that 50 to 60 spots will be needed. But his availability for parking until school starts back up.		
20-3	Loop Condensate Drain Line			П
	9/18/07: Lynch & CCC will sit down wi building looks to finish next summer.	ith the CCC & UMass to weigh out options. Right now the	-c 1	
		ruction Schedule and noted that a meeting is pending to	1111 h	(In )
	discuss this schedule.  - UMass requested a plan from CCC se requirement on the Power Plant.	showing when the building will be ready to put a load	about H	Jmh Omb
	8/28/07: CCC noted that a meeting wi - UMass noted that next week would be - CCC to provide Rob the schedule by	Il be necessary to finalize the frothing plan. be a good time for a meeting. v the end of the week.	Jun- +111 h about He anclusing	bin
	AECPC. Jim also noted that the piping collect rust again.	CCC met last Weds.  wait as long as possible to clean out the piping in the g should not be dormant for an extended period of time to er Plant having a max load during this process in the middle of		
23-1	East Parking Garage Entrance		4	
•		that area will be intermittent throughout the remainder of the		#/(Inter-

Page 5 of 8

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly #34

Item	Description	Responsible	Due Date	Closed
	7/24/07: Loading dock work to be pos	tponed due to the Precast Panel Installation.		
	7/17/07: John wants to have a meetin delivery to the building during fit out.	g to go over the plans surrounding this area and material		
	exterior envelope of the building is conbuilding will have to be loaded in the building on the east entrance due to two-v	nce to the parking garage will be effected with traffic after the mpleted. He noted that the materials being delivered to the building through the loading dock. This will impact the traffic vay traffic. John requested a plan to of when and how CCC is for the remaining duration of the project and potentially, the		
24-1	Building Controls			П
	9/18/07: Controls submittal will go to t Payette.	he commissioning agent when they are reviewed by RDK &		
	7/24/07: John noted that the meeting	can take place after RDK reviews the submittal.		
	7/17/07: John noted that the UMass C	ommissioning agent be involved in this meeting.		
	7/10/07: John Baker requested that w it ties in with UMass network, and fund meeting will be scheduled.	re sit down with Siemens to go through the system logic, how stionality of the system. Once the submittal is put together the		
25-1	Gas Meter Location			П
	8/28/07: Pending.			
	8/14/07: Dieter noted that a sketch wil	be issued for the meter location.		
	7/24/07: Dieter noted that the sizing of - Bill noted that according to the Gas ( sizing the piping John noted that you can stub it in the	Company, you cannot stub the gas into the building without		
•	- CCC/ Payette to confirm			
25-3	Curtainwall Storage on the Parking	Garage Roof		
	9/18/07: Last Friday more curtain wal			
	9/11/07: A final delivery and hoisting o amount of panels planned to be stored	f the curtainwall panels will be on Friday this will complete the lon the roof. Mike to confirm.		
	8/28/07: Half of the curtainwall panels yesterday. The other half in 2 weeks.	that are to be stored on the top of the garage were hoisted up		
27-1	National Grid Rebates			
	8/21/07: UMass/PMA met with National - Rob noted the the conclusion between this building (lighting) it is too early to a	al Grid last week.  In all parties was that with the rebates that will be available for start the process. Fit-up would be the best time.		
	8/7/07: UMass noted that Mark Arming available for the rebates.	ton is meeting with National Grid to review the oppertunities		
	7/31/07: A list & documentation on all for rebates.	equipment cuts needs to be put together for UMass to apply		

Page 6 of 8

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly # 34

Item	Description Responsible	Due Date Closed
27-2	LEED Update	
	7/31/07: Dieter sent documentation regarding LEED to Rob about a month ago. This was forwarded to John Baker.	
28-1	Testing and Sign-Offs	П
	9/11/07: CCC noted that they have asked WF Lynch to provide a plan as to how and when the hydrostatic testing will be completed.	
	8/28/07: Hydrostatic Testing- CCC to provide the procedure and pressure results on the tunnel	
	piping CCC to submit the sign off form to cross South Rd. with the trench.	
29-1	Campus Loop Tunnel Extension Phase 2	<b></b>
	9/11/07: John noted that CCC should proceed in pricing the tunnel extension in the most cost	
	effective way CCC to sit with Dieter and discuss. CCC to provide a proposal this week.	
	8/28/07: CCC has requested a walkthru with Mark Armington to go over the rough scope.	
	8/21/07: A schematic design and a preliminary estimate will be completed by the end of Nov. as per the direction of the Thursday meeting $(8/16/07)$ .	
	8/14/07: Dieter noted that UMass has asked for preliminary design and pricing from CCC/Payette for a tunnel extension to the Lakeside addition of the Hospital.  - Rob noted that this issue may be discussed further on Thursday with Tim.	
31-1	Pneumatic Tube	П
	9/18/07: The hospital will finalize decisions on where pneumatic tubes go so that design can finish.	
	9/11/07: Dieter noted that the Hospital needs to confirm where the pneumatic is going to end,	
	Lakeside? Benedict? - Dieter requested a CAD file of the existing utilities going into the Lakeside building.	
	8/28/07: John requested that the Pneumatic Tube Subject be put back in the meeting minutes so that the issue is not forgotten about.  - Dieter noted that UMass has the quantities.	
	- The location of where the pneumatic tube will be located is still pending due to the decision of the	
	Phase 2 Campus Loop Tunnel.  - Rob noted the decision of the pneumatic tube will have to be made in line with the phase 2 tunnel decision.	
31-2	Precast Erection- Columbus Day Weekend	<b></b>
	9/18/07: CCC to advise road traffic plan	
	9/11/07: CCC noted that the schedule for the Precast Erection has changed a bit.  - CCC to confirm a schedule for erecting the East elevation precast and forward traffic plans for South Rd. to UMass.	
	8/28/07: CCC noted that the erection of the Precast Concrete Panels on the East Elevation will have to be done from South Rd. This will shut down 2 lanes of traffic.  - CCC is proposing to do this work over Columbus Day weekend October 6-8.  - The crane will stay in the road all weekend.	
	<ul> <li>- Parts of the Parking Garage will have to be closed as well. CCC to talk to Bill T.</li> <li>- John noted that he felt this is a good idea due to the holiday weekend and the smaller amounts of traffic.</li> </ul>	

Page 7 of 8

Weekly Owner's Meeting

Job: 598 UMASS AECPC

Meeting: Owner Weekly #34

<ul> <li>33-1 Permanent Power 9/11/07: CCC noted that Coghlin has talked to National Grid and they are saying that the Permanent Power for the building is 24 weeks out (6 months) UMass to contact NG.</li> <li>33-2 Air Handling Unit Testing 9/18/07: The testing will be around mid October, CCC will advise an exact date. 9/11/07: CCC noted that when the group of representatives for the project go to witness the Air Handling Unit testing, all of the units will not be tested at the same time.</li> <li>34-1 Fire Alarm Annunciation 9/18/07: - The fire alarm annunciation will be advised on by UMass.</li> <li>34-2 Temp Heat</li> </ul>	Description	Responsible	Due Date Closed
9/11/07: CCC noted that Coghlin has talked to National Grid and they are saying that the Permanent Power for the building is 24 weeks out (6 months).  - UMass to contact NG.  33-2 Air Handling Unit Testing  9/18/07: The testing will be around mid October, CCC will advise an exact date.  9/11/07: CCC noted that when the group of representatives for the project go to witness the Air Handling Unit testing, all of the units will not be tested at the same time.  34-1 Fire Alarm Annunciation  9/18/07: - The fire alarm annunciation will be advised on by UMass.			
Permanent Power for the building is 24 weeks out (6 months).  - UMass to contact NG.  33-2 Air Handling Unit Testing  9/18/07: The testing will be around mid October, CCC will advise an exact date.  9/11/07: CCC noted that when the group of representatives for the project go to witness the Air Handling Unit testing, all of the units will not be tested at the same time.  34-1 Fire Alarm Annunciation  9/18/07: - The fire alarm annunciation will be advised on by UMass.	Permanent Power		Γ.:
9/18/07: The testing will be around mid October, CCC will advise an exact date.  9/11/07: CCC noted that when the group of representatives for the project go to witness the Air Handling Unit testing, all of the units will not be tested at the same time.  34-1  Fire Alarm Annunciation  9/18/07: - The fire alarm annunciation will be advised on by UMass.	Permanent Power for the building		
9/11/07: CCC noted that when the group of representatives for the project go to witness the Air Handling Unit testing, all of the units will not be tested at the same time.  34-1 Fire Alarm Annunciation 9/18/07: - The fire alarm annunciation will be advised on by UMass.	Air Handling Unit Testing		<b>F</b>
Handling Unit testing, all of the units will not be tested at the same time.  34-1  Fire Alarm Annunciation  9/18/07: - The fire alarm annunciation will be advised on by UMass.	9/18/07: The testing will be around	d mid October, CCC will advise an exact date.	
9/18/07: - The fire alarm annunciation will be advised on by UMass.	9/11/07: CCC noted that when the Handling Unit testing, all of the uni	e group of representatives for the project go to witness the Air its will not be tested at the same time.	
	Fire Alarm Annunciation		П
34-2 Temp Heat	9/18/07: - The fire alarm annuncia	tion will be advised on by UMass.	
	Temp Heat		
		e temp heaters on site with (4)1000 gallon propane tanks.	
		Permanent Power 9/11/07: CCC noted that Coghlin Permanent Power for the building - UMass to contact NG.  Air Handling Unit Testing 9/18/07: The testing will be around 9/11/07: CCC noted that when the Handling Unit testing, all of the un Fire Alarm Annunciation 9/18/07: - The fire alarm annuncia	Permanent Power 9/11/07: CCC noted that Coghlin has talked to National Grid and they are saying that the Permanent Power for the building is 24 weeks out (6 months).  - UMass to contact NG.  Air Handling Unit Testing 9/18/07: The testing will be around mid October, CCC will advise an exact date. 9/11/07: CCC noted that when the group of representatives for the project go to witness the Air Handling Unit testing, all of the units will not be tested at the same time.  Fire Alarm Annunciation 9/18/07: - The fire alarm annunciation will be advised on by UMass.

Next meeting at 8:00 on Tuesday, September 25, 2007.

The preceding is assumed to be a complete and correct account of the items discussed, directions given, and conclusions drawn, unless this office is notified to the contrary by the next regular meeting. If no notification is received, these minutes will be deemed an accurate account of the meeting.

Prepared by: Peterson, Russell

Copy To:

#### Owner's Meeting Notes – 9/25/2007

The overall mood of this meeting was very casual, calm, and light hearted. There weren't any arguments or confrontations at all. There were some concerns though about certain areas of the project. John Baker brought up many points of interest about different project aspects. He was concerned with the schedule and how Consigli was behind on the project, he wanted to know what they were doing to try and make up for all of the lost time. Michael Caputo, in response, stated that they were working on it and trying to make up for it. One way they are doing this is they are having the fireproofing team (who was recently changed from East Coast Fireproofing to HCARR) work ten hour days including Saturday and Sunday. In this way they are trying to speed up the building's schedule, even if they have to pay more to have it done. The number one concern now it seems is to have the building completed on time. So far the steel erection is on schedule (relatively) and that is going well. The metal decking did not show up this week (there was no reasoning), but Consigli was assuring the owner's that it would show up by next week.

There was also a concern with the glass erection. This was not in the Meeting Minutes or the schedule packet that was handed out, and the owner's wanted to know how that was going. The curtain wall was also discussed, and it was determined that it will be completed by December.

John was also concerned with street closings. Consigli needs to have a crane moved in so that they can load more pieces of the curtain wall (they are currently stored on the adjacent parking garage roof) and the right time for street closings was discussed. It was determined that Columbus Day weekend would be the right time due to the lower traffic volume due to the holiday weekend.

The last concern was with electric power. John feels that having all of the construction lights on every hour of every day is a waste of electricity and money. He wanted to know what can be done, if they can be timed, maybe only have a few lit, in order to save money. It was decided that they would light a four light box, and then unlight a box, and light the next box to save money. The problem with turning them all off is that it becomes a safety hazard. The lights will also be put on a timer so they all do not have to be turned on during daylight hours.

Everything else that was discussed is in the Meeting Minutes and schedule that was handed out for the meeting.

#### Owner's Meeting Notes – 1/23/2008

During this meeting general construction issues were discussed. Mr. Caputo discussed such things as welds, elevator shafts, the curtain wall, and the Penthouse. There were issues with the metal wall panels. Currently construction is behind schedule and extra shifts and hours are being used in order to finish as soon as possible. They are trying to avoid overtime. The glazed curtain wall is going as planned. They predict that it will be done my mid-February. Most things are going as planned, but that does not mean they are not behind overall.

The general mood of the meeting seemed to be very timid. I felt that Consigli was trying to impress the owner's (especially John) in some way. It was as if the school was getting tired of the delays and just wanted to get the project complete. There were certain issues that caused unrest during the meeting. There was no yelling and screaming or anything like that, but there was a sense of annoyance coming from them. One example is that the school wanted specific taps for the metal panels for the east elevation. However, WF Lynch might use something else, which is against the school's wishes. Also, Lynch was supposed to show the school was to be used initially and this never happened. This caused more frustration.

There was also an issue with trying to get a meeting setup with everyone from all sides. There seems there has been an issue trying to set this up and a date was finally setafter somewhat of a disagreement among the members of the meeting. There was also a stop work order for the retaining wall which means a new design needs to be chosen. The Consigli crew is also waiting on responses on some RFIs and other submittals. This as well caused frustration. There are also issues with all of the inspections and safety checks, they seem to be always waiting for something to be checked and I am sure that this also frustrates the owners- who just want to get things done.

In good news the building for its LEED certification as planned. There have been no holdups with this aspect of the project. What also seemed interesting is that Consigli has total control of the building until actual startup. I just thought this sounded odd to me, that UMass would not have any control in the building as it was being built.

## Site Walk-through Notes – 11/15/2007

- Building was designed as two separate buildings
- The steel was imported from Luxembourg and Alabama
- Original total cost of project was \$54 million but has risen to \$60 million, mainly because of the trench that was built for the 2-20" chilled water pipes and 1-18" steam pipe, total size of tunnel is 10'X12' and costs \$2.4 million
- The basement has access to the substation and two loading docks
- 4' separation between parking garage and building
- All exterior precast is 8" and interior is 4"
- Because of possible fire on the top of the garage, sprinkler system was installed along entire east side curtainwall
- The roof is a white PCP kind of material, unlike most roofs which are black. This is supposed to conserve in energy in both the summer and winter seasons
- Problem with bearing pads in penthouse. Did not use proper grout or mortar and caused entire panel to crack.
- Red Granite imported from India. Exterior was sent to Minnesota to be finished while interior was finished in India. Total delivery time was 8 months.
- Project is considered a "green" project

# **Appendix II: Submittal and RFI Lists**

Log
Submittal
Outstanding
A/E

Consigli Construction Co., Inc.

Date: 9/10/2007

ā € ⊒	Rec'd Date	Sent	
<ul> <li>198-02930 - Exterior Plants</li> <li>598-02930- 001 0 PID: Planting Accessories for Wetlands Recliamation</li> <li>198-03300 - Cast-in-place Concrete</li> <li>598-03300 - 109 1 S/D: Rebar- Foundation Plan S. Elev. of Walls J,K,L,M,P, and S-SRF05</li> <li>198-03350 - Architectural Precast Concrete</li> </ul>		Date	Due Date
598-0230- 001 0 P/ID: Planting Accessories for Wetlands Recliamation 198-03300 - Cast-in-place Concrete 598-03300 - Cast-in-place Concrete 598-03300- 019 1 S/D: Rebar- Foundation Plan S. Elev. of Walls J,K,L,M,P,and S-SRF05 198-03450 - Architectural Precast Concrete			
198-03300 - Cast-in-place Concrete 598-03300- 019 1 S/D: Rebar- Foundation Plan S. Elev. of Walls J,K,L,M,P,and S- SRF05 198-03450 - Actificatural Precast Concrete	8/15/07	8/20/07	8/31/2007
598-03300-019 1 S/D: Rebar- Foundation Plan S. Elev. of Walls J,K,L,M,P,and S- SRF05 598-03450 - Architectural Precast Concrete			
198-03450 - Architectural Precast Concrete	8/27/07	9/5/07	9/17/2007
			•
596-03450- 010 0 S/D: Tunnel/ Trench Junction Box Details	8/29/07	8/29/07	9/4/2007
598-04851 - Dimensional Stone Cladding			
598-04851-013 0 S/D: Revised - Granite Expansion Joint Panel Details (Interior and Exterior)	8/29/07	8/30/07	9/7/2007
598-06100 - Rough Carpentry			
598-06100-001 1 Wood Blocking	8/22/07	8/22/07	9/3/2007
Ē			
598-06402-001 0 S/D: Wood Panel & Door Frame Shop Drawings	8/24/07	8/28/07	9/11/2007
sulation			
598-07210- 004 0 Rigid Insulation @ Metal Panels	8/17/07	8/21/07	9/11/2007
2			
598-07271-001 0 Air Vapor Barrier Used Behind Metal Panel	8/17/07	8/21/07	9/11/2007
ď			
598-07412- 002 1 P/D: Metal Panel Color Samples	8/17/07	8/21/07	9/11/2007
ō			
	20/2/6	9/5/07	9/14/2007
598-07531- 005 0 P/D: Roof Hatch	8/17/07	8/20/07	8/31/2007
598-07620- 001 0 P/D: Roof Flashing, Copings, Scuppers, Edge metal, Gravel stops	7/20/07	7/31/07	8/7/2007
598-07716- 001 1 P/D: Roof Expansion Joint	20/2/6	20/9/6	
598-07811 - Sprayed Fire-Resistive Materials	; ;	5	
598-07811- 003 0 D/S: Spray Fireproofing- Scope and Thickness	8/20/07	8/20/07	8/31/2007
.2			
598-07842-001 1 P/D: Fire Safing at Walls & Floor Perimeter	8/22/07	8/24/07	2002/1/2002
ij			
0	8/16/07	8/16/07	8/21/2007
598-07920- 003 0 P/D: Precast Tunnel/Trench Non-Sag Joint Sealant	8/16/07	8/16/07	8/21/2007
598-07920- 004 0 Caulking Used Integral to Metal Panel System	8/17/07	8/21/07	9/11/2007
598-14210 - Electric Traction Elevators	5	5	5005116
598-14210-005 2 D/S; Interior Finishes	70/5/05	0/5/07	2006/21/0
		5	2002/1/2
3000-002 0 S/D: Basement	8/15/07	8/15/07	8/24/2007
598-15000-003 0 P/D: First Floor MEP & FP Coordination Drawings	9/10/07	9/10/07	9/24/2007
		5	
_	20/2/6	20/2/6	9/17/2007
598-15500- 017 1 P/D: Fuel Oil Containment Pipe (Perma-Pipe)	8/27/07	8/28/07	9/10/2007

9/10/2007

A/E Outstanding Submittal Log

Consigli Construction Co., Inc.

				20	Date:
598 UMASS AECPC					
Number Rev Description	Rec'd	Sent	Returned Due		
598-03300 - Castinulare Courade	Date	Date	Date		
598-03300-019 1 S/D: Rebar- Foundation Plan S. Elev. of Walls J.K.L.M P and S. SREDS	7017010	10000	0000		
598-05811 - Architectural Joint Systems	0127101	10/0/8	9/1//2007		
596-05811- 003 0 East Wall Expansion Joint	9/14/07	9/19/07	10/3/2007		
ξ					
598-06402- 001 0 S/D: Wood Panel & Door Frame Shop Drawings	8/24/07	8/28/07	9/11/2007		
598-0/210 - Building Insulation					
500-042 Iv- Vulgu Insulation @ Metal Panels	8/17/07	8/21/07	9/11/2007		
500-U.Z.1 Sell-Adriered Sheet All Barriers					
Son Or Son Or An Valor Darrier Used Behind Wetai Panel	8/17/07	8/21/07	9/11/2007		
JOSEPH VIEW NUMBER OF THE PROPERTY OF THE PROP					
598-07620 - Shask Midsal Fleeking and Trim	20/2/6	9/5/07	9/14/2007		
598-07670-001 PID: Brof Elsebirg Common Edge Common Edge					
598-07746 - Roof Evnancion Accembilion	7/20/07	7/31/07	8/7/2007		
598-07716 - 001 1 - Pro-Fernandon Inite	1	!			
598-15000	10/9/6	20/2/6	9/17/2007		
598-15000-001 1 S/D: MEP & FP Penthouse Coordination Drawings	10,10	0,7	0000		
D P/D Firet Firet	10/1/6	9/11/07	9/18/2007		
	9/10/07	9/10/07	9/24/2007		
>	9/11/07	9/11/07	9/24/2007		
: 	20/2/6	20/2/6	9/17/2007		
7/D. ruel Q.	8/27/07	8/28/07	9/10/2007		
N T	20/2/6	20/2/6	9/17/2007		
- ;	8/30/07	8/30/07	9/7/2007		
:: !	8/30/07	8/30/07	9/7/2007		
2	9/17/07	9/18/07	10/2/2007		
Ţ	20/2/6	20/2/6	2/17/2007		
598-15500-026 1 S/D: Penthouse Equipment Pads Layout	0/8/07	0/10/07	2000/01/0		
598-15500-032-1 P/D: Flamebar Fire Rated Ductwork	0.440	9/12/0/	9/19/2007		
598-15500- 033 0 P/D: Sound Attenuation Dust lines	20/11/6	10/91/6	10/2/2001		
·.	8/30/07	8/31/07	9/14/2007		
- (	9/10/07	9/11/07	9/17/2007		
<b>-</b>	9/5/07	20/2/6	9/17/2007		
0	9/10/07	9/12/07	0/24/2007		
598-15500- 040 0 P/D: Control Valves & Dampers	0/43/07	0/12/01	0/07/0001		
598-16000 - Electrical	9 100	9/14/07	9/25/2007		
598-16000-036 1 P/D: Exterior Wall Sconce- Symetric Optical and Vertical Stem	20/0/0	10,0,0	000000		
598-16000-040 1 P/D: 1' x 2' Recessed Wall Wash	0/0/0/	8/9/07	8/20/2007		
1 P/D: Exterior	5/5/07	20/6/8	8/20/2007		
598-16000-045 1	8/8/07	20/6/8	8/20/2007		
_	8/8/07	8/9/07	8/20/2007		
	0/8/02	4/1/07	2/17/2007		

Outstanding RFI Log

Consigli Construction Co., Inc.

09-10-2007 Page 1

Include Closed Jobs: No

598 UMASS AECPC

Project Manager:

			Required	Days	
Number	Date	Subject	Date	Held	Comments
177	06-06-07	Countertop Supports	06-11-2007	96	
189	06-13-07	Accent Light Cover Plates at	06~18-2007	89	
		Granite Column Covers			
226	08-23-07	Insulation behind spandreal @ 35	09-02-2007	18	
		A8.41			
228	08-28-07	Penthouse Curb Clarifications	08-30-2007	13	
229	08-29-07	Framing & Drywall Clarifications	09-08-2007	12	
		@ South Penthouse			
231	08-31-07	Concrete Curb at South Garage	09-10-2007	10	
		Entrance			
233	09-05-07	Expansion Joint Color	09-15-2007	5	
234	09-05-07	Pocket Doors at Elevators	09-15-2007	5	
236	09-06-07	Flamebar Ductwork at SF 3.4.5	09-16-2007	4	

# Consigli Construction - UMass AECPC Deficiency Log

Last Updated:

9227920

1/14/2008

Sub	Floor	Location		Date Issued	Issued by	Complete	Comments
Cannistraro	0	8 line	no seismic connection assembly is provided	10/01/07	RDK		Material on Order
WF Lynch	0	8 line	4* cold water line requires expansion joints	10/01/07	RDK	-	Material on Order
WF Lynch	Tunnel	Tunnel - north	Chilled water, steam, & condensate require top guide in addition to the other 3. Provide guides on top of all the pioing		RDK		to be done at the end of installation
Greenwood	High Roof	13.4 line	missing roof hatch, cut back roof & install	10/31/07	CCC		
Greenwood	High Roof	Stair tower wall	Insulation needs to be behind roof memebrane return up the wall. Detal 11/A-8.44	10/31/07	ccc	x	
Heritage	Low Roof	12 line, bottom girt	Seal AVB to bottom screen wall girt penetrating wall	10/31/07	ccc		
Heritage	Low Roof	3 line, davit	Seal AVB around davit penetarting the wall	10/31/07	CCC		
CCC	1	B.6 & 16.1	Complete work or repair sawcuts in slab	11/14/07	STP		use sika top 122 plus
CCC / Hoarr	0	D line	complete fire proofing on all embeded angles	11/14/07	STP		
CCC	0	8 & D line	Crack in slab by conduits	11/14/07	STP		use sika top 122 plus
CCC	2	C & 9 line	repair concrete curb @ mechanical shaft	11/14/07	STP		
Yankee Testing / CCC	2	D line, 14 - 16 line	confirm or test that grout was used under precast panels	11/14/07	STP		
PCI	1,2,3,4,5,6, 7		Need to put insulation at the back of steel angles that connect precast panels	12/04/07	Payette	28-Dec	
PCI	4,5,6,7	north tel/data rooms	3 x 7 door to be swapped with 6 x 7 door (ASI-22)	12/28/07	CCC		
WF Lynch	3,4,6	8 line	storm drains across 8 line need an expansion joint	12/28/07	CCC		
WF Lynch/PCI	3	Restroom 310	Sanitary riser is not located in wall cavity space. Part of the riser is in the Custodian room. Adjust restroom and custodian room wall to enclose sanitary riser in wall.	01/02/08	RDK		See RDK Field Report dated 12/27/07. CCC to review with Subs.
WF Lynch	Penthouse Level	Penthouse	Some of the floor drains in the Penthouse are not covered. Place covers on all floor drains to protect from const. debris falling into drains.	01/02/08	RDK	x	WF Lynch has noted that all of the floor drains in the Penthouse are plugged. No debris will be able to get into the drain pioing.
WF Lynch	Penthouse Level	Penthouse	Tops of Medical Gas Piping is capped off with duct tape. RDK noted that this is not acceptable. Provide proper caps for Medical Gas Piping System.	01/02/08	RDK	x	CCC noted to RDK that this was the Hot & Cold Water Risers, not Medical Gas Piping.
WF Lynch	Penthouse Level	Penthouse .	10 inch Chilled Water Supply and Return piping in the Penthouse are currently supported with Clevis type hangers. Piping larger than 8" shall be supported with dual rod roller hanger support per detial on drawing H4.03.		RDK		WF Lynch has noted that the clevis type hangers are temporary hangers to get the piping off of the Penthouse Floor.
WF Lynch	Penthouse Level	Air Handling Units	Air Handling Units (1-4): Some of the humidifier dispersion tubes are dented, bent, and damaged. All damaged tubes Shall be replaced.	01/02/08	RDK		See RDK Field Report dated 12/27/07. Haakon Rep to be onsite week of 1/18
WF Lynch	Penthouse Level	Air Handling Units	Air Handling Units (1-4): Steel tube supports at the supply fan inlet are not secured. Steel tube supports shall be secure to supply fan inlet bulkhead.	01/02/08	RDK		See RDK Field Report dated 12/27/07. Haakon Rep to be onsite week of 1/18
WF Lynch	Penthouse Level	Air Handling Units	Air Handling Units (1-4): Supply fan inlet grid construction and wuality is not acceptable. This was not observed during AHU test witness due to fan inlet being covered during pressure testing. Please provide same quality grid as fan discharge.	01/02/08	RDK		See RDK Field Report dated 12/27/07. Haakon Rep to be onsite week of 1/18
Coghlin	3	Electric Room 305	Electric box and associate conduits next to Electric Room 305 are not installed light to structure.	01/02/08	RDK		See RDK Field Report dated 12/27/07. -RDK to clairify

being

# **Appendix III: Complete list of Subcontractors**

		Subcontrac	Subcontract / Insurance Tracking	ce Track	ing							<sub>.</sub> `
CONSIGLI	LI	598	598 - UMASS AECPC	CPC	)							, 1/6
									lns	Insurance Expiration Dates	iration Date	õ
Commitment	->1	Vendor Name	Actual	Contract	Contract	Bonds	Bond	Insurance			General	ú
CA-598-001	Schedule Consultant		02-21-07	02-56-07	03-08-07	2	200	03-08-07		09-14-07	10-30-07	티 -
CA-598-003 MPA-598-001	Geotechnical and LSP Services  Concrete Form Peotels	8227 Haley & Aldrich	06-29-07	07-02-07								-
MPA-598-002		٠,	02-01-07	02-12-07	02-21-07				N/A	N/A	N/A	
MPA-598-003		2020 Parker Start Carp.	05-04-07	08-09-07	08-15-07				N/A	ΝΆ	N/A	-
MPA-598-004			11-01-06	11-03-06	11-10-06			08-01-07	08-01-08	08-01-08	08-01-08	99
MPA-598-005			11-16-06	11-20-06	11-30-06			11-30-06	11-01-07	11-01-07	11-01-07	÷
MPA-598-006		-	70-28-07	03-07-07	04-30-07	×	05-22-07	05-22-07	09-29-07	09-29-07	09-29-07	60
MPA-598-007		_	04-27-07	08-30-07	04-27-07			04-27-07	12-31-07	12-31-07	12-31-07	12.
MPA-598-008		13338 MM Systems Corporation	05-25-07	08-28-07	10-81-10	×		07-30-07	90-30-98	06-30-08	06-30-08	90
MPA-598-009	'	`	08-13-07	08-17-07	08-22-07	•		70-22-07	11-12-07	<b>4</b> /2	11 42 01	- ;
SC-598-001	Trailer Removal		06-28-06	06-28-06	06-29-06			06-29-06	Inactive	Inactive	II-12-07	<u>:</u> -
SC-598-002	l emporary Power		10-18-06	10-18-06	10-19-06			10-18-06	01-01-08	01-01-08	01-01-08	- 5
SC-598-003	Painting Field Office		10-25-06	10-26-06	11-02-06			10-26-06	Inactive	Inactive	Inactive	<u> </u>
SC-598-005	Sweening	10102 J.H. Lynch	11-02-06	11-09-06	11-10-06	×	11-16-06	01-02-07	12-31-07	12-31-07	12-31-07	12.
SC-598-008	Buddenso tours the H		01-29-07	01-30-07	01-31-07			03-26-07	01-17-08	01-17-08	03-17-08	5
SC-598-007	Contrate Elethoric	1333/ Moretrench	03-06-07	03-06-07	03-19-07			05-30-07	Inactive	Inactíve	Inactive	<u>ë</u>
SC-598-008	Concrete Beinf Materials		03-01-07	04-04-07	05-10-07	×	05-29-07	05-30-07	01-01-08	01-01-08	01-01-08	
SC-598-009	Masonov		11-10-06	11-21-06	12-08-06			04-03-07	04-05-08	12-31-07	07-14-07	-
SC-598-010	Misc Metals		02-07-07	02-26-07	03-05-07	×	03-05-07	05-21-07	11-01-07	11-01-07	02-13-08	99
SC-598-011	Structural Steel		03-08-07	03-30-07	05-11-07	×	20-20-90	05-24-07	05-27-08	11-18-07	11-18-07	÷
SC-598-012	Finish Corporato		10-05-06	11-14-06	02-20-07	×	02-23-07	03-22-07	01-01-08	01-30-08	09-20-07	60
SC-598-013	Waterproofing Caulking	40000 Not ret Bought	* 20-01-07									
SC-598-014	Roofing		12-29-06	01-04-07	01-12-07	×	01-12-07	01-12-07	01-01-08	01-01-08	01-01-08	9
SC-598-015	Firenzofina		03-27-07	04-04-07	04-17-07	×	04-17-07	70-90-20	07-01-08	01-01-08	01-01-08	01.
SC-598-016	Glass and Glazing	19285 Salem Chan C	03-19-07	06-28-07	07-12-07			07-20-07	03-30-08	08-08-08	06-30-08	-90
SC-598-017	Drywall		11-08-06	12-21-06	04-10-07	×	02-06-07	12-22-06	12-31-07	12-31-07	12-31-07	12
SC-598-018	Flooring		05-04-07*	03-30-07	06~28-07	×	05-03-07	05-01-07	04-01-08	04-01-08	04-01-08	40
SC-598-019	Painting		70-12-50	08-17-07								
SC-598-020	Metal Wall Panels	2427 Bass Associates	03-19-07	03-30-07	06-19-07	×	08-28-07	08-24-07	10 24 07	00 00	000	
SC-598-021	Elevator	15066 Otis Elevator	11-16-06	12-27-06	03-01-07	×	01-31-07	03-27-07	04-01-08	04-04-08	00-54-00	è è
SC-598-022	Fire Protection		02-28-07	04-19-07	05-11-07	×	05-15-07	08-01-07	08-01-08	08-01-08	08-01-08	t 8
SC-598-023	HVAC		08-01-07	08-07-07	08-16-07	×	08-23-07	08-31-07	01-01-08	09-01-08	09-0-10-80	ė e
SC-598-024	Plumbing	_	02-09-07	03-16-07	03-22-07	×	04-24-07	08-31-07	01-01-08	09-01-08	09-01-08	9 g
SC-598-025	Electrical		02-09-07	04-26-07	05-18-07	×	05-21-07	04-09-07	01-01-08	01-01-08	01-01-08	3 5
770-960-06	Site Survey		11-15-06	11-17-06	11-21-06			01-03-07	01-01-08	01-01-08	01-01-08	É
00-060-050	resting - Soll, Concrete, Steel		11-15-06	11-16-06	11-20-06			11-20-06	08-01-08	08-01-08	08-01-08	. 80
000 000	Carpet Cleaning - Site Trailer		11-16-06	11-16-06	11-20-06			11-27-06	Inactive	Inactive	Inactive	
SC-508-030	Coord Busing	_	11-22-06	11-27-06	11-30-06			06-18-07	06-12-08	06-12-08	06-12-08	.90
SC-598-032	Concrete Fullipling		01-09-07	01-09-07	01-18-07			08-09-07	07-30-08	03-27-08	03-27-08	
SC-598-033	Trees and Shribs	12247 Longhorn Steel, Inc.	04-24-07	04-30-07	05-09-07			06-19-07	06-22-08		02-22-08	
SC-598-034	Testing		05-08-07	05-11-07	05-22-07			05-24-07	04-26-08	04-26-08	04-26-08	04
SC-598-035	O/H Doors-Fold Door-I D Fouito		05-11-07	05-11-07	05-24-07			08-08-07	08-18-08	08-18-08	08-18-08	99
	11-100 DO 1100	o Lod Fairborn Equipment Co.	06-26-07	06-28-07	07-19-07	×	08-01-07	20-90-20	01-01-09	01-01-09	01-01-09	9

\*: Date represents scheduled award date. Inactive: Subcontactor is no longer working on project.

- /6	86 교임 4 2 2 년 경
	Insurance Expiration Dates   E
	Monker's  Worker's  Comp Automobile  04-01-08 04-01-08  01-28-08 11-30-07  11-30-07 11-30-07  12-28-07 12-28-07
	Insu Worker's Comp Av. 04-01-08 01-28-08 11-30-07 11-30-07 01-01-08
	Insurance Received 07-11-07 08-08-07 07-11-07 07-24-07
	Bond Received
	Bonds Reg'd
ting	Contract Received 07-09-07 08-13-07 07-18-07 07-25-07 08-23-07
se Track CPC	Contract  ssued  06-28-07  07-11-07  07-19-07  08-16-07
Insuran AASS AE	Actual Award 06-25-07 03-27-07 07-11-07 07-16-07 08-15-07
Subcontract / Insurance Tracking 598 - UMASS AECPC	Vendor Name 3883 Central Mass Crane Service, In 1219 American Acoustical Cont. 15110 Pro Cut, Inc. 9035 Isaac Blair & Co Inc. 2433 Builders Resource, Inc. 19823 Swisslog Healthcare Solutions 17196 Payette
Consigli	Commitment         Work Description           SC-598-036         Crane w Operator           SC-598-037         Acoustical Ceiling           SC-598-038         Sawcutting           SC-598-040         Dosign-Erect-Dism Shoring           SC-598-040         Architectural Precast           SC-598-041         Pneumatic Tubing           SC-598-100         Design Services

## **Appendix IV: Project Schedules**

ID Activity 1.23 Alternates	Subsection	Original Start	End	29-Aug-07 Start	End	Sept15-19 Start	End	23-Jan-08 Start	End
1.25 Contract Modifications	West Retaining Wall	5-Sep-07	6-Aug-08	6-Sep-07	10-Jan-08	5-Sep-07	16-Jan-08	19-Sep-07	23-May-08
	Cooling Water Line Co	1-Jun-07	28-May-08	16-Jul-07	3-Dec-07	16-Jul-07	2-Jan-08	10-Aug-07	11-Apr-08
1.43 Mockups	Proj Mang/Eng Construction	10-Jan-07 29-Mar-07	26-Nov-07 20-Apr-07	19-Nov-07	19-Nov-07	26-Nov-07	26-Nov-07	10-Mar-08	10-Mar-08
1.77 Closeout Procedues Sample Punch List Form						20 Can 07	23-Nov-07		
1.81 General Comissioning	Construction	6-Mar-08	10-Jul-08			28-Sep-07	23-1100-07		
2.23 Site Clearing	Construction	3-Jul-08	17-Jul-08	47.6 07	47.6 07	446 07	27.6 07		
2.3 Earthwork	Construction	14-Sep-07	14-Sep-07	17-Sep-07	17-Sep-07	14-Sep-07	27-Sep-07	11-Mar-08	11-Mar-08
2.31 Fine Grading	Construction	20-Dec-06	7-Apr-08	29-Aug-07	8-Nov-07	17-Sep-07	21-Nov-07	30-Oct-08	30-Oct-08
2.379 Sedimentation and Erosions Control	Construction	7-Nov-07	13-Nov-07	8-Nov-07	14-Nov-07	7-Nov-07	29-Nov-07		
2.51 Water Systems	Construction	15-Nov-06	27-Nov-07	14-Sep-07	28-Nov-07	13-Sep-07	12-Dec-07	10-Mar-08	10-Mar-08
2.62 Foundation and Underslab Drainage	Construction	28-Jun-07	29-Jun-07						
2.63 Storm Drains	Construction	22-Mar-07	8-May-07						
2.7 Paving, Walkways, Curbing and Edging	Construction	20-Nov-06	15-Nov-07	13-Sep-07	15-Nov-07	12-Sep-07	15-Nov-07	11-Mar-08	27-Mar-08
2.92 Lawns and Grasses	Construction	1-Dec-06	2-Jun-08	10-Sep-07	21-Nov-07	15-Oct-07	6-Dec-07	1-Apr-08	9-Apr-08
2.93 Exterior Plants	Construction	28-Nov-07	14-Apr-08	29-Nov-07	5-Dec-07	28-Nov-07	19-Dec-07	8-Apr-08	14-Apr-08
3.3 Cast-in-place concrete	Construction	12-Sep-07	30-Nov-07	13-Sep-07	3-Oct-07	12-Sep-07	30-Nov-07	1-Apr-08	21-Apr-08
3.45 Architectural Precast Concrete	Construction	10-Jan-07	20-Dec-07	22-Aug-07	3-Dec-07	7-Aug-07	17-Dec-07	21-Jan-08	30-Jan-08
3.45 Auditectural Freedst Condicte	Proj Mang/Eng	1-Dec-06	18-Sep-07	16-Jul-07	10-Sep-07	46 1 107	10.5 07	47.0 07	0.5.1.00
4.81 Unit Masonry Assemblies	Construction	19-Sep-07	24-Oct-07	11-Sep-07	18-Oct-07	16-Jul-07 19-Sep-07	18-Sep-07 12-Dec-07	17-Dec-07	8-Feb-08
	Proj Mang/Eng Construction	1-Dec-06 12-Feb-07	30-Mar-07 9-Oct-07	13-Aug-07	2-Oct-07	13-Aug-07	17-Oct-07	21-Jan-08	24-Jan-08
4.851 Dimension Stone Cladding	Proj Mang/Eng	1-Dec-06	25-Oct-07	7-May-07	25-Oct-07	7-May-07	25-Oct-07		
5.12 Structural Steel	Construction	1-Oct-07	20-May-08	24-Sep-07	11-Dec-07	1-Oct-07	6-Dec-06	4-Dec-07	21-Apr-08
	Proj Mang/Eng Construction	1-Dec-06 23-Apr-07	9-May-07 21-Nov-07	27-Jul-07	27-Nov-07	21-Aug-07	21-Nov-07		
5.31 Metal Deck	Construction	25-Jun-07	22-Aug-07	16-Aug-07	22-Aug-07				
5.511 Standard Metal Stairs	Proj Mang/Eng	1-Dec-06	24-Aug-07	14-May-07	24-Aug-07				
5.512 Custom Metal Stairs	Construction	23-May-07	8-May-08	27-Aug-07	7-Sep-07	27-Aug-07	4-Oct-07		
3.312 Castoni inclui stans	Proj Mang/Eng Construction	1-Dec-06 11-Jan-08	10-Jan-08 23-Apr-08	4-Sep-07	11-Feb-08	5-Sep-07	14-Jan-08	22-Oct-07 22-Feb-08	18-Feb-08 16-Apr-08
5.53 Grating	Construction							2210000	10 Apr 00
5.73 Ornamental Formed Metal		3-Apr-08	21-Apr-08	F Oct 07	12 Oct 07	F Oat 07	12 Oct 07		
6.1 Rough Capentry	Construction	5-Oct-07	12-Oct-07	5-Oct-07	12-Oct-07	5-Oct-07	12-Oct-07	7 Fab 00	45 4 00
6.402 Interior Architectural Woodwork	Construction	4-Jan-08	15-Apr-08	24-Jul-07	12-Sep-07	24-Jul-07	20-Sep-07	7-Feb-08	15-Apr-08
7.131 Self-Adhering Sheet Waterproofing	Construction	7-Mar-08	18-Jun-08						
7.21 Building Insulation	Construction	21-Feb-07	28-Dec-07	23-Oct-07	25-Oct-07	24-Oct-07	24-Dec-07	12-Mar-08	18-Mar-08
7.412 Metal Wall Panels	Construction	16-Jan-08	13-May-08					17-Mar-08	22-Apr-08
7.531 TPO Membrane Roofing	Construction	4-Oct-07	17-Dec-07	31-Aug-07	15-Nov-07	13-Sep-07	31-Dec-07	18-Oct-07	6-Mar-08
7.811 Sprayed Fire-Resitive Materials	Construction	17-Sep-07	2-Jan-08	29-Aug-07	31-Oct-07	17-Sep-07	26-Oct-07	1-Apr-08	21-Apr-08
	Construction	11-Aug-07	14-Nov-07	22-Aug-07	19-Nov-07	25-Aug-07	14-Nov-07		

7.92 Joint Sealants	Construction	21-Sep-07	23-Apr-08	25-Sep-07	25-Sep-07	19-Sep-07	21-Sep-07	18-Jan-08	18-Jan-08
8.11 Steel Doors and Frames	Construction	17-Sep-07	29-May-08			17-Sep-07	7-Nov-07	16-Jan-08	28-Jan-08
8.211 Flush Wood Doors	Construction	17-Sep-07	28-May-08			17-Sep-07	26-Nov-07	16-Jan-08	25-Jan-08
8.311 Access Doors And Frames	Construction	1-Oct-07	20-Nov-07	1-Oct-07	19-Oct-07	1-Oct-07	20-Nov-07	16-Jan-08	17-Jan-08
8.329 Integrated Door Assemblies	Construction	17-Sep-07	28-May-08			17-Sep-07	26-Nov-07	16-Jan-08	28-Jan-08
8.331 Overhead Coiling Doors	Construction	17-Sep-07	19-Feb-08			17-Sep-07	24-Sep-07	16-Jan-08	28-Jan-08
8.351 Folding Doors	Construction	11-Oct-07	14-Mar-08			11-0ct-07	18-Oct-07	25-Jan-08	25-Jan-08
8.411 Aluminum-Framed Entrances and Storefronts	Construction	17-Sep-07	7-Mar-08			17-Sep-07	11-Oct-07	16-Jan-08	28-Jan-08
8.47 Revolving Entrance Doors	08.470.10	11-Oct-07	22-Apr-08			11-0ct-07	15-Oct-07	25-Jan-08	29-Jan-08
8.911 Glazed Aluminum Curtain Walls	Proj Mang/Eng	1-Dec-06	15-Aug-07						
	Construction	20-Aug-07	26-Dec-07	20-Aug-07	4-Dec-07	20-Aug-07	18-Dec-07	20-Aug-07	7-Feb-08
9.111 Non-Load-Bearing Steel Frame	Construction	8-Aug-07	22-Apr-08	8-Aug-07	8-Nov-07	8-Aug-07	6-Dec-07	4-Sep-08	22-Apr-08
9.25 Gypsum Board	Proj Mang/Eng	1-Dec-06	13-Aug-07						
9.31 Ceramic Tile	Construction	23-Jan-08	20-May-08					2-Jan-08	23-May-08
9.511 Acoustical Panel Ceilings	Construction	19-Feb-08	27-May-08					15-Apr-08	21-Apr-08
9.651 Resilient Floor Tile	Construction	6-Mar-08	19-Jun-08						
9.653 Resilient Wall Base Accessories	Construction	27-Feb-08	1-Jul-08						
9.671 Resinous Flooring	Construction	3-Mar-08	2-Jul-08						
9.68 Carpet	Construction	27-Feb-08	30-May-08						
9.912 Interior Painting	Construction	3-Apr-08	30-Jun-08						
10.155 Toilet Compartments	Construction	13-Feb-08	26-Jun-08					14-Apr-08	21-Apr-08
10.265 Impact-Resistant Wall Protection	Construction	4-Mar-08	30-May-08						
10.41 Directories	Construction	27-Feb-08	16-Jun-08						
	Construction	27-Feb-08	27-Jun-08						
10.522 Fire Extinguisher Cabinets	Construction	20-Feb-08	29-May-08						
10.523 Fire Extinguishers  10.801 Toilet and Bath Accessories	Construction	27-Feb-08	27-Jun-08						
	Construction	19-Feb-08	2-Jun-08					15-Apr-08	16-Apr-08
14.21 Electric Traction Elevators	Proj Mang/Eng	16-Nov-06	23-Oct-07	16-Mar-07	23-Oct-07	16-Mar-07	23-Oct-07	26 Nov. 07	20 4 00
	Construction	24-0ct-07	28-Jan-08	24-0ct-07	20-Dec-07	24-Oct-07	28-Dec-07	26-Nov-07	29-Apr-08
15 15	Proj Mang/Eng	4-Jun-07	26-Sep-07	3-Jul-07	26-Sep-07	3-Jul-07	26-Sep-07		
15.3 Fire Protection	Proj Mang/Eng	12-Jun-08	18-Jun-08						
15.31 Fire Pumps and Controllers	Construction	28-Mar-07	27-Jun-08			27-Aug-07	30-Nov-07	7-Jan-08	23-Apr-08
	Proj Mang/Eng Construction	1-Dec-06 16-Oct-07	15-Oct-07 26-Mar-08	8-Jun-07 5-Sep-07	4-Sep-07 5-Dec-07	8-Jun-07 6-Sep-07	15-Oct-07 26-Dec-07	31-Jan-08	7-Apr-08
15.4 Plumbing	Proj Mang/Eng	1-Dec-06	16-Oct-07	14-Jun-07	16-Oct-07	14-Jun-07	29-Oct-07	15-Jan-08	15-Jan-08
15.5 Heating, Ventalation and Air Conditioning	Construction	2-Apr-07	24-Jun-08	29-Aug-07	20-Nov-07	30-Aug-07	17-Jan-08	31-Dec-07	16-May-08
-	Proj Mang/Eng Construction	1-Dec-06 10-Sep-07	1-Jul-08 24-Jun-08	25-Apr-07 11-Sep-07	29-Nov-07 13-Dec-07	25-Apr-07 17-Sep-07	30-Nov-07 3-Jan-08	16-Jan-08 17-Oct-07	30-Jan-08 22-Apr-08
16 Electrical									
	Proj Mang/Eng Construction	20-Nov-06 15-Dec-06	30-Nov-07 30-Jun-08	18-Apr-07 21-Aug-07	29-Nov-07 15-Nov-07	18-Apr-07 4-Sep-07	30-Nov-07 10-Jan-08	7-Jan-08	5-May-08

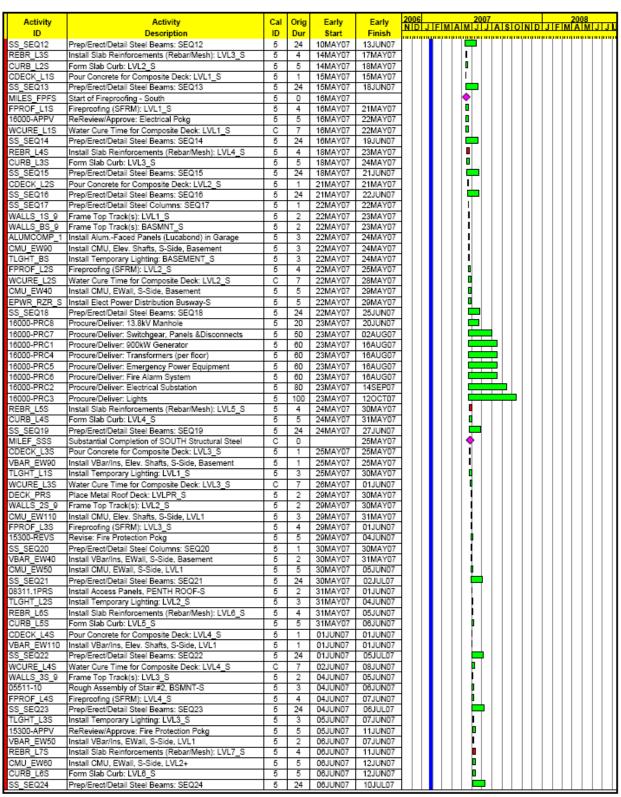
Activity	Activity	Cal	Orig	Early	Early	2006		2007	20	08
ID '	Description	ID	Dur	Start	Finish			JIJIAISIOINID		
AECPC F	Project									
1020	Install Erosion Control/Stormwater Control B		5	15NOV06A	21NOV06A					
14210-AWRD	Award: Elevator Pokg	5	0	16NOV06A		<b>1</b> 2				
16000-AWRD 1740	Award: Electrical Policy Install Drainage at East Side of Garage	5	10	20NOV06A 20NOV06A	01DEC06A	<b>1</b>				
2050	Temporary Pave East Side of Garage	5	1	01DEC06A	01DEC06A	17				
03450-DSGN	Design: Precast Concrete Panels	5	10	01DEC06A	08DEC06A	1 1				
04810-DSGN	Design: CMU Partitions	5	10	01DEC06A	08DEC06A	1				
04851-DSGN	Design: Granite Cladding Pckg	5	10	01DEC06A	08DEC06A	1 !				
05120-DSGN	Design: Structural Steel Pokg	5	5	01DEC06A	08DEC06A	1:1				
05511-DSGN 05512-DSGN	Design: Standard Stair Package Design: Custom Stair Package	5	10	01DEC06A 01DEC06A	08DEC06A 08DEC06A	1 [ ]				
08911-DSGN	Design: Glazed Alum Curtain Wall	5	10	01DEC06A	08DEC06A					
09250-DSGN	Design: GWB & Metal Stud Pokg	5	10	01DEC06A	08DEC06A	1				
14210DSGN	Design: Elevator Pckg	5	10	01DEC06A	08DEC06A	] [ ]				
15300-DSGN	Design: Fire Protection Pokg	5	10	01DEC06A	08DEC06A	1 !				
15400-DSGN 15500-DSGN	Design: Plumbing Pokg	5	10	01DEC06A 01DEC06A	08DEC06A 08DEC06A	1				
16000-DSGN	Design: HVAC Pokg Design: Electrical Pokg	5	10	01DEC06A	08DEC06A	[				
DELAY_1	Work Stoppage by Owner	5	10	01DEC06A	14DEC06A	1 🗐				
3060	Relocate Garage Tel/Data Ductbank	5	20	15DEC06A	15JAN07A	]   📫	<u>                                     </u>			
14210SBMT	Submittal Prep: Elevator Pokg	5	10	15DEC06A	23FEB07	]   🖶	<b>-</b>			
1030	Strip and Stockpile Topsol/Gravel to WSH	5	5	20DEC06A	29DEC06A					
08911-SBMT 1050	Submittal Prep: Glazed Alum Curtain Wall  Executate/Establish Building Dad - South	5	10	22DEC06A 29DEC06A	09MAR07 05JAN07A	┨╢┰	<b>TT</b>			
05120-PROC	Excavate/Establish Building Pad - South Procure/Fabricate: Structural Steel Pckg	5	29	02JAN07A	15MAR07	┨ │ ╻	<b></b>			
05120-SBMT	Submittal Prep: Structural Steel Pckg	5	5	03JAN07A	20FEB07	1   🖟	<b>-</b>			
14210RVEW	Review & Return: Elevator Pokg	5	10	03JAN07A	09MAR07	1	<b>+</b>			
3070	Excavate B-Line Cimn Ftgs. 7-9 & Ejector P		2	08JAN07A	10JAN07A	]   [				
3100	Excavate D-Line Ftg. 7-1 Lines	5	2	10JAN07A	12JAN07A	}				
3110 3120	Place B-8 Column Ftg/Ejector Ptt	5	5	10JAN07A 12JAN07A	12JAN07A 06FEB07	{     <mark>'</mark>	_			
3210	Place B-Line Column Ftgs 9-12 Lines	5	8	15JAN07A	23JAN07A	1	<b>T</b>			
3090	Excavate B-Line Ptgs 7-1 Lines	5	3	16JAN07A	22JAN07A	1	<b>d</b>			
1060	Place B-Line Column Footings 7-Line to 1-Li	ine 5	7	17JAN07A	25JAN07A	1	<b>4</b>			
1040	Install Earth Support System	5	10	17JAN07A	28FEB07	]	<del>•</del>			
3220 3140	Place B-Line Retaining Wall Ptgs., 1-11 Line		5	18JAN07A	30JAN07A 29JAN07A	4	1			
1100	Place B-Line Fndn Wall 7-9 & Ejector Pit Wa Place South Strip Footings B-Line to D-Line	ns 5	5	22JAN07A 24JAN07A	07FEB07	1	<b>.</b>			
3130	Place D-Line 1 Sided Ftg. 1-12 Lines	5	4	24JAN07A	13FEB07	1	<u> </u>			
3180	Place D-Line Fndn Wali 1-12 Lines	5	14	24JAN07A	21FEB07	1	<b>-</b>     -			
15400-AWRD	Award: Plumbing Pckg	5	0	25JAN07A		]	💡			
15500-AWRD	Award: HVAC Pokg	5	0	25JAN07A	30 (4) 07	1	<b>Y</b>			
1800 1840	Install 8" Fire Service Install 6" Domestic Service	5	2	29JAN07 29JAN07	30JAN07 30JAN07	1				
15400-SBMT	Submittal Prep: Plumbing Pokg	5	30	29JAN07	09MAR07	1				
15500-SBMT	Submittal Prep: HVAC Pokg	5	40	29JAN07	23MAR07	1	<b> </b>			
MEP_PENT	MEP Detailed Coordination: Penthouse	1	100	29JAN07	18JUN07	]		<b>-</b>		
3150	Place Fndn Wall B/1-B/5.5	5	6	30JAN07*	06FEB07	1				
16000-SBMT 3080	Submittal Prep: Electrical Pokg	5	1	31JAN07* 02FEB07*	24APR07 02FEB07	$  \cdot  $				
CMU EW70	Excavate South Wall Footings  CMU Infil of Existing Garage Openings	5	15	02FEB07*	23FEB07	$  \cdot  $				
3160	Place Fndn Wall B/5.5-B/9.8	5	7	07FEB07		1	<u> </u>			
15300-AWRD	Award: Fire Protection	5	0	12FEB07*		1	<u>•</u>			
15300-SBMT	Submittal Prep: Fire Protection Pckg	5	40	12FEB07	06APR07	]				
03450-AWRD	Award: Precast Concrete Panels	5	0	15FEB07*		1	<b>000000</b>			
04851-AWRD 04851-SBMT	Award: Granite Cladding Pokg	5	10	15FEB07*	2055002	1	<b>7</b>			
03450-SBMT	Submittal Prep: Granite Cladding Pokg Submittal Prep: Precast Concrete Panels	5	10	15FEB07 15FEB07	28FEB07 07MAR07	1	<u> </u>			
04810-AWRD	Award: CMU Partitions	5	0	16FEB07*	armental.	1	<b>₀</b>			
05511-AWRD	Award: Standard Stair Package	5	0	16FEB07*		1	<ul><li>     </li></ul>			
05512-AWRD	Award: Custom Stair Package	5	0	16FEB07*		]   [	<mark>                                      </mark>			
3340	Excavate Column 4/C & South Elevator Pit F		1	16FEB07	16FEB07	1	!			
1140	Place South Elevator Ptt & Column C/4 Ftgs		3	16FEB07	20FEB07	Ш		Sub-state a Mater		
I	Data Date 29JAN07	.			eet 1 of 31	Date		Scheduling Notes Revision	Checked	Approved
CONC	Finish Date 14JUL08	Consi		onstructi	on					
CONS	igli			Project	ŀ					
© Primavera S	vstems. Inc.	Base	eline,	All Actv	s					
arcid 0	,								_	

A address	B and the control of	0-1	0-1-	Fl-	Factor	2006 2007 2008
Activity	Activity Description	Cal	Orig	Early Start	Early Finish	NIDI JIFIMIAIMIJI JIAISIOINIDI JIFIMIAIMIJIJI
3200	Place Foundation Wall B9.8-B11.1	5	5	16FEB07	22FEB07	
3420	Place Foundation 1B-B1	5	5	16FEB07	22FEB07	1     0     1
1120	Place Interior Column Footings C/3, C/5, C/6	5	6	16FEB07	23FEB07	<u> </u>
05511-SBMT 04810-SBMT	Submittal Prep: Standard Stair Package Submittal Prep: CMU Partitions	5	10 20	16FEB07 16FEB07	01MAR07 15MAR07	<u> </u>
05512-SBMT	Submittal Prep: Custom Stair Package	5	30	16FEB07	29MAR07	1     1
3190	Excavate/Establish Building Pad - North	5	8	19FEB07	28FEB07	┥  ▮╦┐
3350	Place South Elevator Pit Walls C/4 Pier	5	3	21FEB07	23FEB07	<mark>1</mark>
05120-APPV	Review/Approve: Structural Steel Pckg	5	5	21FEB07	27FEB07	]       • • •
09250-AWRD	Award: GWB & Metal Stud Pokg	5	0	23FEB07*		<u> </u>
09250-SBMT 3360	Submittal Prep: GWB & Metal Stud Pokg Place Fndn Wall B.6 to D Line & 2 Line Wall	5	10	23FEB07 26FEB07	08MAR07 05MAR07	4     🛮 🖁
2870	Underslab Utility Excavation & Backfill	5	15	26FEB07*	16MAR07	┨
1160	Place Interior Footings C/7, C/8, C/9	5	4	27FEB07	02MAR07	┫
1090	Place Retaining Wall Footings 12- to 17-Line	5	4	01MAR07	06MAR07	1     <mark> </mark>
04851-RVEW	Review & Return: Granite Cladding Pckg	5	10	01MAR07	14MAR07	]     <b>                                </b>
MILEF_CONS	Sub.Completion of S-Foundation Concrete Work	5	0		02MAR07	
05511-RVEW 3290	Review & Return: Standard Stair Package Drill & Epoxy D-Line Ftgs 12-17 Line	5	10	02MAR07 07MAR07*	15MAR07 13MAR07	4     <mark>                                </mark>
3280	Place Fndn Wall 17D-B/13.9	5	6	07MAR07	14MAR07	
2900	Install Filter Fabric & C. Stone at SOG - South	5	5	08MAR07*	14MAR07	
03450-RVEW	Review & Return: Precast Concrete Panels	5	10	08MAR07	21MAR07	1
09250-RVEW	Review & Return: GWB & Metal Stud Pckg	5	10	09MAR07	22MAR07	]
08911-APPV	ReReview/Approve: Glazed Alum Curtain Wall	5	10	12MAR07	23MAR07	]
14210REVS	Revise: Elevator Pokg Build Mockup	5	10	12MAR07	23MAR07 23MAR07	
BLD_MCKUP 15400-RVEW	Review & Return: Plumbing Pokg	5	10	12MAR07 12MAR07	30MAR07	-      <mark> </mark>
3300	Place D-Line 1 Sided Ftg. 12-17 Line	5	4	14MAR07	19MAR07	┥
3310	Place D-Line Fndn Wall 12-17 Line	5	14	14MAR07	02APR07	1
1150	Place North Elevator Pit Walls	5	4	15MAR07	20MAR07	<u> </u>
3430	Place Fndn Wall B13.9-B11.9	5	5	15MAR07	21MAR07	]
04851-REVS MILES SSS	Revise: Granite Cladding Pokg	5	5	15MAR07	21MAR07	]     [
SS SEQ26	Start of Structural Steel (SOUTH) Prep/Erect/Detail Steel Columns: SEQ26	C 5	0	16MAR07* 16MAR07	16MAR07	
05511-REVS	Revise: Standard Stair Package	5	5	16MAR07	22MAR07	
04810-RVEW	Review & Return: CMU Partitions	5	10	16MAR07	29MAR07	┫
SS_SEQ27	Prep/Erect/Detail Steel Beams: SEQ27	5	24	16MAR07	18APR07	]
SS_SEQ28	Prep/Erect/Detail Steel Columns: SEQ28	5	1	19MAR07	19MAR07	<u>]</u>
SS_SEQ29	Prep/Erect/Detail Steel Beams: SEQ29 Prep/Erect/Detail Steel Beams: SEQ30	5	24	19MAR07	19APR07 20APR07	4     🚺   🚾
SS_SEQ30 1130	Place Interior Column Footings 8-Line to 14-Line	5	6	20MAR07 21MAR07	20APR07 28MAR07	┦     ▮   ╦
03450-REVS	Revise: Precast Concrete Panels	5	5	22MAR07	28MAR07	┥
04851-APPV	ReReview/Approve: Granite Cladding Pckg	5	5	22MAR07	28MAR07	<b>1</b>     <b>■</b>   <b>0</b>
SS_SEQ31	Prep/Erect/Detail Steel Beams: SEQ31	5	24	22MAR07	24APR07	]
05511-APPV	ReReview/Approve: Standard Stair Package	5	5	23MAR07	29MAR07	<u> </u>
09250-REVS SS SEQ32	Revise: GWB & Metal Stud Pokg Prep/Erect/Detail Steel Beams: SEQ32	5	5 24	23MAR07 23MAR07	29MAR07 25APR07	4     <mark>1</mark>   <u>1</u>
14210APPV	ReReview/Approve: Elevator Pokg	5	5	26MAR07	30MAR07	
	Review/Approve Mockup	5	10	26MAR07	06APR07	1
15500-RVEW	Review & Return: HVAC Pokg	5	20	26MAR07	20APR07	1
08911-PROC	Procure/Fabricate: Glazed Alum Curtain Wall	5	57	26MAR07	13JUN07	]     <mark>    <del>       </del>                           </mark>
SS_SEQ33	Prep/Erect/Detail Steel Columns: SEQ33	5	1	27MAR07	27MAR07	<u>.</u>     <mark>                                </mark>
SS_SEQ34 03450-APPV	Prep/Erect/Detail Steel Beams: SEQ34 ReReview/Approve: Precast Concrete Panels	5	24 5	27MAR07 29MAR07	27APR07 04APR07	4     🛮   📅
SS_SEQ35	Prep/Erect/Detail Steel Beams: SEQ35	5	24	29MAR07	01MAY07	
04851-PROC	Procure/Fabricate: Granite Cladding Pokg	5	60	29MAR07	21JUN07	1
SS_SEQ36	Prep/Erect/Detail Steel Columns: SEQ36	5	1	30MAR07	30MAR07	<b>1</b>     <b> </b>
04810-REVS	Revise: CMU Partitions	5	5	30MAR07		]     <mark> </mark>   •
09250-APPV	ReReview/Approve: GWB & Metal Stud Pokg	5	5	30MAR07	05APR07	-      <mark>                                </mark>
05512-RVEW	Review & Return: Custom Stair Package Prep/Erect/Detail Steel Beams: SEQ37	5	10 24	30MAR07	12APR07	l
SS_SEQ37 05511-PROC	Procure/Fabricate: Standard Stair Package	5	45	30MAR07 30MAR07	02MAY07 01JUN07	
3330	Place Column C/15	5	1	02APR07	02APR07	┥     ▮   テ┬┐
1320	Install 8" Water Line	5	3	02APR07*		<b>1</b>     <mark> </mark>
15400-REVS	Revise: Plumbing Pokg	5	5	02APR07	06APR07	]     <mark> </mark>   <u>   </u>
1310	Utility Connections in South Road	5	15	02APR07*	20APR07	]     <mark>                                </mark>
1850	Wetlands Replication	5	40	02APR07	25MAY07*	4     <mark>                                </mark>
14210PROC 3440	Procure/Fabricate: Elevator Pckg Place Wall Footing 11-12	5	90	02APR07 03APR07	07AUG07 04APR07	-{     <mark>                                 </mark>
3320	Place 15-Line Interior Walls	5	5	03APR07	09APR07	<del>-</del>
	2 mile manuel result		_ ~			<u> </u>

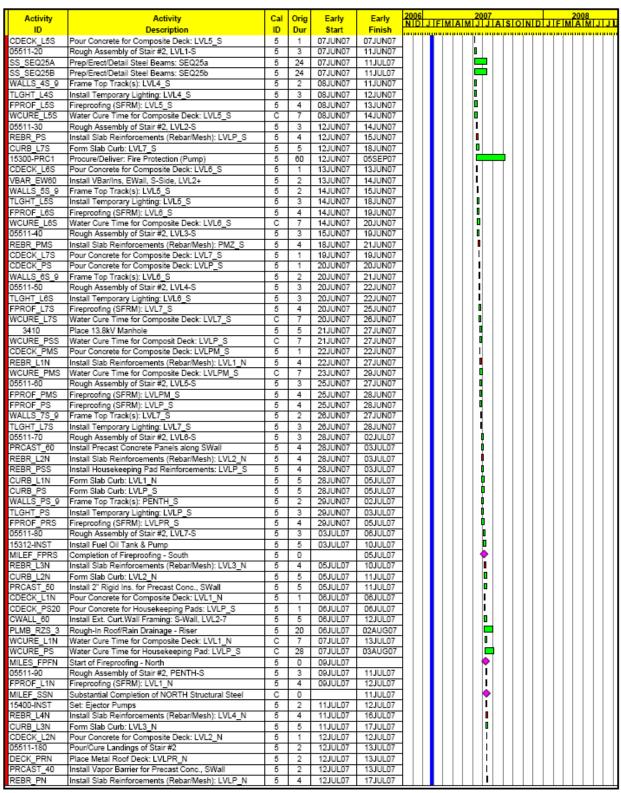
Sheet 2 of 31

Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	2006 2007 2008 NIDI JIFIMIAIMIJI JIAISIOINIDI JIFIMIAIMIJI
3390	Install Filter Fabric & C. Stone at SOG - North	5	5	03APR07	09APR07	····
SS SEQ38	Preo/Erect/Detail Steel Beams: SEQ38	5	24	03APR07	04MAY07	┨     ┃   🛗
3450	Place Wall 11-12	5	4	05APR07	10APR07	┧   │ <b>┃</b> │ <b>╓</b> ┌ │ │ │ │ │ │ │ │ │ │ │ │ │ │
SS SEQ39	Prep/Erect/Detail Steel Beams: SEQ39	5	24	05APR07	08MAY07	i     <mark>                                </mark>
	ReReview/Approve: CMU Partitions	5	5	06APR07	12APR07	i     <mark>                                 </mark>
09250-PROC	Procure/Fabricate: GWB & Metal Stud Pckg	5	10	06APR07	19APR07	1     🚺   📴
15400-APPV	ReReview/Approve: Plumbing Pokg	5	5	09APR07	13APR07	1
RWRK_MCKUP	Rework Mockup	5	5	09APR07	13APR07	1
15300-RVEW	Review & Return: Fire Protection Pckg	5	15	09APR07	27APR07	1     📕   🚾
SS_SEQ40	Prep/Erect/Detail Steel Beams: SEQ40	5	24	09APR07	10MAY07	1     📕   📫
MILEF CONN	Sub.Completion of N-Foundation Concrete Work	5	0		10APR07	1     🚺   🍫
3380	Install Underslab Insul. & V. Barrier - North	5	4	10APR07	13APR07	1
SS_SEQ41	Prep/Erect/Detail Steel Beams: SEQ41	5	24	10APR07	11MAY07	1
SS_SEQ42	Prep/Erect/Detail Steel Columns: SEQ42	5	1	11APR07	11APR07	1
SS_SEQ43	Prep/Erect/Detail Steel Beams: SEQ43	5	24	11APR07	14MAY07	1
5512-REVS	Revise: Custom Stair Package	5	5	13APR07	19APR07	1
SS_SEQ44	Prep/Erect/Detail Steel Beams: SEQ44	5	24	13APR07	16MAY07	1
4810-PROC	Procure/Deliver: CMU Partitions	5	25	13APR07	17MAY07	]
2930	Install Underslab Insul. & V. Barrier - South	5	4	16APR07*	19APR07	1
3400	Place Slab on Grade-North	5	5	16APR07	20APR07	]
	Approve Mockup	5	10	16APR07	27APR07	]
5400-PRC2	Procure/Deliver: Pumps (Penthouse)	5	40	16APR07	11JUN07	]
5400-PRC3	Procure/Deliver: Emergency Eye Wash	5	50	16APR07	25JUN07	]
5400-PRC1	Procure/Fabricate: Plumbing (Ejector Pumps)	5	60	16APR07	10JUL07	]
S_SEQ45	Prep/Erect/Detail Steel Columns: SEQ45	5	1	17APR07	17APR07	1
S_SEQ46	Prep/Erect/Detail Steel Beams: SEQ46	5	24	17APR07	18MAY07	[     <mark>                                </mark>
S_SEQ47	Prep/Erect/Detail Steel Beams: SEQ47	5	24	19APR07	22MAY07	1     🛮     🗯
1350	Place Slab on Grade-South	5	5	20APR07	26APR07	1
5512-APPV	ReReview/Approve: Custom Stair Package	5	5	20APR07	26APR07	1
S SEQ48A	Prep/Erect/Detail Steel Beams: SEQ48a	5	24	20APR07	23MAY07	1     🛮     📥
S SEQ48B	Prep/Erect/Detail Steel Beams: SEQ48b	5	24	20APR07	23MAY07	1     📕     🛑
5500-REVS	Revise: HVAC Pokg	5	5	23APR07	27APR07	1
S_SEQ49	Prep/Erect/Detail Steel Beams: SEQ49	5	24	23APR07	24MAY07	1     🛮     📥
S SEQ50	Prep/Erect/Detail Steel Beams: SEQ50	5	24	24APR07	25MAY07	1     🛮     🛑
MILES SSN	Start of Structural Steel (NORTH)	С	0	25APR07		1     🛮     🔷
SS_SEQ1	Prep/Erect/Detail Steel Columns: SEQ1	5	1	25APR07	25APR07	1
6000-RVEW	Review & Return: Electrical Pokg	5	10	25APR07	08MAY07	1
S_SEQ2	Prep/Erect/Detail Steel Beams: SEQ2	5	24	25APR07	29MAY07	]
S SEQ3	Prep/Erect/Detail Steel Columns: SEQ3	5	1	26APR07	26APR07	1
S SEQ4	Prep/Erect/Detail Steel Beams: SEQ4	5	24	26APR07	30MAY07	1     📕     📛
ROOF_130	Install EPDM Membrane Roof: Garage	5	1	27APR07	27APR07	1
5512-PROC	Procure/Fabricate: Custom Stair Package	5	60	27APR07	23JUL07	1
OOF 140	Install 2" Rigid Insulation: Garage Roof	5	1	30APR07	30APR07	1
5500-APPV	ReReview/Approve: HVAC Pckg	5	5	30APR07	04MAY07	1
5300-CRVW	Review & Return (by City): Fire Protection Pckg	5	20	30APR07	25MAY07	1     🛮     🛏
S SEQ5	Prep/Erect/Detail Steel Beams: SEQ5	5	24	30APR07	01JUN07	1     🛮     📛
3450-PROC	Procure/Fabricate: Precast Concrete Panels	5	40	30APR07	25JUN07	1     🛮     🛑
S SEQ6	Prep/Erect/Detail Steel Beams: SEQ6	5	24	01MAY07	04JUN07	1     🛚     🚔
EBR_L1S	Install Slab Reinforcements (Rebar/Mesh): LVL1_S	5	4	02MAY07	07MAY07	1
S_SEQ7	Prep/Erect/Detail Steel Beams: SEQ7	5	24	02MAY07	05JUN07	1     🛮     🚔
S_SEQ8	Prep/Erect/Detail Steel Columns: SEQ8	5	1	07MAY07	07MAY07	1
S_SEQ9	Prep/Erect/Detail Steel Beams: SEQ9	5	24	07MAY07	08JUN07	1     🛮       📫
<del></del>	Procure/Deliver: Unit Heaters	5	40	07MAY07	02JUL07	1     🛮       📥
	Procure/Deliver: Fuel Oil Tank & Pump	5	40	07MAY07	02JUL07	1     🛚       📫
	Procure/Deliver: Automatic Temp Controls (ATC)	5	40	07MAY07	02JUL07	1     🛮       📥
5500-PR11	Procure/Deliver: FPTs & VAVs	5	50	07MAY07	17JUL07	1     🛮       📥
	Procure/Deliver: Gas Fired HW Heaters	5	50	07MAY07	17JUL07	1     🛮
	Procure/Deliver: VFDs	5	60	07MAY07	31JUL07	1
	Procure/Deliver: Chemical Treatment System	5	60	07MAY07	31JUL07	1
	Procure/Deliver: CHW & HW Pumps	5	60	07MAY07	31JUL07	1
	Procure/Deliver: Fans	5	60	07MAY07	31JUL07	
5500-PRC1	Procure/Deliver: Chillers (x3)	5	70	07MAY07	14AUG07	1
	Procure/Deliver: Cooling Towers	5	70	07MAY07	14AUG07	1
	Procure/Deliver: Air Handling Units (x4)	5	80	07MAY07	28AUG07	1     1
5500-PRC5	Procure/Deliver: Process Chiller	5	80	07MAY07	28AUG07	<u>                                     </u>
EBR L2S	Install Slab Reinforcements (Rebar/Mesh): LVL2_S	5	4	08MAY07	11MAY07	<u>                                     </u>
	Form Slab Curb: LVL1 S	5	5	08MAY07	14MAY07	1
6000-REVS	Revise: Electrical Poko	5	5	09MAY07	15MAY07	1     <b> </b>
S SEQ10	Prep/Erect/Detail Steel Beams: SEQ10	5	24	09MAY07	12JUN07	┨
	representatione de Dearits, actulit	Ü	24		12301907	.     <mark>-                                 </mark>
S_SEQ11	Prep/Erect/Detail Steel Columns: SEQ11	5	- 1	10MAY07	10MAY07	1

Sheet 3 of 31



Sheet 4 of 31



Sheet 5 of 31

			-		_	2006 2007 2009
Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	2006 2007 2008 NIDIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJI
WALLS_1N_9	Frame Top Track(s): LVL1_N	5	2	13JUL07	16JUL07	
	Frame Top Track(s): BASMNT_N	5	2	13JUL07	16JUL07	<u> </u>
CMU_EW80	Install CMU, Elev. Shafts, N-Side, Basement	5	3	13JUL07	17JUL07	<del>-</del>
TLGHT_BN FPROF L2N	Install Temporary Lighting: BASEMENT_N Fireproofing (SFRM): LVL2_N	5	4	13JUL07 13JUL07	17JUL07 18JUL07	
CMU EW10	Install CMU, EWall, N-Side, Basement	5	5	13JUL07	19JUL07	
CWALL_50	Install Curt.Wall Insulation: S-Wall, LVL2-7	5	5	13JUL07	19JUL07	<u> </u>
	Install Elect Power Distribution Busway-N	5	5	13JUL07	19JUL07	<u> </u>
WCURE_L2N	Water Cure Time for Composite Deck: LVL2_N	С	7	13JUL07	19JUL07	<u> </u>
05511-190	Install Railings & Finishes: Stair #2, BSMNT-S	5	1	16JUL07	16JUL07	4     🚺
07920.2_1N 08311.1PRN	Install Floor Expansion Joint, LVL1-N, 8Col Install Access Panels, PENTH ROOF-S	5	2	16JUL07 16JUL07	16JUL07 17JUL07	
05511-200	Install Railings & Finishes: Stair #2, LVL1-S	5	1	17JUL07	17JUL07	┫
REBR_L5N	Install Slab Reinforcements (Rebar/Mesh): LVL1_N	5	4	17JUL07	20JUL07	<u> </u>
CURB_L4N	Form Slab Curb: LVL4_N	5	5	17JUL07	23JUL07	]
05511-210	Install Railings & Finishes: Stair #2, LVL2-S	5	1	18JUL07	18JUL07	<u> </u>
CDECK_L3N CDECK_PN	Pour Concrete for Composite Deck: LVL3_N Pour Concrete for Composite Deck: LVLP_N	5	1	18JUL07 18JUL07	18JUL07 18JUL07	4
VBAR EW80	Install VBar/Ins, Elev. Shafts, N-Side, Basement	5	1	18JUL07	18JUL07	
TLGHT L1N	Install Temporary Lighting: LVL1 N	5	3	18JUL07	20JUL07	
REBR_PMN	Install Slab Reinforcements (Rebar/Mesh): PMEZ_N	5	4	18JUL07	23JUL07	<mark>1</mark>     <mark> </mark>
05511-220	Install Railings & Finishes: Stair #2, LVL3-S	5	1	19JUL07	19JUL07	]
PRCAST_30	Install Precast Concrete Panels along NWall	5	2	19JUL07	20JUL07	<u> </u>
WALLS_2N_9	Frame Top Track(s): LVL2_N	5	2	19JUL07	20JUL07	4
CMU_EW100 FPROF L3N	Install CMU, Elev. Shafts, N-Side, LVL1 Fireproofing (SFRM): LVL3 N	5	3	19JUL07 19JUL07	23JUL07 24JUL07	
PRCAST 100	Install Precast Concrete Panels along WWall	5	5	19JUL07	25JUL07	
WCURE L3N	Water Cure Time for Composite Deck: LVL3 N	c	7	19JUL07	25JUL07	<del> </del>
WCURE_PNS	Water Cure Time for Composit Deck: LVLP_N	C	7	19JUL07	25JUL07	<u> </u>
05511-230	Install Railings & Finishes: Stair #2, LVL4-S	5	1	20JUL07	20JUL07	<u> </u>
07920.2_2N	Install Floor Expansion Joint, LVL2-N, 8Col	5	1	20JUL07	20JUL07	4     <mark> </mark>             <u> </u>
VBAR_EW10 CMU EW20	Install VBar/Ins, EWall, N-Side, Basement Install CMU, EWall, N-Side, LVL1	5	2	20JUL07 20JUL07	23JUL07 26JUL07	<del>-</del>
CWALL 90	Install Curtian Wall: S-Wall, LVL2-7	5	5	20JUL07	26JUL07	
05511-240	Install Railings & Finishes: Stair #2, LVL5-S	5	1	23JUL07	23JUL07	┫
TLGHT_L2N	Install Temporary Lighting: LVL2_N	5	3	23JUL07	25JUL07	<u> </u>
REBR_L6N	Install Slab Reinforcements (Rebar/Mesh): LVL1_N	5	4	23JUL07	26JUL07	]
CURB_L5N	Form Slab Curb: LVL1_N	5	5	23JUL07	27JUL07	4     •
PRCAST_20 05511-250	Install 2" Rigid Ins. for Precast Conc., NWall	5	5	23JUL07 24JUL07	27JUL07 24JUL07	4
CDECK L4N	Install Railings & Finishes: Stair #2, LVL6-S Pour Concrete for Composite Deck: LVL4 N	5	1	24JUL07	24JUL07	
CDECK_PMN	Pour Concrete for Composite Deck: LVLPM N	5	1	24JUL07	24JUL07	┫
VBAR_EW100	Install VBar/Ins, Elev. Shafts, N-Side, LVL1	5	1	24JUL07	24JUL07	<del>1</del>     <mark> </mark>
05512-10	Rough Assembly of Stair #1, BSMNT-N	5	3	24JUL07	26JUL07	]
05511-260	Install Railings & Finishes: Stair #2, LVL7-S	5	1	25JUL07	25JUL07	<u>.</u>     <mark> </mark>             !
WALLS_3N_9 FPROF L4N	Frame Top Track(s): LVL3_N	5	2	25JUL07 25JUL07	26JUL07 30JUL07	4
FPROF_L4N	Fireproofing (SFRM): LVL4_N Fireproofing (SFRM): LVLPM N	5	4	25JUL07	30JUL07	
FPROF PN	Fireproofing (SFRM): LVLP_N	5	4	25JUL07	30JUL07	
WCURE_L4N	Water Cure Time for Composite Deck: LVL4_N	С	7	25JUL07	31JUL07	<u> </u>
WCURE_PMN	Water Cure Time for Composite Deck: LVLPM_N	С	7	25JUL07	31JUL07	]
05511-270	Install Railings & Finishes: Stair #2, PENTH-S	5	1	26JUL07	26JUL07	]
	Install Floor Expansion Joint, LVL3-N, 8Col	5	1	26JUL07	26JUL07	4     •
TLGHT_L3N REBR PNS	Install Temporary Lighting: LVL3_N Install Housekeeping Pad Reinforcements: LVLP_N	5	3	26JUL07 26JUL07	30JUL07 31JUL07	4
CURB PN	Form Slab Curb: LVLP N	5	5	26JUL07	01AUG07	
	Install 2' Rigid Ins. for Precast Conc., WWall	5	5	26JUL07	01AUG07	
GRANIT_20	Install Granite Exterior Panels, W-Wall, Penthse	5	10	26JUL07	08AUG07	<u> </u>
GRANIT_40	Install Granite Exterior Panels, N-Wall, Penthse	5	10	26JUL07	08AUG07	]
VBAR_EW20	Install VBar/Ins, EWall, N-Side, LVL1	5	2	27JUL07	30JUL07	<u> </u>
05512-20 REBR L7N	Rough Assembly of Stair #1, LVL1-N	5	3	27JUL07	31JUL07	4
CMU_EW30	Install Slab Reinforcements (Rebar/Mesh): LVL7_N Install CMU, EWall, N-Side, LVL2+	5	5	27JUL07 27JUL07	01AUG07 02AUG07	-      <mark> </mark>
CURB_L6N	Form Slab Curb: LVL1_N	5	5	27JUL07	02AUG07	┥     <mark> </mark>
CDECK_L5N	Pour Concrete for Composite Deck: LVL5_N	5	1	30JUL07	30JUL07	<u> </u>
PRCAST_10	Install Vapor Barrier for Precast Conc., NWall	5	2	30JUL07	31JUL07	]
	Frame Top Track(s): LVL4_N	5	2	31JUL07	01AUG07	<u> </u>
WALLS_PN_9	Frame Top Track(s): PENTH_N	5	2	31JUL07	01AUG07	4
TLGHT_L4N	Install Temporary Lighting: LVL4_N	5	3	31JUL07	02AUG07	
TLGHT_PN	Install Temporary Lighting: LVLP_N	5	3	31JUL07	02AUG07	

Sheet 6 of 31

Activity	Activity	Cal	Orig	Early	Early	2006	2007 2008
ID	Description	ID	Dur	Start	Finish		2008 JIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJI
FPROF_L5N	Fireproofing (SFRM): LVL5_N	5	4	31JUL07	03AUG07	<b> </b>	<u> </u>
	Fireproofing (SFRM): LVLPR_N	5	4	31JUL07	03AUG07	1	
WCURE_L5N	Water Cure Time for Composite Deck: LVL5_N	C	7	31JUL07	06AUG07	4	<b> </b>           <u>                       </u>
RIG-PENTH 07920.2 4N	Rig and Set Major Penthouse Equipment Install Floor Expansion Joint, LVL4-N, 8Col	5	34* 1	01AUG07 01AUG07	18SEP07 01AUG07	1	<b> </b>           <del>     </del>
15500-INST	Set: Chemical Treatment System	5	2	01AUG07	02AUG07	1	<b> </b>           <b>i</b>
05512-30	Rough Assembly of Stair #1, LVL2-N	5	3	01AUG07	03AUG07	1	<mark> </mark>
	Pour Concrete for Housekeeping Pads: LVLP_N	5	1	02AUG07	02AUG07	1	<b> </b>           <u> </u>
	Install Vapor Barrier for Precast Conc., WWall	5	3	02AUG07	06AUG07	4	<b> </b>           <u> </u>
CURB_L7N	Form Slab Curb: LVL7_N	5	5	02AUG07	08AUG07 03AUG07	4	<b> </b>           <del> </del>
CDECK_L6N 15500 10	Pour Concrete for Composite Deck: LVL6_N Set: CHW & HW Pumps	5	2	03AUG07 03AUG07	08AUG07	1	<mark> </mark>           <mark> </mark>
_	Install VBar/Ins, EWall, N-Side, LVL2+	5	2	03AUG07	06AUG07	1	
	Install Precast Concrete Panels along EWall	5	5	03AUG07	09AUG07	1	
	Rough-In Roof/Rain Drainage Pipe, PENTH-S	5	20	03AUG07	30AUG07	]	
WCURE_PN	Water Cure Time for Housekeeping: LVLP_N	С	28	03AUG07	30AUG07	1	
	Water Cure Time for Composite Deck: LVL6_N Frame Top Track(s): LVL5_N	C	7	04AUG07 06AUG07	10AUG07 07AUG07	1	
05512-40	Rough Assembly of Stair #1, LVL3-N	5	3	06AUG07	08AUG07	+	<b> </b>
TLGHT_L5N	Install Temporary Lighting: LVL5_N	5	3	06AUG07	08AUG07	1	<mark> </mark>
FPROF_L6N	Fireproofing (SFRM): LVL6_N	5	4	06AUG07	09AUG07	]	<mark> </mark>
	Install Floor Expansion Joint, LVL5-N, 8Col	5	1	07AUG07	07AUG07	]	1
15503-INST	Set: Gas Fired HW Heaters	5	2	07AUG07	08AUG07	4	<b> </b>             <u>   </u>
14210-10 CDECK L7N	Erect Elevator, N-Bank Pour Concrete for Composite Deck: LVL7 N	5	20	08AUG07 09AUG07	05SEP07 09AUG07	1	
15505-INST	Set: Fans	5	2	09AUG07	10AUG07	1	
05512-50	Rough Assembly of Stair #1, LVL4-N	5	3	09AUG07	13AUG07	1	
07920.2_PN	Install Floor Expansion Joint, PENTH-N, 8Col	5	1	10AUG07	10AUG07	1	
	Frame Top Track(s): LVL6_N	5	2	10AUG07	13AUG07	]	
	Install Temporary Lighting: LVL6_N	5	3	10AUG07	14AUG07	4	
FPROF_L7N PRCAST 80	Fireproofing (SFRM): LVL7_N Install 2" Rigid Ins. for Precast Conc., EWall	5	5	10AUG07 10AUG07	15AUG07 16AUG07	1	
_	Water Cure Time for Composite Deck: LVL7 N	ť	7	10AUG07	16AUG07	1	
07920.2_6N	Install Floor Expansion Joint, LVL6-N, 8Col	5	1	13AUG07	13AUG07	1	
05512-60	Rough Assembly of Stair #1, LVL5-N	5	3	14AUG07	16AUG07	]	
MILEF_FPRN	Completion of Fireproofing - North	5	0		15AUG07	1	
15501-INST WALLS 7N 9	Set: Chillers (x3) Frame Top Track(s): LVL7 N	5	2	15AUG07 16AUG07	16AUG07 17AUG07	1	<b> </b>
	Install Temporary Lighting: LVL7_N	5	3	16AUG07	20AUG07	+	
_	Frame/Install Alum. Panels (LVL1, Ext. Ovrhang)	5	5	16AUG07	22AUG07	1	
	Install Ext. Curt.Wall Framing: W-Wall, LVL2	5	5	16AUG07	22AUG07	1	
	Install Ext. Curt.Wall Framing: N-Wall, LVL1-7	5	5	16AUG07	22AUG07	]	
	Install Granite Exterior Panels, N-Wall, LVL1	5	10	16AUG07	29AUG07	4	│ <b>┃</b>
	Install Granite Panels & Columns, W-Wall, LVL1 Rough-In Roof/Rain Drainage - Riser	5	15 20	16AUG07 16AUG07	06SEP07 13SEP07	1	
ROOF 20	Frame Roof & Penthouse Walls: W-Wall	5	20	16AUG07	13SEP07	1	
07920.2_7N	Install Floor Expansion Joint, LVL7-N, 8Col	5	1	17AUG07	17AUG07	1	
16000-INST	Set: 900kW Generator	5	2	17AUG07	20AUG07	1	
16000_10	Set: Transformer & Switchgear, BASE-N	5	2	17AUG07	20AUG07		1               !!
16000_130	Set: Transformer & Switchgear, LVL2-N	5	2	17AUG07	20AUG07 20AUG07	4	
16000_140 16000_190	Set: Transformer & Switchgear, LVL2-S Set: Transformer & Switchgear, LVL3-N	5	2	17AUG07 17AUG07	20AUG07	+	<b> </b>
16000_100	Set: Transformer & Switchgear, BASE-S	5	2	17AUG07	20AUG07	1	
16000_200	Set: Transformer & Switchgear, LVL3-S	5	2	17AUG07		1	<mark> </mark>               i
16000_250	Set: Transformer & Switchgear, LVL4-N	5	2	17AUG07	20AUG07	]	
16000_260	Set: Transformer & Switchgear, LVL4-S	5	2	17AUG07	20AUG07	1	
16000_310 16000 320	Set: Transformer & Switchgear, LVL5-N Set: Transformer & Switchgear, LVL5-S	5	2	17AUG07 17AUG07	20AUG07	1	
16000_320	Set: Transformer & Switchgear, LVL0-S Set: Transformer & Switchgear, LVL6-N	5	2	17AUG07	20AUG07 20AUG07	1	<b> </b>
16000_370	Set: Transformer & Switchgear, LVL6-S	5	2	17AUG07	20AUG07	1	<mark> </mark>               i
16000_430	Set: Transformer & Switchgear, LVL7-N	5	2	17AUG07	20AUG07	1	
16000_440	Set: Transformer & Switchgear, LVL7-S	5	2	17AUG07	20AUG07	1	
16000_490	Set: Transformer & Switchgear, PENT-N	5	2	17AUG07	20AUG07	1	
16000_70 16000_80	Set: Transformer & Switchgear, LVL1-N Set: Transformer & Switchgear, LVL1-S	5	2	17AUG07 17AUG07	20AUG07 20AUG07	1	
05512-70	Rough Assembly of Stair #1, LVL6-N	5	3	17AUG07	21AUG07	1	<mark> </mark>
PRCAST_70	Install Vapor Barrier for Precast Conc., EWall	5	3	17AUG07	21AUG07	1	<mark> </mark>               i
	Set: Transformer & Switchgear, PENT-S	5	2	21AUG07	22AUG07	1	<mark>                                   </mark>
16000_500	Set. Haristoffler & Switchgear, 1 Et 1-5						
16000_500 CWALL_20 05512-80	Install Curt.Wall Insulation: W-Wall, LVL2 Rough Assembly of Stair #1, LVL7-N	5	5	21AUG07 22AUG07	27AUG07 24AUG07	1	

Sheet 7 of 31

Activity	A activity.	Cal	Orig	Early	Early	2006 2007 2008
ID	Activity Description	ID	Dur	Early Start	Early Finish	2006 2007 2008 NIDI JIFIMIAIMIJI JIAISIOINIDI JIFIMIAIMIJI JI
CWALL_40	Install Curt.Wall Insulation: N-Wall, LVL1-7	5	5	23AUG07	29AUG07	
CWALL_70	Install Curtain Wall: W-Wall, LVL2	5	5	24AUG07	30AUG07	]     <b> </b>
05512-90 MILES H N	Rough Assembly of Stair #1, PENTH-N Start HVAC Work - North	5	3	27AUG07 29AUG07	29AUG07	<del> </del>     <mark> </mark>               <del> </del>
MILES H S	Start HVAC Work - South	5	0	29AUG07		┫
15504-INST	Set: Process Chiller	5	2	29AUG07	30AUG07	<u> </u>
15507-INST	Set: Air Handling Units (1 & 2)	5	2	29AUG07	30AUG07	]
HVAC_SHFT1	Install HVAC Ductwork: Shaft 1	5	5	29AUG07	05SEP07	
HVAC_SHFT3 05512.00	Install HVAC Ductwork: Shaft 3 Pour/Cure Landings of Stair #1	5	5	29AUG07 30AUG07	05SEP07 31AUG07	4     •
CWALL 80	Install Curtain Wall: N-Wall, LVL1-7	5	5	30AUG07	06SEP07	
15502-INST	Set: Air Handling Units (3 & 4)	5	2	31AUG07	04SEP07	┥
15506-INST	Set: Cooling Towers	5	2	31AUG07	04SEP07	<b>1</b>     <mark> </mark>
CWALL_130	Install Ext. Curt.Wall Framing: W-Wall-S, LVL3-7	5	8	31AUG07	12SEP07	]     <mark> </mark>             <u>•</u>
PLMB_RZN6	Rough-In Vacuum Piping - Riser	5	20	31AUG07	28SEP07	<u> </u>
PLMB_RZN_1	Rough-In Hot & Cold Water Dist./Pipe - Riser	5	20	31AUG07	28SEP07	4     🛮               💳
PLMB_RZN_2 PLMB_RZN_4	Rough-In Sanitary Waste & Vent Pipe - Riser Rough-In Natural Gas - Riser	5	20	31AUG07 31AUG07	28SEP07 28SEP07	
PLMB_RZN_5	Rough-In Medical Air Piping - Riser	5	20	31AUG07	28SEP07	┥
PLMB_RZS_1	Rough-In Hot & Cold Water Dist./Pipe - Riser	5	20	31AUG07	28SEP07	1     1
PLMB_RZS_2	Rough-In Sanitary Waste & Vent Pipe - Riser	5	20	31AUG07	28SEP07	]
PLMB_R_RS3	Rough-In Roof/Rain Drainage Pipe, ROOF-S	5	20	31AUG07	28SEP07	]
05512.10	Install Railings & Finishes: Stair #1, BSMNT-N	5	5	04SEP07	10SEP07	4     🛮               🐰
MILES_FP_N	Start of Fire Protection Plumbing, North	5	0	06SEP07		4     🛮               🔀
MILES_FP_S 15311-INST	Start of Fire Protection, South Set: Fire Protection Pump	5	2	06SEP07 06SEP07	07SEP07	
HVAC SHFT2	Install HVAC Ductwork: Shaft 2	5	5	06SEP07	12SEP07	
HVAC_SHFT4	Install HVAC Ductwork: Shaft 4	5	5	06SEP07	12SEP07	┥
CWALL_140	Install Curt.Wall Insulation: W-Wall-S, LVL3-7	5	8	06SEP07	17SEP07	<u> </u>
14210-30	Electrical Controls to Elevators, N-Bank	5	15	06SEP07	26SEP07	]
14210-20	Erect Elevator, S-Bank	5	20	06SEP07	03OCT07	4     🚺               📴
FP_RUF_RZN FP_RUF_RZS	Rough-In Fire Prot. Plumbing, N-Riser (B.8-17) Rough-In Fire Protection, S-Riser (C-3)	5	20	06SEP07 06SEP07	03OCT07 03OCT07	4     🚺               📴
05512.20	Install Railings & Finishes: Stair #1, LVL1-N	5	5	11SEP07	17SEP07	┥
CWALL 150	Install Curtain Wall: W-Wall-S, LVL3-7	5	8	11SEP07	20SEP07	┫
DUCT_MN_BN	Rough-In HVAC Duct Mains: Basement-N	5	5	13SEP07	19SEP07	<u> </u>
	Rough-In HVAC Duct Mains: Basement-S	5	5	13SEP07	19SEP07	]
	Rough-In HVAC Piping Mains: Basement-N	5	5	13SEP07	19SEP07	<u> </u>
HVAC_MN_BS ROOF_30	Rough-In HVAC Piping Mains: Basement-S Install VBarrier & Rigid Ins.: W-Wall, Penth	5	5 10	13SEP07 14SEP07	19SEP07 27SEP07	
PLMB R RN3	Rough-In Roof/Rain Drainage Pipe, ROOF-N	5	20	14SEP07	110CT07	┨
16001-INST	Set: Electrical Substation	5	2	17SEP07	18SEP07	┫
05512.30	Install Railings & Finishes: Stair #1, LVL2-N	5	5	18SEP07	24SEP07	1     <mark> </mark>
ATHZ_MCKUP	Authorization to Remove Mockup	5	0	20SEP07		]
	Remove Mockup	5	1	20SEP07	20SEP07	
	Rough-In HVAC Duct Mains: LVL1-N Rough-In HVAC Duct Mains: LVL1-S	5	5	20SEP07 20SEP07	26SEP07 26SEP07	
	Rough-In HVAC Piping Mains: LVL1-N	5	5	20SEP07	26SEP07	┥
	Rough-In HVAC Piping Mains: LVL1-S	5	5	20SEP07	26SEP07	┫
	Install Heaters (UHs, VAVs, etc.): Basement-N	5	5	20SEP07	26SEP07	1
	Install Heaters (UHs, VAVs, etc.): Basement-S	5	5	20SEP07	26SEP07	l
	Install Ext. Curt.Wall Framing: W-Wall-N, LVL3-7	5	8	21SEP07 25SEP07	02OCT07	4     •
05512.40 CWALL 170	Install Railings & Finishes: Stair #1, LVL3-N Install Curt.Wall Insulation: W-Wall-N, LVL3-7	5	5	26SEP07	01OCT07 05OCT07	
	Rough-In HVAC Branch Ducts: Basement-N	5	2	27SEP07	28SEP07	
	Rough-In HVAC Branch Lines: Basement-N	5	2	27SEP07	28SEP07	¶     <b> </b>
DUCT_BR_BS	Rough-In HVAC Branch Ducts: Basement-S	5	3	27SEP07	01OCT07	<u>1</u>     <mark> </mark>
	Rough-In HVAC Branch Lines: Basement-S	5	3	27SEP07	01OCT07	<b>-                                      </b>
	Rough-In HVAC Duct Mains: LVL2-N	5	5	27SEP07	03OCT07	4
	Rough-In HVAC Duct Mains: LVL2-S Rough-In HVAC Piping Mains: LVL2-N	5	5	27SEP07 27SEP07	03OCT07 03OCT07	4
	Rough-In HVAC Piping Mains: LVL2-N	5	5	27SEP07	03OCT07	
	Install Heaters (UHs, VAVs, etc.): LVL1-N	5	5	27SEP07	03OCT07	┩     <mark> </mark>
	Install Heaters (UHs, VAVs, etc.): LVL1-S	5	5	27SEP07	03OCT07	
14210-50	Elevator Testing, N-Bank	5	10	27SEP07	100CT07	<u>1</u>
ROOF_10	Install Corrugated Metal Panels: W-Wall, Penth	5	20	28SEP07	25OCT07	4
MILES_D_BN DOOR 001A	Start Work on Doors and Windows: Basement-N Frame Door 001A	5	0	01OCT07	0400707	4     <b>■</b>               <b>?</b>
DOOR_001A	Frame Door 001A	5	1	01OCT07 01OCT07	01OCT07 01OCT07	<del> </del>       <mark> </mark>
	Frame Door 003A	5	1	01OCT07	01OCT07	┥     ▮
		Ť	_	2.20.07	2.20.07	

Sheet 8 of 31

						200	200	17		2000	$\overline{}$
Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	NIC	JIFIMIAIMIJI			AMJ	JL
	Frame Door 004A	5	1	01OCT07	01OCT07	<b>.</b> """	·· <b>·</b>	<b>"                                     </b>	<b>"" " " </b>	''''''''	<b>"""</b>
_	Frame Door 005A	5	1	01OCT07	01OCT07	1					
	Frame Door 010A Frame Metal Stud Walls- BASMNT-N	5	1 5	01OCT07 01OCT07	01OCT07 05OCT07	1					
	Install Curtain Wall: W-Wall-N, LVL3-7	5	8	01OCT07	100CT07	1		[			
	Start Work on Doors and Windows: Basement-S	5	0	02OCT07		1		•			
_	Frame Door 011A	5	1	02OCT07	02OCT07	]					
_	Frame Door 012A Frame Door 013A	5	1	02OCT07 02OCT07	02OCT07 02OCT07	1					
	Frame Door 013A	5	1	02OCT07	02OCT07	1					
	Frame Door 014A	5	1	02OCT07	02OCT07	1					
	Frame Door 014B	5	1	02OCT07	02OCT07	]					
	Frame Door 016D Frame Door 016A	5	1	02OCT07	02OCT07	1					
	Frame Door 016B	5	1	02OCT07 02OCT07	02OCT07 02OCT07	1					
	Frame Door 017A	5	1	02OCT07	02OCT07	1					
	Frame Door 018A	5	1	02OCT07	02OCT07	1					
_	Frame Door 018B	5	1	02OCT07	02OCT07	]					
_	Frame Door 018C Frame Door 018D	5	1	02OCT07 02OCT07	02OCT07 02OCT07	{			$  \   \   \  $		
_	Frame Door 018D	5	1	02OCT07	02OCT07	1			$  \   \   \  $		
_	Frame Door 019A	5	1	02OCT07	02OCT07	1			$  \   \   \  $		
	Install Railings & Finishes: Stair #1, LVL4-N	5	5	02OCT07	08OCT07	]			$  \   \   \  $		
	Frame Metal Stud Walls- BASMNT-S	5	5	02OCT07	08OCT07	1			$  \   \   \  $		
	Rough-In HVAC Branch Ducts: LVL1-N Rough-In HVAC Branch Ducts: LVL1-S	5	5	04OCT07 04OCT07	10OCT07	1					
	Rough-In Fire Protection, Basement-N	5	5	04OCT07	100CT07	1		1   6			
	Rough-In HVAC Branch Lines: LVL1-N	5	5	04OCT07	10OCT07	1					
	Rough-In HVAC Branch Lines: LVL1-S	5	5	04OCT07	100CT07	]					
	Install Heaters (UHs, VAVs, etc.): LVL2-N	5	5	04OCT07	100CT07	]		🛚			
	Install Heaters (UHs, VAVs, etc.): LVL2-S Electrical Controls to Elevators, S-Bank	5	5 15	04OCT07 04OCT07	10OCT07 24OCT07	1					
	Rough-In Electrical Power Distribution: BASE-N	5	5	08OCT07	120CT07	1					
16000_30	Connect Transf & Switchgear to Utilities, BASE-N	5	15	08OCT07	26OCT07	1					
	Rough-In Hot & Cold Water Dist./Pipe, BASMNT-N	5	20	08OCT07	02NOV07	]					
	Rough-In Sanitary Waste & Vent Pipe, BASMNT-N	5	20	08OCT07	02NOV07	1					
	Rough-In Fire Protection Pump Room, Basement-N Install Railings & Finishes: Stair #1, LVL5-N	5	3	09OCT07	11OCT07 15OCT07	1					
	Rough-In Electrical Power Distribution: BASE-S	5	5	09OCT07	15OCT07	1					
	Rough-In Fire Protection, Basement-S	5	5	09OCT07	15OCT07	1		0			
16000_40	Connect Transf & Switchgear to Utilities, BASE-S	5	15	09OCT07	29OCT07	]		🖳			
	Rough-In Hot & Cold Water Dist./Pipe, BASMNT-S Rough-In Sanitary Waste & Vent Pipe, BASMNT-S	5	20	09OCT07	05NOV07 05NOV07	1					
	Start Work on Doors and Windows: LVL1-N	5	0	110CT07	USINOVUI	1					
	Start Work on Doors and Windows: LVL1-S	5	0	11OCT07		1		🍎			
	Pressure Test Fire Sprinkler System, BSMNT-N	5	1	11OCT07	110CT07	]		1			
_	Frame Door 100A	5	1	110CT07	110CT07	1					
_	Frame Door 100B Frame Door 100D	5	1	110CT07 110CT07	110CT07	1		1			
	Frame Door 102A	5	1	110CT07	110CT07	1					
	Frame Door 102B	5	1	11OCT07	110CT07	1					
	Frame Door 102C	5	1	11OCT07	110CT07	1					
	Frame Door 103A Frame Door 104A	5	1	11OCT07 11OCT07	110CT07 110CT07	1					
	Frame Door 105A	5	1	110CT07	110CT07	1					
	Frame Door 107A	5	1	11OCT07	11OCT07	1					
	Frame Door 107B	5	1	11OCT07	110CT07	]					
	Frame Door 109A	5	1	110CT07	110CT07	1			$  \   \   \  $		
	Frame Door 109B Frame Door 110A	5	1	110CT07 110CT07	110CT07	$\{ \mid$					
	Frame Door 110B	5	1	110CT07	110CT07	1			$  \   \   \  $		
DOOR_111A	Frame Door 111A	5	1	11OCT07	11OCT07	1			$  \   \   \  $		
	Frame Door 111B	5	1	11OCT07	11OCT07	]		!	$  \   \   \  $		
	Frame Door 112A	5	1	110CT07	110CT07	1			$  \   \   \  $		
	Frame Door 112B Frame Door 112C	5	1	110CT07 110CT07	110CT07 110CT07	1			$  \   \   \  $		
	Frame Door 113A	5	1	110CT07	110CT07	1			$  \   \   \  $		
DOOR_113C	Frame Door 113C	5	1	11OCT07	110CT07	]					
	Frame Door 115A	5	1	11OCT07	110CT07	1					
DOOR 116A	Frame Door 116A	5	1	11OCT07	11OCT07						

Sheet 9 of 31

A - the the	Bart to		0.	F. A.	E. d.	2000	2007 2009
Activity ID	Activity Description	Cal	Orig Dur	Early Start	Early Finish		06 2007 2008 DIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJI.
DOOR_117A	Frame Door 117A	5	1	110CT07	11OCT07	]""	
DOOR_117B	Frame Door 117B	5	1	110CT07	110CT07	4	
DOOR_118A DOOR_119A	Frame Door 118A Frame Door 119A	5	1	110CT07 110CT07	110CT07	+	
DOOR_120A	Frame Door 120A	5	1	110CT07	110CT07	1	
DOOR_120B	Frame Door 120B	5	1	110CT07	110CT07	]	
	Frame Door 100C	5	3	110CT07	15OCT07	4	
DUCT BR 2N	Install Ext. Curt.Wall Framing: E-Wall, LVL3+ Rough-In HVAC Branch Ducts: LVL2-N	5	5	11OCT07 11OCT07	17OCT07	+	
	Rough-In HVAC Branch Lines: LVL2-N	5	5	110CT07	17OCT07	1	
WALLS_1N_1	Frame Metal Stud Walls- LVL1-N	5	5	11OCT07	17OCT07	1	
WALLS_1S_1	Frame Metal Stud Walls- LVL1-S	5	5	110CT07	17OCT07	4	
DUCT_BR_2S HVAC BR 2S	Rough-In HVAC Branch Ducts: LVL2-S Rough-In HVAC Branch Lines: LVL2-S	5	10	11OCT07 11OCT07	24OCT07 24OCT07		
15300.2 BN	Install Sprinkler Heads, BSMNT-N	5	1	12OCT07	12OCT07	1	
ROOF_60	Install Vapor Barrier: Low Roof	5	2	12OCT07	15OCT07	1	
ROOF_70	Install Vapor Barrier: High Roof	5	2	12OCT07	15OCT07	]	
	Rough-In Electrical Power to Ceilings: BASE-N	5	5	15OCT07	19OCT07	4	
15300.1_BS 05512.70	Pressure Test Fire Sprinkler System, BSMNT-S Install Railings & Finishes: Stair #1, LVL6-N	5	5	16OCT07 16OCT07	220CT07	$\  \cdot \ $	
15311-HKUP	Connect Fire Protection Pump to Emergency Power	5	5	16OCT07	22OCT07	1	
15312-HKUP	Connect Fuel Oil Tank & Pump to Emergency Power	5	5	16OCT07	22OCT07	1	
CWALL_210	Install Curt.Wall Insulation: E-Wall, LVL3+	5	5	16OCT07	22OCT07	]	
	Rough-In Electrical Power to Ceilings: BASE-S	5	5	16OCT07	22OCT07	1	
ROOF_110 ROOF 80	Install Dense Deck: High Roof (1st of 2) Install Rigid Insulation: Low Roof	5	5	16OCT07 16OCT07	22OCT07 22OCT07	$\  \cdot \ $	
15300.2 BS	Install Sprinkler Heads, BSMNT-S	5	1	17OCT07	17OCT07	+	
MILES D 2N	Start Work on Doors and Windows: LVL2-N	5	0	18OCT07		1	
07920.1_1N	Install Wall Expansion Joints, LVL1-N	5	1	18OCT07	18OCT07	]	
DOOR_200A	Frame Door 200A	5	1	18OCT07	18OCT07	]	
DOOR_202A DOOR_202B	Frame Door 202A	5	1	18OCT07	18OCT07	4	
DOOR_202B	Frame Door 202B Frame Door 202C	5	1	18OCT07 18OCT07	18OCT07 18OCT07	1	
DOOR 202D	Frame Door 202D	5	1	18OCT07	18OCT07	1	
DOOR_203A	Frame Door 203A	5	1	18OCT07	18OCT07	1	
DOOR_204A	Frame Door 204A	5	1	18OCT07	18OCT07	]	
DOOR_205A	Frame Door 205A	5	1	18OCT07	18OCT07	4	
DOOR_207A FP RUF 1N	Frame Door 207A Rough-In Fire Protection, LVL1-N	5	5	18OCT07 18OCT07	18OCT07 24OCT07		_
FP RUF 1S	Rough-In Fire Protection, LVL1-S	5	5	18OCT07	24OCT07	+	
WALLS_2N_1	Frame Metal Stud Walls- LVL2-N	5	5	18OCT07	24OCT07	1	
CWALL_220	Install Curtain Wall: E-Wall, LVL3+	5	5	19OCT07	25OCT07	1	
EPWRW_R_BN		5	5	22OCT07	26OCT07	]	
15311-TEST 15312-TEST	Test Fire Protection Pump Test Fuel Oil Tank & Pump	5	2	23OCT07	24OCT07	4	
05512-1651	Install Railings & Finishes: Stair #1, LVL7-N	5	5	23OCT07 23OCT07	24OCT07 29OCT07	+	
		5	5	23OCT07	29OCT07	1	
ROOF_100	Install Dense Deck: Low Roof	5	5	23OCT07	29OCT07	]	
ROOF_90	Install Rigid Insulation: High Roof	5	5	23OCT07	29OCT07	1	
MILES_D_2S	Start Work on Doors and Windows: LVL2-S	5	0	25OCT07	2500707	1	
07920.1_2N 15300.1 1N	Install Wall Expansion Joints, LVL2-N Pressure Test Fire Sprinkler System, LVL1-N	5	1	25OCT07 25OCT07	25OCT07 25OCT07	$  \cdot  $	
15300.1_1N	Pressure Test Fire Sprinkler System, LVL1-S	5	1	25OCT07	25OCT07	1	_
DOOR_201A	Frame Door 201A	5	1	25OCT07	25OCT07	1	
DOOR_201B	Frame Door 201B	5	1	25OCT07	25OCT07	]	
DOOR_201C	Frame Door 201C	5	1	25OCT07	25OCT07	1	
DOOR_208A DOOR_209A	Frame Door 208A Frame Door 209A	5	1	25OCT07 25OCT07	25OCT07 25OCT07	$\  \cdot \ $	
DOOR_210A	Frame Door 200A	5	1	25OCT07	25OCT07		
DOOR_211A	Frame Door 211A	5	1	25OCT07	25OCT07	1	
DOOR_212A	Frame Door 212A	5	1	25OCT07	25OCT07	]	
DOOR_212B	Frame Door 212B	5	1	25OCT07	25OCT07	1	
DOOR_213A DOOR_213B	Frame Door 213A Frame Door 213B	5	1	25OCT07 25OCT07	25OCT07 25OCT07	1	
DOOR_213B DOOR_214A	Frame Door 214A	5	1	25OCT07	25OCT07	$\  \cdot \ $	
FP_RUF_2N	Rough-In Fire Protection, LVL2-N	5	5	25OCT07	31OCT07	1	
WALLS_2S_1	Frame Metal Stud Walls- LVL2-S	5	5	25OCT07	31OCT07	1	
14210-60	Elevator Testing, S-Bank	5	10	25OCT07	07NOV07	]	<u>-  </u>
	Rough-In HVAC Duct Mains: LVL3-N	5	5	28OCT07	01NOV07	1	
DUCT_MN_3S	Rough-In HVAC Duct Mains: LVL3-S	5	5	26OCT07	01NOV07	Ш	

Sheet 10 of 31

A with the	A provider	0.1	0.	F. A.	F. A.	2006 2007 2009
Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	NIDIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJI 2006 2007 2008
	Rough-In HVAC Piping Mains: LVL3-N	5	5	26OCT07	01NOV07	
	Rough-In HVAC Piping Mains: LVL3-S	5	5	26OCT07	01NOV07	1
CWALL_230	Install Ext. Curt.Wall Framing: E-Wall-S, LVL4-7 Rough-In HVAC Duct Mains: Penthouse-S	5	10	26OCT07 26OCT07	02NOV07 08NOV07	
	Rough-In HVAC Duct Mains: Penthouse-S Rough-In HVAC Piping Mains: Penthouse-S	5	10	26OCT07	08NOV07	┨
EFA R BN	Rough-In Electrical Fire Alarms: BASE-N	5	5	29OCT07	02NOV07	┪
	Rough-In Electrical Power Distribution: LVL1-N	5	5	29OCT07	02NOV07	1
16000_50	Test Transformer & Switchgear, BASE-N	5	15	29OCT07	16NOV07	]
16000_90	Connect Transf & Switchgear to Utilities, LVL1-N	5	15	29OCT07	16NOV07	4     <b>1</b>                     <mark>□</mark>
	Rough-In Hot & Cold Water Dist./Pipe, LVL1-N Rough-In Sanitary Waste & Vent Pipe, LVL1-N	5	20	29OCT07 29OCT07	26NOV07 26NOV07	
05512.90	Install Railings & Finishes: Stair #1, PENTH-N	5	5	30OCT07	05NOV07	<del> </del>
EFA R BS	Rough-In Electrical Fire Alarms: BASE-S	5	5	30OCT07	05NOV07	1     1   1
EPWRD_R_1S	Rough-In Electrical Power Distribution: LVL1-S	5	5	30OCT07	05NOV07	]
ROOF_120	Install Dense Deck: High Roof (2nd of 2)	5	5	30OCT07	05NOV07	]
ROOF_40	Install EPDM Membrane Roof: Low Roof	5	5	30OCT07	05NOV07	
CWALL_240 16000 100	Install Curt.Wall Insulation: E-Wall-S, LVL4-7	5	15	30OCT07 30OCT07	06NOV07 19NOV07	-{
16000_100	Connect Transf & Switchgear to Utilities, LVL1-S Test Transformer & Switchgear, BASE-S	5	15	30OCT07	19NOV07	<del>1</del>
PLMB_R_1S1	Rough-In Hot & Cold Water Dist./Pipe, LVL1-S	5	20	30OCT07	27NOV07	1
	Rough-In Sanitary Waste & Vent Pipe, LVL1-S	5	20	30OCT07	27NOV07	]
15300.1_2N	Pressure Test Fire Sprinkler System, LVL2-N	5	1	01NOV07	01NOV07	]
FP_RUF_2S	Rough-In Fire Protection, LVL2-S	5	5	01NOV07	07NOV07	4
CWALL_250	Install Curtain Wall: E-Wall-S, LVL4-7	5	6	01NOV07	08NOV07	4
HVAC_MN_4N HVAC_UH_3N	Rough-In HVAC Piping Mains: LVL4-N Install Heaters (UHs, VAVs, etc.): LVL3-N	5	5	02NOV07 02NOV07	08NOV07 08NOV07	<del>-</del>
	Install Heaters (UHs, VAVs, etc.): LVL3-S	5	5	02NOV07	08NOV07	
16000.7 BN	Install Fire Alarm Heads, BSMNT-N	5	2	05NOV07	06NOV07	1     1   1
ETEL_R_BN	Rough-In Telecom Conduit: BASE-N	5	3	05NOV07	07NOV07	1
15400-HKUP	Connect Ejector Pumps to Utilities	5	5	05NOV07	09NOV07	]
15400.2_BN	Punchlist Above Ceiling, BSMNT-N	5	5	05NOV07	09NOV07	4     •
16000.7 BS	Rough-In Electrical Power to Ceilings: LVL1-N Install Fire Alarm Heads, BSMNT-S	5	5	05NOV07 06NOV07	09NOV07 07NOV07	4
ETEL R BS	Rough-In Telecom Conduit: BASE-S	5	3	06NOV07	08NOV07	
15400.2_BS	Punchlist Above Ceiling, BSMNT-S	5	5	06NOV07	12NOV07	1     <mark> </mark>
EPWRC_R_1S	Rough-In Electrical Power to Ceilings: LVL1-S	5	5	06NOV07	12NOV07	<u> </u>
ROOF_50	Install EPDM Membrane Roof: High Roof	5	5	06NOV07	12NOV07	]
15300.1_2S	Pressure Test Fire Sprinkler System, LVL2-S	5	1	08NOV07	08NOV07	4     1   1
16000.1 BN	Install In-Wall Wood Blocking- BASMNT-N Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, BASE-N	5	5	08NOV07 08NOV07	09NOV07 14NOV07	<del>-</del>
	Install In-Wall Wood Blocking- BASMNT-S	5	2	09NOV07	12NOV07	<del> </del>
16000.1 BS	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, BASE-S	5	5	09NOV07	15NOV07	
DUCT_BR_3N	Rough-In HVAC Branch Ducts: LVL3-N	5	5	09NOV07	15NOV07	]
	Rough-In HVAC Duct Mains: LVL4-S	5	5	09NOV07	15NOV07	]     <mark> </mark>
	Rough-In HVAC Duct Mains: LVL5-N	5	5	09NOV07	15NOV07	<del>-</del>
	Rough-In HVAC Branch Lines: LVL3-N Rough-In HVAC Piping Mains: LVL4-S	5	5	09NOV07 09NOV07	15NOV07 15NOV07	
	Rough-In HVAC Piping Mains: LVL5-N	5	5	09NOV07	15NOV07	
	Install Heaters (UHs, VAVs, etc.): LVL4-N	5	5	09NOV07	15NOV07	1     <mark> </mark>
	Install Heaters (UHs, VAVs, etc.): Penthouse-S	5	5	09NOV07	15NOV07	]
	Install Ext. Curt.Wall Framing: E-Wall-N, LVL4-7	5	6	09NOV07	16NOV07	<u>]</u>
	Rough-In HVAC Branch Ducts: LVL3-S	5	10	09NOV07 09NOV07	23NOV07	]
	Rough-In HVAC Branch Lines: LVL3-S Rough-In HVAC Duct Mains: Penthouse-N	5	10	09NOV07	30NOV07	┫
	Rough-In HVAC Piping Mains: Penthouse-N	5	15	09NOV07	30NOV07	┨
15400-TEST	Test Ejector Pumps	5	2	12NOV07	13NOV07	<u> </u>
15500.1_BN	Pressure Test HVAC Piping System, BSMNT-N	5	2	12NOV07	13NOV07	<u> </u>
	Insulate HVAC Branch Ducts: Basement-N	5	2	12NOV07	13NOV07	]
HVAC_IB_BN 01300.1 BN	Insulate HVAC Branch Lines: Basement-N	5	2	12NOV07	13NOV07	<del>-</del>
15400.3_BN	Ceiling Insp: Building, BSMNT-N Above Ceiling Insp: Plumb, BSMNT-N	5	3	12NOV07 12NOV07	14NOV07 14NOV07	1     1   1
INSP EW BN	Wall Inspection: Electrical, BN	5	3	12NOV07	14NOV07	$rac{1}{4} \mid \mid \mid lac{1}{4} \mid \mid$
INSP_PW_BN	Wall Inspection: Plumbing, BN	5	3	12NOV07	14NOV07	<del>1</del>
DUCT_IM_BN	Insulate HVAC Duct Mains: Basement-N	5	5	12NOV07	16NOV07	<u> </u>
	Rough-In Electrical Power to Walls: LVL1-N	5	5	12NOV07	16NOV07	<u> </u>
HVAC_IM_BN WALLS BN 2	Insulate HVAC Piping Mains: Basement-N	5	5	12NOV07	16NOV07	<del>-</del>
15500.1 BS	Frame Metal Stud Soffits- BASMNT-N Pressure Test HVAC Piping System, BSMNT-S	5	5	12NOV07 13NOV07	16NOV07 14NOV07	<del> </del>
LTNGP_PMN	Install Lightning Protection: LVLPM_N	5	2	13NOV07	14NOV07	<del> </del>
LTNGP_PMS	Install Lightning Protection: LVLPM_S	5	2	13NOV07	14NOV07	<del>1</del>     <mark> </mark>
		_	_			

Sheet 11 of 31

	•				_	2005 2007 2000
Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	NID JIFIMIAIMIJIJIAISIOINID JIFIMIAIMIJIJI 2008
	Ceiling Insp: Building, BSMNT-S	5	3	13NOV07	15NOV07	
	Wall Inspection: Plumbing, BS	5	3	13NOV07	15NOV07	<del>-</del>
	Rough-In Electrical Power to Walls: LVL1-S Finish Roof/Rain Drainage Pipe, ROOF-N	5	5	13NOV07 13NOV07	19NOV07 19NOV07	<del> </del>
	Finish Roof/Rain Drainage Pipe, ROOF-S	5	5	13NOV07	19NOV07	<u> </u>
	Frame Metal Stud Soffits- BASMNT-S	5	5	13NOV07	19NOV07	<u>1</u>     <mark> </mark>                   <u>   </u>
CWALL_270 15500.2 BN	Install Curt.Wall Insulation: E-Wall-N, LVL4-7	5	6	13NOV07 14NOV07	20NOV07 20NOV07	]
	Connect HVAC Piping to VAV/FCUs, BSMNT-N Install Lightning Protection: LVLPM N	5	2	15NOV07	16NOV07	<del> </del>
	Install Lightning Protection: LVLPM_S	5	2	15NOV07	16NOV07	1     <mark> </mark>
15500.2_BS	Connect HVAC Piping to VAV/FCUs, BSMNT-S	5	5	15NOV07	21NOV07	<u>1</u>     <mark> </mark>                   <u> </u>
_	Install Curtain Wall: E-Wall-N, LVL4-7	5	6	15NOV07	23NOV07	]
MILES_D_3N DOOR 300A	Start Work on Doors and Windows: LVL3-N Frame Door 300A	5	1	16NOV07 16NOV07	16NOV07	<del> </del>
	Frame Door 302A	5	1	16NOV07	16NOV07	1     <mark> </mark>
DOOR_302B	Frame Door 302B	5	1	16NOV07	16NOV07	<u> </u>
_	Frame Door 302C	5	1	16NOV07	16NOV07	]
_	Frame Door 303A Frame Door 304A	5	1	16NOV07 16NOV07	16NOV07 16NOV07	<del>-</del>
	Frame Door 305A	5	1	16NOV07	16NOV07	<del> </del>
	Frame Door 307A	5	1	16NOV07	16NOV07	1     <mark> </mark>
	Wall Inspection: Electrical, BS	5	3	16NOV07	20NOV07	<u> </u>
15507-HKUP	Connect Air Handling Units (1 & 2) to Utilities	5	5	16NOV07	23NOV07	]
	Rough-In HVAC Duct Mains: LVL5-S	5	5	16NOV07	23NOV07	]
	Rough-In HVAC Duct Mains: LVL6-N Rough-In HVAC Piping Mains: LVL5-S	5	5	16NOV07 16NOV07	23NOV07 23NOV07	┫
	Rough-In HVAC Piping Mains: LVL6-N	5	5	16NOV07	23NOV07	1     1
	Install Heaters (UHs, VAVs, etc.): LVL4-S	5	5	16NOV07	23NOV07	1
	Install Heaters (UHs, VAVs, etc.): LVL5-N	5	5	16NOV07	23NOV07	]
	Frame Metal Stud Walls- LVL3-N	5	5	16NOV07	23NOV07	<del>-</del>
	Rough-In HVAC Branch Ducts: Penthouse-S Rough-In HVAC Branch Lines: Penthouse-S	5	15	16NOV07 16NOV07	07DEC07 07DEC07	┫
	Install HVAC Diffusers, BSMNT-N	5	1	19NOV07	19NOV07	┪
15400.1_BN	Label All Above Ceiling MEPs, BSMNT-N	5	2	19NOV07	20NOV07	1     <mark> </mark>                     <u> </u>
EFA_R_1N	Rough-In Electrical Fire Alarms: LVL1-N	5	5	19NOV07	26NOV07	]
	Rough-In Electrical Power Distribution: LVL2-N	5	5	19NOV07	26NOV07	]
16000 110	Install Interior Wall Insulation- BASMNT-N Test Transformer & Switchgear, LVL1-N	5	15	19NOV07 19NOV07	26NOV07 10DEC07	j     <mark> </mark>
16000_150	Connect Transf & Switchgear to Utilities, LVL2-N	5	15	19NOV07	10DEC07	1
	Rough-In Hot & Cold Water Dist./Pipe, LVL2-N	5	20	19NOV07	17DEC07	]
	Rough-In Sanitary Waste & Vent Pipe, LVL2-N	5	20	19NOV07	17DEC07	<del>-</del>
EFA_R_1S EPWRD R 2S	Rough-In Electrical Fire Alarms: LVL1-S Rough-In Electrical Power Distribution: LVL2-S	5	5	20NOV07 20NOV07	27NOV07 27NOV07	<del> </del>
16000 120	Test Transformer & Switchgear, LVL1-S	5	15	20NOV07	11DEC07	
16000_160	Connect Transf & Switchgear to Utilities, LVL2-S	5	15	20NOV07	11DEC07	1
	Rough-In Hot & Cold Water Dist./Pipe, LVL2-S	5	20	20NOV07	18DEC07	]
	Rough-In Sanitary Waste & Vent Pipe, LVL2-S	5	20	20NOV07	18DEC07	<del> </del>
WALLS_BS_4 15400.3 BS	Install Interior Wall Insulation- BASMNT-S Above Ceiling Insp: Plumb, BSMNT-S	5	5	21NOV07 23NOV07	28NOV07 27NOV07	┨
_	Insulate HVAC Branch Ducts: Basement-S	5	3	23NOV07	27NOV07	<del> </del>     <mark> </mark>
HVAC_IB_BS	Insulate HVAC Branch Lines: Basement-S	5	3	23NOV07	27NOV07	<u> </u>
	Insulate HVAC Duct Mains: Basement-S	5	5	23NOV07	29NOV07	]
	Insulate HVAC Piping Mains: Basement-S	5	5	23NOV07	29NOV07	.     <b>   </b>
	Start Work on Doors and Windows: LVL3-S Install Wall Expansion Joints, LVL3-N	5	1	26NOV07 26NOV07	26NOV07	┨
	Frame Door 301A	5	1	26NOV07	26NOV07	┪╎╎┇╎╎╎╎╎╎╎╎╏
DOOR_301B	Frame Door 301B	5	1	26NOV07	26NOV07	1
	Frame Door 308A	5	1	26NOV07	26NOV07	]     [
	Frame Door 309A	5	1	26NOV07	26NOV07	<del>{</del>
	Frame Door 310A Frame Door 311A	5	1	26NOV07 26NOV07	26NOV07 26NOV07	┨
	Frame Door 312A	5	1	26NOV07	26NOV07	┪╎╎┫╎╎╎╎╎╎╎╎
DOOR_312B	Frame Door 312B	5	1	26NOV07	26NOV07	]
	Frame Door 313A	5	1	26NOV07	26NOV07	1
	Frame Door 313B	5	1	26NOV07	26NOV07	4
	Frame Door 314A Rough-In HVAC Branch Ducts: LVL5-N	5	5	26NOV07 26NOV07	26NOV07 30NOV07	1
	Rough-In HVAC Duct Mains: LVL4-N	5	5	26NOV07	30NOV07	<u>1</u>     <mark> </mark>                       <del> </del>
	Rough-In HVAC Duct Mains: LVL6-S	5	5	26NOV07	30NOV07	<u> </u>
DUCT_MN_7N	Rough-In HVAC Duct Mains: LVL7-N	5	5	26NOV07	30NOV07	
				12 of 21		

Sheet 12 of 31

Activity	Activity	Cal	Orig	Early	Early	2006 2007 2008 NID JIFIMIAIMIJIJIAISIOINID JIFIMIAIMIJIJ
ID FP RUF 3N	Description Rough-In Fire Protection, LVL3-N	ID 5	Dur 5	Start 26NOV07	Finish 30NOV07	
	Rough-In HVAC Branch Lines: LVL4-N	5	5	26NOV07	30NOV07	┥
	Rough-In HVAC Branch Lines: LVL5-N	5	5	26NOV07	30NOV07	<u> </u>
	Rough-In HVAC Piping Mains: LVL6-S	5	5	26NOV07	30NOV07	<del>1</del>     <mark> </mark>
HVAC_MN_7N	Rough-In HVAC Piping Mains: LVL7-N	5	5	26NOV07	30NOV07	1
	Install Heaters (UHs, VAVs, etc.): LVL5-S	5	5	26NOV07	30NOV07	]
	Install Heaters (UHs, VAVs, etc.): LVL6-N	5	5	26NOV07	30NOV07	]
	Frame Metal Stud Walls- LVL3-S	5	5	26NOV07	30NOV07	<u> </u>
	Rough-in HVAC Branch Ducts: LVL4-S	5	10	26NOV07	07DEC07	4     •
	Rough-In HVAC Branch Lines: LVL4-S	5	10	26NOV07	07DEC07	4     📕
	Rough-In Telecom Conduit: LVL1-N Interior Wall Inspection: BN	5	3	27NOV07 27NOV07	29NOV07 29NOV07	
	Rough-In Electrical Power to Ceilings: LVL2-N	5	5	27NOV07	03DEC07	
	Rough-In Telecom Conduit: LVL1-S	5	3	28NOV07	30NOV07	┥
	Rough-In Electrical Power to Ceilings: LVL2-S	5	5	28NOV07	04DEC07	<del> </del>
	Interior Wall Inspection: BS	5	3	29NOV07	03DEC07	<del> </del>
	Install GWB Walls & Soffits- BASMNT-N	5	10	29NOV07	12DEC07	1
VALLS_BS_5	Install GWB Walls & Soffits- BASMNT-S	5	10	29NOV07	12DEC07	1
5500.3_BS	Install HVAC Diffusers, BSMNT-S	5	1	30NOV07	30NOV07	]
5400.1_BS	Label All Above Ceiling MEPs, BSMNT-S	5	2	30NOV07	03DEC07	]
	Install In-Wall Wood Blocking- LVL1-N	5	2	30NOV07	03DEC07	<u> </u>
	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL1-N	5	5	30NOV07	06DEC07	<u> </u>
	Start Work on Doors and Windows: LVL4-N	5	0	03DEC07		4     <b> </b>
	Start Work on Doors and Windows: LVL5-N	5	0	03DEC07		<b>.</b>     <b></b>                   <b>?</b>
	Pressure Test Fire Sprinkler System, LVL3-N	5	1	03DEC07	03DEC07	4     [
	Frame Door 401A	5	1	03DEC07	03DEC07	4     •
	Frame Door 403A	5	1	03DEC07	03DEC07	4     •
	Frame Door 404A	5	1	03DEC07 03DEC07	03DEC07 03DEC07	4     •
	Frame Door 405A Frame Door 407A	5	1	03DEC07	03DEC07	4     •
	Frame Door 501A	5	1	03DEC07	03DEC07	
	Frame Door 503A	5	1	03DEC07	03DEC07	
	Frame Door 504A	5	1	03DEC07	03DEC07	<del> </del>
	Frame Door 505A	5	1	03DEC07	03DEC07	<del> </del>
	Frame Door 507A	5	1	03DEC07	03DEC07	┫
	Install In-Wall Wood Blocking- LVL1-S	5	2	03DEC07	04DEC07	<u> </u>
	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL1-S	5	5	03DEC07	07DEC07	1     <b>1</b>
UCT_BR_4N	Rough-In HVAC Branch Ducts: LVL4-N	5	5	03DEC07	07DEC07	1     <b> </b>
UCT_BR_6N	Rough-In HVAC Branch Ducts: LVL6-N	5	5	03DEC07	07DEC07	]
UCT_MN_7S	Rough-In HVAC Duct Mains: LVL7-S	5	5	03DEC07	07DEC07	1     <b> </b>
P_RUF_3S	Rough-In Fire Protection, LVL3-S	5	5	03DEC07	07DEC07	]
	Rough-In HVAC Branch Lines: LVL6-N	5	5	03DEC07	07DEC07	]
	Rough-In HVAC Piping Mains: LVL7-S	5	5	03DEC07	07DEC07	<u> </u>
	Install Heaters (UHs, VAVs, etc.): LVL6-S	5	5	03DEC07	07DEC07	4     ■                   <u>"</u>
	Install Heaters (UHs, VAVs, etc.): LVL7-N	5	5	03DEC07	07DEC07	4     🛮                         🖁
	Install Heaters (UHs, VAVs, etc.): Penthouse-N	5	5	03DEC07	07DEC07	4     [
	Frame Metal Stud Walls - LVL4-N	5	5	03DEC07	07DEC07	
	Frame Metal Stud Walls- LVL5-N Rough-In HVAC Branch Ducts: LVL5-S	5	10	03DEC07 03DEC07	07DEC07 14DEC07	┥     ▮
	Rough-in HVAC Branch Ducts: LVL5-S Rough-in HVAC Branch Lines: LVL5-S	5	10	03DEC07	14DEC07	┫
	Pressure Test HVAC Piping System, LVL1-N	5	2	04DEC07	05DEC07	<del> </del>       <mark> </mark>
	Wall Inspection: Electrical, 1N	5	3	04DEC07	06DEC07	<del> </del>     <mark> </mark>
	Wall Inspection: Plumbing, 1N	5		04DEC07		<u> </u>
	Rough-In Electrical Power to Walls: LVL2-N	5	5		10DEC07	1     1
	Frame Metal Stud Soffits- LVL1-N	5	5	04DEC07		<u> </u>
	Pressure Test HVAC Piping System, LVL1-S	5	2	05DEC07	06DEC07	<mark>1</mark>
	Wall Inspection: Electrical, 1S	5	3	05DEC07	07DEC07	<b>1</b>     <mark> </mark>
	Wall Inspection: Plumbing, 1S	5	3	05DEC07		<u> </u>
PWRW_R_2S	Rough-In Electrical Power to Walls: LVL2-S	5	5	05DEC07	11DEC07	
	Frame Metal Stud Soffits- LVL1-S	5	5	05DEC07	11DEC07	]
5500.2_1N	Connect HVAC Piping to VAV/FCUs, LVL1-N	5	5	06DEC07	12DEC07	]
5500.2_1S	Connect HVAC Piping to VAV/FCUs, LVL1-S	5	5	07DEC07	13DEC07	]
files_D_4S	Start Work on Doors and Windows: LVL4-S	5	0	10DEC07		<u>.</u>
files_D_6N	Start Work on Doors and Windows: LVL6-N	5	0	10DEC07		<b>.</b>
files_D_PS	Start Work on Doors and Windows: Penthouse-S	5	0	10DEC07		<b>.</b>
7920.1_4N	Install Wall Expansion Joints, LVL4-N	5	1	10DEC07	10DEC07	4     [
7920.1_5N	Install Wall Expansion Joints, LVL5-N	5	1	10DEC07	10DEC07	4     •
5300.1_3S	Pressure Test Fire Sprinkler System, LVL3-S	5	1	10DEC07	10DEC07	1
	Frame Door 408A Frame Door 409A	5	1	10DEC07	10DEC07 10DEC07	1
OOR 409A				10DEC07		

Sheet 13 of 31

Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	2006 2007 2008 NIDI JIFIMIAIMI JIJIAISIOINI DI JIFIMIAIMI J
DOOR 410A	Frame Door 410A	5	1	10DEC07	10DEC07	······································
DOOR 411A	Frame Door 411A	5	1	10DEC07	10DEC07	<del> </del>
DOOR 412A	Frame Door 412A	5	1	10DEC07	10DEC07	┫
DOOR 412B	Frame Door 412B	5	1	10DEC07	10DEC07	<b>-</b>
DOOR_413A	Frame Door 413A	5	1	10DEC07	10DEC07	<b>-</b>
DOOR 413B	Frame Door 413B	5	1	10DEC07	10DEC07	<b>1</b>     <b>1</b>
DOOR_414A	Frame Door 414A	5	1	10DEC07	10DEC07	7
OOOR_601A	Frame Door 601A	5	1	10DEC07	10DEC07	7
DOOR_603A	Frame Door 603A	5	1	10DEC07	10DEC07	]
OOOR_604A	Frame Door 604A	5	1	10DEC07	10DEC07	]
OOR_605A	Frame Door 605A	5	1	10DEC07	10DEC07	]
OOR_607A	Frame Door 607A	5	1	10DEC07	10DEC07	]
OOR_803A	Frame Door 803A	5	1	10DEC07	10DEC07	]
OOR_804A	Frame Door 804A	5	1	10DEC07	10DEC07	]
OOR_804B	Frame Door 804B	5	1	10DEC07	10DEC07	]
OOR_805A	Frame Door 805A	5	1	10DEC07	10DEC07	]
OOR_805B	Frame Door 805B	5	1	10DEC07	10DEC07	<b>1</b>     <mark> </mark>
OOR_806B	Frame Door 806B	5	1	10DEC07	10DEC07	]     [
OOR_806C	Frame Door 806C	5	1	10DEC07	10DEC07	]
OOR_807A	Frame Door 807A	5	1	10DEC07	10DEC07	]     [
OOR_807B	Frame Door 807B	5	1	10DEC07	10DEC07	<b>7</b>     <b>1</b>
OOR_808A	Frame Door 808A	5	1	10DEC07	10DEC07	<b>1</b>     <b>1</b>
OOR_808B	Frame Door 808B	5	1	10DEC07	10DEC07	<b>1</b>     <b>1</b>
5501-HKUP	Connect Chillers (x3) to Utilities	5	5	10DEC07	14DEC07	<b>-</b>       <b> </b>
5502-HKUP	Connect Air Handling Units (3 & 4) to Utilities	5	5	10DEC07	14DEC07	-      <u> </u>
5503-HKUP	Connect Gas Fired HW Heaters to Utilities	5	5	10DEC07	14DEC07	-      <u>                               </u>
5504-HKUP	Connect Process Chiller to Utilities	5	5	10DEC07	14DEC07	<del> </del>
5505-HKUP	Connect Fans to Utilities	5	5	10DEC07	14DEC07	<del> </del>
506-HKUP	Connect Cooling Towers to Utilities	5	5	10DEC07	14DEC07	<del> </del>
	Rough-In HVAC Branch Ducts: LVL7-N	5	5	10DEC07	14DEC07	-
	Rough-In HVAC Branch Ducts: Penthouse-N	5	5	10DEC07	14DEC07	-
RUF 4N	Rough-In Fire Protection, LVL4-N	5	5	10DEC07	14DEC07	-
	Rough-In HVAC Branch Lines: LVL7-N	5	5	10DEC07	14DEC07	
	Rough-In HVAC Branch Lines: Evit-IN Rough-In HVAC Branch Lines: Penthouse-N	5	5	10DEC07	14DEC07	
	Install Heaters (UHs, VAVs, etc.): LVL7-S	5	5	10DEC07	14DEC07	
	Frame Metal Stud Walls- LVL4-S	5	5	10DEC07	14DEC07	
	Frame Metal Stud Walls- LVL6-N	5	5	10DEC07	14DEC07	
ALLS_ON_1 ALLS PS 1	Frame Metal Stud Walls- EVLO-N Frame Metal Stud Walls- PENTH-S	5	5	10DEC07	14DEC07	
	Rough-in HVAC Branch Ducts: LVL6-S	5	10	10DEC07	21DEC07	
	Rough-In HVAC Branch Lines: LVL6-S	5	10	10DEC07	21DEC07	
A_R_2N	Rough-In Electrical Fire Alarms: LVL2-N	5	5	11DEC07	17DEC07	-      <mark> </mark>
	Rough-In Electrical Power Distribution: LVL3-N	5	5	11DEC07	17DEC07	-      <mark> </mark>
	Install Interior Wall Insulation- LVL1-N	5	5	11DEC07	17DEC07	4     1   1
3000_170	Test Transformer & Switchgear, LVL2-N	5	15	11DEC07	02JAN08	4     1   1
3000_210	Connect Transf & Switchgear to Utilities, LVL3-N	5	15	11DEC07	02JAN08	<b>-                                      </b>
	Rough-In Hot & Cold Water Dist./Pipe, LVL3-N	5	20	11DEC07	09JAN08	<u> </u>
	Rough-In Sanitary Waste & Vent Pipe, LVL3-N	5	20	11DEC07	09JAN08	<u> </u>
A_R_2S	Rough-In Electrical Fire Alarms: LVL2-S	5	5	12DEC07	18DEC07	]     <b> </b>
	Rough-In Electrical Power Distribution: LVL3-S	5	5	12DEC07	18DEC07	]     <b> </b>
ALLS_1S_4	Install Interior Wall Insulation- LVL1-S	5	5	12DEC07	18DEC07	<u> </u>
000_180	Test Transformer & Switchgear, LVL2-S	5	15	12DEC07	03JAN08	<b>긔</b> │ │ ┃ │ │ │ │ │ │ │ │ │ │
000_220	Connect Transf & Switchgear to Utilities, LVL3-S	5	15	12DEC07	03JAN08	]     <b> </b>
	Rough-In Hot & Cold Water Dist./Pipe, LVL3-S	5	20	12DEC07	10JAN08	<u> </u>
	Rough-In Sanitary Waste & Vent Pipe, LVL3-S	5	20	12DEC07	10JAN08	
	Tape & Sand GWB- BASMNT-N	5	5	13DEC07	19DEC07	
ALLS_BS_6	Tape & Sand GWB- BASMNT-S	5	5	13DEC07	19DEC07	<u> </u>
ILES_D_5S	Start Work on Doors and Windows: LVL5-S	5	0	17DEC07		7     1
LES_D_7N	Start Work on Doors and Windows: LVL7-N	5	0	17DEC07		7     1
	Start Work on Doors and Windows: Penthouse-N	5	0	17DEC07		]     <b> </b>
920.1_6N	Install Wall Expansion Joints, LVL6-N	5	1	17DEC07	17DEC07	7     1   1
300.1_4N	Pressure Test Fire Sprinkler System, LVL4-N	5	1	17DEC07	17DEC07	
OOR 508A	Frame Door 508A	5	1	17DEC07	17DEC07	<b>-                                      </b>
OOR 509A	Frame Door 509A	5	1	17DEC07	17DEC07	
	Frame Door 510A	5	1	17DEC07	17DEC07	
	Frame Door 511A	5	1	17DEC07	17DEC07	
	Frame Door 512A	5	1	17DEC07	17DEC07	
_	Frame Door 512B	5	1	17DEC07	17DEC07	
	Frame Door 512B	5	1	17DEC07	17DEC07	<b>-1</b>     <b>1</b>
_	Frame Door 513B	5	4	17DEC07	17DEC07	
	priame Duor 913D	9	1 1	1702007	1702007	1     1   1
	Frame Door 514A	5	-	17DEC07	17DEC07	<b>-1</b>     <b> </b>

Sheet 14 of 31

	-					2000 2007 2000
Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	NID JIFIMIAIMIJI JIAISIOINID JIFIMIAIMIJIJU 2006 2008
	Frame Door 701A	5	1	17DEC07	17DEC07	
	Frame Door 703A	5	1	17DEC07	17DEC07	]
	Frame Door 704A	5	1	17DEC07	17DEC07	]
	Frame Door 705A Frame Door 707A	5	1	17DEC07 17DEC07	17DEC07 17DEC07	-{
	Frame Door 800A	5	1	17DEC07	17DEC07	<del>{</del>
	Frame Door 801A	5	1	17DEC07	17DEC07	┫
	Frame Door 802A	5	1	17DEC07	17DEC07	<del> </del>
	Frame Door 802B	5	1	17DEC07	17DEC07	1
	Frame Door 802C	5	1	17DEC07	17DEC07	]
	Frame Door 806A	5	1	17DEC07	17DEC07	]
15506-TEST	Test Cooling Towers	5	2	17DEC07	18DEC07	<u> </u>
16001-HKUP	Connect Electrical Substation to Utilities	5	5	17DEC07	21DEC07	<del>-</del>
FP_RUF_4S FP_RUF_5N	Rough-In Fire Protection, LVL4-S Rough-In Fire Protection, LVL5-N	5	5	17DEC07 17DEC07	21DEC07 21DEC07	┨
	Rough-In Fire Protection, LVLP-S	5	5	17DEC07	21DEC07	<del>{</del>
	Frame Metal Stud Walls- LVL5-S	5	5	17DEC07	21DEC07	{
	Frame Metal Stud Walls- LVL7-N	5	5	17DEC07	21DEC07	1     <mark> </mark>                       i
	Frame Metal Stud Walls- PENTH-N	5	5	17DEC07	21DEC07	<u> </u>
	Rough-In HVAC Branch Ducts: LVL7-S	5	10	17DEC07	31DEC07	1
	Rough-In Electrical Power Distribution: PENT-S	5	10	17DEC07	31DEC07	]
	Rough-In HVAC Branch Lines: LVL7-S	5	10	17DEC07	31DEC07	]     ▮
16000-HKUP	Connect 900kW Generator to Utilities	5	15	17DEC07	80/AN08	]     ▮
16000_520	Connect Transf & Switchgear to Utilities, PENT-S	5	15	17DEC07	08JAN08	】
	Rough-In Hot & Cold Water Dist./Pipe, PENTH-S Rough-In Sanitary Waste & Vent Pipe, PENTH-S	5	20	17DEC07 17DEC07	15JAN08 15JAN08	┨
	Rough-in Natural Gas Piping, PENTH-S	5	20	17DEC07	15JAN08 15JAN08	┨
	Rough-In Medical Air Piping, PENTH-S	5	20	17DEC07	15JAN08	┪
	Rough-In Vacuum Piping, PENTH-S	5	20	17DEC07	15JAN08	┪
	Rough-In Telecom Conduit: LVL2-N	5	3	18DEC07	20DEC07	1     <mark> </mark>
INSP_W_1N	Interior Wall Inspection: 1N	5	3	18DEC07	20DEC07	1
	Rough-In Electrical Power to Ceilings: LVL3-N	5	5	18DEC07	24DEC07	]
	Install GWB Walls & Soffits- LVL1-N	5	10	18DEC07	02JAN08	]
	Rough-In Telecom Conduit: LVL2-S	5	3	19DEC07	21DEC07	1
	Interior Wall Inspection: 1S	5	3	19DEC07	21DEC07	.     <b> </b>
	Rough-In Electrical Power to Ceilings: LVL3-S Install GWB Walls & Soffits- LVL1-S	5	5 10	19DEC07 19DEC07	26DEC07 03JAN08	┨
16000.3 BN	Terminate Elect Dist & Power, BSMNT-N	5	5	20DEC07	27DEC07	┪╎╎▋╎╎╎╎╎╎╎╎╗
16000.3_BN	Terminate Elect Dist & Power, BSMNT-S	5	5	20DEC07	27DEC07	1     <mark> </mark>
	Prime/Interm Paint & Fin. Band @ Ceiling- BASE-N	5	5	20DEC07	27DEC07	1     1
	Prime/Interm Paint & Fin. Band @ Ceiling- BASE-S	5	5	20DEC07	27DEC07	1
WALLS_2N_3	Install In-Wall Wood Blocking- LVL2-N	5	2	21DEC07	24DEC07	]
	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL2-N	5	5	21DEC07	28DEC07	]
	Start Work on Doors and Windows: LVL6-S	5	0	24DEC07		]
	Install Wall Expansion Joints, LVL7-N	5	1	24DEC07	24DEC07	4     •
	Install Wall Expansion Joints, PENTH-N	5	1	24DEC07	24DEC07	4     •
	Pressure Test Fire Sprinkler System, LVL4-S Pressure Test Fire Sprinkler System, LVL5-N	5	1	24DEC07 24DEC07	24DEC07 24DEC07	<del>{</del>
	Pressure Test Fire Sprinkler System, EVES-N	5	1	24DEC07	24DEC07	<del> </del>
_	Frame Door 608A	5	1	24DEC07	24DEC07	1     1
	Frame Door 609A	5	1	24DEC07	24DEC07	1
DOOR_610A	Frame Door 610A	5	1	24DEC07	24DEC07	]
	Frame Door 611A	5	1	24DEC07		
	Frame Door 612A	5	1	24DEC07		]
	Frame Door 612B	5	1	24DEC07		1     1   1
	Frame Door 613A	5	1	24DEC07	24DEC07	4     🛮
	Frame Door 613B	5	1	24DEC07	24DEC07 24DEC07	1     1   1
	Frame Door 614A Install In-Wall Wood Blocking- LVL2-S	5	2	24DEC07 24DEC07	26DEC07	1     1   1
	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL2-S	5	5	24DEC07	31DEC07	1
	Rough-In Fire Protection, LVL5-S	5	5	24DEC07	31DEC07	1
FP_RUF_6N	Rough-In Fire Protection, LVL6-N	5	5	24DEC07	31DEC07	1
	Rough-In Fire Protection, LVLP-N	5	5	24DEC07	31DEC07	1
WALLS_6S_1	Frame Metal Stud Walls- LVL6-S	5	5	24DEC07	31DEC07	]
	Install Sprinkler Heads, PENTH-S	5	1	26DEC07	26DEC07	]
	Pressure Test HVAC Piping System, LVL2-N	5	2	26DEC07	27DEC07	1
	Wall Inspection: Electrical, 2N	5	3	26DEC07	28DEC07	4     1   1
	Wall Inspection: Plumbing, 2N	5	3	26DEC07	28DEC07	4
	Rough-in Electrical Power to Walls: LVL3-N Frame Metal Stud Soffits- LVL2-N	5	5	26DEC07	02JAN08	┨
WALLS_ZN_Z	Frame Wetal Stud Sonits- EVEZ-N	1 0	j j	26DEC07	02JAN08	<u> </u>

Sheet 15 of 31

Activity	Antivity.	Cal	Orig	Early	Early	2006	2007 2008
ID	Activity Description	ID	Dur	Early Start	Early Finish	NID	06 2007 2008 DIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJ
	Finish Plumbing, BASMNT-N	5	0		27DEC07	<b>,</b> , , , ,	
15500.1_2S	Pressure Test HVAC Piping System, LVL2-S	5	2	27DEC07	28DEC07	1	
	Wall Inspection: Electrical, 2S	5	3	27DEC07	31DEC07	] [	
	Wall Inspection: Plumbing, 2S	5	3	27DEC07	31DEC07	1	
	Rough-In Electrical Power to Walls: LVL3-S	5	5	27DEC07	03JAN08	1	
	Frame Metal Stud Soffits- LVL2-S Hang Door 001A & Hardware	5	5	27DEC07 28DEC07	03JAN08 28DEC07	1	
_	Hang Door 002A & Hardware	5	1	28DEC07	28DEC07	1	
_	Hang Door 003A & Hardware	5	1	28DEC07	28DEC07	1	
_	Hang Door 004A & Hardware	5	1	28DEC07	28DEC07	1	
	Hang Door 005A & Hardware	5	1	28DEC07	28DEC07	1	
DOOR_010A-	Hang Door 010A & Hardware	5	1	28DEC07	28DEC07	1	
_	Install Fire Extinguisher Cabinets, BSMNT-N	5	2	28DEC07	31DEC07	] [	
	Install Fire Extinguisher Cabinets, BSMNT-S	5	2	28DEC07	31DEC07	1	
	Install Plumbing Fixtures, BSMNT-N	5	2	28DEC07	31DEC07	1	
	Connect HVAC Piping to VAV/FCUs, LVL2-N	5	5	28DEC07	04JAN08	1	
	Install Lights, BSMNT-N Install Lights, BSMNT-S	5	5	28DEC07 28DEC07	04JAN08 04JAN08	1	
_	Install Light Controls, BSMNT-N	5	5	28DEC07	04JAN08	1	
	Install Light Controls, BSMNT-S	5	5	28DEC07	04JAN08	1	
	Paint Finish Coat- BASMNT-N	5	5	28DEC07	04JAN08	1	
	Paint Finish Coat- BASMNT-S	5	5	28DEC07	04JAN08	1	
	Connect HVAC Piping to VAV/FCUs, LVL2-S	5	5	31DEC07	07JAN08	] [	
	Start Work on Doors and Windows: LVL7-S	5	0	02JAN08		1	
	Pressure Test Fire Sprinkler System, LVL5-S	5	1	02JAN08	02JAN08	1	
	Pressure Test Fire Sprinkler System, LVL6-N	5	1	02JAN08	02JAN08	1	
	Pressure Test Fire Sprinkler System, PENTH-N	5	1	02JAN08	02JAN08	1	
	Frame Door 708A Frame Door 709A	5	1	02JAN08 02JAN08	02JAN08 02JAN08	1	
_	Frame Door 710A	5	1	02JAN08	02JAN08	1	
_	Frame Door 711A	5	1	02JAN08	02JAN08	1	
_	Frame Door 712A	5	1	02JAN08	02JAN08	1	
DOOR_712B	Frame Door 712B	5	1	02JAN08	02JAN08	1	
	Frame Door 713A	5	1	02JAN08	02JAN08	]	
	Frame Door 713B	5	1	02JAN08	02JAN08	1	
_	Frame Door 714A	5	1	02JAN08	02JAN08	4	
	Rough-In Fire Protection, LVL6-S	5	5	02JAN08	08JAN08	1	
	Rough-In Fire Protection, LVL7-N Frame Metal Stud Walls- LVL7-S	5	5	02JAN08 02JAN08	08JAN08 08JAN08	1	
	Rough-In Electrical Power to Ceilings: PENT-S	5	10	02JAN08	15JAN08	1	
	Install Sprinkler Heads, PENTH-N	5	1	03JAN08	03JAN08	1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
	Install Granite Clad @ N.Elev. Bank, LVL1-N	5	5	03JAN08	09JAN08	1	
	Rough-In Electrical Fire Alarms: LVL3-N	5	5	03JAN08	09JAN08	1	
EPWRD_R_4N	Rough-In Electrical Power Distribution: LVL4-N	5	5	03JAN08	09JAN08	]	
	Tape & Sand GWB- LVL1-N	5	5	03JAN08	09JAN08	]	
	Install Interior Wall Insulation- LVL2-N	5	5	03JAN08	09JAN08	1	
16000_230	Test Transformer & Switchgear, LVL3-N	5	15	03JAN08	23JAN08	1	
16000_270	Connect Transf & Switchgear to Utilities, LVL4-N	5	15 20	03JAN08	23JAN08 30JAN08	1	
	Rough-In Hot & Cold Water Dist./Pipe, LVL4-N Rough-In Sanitary Waste & Vent Pipe, LVL4-N	5	20	03JAN08 03JAN08	30JAN08 30JAN08	1	
	Rough-In Electrical Fire Alarms: LVL3-S	5	5	04JAN08	10JAN08	1	
	Rough-In Electrical Power Distribution: LVL4-S	5	5	04JAN08	10JAN08	1	
	Tape & Sand GWB- LVL1-S	5	5	04JAN08	10JAN08	1	
	Install Interior Wall Insulation- LVL2-S	5	5	04JAN08	10JAN08	1	
	Test Transformer & Switchgear, LVL3-S	5	15	04JAN08	24JAN08	]	
16000_280	Connect Transf & Switchgear to Utilities, LVL4-S	5	15	04JAN08	24JAN08	]	
	Rough-In Hot & Cold Water Dist./Pipe, LVL4-S	5	20	04JAN08	31JAN08	1	
	Rough-In Sanitary Waste & Vent Pipe, LVL4-S	5	20	04JAN08	31JAN08	1	
	Start Install of Floor Finishes, BSMNT-N	5	0	07JAN08		1	<b>   </b>                     <b>           </b>
MILES_F_BS 10410.1_BN	Start Install of Floor Finishes, BSMNT-S Install Signage, BSMNT-N	5	1	07JAN08 07JAN08	07JAN08	1	1
	Install Signage, BSMNT-S	5	1	07JAN08	07JAN08	1	
	Install Fire Extinguishers, BSMNT-N	5	1	07JAN08	07JAN08	1	
	Install Fire Extinguishers, BSMNT-S	5	1	07JAN08	07JAN08	1	
	Install Electrical Wall Devices, BSMNT-N	5	1	07JAN08	07JAN08	1	
	Install Electrical Wall Devices, BSMNT-S	5	1	07JAN08	07JAN08	1	
	Install December Wall Devices, Dollar 1					<b>-</b>	
16000.5_BS	Install BathRM Tile Floor/Walls, BSMNT-S	5	2	07JAN08	80/AN08		
16000.5_BS 09310.1_BS 09671.1_BS	Install BathRM Tile Floor/Walls, BSMNT-S Install Resinous Flooring (Fuel Oil Rm), BSMNT-S	5	2	07JAN08 07JAN08	08JAN08	}	
16000.5_BS 09310.1_BS 09671.1_BS 10265.1_BS	Install BathRM Tile Floor/Walls, BSMNT-S	_	_				

Sheet 16 of 31

Activity	Activity	Cal	Orig	Early	Early	2006 2007 2008 NIDI JIFIMIAIMIJI JIAISIOINIDI JIFIMIAIMIJI J
ID 16000.8 BS	Description Install Fire Alarms, BSMNT-S	ID 5	Dur 2	Start 07JAN08	Finish 08JAN08	······································
09651.1 BN	Install Resilient Floor Tile, BSMNT-N	5	3	07JAN08	09JAN08	
09651.1 BS	Install Resilient Floor Tile, BSMNT-S	5	3	07JAN08	09JAN08	1     <mark> </mark>
16000.4 BN	Above Ceiling Insp: Elect, BSMNT-N	5	3	07JAN08	09JAN08	<mark>1                                      </mark>
16000.4_BS	Above Ceiling Insp: Elect, BSMNT-S	5	3	07JAN08	09JAN08	1
09310.1_BN	Install ChngRM Ceramic Tile Floor/Walls, BSMNT-N	5	5	07JAN08	11JAN08	]
MILEF_P_BS	Finish Plumbing, BASMNT-S	5	0		08JAN08	]
15300.1_6S	Pressure Test Fire Sprinkler System, LVL6-S	5	1	09JAN08	09JAN08	1
15300.1_7N	Pressure Test Fire Sprinkler System, LVL7-N	5	1	09JAN08	09JAN08	4
DOOR_011A-	Hang Door 011A & Hardware	5	1	09JAN08	09JAN08	4     •
DOOR_012A- DOOR_013A-	Hang Door 012A & Hardware Hang Door 013A & Hardware	5	1	80/ANQ8	80/ANQ8	
DOOR_013A-	Hang Door 013B & Hardware	5	1	09JAN08	09JAN08	<del>-</del>
DOOR 014A-	Hang Door 014A & Hardware	5	1	09JAN08	09JAN08	┨
DOOR 014B-	Hang Door 014B & Hardware	5	1	09JAN08	09JAN08	<del>1</del>     <b>1</b>
DOOR_015D-	Hang Door 015D & Hardware	5	1	09JAN08	09JAN08	1     1   1
OOOR_016A-	Hang Door 016A & Hardware	5	1	09JAN08	09JAN08	1
DOOR_016B-	Hang Door 016B & Hardware	5	1	09JAN08	09JAN08	]
DOOR_017A-	Hang Door 017A & Hardware	5	1	09JAN08	09JAN08	]
DOOR_018A-	Hang Door 018A & Hardware	5	1	09JAN08	09JAN08	1     1   1
DOOR_018B-	Hang Door 018B & Hardware	5	1	09JAN08	09JAN08	1
DOOR_018C-	Hang Door 018C & Hardware	5	1	09JAN08	09JAN08	4     •
DOOR_018D-	Hang Door 018D & Hardware	5	1	80/ANG8	80/ANG8	4
DOOR_018E-	Hang Door 018E & Hardware	5	1	09JAN08	09JAN08	4
DOOR_019A- 10801.1 BS	Hang Door 019A & Hardware	5	2	80/ALG0	09JAN08 10JAN08	┨
P_RUF_7S	Install Plumbing Fixtures, BSMNT-S Rough-In Fire Protection, LVL7-S	5	5	09JAN08	15JAN08	<del> </del>
MILEF P 1S	Finish Plumbing, LVL1-S	5	0	Designation	10JAN08	1
9653.1 BN	Install Resilient Wall Base, BSMNT-N	5	1	10JAN08	10JAN08	┨
9653.1 BS	Install Resilient Wall Base, BSMNT-S	5	1	10JAN08	10JAN08	┨
TEL R 3N	Rough-In Telecom Conduit: LVL3-N	5	3	10JAN08	14JAN08	
NSP_W_2N	Interior Wall Inspection: 2N	5	3	10JAN08	14JAN08	1     1   1
5400.2_1N	Punchlist Above Ceiling, LVL1-N	5	5	10JAN08	16JAN08	1     1   1
6000.3_1N	Terminate Elect Dist & Power, LVL1-N	5	5	10JAN08	16JAN08	]
	Rough-In Electrical Power to Ceilings: LVL4-N	5	5	10JAN08	16JAN08	]
WALLS_1N_7	Prime/Interm Paint & Fin. Band @ Ceiling- LVL1-N	5	5	10JAN08	16JAN08	]     <mark> </mark>                       <u>   </u>
WALLS_2N_5	Install GWB Walls & Soffits- LVL2-N	5	10	10JAN08	23JAN08	]
0155.1_BS	Install Toilet Partitions, BSMNT-S	5	1	11JAN08	11JAN08	]
DOOR_111B-	Hang Door 111B & Hardware	5	1	11JAN08	11JAN08	<del>-</del>
DOOR_112A- DOOR 112B-	Hang Door 112A & Hardware	5	1	11JAN08 11JAN08	11JAN08 11JAN08	┨
OOR_1126-	Hang Door 112B & Hardware Hang Door 112C & Hardware	5	1	11JAN08	11JAN08	<del> </del>
DOOR_1120-	Hang Door 113A & Hardware	5	1	11JAN08	11JAN08	┥
000R_113R-	Hang Door 113C & Hardware	5	1	11JAN08	11JAN08	<del> </del>
DOOR 115A-	Hang Door 115A & Hardware	5	1	11JAN08	11JAN08	†     <mark> </mark>
OOR_116A-	Hang Door 116A & Hardware	5	1	11JAN08	11JAN08	1     1
OOR_117A-	Hang Door 117A & Hardware	5	1	11JAN08	11JAN08	<u> </u>
OOR_117B-	Hang Door 117B & Hardware	5	1	11JAN08	11JAN08	]
OOR_118A-	Hang Door 118A & Hardware	5	1	11JAN08	11JAN08	]     <mark> </mark>
OOR_119A-	Hang Door 119A & Hardware	5	1	11JAN08	11JAN08	.      <mark> </mark>
OOR_120A-	Hang Door 120A & Hardware	5	1	11JAN08	11JAN08	4     <b>■</b>
000R_120B- 0801.1_1S	Hang Door 120B & Hardware	5	1	11JAN08	11JAN08	<del>-</del>
U8U1.1_1S TEL_R_3S	Install Plumbing Fixtures, LVL1-S	5	2	11JAN08 11JAN08	14JAN08	
NSP_W_2S	Rough-In Telecom Conduit: LVL3-S Interior Wall Inspection: 2S	5	3	11JAN08 11JAN08	15JAN08 15JAN08	
9310.1 1S	Install Bathroom Tile Floor/Walls, LVL1-S	5	5	11JAN08	17JAN08	<del> </del>
5400.2_1S	Punchlist Above Ceiling, LVL1-S	5	5	11JAN08	17JAN08	┨
6000.3 1S	Terminate Elect Dist & Power, LVL1-S	5	5	11JAN08	17JAN08	┥
	Rough-In Electrical Power to Ceilings: LVL4-S	5	5	11JAN08	17JAN08	1     1   1
VALLS_1S_7	Prime/Interm Paint & Fin. Band @ Ceiling- LVL1-S	5	5	11JAN08	17JAN08	1     <mark> </mark>
VALLS_2S_5	Install GWB Walls & Soffits- LVL2-S	5	10	11JAN08	24JAN08	1
0801.2_BS	Install Toilet Accessories, BSMNT-S	5	1	14JAN08	14JAN08	]     <mark> </mark>                         <u> </u>
1770.1_BN	Punchlist Floor, BSMNT-N	5	5	14JAN08	18JAN08	]
VALLS_3N_3	Install In-Wall Wood Blocking- LVL3-N	5	2	15JAN08	16JAN08	]     <mark> </mark>                         <u> </u>
1770.1_BS	Punchlist Floor, BSMNT-S	5	5	15JAN08	21JAN08	]
6000.1_3N	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL3-N	5	5	15JAN08	21JAN08	]
MILEF_P_1N	Finish Plumbing, LVL1-N	5	0		16JAN08	]
5300.1_7S	Pressure Test Fire Sprinkler System, LVL7-S	5	1	16JAN08	16JAN08	]
				18 IANDO	17 LANIDO	
VALLS_3S_3 6000.1_3S	Install In-Wall Wood Blocking- LVL3-S Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL3-S	5	5	16JAN08 16JAN08	17JAN08 22JAN08	<del>-</del>

Sheet 17 of 31

December   Proceedings   Process	Activity	Activity	Cal	Orig	Early	Early	200	6	lete	 2	2007	A I -	u z	N/E	u e	20	08.,		ļ
EPYMONE, R. P. Rough-In-Bit Scot Soft Part Out Park Part Soft Soft Park Soft Soft Park Soft Soft Soft Soft Soft Soft Soft Soft	ID	Description	ID	_	Start	Finish									<u> </u>				
PAMS   PAMS   Roughin Santar Sar Septing   PERTHAN   6   20   104ANRS   12FEB08   PAMS   PA															📮				
PAMB   PAMB   Roughin Navaria Of Pring   PENTH-N   5 00   104ANNS   12FEB08   PAMB   R PMB   Roughin Vaccoum Prings   PENTH-N   5 00   104ANNS   12FEB08   PAMB   Roughin Vaccoum Prings   PENTH-N   5 00   104ANNS   12FEB08   PAMB   Roughin Vaccoum Prings   PENTH-N   5 00   104ANNS   12FEB08   PAMB   P							4												Ш
PAME   PAME   Rough-In Model Ar Piping PERTH-N   5 00   16,ANR0   125E898   PAME   P			_	_			1												Ш
PAMPS			_				1								I		Ш		Ш
DOOR, 1005			_	20	16JAN08		1												Ш
DOOR_1005_Hang Door 1000.8 A Hardware		Hang Door 100A & Hardware		1			1										Ш		Ш
DOOR, 1028— Hang Door 1028 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1029— Hang Door 1020 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1026— Hang Door 1026 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1044— Hang Door 1036 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1054— Hang Door 1036 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1074— Hang Door 1076 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1076— Hang Door 1076 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1076— Hang Door 1076 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1076— Hang Door 1176 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1076— Hang Door 1176 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1076— Hang Door 1176 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1076— Hang Door 1176 A Hardware         6         1         17.3AM08         17.3AM08           DOOR, 1076— Hang Door 1176 A Hardware		-	_	_			]								!				Ш
DOOR, 1026-   Manp Door 1026 & Hardware				_			1								:		Ш		Ш
DOOR   1024		<u> </u>	_				1								lil.				
DOOR_101A- Nang Door 1016A & Hardware		•	_	_			1								lil.				
DOOR, 107A			5	1			1								1		Ш		
DOOR, 1078— Hang Door 1974 & Hardware			_	_			] [								!				
DOOR   1078-   Hang   Door 1078 & Hardware							1								!				
DOOR, 1098—1 Hang Door 1098 & Hardware		- v	_	_			-								;				Ш
DOOR_1106H_ Hang Door 1108 & Hardware			_	_			1								lil.				
DOOR 1109-   Hang Door 1108 & Hardware	_	-		_			1								lil.				Ш
DOOR_111A   Hang Door 111A & Hardware	DOOR_110A-	-	5	1	17JAN08	17JAN08	1								1				Ш
19522_1   N	_			_			]												
15500.1 N		-	_	_			4								!				
01300_1_N			_	_			-								:				Ш
GA402_I_N							1								1 - 1				Ш
15400.3   N			_				1								i				Ш
INISP PW 3N   Wall Inspection: Plumbing, 3N   6 3 17,4AND8   21,4AND8   23,4AND8   17,4AND8   17,		Above Ceiling Insp: Plumb, LVL1-N	5	3			1								0				Ш
DUCT_IB_1N			_	_			]												Ш
DUCT_M_1N			_	_			1										Ш		Ш
EPWRW R. 4N Rough-in Electrical Power to Walls: LVL4-N			_	_			1								1 -1		Ш		Ш
HVAC_IM_IN  Insulate HVAC Financh Lines: LVL1-N  5 5 5 17,JAN08   23,JAN08   HVAC_IM_IN  Insulate HVAC Piping Mains: LVL1-N  5 5 17,JAN08   23,JAN08   HVAC_IM_IN  Insulate HVAC Piping Mains: LVL1-N  5 5 17,JAN08   23,JAN08   HVAC_IM_IN  Insulate HVAC Piping System, LVL3-N  5 5 17,JAN08   23,JAN08   HVAC_IM_IN  Insulate HVAC Piping System, LVL3-S  5 2 18,JAN08   LVAN08   LVAN08			_	_			1								1 -1				Ш
HVAC_IM_IN_   Insulate HVAC Piping Mains: LVL-N							1												Ш
15500.1   State   Fire Extinguisher Cabinets, LVL1-S		Insulate HVAC Piping Mains: LVL1-N	5	5	17JAN08	23JAN08	1								1 -1				Ш
15500.1 3S							] [								-		Ш		Ш
1300.1   13   Ceiling insp. Building, LVL1-S   5   3   18,JAN08   22,JAN08   18, JAN08   24,JAN08			_	_			1								1 - 1		Ш		Ш
15400.3   1S			_				1								1-1		Ш		Ш
INSP_EW_3S   Wall Inspection: Electrical, 3S   5   3   18,JAN08   22,JAN08   INSP_PW_3S   Wall Inspection: Plumbing, 3S   5   3   18,JAN08   22,JAN08   INSPERW_3R   Wall Inspection: Plumbing, 3S   5   3   18,JAN08   22,JAN08   INSPERW_3R   Wall Inspection: Plumbing, 3S   5   5   18,JAN08   22,JAN08   INSPERW_3R   Wall Inspection: Plumbing, 3S   5   5   18,JAN08   24,JAN08   INSPERW_3R   Wall Inspection: Plumbing, 1S   Wall Inspection: Plumb		0 1					1								1 -1		Ш		
DUCT IB 15			_	_			1								Ō				Ш
DUCT_M_1S   Insulate HVAC Duct Mains: LVL1-S   5   5   18JAN08   24JAN08   24JAN08   EPWRW_R_4S   Rough-in Electrical Power to Walls: LVL4-S   5   5   18JAN08   24JAN08   24JAN08   4HVAC_IB_1S   Insulate HVAC_Briging Mains: LVL1-S   5   5   18JAN08   24JAN08   24JAN08   4HVAC_IB_1S   Insulate HVAC_Piping Mains: LVL1-S   5   5   18JAN08   24JAN08   4HVAC_IB_1S   24JAN08   24JAN08   4HVAC_IB_1S   24JAN08   24JAN08   24JAN08   4HVAC_IB_1S   24JAN08   24	INSP_PW_3S	Wall Inspection: Plumbing, 3S	5	3	18JAN08	22JAN08	1								1 -1				
EPWRW_R_4S   Rough-In Electrical Power to Walls: LVL4-S   5   5   18JAN08   24JAN08   LVAC   B   1S   Insulate HVAC Piping Mains: LVL1-S   6   5   18JAN08   24JAN08   LVAC   B   1S   Insulate HVAC Piping Mains: LVL1-S   6   5   18JAN08   24JAN08   LVALS_3S_2   Frame Metal Stud Soffits- LVL3-S   6   5   18JAN08   24JAN08   LVALS_3S_2   Frame Metal Stud Soffits- LVL3-S   6   5   18JAN08   24JAN08   LVALS_3S_2   Connect HVAC Piping to VAV/FCUS, LVL3-N   6   5   21JAN08   25JAN08   LVALS_3S_3   25JAN08   25JAN08   LVALS_3S_3   25JAN08   25JAN08   25JAN08   25JAN08   LVALS_3S_3   25JAN08   25JAN08   25JAN08   LVALS_3S_3   25JAN08			_	_			] [												Ш
HVAC_IB_1S Insulate HVAC Branch Lines: LVL1-S 5 5 18JAN08 24JAN08 HVAC_IM_1S Insulate HVAC Piping Mains: LVL1-S 5 5 5 18JAN08 24JAN08 24JAN08 WALLS_3S_2 Frame Metal Stud Soffits- LVL3-S 6 5 18JAN08 24JAN08 15500.2 3N Connect HVAC Piping to VAW/FCUs, LVL3-N 5 5 21JAN08 25JAN08 15500.2 3S Connect HVAC Piping to VAW/FCUs, LVL3-N 5 5 22JAN08 28JAN08 15400.1_IN Label All Above Ceiling MEPs, LVL1-N 5 2 24JAN08 25JAN08 16400.1_IN Label All Above Ceiling MEPs, LVL1-N 5 5 22JAN08 30JAN08 16500.2 3N Connect HVAC Piping to VAW/FCUs, LVL3-N 5 5 24JAN08 25JAN08 16500.2 3N Connect HVAC Piping MEPs, LVL2-N 5 5 5 24JAN08 30JAN08 16500.2 3N Connect HVAC Piping MEPs, LVL2-N 5 5 5 24JAN08 30JAN08 16500.2 3N Connect HVAC Piping MEPs, LVL2-N 5 5 5 24JAN08 30JAN08 16500.2 3N Connect Transformer & Switchgear, LVL4-N 5 5 24JAN08 30JAN08 16500.2 3N Connect Transformer & Switchgear, LVL4-N 5 15 24JAN08 30JAN08 16500.2 3N Connect Transformer & Switchgear to Utilities, LVL5-N 5 15 24JAN08 13FEB08 16500.3 3N Connect Transformer & Switchgear to Utilities, LVL5-N 5 15 24JAN08 20FEB08 16500.1 1S Label All Above Ceiling MEPs, LVL1-S 5 2 25JAN08 20FEB08 16500.1 1S Label All Above Ceiling MEPs, LVL1-S 5 2 25JAN08 31JAN08 16500.1 1S Label All Above Ceiling MEPs, LVL1-S 5 5 25JAN08 31JAN08 16500.3 15 25JAN08 16500.1 1S Label All Above Ceiling MEPs, LVL1-S 5 5 25JAN08 31JAN08 16500.3 15 25JAN08 16500.1 1S Label All Above Ceiling MEPs, LVL1-S 5 5 25JAN08 31JAN08 16500.3 10 Test Transformer & Switchgear to Utilities, LVL5-S 5 5 25JAN08 31JAN08 16500.3 10 Test Transformer & Switchgear to Utilities, LVL5-S 5 5 25JAN08 31JAN08 16500.3 10 Test Transformer & Switchgear to Utilities, LVL5-S 5 5 25JAN08 31JAN08 16500.3 10 Test Transformer & Switchgear to Utilities, LVL5-S 5 5 25JAN08 31JAN08 16500.3 10 Test Transformer & Switchgear to Utilities, LVL5-S 5 5 25JAN08 31JAN08 16500.3 10 Test Transformer & Switchgear to Utilities, LVL5-S 5 5 16 25JAN08 14FEB08 16000.3 10 Connect Transf & Switchgear to Utilities, LVL5-S 5 16 25JAN08 14FEB08 16000.3 10 Connect Tr							4								1 -1				Ш
HVAC_IM_1S		-	_	_			-												Ш
WALLS_3S_2   Frame Metal Stud Soffits- LVL3-S   5   5   18JAN08   24JAN08   15500.2 3N   Connect HVAC Piping to VAV/FCUs, LVL3-N   5   5   21JAN08   25JAN08   15500.2 3S   Connect HVAC Piping to VAV/FCUs, LVL3-S   5   5   22JAN08   28JAN08   15500.2 3S   Connect HVAC Piping to VAV/FCUs, LVL3-S   5   5   22JAN08   28JAN08   15400.1 1N   Label All Above Ceiling MEPs, LVL1-N   5   5   24JAN08   25JAN08   15400.1 1N   Label All Above Ceiling MEPs, LVL1-N   5   5   24JAN08   30JAN08   15400.1 1N   Rough-In Electrical Fire Alarms: LVL4-N   5   5   24JAN08   30JAN08   15400.1 1N   15400.			_				1												Ш
15500.2_3N							1												Ш
15400.1_1N		Connect HVAC Piping to VAV/FCUs, LVL3-N	5	5	21JAN08	25JAN08	1												Ш
04851.1_2N         Install Granite Clad ⊚ N.Elev. Bank, LVL2-N         5         5         24JAN08         30JAN08           EFA_R_4N         Rough-In Electrical Fire Alarms: LVL4-N         5         5         24JAN08         30JAN08           EPWRD_R_5N         Rough-In Electrical Power Distribution: LVL5-N         5         5         24JAN08         30JAN08           WALLS_2N_6         Tape & Sand GWB- LVL2-N         5         5         24JAN08         30JAN08           WALLS_3N_4         Install Interior Wall Insulation- LVL3-N         5         5         24JAN08         30JAN08           16000_290         Test Transformer & Switchgear, LVL4-N         5         16         24JAN08         13FEB08           16000_330         Connect Transf & Switchgear to Utilities, LVL5-N         5         15         24JAN08         13FEB08           PLMB_R_5N1         Rough-In Hot & Cold Water Dist,/Pipe, LVL5-N         5         20         24JAN08         20FEB08           PLMB_R_5N2         Rough-In Sanitary Waste & Vent Pipe, LVL5-N         5         2         25JAN08         23JAN08           EFA_R_4S         Rough-In Electrical Fire Alarms: LVL4-S         5         5         25JAN08         31JAN08           EPWRD_R_5S         Rough-In Electrical Power Distribution: LVL5-S         5	_						]												Ш
EFA_R_4N         Rough-In Electrical Fire Alarms: LVL4-N         5         5         24JAN08         30JAN08           EPWRD_R_5N         Rough-In Electrical Power Distribution: LVL5-N         5         5         24JAN08         30JAN08           WALLS_2N_6         Tape & Sand GWB- LVL2-N         5         5         24JAN08         30JAN08           WALLS_3N_4         Install Interior Wall Insulation- LVL3-N         5         5         24JAN08         30JAN08           16000_290         Test Transformer & Switchgear, LVL4-N         5         15         24JAN08         13FEB08           16000_330         Connect Transf & Switchgear to Utilities, LVL5-N         5         15         24JAN08         13FEB08           PLMB_R_5N2         Rough-In Sanitary Waste & Vent Pipe, LVL5-N         5         20         24JAN08         20FEB08           PLMB_R_5N2         Rough-In Sanitary Waste & Vent Pipe, LVL5-N         5         2         25JAN08         29JAN08           I Stational Interior Waster Distribution: LVL5-S         5         5         25JAN08         31JAN08           I Stational Power Distribution: LVL5-S         5         5         25JAN08         31JAN08           I Stational Interior Wall Insulation- LVL3-S         5         5         25JAN08         31JAN08 <td>_</td> <td></td> <td>_</td> <td>_</td> <td></td> <td></td> <td>1  </td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>  ! </td> <td></td> <td></td> <td></td> <td></td>	_		_	_			1								!				
EPWRD_R_5N   Rough-in Electrical Power Distribution: LVL5-N   5   5   24JAN08   30JAN08   30JAN08   WALLS_2N_6   Tape & Sand GWB- LVL2-N   5   5   24JAN08   30JAN08   30JAN08   WALLS_3N_4   Install Interior Wall Insulation- LVL3-N   5   5   24JAN08   30JAN08   30JAN08   16000_290   Test Transformer & Switchgear, LVL4-N   5   16   24JAN08   13FEB08   16000_330   Connect Transf & Switchgear to Utilities, LVL5-N   5   16   24JAN08   13FEB08   PLMB_R_5N1   Rough-in Hot & Cold Water Dist./Pipe, LVL5-N   5   20   24JAN08   20FEB08   PLMB_R_5N2   Rough-in Sanitary Waste & Vent Pipe, LVL5-N   5   20   24JAN08   20FEB08   20F							1								"				
WALLS_2N_6         Tape & Sand GWB- LVL2-N         5         5         24JAN08         30JAN08           WALLS_3N_4         Install Interior Wall Insulation- LVL3-N         5         5         24JAN08         30JAN08           16000_290         Test Transformer & Switchgear, LVL4-N         5         15         24JAN08         13FEB08           16000_330         Connect Transf & Switchgear to Utilities, LVL5-N         5         16         24JAN08         13FEB08           PLMB_R_5N1         Rough-In Hot & Cold Water Dist./Pipe, LVL5-N         5         20         24JAN08         20FEB08           PLMB_R_5N2         Rough-In Sanitary Waste & Vent Pipe, LVL5-N         5         20         24JAN08         20FEB08           PLMB_R_5N2         Rough-In Sanitary Waste & Vent Pipe, LVL5-N         5         20         24JAN08         20FEB08           Install All Above Ceiling MEPs, LVL1-S         5         2         25JAN08         28JAN08           IFFA_4S         Rough-In Electrical Prower Distribution: LVL5-S         5         5         25JAN08         31JAN08           IFFA_4S         Rough-In Electrical Prower Distribution: LVL5-S         5         5         25JAN08         31JAN08           IFFA_6S         Rough-In Interior Wall Insulation- LVL3-S         5         5							1								11				
WALLS_3N_4         Install Interior Wall Insulation- LVL3-N         5         5         24JAN08         30JAN08           16000_290         Test Transformer & Switchgear, LVL4-N         5         15         24JAN08         13FEB08           16000_330         Connect Transf & Switchgear to Utilities, LVL5-N         5         15         24JAN08         13FEB08           PLMB_R_5ht1         Rough-In Hot & Cold Water Dist./Pipe, LVL5-N         5         20         24JAN08         20FEB08           PLMB_R_5ht2         Rough-In Sanitary Waste & Vent Pipe, LVL5-N         5         20         24JAN08         20FEB08           15400.1_1S         Label All Above Ceiling MEPs, LVL1-S         5         2         25JAN08         28JAN08           EFA_R_4S         Rough-In Electrical Fire Alarms: LVL4-S         5         5         25JAN08         31JAN08           EPWRD_R_5S         Rough-In Electrical Power Distribution: LVL5-S         5         5         25JAN08         31JAN08           WALLS_2S_6         6         7         5         25JAN08         31JAN08           WALLS_3S_4         Install Interior Wall Insulation- LVL3-S         5         5         25JAN08         31JAN08           WALLS_3S_4         Install Interior Wall Insulation- LVL3-S         5         15			_	_			1								i				
15400.1   1S		Install Interior Wall Insulation- LVL3-N	5	5	24JAN08	30JAN08	1								4				Ш
15400.1   1S				_			]								👱				
15400.1   1S	_	•					1												
15400.1   1S			_	_			1												
EFA_R_4S         Rough-In Electrical Fire Alarms: LVL4-S         5         5         25JAN08         31JAN08           EPWRD_R_5S         Rough-In Electrical Power Distribution: LVL5-S         5         5         25JAN08         31JAN08           WALLS_2S_6         Tape & Sand GWB- LVL2-S         5         5         25JAN08         31JAN08           WALLS_3S_4         Install Interior Wall Insulation- LVL3-S         5         5         25JAN08         31JAN08           16000_300         Test Transformer & Switchgear, LVL4-S         5         15         25JAN08         14FEB08           16000_340         Connect Transf & Switchgear to Utilities, LVL5-S         5         15         25JAN08         14FEB08           PLMB_R_5S1         Rough-In Hot & Cold Water Dist./Pipe, LVL5-S         5         20         25JAN08         21FEB08           PLMB_R_5S2         Rough-In Sanitary Waste & Vent Pipe, LVL5-S         5         20         25JAN08         21FEB08           00511.1_1N         Install Ceiling Grid, LVL1-N         5         3         28JAN08         30JAN08							$  \cdot  $								ΙŢ				
EPWRD_R_5S         Rough-In Electrical Power Distribution: LVL5-S         5         25JAN08         31JAN08           WALLS_2S_6         Tape & Sand GWB- LVL2-S         5         5         25JAN08         31JAN08           WALLS_3S_4         Install Interior Wall Insulation- LVL3-S         5         5         25JAN08         31JAN08           16000_300         Test Transformer & Switchgear, LVL4-S         5         15         25JAN08         14FEB08           16000_340         Connect Transf & Switchgear to Utilities, LVL5-S         5         15         25JAN08         14FEB08           PLMB_R_5S1         Rough-In Hot & Cold Water Dist./Pipe, LVL5-S         5         20         25JAN08         21FEB08           PLMB_R_5S2         Rough-In Sanitary Waste & Vent Pipe, LVL5-S         5         20         25JAN08         21FEB08           00511.1_1N         Install Ceiling Grid, LVL1-N         5         3         28JAN08         30JAN08				_			1												
WALLS_3S_4       Install Interior Wall Insulation- LVL3-S       5       25JAN08       31JAN08         16000_300       Test Transformer & Switchgear, LVL4-S       5       15       25JAN08       14FEB08         16000_340       Connect Transf & Switchgear to Utilities, LVL5-S       5       15       25JAN08       14FEB08         PLMB_R_5S1       Rough-In Hot & Cold Water Dist,/Pipe, LVL5-S       5       20       25JAN08       21FEB08         PLMB_R_5S2       Rough-In Sanitary Waste & Vent Pipe, LVL5-S       5       20       25JAN08       21FEB08         09511.1_1N       Install Ceiling Grid, LVL1-N       5       3       28JAN08       30JAN08	EPWRD_R_5S	Rough-In Electrical Power Distribution: LVL5-S	5				1								•				
16000_300     Test Transformer & Switchgear, LVL4-S     5     15     25JAN08     14FEB08       16000_340     Connect Transf & Switchgear to Utilities, LVL5-S     5     15     25JAN08     14FEB08       PLMB_R_5S1     Rough-In Hot & Cold Water Dist./Pipe, LVL5-S     5     20     25JAN08     21FEB08       PLMB_R_5S2     Rough-In Sanitary Waste & Vent Pipe, LVL5-S     5     20     25JAN08     21FEB08       09511.1_1N     Install Ceiling Grid, LVL1-N     5     3     28JAN08     30JAN08				_			]								9				
PLMB_R_5S1         Rough-In Hot & Cold Water Dist./Pipe, LVL5-S         5         20         25JAN08         21FEB08           PLMB_R_5S2         Rough-In Sanitary Waste & Vent Pipe, LVL5-S         5         20         25JAN08         21FEB08           09511.1_1N         Install Ceiling Grid, LVL1-N         5         3         28JAN08         30JAN08			_				1								<u>L</u>				
PLMB_R_5S1         Rough-In Hot & Cold Water Dist./Pipe, LVL5-S         5         20         25JAN08         21FEB08           PLMB_R_5S2         Rough-In Sanitary Waste & Vent Pipe, LVL5-S         5         20         25JAN08         21FEB08           09511.1_1N         Install Ceiling Grid, LVL1-N         5         3         28JAN08         30JAN08				_			1								🖁				
PLMB_R_5S2         Rough-In Sanitary Waste & Vent Pipe, LVL5-S         5         20         25JAN08         21FEB08           09511.1_1N         Install Ceiling Grid, LVL1-N         5         3         28JAN08         30JAN08							$\parallel$								🚡				
09511.1_1N Install Ceiling Grid, LVL1-N 5 3 28JAN08 30JAN08			_	_			1								⋤				
00044440			_				1												
U8011.1_1S   Install Celling Grid, LVL1-S   5   3   29JAN08   31JAN08	09511.1_1S	Install Ceiling Grid, LVL1-S	5	3	29JAN08	31JAN08	$1 \perp$								(			$\perp$	

Sheet 18 of 31

Post	Activity	Activity	Cal	Orig	Early	Early	200	2007 2008
EPA_RPINOT_RPIN Regular Development Development PRIVATION   Comment Traint & Switchpaser to Unitine, FENTAN   S. 10 SALANDO, 1975/EB05   Comment Traint & Switchpaser to Unitine, FENTAN   S. 10 SALANDO, 1975/EB05   Comment Traint & Switchpaser to Unitine, FENTAN   S. 10 SALANDO, 1975/EB05   Comment Traint & Switchpaser to Unitine, FENTAN   S. 10 SALANDO, 1975/EB05   Comment Traint & Switchpaser to Unitine, FENTAN   S. 10 SALANDO, 1975/EB05   Comment Traint & Switchpaser to United Switchpaser to Unite	ID	Description	ID	Dur	Start	Finish		D JIFIMIAIM J JAISIOINID JIFIM A MIJIJI
MEMER P. 22   Final Flavoring County			_					
MILEP P. 25		ů .	_				1	
### EFEL, ### AM Roughin Felsom Conduit LIVLAN			_	0			1	
NSF_W_3			_	_			]	
1900  2.7   Marchis Above Celling   U.S.   5   5   31,1408   00FE808   1900  2.7   1900			_				4	
194002_2N							-	
February   February		-	_	_			1	
WALLS, 2N, 7   PrimeInitemer Pant & Fin. Band Geleing-LVL2-N			_				1	
180902_1   N			5	5	31JAN08	06FEB08	]	
CONTR.   1N							1	<u>P</u>
WALLS N. 6   Install OWN Walls & Softes LULS-N   5   10   TIFEB08   TIFEB0			_	_			-	
195002_15			_				1	
DOOR_2016_ Harg Door 2016 A Hardware							1	
DOOR, 2016.   Ang Door 2016. A Hardware   5   1 OIFEB08   OIFEB08	DOOR_201A-	Hang Door 201A & Hardware	5	1	01FEB08	01FEB08	1	
DOOR, 2004. Alang Door 2004. A Hardware	_	· ·		_			]	
DOOR_2104. Alang Door 2004 & Hardware		-	_	_			4	
DOOR_2110A. Hang Door_2110A & Hardware		·	_	_			$\  \cdot \ $	
DOOR_211A_ Hang Door 211A & Hardware				_			+	
DOOR, 212A   Hang Door 213A & Hardware			_	_			1	
DOOR_213A- Hang Door 213A- 8 Hardware			5	1			]	
DOOR, 2748- Hang Door 2738- & Hardware         6         1         O1FEB08           15500, 3, 1S         Install HVAC Diffusors, LVL-S         6         3         O1FEB09           15500, 3, 1S         Install HVAC Diffusors, LVL-S         6         3         O1FEB09         OFFEB08           INSP, W. 3S         Interior Wall Inspection: 3S         6         3         O1FEB09         O6FEB08           INSP, W. 3S         Interior Wall Inspection: 3S         6         3         O1FEB08         OFFEB08           INSP, W. 3S         Interior Wall Inspection: 3S         6         5         O1FEB08         OFFEB08           INSP, W. 3S         Interior Wall Inspection: 3S         6         5         O1FEB08         OFFEB08           INSPECTION OF THE WALL STATES AND			_	_			] [	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
DOOR 2/14A   Hang Door 2/14A & Hardware				_			1	
15500_3_IS		-	_	_			-	
ETEL R, 4S Rough-In Telecom Conduit LVL4-S 6 3 01FEB08 OFFEB08			_	_			1	
00310, 1, 25	_		_				1	
15400.2_2S	INSP_W_3S	Interior Wall Inspection: 3S	5	3	01FEB08		1	
	_		_				]	
EPWIRC R, 55   Rough-In Electrical Power to Cellings: LVL5-S   5   5   01FEB08   07FEB08   07F		•	_	_			-	
WALLS_2S_2   Prime/Interm Paint & Fin. Band @ Ceiling-LVL2-S   5   5   01FEB08   07FEB08   14FEB08   14			_	_			1	
CONTRL   1S   Install Light Controls, LVL1-S   5   10   01FEB08   14FEB08   MALLS_3S_5   Install GWB Walls & Sofffis-LVL3-S   5   10   01FEB08   14FEB08   MALLS_4N_3   Install In-Wall Wood Blocking-LVL4-N   5   2   05FEB08   05FEB08   05FEB08   MALLS_4N_3   Install In-Wall Wood Blocking-LVL4-N   5   5   05FEB08   05FEB08   MALLS_4S_3   Install In-Wall Wood Blocking-LVL4-S   5   2   06FEB08   07FEB08   MALLS_4S_3   Install In-Wall Wood Blocking-LVL4-S   5   2   06FEB08   07FEB08   00CR_202A_ Hang Door 202A_8 Hardware   5   1   07FEB08   07FEB08   07FEB08   00CR_202B_ Hang Door 202B_8 Hardware   5   1   07FEB08   07FEB08   07FEB08   00CR_202B_ Hang Door 202B_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 202A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 203A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 203A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 203A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 203A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 203A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 203A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_ Hang Door 203A_8 Hardware   5   1   07FEB08   07FEB08   00CR_203A_1   00CR_20							1	
WALLS_3S_6   Install GWB Walls & Soffits-LVL3-S   6   10   01FEB08   14FEB08   14FE	16000.2_1S	Install Lights, LVL1-S	5	10	01FEB08	14FEB08	1	
WALLS_4N_3   Install In-Wall Wood Blocking- LVL4-N							]	
MILEF P 2N Finish Plumbing, LVL2-N				_			4	
MILEF   2N   Finish Plumbing, LVL2-N   5   0   06FEB08			_				-	
WALLS_4S_3   Install In-Wall Wood Blocking- LVL4-S   5   2   08FEB08   07FEB08   07F			_	_	001 2000		1	
DOOR_2024- Hang Door 202A & Hardware			5	2	06FEB08	07FEB08	1	
DOOR_2026				5			]	
DOOR_202C- Hang Door 202C & Hardware			_	_			4	
DOOR 202D	_	o .	_	_			$  \cdot  $	
DOOR_203A- Hang Door 203A & Hardware	_	ů .		_			$  \cdot  $	
DOOR_204A-   Hang Door 205A & Hardware   5   1   07FEB08   07FEB			_	_			1	
DOOR_207A-   Hang Door 207A & Hardware	_	Hang Door 204A & Hardware		_			]	
10522.T_2N			_	_			1	
10801.1_2N			-	1			1	
15500.1_4N			-	2			$\  \cdot \ $	
DOOR 200A-   Hang Door 200A & Hardware   5		•					$  \cdot  $	_
01300.1_2N   Ceiling Insp: Building, LVL2-N   5   3   07FEB08   11FEB08			_	_			1	
15400.3 2N   Above Ceiling Insp: Plumb, LVL2-N   5   3   07FEB08   11FEB08   11FEB08						11FEB08		_   •
INSP_EV_4N   Wall Inspection: Electrical, 4N   5   3   07FEB08   11FEB08		-	_	_			1	_   •
INSP_PW_4N   Wall Inspection: Plumbing, 4N   5   3   07FEB08   11FEB08   11FEB08   11FEB08   12FEB08   1							$  \cdot  $	
DUCT   B   2N   Insulate HVAC Branch Ducts: LVL2-N   5   5   07FEB08   13FEB08   DUCT   Im_2N   Insulate HVAC Duct Mains: LVL2-N   5   5   07FEB08   13FEB08   EPWRW   R   5N   Rough-in Electrical Power to Walls: LVL5-N   5   5   07FEB08   13FEB08   Impulsite HVAC Branch Lines: LVL2-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL2-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL2-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL2-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   5   5   07FEB08   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   13FEB08   Impulsite HVAC Piping Mains: LVL4-N   13FEB08   Impulsite H			_	_			+	_   •
DUCT_M_2N			_	_			1	
HVAC   B   2N	DUCT_IM_2N	Insulate HVAC Duct Mains: LVL2-N		_	07FEB08		]	_   •
HVAC   IM_2N   Insulate HVAC Piping Mains: LVL2-N   5   5   07FEB08   13FEB08   WALLS_4N_2   Frame Metal Stud Soffits - LVL4-N   5   5   07FEB08   13FEB08   10522.1_2S   Install Fire Extinguisher Cabinets, LVL2-S   5   2   08FEB08   11FEB08   10801.1_2S   Install Plumbing Fixtures, LVL2-S   5   2   08FEB08   11FEB08   1		-	-	_				_   •
WALLS 4N_2   Frame Metal Stud Soffits LVL4-N   5   5   07FEB08   13FEB08   10522.1_2S   Install Fire Extinguisher Cabinets, LVL2-S   5   2   08FEB08   11FEB08   10801.1_2S   Install Plumbing Fixtures, LVL2-S   5   2   08FEB08   11FEB08   1			_	_			4	
10522_1_2S         Install Fire Extinguisher Cabinets, LVL2-S         5         2         08FEB08         11FEB08           10801.1_2S         Install Plumbing Fixtures, LVL2-S         5         2         08FEB08         11FEB08			_	_			$  \cdot  $	_   •
10801.1_2S			-	_			1	_   •
				_			1	
			_	_			$1 \perp$	

Sheet 19 of 31

Antivity	A_D. C.	Col	Orio	Endo	Early	2006	2007 2009
Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish		3008   JIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJU
01300.1_2S	Ceiling Insp: Building, LVL2-S	5	3	08FEB08	12FEB08	J(	
	Above Ceiling Insp: Plumb, LVL2-S	5	3	08FEB08	12FEB08	]	
	Wall Inspection: Electrical, 4S	5	3	08FEB08	12FEB08	4	
	Wall Inspection: Plumbing, 4S	5	5	08FEB08 08FEB08	12FEB08 14FEB08	4	
	Insulate HVAC Branch Ducts: LVL2-S Insulate HVAC Duct Mains: LVL2-S	5	5	08FEB08	14FEB08	1	
	Rough-In Electrical Power to Walls: LVL5-S	5	5	08FEB08	14FEB08	1	
	Insulate HVAC Branch Lines: LVL2-S	5	5	08FEB08	14FEB08	1	
HVAC_IM_2S	Insulate HVAC Piping Mains: LVL2-S	5	5	08FEB08	14FEB08	1	
	Frame Metal Stud Soffits- LVL4-S	5	5	08FEB08	14FEB08	]	
	Install Toilet Partitions, LVL2-N	5	1	11FEB08	11FEB08	4	
15500.2_4N 10155.1 2S	Connect HVAC Piping to VAV/FCUs, LVL4-N Install Toilet Partitions. LVL2-S	5	5	11FEB08	15FEB08 12FEB08	4	
_	Install Toilet Accessories, LVL2-N	5	1	12FEB08 12FEB08	12FEB08	1	
15500.2 4S	Connect HVAC Piping to VAV/FCUs, LVL4-S	5	5	12FEB08	18FEB08	1	
_	Install Toilet Accessories, LVL2-S	5	1	13FEB08	13FEB08	1	
ETEL_R_PS	Rough-In Telecom Conduit: PENT-S	5	3	13FEB08	15FEB08	1	
15400.2_PN	Punchlist Above Ceiling, PENTH-N	5	5	13FEB08	19FEB08	]	
	Punchlist Above Ceiling, PENTH-S	5	5	13FEB08	19FEB08	1	
15500-HKUP	Connect Chemical Treatment System to Utilities	5	5	13FEB08	19FEB08	1	
15500_20 16000.7 PS	Connect CHW & HW Pumps to Utilities Install Fire Alarm Heads, PENTH-S	5	5	13FEB08	19FEB08 19FEB08	1	<b> </b>
_	Rough-In Electrical Power to Ceilings: PENT-N	5	10	13FEB08 13FEB08	26FEB08	+	
	Install Ceiling Tiles, LVL1-N	5	2	14FEB08	15FEB08	1	
15400.1 2N	Label All Above Ceiling MEPs, LVL2-N	5	2	14FEB08	15FEB08	1	
16000.4_1N	Above Ceiling Insp: Elect, LVL1-N	5	3	14FEB08	18FEB08	1	
04851.1_3N	Install Granite Clad @ N.Elev. Bank, LVL3-N	5	5	14FEB08	20FEB08	]	
EFA_R_5N	Rough-In Electrical Fire Alarms: LVL5-N	5	5	14FEB08	20FEB08	]	
	Rough-In Electrical Power Distribution: LVL6-N	5	5	14FEB08	20FEB08	4	
WALLS_3N_6	Tape & Sand GWB- LVL3-N	5	5	14FEB08	20FEB08	4	
WALLS_4N_4 16000 350	Install Interior Wall Insulation- LVL4-N Test Transformer & Switchgear, LVL5-N	5	5 15	14FEB08 14FEB08	20FEB08 05MAR08	1	<b> </b>
16000_330	Connect Transf & Switchgear to Utilities, LVL6-N	5	15	14FEB08	05MAR08	1	
	Rough-In Hot & Cold Water Dist./Pipe, LVL6-N	5	20	14FEB08	12MAR08	1	
PLMB_R_6N2	Rough-In Sanitary Waste & Vent Pipe, LVL6-N	5	20	14FEB08	12MAR08	1	
09511.2_1S	Install Ceiling Tiles, LVL1-S	5	2	15FEB08	18FEB08	]	
15400.1_2S	Label All Above Ceiling MEPs, LVL2-S	5	2	15FEB08	18FEB08	4	
16000.4_1S	Above Ceiling Insp: Elect, LVL1-S	5	3	15FEB08	19FEB08	4	
EFA_R_5S EPWRD R 6S	Rough-In Electrical Fire Alarms: LVL5-S Rough-In Electrical Power Distribution: LVL6-S	5	5	15FEB08 15FEB08	21FEB08 21FEB08		
WALLS 3S 6	Tape & Sand GWB- LVL3-S	5	5	15FEB08	21FEB08	1	
	Install Interior Wall Insulation- LVL4-S	5	5	15FEB08	21FEB08	1	
16000_360	Test Transformer & Switchgear, LVL5-S	5	15	15FEB08	06MAR08	1	
16000_400	Connect Transf & Switchgear to Utilities, LVL6-S	5	15	15FEB08	06MAR08	1	
	Rough-In Hot & Cold Water Dist./Pipe, LVL6-S	5	20	15FEB08	13MAR08	]	
	Rough-In Sanitary Waste & Vent Pipe, LVL6-S	5	20	15FEB08	13MAR08	1	
	Install Fire Alarm Heads, LVL1-N	5	2	18FEB08 18FEB08	19FEB08 19FEB08	4	
	Install In-Wall Wood Blocking- PENTH-S Install Ceiling Grid, LVL2-N	5	2	18FEB08	20FEB08	+	
_	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, PENTH-S	5	5	18FEB08	22FEB08	1	
	Paint Finish Coat- LVL1-N	5	5	18FEB08	22FEB08	1	
_	Install Fire Alarm Heads, LVL1-S	5	2	19FEB08	20FEB08		
	Install Ceiling Grid, LVL2-S	5	3	19FEB08	21FEB08	]	
	Paint Finish Coat- LVL1-S	5	5	19FEB08	25FEB08	1	
	Pressure Test HVAC Piping System, PENTH-S	5	2	20FEB08	21FEB08	4	
	Ceiling Insp: Building, PENTH-N Ceiling Insp: Building, PENTH-S	5	3	20FEB08 20FEB08	22FEB08 22FEB08	1	
	Above Ceiling Insp: Plumb, PENTH-N	5	3	20FEB08	22FEB08	1	
	Above Ceiling Insp: Plumb, PENTH-S	5	3	20FEB08	22FEB08	1	
	Wall Inspection: Electrical, PS	5	3	20FEB08	22FEB08	1	
	Wall Inspection: Plumbing, PS	5	3	20FEB08	22FEB08	]	
	Frame Metal Stud Soffits- PENTH-S	5	5	20FEB08	26FEB08	1	
	Install Wood Veneer Cladding, LVL1-S	5	8	20FEB08	29FEB08	4	
	Insulate HVAC Duct Mains: Penthouse-S Insulate HVAC Piping Mains: Penthouse-S	5	10	20FEB08	04MAR08	1	
16000_540	Test Transformer & Switchgear, PENT-S	5	10	20FEB08 20FEB08	04MAR08 11MAR08	+	
		5	15	20FEB08	11MAR08	1	
16001-TEST	Test Electrical Substation						
16001-TEST	Test Electrical Substation Insulate HVAC Branch Ducts: Penthouse-S	5	15	20FEB08	11MAR08	1	
16001-TEST DUCT_IB_PS			_			1	

Sheet 20 of 31

Activity	Activity	Cal	Orice	Early	Engly	200	6			2007				200	8	
ID	Activity  Description	ID	Orig Dur	Start	Early Finish	NI	١.	FM	АМ	الآال	AS	OINIC	JF	MA	MJ	JL
15300.2_2N	Install Sprinkler Heads, LVL2-N	5	1	21FEB08	21FEB08	1	T									
ETEL_R_5N INSP W 4N	Rough-In Telecom Conduit: LVL5-N Interior Wall Inspection: 4N	5	3	21FEB08 21FEB08	25FEB08 25FEB08	$  \cdot  $							;			
09310.1_3N	Install Bathroom Tile Floor/Walls, LVL3-N	5	5	21FEB08	27FEB08	1										
15400.2_3N	Punchlist Above Ceiling, LVL3-N	5	5	21FEB08	27FEB08	]								!		
16000.2_2N 16000.3_3N	Install Lights, LVL2-N Terminate Elect Dist & Power, LVL3-N	5	5	21FEB08 21FEB08	27FEB08 27FEB08	1										
	Rough-In Electrical Power to Ceilings: LVL6-N	5	5	21FEB08	27FEB08	1										
LCNTRL_2N	Install Light Controls, LVL2-N	5	5	21FEB08	27FEB08	1							0	1 1 1		
WALLS_3N_7 WALLS 4N 5	Prime/Interm Paint & Fin. Band @ Ceiling- LVL3-N	5	5	21FEB08	27FEB08	4								111		
15300.2 2S	Install GWB Walls & Soffits- LVL4-N Install Sprinkler Heads, LVL2-S	5	10	21FEB08 22FEB08	05MAR08 22FEB08	+								<b>,</b>		
15500.3_2S	Install HVAC Diffusers, LVL2-S	5	1	22FEB08	22FEB08	1							i			
DOOR_301A-	Hang Door 301A & Hardware	5	1	22FEB08	22FEB08	]							!			
DOOR_301B- DOOR 308A-	Hang Door 301B & Hardware Hang Door 308A & Hardware	5	1	22FEB08 22FEB08	22FEB08 22FEB08	-							;			
DOOR_300A-	Hang Door 309A & Hardware	5	1	22FEB08	22FEB08	+							i			
DOOR_310A-	Hang Door 310A & Hardware	5	1	22FEB08	22FEB08	1							1			
DOOR_311A-	Hang Door 311A & Hardware	5	1	22FEB08	22FEB08	]							!			
DOOR_312A- DOOR_312B-	Hang Door 312A & Hardware Hang Door 312B & Hardware	5	1	22FEB08 22FEB08	22FEB08 22FEB08	$  \cdot  $							¦			
DOOR_313A-	Hang Door 313A & Hardware	5	1	22FEB08	22FEB08	1							i			
DOOR_313B-	Hang Door 313B & Hardware	5	1	22FEB08	22FEB08	1							!			
DOOR_314A-	Hang Door 314A & Hardware	5	1	22FEB08	22FEB08	1							!	$  \   \  $		
ETEL_R_5S INSP W 4S	Rough-In Telecom Conduit: LVL5-S Interior Wall Inspection: 4S	5	3	22FEB08 22FEB08	26FEB08 26FEB08	+										
09310.1_3S	Install Bathroom Tile Floor/Walls, LVL3-S	5	5	22FEB08	28FEB08	1							1			
15400.2_3S	Punchlist Above Ceiling, LVL3-S	5	5	22FEB08	28FEB08	1								!		
15500.2_PS 16000.2_2S	Connect HVAC Piping to VAV/FCUs, PENTH-S	5	5	22FEB08	28FEB08	4							;			
16000.2_2S	Install Lights, LVL2-S Terminate Elect Dist & Power, LVL3-S	5	5	22FEB08 22FEB08	28FEB08 28FEB08	+										
	Rough-In Electrical Power to Ceilings: LVL6-S	5	5	22FEB08	28FEB08	1										
LCNTRL_2S	Install Light Controls, LVL2-S	5	5	22FEB08	28FEB08	1							!	!		
WALLS_3S_7 WALLS 4S 5	Prime/Interm Paint & Fin. Band @ Ceiling- LVL3-S Install GWB Walls & Soffits- LVL4-S	5	5 10	22FEB08 22FEB08	28FEB08 06MAR08	-								<u> </u>		
MILES F 1N	Start Install of Floor Finishes, LVL1-N	5	0	25FEB08	DUMARDO	+								, I		
10410.1_1N	Install Signage, LVL1-N	5	1	25FEB08	25FEB08	1							i			
10523.1_1N	Install Fire Extinguishers, LVL1-N	5	1	25FEB08	25FEB08	1							!			
16000.5_1N 16000.8 1N	Install Electrical Wall Devices, LVL1-N Install Fire Alarms, LVL1-N	5	2	25FEB08 25FEB08	25FEB08 26FEB08	+										
09651.1_1N	Install Resilient Floor Tile, LVL1-N	5	3	25FEB08	27FEB08	1							i	111		
05530.1_1N	Install Foot Grills, LVL1-N	5	5	25FEB08	29FEB08	1							[	!		
09310.1_1N	Install BathRM Tile Floor/Walls, LVL1-N	5	5	25FEB08	29FEB08	4										
09310.2_1N MILES F_1S	Install Ceramic Tile Floor, LVL1-N Start Install of Floor Finishes, LVL1-S	5	10	25FEB08 26FEB08	07MAR08	+								, I I		
10410.1_1S	Install Signage, LVL1-S	5	1	26FEB08	26FEB08	1							i			
10523.1_1S	Install Fire Extinguishers, LVL1-S	5	1	26FEB08	26FEB08	1							!	!   !		
16000.5_1S 10265.1 1S	Install Electrical Wall Devices, LVL1-S Install SS Wall Bumpers & Corners, LVL1-S	5	2	26FEB08 26FEB08	26FEB08 27FEB08	1										
16000.8 1S	Install Fire Alarms, LVL1-S	5	2	26FEB08	27FEB08	+							i			
WALLS_5N_3	Install In-Wall Wood Blocking- LVL5-N	5	2	26FEB08	27FEB08	1										
09651.1_1S	Install Resilient Floor Tile, LVL1-S	5	3	26FEB08	28FEB08	4							!	.		
05530.1_1S 16000.1 5N	Install Foot Grills, LVL1-S Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL5-N	5	5	26FEB08 26FEB08	03MAR08 03MAR08	+										
09310.2_1S	Install Porcelan Tile Fir Elev/Lobby, LVL1-S	5	10	26FEB08	10MAR08	1							1 1 1	<u> </u>		
MILE_P_3N	Finish Plumbing, LVL3-N	5	0		27FEB08	1										
WALLS_5S_3	Install In-Wall Wood Blocking- LVL5-S	5	2	27FEB08	28FEB08	1								<u>.</u>		
16000.1_5S WALLS PS 4	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL5-S Install Interior Wall Insulation- PENTH-S	5	5	27FEB08 27FEB08	04MAR08 04MAR08	$  \cdot  $								ĭ		
	Rough-In Electrical Power to Walls: PENT-N	5	10	27FEB08	11MAR08	1							i	<b> </b>   <b> </b>		
09653.1_1N	Install Resilient Wall Base, LVL1-N	5	1	28FEB08	28FEB08	1							!	!		
DOOR_300A-	Hang Door 300A & Hardware	5	1	28FEB08	28FEB08	1										
DOOR_302A- DOOR_302B-	Hang Door 302A & Hardware Hang Door 302B & Hardware	5	1	28FEB08 28FEB08	28FEB08 28FEB08	$  \cdot  $										
DOOR_302C-	Hang Door 302C & Hardware	5	1	28FEB08	28FEB08	1							i			
DOOR_303A-	Hang Door 303A & Hardware	5	1	28FEB08	28FEB08	]								!		
DOOR_304A- DOOR 305A-	Hang Door 304A & Hardware	5	1	28FEB08 28FEB08	28FEB08	1										
DOOR_305A-	Hang Door 305A & Hardware Hang Door 307A & Hardware	5	1	28FEB08	28FEB08 28FEB08	$  \cdot  $										
09511.2_2N	Install Ceiling Tiles, LVL2-N	5	2	28FEB08	29FEB08								i			
			Shoot			_						_	_		_	=

Sheet 21 of 31

Description	0.71.11				F. 1		200	2007	2000	
180521_3 N	Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish				IJJ.
195001_10N	10522.1_3N	Install Fire Extinguisher Cabinets, LVL3-N	5	2	28FEB08	29FEB08	J			TTT
0.9301_3N	_		_	_			]		•	
Model				_			1		!	
154003_3 N	_						4			
MISSPERING   Mail Inspection Electrocal SN		-		_			1			
NSP FUN		* : :		_			1			
NSSP PIV EN			_	_			1		i	
DUCT_M_N_   Substem HAVA C Branch Ducts LVL3-N		-					1		0	
EPWRW R, 6N Rough-In Electrical Power to Willis: U.L.D-N				_			1		0	
HAVE_U_S  N	DUCT_IM_3N	Insulate HVAC Duct Mains: LVL3-N	5	5	28FEB08	05MAR08	1		0	
#MAC_M_N Sultas HAVAC Piping Mains: U.V.2-N	EPWRW_R_6N	Rough-In Electrical Power to Walls: LVL6-N	5		28FEB08		]		•	
WALLS, 54, 25   Frame Metal Stud Soffes- LVLS-N   5   5   29FEB03   29FEB0			_				]		🛚	
09653, 1  S   Install Reallent Wall Base, LVL-S   5   1   29FEB08   DSMAR08   19522, 1,33   Install Fire Extinguisher Cabinets, LVL-S   5   2   29FEB08   DSMAR08   19503, 1,33   Install Fire Extinguisher Cabinets, LVL-S   5   2   29FEB08   DSMAR08   19503, 1,33   Install Fire Extinguisher Cabinets, LVL-S   5   2   29FEB08   DSMAR08   19503, 1,53   DSMAR08   1950							4		!	
100511_2_38   Install Celling Tiles, LVL2-S   5 2 20FEB08   GMARQ8   10501_1 38   Install Free Entinguisher Cabinets, LVL3-S   5 2 20FEB08   GMARQ8   10501_1 38   Install Free Entinguisher Cabinets, LVL3-S   5 2 20FEB08   GMARQ8   10501_1 38   Celling Instp: Building, LVL3-S   5 2 20FEB08   GMARQ8   10501_1 38   Celling Instp: Building, LVL3-S   5 3 20FEB08   GMARQ8   10500_1 38   Celling Instp: Building, LVL3-S   5 3 20FEB08   GMARQ8   10500_1 48   Above Celling Instp: Building, LVL3-S   5 3 20FEB08   GMARQ8   10500_1 42   Above Celling Instp: Elect, LVL2-S   5 3 20FEB08   GMARQ8   10500_1 42   Above Celling Instp: Elect, LVL2-S   5 3 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: Elect, LVL2-S   5 3 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: Elect, LVL2-S   5 3 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: Elect, LVL2-S   5 3 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: Elect, LVL2-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: Elect, LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling Instp: LVL3-S   5 5 20FEB08   GMARQ8   10507_1 48   Above Celling							4		📍	
195221_33			_	_			-			
19801.1   3							1		[	
15500.1 SS	_						1		[	
19300.1   3S   Celling Insp: Building, LVL3-S   5   3   29FEB08   MMARGB   19400.3   3S   Above Celling Insp: Elect. LVL2-S   5   3   29FEB08   MMARGB   19400.4   3S   Above Celling Insp: Elect. LVL2-S   5   3   29FEB08   MMARGB   19400.4   3S		-	_	_			1			
154003_3S				_			1			
INSP_PW_65   Wall Inspection: Plumbing_65   6 3 20FEB08   OMMAROB	15400.3_3S		5	3	29FEB08	04MAR08	1			
INSP PW 58   Wall Inspection: Pumbling 65   5   3   29FEBBS   OHMARGS	16000.4_2S	Above Ceiling Insp: Elect, LVL2-S		3	29FEB08	04MAR08	]		👂	
DUCT_IM_SS   Insulate HVAC Erranch Dutts: LVLS-S   6 5 29FEB08   DOMARD8			_	_			1		🛚	
DUCT_IM_3S   Insulate HVAC Duct Mans; LVL3-S   6 5 29FEB08   D6MAR08   LVL3-S   S 39   English Evication Power to Walls: LVL2-S   5 5 29FEB08   D6MAR08   LVL3-S   S 39FEB08   D6MAR08   LVL3-S   S 39FEB08   D6MAR08   LVL3-S   S 39FEB08   D6MAR08   LVL3-S   S 39FEB08   D6MAR08   LVL3-S   D6MAR08			_	_			1		!	
EPWIRW R				_			4		🖁	
HVAC, M 3S   Insulate HVAC Piping Mans (VL3-S)			_	_			4			
HVAC_M_SS   Insulate HVAC Piping Mains: LVL3-S   6   5   20 FEB08   00MAR08   00MAR0		•	_	_			1			
WALLS 85 2   Frame Metal Stud Soffts- LVL5-S							1		6	
10155.1_3N			_	_			1		6	
10501_1   N			_	_			1		)	
16000.7 2N   Install Fire Alarm Heads, LVL2-N	DOOR_100C-	Hang Door 100C & Hardware	5	1	03MAR08	03MAR08	1		)	
15500.2   S	10801.1_1N	Install Plumbing Fixtures, LVL1-N		2	03MAR08	04MAR08	]		[	
WALLS 2N 8		-					1		[	
10155.1_3S			_	_			1		!	
10000.7_2S				_			4		[	
16000.7_2S		-		_			4		[	
15500_2_6S			_	_			1			
WALLS 2S 8			_	_			1		6	
10515.1   1N			_	_			1		6	
INSP_W_PS			_	_			1			
D8402.1_2S	10801.2_3S	Install Toilet Accessories, LVL3-S	5	1	05MAR08	05MAR08	1			
WALLS_PS_5   Install GWB Walls & Soffits - PENTH-S   5   10   D5MAR08   15MAR08   1	INSP_W_PS	Interior Wall Inspection: PS	5	3	05MAR08	07MAR08	]			
DUCT IM PN         Insulate HVAC Duct Mains: Penthouse-N         5         15         05MAR08         25MAR08           HVAC IM PN         Insulate HVAC Piping Mains: Penthouse-N         5         15         05MAR08         25MAR08           10801.2 IN         Install Toilet Accessories, LVL1-N         5         1         06MAR08         06MAR08           15400.1 3N         Label All Above Ceiling MEPs, LVL3-N         5         2         06MAR08         12MAR08           04851.1 4N         Install Granite Clad @ N.Elev. Bank, LVL4-N         5         5         06MAR08         12MAR08           EFA R_6N         Rough-In Electrical Fire Alarms: LVL6-N         5         5         06MAR08         12MAR08           EPWRD R_7N         Rough-In Electrical Power Distribution: LVL7-N         6         5         06MAR08         12MAR08           WALLS_5N_4         Install Interior Wall Insulation- LVL5-N         5         5         06MAR08         12MAR08           I6000_410         Test Transformer & Switchgear, LVL6-N         5         15         06MAR08         26MAR08           I6000_450         Connect Transf & Switchgear to Utilities, LVL7-N         5         15         06MAR08         02APR08           PLMB_R_7N1         Rough-In Sanitary Waste & Vent Pipe, LVL7-N         5 <td>_</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>]  </td> <td></td> <td>1 1 1-1 1</td> <td></td>	_						]		1 1 1-1 1	
HVAC_IM_PN			_				1		1 1 1 1 1	
10801.2_1N			_	_			4			
15400.1 3N Label All Above Ceiling MEPs, LVL3-N 5 2 06MAR08 07MAR08 04851.1 4N Install Granite Clad ⊚ N.Elev. Bank, LVL4-N 5 5 06MAR08 12MAR08 EFA R 6N Rough-In Electrical Fire Alarms: LVL6-N 5 5 06MAR08 12MAR08 EPWRD_R 7N Rough-In Electrical Power Distribution: LVL7-N 5 5 06MAR08 12MAR08 WALLS_4N_6 Tape & Sand GWB- LVL4-N 5 5 06MAR08 12MAR08 WALLS_5N_4 Install Interior Wall Insulation- LVL5-N 5 5 06MAR08 12MAR08 12MAR08 12MAR08 16000_410 Test Transformer & Switchgear, LVL6-N 5 15 06MAR08 26MAR08 12MAR08 16000_450 Connect Transf & Switchgear to Utilities, LVL7-N 5 15 06MAR08 26MAR08 16000_450 Connect Transf & Switchgear to Utilities, LVL7-N 5 10 06MAR08 02APR08 16400_1 Sanitary Waste & Vent Pipe, LVL7-N 5 20 06MAR08 02APR08 16400_1 3S Label All Above Ceiling MEPs, LVL3-S 5 2 07MAR08 10MAR08 16400_1 3S Label All Above Ceiling MEPs, LVL3-S 5 5 07MAR08 13MAR08 16400_1 3S Label All Above Ceiling MEPs, LVL3-S 5 5 07MAR08 13MAR08 16400_1 3S Label All Ectrical Power Distribution: LVL7-S 5 5 07MAR08 13MAR08 16400_1 420 Test Transformer & Switchgear, LVL6-S 5 5 07MAR08 13MAR08 16400_420 Test Transformer & Switchgear, LVL6-S 5 5 07MAR08 13MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 15 07MAR08 27MAR08 16000_420 Connect Transf & Switchgear, LVL6-S 5 20 07MAR08 03APR08				_			4			
04851.1_4N         Install Granite Clad ⊚ N.Elev. Bank, LVL4-N         5         5         06MAR08         12MAR08           EFA_R_6N         Rough-In Electrical Fire Alarms: LVL6-N         5         5         06MAR08         12MAR08           EPWRD_R_7N         Rough-In Electrical Power Distribution: LVL7-N         5         5         06MAR08         12MAR08           WALLS_4N_6         Tape & Sand GWB-LVL4-N         5         5         06MAR08         12MAR08           WALLS_5N_4         Install Interior Wall Insulation- LVL5-N         5         5         06MAR08         12MAR08           16000_410         Test Transformer & Switchgear, LVL6-N         5         15         06MAR08         26MAR08           16000_450         Connect Transf & Switchgear to Utilities, LVL7-N         5         15         06MAR08         26MAR08           PLMB_R_7N1         Rough-In Sanitary Waste & Vent Pipe, LVL7-N         5         20         06MAR08         02APR08           PLMB_R_7N2         Rough-In Electrical Fire Alarms: LVL6-S         5         2         07MAR08         13MAR08           IFAR_6S         Rough-In Electrical Power Distribution: LVL7-S         5         5         07MAR08         13MAR08           IFAR_6S_5_4         Install Interior Wall Insulation-LVL5-S         5			_	_			1			
EFA_R_6N         Rough-In Electrical Fire Alarms: LVL6-N         5         5         06MAR08         12MAR08           EPWRD_R_7N         Rough-In Electrical Power Distribution: LVL7-N         6         5         06MAR08         12MAR08           WALLS_4N_6         Tape & Sand GWB- LVL4-N         5         5         06MAR08         12MAR08           WALLS_5N_4         Install Interior Wall Insulation- LVL5-N         5         5         06MAR08         12MAR08           I6000_410         Test Transformer & Switchgear, LVL6-N         5         15         06MAR08         26MAR08           I6000_450         Connect Transf & Switchgear to Utilities, LVL7-N         5         15         06MAR08         26MAR08           PLMB_R_7N1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-N         5         20         06MAR08         02APR08           PLMB_R_7N2         Rough-In Sanitary Waste & Vent Pipe, LVL7-N         5         20         06MAR08         02APR08           PLMB_R_7N2         Rough-In Electrical Pipe, LVL3-S         5         5         07MAR08         10MAR08           IS400_3_3         Label All Above Ceiling MEPs, LVL3-S         5         5         07MAR08         13MAR08           IEPWRD_R_7S         Rough-In Electrical Power Distribution: LVL7-S         5			_	_			1			
EPWRD_R_7N   Rough-In Electrical Power Distribution: LVL7-N   5   5   06MAR08   12MAR08   12MA			_				1		1 1 1 1 1	
WALLS_5N_4         Install Interior Wall Insulation-LVL5-N         5         06MAR08         12MAR08           16000_410         Test Transformer & Switchgear, LVL6-N         5         15         06MAR08         26MAR08           16000_450         Connect Transf & Switchgear to Utilities, LVL7-N         5         15         06MAR08         26MAR08           PLMB_R_7N1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-N         5         20         06MAR08         02APR08           PLMB_R_7N2         Rough-In Sanitary Waste & Vent Pipe, LVL7-N         5         20         06MAR08         02APR08           PLMB_R_7N2         Rough-In Sanitary Waste & Vent Pipe, LVL7-N         5         20         06MAR08         02APR08           15400.1_3S         Label All Above Ceiling MEPs, LVL3-S         5         2         07MAR08         10MAR08           IEFA_R_6S         Rough-In Electrical Fire Alarms: LVL6-S         5         5         07MAR08         13MAR08           IEPWRD_R_7S         Rough-In Electrical Power Distribution: LVL7-S         5         5         07MAR08         13MAR08           WALLS_6S_4         Install Interior Wall Installation- LVL5-S         5         5         07MAR08         13MAR08           WALLS_6S_4         Install Interior Wall Installation- LVL5-S         5 </td <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td>1  </td> <td></td> <td>           </td> <td></td>			_				1			
16000_410			5	5	06MAR08	12MAR08	1			
16000_450	WALLS_5N_4	Install Interior Wall Insulation- LVL5-N	5	5	06MAR08	12MAR08	]			
PLMB R_7N1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-N         5         20         06MAR08         02APR08           PLMB R_7N2         Rough-In Sanitary Waste & Vent Pipe, LVL7-N         5         20         06MAR08         02APR08           15400.1_3S         Label All Above Ceiling MEPs, LVL3-S         5         2         07MAR08         10MAR08           EFA R_6S         Rough-In Electrical Fine Alarms: LVL6-S         5         5         07MAR08         13MAR08           EPWRD R_7S         Rough-In Electrical Power Distribution: LVL7-S         5         5         07MAR08         13MAR08           WALLS_4S_6         Tape & Sand GWB- LVL4-S         5         5         07MAR08         13MAR08           WALLS_5S_4         Install Interior Wall Insulation- LVL5-S         5         5         07MAR08         13MAR08           16000_420         Test Transformer & Switchgear, LVL6-S         5         15         07MAR08         27MAR08           16000_460         Connect Transf & Switchgear to Utilities, LVL7-S         5         16         07MAR08         03APR08           PLMB_R_7S1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-S         5         20         07MAR08         03APR08	_		_	_			]			
PLMB_R_7N2	_		_				1		🖳	
15400.1_3S							1			
### EFA R 6S   Rough-In Electrical Fire Alarms: LVL6-S   5   5   07MAR08   13MAR08    EPWRD_R_7S   Rough-In Electrical Power Distribution: LVL7-S   5   5   07MAR08   13MAR08    WALLS_4S_6   Tape & Sand GWB-LVL4-S   5   5   07MAR08   13MAR08    WALLS_5S_4   Install Interior Wall Installation-LVL5-S   5   5   07MAR08   13MAR08    WALLS_5S_4   Install Interior Wall Installation-LVL5-S   5   5   07MAR08   13MAR08    #### INSTALLATION OF THE PROPRIES OF THE PROPR			_				1			
EPWRD_R_7S         Rough-In Electrical Power Distribution: LVL7-S         5         5         07MAR08         13MAR08           WALLS_4S_6         Tape & Sand GWB- LVL4-S         5         5         07MAR08         13MAR08           WALLS_6S_4         Install Interior Wall Insulation- LVL5-S         5         5         07MAR08         13MAR08           16000_420         Test Transformer & Switchgear, LVL6-S         5         15         07MAR08         27MAR08           16000_480         Connect Transf & Switchgear to Utilities, LVL7-S         5         15         07MAR08         27MAR08           PLMB_R_7S1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-S         5         20         07MAR08         03APR08		•	_	_			1			
WALLS_4S_6       Tape & Sand GWB- LVL4-S       5       5       07MAR08       13MAR08         WALLS_5S_4       Install Interior Wall Insulation- LVL5-S       5       5       07MAR08       13MAR08         16000_420       Test Transformer & Switchgear, LVL6-S       5       15       07MAR08       27MAR08         16000_460       Connect Transf & Switchgear to Utilities, LVL7-S       5       15       07MAR08       27MAR08         PLMB_R_7S1       Rough-In Hot & Cold Water Dist./Pipe, LVL7-S       5       20       07MAR08       03APR08				_			1			
WALLS 5S 4         Install Interior Wall Insulation- LVL5-S         5         5 07MAR08         13MAR08           16000_420         Test Transformer & Switchgear, LVL6-S         5         15 07MAR08         27MAR08           16000_460         Connect Transf & Switchgear to Utilities, LVL7-S         5         15 07MAR08         27MAR08           PLMB_R_7S1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-S         5         20 07MAR08         03APR08			_				1			
16000_420         Test Transformer & Switchgear, LVL6-S         5         15         07MAR08         27MAR08           16000_460         Connect Transf & Switchgear to Utilities, LVL7-S         5         15         07MAR08         27MAR08           PLMB_R_7S1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-S         5         20         07MAR08         03APR08		·	_				1			
16000_460         Connect Transf & Switchgear to Utilities, LVL7-S         5         15         07MAR08         27MAR08           PLMB_R_7S1         Rough-In Hot & Cold Water Dist./Pipe, LVL7-S         5         20         07MAR08         03APR08			_	_			1			
			5	15	07MAR08	27MAR08	]		📮	
PLMP D 792   Pough in Sanitary Waste & Vent Pine I M 7.9 5 20   17/MAD00   12/ADD00			_						📮	
		Rough-In Sanitary Waste & Vent Pipe, LVL7-S	5	20	07MAR08	03APR08	1		📮	
MILES_F_2N Start Install of Floor Finishes, LVL2-N 5 0 10MAR08	MILES_F_2N	Start Install of Floor Finishes, LVL2-N	5	0	10MAR08		<u> </u>			<u> </u>

Sheet 22 of 31

Modern   M							2000		2007		20	00
1004.05   2005	Activity ID	Activity Description	Cal	Orig	Early Start	Early Finish				AISIOINID	JIFIMA	MJJ
160006.2.72		·					<b></b>	· · · · · · · · · · · · · · · · · · ·	"" ""	<b>'''</b> '''	<u>                                     </u>	TII
5   1000.03, 20  Install Compress (LVL2-N)	10523.1_2N	Install Fire Extinguishers, LVL2-N	5	1	10MAR08	10MAR08	]   [					
180006_278				_			]				!	
BOST1_2N	_						<b>↓</b>				!	
DOST-11_2N				_			4					
							+ $ $ $ $					
MILES F 2S Start Install of Floor Finishes LIVL2S 6 0 1 11MARGB 11MARG							+ $+$ $+$					
194101_25						THINKING	+ $+$ $+$					
1902.1, 25				_		11MAR08	1				ĭ	
1900.5_2 S	10523.1 2S		_	1	11MAR08		1				i	
1000.01   25   11MARGS   12MARGS	16000.5_2S		5	1	11MAR08	11MAR08	1					
19003-2   25	09680.1_2S	Install Carpeting, LVL2-S	5	2	11MAR08	12MAR08	]					
50511.1.35   Install Celling Grid, LVIL3-S				_			]				!	
09051.1.23   Install Resilent Floor Tile, LVL-S   6 3   11MAR08   73MAR08   174MAR08	_						]					
TYTADO   TABLE   TAB			_	_			4					
TARGOL   PS   Label All Above Celling MEPs, FENTH-S   5   2   TSMARBS   SMARBS   DUCT   B PN   Insulate HVAC Branch Ducts   Penthose N   6   5   TSMARBS   SMARBS   SMARBS   FEAR   TSMARBS   TSMA							4				1 1 1-1	
DUCT_IB_PN	_						+ $ $ $ $				1 1 1-1	
FAN		-	_	_			+ $ $ $ $				1 1 1-1	
EFA_R_N ROUGHEST TEST SOUND REPORTED FOR A PARTS.    FENT STEET S											1 1 1-1	
18000_530   Test Transformer & Switchpear, PENT-N											1 1 1-1	
MILE F		-		15		01APR08	1					
1   1500.2   N   1   151.0   Resilient Wall Base (.VL2-N   5   1   150.0   1   1   150.0   1   1   150.0   1   1   150.0   1   1   1   1   1   1   1   1   1	16000_530	Test Transformer & Switchgear, PENT-N	5	15	12MAR08	01APR08	1					
15300.2 N	MILEF_P_4S	Finish Plumbing, LVL4-S	5	0		13MAR08	]   [					
ETEL R. 6N Rough-In Telecom Conduit: LVL6-N 5 3 3 3MARGIS 17MARGIS NSP W, 5N Install Bathroom Tile FloorWals, LVL4-N 5 5 13MARGIS 17MARGIS 15400.2 NN Install Bathroom Tile FloorWals, LVL4-N 5 5 13MARGIS 16MARGIS 16MARG				1	13MAR08	13MAR08	]				1 1 1 1	
INSP W 5N   Interior Wall inspection: 5N   5   3   33MAR08   37MAR08   37			_	_			]				1 1 1-1	
19310.1   4N				_			]				1 1 1-1	
15400.2 4N				_			1				1 1 1-1	
16000.2 3N   Install Lights, LVL3.N   5 6 6 3 3MARGIS   16MARGIS   16000.3 4N   Terminate Elect Dist & Power, LVL4-N   6 5 1 3MARGIS   16MARGIS   16MARG		·	_	_			4				1 1 1-1	
REDIOL   Property   Property   Residence							4				1 1 1-1	
EPWRC R. 7N   Rough-in Electrical Power to Ceilings: LVL7-N   5   5   13MAR08   19MAR08   18MAR08   18MA	_						+ $ $ $ $				1 1 1-1	
LONTRL_3N			_	_			+ $+$ $+$				1 1 1-1	
WALLS_N_5   Install GWB Walls & Soffits_LVL5-N   5   5   13MAR08   19MAR08   19MAR0							+ $ $ $ $				1 1 1-1	
WALLS_5N_5   Install GWB Walls & Soffts- LVL5-N   6   10   13MAR08   26MAR08   1   1   1   1   1   1   1   1   1	_						+ $+$ $+$				1 1 1-1	
1							1				1 1 1-1	
15500.3   3S   Install HVAC Diffusers, LVL3-S   5   1   14MAR08   14MAR08   1   1   1   1   1   1   1   1   1				_			1					
DOOR_408A	15300.2_3S	Install Sprinkler Heads, LVL3-S	5	1	14MAR08	14MAR08	1					
DOOR 409A	15500.3_3S	Install HVAC Diffusers, LVL3-S	_	1	14MAR08	14MAR08	]				1 1 1 1	
DOOR_410A- Hang Door 410A & Hardware	DOOR_408A-	Hang Door 408A & Hardware	5	1	14MAR08	14MAR08	]   [				!	
DOOR_411A-   Hang Door 411A & Hardware   5   1   14MAR0B   14MAR			_				]				!	
DOOR_412A	_			_			1				1 1 1'1	
DOOR_412B- Hang Door 412B & Hardware	_		_	_			4					
DOOR_413A-   Hang Door 413A & Hardware   5   1   14MAR08   14MAR08   14MAR08   DOOR_413B-   Hang Door 413B & Hardware   5   1   14MAR08   14MAR08   14MAR08   DOOR_414A-   Hang Door 413A & Hardware   5   1   14MAR08   14MAR08   14MAR08   ETEL_R_68   Rough-In Telecom Conduit: LVL6-S   5   3   14MAR08   1	_	~					4				;	
DOOR_413B- Hang Door 413B & Hardware		ů .		_			+ $ $ $ $				1 1 1 1	
DOOR_414A-         Hang Door 414A & Hardware         5         1         14MAR08         14MAR08           ETEL_R_6S         Rough-In Telecom Conduit: LVL6-S         5         3         14MAR08         18MAR08           INSP_W_5S         Interior Wall Inspection: 5S         5         3         14MAR08         18MAR08           0770.1_2N         Punchlist Floor, LVL2-N         5         5         14MAR08         20MAR08           08310.1_4S         Install Bathroom Tile Floor/Walls, LVL4-S         5         5         14MAR08         20MAR08           15400.2_4S         Punchlist Above Ceiling, LVL4-S         5         5         14MAR08         20MAR08           16000.2_3S         Install Lights, LVL3-S         5         5         14MAR08         20MAR08           16000.3_4S         Terminate Elect Dist & Power, LVL4-S         5         5         14MAR08         20MAR08           16000.3_4S         Terminate Elect Dist & Power, LVL4-S         5         5         14MAR08         20MAR08           16000.3_4S         Install Light Controls, LVL3-S         5         5         14MAR08         20MAR08           16000.1_4S         Install Ins		-	_	_			+ $ $ $ $					
ETEL_R_6S		-		_			+ $+$ $+$					
INSP_W_5S   Interior Wall Inspection: 5S   5   3   14MAR08   18MAR08   18MAR08   1977.0.1_2N   Punchlist Floor, LVL2-N   5   5   14MAR08   20MAR08   1840.0.2_4S   Install Bathroom Tile Floor/Walls, LVL4-S   5   5   14MAR08   20MAR08   18400.2_4S   Punchlist Above Ceiling, LVL4-S   5   5   14MAR08   20MAR08   18400.2_3S   Install Lights, LVL3-S   5   5   14MAR08   20MAR08   18400.2_3S   Install Lights, LVL3-S   5   5   14MAR08   20MAR08   18400.2_3S   Install Lights, LVL3-S   5   5   14MAR08   20MAR08   18400.2_3S   Install Light Controls, LVL4-S   5   5   14MAR08   20MAR08   18400.2_3S   Install Light Controls, LVL3-S   5   5   14MAR08   20MAR08   18400.2_3S   Install Light Controls, LVL3-S   5   5   14MAR08   20MAR08   18400.2_3S				_			+ $+$ $+$					
D1770.1_2N		-	5	3	14MAR08	18MAR08	1					
15400.2_4S	01770.1_2N		5	5	14MAR08	20MAR08	1					
16000.2_3S	09310.1_4S	Install Bathroom Tile Floor/Walls, LVL4-S	5	5	14MAR08	20MAR08	1				1 1 1-1	
16000.3 4S   Terminate Elect Dist & Power, LVL4-S   5   5   14MAR08   20MAR08   EPWRC_R_7S   Rough-In Electrical Power to Ceilings: LVL7-S   5   5   14MAR08   20MAR08   LCNTRL_3S   Install Light Controls, LVL3-S   5   5   14MAR08   20MAR08   LCNTRL_3S   Install Light Controls, LVL3-S   5   5   14MAR08   20MAR08   LCNTRL_3S	15400.2_4S	Punchlist Above Ceiling, LVL4-S	5	5							1 1 1 1	
EPWRC R_7S Rough-In Electrical Power to Ceilings: LVL7-S 5 5 14MAR08 20MAR08  LCNTRL_3S Install Light Controls, LVL3-S 5 5 14MAR08 20MAR08  WALLS_4S_7 Prime/Interm Paint & Fin. Band @ Ceiling- LVL4-S 5 5 14MAR08 20MAR08  WALLS_6S_5 Install GWB Walls & Soffits- LVL5-S 5 10 14MAR08 27MAR08  U7770.1_2S Punchlist Floor, LVL2-S 5 5 10 14MAR08 21MAR08  WALLS_6N_3 Install In-Wall Wood Blocking- LVL6-N 5 2 18MAR08 14MAR08  WALLS_6N_3 Install In-Wall Wood Blocking- LVL6-N 5 5 18MAR08 24MAR08  I 16000.1_6N Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-N 5 0 19MAR08  WALLS_6S_3 Install In-Wall Wood Blocking- LVL6-S 5 2 19MAR08 20MAR08  WALLS_6S_3 Install In-Wall Wood Blocking- LVL6-S 5 5 19MAR08 25MAR08  WALLS_PS_6 Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-S 5 5 19MAR08 25MAR08  WALLS_PS_6 Tape & Sand GWB- PENTH-S 5 5 5 19MAR08 25MAR08  DOOR_401A- Hang Door 401A & Hardware 5 1 20MAR08 20MAR08  DOOR_403A- Hang Door 403A & Hardware 5 1 20MAR08 20MAR08			_	5			-				1 1 1-1	
LCNTRL_3S				_			-					
WALLS_4S_7       Prime/Interm Paint & Fin. Band @ Ceiling- LVL4-S       5       5       14MAR08       20MAR08         WALLS_5S_5       Install GWB Walls & Soffits- LVL5-S       5       10       14MAR08       27MAR08         01770.1_2S       Punchlist Floor, LVL2-S       5       5       17MAR08       21MAR08         WALLS_6N_3       Install In-Wall Wood Blocking- LVL6-N       5       2       18MAR08       19MAR08         I6000.1_6N       Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-N       5       5       18MAR08       24MAR08         MILEF_P_4N       Finish Plumbing, LVL4-N       5       0       19MAR08         WALLS_6S_3       Install In-Wall Wood Blocking- LVL6-S       5       2       19MAR08         WALLS_6S_3       Install In-Wall Wood Blocking- LVL6-S       5       5       19MAR08         WALLS_9S_6       Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-S       5       5       19MAR08         WALLS_9S_6       Tape & Sand GWB- PENTH-S       5       5       19MAR08       25MAR08         DOOR_401A-       Hang Door 401A & Hardware       5       1       20MAR08       20MAR08         DOOR_403A-       Hang Door 401A & Hardware       5       1       20MAR08       20MAR08			_	_								
WALLS_5S_5         Install GWB Walls & Soffits - LVL5-S         5         10         14MAR08         27MAR08           01770.1_2S         Punchlist Floor, LVL2-S         5         5         17MAR08         21MAR08           WALLS_6N_3         Install In-Wall Wood Blocking- LVL6-N         5         2         18MAR08         18MAR08           I 6000.1_6N         Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-N         5         5         18MAR08         24MAR08           MILEF_P_4N         Finish Plumbing, LVL4-N         5         0         19MAR08           WALLS_6S_3         Install In-Wall Wood Blocking- LVL6-S         5         2         19MAR08         20MAR08           I 6000.1_6S         Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-S         5         5         19MAR08         25MAR08           WALLS_PS_6         Tape & Sand GWB-PENTH-S         5         5         19MAR08         25MAR08           DOOR_401A-         Hang Door 401A & Hardware         5         1         20MAR08         20MAR08           DOOR_403A-         Hang Door 403A & Hardware         5         1         20MAR08         20MAR08			_	_			-				1 1 1-1	
01770.1_2S         Punchlist Floor, LVL2-S         5         5         17MAR08         21MAR08           WALLS_6N_3         Install In-Wall Wood Blocking- LVL6-N         5         2         18MAR08         19MAR08           16000.1_6N         Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-N         5         5         18MAR08         24MAR08           MILEF_P_4N         Finish Plumbing, LVL4-N         5         0         19MAR08           WALLS_6S_3         Install In-Wall Wood Blocking- LVL6-S         5         2         19MAR08           WALLS_6S_3         Install In-Wall Wood Blocking- LVL6-S         5         5         19MAR08           WALLS_BS_6         Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-S         5         5         19MAR08           WALLS_PS_6         Tape & Sand GWB- PENTH-S         5         5         19MAR08         25MAR08           DOOR_401A-         Hang Door 401A & Hardware         5         1         20MAR08         1           DOOR_403A-         Hang Door 403A & Hardware         5         1         20MAR08         20MAR08				_			-					
WALLS_6N_3         Install In-Wall Wood Blocking- LVL6-N         5         2         18MAR08         19MAR08           16000.1_6N         Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-N         5         5         18MAR08         24MAR08           MILEF_P_4N         Finish Plumbing, LVL4-N         5         0         19MAR08           WALLS_6S_3         Install In-Wall Wood Blocking- LVL6-S         5         2         19MAR08         20MAR08           I6000.1_6S         Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-S         5         5         19MAR08         25MAR08           WALLS_PS_6         Tape & Sand GWB- PENTH-S         5         5         19MAR08         25MAR08           DOOR_401A-         Hang Door 401A & Hardware         5         1         20MAR08         20MAR08           DOOR_403A-         Hang Door 403A & Hardware         5         1         20MAR08         20MAR08			_				- 1					
16000.1 6N Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-N 5 5 18MAR08 24MAR08  MILEF_P_4N Finish Plumbing, LVL4-N 5 0 19MAR08  WALLS 6S 3 Install In-Wall Wood Blooking- LVL6-S 5 2 19MAR08 20MAR08  16000.1_6S Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-S 5 5 19MAR08 25MAR08  WALLS_PS_6 Tape & Sand GWB- PENTH-S 5 5 19MAR08 25MAR08  DOOR_401A- Hang Door 401A & Hardware 5 1 20MAR08 20MAR08  DOOR_403A- Hang Door 403A & Hardware 5 1 20MAR08 20MAR08			_	_			-				1 1 1 -1	
MILEF_P_4N         Finish Plumbing, LVL4-N         5         0         19MAR08           WALLS_6S_3         Install In-Wall Wood Blocking- LVL6-S         5         2         19MAR08         20MAR08           16000_1_6S         Pull Tele Line- Elev, F. Alrms, Tmp Cntrl, LVL6-S         5         5         19MAR08         25MAR08           WALLS_PS_6         Tape & Sand GWB- PENTH-S         5         5         19MAR08         25MAR08           DOOR_401A-         Hang Door 401A & Hardware         6         1         20MAR08         20MAR08           DOOR_403A-         Hang Door 403A & Hardware         5         1         20MAR08         20MAR08		•		_			-				1 1 1 - 1	
WALLS_6S_3         Install In-Wall Wood Blocking- LVL6-S         5         2         19MAR08         20MAR08           16000.1_6S         Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL6-S         5         5         19MAR08         25MAR08           WALLS_PS_6         Tape & Sand GWB- PENTH-S         5         5         19MAR08         25MAR08           DOOR_401A-         Hang Door 401A & Hardware         5         1         20MAR08         20MAR08           DOOR_403A-         Hang Door 403A & Hardware         6         1         20MAR08         20MAR08			_									
16000.1_6S         Pull Tele Line- Elev, F.Alrms, Tmp Ontrl, LVL6-S         5         5         19MAR08         25MAR08           WALLS_PS_6         Tape & Sand GWB- PENTH-S         5         5         19MAR08         25MAR08           DOOR_401A-         Hang Door 401A & Hardware         5         1         20MAR08         20MAR08           DOOR_403A-         Hang Door 403A & Hardware         5         1         20MAR08         20MAR08		-	_	_	19MAR08		-				1 1 1 1	
WALLS_PS_6     Tape & Sand GWB- PENTH-S     5     5     19MAR08     25MAR08       DOOR_401A-     Hang Door 401A & Hardware     5     1     20MAR08     20MAR08       DOOR_403A-     Hang Door 403A & Hardware     5     1     20MAR08     20MAR08				_								
DOOR_403A- Hang Door 403A & Hardware 5 1 20MAR08 20MAR08		Tape & Sand GWB- PENTH-S	5	5	19MAR08	25MAR08	]				1 1 1 -1	
		9	5	1	20MAR08	20MAR08						
		-	_	1							!	
DOOR_404A-         Hang Door 404A & Hardware         5         1         20MAR08         20MAR08  <	DOOR_404A-	Hang Door 404A & Hardware	5	1	20MAR08	20MAR08					<u> </u>	

Sheet 23 of 31

Activity	Activity	Cal	Orig	Early	Early	2006 2007 2008 NID JIFIMIAIMIJIJU
ID DOOR 405A-	Description Hang Door 405A & Hardware	ID 5	Dur 1	Start 20MAR08	Finish 20MAR08	
_	Hang Door 407A & Hardware	5	1	20MAR08	20MAR08	1     <mark> </mark>
	Install Ceiling Tiles, LVL3-N	5	2	20MAR08	21MAR08	1
	Install Fire Extinguisher Cabinets, LVL4-N	5	2	20MAR08	21MAR08	]
	Install Plumbing Fixtures, LVL4-N	5	2	20MAR08	21MAR08	.     <mark> </mark>
	Pressure Test HVAC Piping System, LVL6-N Ceiling Insp: Building, LVL4-N	5	3	20MAR08 20MAR08	21MAR08 24MAR08	<del>{</del>
	Install Wood Veneer Cladding, LVL4-N	5	3	20MAR08	24MAR08	1
	Above Ceiling Insp: Plumb, LVL4-N	5	3	20MAR08	24MAR08	1
16000.4_3N	Above Ceiling Insp: Elect, LVL3-N	5	3	20MAR08	24MAR08	]
	Wall Inspection: Electrical, 6N	5	3	20MAR08	24MAR08	]     <mark> </mark>
	Wall Inspection: Plumbing, 6N	5	3	20MAR08	24MAR08	]
	Insulate HVAC Branch Ducts: LVL4-N	5	5	20MAR08 20MAR08	26MAR08 26MAR08	<del> </del>
	Insulate HVAC Duct Mains: LVL4-N Rough-In Electrical Power to Walls: LVL7-N	5	5	20MAR08	26MAR08	<del> </del>
	Insulate HVAC Branch Lines: LVL4-N	5	5	20MAR08	26MAR08	i     <mark> </mark>
HVAC_IM_4N	Insulate HVAC Piping Mains: LVL4-N	5	5	20MAR08	26MAR08	<u> </u>
	Frame Metal Stud Soffits- LVL6-N	5	5	20MAR08	26MAR08	]
	Install Ceiling Tiles, LVL3-S	5	2	21MAR08	24MAR08	<u>.</u>     <mark>.                                 </mark>
	Install Fire Extinguisher Cabinets, LVL4-S	5	2	21MAR08	24MAR08	{
	Install Plumbing Fixtures, LVL4-S Pressure Test HVAC Piping System, LVL6-S	5	2	21MAR08 21MAR08	24MAR08 24MAR08	<del> </del>
	Ceiling Insp: Building, LVL4-S	5	3	21MAR08	25MAR08	1     <mark> </mark>
	Above Ceiling Insp: Plumb, LVL4-S	5	3	21MAR08	25MAR08	1
16000.4_3S	Above Ceiling Insp: Elect, LVL3-S	5	3	21MAR08	25MAR08	]
	Wall Inspection: Electrical, 6S	5	3	21MAR08	25MAR08	]
	Wall Inspection: Plumbing, 6S	5	3	21MAR08	25MAR08	.
	Insulate HVAC Branch Ducts: LVL4-S Insulate HVAC Duct Mains: LVL4-S	5	5	21MAR08 21MAR08	27MAR08 27MAR08	<del> </del>
	Rough-In Electrical Power to Walls: LVL7-S	5	5	21MAR08	27MAR08	1
	Insulate HVAC Branch Lines: LVL4-S	5	5	21MAR08	27MAR08	1
	Insulate HVAC Piping Mains: LVL4-S	5	5	21MAR08	27MAR08	]
	Frame Metal Stud Soffits- LVL6-S	5	5	21MAR08	27MAR08	]
	Install Toilet Partitions, LVL4-N	5	1	24MAR08	24MAR08	<del>{</del>
	Install Fire Alarm Heads, LVL3-N Connect HVAC Piping to VAV/FCUs, LVL6-N	5	5	24MAR08 24MAR08	25MAR08 28MAR08	<del> </del>
	Paint Finish Coat- LVL3-N	5	5	24MAR08	28MAR08	<u>                                     </u>
	Install Toilet Partitions, LVL4-S	5	1	25MAR08	25MAR08	1
10801.2_4N	Install Toilet Accessories, LVL4-N	5	1	25MAR08	25MAR08	1
	Install Fire Alarm Heads, LVL3-S	5	2	25MAR08	26MAR08	<u>.</u>
	Connect HVAC Piping to VAV/FCUs, LVL6-S	5	5	25MAR08	31MAR08	.     <mark> </mark>
	Paint Finish Coat- LVL3-S Install Toilet Accessories, LVL4-S	5	5	25MAR08 26MAR08	31MAR08 26MAR08	<del> </del>
	Install Plumbing Fixtures, PENTH-S	5	2	26MAR08	27MAR08	1     1   1
	Label All Above Ceiling MEPs, PENTH-N	5	2	26MAR08	27MAR08	1
	Rough-In Telecom Conduit: PENT-N	5	3	26MAR08	28MAR08	]
_	Terminate Elect Dist & Power, PENTH-S	5	5	26MAR08	01APR08	]
	Install Fire Alarm Heads, PENTH-N	5	5	26MAR08	01APR08 01APR08	.     <mark>.                                </mark>
	Finish Natural Gas Piping, PENTH-S Finish Medical Air Piping, PENTH-S	5	5	26MAR08 26MAR08	01APR08	<del> </del>
	Finish Vacuum Piping, PENTH-S	5	5	26MAR08	01APR08	1
	Prime/Interm Paint & Fin. Band @ Ceiling- PENT-S	5	5	26MAR08	01APR08	1
	Install Wood Veneer Cladding, LVL3-S	5	8	26MAR08	04APR08	1     <mark> </mark>
	Label All Above Ceiling MEPs, LVL4-N	5	2	27MAR08	28MAR08	]     <mark> </mark>                             <u>!</u>
	Install Granite Clad @ N.Elev. Bank, LVL5-N	5	5	27MAR08	02APR08	.
EFA_R_7N WALLS 5N 6	Rough-In Electrical Fire Alarms: LVL7-N Tape & Sand GWB- LVL5-N	5	5	27MAR08 27MAR08	02APR08 02APR08	<del> </del>
	Install Interior Wall Insulation- LVL6-N	5	5	27MAR08	02APR08	<del> </del>
16000_470	Test Transformer & Switchgear, LVL7-N	5	15	27MAR08	16APR08	1     <mark> </mark>                             <del> </del>
15400.1_4S	Label All Above Ceiling MEPs, LVL4-S	5	2	28MAR08	31MAR08	]     <mark> </mark>
EFA_R_7S	Rough-In Electrical Fire Alarms: LVL7-S	5	5	28MAR08	03APR08	1     <mark> </mark>
	Tape & Sand GWB- LVL5-S	5	5	28MAR08	03APR08	{
WALLS_6S_4 16000 480	Install Interior Wall Insulation- LVL6-S Test Transformer & Switchgear, LVL7-S	5	5 15	28MAR08 28MAR08	03APR08 17APR08	{
	Start Install of Floor Finishes, LVL3-N	5	0	31MAR08	17AFRU8	<del> </del>
	Install Signage, LVL3-N	5	1	31MAR08	31MAR08	1     <mark> </mark>
10523.1_3N	Install Fire Extinguishers, LVL3-N	5	1	31MAR08	31MAR08	1     <mark> </mark>
16000.5_3N	Install Electrical Wall Devices, LVL3-N	5	1	31MAR08	31MAR08	]     <mark> </mark>
	Install Carpeting, LVL3-N	5	2	31MAR08	01APR08	]     <mark> </mark>
16000.8 3N	Install Fire Alarms, LVL3-N	5	2	31MAR08	01APR08	

Sheet 24 of 31

						2007 2009
Activity ID	Activity Description	Cal	Orig Dur	Early Start	Early Finish	2006 2007 2008 NIDIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJU
WALLS_PN_3	Install In-Wall Wood Blocking- PENTH-N	5	2	31MAR08	01APR08	
09511.1_4N	Install Ceiling Grid, LVL4-N	5	3	31MAR08	02APR08	1
09651.1_3N	Install Resilient Floor Tile, LVL3-N	5	3	31MAR08	02APR08	1
16000.1_PN	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, PENT-N	5	5	31MAR08	04APR08	]
MILEF_P_PS	Finish Plumbing, PENTH-S	5	0		01APR08	]
MILES_F_3S	Start Install of Floor Finishes, LVL3-S	5	0	01APR08		]
10410.1_3S	Install Signage, LVL3-S	5	1	01APR08	01APR08	
10523.1_3S	Install Fire Extinguishers, LVL3-S	5	1	01APR08	01APR08	1
16000.5_3S	Install Electrical Wall Devices, LVL3-S	5	1	01APR08	01APR08	<u>.</u>
09680.1_3S	Install Carpeting, LVL3-S	5	2	01APR08	02APR08	4
10265.1_3S	Install SS Wall Bumpers & Corners, LVL3-S	5	2	01APR08	02APR08	4
16000.8_3S	Install Fire Alarms, LVL3-S	5	2	01APR08	02APR08	↓     <mark> </mark>
09511.1_4S	Install Ceiling Grid, LVL4-S	5	3	01APR08	03APR08	4     <mark>■</mark>
09651.1_3S	Install Resilient Floor Tile, LVL3-S	5	3	01APR08	03APR08	4     <mark>-                                 </mark>
1450	Grading/Paving/Curb	5	40	01APR08*	26MAY08	4     <mark>-                                 </mark>
DOOR_803A-	Hang Door 803A & Hardware	5	1	02APR08	02APR08	4     •   1
DOOR_804A-	Hang Door 804A & Hardware	5	1	02APR08	02APR08 02APR08	
DOOR_804B- DOOR 805A-	Hang Door 804B & Hardware	5	1	02APR08 02APR08	02APR08	4     •
	Hang Door 805A & Hardware	_	_		02APR08	
DOOR_805B- DOOR_806B-	Hang Door 805B & Hardware Hang Door 806B & Hardware	5	1	02APR08 02APR08	02APR08	┨
DOOR_806C-	Hang Door 808C & Hardware	5	1	02APR08	02APR08	┨
DOOR_807A-	Hang Door 807A & Hardware	5	1	02APR08	02APR08	┨
DOOR 807B-	Hang Door 807B & Hardware	5	1	02APR08	02APR08	<del> </del>
DOOR 808A-	Hang Door 808A & Hardware	5	1	02APR08	02APR08	┫
DOOR 808B-	Hang Door 808B & Hardware	5	1	02APR08	02APR08	1     1   1
10522.1 PS	Install Fire Extinguisher Cabinets, PENTH-S	5	2	02APR08	03APR08	1     1   1
15500.1 PN	Pressure Test HVAC Piping System, PENTH-N	5	2	02APR08	03APR08	1     1   1
INSP EW PN	Wall Inspection: Electrical, PN	5	3	02APR08	04APR08	<del>1</del>     <mark> </mark>
	Wall Inspection: Plumbing, PN	5	3	02APR08	04APR08	1     1   1
16000.2 PS	Install Lights, PENTH-S	5	5	02APR08	08APR08	1     1   1
LCNTRL PS	Install Light Controls, PENTH-S	5	5	02APR08	08APR08	1
_	Frame Metal Stud Soffits- PENTH-N	5	5	02APR08	08APR08	1
	Paint Finish Coat- PENTH-S	5	5	02APR08	08APR08	1
15500-TEST	Test Chemical Treatment System	5	15	02APR08	22APR08	1
15500_30	Test CHW & HW Pumps	5	15	02APR08	22APR08	1
15501-TEST	Test Chillers (x3)	5	15	02APR08	22APR08	1
15502-TEST	Test Air Handling Units (3 & 4)	5	15	02APR08	22APR08	1
15503-TEST	Test Gas Fired HW Heaters	5	15	02APR08	22APR08	1
15504-TEST	Test Process Chiller	5	15	02APR08	22APR08	]
15505-TEST	Test Fans	5	15	02APR08	22APR08	1
15507-TEST	Test Air Handling Units (1 & 2)	5	15	02APR08	22APR08	]
MILEF_P_5S	Finish Plumbing, LVL5-S	5	0		03APR08	]
09653.1_3N	Install Resilient Wall Base, LVL3-N	5	1	03APR08	03APR08	]
15300.2_4N	Install Sprinkler Heads, LVL4-N	5	1	03APR08	03APR08	1
ETEL_R_7N	Rough-In Telecom Conduit: LVL7-N	5	3	03APR08	07APR08	<u>.</u>
INSP_W_6N	Interior Wall Inspection: 6N	5	3	03APR08	07APR08	<u> </u>
09310.1_5N	Install Bathroom Tile Floor/Walls, LVL5-N	5	5	03APR08	09APR08	]
15400.2_5N	Punchlist Above Ceiling, LVL5-N	5	5	03APR08	09APR08	1
16000.2_4N	Install Lights, LVL4-N	5	5	03APR08	09APR08	4
16000.3_5N	Terminate Elect Dist & Power, LVL5-N	5	5	03APR08 03APR08	09APR08	┨
LCNTRL_4N	Install Light Controls, LVL4-N	5	5		09APR08 09APR08	4     ■
	Prime/Interm Paint & Fin. Band @ Ceiling- LVL5-N	0	5	03APR08		┨
WALLS_6N_5	Install GWB Walls & Soffits- LVL6-N Install Resilient Wall Base, LVL3-S	5	10	03APR08 04APR08	16APR08 04APR08	4     ■
09653.1_3S 15300.2 4S	-	5	1	04APR08		
15500.2_4S 15500.3_4S	Install Sprinkler Heads, LVL4-S Install HVAC Diffusers, LVL4-S	5	1	04APR08	04APR08 04APR08	
	Hang Door 508A & Hardware	5	1	04APR08	04APR08	
DOOR_508A-	Hang Door 509A & Hardware	5	1	04APR08	04APR08	┨
DOOR_500A-	Hang Door 510A & Hardware	5	1	04APR08	04APR08	┫
DOOR_510A-	Hang Door 511A & Hardware	5	1	04APR08	04APR08	┨
DOOR_512A-	Hang Door 511A & Hardware	5	1	04APR08	04APR08	┫
DOOR_512A-	Hang Door 512A & Hardware Hang Door 512B & Hardware	5	1	04APR08	04APR08	1     1   1
DOOR_5126-	Hang Door 513A & Hardware	5	1	04APR08	04APR08	┫
DOOR_513B-	Hang Door 513B & Hardware	5	1	04APR08	04APR08	1     1   1
DOOR 514A-	Hang Door 514A & Hardware	5	1	04APR08	04APR08	1
ETEL_R_7S	Rough-In Telecom Conduit: LVL7-S	5	3	04APR08	08APR08	1     1   1
INSP W 6S	Interior Wall Inspection: 6S	5	3	04APR08	08APR08	1     1   1
01770.1 3N	Punchlist Floor, LVL3-N	5	5	04APR08	10APR08	1     1   1
09310.1_5S	Install Bathroom Tile Floor/Walls, LVL5-S	5	5	04APR08	10APR08	1
	, and the contract of the cont					

Sheet 25 of 31

						2005 2007 2009
Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	2006 2007 2008 NIDIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJI
15400.2_5S	Punchlist Above Ceiling, LVL5-S	5	5	04APR08	10APR08	
15500.2_PN	Connect HVAC Piping to VAV/FCUs, PENTH-N	5	5	04APR08	10APR08	<u> </u>
16000.2_4S	Install Lights, LVL4-S	5	5	04APR08	10APR08	7
16000.3_5S LCNTRL_4S	Terminate Elect Dist & Power, LVL5-S Install Light Controls, LVL4-S	5	5	04APR08	10APR08 10APR08	-     <b>                                 </b>
WALLS 5S 7	Prime/Interm Paint & Fin. Band @ Ceiling- LVL5-S	5	5	04APR08 04APR08	10APR08	
WALLS 6S 5	Install GWB Walls & Soffits- LVL6-S	5	10	04APR08	17APR08	<del> </del>
01770.1_3S	Punchlist Floor, LVL3-S	5	5	07APR08	11APR08	┥
WALLS 7N 3	Install In-Wall Wood Blocking- LVL7-N	5	2	08APR08	09APR08	1
16000.1_7N	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL7-N	5	5	08APR08	14APR08	1
MILEF_P_5N	Finish Plumbing, LVL5-N	5	0		09APR08	1
MILES_F_PS	Start Install of Floor Finishes, PENTH-S	5	0	09APR08		]
10410.1_PS	Install Signage, PENTH-S	5	1	09APR08	09APR08	1
10523.1_PS	Install Fire Extinguishers, PENTH-S	5	1	09APR08	09APR08	4     •
16000.5_PS	Install Electrical Wall Devices, PENTH-S	5	1	09APR08	09APR08	4     <b>■</b>
WALLS_7S_3	Install In-Wall Wood Blocking- LVL7-S	5	2	09APR08	10APR08	
09651.1_PS 16000.4 PS	Install Resilient Floor Tile, PENTH-S Above Ceiling Insp: Elect, PENTH-S	5	3	09APR08 09APR08	11APR08 11APR08	
16000.4_FS	Pull Tele Line- Elev, F.Alrms, Tmp Cntrl, LVL7-S	5	5	09APR08	15APR08	
16000.8 PS	Install Fire Alarms, PENTH-S	5	5	09APR08	15APR08	┥
WALLS_PN_4	Install Interior Wall Insulation- PENTH-N	5	5	09APR08	15APR08	<del> </del>
DOOR_501A-	Hang Door 501A & Hardware	5	1	10APR08	10APR08	†     <mark> </mark>
DOOR_503A-	Hang Door 503A & Hardware	5	1	10APR08	10APR08	<u> </u>
DOOR_504A-	Hang Door 504A & Hardware	5	1	10APR08	10APR08	]
DOOR_505A-	Hang Door 505A & Hardware	5	1	10APR08	10APR08	]
DOOR_507A-	Hang Door 507A & Hardware	5	1	10APR08	10APR08	<u>]</u>
09511.2_4N	Install Ceiling Tiles, LVL4-N	5	2	10APR08	11APR08	]
10522.1_5N 10801.1 5N	Install Fire Extinguisher Cabinets, LVL5-N	5	2	10APR08 10APR08	11APR08 11APR08	
15500.1 7N	Install Plumbing Fixtures, LVL5-N Pressure Test HVAC Piping System, LVL7-N	5	2	10APR08	11APR08	
01300.1_7N	Ceiling Insp: Building, LVL5-N	5	3	10APR08	14APR08	┥
06402.1 5N	Install Wood Veneer Cladding, LVL5-N	5	3	10APR08	14APR08	┥
15400.3 5N	Above Ceiling Insp: Plumb, LVL5-N	5	3	10APR08	14APR08	<u> </u>
16000.4_4N	Above Ceiling Insp: Elect, LVL4-N	5	3	10APR08	14APR08	1
INSP_EW_7N	Wall Inspection: Electrical, 7N	5	3	10APR08	14APR08	]
INSP_PW_7N	Wall Inspection: Plumbing, 7N	5	3	10APR08	14APR08	]     <mark> </mark>
DUCT_IB_5N	Insulate HVAC Branch Ducts: LVL5-N	5	5	10APR08	16APR08	]     <b> </b>
DUCT_IM_5N	Insulate HVAC Duct Mains: LVL5-N	5	5	10APR08	16APR08	
HVAC_IB_5N	Insulate HVAC Branch Lines: LVL5-N	5	5	10APR08 10APR08	16APR08 16APR08	<del>-</del>
HVAC_IM_5N WALLS_7N_2	Insulate HVAC Piping Mains: LVL5-N Frame Metal Stud Soffits- LVL7-N	5	5	10APR08	16APR08	
15500-PRC9	Procure/Deliver: Linear Diffusers	5	50	10APR08	18JUN08	┨
09511.2 4S	Install Ceiling Tiles, LVL4-S	5	2	11APR08	14APR08	┫
10522.1_5S	Install Fire Extinguisher Cabinets, LVL5-S	5	2	11APR08	14APR08	<u> </u>
10801.1_5S	Install Plumbing Fixtures, LVL5-S	5	2	11APR08	14APR08	1
15500.1_7S	Pressure Test HVAC Piping System, LVL7-S	5	2	11APR08	14APR08	]     <mark> </mark>
01300.1_5S	Ceiling Insp: Building, LVL5-S	5	3	11APR08	15APR08	]     <mark> </mark>
15400.3_5S	Above Ceiling Insp: Plumb, LVL5-S	5	3	11APR08	15APR08	]
16000.4_4S	Above Ceiling Insp: Elect, LVL4-S	5	3	11APR08	15APR08	1
INSP_EW_7S	Wall Inspection: Electrical, 7S	5	3	11APR08	15APR08	
INSP_PW_7S DUCT IB 5S	Wall Inspection: Plumbing, 7S Insulate HVAC Branch Ducts: LVL5-S	5	5	11APR08 11APR08	15APR08 17APR08	┥
	Insulate HVAC Duct Mains: LVL5-S	5		11APR08		┥
	Insulate HVAC Branch Lines: LVL5-S	5	5	11APR08	17APR08	┥
	Insulate HVAC Piping Mains: LVL5-S	5	5	11APR08	17APR08	┨
WALLS_7S_2	Frame Metal Stud Soffits- LVL7-S	5	5	11APR08	17APR08	1     1   1
09653.1_PS	Install Resilient Wall Base, PENTH-S	5	1	14APR08	14APR08	]
10155.1_5N	Install Toilet Partitions, LVL5-N	5	1	14APR08	14APR08	<u>]</u>     <mark> </mark>
16000.7_4N	Install Fire Alarm Heads, LVL4-N	5	2	14APR08	15APR08	<u> </u>
15500.2_7N	Connect HVAC Piping to VAV/FCUs, LVL7-N	5	5	14APR08	18APR08	<u>.</u>     <mark>.</mark>
WALLS_4N_8	Paint Finish Coat- LVL4-N	5	5	14APR08	18APR08	4     1   1
10155.1_5S	Install Toilet Partitions, LVL5-S	5	1	15APR08	15APR08	4     <b> </b>
10801.2_5N 16000.7_4S	Install Toilet Accessories, LVL5-N Install Fire Alarm Heads, LVL4-S	5	1 2	15APR08 15APR08	15APR08 16APR08	4
		5	5	15APR08	21APR08	┥
	IConnect HVAC Pining to VAV/ECUE 1 VL7 S			I JUNITRUG	ZIMERUS	
15500.2_7S	Connect HVAC Piping to VAV/FCUs, LVL7-S Paint Finish Coat- I VI 4-S		_		21APR09	┥
15500.2_7S WALLS_4S_8	Paint Finish Coat- LVL4-S	5	5	15APR08	21APR08 16APR08	<b>」</b>
15500.2_7S WALLS_4S_8 10801.2_5S	Paint Finish Coat- LVL4-S Install Toilet Accessories, LVL5-S		_	15APR08 16APR08	16APR08	<b>」</b>
15500.2_7S WALLS_4S_8	Paint Finish Coat- LVL4-S	5 5	5	15APR08		

Sheet 26 of 31

Activity	ription Ps, LVL5-N vv. Bank, LVL6-N In- LVL7-N Ps, LVL5-S in- LVL7-S s, LVL4-N VL4-N vL4-N vL4-N vL4-N vL4-S corners, LVL4-S	Cal ID  5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Orig Dur 2 5 5 5 5 2 5 5 5 5 5 5 5 5 5 5 5 5 5	Early Start 17APR08 17APR08 17APR08 17APR08 17APR08 18APR08 18APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08	Early Finish 18APR08 23APR08 23APR08 23APR08 21APR08 24APR08 24APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 23APR08 23APR08 23APR08		IAIM I	2007 VIJA	SON		
04851.1 €N Install Granite Clad ⊚ N.Elev WALLS €N € Tape & Sand GWB-LVL6-N WALLS ₹N, € Install Interior Wall Insulation-15400.1 ₹S Label All Above Ceiling MEP; WALLS €S € Tape & Sand GWB-LVL6-S WALLS ₹S € Install Interior Wall Insulation-MILES ₹N Start Install of Floor Finishes, 10410.1 ⁴N Install Signage, LVL4-N 10523.1 ⁴N Install Signage, LVL4-N 10523.1 ⁴N Install Electrical Wall Devices 09680.1 ⁴N Install Carpeting, LVL4-N 16000.8 ⁴N Install Carpeting, LVL4-N 16000.8 ⁴N Install Carpeting, LVL4-N 16000.8 ⁴N Install Ceiling Grid, LVL5-N 109511.1 ⁵N Install Resilient Floor Tile, LV MILES ₹J Start Install of Floor Finishes, 10410.1 ⁴S Install Signage, LVL4-S 10523.1 ⁴S Install Signage, LVL4-S 10523.1 ⁴S Install Fire Extinguishers, LVI 16000.5 ⁴S Install Electrical Wall Devices 09680.1 ⁴S Install Fire Extinguishers, LVI 16000.5 ⁴S Install Fire Extinguishers, LVI 16000.5 ⁴S Install Fire Extinguishers, LVI 16000.5 ⁴S Install Electrical Wall Devices 09680.1 ⁴S Install Fire Alamms, LVL4-S 10265.1 ⁴S Install Fire Alamms, LVL4-S 10265.1 ⁴S Install Fire Alamms, LVL4-S 10265.1 ⁴S Install Resilient Floor Tile, LV 1770.1 ₱S Punchlist Floor, PENTH-S MILEF ₹P €S Finish Plumbing, LVL6-S 109653.1 ⁴N Install Resilient Wall Base, LV 15300.2 €N Install Sprinkler Heads, LVL5 INSP ₹M, Install Electrical Wall Devices 109653.1 ⁴N Install Resilient Wall Base, LV 15300.2 €N Install Bathroom Tile Floor/W 15400.2 €N Punchlist Above Ceiling, LVL5-N 16000.2 €N Install Lights, LVL5-N	ev. Bank, LVL6-N  In- LVL7-N  Ps, LVL5-S  in- LVL7-S  s, LVL4-N  VL4-N  VL4-N  s, LVL4-S  VL4-S  Corners, LVL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 5 5 5 5 5 0 1 1 1 1 2 2 3 3 3 0 1 1 1 1 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3	17APR08 17APR08 17APR08 18APR08 18APR08 18APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	23APR08 23APR08 23APR08 21APR08 24APR08 24APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08					•	
WALLS_6N_6         Tape & Sand GWB- LVL6-N           WALLS_7N_4         Install Interior Wall Insulation           15400.1_6S         Label All Above Ceiling MEP;           WALLS_6S_6         Tape & Sand GWB- LVL6-S           WALLS_6S_6         Tape & Sand GWB- LVL6-S           WALLS_7S_4         Install Interior Wall Insulation           MILES_F_4N         Start Install of Floor Finishes,           10410.1_4N         Install Signage, LVL4-N           10503.1_4N         Install Electrical Wall Devices           0680.1_4N         Install Electrical Wall Devices           0680.1_4N         Install Geiling Grid, LVL4-N           09651.1_5N         Install Resilient Floor Tile, LV           MILES_F_4S         Start Install of Floor Finishes,           10410.1_4S         Install Signage, LVL4-S           10523.1_4S         Install Fire Extinguishers, LVI           10600.5_4S         Install Electrical Wall Devices           09680.1_4S         Install Electrical Wall Devices           09680.1_4S         Install Signage, LVL4-S           10265.1_4S         Install Signage, LVL4-S           09651.1_4S         Install Signage, LVL4-S           09651.1_4S         Install Resilient Floor Tile, LV           01770.1_PS         Punchlist Floor, PENTH-S      <	In-LVL7-N Ps, LVL5-S in-LVL7-S s, LVL4-N /L4-N vs, LVL4-N  VL4-N s, LVL4-S /L4-S Corners, LVL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 5 2 5 5 0 1 1 1 2 2 3 3 0 1 1 1 1 2 2 3 3 3 0 1 1 1 1 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	17APR08 17APR08 18APR08 18APR08 18APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	23APR08 23APR08 21APR08 24APR08 24APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 23APR08 22APR08 22APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08					•	
WALLS_7N_4	n- LVL7-N Ps, LVL5-S n- LVL7-S s, LVL4-N /L4-N vs, LVL4-N  VL4-N s, LVL4-S /L4-S corners, LVL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 2 5 5 0 1 1 1 1 2 2 3 3 0 1 1 1 1 1 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	17APR08 18APR08 18APR08 18APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	23APR08 21APR08 24APR08 24APR08 21APR08 21APR08 21APR08 22APR08 22APR08 23APR08 22APR08 22APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08					•	
WALLS_6S_6	/L4-N /L4-N /L4-N /L4-N /L4-N /L4-N /L4-N /L4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 5 0 1 1 1 2 2 3 3 0 1 1 1 1 1 2 2 2 3 3 3 0 1 1 1 1 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3	18APR08 18APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	24APR08 24APR08 21APR08 21APR08 21APR08 22APR08 22APR08 23APR08 22APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08					•	
WALLS_7S_4	n- LVL7-S s, LVL4-N /L4-N /L4-N vL4-N s, LVL4-S /L4-S /L4-S Corners, LVL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	5 0 1 1 1 2 2 3 3 0 1 1 1 1 2 2 2 3 3 3 0 1 1 1 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3	18APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 23APR08 23APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08					•	
MILES_F_4N   Start Install of Floor Finishes, 10410.1 4N   Install Signage, LVL4-N   10523.1 4N   Install Fire Extinguishers, LVI   10000.5 4N   Install Electrical Wall Devices 09680.1 4N   Install Electrical Wall Devices 09680.1 4N   Install Carpeting, LVL4-N   10000.8 4N   Install Carpeting, LVL4-N   10000.1 4N   Install Calling Grid, LVL5-N   10000.1 4N   Install Signage, LVL4-S   10523.1 4N   Install Signage, LVL4-S   10523.1 4N   Install Electrical Wall Devices 09680.1 4N   Install Electrical Wall Devices 09680.1 4N   Install Signage, LVL4-S   10000.8 4N   Install Electrical Wall Devices 09680.1 4N   Install Signage, LVL4-N   10000.5 4N   Install Electrical Wall Devices 09680.1 4N   Install Electrical Wall Devices 09680.1 4N   Install Electrical Wall Devices 09680.1 4N   Install Resilient Floor Tile, LV 01770.1 PN   Punchlist Floor, PENTH-S MILEF_P_6N   Install Resilient Wall Base, LV 15300.2 5N   Install Resilient Wall Base, LV 15300.2 5N   Install Bathroom Tile Floor/W 15400.2 6N   Punchlist Above Ceiling, LVL5-N   10000.2 6N   Punchlist Above Ceiling, LVL5-N   10000.2 6N   Install Lights, LVL5-N   100000.2 6N   Install Lights, LVL5-N   100000000000000000000000000000000000	VL4-N VL4-N VL4-N VL4-N S, LVL4-S VL4-S VL4-S VL4-S VL4-S Corners, LVL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0 1 1 1 2 2 3 3 0 1 1 1 1 2 2 3 3 3 0 1 1 1 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3 3	21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 23APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08					•	
10410.1 4N   Install Signage, LVL4-N	/L4-N vs, LVL4-N vvL4-N s, LVL4-S /L4-S s, LVL4-S corners, LVL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1 1 1 2 2 3 3 0 1 1 1 1 2 2 2 3 3 3 0 1 1 1 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3	21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	21APR08 21APR08 22APR08 22APR08 23APR08 23APR08 23APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08 23APR08					•	
16000.5 4N   Install Electrical Wall Devices	VL4-N VL4-N s, LVL4-S /L4-S /L4-S corners, LVL4-S VL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	1 2 2 3 3 0 1 1 1 1 2 2 2 3 3	21APR08 21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	21APR08 22APR08 22APR08 23APR08 23APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08 23APR08					•	
19680.1_4N	VL4-N s, LVL4-S /L4-S /L4-S ss, LVL4-S Corners, LVL4-S VL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	2 2 3 3 0 1 1 1 2 2 2 3 3	21APR08 21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	22APR08 22APR08 23APR08 23APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08 24APR08					•	
16000.8_4N   Install Fire Alarms, LVL4-N	s, LVL4-S /L4-S /s, LVL4-S Corners, LVL4-S VL4-S	5 5 5 5 5 5 5 5 5 5 5 5 5	2 3 3 0 1 1 1 2 2 2 2 3 3	21APR08 21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	22APR08 23APR08 23APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 24APR08					•	
09511.1_5N         Install Ceiling Grid, LVL5-N           09651.1_4N         Install Resilient Floor Tile, LV           MILES_F_4S         Start Install of Floor Finishes,           10410.1_4S         Install Signage, LVL4-S           10523.1_4S         Install Fire Extinguishers, LVI           10600.5_4S         Install Electrical Wall Devices           09680.1_4S         Install Say Wall Bumpers & Co           10265.1_4S         Install Say Wall Bumpers & Co           16000.8_4S         Install Fire Alarms, LVL4-S           09511.1_6S         Install Ceiling Grid, LVL5-S           09651.1_4S         Install Resilient Floor Tile, LV           01770.1_PS         Punchlist Floor, PENTH-S           MILEF_P_6S         Finish Plumbing, LVL6-S           09653.1_4N         Install Resilient Wall Base, LV           15300.2_5N         Install Sprinkler Heads, LVL5           INSP_W_7N         Interior Wall Inspection: 7N           09310.1_6N         Install Bathroom Tile Floor/W           15400.2_6N         Punchlist Above Ceiling, LVL5-N	s, LVL4-S /L4-S /s, LVL4-S Corners, LVL4-S VL4-S	5 5 5 5 5 5 5 5 5 5 5 5	3 3 0 1 1 1 2 2 2 2 3 3	21APR08 21APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	23APR08 23APR08 22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08 24APR08					•	
MILES_F_4S   Start Install of Floor Finishes, 10410.1_4S   Install Signage, LVL4-S   10523.1_4S   Install Fire Extinguishers, LVI 16000.5_4S   Install Electrical Wall Devices 00680.1_4S   Install Carpeting, LVL4-S   10265.1_4S   Install Sy Wall Bumpers & Cd 16000.8_4S   Install Fire Alarms, LVL4-S   09511.1_5S   Install Geiling Grid, LVL5-S   09651.1_4S   Install Resilient Floor Tile, LV 01770.1_PS   Punchlist Floor, PENTH-S   MILEF_P_6S   Finish Plumbing, LVL6-S   09653.1_4N   Install Resilient Wall Base, LV 15300.2_5N   Install Sprinkler Heads, LVL5   INSP_W_7N   Interior Wall Inspection: 7N   09310.1_6N   Install Bathroom Tile Floor/W 15400.2_6N   Punchlist Above Ceiling, LVL5-N   10000.2_5N   Install Lights, LVL5-N   10000.2_5N   10000.2_5N   Install Lights, LVL5-N   100000.2_5N   Install Lights, LVL5-N   100000.2_5N   Install Lights, LVL5-N   100000	s, LVL4-S /L4-S /s, LVL4-S Corners, LVL4-S VL4-S	5 5 5 5 5 5 5 5 5	0 1 1 1 2 2 2 2 3	22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	22APR08 22APR08 22APR08 23APR08 23APR08 23APR08 23APR08 24APR08						
10410.1_4S	/L4-S ss, LVL4-S Corners, LVL4-S VL4-S	5 5 5 5 5 5 5 5	1 1 1 2 2 2 2 3 3	22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	22APR08 22APR08 23APR08 23APR08 23APR08 24APR08						
10523.1_4S	vL4-S  VL4-S  VL4-S	5 5 5 5 5 5 5	1 1 2 2 2 3 3 3	22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	22APR08 22APR08 23APR08 23APR08 23APR08 24APR08						
16000.5_4S	vL4-S  VL4-S  VL4-S	5 5 5 5 5 5	1 2 2 2 3 3	22APR08 22APR08 22APR08 22APR08 22APR08 22APR08 22APR08	22APR08 23APR08 23APR08 23APR08 24APR08						
10265.1_4S	VL4-S	5 5 5 5 5	2 2 3 3	22APR08 22APR08 22APR08 22APR08	23APR08 23APR08 24APR08					i	
16000.8_4S   Install Fire Alarms, LVL4-S	VL4-S	5 5 5 5	3	22APR08 22APR08 22APR08	23APR08 24APR08					1 1 1	1 1 1
09511.1         5S         Install Ceiling Grid, LVL5-S           09651.1_4S         Install Resilient Floor Tile, LV           01770.1         PS         Punchlist Floor, PENTH-S           MILEF_P.6S         Finish Plumbing, LVL6-S           09653.1         AN         Install Resilient Wall Base, LV           15300.2         5N         Install Sprinkler Heads, LVL5           INSP_W_7N         Interior Wall Inspection: 7N           09310.1         N         Install Bathroom Tile Floor/W           15400.2         6N         Punchlist Above Ceiling, LVL           16000.2         6N         Install Lights, LVL5-N	VL4-N	5 5 5	3	22APR08 22APR08	24APR08	$  \cdot  $			1 1 1		
09651.1_4S Install Resilient Floor Tile, LV 01770.1_PS Punchlist Floor, PENTH-S MILEF_P_6S Finish Plumbing, LVL6-S 09653.1_4N Install Resilient Wall Base, LV 15300.2_5N Install Sprinkler Heads, LVL5 INSP_W_7N Interior Wall Inspection: VI 09310.1_6N Install Bathroom Tile Floor/W 15400.2_6N Punchlist Above Ceiling, LVL 16000.2_5N Install Lights, LVL5-N	VL4-N	5 5 5	3	22APR08							
MILEF_P_6S Finish Plumbing, LVL6-S 09653.1_4N Install Resilient Wall Base, LV 15300.2_5N Install Sprinkler Heads, LVL5 INSP_W_7N Interior Wall Inspection: 7N 09310.1_6N Install Bathroom Tile Floor/W 15400.2_6N Punchlist Above Ceiling, LVL 16000.2_5N Install Lights, LVL5-N		5	5		24APR08	1				i	
09653.1_4N Install Resilient Wall Base, LV 15300.2_5N Install Sprinkler Heads, LVL5 INSP_W_7N Interior Wall Inspection: 7N 09810.1_6N Install Bathroom Tile Floor/W 15400.2_6N Punchlist Above Ceiling, LVL 16000.2_5N Install Lights, LVL5-N				23APR08	29APR08	1				9	
15300.2_5N         Install Sprinkler Heads, LVL5           INSP_W_7N         Interior Wall Inspection: 7N           09310.1_6N         Install Bathroom Tile Floor/W           15400.2_6N         Punchlist Above Ceiling, LVL           16000.2_6N         Install Lights, LVL5-N			0	04455000	24APR08	1				📍	
INSP_W_7N   Interior Wall Inspection: 7N   09310.1_6N   Install Bathroom Tile Floor/W   15400.2_6N   Punchlist Above Ceiling, LVL   16000.2_5N   Install Lights, LVL5-N	U-14	5	1	24APR08 24APR08	24APR08 24APR08	1					
15400.2_6N Punchlist Above Ceiling, LVL 16000.2_5N Install Lights, LVL5-N		5	3	24APR08	28APR08	1				i	
16000.2_5N Install Lights, LVL5-N	Valls, LVL6-N	5	5	24APR08	30APR08	1				9	
	L6-N	5	5	24APR08	30APR08	4					
16000.3 6N Terminate Elect Dist & Power	er IVI6-N	5	5	24APR08 24APR08	30APR08 30APR08	1					
LCNTRL 5N Install Light Controls, LVL5-N		5	5	24APR08	30APR08	1				1	
WALLS_6N_7 Prime/Interm Paint & Fin. Bar	and @ Ceiling- LVL6-N	5	5	24APR08	30APR08	1				4	
WALLS_7N_5 Install GWB Walls & Soffits- L		5	10	24APR08	07MAY08	1				📍	
09653.1_4S Install Resilient Wall Base, LV 15300.2_5S Install Sprinkler Heads, LVL5		5	1	25APR08 25APR08	25APR08 25APR08	+ + +				111	
15500.3_5S Install HVAC Diffusers, LVL5-		5	1	25APR08	25APR08	1				i	
DOOR_608A- Hang Door 608A & Hardware		5	1	25APR08	25APR08	1				111	
DOOR_609A- Hang Door 609A & Hardware		5	1	25APR08	25APR08	4				111	
DOOR_610A- Hang Door 610A & Hardware DOOR 611A- Hang Door 611A & Hardware		5	1	25APR08 25APR08	25APR08 25APR08	+				111	
DOOR_612A- Hang Door 612A & Hardware		5	1	25APR08	25APR08	1				i	
DOOR_612B- Hang Door 612B & Hardware		5	1	25APR08	25APR08	1				111	
DOOR_613A- Hang Door 613A & Hardware		5	1	25APR08	25APR08 25APR08	4				111	
DOOR_613B- Hang Door 613B & Hardware DOOR 614A- Hang Door 614A & Hardware		5	1	25APR08 25APR08	25APR08	$ \cdot $				111	
INSP_W_7S Interior Wall Inspection: 7S	-	5	3	25APR08	29APR08	1					
01770.1_4N Punchlist Floor, LVL4-N		5	5	25APR08	01MAY08	1				•	
09310.1_6S Install Bathroom Tile Floor/W		5	5	25APR08	01MAY08	1				1	
15400.2_6S Punchlist Above Ceiling, LVL 16000.2_5S Install Lights, LVL5-S	L6-S	5	5	25APR08 25APR08	01MAY08 01MAY08	1				;	
16000.3 6S Terminate Elect Dist & Power	er, LVL6-S	5	5	25APR08	01MAY08	1					
LCNTRL_5S Install Light Controls, LVL5-S	S	5	5	25APR08	01MAY08	1				•	
WALLS_6S_7 Prime/Interm Paint & Fin. Bar		5	5	25APR08	01MAY08					1	
WALLS_7S_5 Install GWB Walls & Soffits- L 01770.1_4S Punchlist Floor, LVL4-S	LVL/-S	5	10 5	25APR08 28APR08	08MAY08 02MAY08	$  \cdot  $				🕴	
MILEF P_6N Finish Plumbing, LVL6-N		5	0	2007 1100	30APR08	1					
WALLS_PN_6 Tape & Sand GWB- PENTH-		5	5	30APR08	06MAY08	1					
DOOR_601A- Hang Door 601A & Hardware		5	1	01MAY08	01MAY08	]				$ \cdot $ !	
DOOR_603A- Hang Door 603A & Hardware DOOR_604A- Hang Door 604A & Hardware		5	1	01MAY08 01MAY08	01MAY08 01MAY08	$  \cdot  $					
DOOR_605A- Hang Door 605A & Hardware		5	1	01MAY08	01MAY08	1					
DOOR_607A- Hang Door 607A & Hardware		5	1	01MAY08	01MAY08	1					
09511.2_5N Install Ceiling Tiles, LVL5-N		5	2	01MAY08	02MAY08	]				!	
10522.1_6N Install Fire Extinguisher Cabin		5	2	01MAY08	02MAY08						
10801.1_6N Install Plumbing Fixtures, LVL 01300.1_6N Ceiling Insp: Building, LVL6-N		5	2	01MAY08 01MAY08	02MAY08 05MAY08	$  \cdot  $					
06402.1_6N Install Wood Veneer Cladding		5	3	01MAY08	05MAY08	1					

Sheet 27 of 31

Activity   Description   10	JEMIAMIJIJI
14-00.3   SN   Above Ceiling Insp: Plumb, LVL6-N   5   3   01MAY08   05MAY08   1600.4   5N   Above Ceiling Insp: Elect, LVL5-N   5   5   01MAY08   05MAY08   1600.4   5N   Above Ceiling Insp: Elect, LVL6-N   5   5   01MAY08   07MAY08   1600.4	
DUCT_III_6 N	
DIOCT_IM_ENN	
HVAC_III_6N   Insulate HVAC Pranch Lines: LVL6-N   5   5   0.11MAY08   0.77MAY08	
HVAC_D  68   Insulate HVAC Piping Mains: LVL6-N	
De511_2_SS   Install Ceiling Tiles_LVLE-S   5 2 0.2MAY08   05MAY08   10522_1_6S   Install Fire Extinguisher Cabinets, LVL6-S   5 2 0.2MAY08   05MAY08   10501_1,6S   Install Fire Extinguisher Cabinets, LVL6-S   5 2 0.2MAY08   05MAY08   10501_1,6S   Ceiling Insp: Pluming, LVL6-S   5 3 0.2MAY08   05MAY08   10500_1,6S   Above Ceiling Insp: Pluming, LVL6-S   5 3 0.2MAY08   05MAY08   10500_1,6S   Above Ceiling Insp: Pluming, LVL6-S   5 3 0.2MAY08   05MAY08   10500_1,6S   Above Ceiling Insp: Elect, LVL5-S   5 3 0.2MAY08   05MAY08   05MAY08   10500_1,6S   10500_1,	
10522_1_6S	
01300.1_6S	
15400.3 eS	
16000.4_5S	
DUCT   B	
DUCT_IM_6S   Insulate HVAC Duct Mains: LVL6-S   5   5   02MAY08   08MAY08   08MAY08	
HVAC_IM_6S   Insulate HVAC Priping Mains: LVL8-S   5   5   02MAY08   08MAY08   08MAY	
10155.1_6N	
16000.7_5N	
WALLS_6N_8	🖁
10155.1_68	
10801.2_6N	[
16000.7_6S	
1530	
10801.2_6S	
16000.3_PN   Terminate Elect Dist & Power, PENTH-N   5   5   07MAY08   13MAY08	📙
WALLS_PN_7         Prime/Interm Paint & Fin. Band @ Ceiling-PENT-N         5         5         07MAY08         13MAY08           06402.1_5S         Install Wood Veneer Cladding, LVL5-S         5         8         07MAY08         16MAY08           15400.1_6N         Label All Above Ceiling MEPs, LVL6-N         5         2         08MAY08         09MAY08           04851.1_7N         Install Granite Clad @ N.Elev. Bank, LVL7-N         5         5         08MAY08         14MAY08           WALLS_7N_6         Tape & Sand GWB- LVL7-N         5         5         08MAY08         14MAY08           15400.1_6S         Label All Above Ceiling MEPs, LVL6-S         5         2         09MAY08         12MAY08           WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         09MAY08         15MAY08           WALLS_JE_5N         Start Install of Floor Finishes, LVL5-N         5         0         12MAY08           MILES_F_5N         Start Install Signage, LVL5-N         5         1         12MAY08           10523.1_5N         Install Electrical Wall Devices, LVL5-N         5         1         12MAY08           16000.5_5N         Install Electrical Wall Devices, LVL5-N         5         1         12MAY08         13MAY08           16000.8_5N	
08402.1_5S         Install Wood Veneer Cladding, LVL5-S         5         8         07MAY08         16MAY08           15400.1_6N         Label All Above Ceiling MEPs, LVL6-N         5         2         08MAY08         09MAY08           04851.1_7N         Install Granite Clad ② N.Elev. Bank, LVL7-N         5         5         08MAY08         14MAY08           WALLS_7N_6         Tape & Sand GWB- LVL7-N         5         5         08MAY08         14MAY08           15400.1_6S         Label All Above Ceiling MEPs, LVL6-S         5         2         09MAY08         12MAY08           WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         09MAY08         15MAY08           WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         09MAY08         15MAY08           WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         09MAY08         15MAY08           WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         09MAY08         15MAY08           MILES_F_5N         Start Install Electrical Wall Devices, LVL5-N         5         1         12MAY08         12MAY08           109511_6N         Install Ceiling Grid, LVL5-N         5         2         12MAY08         13MAY08           0	
15400.1_6N	
04851.1_7N         Install Granite Clad @ N.Elev. Bank, LVL7-N         5         5         08MAY08         14MAY08           WALLS_7N_6         Tape & Sand GWB- LVL7-N         5         5         08MAY08         14MAY08           15400.1_6S         Label All Above Ceiling MEPs, LVL6-S         5         2         09MAY08         12MAY08           WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         5         09MAY08         15MAY08           MILES_F_5N         Start Install of Floor Finishes, LVL5-N         5         1         12MAY08         12MAY08           10523.1_6N         Install Signage, LVL5-N         5         1         12MAY08         12MAY08           106000.5_5N         Install Electrical Wall Devices, LVL5-N         5         1         12MAY08         12MAY08           16000.8_5N         Install Carpeting, LVL5-N         5         2         12MAY08         13MAY08           10951.1_6N         Install Ceiling Grid, LVL6-N         5         2         12MAY08         13MAY08           1096515N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           1096515S         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08	
15400.1_6S         Label All Above Ceiling MEPs, LVL6-S         5         2         09MAY08         12MAY08           WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         09MAY08         15MAY08           MILES_F_5N         Start Install of Floor Finishes, LVL5-N         5         0         12MAY08         12MAY08           10410.1_5N         Install Signage, LVL5-N         5         1         12MAY08         12MAY08           10600.5_5N         Install Fire Extinguishers, LVL5-N         5         1         12MAY08         12MAY08           09880.1_5N         Install Carpeting, LVL5-N         5         2         12MAY08         13MAY08           16000.8_5N         Install Fire Alarms, LVL5-N         5         2         12MAY08         13MAY08           09651.1_6N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES_F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08           10410.1_6S         Install Signage, LVL5-S         5         1         13MAY08	
WALLS_7S_6         Tape & Sand GWB- LVL7-S         5         5         09MAY08         15MAY08           MILES_F_5N         Start Install of Floor Finishes, LVL5-N         5         0         12MAY08         12MAY08           10410.1_5N         Install Signage, LVL5-N         5         1         12MAY08         12MAY08           10523.1_5N         Install Fire Extinguishers, LVL5-N         5         1         12MAY08         12MAY08           16000.5_5N         Install Electrical Wall Devices, LVL5-N         5         1         12MAY08         13MAY08           09680.1_5N         Install Carpeting, LVL5-N         5         2         12MAY08         13MAY08           09511.1_6N         Install Ceiling Grid, LVL6-N         5         3         12MAY08         14MAY08           09651.1_5N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES_F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08         10410.1_6S           10410.1_6S         Install Signage, LVL5-S         5         1         13MAY08         13MAY08	
MILES F_5N         Start Install of Floor Finishes, LVL5-N         5         0         12MAY08           10410.1_5N         Install Signage, LVL5-N         5         1         12MAY08         12MAY08           10523.1_5N         Install Fire Extinguishers, LVL5-N         5         1         12MAY08         12MAY08           16000.5_5N         Install Electrical Wall Devices, LVL5-N         5         1         12MAY08         13MAY08           16000.8_5N         Install Capeting, LVL5-N         5         2         12MAY08         13MAY08           09611.1_6N         Install Ceiling Grid, LVL6-N         5         3         12MAY08         14MAY08           09651.1_5N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES_F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08         10410.1_6S           10410.1_6S         Install Signage, LVL5-S         5         1         13MAY08         13MAY08	
10410.1_5N	📜
10523.1_5N         Install Fire Extinguishers, LVL5-N         5         1         12MAY08         12MAY08           16000.5_5N         Install Electrical Wall Devices, LVL5-N         5         1         12MAY08         12MAY08           09680.1_5N         Install Carpeting, LVL5-N         5         2         12MAY08         13MAY08           16000.8_6N         Install Fire Alarms, LVL5-N         5         2         12MAY08         13MAY08           09511.1_6N         Install Ceiling Grid, LVL6-N         5         3         12MAY08         14MAY08           09651.1_5N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES_F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08           10410.1_6S         Install Signage, LVL5-S         5         1         13MAY08	
16000.5_5N         Install Electrical Wall Devices, LVL5-N         5         1         12MAY08         12MAY08           09680.1_5N         Install Carpeting, LVL5-N         5         2         12MAY08         13MAY08           16000.8_5N         Install Fire Alarms, LVL5-N         5         2         12MAY08         13MAY08           09511.1_6N         Install Ceiling Grid, LVL6-N         5         3         12MAY08         14MAY08           09651.1_5N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES_F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08           10410.1_6S         Install Signage, LVL5-S         5         1         13MAY08	
16000.8_5N         Install Fire Alarms, LVL5-N         5         2         12MAY08         13MAY08           09511.1_6N         Install Ceiling Grid, LVL6-N         5         3         12MAY08         14MAY08           09651.1_5N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES_F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08           10410.1_5S         Install Signage, LVL5-S         5         1         13MAY08	
09511.1_6N         Install Ceiling Grid, LVL6-N         5         3         12MAY08         14MAY08           09651.1_5N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES_F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08           10410.1_5S         Install Signage, LVL5-S         5         1         13MAY08	!
09651.1_5N         Install Resilient Floor Tile, LVL5-N         5         3         12MAY08         14MAY08           MILES F_5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08           10410.1_5S         Install Signage, LVL5-S         5         1         13MAY08	!
MILES F 5S         Start Install of Floor Finishes, LVL5-S         5         0         13MAY08           10410.1_5S         Install Signage, LVL5-S         5         1         13MAY08         13MAY08	
10410.1_5S Install Signage, LVL5-S 5 1 13MAY08 13MAY08	🔓
16000.5_5S	!
99880.1_5S	
10265.1_5S	
09611.1 6S Install Ceiling Grid, LVL6-S 5 3 13MAY08 15MAY08	
09651.1_6S	
10522.1 PN Install Fire Extinguisher Cabinets, PENTH-N 5 2 14MAY08 15MAY08	!
10801.1_PN	
16000.2_PN	
LCNTRL_PN         Install Light Controls, PENTH-N         5         5         14MAY08         20MAY08           PLMB_F_PN4         Finish Natural Gas Piping, PENTH-N         5         5         14MAY08         20MAY08	
PLMB F PN5 Finish Medical Air Piping, PENTH-N 5 5 14MAY08 20MAY08	
PLMB_F_PN6   Finish Vacuum Piping, PENTH-N   5   5   14MAY08   20MAY08	0
WALLS_PN_8 Paint Finish Coat- PENTH-N 5 5 14MAY08 20MAY08	
MILEF_P_7S Finish Plumbing, LVL7-S 5 0 15MAY08	•
09653.1_5N         Install Resilient Wall Base, LVL5-N         5         1         15MAY08         15MAY08           15300.2 6N         Install Sprinkler Heads, LVL6-N         5         1         15MAY08         15MAY08	
15300.2_6N         Install Sprinkler Heads, LVL6-N         5         1         15MAY08         15MAY08           09310.1_7N         Install Bathroom Tile Floor/Walls, LVL7-N         5         5         15MAY08         21MAY08	
08310.1_7N Install Batindom Tile Pilodrivvalis, LVL7-N 5 5 15MAY08 21MAY08 15400.2_7N Punchlist Above Ceiling, LVL7-N 5 5 15MAY08 21MAY08	
16000.2 6N Install Lights, LVL6-N 5 5 15MAY08 21MAY08	
16000.3 7N Terminate Elect Dist & Power, LVL7-N 5 5 15MAY08 21MAY08	0
LCNTRL_6N Install Light Controls, LVL6-N 5 5 15MAY08 21MAY08	0   1
WALLS_7N_7 Prime/Interm Paint & Fin. Band @ Ceiling- LVL7-N 5 5 15MAY08 21MAY08	
09653.1_5S         Install Resilient Wall Base, LVL5-S         5         1         16MAY08         16MAY08           15300.2 6S         Install Sprinkler Heads, LVL6-S         5         1         16MAY08         16MAY08	
15500.2_6S Install HVAC Diffusers, LVL6-S 5 1 16MAY08 16MAY08	
Sheet 28 of 31	

Sheet 28 of 31

Activity ID	Activity Description	Cal	Orig Dur	Early Start	Early Finish					2008 JIFIMIAIMIJI
DOOR 708A-	Hang Door 708A & Hardware	5	1	16MAY08	16MAY08			'''' ''''	<u>"''''''</u>	<del>                                     </del>
DOOR 709A-	Hang Door 709A & Hardware	5	1	16MAY08	16MAY08	1				
DOOR_710A-	Hang Door 710A & Hardware	5	1	16MAY08	16MAY08	1				
DOOR_711A-	Hang Door 711A & Hardware	5	1	16MAY08	16MAY08	1				
DOOR_712A-	Hang Door 712A & Hardware	5	1	16MAY08	16MAY08	]				!
DOOR_712B-	Hang Door 712B & Hardware	5	1	16MAY08	16MAY08	1				!!
DOOR_713A-	Hang Door 713A & Hardware	5	1	16MAY08	16MAY08	1				!!
DOOR_713B-	Hang Door 713B & Hardware	5	1	16MAY08	16MAY08	1				
DOOR_714A- 01770.1 5N	Hang Door 714A & Hardware Punchlist Floor, LVL5-N	5	5	16MAY08 16MAY08	16MAY08 22MAY08	1				
09310.1 7S	Install Bathroom Tile Floor/Walls, LVL7-S	5	5	16MAY08	22MAY08	1				
15400.2 7S	Punchlist Above Ceiling, LVL7-S	5	5	16MAY08	22MAY08	1				
16000.2 6S	Install Lights, LVL6-S	5	5	16MAY08	22MAY08	1				
16000.3 7S	Terminate Elect Dist & Power, LVL7-S	5	5	16MAY08	22MAY08	1				
LCNTRL 6S	Install Light Controls, LVL6-S	5	5	16MAY08	22MAY08	1				
WALLS_7S_7	Prime/Interm Paint & Fin. Band @ Ceiling- LVL7-S	5	5	16MAY08	22MAY08	1				
01770.1_5S	Punchlist Floor, LVL5-S	5	5	19MAY08	23MAY08	]				
MILEF_P_PN	Finish Plumbing, PENTH-N	5	0		20MAY08	]				🐓
MILEF_P_7N	Finish Plumbing, LVL7-N	5	0		21MAY08					💆
MILES_F_PN	Start Install of Floor Finishes, PENTH-N	5	0	21MAY08	0414111					
10410.1_PN	Install Signage, PENTH-N	5	1	21MAY08	21MAY08					
10523.1_PN 16000.5 PN	Install Fire Extinguishers, PENTH-N	5	1	21MAY08	21MAY08					
16000.5_PN DOOR 800A-	Install Electrical Wall Devices, PENTH-N Hang Door 800A & Hardware	5	1	21MAY08 21MAY08	21MAY08 21MAY08					
DOOR_800A-	Hang Door 801A & Hardware Hang Door 801A & Hardware	5	1	21MAY08	21MAY08					
DOOR 802A-	Hang Door 802A & Hardware	5	1	21MAY08	21MAY08	1				
DOOR 802B-	Hang Door 802B & Hardware	5	1	21MAY08	21MAY08	1				
DOOR 802C-	Hang Door 802C & Hardware	5	1	21MAY08	21MAY08	1				
DOOR 806A-	Hang Door 808A & Hardware	5	1	21MAY08	21MAY08	1				
09671.1_PN	Install Resinous Flooring (Mech.Rm), PENTH-N	5	2	21MAY08	22MAY08	1				
09651.1_PN	Install Resilient Floor Tile, PENTH-N	5	3	21MAY08	23MAY08	1				
16000.4_PN	Above Ceiling Insp: Elect, PENTH-N	5	3	21MAY08	23MAY08	]				
16000.8_PN	Install Fire Alarms, PENTH-N	5	5	21MAY08	27MAY08	]				!
DOOR_701A-	Hang Door 701A & Hardware	5	1	22MAY08	22MAY08	1				!!
DOOR_703A-	Hang Door 703A & Hardware	5	1	22MAY08	22MAY08	1				!!
DOOR_704A-	Hang Door 704A & Hardware	5	1	22MAY08	22MAY08	1				
DOOR_705A- DOOR_707A-	Hang Door 705A & Hardware Hang Door 707A & Hardware	5	1	22MAY08 22MAY08	22MAY08 22MAY08	1				
09511.2 6N	Install Ceiling Tiles, LVL8-N	5	2	22MAY08	23MAY08	1				
10522.1 7N	Install Fire Extinguisher Cabinets, LVL7-N	5	2	22MAY08	23MAY08	1				
10801.1 7N	Install Plumbing Fixtures, LVL7-N	5	2	22MAY08	23MAY08	1				
01300.1_7N	Ceiling Insp: Building, LVL7-N	5	3	22MAY08	26MAY08	1				
06402.1_7N	Install Wood Veneer Cladding, LVL7-N	5	3	22MAY08	26MAY08	1				
15400.3_7N	Above Ceiling Insp: Plumb, LVL7-N	5	3	22MAY08	26MAY08	]				!
16000.4_6N	Above Ceiling Insp: Elect, LVL6-N	5	3	22MAY08	26MAY08	1				<u>!</u>
DUCT_IB_7N	Insulate HVAC Branch Ducts: LVL7-N	5	5	22MAY08	28MAY08					!!
DUCT_IM_7N	Insulate HVAC Duct Mains: LVL7-N	5	5	22MAY08	28MAY08	1				
HVAC_IB_7N HVAC_IM_7N	Insulate HVAC Branch Lines: LVL7-N Insulate HVAC Piping Mains: LVL7-N	5	5	22MAY08 22MAY08	28MAY08 28MAY08	1				
D9511.2 6S	Install Ceiling Tiles, LVL6-S	5	2	23MAY08	26MAY08	1				
10522.1 7S	Install Fire Extinguisher Cabinets, LVL7-S	5	2	23MAY08	26MAY08	1				
10801.1_7S	Install Plumbing Fixtures, LVL7-S	5	2	23MAY08	26MAY08	1				
01300.1_7S	Ceiling Insp: Building, LVL7-S	5	3	23MAY08		1				
15400.3_7S	Above Ceiling Insp: Plumb, LVL7-S	5	3	23MAY08	27MAY08	1				
16000.4_6S	Above Ceiling Insp: Elect, LVL6-S	5	3	23MAY08	27MAY08	1				
DUCT_IB_7S	Insulate HVAC Branch Ducts: LVL7-S	5	5	23MAY08		]				
DUCT_IM_7S	Insulate HVAC Duct Mains: LVL7-S	5	5	23MAY08	29MAY08	]				9
HVAC_IB_7S	Insulate HVAC Branch Lines: LVL7-S	5	5	23MAY08	29MAY08	1				9
HVAC_IM_7S	Insulate HVAC Piping Mains: LVL7-S	5	5	23MAY08	29MAY08					.
09653.1_PN	Install Resilient Wall Base, PENTH-N	5	1	26MAY08	26MAY08					
10155.1_7N	Install Toilet Partitions, LVL7-N	5	1	26MAY08	26MAY08					
16000.7_6N WALLS 6N 8	Install Fire Alarm Heads, LVL6-N Paint Finish Coat- LVL6-N	5	5	26MAY08 26MAY08	27MAY08 30MAY08					
10155.1 7S	Install Toilet Partitions, LVL7-S	5	1	27MAY08	27MAY08	1				
10801.2 7N	Install Toilet Accessories, LVL7-N	5	1	27MAY08	27MAY08					
16000.7_6S	Install Fire Alarm Heads, LVL6-S	5	2	27MAY08	28MAY08	1				
WALLS_6S_8	Paint Finish Coat- LVL6-S	5	5	27MAY08	02JUN08	1				
			1	28MAY08	28MAY08	1				1 1 1 1 1 7 1
10801.2 7S	Install Toilet Accessories, LVL7-S	5		ZOMATUO	ZOMATUC					
10801.2_7S 01770.1_PN	Install Toilet Accessories, LVL7-S Punchlist Floor, PENTH-N	5	5	28MAY08	03JUN08					

Sheet 29 of 31

Activity ID	Activity Description	Cal ID	Orig Dur	Early Start	Early Finish	2006 2007 2008 NID JIFIMIAIMIJIJAISIOINID JIFIMIAIMIJIJ
15400.1 7N	Label All Above Ceiling MEPs, LVL7-N	5	2	29MAY08	30MAY08	<u>                                     </u>
15400.1_7S	Label All Above Ceiling MEPs, LVL7-S	5	2	30MAY08	02JUN08	1
MILES_F_6N	Start Install of Floor Finishes, LVL6-N	5	0	02JUN08		1
10410.1_6N	Install Signage, LVL6-N	5	1	02JUN08	02JUN08	]
0523.1_6N	Install Fire Extinguishers, LVL6-N	5	1	02JUN08	02JUN08	]
16000.5_6N	Install Electrical Wall Devices, LVL6-N	5	1	02JUN08	02JUN08	1     1   1
9680.1_6N	Install Carpeting, LVL6-N	5	2	02JUN08	03JUN08	<u> </u>
16000.8_6N	Install Fire Alarms, LVL6-N	5	2	02JUN08	03JUN08	4     <mark>■                                 </mark>
09511.1_7N	Install Ceiling Grid, LVL7-N	5	3	02JUN08	04JUN08	
9651.1_6N	Install Resilient Floor Tile, LVL6-N	5	3	02JUN08	04JUN08	{
MILES_F_6S 10410.1 6S	Start Install of Floor Finishes, LVL6-S Install Signage, LVL6-S	5	1	03JUN08 03JUN08	03JUN08	<del> </del>
0523.1 6S	Install Fire Extinguishers, LVL6-S	5	1	03JUN08	03JUN08	┨
6000.5 6S	Install Electrical Wall Devices, LVL6-S	5	1	03JUN08	03JUN08	1     1   1
9680.1 6S	Install Carpeting, LVL6-S	5	2	03JUN08	04JUN08	1     <mark> </mark>
10265.1 6S	Install SS Wall Bumpers & Corners, LVL6-S	5	2	03JUN08	04JUN08	1     <mark> </mark>
6000.8 6S	Install Fire Alarms, LVL6-S	5	2	03JUN08	04JUN08	<del>1</del>     <mark> </mark>
9511.1 7S	Install Ceiling Grid, LVL7-S	5	3	03JUN08	05JUN08	1     1   1
09651.1 6S	Install Resilient Floor Tile, LVL6-S	5	3	03JUN08	05JUN08	1
09653.1_6N	Install Resilient Wall Base, LVL6-N	5	1	05JUN08	05JUN08	1
5300.2_7N	Install Sprinkler Heads, LVL7-N	5	1	05JUN08	05JUN08	1
16000.2_7N	Install Lights, LVL7-N	5	5	05JUN08	11JUN08	1
CNTRL_7N	Install Light Controls, LVL7-N	5	5	05JUN08	11JUN08	1     <mark> </mark>
MILEF_H_S	Finish HVAC Work - South	5	0		06JUN08	]
9653.1_6S	Install Resilient Wall Base, LVL6-S	5	1	06JUN08	06JUN08	]
15300.2_7S	Install Sprinkler Heads, LVL7-S	5	1	06JUN08	06JUN08	]
15500.3_7S	Install HVAC Diffusers, LVL7-S	5	1	06JUN08	06JUN08	]
01770.1_6N	Punchlist Floor, LVL6-N	5	5	06JUN08	12JUN08	]
16000.2_7S	Install Lights, LVL7-S	5	5	06JUN08	12JUN08	]
.CNTRL_7S	Install Light Controls, LVL7-S	5	5	06JUN08	12JUN08	<u> </u>
01770.1_6S	Punchlist Floor, LVL6-S	5	5	09JUN08	13JUN08	]
TRAIN-FP	Perform FP System Training	5	5	09JUN08	13JUN08	]
09511.2_7N	Install Ceiling Tiles, LVL7-N	5	2	12JUN08	13JUN08	]
16000.4_7N	Above Ceiling Insp: Elect, LVL7-N	5	3	12JUN08	16JUN08	<del>-</del>
9511.2_7S	Install Ceiling Tiles, LVL7-S	5	2	13JUN08	16JUN08	<del> </del>
6000.4_7S	Above Ceiling Insp: Elect, LVL7-S	5	3	13JUN08 16JUN08	17JUN08 17JUN08	<del> </del>
16000.7_7N WALLS_7N_8	Install Fire Alarm Heads, LVL7-N Paint Finish Coat- LVL7-N	5	5	16JUN08	20JUN08	1     <mark> </mark>
16000.7 7S	Install Fire Alarm Heads, LVL7-S	5	2	17JUN08	18JUN08	┪
NALLS 7S 8	Paint Finish Coat- LVL7-S	5	5	17JUN08	23JUN08	<del> </del>
MILEF H N	Finish HVAC Work - North	5	0	17301400	18JUN08	1
15500.3 1N	Install HVAC Diffusers, LVL1-N	5	1	18JUN08	18JUN08	<del> </del>
15500.3 2N	Install HVAC Diffusers, LVL2-N	5	1	18JUN08	18JUN08	1     <b>1</b>
15500.3 3N	Install HVAC Diffusers, LVL3-N	5	1	18JUN08	18JUN08	1     1   1
15500.3 4N	Install HVAC Diffusers, LVL4-N	5	1	18JUN08	18JUN08	1     <mark> </mark>
15500.3_5N	Install HVAC Diffusers, LVL5-N	5	1	18JUN08	18JUN08	1
15500.3_6N	Install HVAC Diffusers, LVL6-N	5	1	18JUN08	18JUN08	1
15500.3_7N	Install HVAC Diffusers, LVL7-N	5	1	18JUN08	18JUN08	]
TRAIN-ELEC	Perform Electrical System Training	5	5	18JUN08	24JUN08	]
06402.1_7S	Install Wood Veneer Cladding, LVL7-S	5	8	18JUN08	27JUN08	]
RAIN-HVAC	Perform HVAC System Training	5	5	19JUN08	25JUN08	]
MILES_F_7N	Start Install of Floor Finishes, LVL7-N	5	0	23JUN08		1     1   1
0410.1_7N	Install Signage, LVL7-N	5	1		23JUN08	<b>.</b>     ■
0523.1_7N	Install Fire Extinguishers, LVL7-N	5	1		23JUN08	]
6000.5_7N	Install Electrical Wall Devices, LVL7-N	5	1	23JUN08		]
9680.1_7N	Install Carpeting, LVL7-N	5	2	23JUN08	24JUN08	}     <mark> </mark>
6000.8_7N	Install Fire Alarms, LVL7-N	5	2	23JUN08	24JUN08	<del> </del>
9851.1_7N	Install Resilient Floor Tile, LVL7-N	5	3	23JUN08 24JUN08	25JUN08	{
MILES_F_7S	Start Install of Floor Finishes, LVL7-S Install Signage, LVL7-S	5	1	24JUN08 24JUN08	24 11 16100	1     1
0410.1_7S 0523.1_7S	Install Signage, LVL7-S Install Fire Extinguishers, LVL7-S	5	1	24JUN08		┨
16000.5_7S	Install Electrical Wall Devices, LVL7-S	5	1	24JUN08	24JUN08	┫
9680.1 7S	Install Carpeting, LVL7-S	5	2	24JUN08	25JUN08	┫
0265.1_7S	Install SS Wall Bumpers & Corners, LVL7-S	5	2	24JUN08	25JUN08	<del> </del>
6000.8_7S	Install Fire Alarms, LVL7-S	5	2	24JUN08	25JUN08	<del> </del>
9651.1 7S	Install Resilient Floor Tile, LVL7-S	5	3	24JUN08	26JUN08	1     1   1
9653.1 7N	Install Resilient Wall Base, LVL7-N	5	1	26JUN08	26JUN08	<u>1</u>     <mark> </mark>
9653.1 7S	Install Resilient Wall Base, LVL7-S	5	1	27JUN08	27JUN08	<u>1</u>     <mark>1</mark>
01770.1 7N	Punchlist Floor, LVL7-N	5	5	27JUN08	03JUL08	<u>1</u>     <mark> </mark>

Sheet 30 of 31

Activity ID	Activity	Cal	Orig	Early	Early	2006 N I D	J	FIMIA	M	2007 J J	AS	OINI	JE	20 IMLA	08 IMIJ	JU
ID ID	Description	ID	Dur	Start	Finish	,	,,,,,,,,,	mpuripu	4,,,,,		<u>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</u>	, <sub>.</sub> .	<mark>արւորու</mark>	<mark>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</mark>	yrnyn:	· <u>···</u>
FINAL_INSP OCCUPANCY	Final Inspection	5	10	30JUN08	Finish 14JUL08 14JUL08											
OCCUPANCY	Certificate of Occupancy	С	0		14JUL08				$\perp$			$\perp$	$\perp \perp$			<b>~</b>
I																

Sheet 31 of 31

Activity		Activity	S/N Orig			Early Actual	Early	Actual		2007	
!	***	iondinasa.		7 7 7 7		tart Start		Finish	SEP	DCT	
						(VVIIIE-)	·17	(Write-In)	10 17 24	1 8 15	22 29
01.230 AL	RNATES			F SERVICE STATE SER							
M LONGS IN	RETAIN	NGWALL									
WRW_40	Land Aquisition Deadline	eadline	)	0	12SEP07	P07		-	Land Aquisition Deadline	Deadline	
WRW_10	Test Pits/Soil Sam	Test Pits/Soil Sample&Analysis/Design/Owner	12	120	19SEP07*	P07*	16JAN08				
01.250 CO	01.250 CONTRACT MODIFIC	DIFICATIONS									
0.000	Miles Pervice (claim property and a party of the control of the co	45 JUL (50									
CO_CWL181	CO_CWL181 Crossing: Waterproofing (Boat)	roofing (Boat)	4,	5 HERITA	NTA 24SEP07	P07	28SEP07			Crossing: Waterproofing (Boat)	(Boat)
01.250.01.01	01.250.01.01 CWL TUNNEL & PIPING	PIPING								S	(Janus)
CO_CWL170	CO_CWL170 1st Rd.: Waterproofing	ofing	3,	5 HERITA	NTA 16JUL07A	L07A	13SEP07		M1st Rd.: Waterproofing	proofing	
CO_CV/L60	CO_CWL60 1st Rd.: Excavate, Place &	, Place & Backfill	4	40 JHLYN	YN 16JUL07A	L07A	19SEP07		ment Rd.:	Manust Rd.: Excavate, Place & Backfill	
CO_CWL140	1st Rd.: Place, Tex	CO_CWL140 1st Rd.: Place, Test and Insulate Piping	5	50 WFLYN		10AUG07A	23OCT07				Manual St Rd.: P
CO_CWL70		Crossing: Reroute South Rd. Crossing Traffic		3 JHLYN	YN 04SEP07A	P07A	07SEP07A		Crossing: Reroute Sou	sing: Reroute South Rd, Crossing Traffic	<u> </u>
CO_CWL80	Crossing: Excavate, Place Precast	te, Place Precast	"	5 JHLYN	YN 24SEP07*	P07*	28SEP07			Crossing: Excavate, Place Precast	e Precast
CO_CWL150	Crossing: Prefab,	Crossing: Prefab, Test, Install & Insulate Pipe	-	10 WFLYN	YN 24SEP07*	P07*	05OCT07			Sales   Prefab, Test. Install &	, Test, Install 8
01.250.01.05	STEAM FIRED HO	01.250.01.05 STEAM FIRED HOT WATER HEATERS									
15500PRC3A	Procure/Deliver: S	15500PRC3A Procure/Deliver: Steam Fired HW Heaters	2	50 CON	CONSIG 19SEP07	P07	30NOV07				
01.250.01.06	01.250.01.06 HEAT EXCHANGERS	ERS									
15500PRC3B	15500PRC3B Procure/Deliver: Heat Exchangers	Heat Exchangers	9	50 CON	CONSIG 19SEP07	P07	30NOV07				
+ 01.810 G	+ 01.810 GENERAL COMMIS	OMMISSIONING									
			)	0	28SEP07	P07	27SEP07				
DELAY_2	Stop Work Order:	Stop Work Order: Storm Drainage W-Elev.	2	20 OWNR	1	15MAR07A	18SEP07		Stop Wor	Stop Work Order: Storm Drainage W-Fley	Flav
JHLYN_310	Geotech Invest/R	Geotech Invest./ Refine W.Rtng Wall Design	7	CONSIG	ISIG 19SEP07*	P07*	19SEP07		#Geotech	SGeotech Invest./ Refine W. Stra Wall Design	Design
02.230 SIT	02.230 SITE CLEARING	O								n.	
1. [6]: (-): 72-70]	त्त्री क्ष्मित्रसम्बद्धाः	2									
ÿJHLYN_180	Clear and Grub (West Rtn.	West Rtn. Wall)	,	1 JHLYN	YN 21SEP07	P07	21SEP07			區Clear and Grub (West Rtn. Wall)	
02.300 EA	02.300 EARTHWORK										
	Site Cuts/ Fills (West Rtn. Wall)	fest Rtn. Wall)	1	10 HI YN	YN 24SFP07	P07	0500107				
SITE_10	Excavate Load Dock Foundations	ock Foundations	S	$\vdash$	YN 26SEP07	P07	0500707			Section of the Course of the C	vest Rtn. Wall)
JHLYN_050	Water Line			     	JHLYN 28SEP07	P07	09OCT07			East Section 1	
		Finish Date	13AUG08	12SEP07 U	13AUG08 12SEP07 Update vs. 05SEP07	EP07	Sheet	Sheet 1 of 9	pdn	tate Schedule	
CON	CONSIGLI	Data Date Run Date 13SE	12SEP07 13SEP07 22:41		Con	Consigli Construction	ction	Oate	Revision Includes completed activities from the previous week	Checked	Approved
© Primavera	© Primavera Systems for			w	3 WK Co.	ALCIT Crigect 3 Wk Construction Lookahead	c. ookahead				
3	oystello, IIIC.		_								_

_					-										
	Ξ.	Activity	Activity	S/N Orig	Orig		Early	Actual	Early	Actual		2007	71		
		⊇	Description	Side	ρď	RESP	Start	Start	Finish	Finish				OCT	
	00 2	70 OF			,			(vvrite-in)		(Write-In)	71, 01,	24 ,1	8	15	22 29
	02.5	10 VI	UZ.373 SEDIMENTATION AND EROSION CONTROL	2 2	7	0.000									
		7970	Wellstan Sheriff												
arkin.	JHLYI	JHLYN_170	Erosion Controls (Along West Rtn. Wall)		~-	JHLYN	20SEP07*	20	Z0SEP07			■Erosion Controls (Along West Rtn. Wall)	s (Along	West Rtn. W	all)
	02.6	30 ST	02.630 STORM DRAINS										ŀ		
erine Sta	02.6	00.10	SONSTRUCTION												
	JHLYN_020	N_020	Storm Drainage West Elevation		œ	JHLYN	19SEP07	28.	28SEP07			Extra Storm Drainage West Elevation	Drainag	e West Eleva	tion
	03.30	δ 00	03:300 CAST-IN-PLACE CONCRETE												
	03.3	00.10	CONSTRUCTION												
S. P.	03.3	100.10.00	03.300.10.00 LEVEL A												
	CO	CONC_10	FREP West & South Wall Footing (Load Dck)	S	2	CONSIG 28SEP07	28SEP07	040	04OCT07				FREP V	South Wall Footing	Wall Foo
	03.3	100.10.08	03.300.10.08 PENTHOUSE											Ĭ	
	ĭ ĭ	URE_PN	WCURE_PNS Water Cure Time for Composit Deck: LVLP_N	z	7	CONSIG	31AUG07A	05.	05SEP07A	2	Water Cure Time f	Cure Time for Composit Deck: LVLP N	ck: LVL	Z	
	CUR	CURB_PN	Form Slab Curb: LVLP_N	z	r.	CONSIG	04SEP07A	12	12SEP07A		Form Stat	Form Stab Curb: LVLP_N		1	
	CDE	ECK_PS2	CDECK_PS20 Pour Concrete for Housekeeping Pads: LVLP_S	w	-	SF	05SEP07A	90	05SEP07A		Pour Concrete for	oncrete for Housekeeping Pads: LVLP	Pads: L/	VLP S	
tiekii.	NO.	URE_PS	WCURE_PS Water Cure Time for Housekeeping Pad: LVLP_S	S	7	CONSIG	05SEP07A	11,	11SEP07A		Water Cure	Nater Cure Time for Housekeeping Pad: LVLP	keeping		Ø
es es es es	REB	REBR_PNS	Install Housekeeping Pad Reinforcements:	z	4	LONGHO 07SEP07A	07SEP07A	.20	07SEP07A		Install Housekeeping Pad Reinforcements: LVLP N	eping Pad Reinfo	orcemer	rts: LVLP N	
render.	NC.	URE_PN	WCURE_PN Water Cure Time for Housekeeping: LVLP_N	z	7	CONSIG	CONSIG 13SEP07A	18:	18SEP07		EN CHARGOVE	Electronic Cure Time for Housekeeping: LVLP N	or Hous	ekeeping: LV	2
	03.3	300,10.09	03.300.10.09 PENTHOUSE MEZZANINE											,	1
	REB	3R_PMS	REBR_PMS Install Slab Reinforcements (Rebar/Mesh): PMZ_S	Ø	4	LONGHO 07SEP07A	07SEP07A	70	07SEP07A		Install Slab Reinforcements (Rebar/Mesh): FMZ S	nforcements (Re	bar/Mes	h): PMZ S	
	CDE	ECK_PMS	CDECK_PMS Pour Concrete for Composite Deck: LVLPM_S	S	-	SF	12SEP07A	13:	13SEP07A		Pour Co	Pour Concrete for Composite Deck: LVLPM	osite De	ck: LVLPM \$	
	ž Š	URE_PM	WCURE_PMS Water Cure Time for Composite Deck: LVLPM_S	S	7	CONSIG	13SEP07A	18:	18SEP07		SWIE STATE	Manager Cure Time for Composite Deck: LVLPM	or Comp	osite Deck: L	VLPM S
	REB	3R_PMN	REBR_PMN Install Slab Reinforcements (Rebar/Mesh):	z	4	LONGHO 19SEP07	19SEP07*	24:	24SEP07			<b>超級</b> Install Slab Reinforcements (Rebar/Mesh): PI	Reinfor	cements (Ret	ar/Mesh)
	CDE	ECK_PMN	CDECK_PMN Pour Concrete for Composite Deck: LVLPM_N	z	-	SF	25SEP07	25:	25SEP07			M Pour Conc	rete for	MPour Concrete for Composite Deck: LVLPM	eck: LVL
#16 A	WC	URE_PMI	$\simeq$	z	7	CONSIG	26SEP07	02,	02OCT07			William	ater Cui	Manage Water Cure Time for Composite De	mposite
	03.4	50 AR	03.450 ARCHITECTURAL PRECAST CONCRET	HIE									100000000000000000000000000000000000000		
rezec.	03.4	50,10.20	03.450.10.20 EXTERIOR, WEST												
	PRC	3AST_100	PRCAST_100 Install Precast Concrete Panels along WWall		m	BRI	26SEP07	28	28SEP07			<b>歐國</b> Install	Precast	See Install Precast Concrete Panels along W	nols along
	03.4	50.10.22	03.450.10.22 EXTERIOR, SOUTH										-		
	PRC	SAST_60	PRCAST_60 Install Precast Concrete Panels along SWall	S	တ	BRI	19SEP07	25	25SEP07			RECORD   Precast Concrete Panels along SWai	cast Co	ncrete Panels	along SV
reia)															
	04.81	10 UN	04.810 UNIT MASONRY ASSEMBLIES												
	04.8	10.10.00	04.810.10.00 LEVELA												
	VBA	'R_EW90	VBAR_EW90 Install VBar/Ins, Elev. Shafts, S-Side, LVLA	S	-	PCI	17SEP07*	173	17.SFP07		Inst	Mustall VBarins Fley Shaffe C Side 1 V/ A	Chaff	C Cido IV	
	CMC	J_EW80	CMU_EW80 Install CMU, Elev. Shafts, N-Side, LVLA	z	m	EMPIRE	25SEP07	72	27SEP07				MUEle	図図Install CMU Elev. Shafts. N-Side. LVIA	ide, LVI
											L				
							2	91							

sheet 2 of 9

Activity ID	Activity Description	Side	Orig	RESP	Early	Actual	Early Actual	2007	100
			i			(Write-In)	_	10 47 24 4	- 8
04.810.10.01 LEVEL	LEVEL 1							11, 21,	67 77 CI
CMU_EW110	CMU_EW110 Install CMU, Elev. Shafts, S-Side, LVL1	ഗ	က	EMPIRE	EMPIRE 30AUG07A	7	10SEP07A	Install CMU, Elev. Shafts, S-Side, LVL1	
VBAR_EW11	VBAR_EW11d Install VBar/Ins, Elev. Shafts, S-Side, LVL1	w	٠-	PCI	25SEP07	120	25SEP07	Binstall VBar/lins, Elev. Shafts, S.Side, LVL1	Shafts, S-Side, LVL1
CMU_EW100	CMU_EW100 Install CMU, Elev. Shaffs, N-Side, LVL1	z	60	EMPIRE	01OCT07	0	03OCT07	SEEII CMU	Malinstall CMU, Elev. Shafts, N-Side,
04.810.10.23	04.810.10.23 EXTERIOR, EAST WALL								
CMU_EW50	CMU_EW50 Install CMU, EWall, S-Side, LVL1	S	3	EMPIRE	EMPIRE 29AUG07A	1	11SEP07A	Install CMU, EWall, S-Side, LVL1	
CMU_EW120	CMU_EW120 Grout CMU Infill of Existing Garage Openings	S	c,	CONSIG	CONSIG 30AUG07A	ŏ	05SEP07A	Grout MU Infill of Existing Garage Openings	
CMU_EW60	Install CMU, EWall, S-Side, LVL2+	S	c <sub>2</sub>	EMPIRE 12SEP07	12SEP07	131	18SEP07	Market Install CMU, EWall, S-Side, LVL2+	112+
VBAR_EW40	VBAR_EW40 Install VBar/Ins, EWall, S-Side, LVLA	S	2	PCI	19SEP07*	22	20SEP07	Minstall VBarlins, EWall, S-Side, LVLA	de, LVLA
VBAR_EW10	VBAR_EW10 Install VBar/Ins, EWall, N-Side, LVLA	z	2	PCI	24SEP07	122	25SEP07		II, N-Side, LVLA
VBAR_EW50	VBAR_EW50 Install VBar/Ins, EWall, S-Side, LVL1	S	2	PCI	26SEP07	2.	27SEP07	Mallustall VBarilus, EWall, S-Side, LVL1	Vail, S-Side, LVL1
CMU_EW20	Install CMU, EWall, N-Side, LVL1	z	r)	EMPIRE	01OCT07	ĕ	05OCT07	Manual Install Ch	EWAII, N-Side, LVL
VBAR_EW60	VBAR_EW60 Install VBar/Ins, EWall, S-Side, LVL2+	S	2	PCI	03OCT07	Ŏ	04OCT07	ESSInstall VB	Minstall VBarlins, EWall, S-Side, L
05.120 ST	05.120 STRUCTURAL STEEL							A CONTRACTOR OF THE CONTRACTOR	
05.120.10.01 LEVEL 1	LEVEL 1								
CONN_L1S	Install Precast Connection Steel: LVL1_S	S	9	BRI	21AUG07A	180	06SEP07A	Instal Precast Connection Steel: LVI 1 S	
CONN_L1N	Install Precast Connection Steel: LVL1_N	z	r2	BRI	06SEP07A	7	14SEP07	Install Precast Connection Steel: 1VI 1 N	N 11 N
SEISM_L1N	Install Seismic Clips: LVL1_N	z	ιΩ	BRI	06SEP07A	+	17SEP07	Market Install Seismic Clips: LVL1 N	
SEISM_L1S	Install Seismic Clips: LVL1_S	Ø	'n	BRI	06SEP07A	17	18SEP07	Install Seismic Clips: UVL1_S	•
05.120.10.02 LEVEL 2	LEVEL 2								
		s	ເດ	BRI	21AUG07A	ŏ	06SEP07A	Instal Precast Connection Steel: LVI/2_S	
	Install Precast Connection Steel; LVL2_N	z	ιΩ	BRI	06SEP07A	1	14SEP07	Walnstall Precast Connection Steel: LVL2 N	VL2 N
SEISM_L2S	Install Seismic Clips; LVL2_S	v	r.	BRI	12SEP07A	+	17SEP07	Install Seismic Clips: LVL2 S	
SEISM_L2N	Install Seismic Clips; LVL2_N	z	rs.	BRI	17SEP07	2	21SEP07	Wastell Seismic Clips: LVL2 N	N,
05.120.10.03 LEVEL 3									
CONN_L3S	Install Precast Connection Steel: LVL3_S	တ	ιΩ	BRI	23AUG07A	÷2	12SEP07A	Install Precast Connection Steel: LVL3_S	3_8
05.120.10.04 LEVEL 4	LEVEL 4		İ						
CONN_L4S	Install Precast Connection Steel: LVL4_S	S	5	BRI	23AUG07A	1:	12SEP07A	Install Precast Connection Steel: LVL4_S	4_S
05.120.10.05 LEVEL 5	LEVEL 5								,
CONN_L5S	CONN_L5S Install Precast Connection Steel: LVL5_S	S	ιn	BRI	23AUG07A	1.	12SEP07A	Install Precast Connection Steel: LVL5_S	S_6
05.120.10.06 LEVEL 6									
CONN_L6S	Install Precast Connection Steel: LVL6_S	S	2	BRI	24AUG07A	=	12SEP07A	Install Precast Connection Steel: LVL6 S	8 9
05.120.10.07 LEVEL 7	LEVEL 7								
CONN_L7S	Install Precast Connection Steel: LVL7_S	S	2	BRI	24AUG07A	1	12SEP07A	Install Precast Connection Steel: LVL7_S	7_s
05.120,10.08	05.120.10.08 PENTHOUSE								
CONN_PS	Add Precast Connection Steel: LVLP_S	တ	5	BRI	15SEP07	×	20SEP07	Management Add Precast Connection Steel: LVLP_S	eel: LVLP_S

neet 3 of 9

l				2 40	(Mrita-In)		SEP.	3
CONN_PN A	Add Precast Connection Steel: LVLP_N	υ Z	BRI	02OCT07	09OCT07	(Incentra)	17 24 1	1 8 15 22 29
5.120.10.09 Pi	05.120.10.09 PENTHOUSE MEZZANINE							
CONN_PMS A	CONN_PMS   Add Precast Connection Steel: LVLPM_S 05.120.10.10 PENTHOUSE ROOF	S	BRI	22SEP07	27SEP07		Residence Add	Manage Add Precast Connection Stepl: LVLPM_S
SONN_PRS 4	CONN_PRS Add Precast Connection Steel: LVLPR_S 05.511 STANDARD METAL STAIRS	S	BRI	26SEP07	01OCT07			With the Steel: UVL
	Szártany goldshiraleatón							
05511-181 P	Pour/Cure Landings of Stair #2 (LVL6-PENTH)	S 2		19SEP07	20SEP07		™Pour/Cure La	Pour/Cure Landings of Stair #2 (LVL6-PENTH)
8	ENTHOUSE							
05511-90 R	Rough Assembly of Stair #2, PENTH-S	S S	CAPONE	CAPONE 04SEP07A	18SEP07		Rough Assemb	Remarkan Rough Assembly of Stair #2, PENTH-S
100 ROU	06.100 ROUGH CARPENTRY							
. <b>100.10 CC</b> 6.100.10.10 P	06:100-10 CONSTRUCTION 06:100,10:10 PENISTRUCTION							
WALLS_PRS F	WALLS_PRS Roof Blocking & Parapit Framing- Penth Roof S	S 10	PC	24JUL07A	12SEP07		Roof Blocking & Paran	Blocking & Parabit Framing. Penth Roof 8
WALLS_PRN F	WALLS_PRN Roof Blocking & Parapit Framing- Penth Roof N	N 10	<u>S</u>	29AUG07A	14SEP07		Roof Blocking & Par	Report Blocking & Parapit Framing-Penth Roof N
0		20		13SEP07*	11OCT07			A Penthons
07.531 TPO ME 07.51 10.99 ROOF 07.531.10.99 ROOF	TPO MEMBRANE ROOFING  10.5 SONSITUICHEN  0.59 ROOF						-	-
ROOF_70 In	Install Vapor Barrier: High Roof	2	GREENV	GREENW 17SEP07*	18SEP07		Malnstall Vapor Barrier: High Roo	arrier: High Roof
	Install Dense Deck: High Roof (1st of 2)	3	GREENV	GREENW 19SEP07	25SEP07		es a se la company de la compa	REALINE Note   Dense Deck: High Roof (1st of 2)
	Install Rigid Insulation: High Roof	S)	GREENV	GREENW 26SEP07	02OCT07			Resear Install Rigid Insulation: High Roof
ROOF_120 II	Install Dense Deck: High Roof (2nd of 2)	5	GREENV	GREENW 03OCT07	10OCT07			Install Dense Deck: High
.811 SPR	07.811 SPRAYED FIRE-RESISTIVE MATERIALS	ALS						
	Start of Fireproofing - North	0	EASTCO	19SEP07*			Start of Fireproofing - North	oofing - North
MILEF_FPRS C	Completion of Fireproofing - South	0	EASTCO		25SEP07		<b>⊕</b> Comb	Completion of Fireproofing - South
07.811.10.01 LEVEL 1								
PROF_L1N F	FPROF_L1N Fireproofing (SFRM): LVL1_N	Z 4	EASTCO	EASTCO 19SEP07	24SEP07		Fireproo	Representation (SFRM): LVL1_N
07.811.10.02 LEVEL 2								
PROF_L2N F	FPROF_L2N   Fireproofing (SFRM); LVL2_N	Z 4	EASTCO	EASTCO 25SEP07	28SEP07		Fire	EXERIFERING (SFRM): LVL2 N
FPROF (3N EIGHTS)	07.811.10.03 LEVEL 3	ŀ						
T 757 757			1		_	-		

Sheet 4 of 9

Activity Activity	NS.	Orig		Early	Actual	Early	Actual			2007		
	oide	ā	Į,	этап	Start (Write-In)	rinish	Finish Write-In)	4	35 Y	0		8
07.811,10.06 LEVEL 6					(11111111111111111111111111111111111111		(111.00111)	OT.	*	•	77 CI	3
FPROF_L6S Fireproofing (SFRM); LVL6_S	Ø	ო	EASTCO	EASTCO 04SEP07A		07SEP07A		Fire roo	Fire roofing (SFRM): LVL6_S	s,		
07.811.10.07 LEVEL 7												-
FPROF_L7S Fireproofing (SFRM): LVL7_S	S	6	EASTCO	EASTCO 07SEP07A		11SEP07A			Fireproofing (\$FRM): LVL7_S	VL7_S		H
07.811.10.08 PENTHOUSE												
FPROF_PS Fireproofing (SFRM): LVLP_S	ဟ	ო	EASTCO	EASTCO 12SEP07A		14SEP07			ENFireproofing (SFRM): LVLP S	S TATA		H
FPROF_PSC Fireproofing (SFRM): LVLP_S Columns & Low	တ	ო	EASTCO	EASTCO 12SEP07		14SEP07			翻Fireproofing (SFRM): LVLP S Columns & Low Roof	I): LVLP S Co	olumns & Low Ro	Jo.
FPROF_PN Fireproofing (SFRM): LVLP_N	z	4	EASTCO	EASTCO 26SEP07		01OCT07				■Fireproofing	Eireproofing (SFRM): LVLP_N	닏
FPROF_PNC Fireproofing (SFRM): LVLP_N Columns & Low	z	4	EASTCO	EASTCO 26SEP07		01OCT07				<b>■</b> Fireproofing	Estreproofing (SFRM): LVLP_N Colum	팅
07.811.10.09 PENTHOUSE MEZZANINE												4
FPROF_PMS Fireproofing (SFRM): LVLPM_S	S	m	EASTCO	EASTCO 19SEP07		21SEP07			図面を Fireproofing (SFRM): LVLPM_S	g (SFRM): LV	/LPM_S	_
FPROF_PMN Fireproofing (SFRM): LVLPM_N	z	4	EASTCO	EASTCO 030CT07		09OCT07		Firep oo	Fireproofing (SFRM): LVLPM_1231888			
07.811.10.10 PENTHOUSE ROOF												
FPROF_PRS Fireproofing (SFRM); LVLPR_S	o	ო	EASTCO	22SEP07		25SEP07			<b>EXERTIFIED</b>	<b>欧国</b> Fireproofing (SFRM): LVLPR_S	A): LVLPR_S	
07.920 JOINT SEALANTS  OF SOLUTION SEALANTS  OF SOLUTION SEALANTISE									_	100	-	_
07920 2 N Install Floor Expansion Isint DENTIL N 9Cot	2	Ŀ		1000007		1001			Blackfil Eloca	ol adjacon	Blackfill Floor Evenerity Joint DENTIL N. 90.	-
r				וספרו מי		1935			I			5
MILES_D_BS Start Work on Doors and Windows: LVLA-S	S	0		21SEP07					• Start Work	on Doors and	Start Work on Doors and Windows: LVLA-S	S-
MILES_D_BN Start Work on Doors and Windows: LVLA-N	z	0		26SEP07					<b>♦</b> Start	Work on Doc	Start Work on Doors and Windows: LVLA-	אַ
MILES_D_PS Start Work on Doors and Windows: Penthouse-S	S S-8	٥		26SEP07					Start	Work on Doc	Start Work on Doors and Windows: Pentho	: Penti
MILES_D_1S Start Work on Doors and Windows: LVL1-S	G	0		28SEP07					• Str	art Work on D	Start Work on Doors and Windows: LVL	vs: LV
08.110 STEEL DOORS AND FRAMES	4											
+ 08,110,10,00 LEVEL A												TATOMETRIS.
		4		21SEP07		26SEP07				1		
+ 08.110.10.01 LEVEL 1												
7777077071	Ø	-		28SEP07		28SEP07			E I			
+ 08.110.10.08 PENTHOUSE												
	S	~		26SEP07		26SEP07						
08.211 FLUSH WOOD DOORS  98.211 10.00 GONSHALCHION  + 08.211 10.00 FVEL A												
		4		21SEP07		26SEP07						$\vdash$
+ 08.211.10.01 LEVEL 1												
	S	-		28SEP07		28SEP07						
												1
				She	Sheet 5 of 9							

heet 5 of 9

Activity Activity		SAN	Orig	Early	Actual	Early Actual			2007		
			ur RESP			Finish Finish		SEP		ОСТ	
			-		(Write-In)	(Write-In)	n) 10	,17 24	1,	15	22 29
08.311 ACCESS DOORS AND FR.	FRAMES										
OBSAGRIO CONSURDENION									The second second		
+ 08.311.10.08 PENTHOUSE		ŀ									
	Z		2	01OCT07	0	02OCT07					
08.329 INTEGRATED DOOR ASSI	SSEMBLIES									CALL AND CALL OF SERVICE SERVICES	
+ 08 329 40 00 1 EVEL A									The state of the s		
		F	4	21SEP07	6	26SEP07		Simple Si			
08 331 OVERHEAD COILING DOC	80000				,	20 1700			-		
23,000	ONO										
i iii											
	0)	S		21SEP07		21SEP07		<b>S</b>			
+ 08.331.10.01 LEVEL 1								L			
	67	S		28SEP07		28SEP07			88	-	
08.411 ALUMINUM-FRAMED ENT	ENTRANCES AND STOREFRONTS	IS C	OREF	RONTS							_
# ~:I											
	0)	s	1	21SEP07		21SEP07		<b>23</b>			
+ 08.411.10.01 LEVEL 1											
	0)	S	_	28SEP07		28SEP07					
08.911 GLAZED ALUMINUM CUR	<b>URTAIN WALLS</b>										
BRETH IN CONSTIR COTTON											
										-the water that the property of the property o	
CW_CLIPS Install Curtain Wall Clips		-	25 SALEM	EM 20AUG07A		18SEP07		me Install C	and Install Curtain Wall Clips		
CW-PH200 2nd Fir W b/w 1&12, S b/w A&C			6 SALEM	EM 010CT07		09OCT07	2nd FlrW	W b/w 1812, S b/w A8(	'w A&(		
09.111 NON-LOAD-BEARING STE	STEEL FRAMING										
09.414 for CONSTRUCTION											
09.111.10.00 LEVEL A		ŀ								AND THE PERSON NAMED OF TH	
WALLS_BS_1 Frame Metal Stud Walls- BASMNT-S		s	s .	04SEP07A		21SEP07		MF ram	图Frame Metal Stud Walls- BASMNT-S	Is- BASMNT.	S
WALLS_BN_1 Frame Metal Stud Walls- BASMNT-N		z	5	26SEP07		02OCT07			Market Metal Stud Walls- BASMNT-I	etal Stud Wal	Is- BASMNT
09,111,10.01 LEVEL 1										-	
WALLS_1S_9 Frame Top Track(s): LVL1_S	60	s	2	12SEP07*		13SEP07		Frame Top Track(s): LVL1_S	ick(s): LVL1_S		
WALLS_1N_9 Frame Top Track(s): LVL1_N		z	2	25SEP07		26SEP07	<b>-</b>		MFrame Top Track(s): LVL1_N	k(s): LVL1_N	
WALLS_1S_1   Frame Metal Stud Walls- LVL1-S		S	2	28SEP07		04OCT07		1	Frame Metal Stud Walls- LVL1-S	Metal Stud M	Valls- LVL1-
09.111.10.02 LEVEL 2		ŀ									
WALLS_2S_9 Frame Top Track(s): LVL2_S		S	2	12SEP07A		13SEP07	I I	题Frame Top Track(s): LVL2_S	ıck(s): LVL2_S		
WALLS_2S_1 Frame Metal Stud Walls- LVL2-S		S	5	12SEP07A		12OCT07				TENNESTRANDE Metal Stud Walls	tal Stud Wa
					09-01						

heet 6 of 9

WALLS_2N_9 Frame Top Track(s): LVI2_N         N           09.111.10.03 LEVEL 3         N           09.111.10.04 LEVEL 4         S           09.111.10.04 LEVEL 4         S           WALLS_4S_9 Frame Top Track(s): LVI.4_S         S			Start Start	Finish Finish	
Ζ	+		(write-in)	(Write-In)	10 17 24 1 8 15 22 29
w w	7	_	01OCT07	02OCT07	(s): LVL2_N
v, v,					
S	7	_	12SEP07	13SEP07	Frame Top Track(s): LVL3_S
90					
	7		12SEP07	13SEP07	■ Marame Top Track(s): LVL4_S
WALLS_5S_9 Frame Top Track(s): LVL5_S	2		12SEP07	13SEP07	Frame Top Track(s): LVL5_S
09.111.10.06 LEVEL 6				7.10.000	
WALLS_6S_9 Frame Top Track(s): LVL6_S	2		12SEP07	13SEP07	MPrame Top Track(s): LVL6 S
09.111.10.07 LEVEL 7					7
WALLS_7S_9 Frame Top Track(s): LVL7_S	2		12SEP07	13SEP07	MFrame Top Track(s): LVL7 S
09.111.10.08 PENTHOUSE					
WALLS_PS_9 Frame Top Track(s): PENTH_S	2		10SEP07A	17SEP07	Frame Top Track(s): PENTH S
WALLS_PS_1 Frame Metal Stud Walls- PENTH-S S	20		26SEP07	02OCT07	Management of the Marie-Penth-S
WALLS_PN_9 Frame Top Track(s): PENTH_N	2		02OCT07	03OCT07	Frame Top Track(s): PENTH N
19XVV FIRE PROJECTION  45:302/10 GONSTRUCTION					
MILES_FP_N Start of Fire Protection, North N	0	CC	25SEP07		Start of Fire Protection North
15.300.10.00 LEVEL A					•
FP_RUF_BS Rough-In Fire Protection, LVLA-S	2	သူ	12SEP07	18SEP07	Record Protection, LVLA-S
15300.3_BS Install FP Controls at Stairwells, LVLA-S S	2	ဒ္ဌ	19SEP07	20SEP07	In Install FP Controls at Stairwells, LVLA-S
FP_RUF_BN Rough-In Fire Protection, LVLA-N N	S	၁၁	25SEP07	01OCT07	Market Rough-In Fire Protection, LVLA-N
15300.1_BN Pressure Test Fire Sprinkler System, LVLA-N N	-	သူ	02OCT07	02OCT07	MPressure Test Fire Sprinkler Syster
15300.3_BN Install FP Controls at Stairwells, LVLA-N N	2	ည်	02OCT07	03OCT07	Islanda I Stairwells, L
15300.2_BN Install Sprinkler Heads, LVI.A-N N	-	ည	03OCT07	03OCT07	
15.300,10.01 LEVEL 1					
FP_RUF_1S Rough-In Fire Protection, LVL1-S S	2	၁၁	19SEP07	25SEP07	Basing Rough-in Fire Protection, LVL1-S
15300.1_1S Pressure Test Fire Sprinkler System, LVL1-S S	-	200	26SEP07	26SEP07	图Pressure Test Fire Sprinkler System, LVL
15300.3_1S Install FP Controls at Stairwells, LVL1-S S	2	၁၁	26SEP07	27SEP07	Sall FP Controls at Stairwells, LVL1-S
FP_RUF_1N Rough-in Fire Protection, LVL1-N N	co	သူ	02OCT07	09OCT07	Rough-In Fire Protection.
15.300.10.02 LEVEL 2					
15300.1_2S Pressure Test Fire Sprinkler System, LVL2-S S	-	200	26SEP07	26SEP07	Pressure Test Fire Sprinkler System, I.VL.
15300.3_2S Install FP Controls at Stairwells, LVL2-S S	2	ည္ခ	26SEP07	27SEP07	
15.300.10.03 LEVEL 3					
FP_RUF_3S Rough-In Fire Protection, LVL3-S S	2	ည	04SEP07A	11SEP07A	Rough-In Fire Protection, LVL3-S
15300.1_3S Pressure Test Fire Sprinkler System, LVL3-S S	-	၁၁၄	12SEP07	12SEP07	图Pressure Test Fire Sprinkler System, LVL3-S
15300.3_3S Install FP Controls at Stairwells, LVL3-S S	2	200	12SEP07	13SEP07	Mainstall FP Controls at Stairwells. LVL3-S

theet 7 of

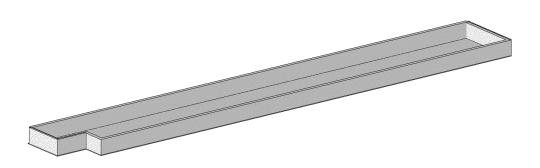
Description   Description   Side   Dur   RESP   Start   Start	Finish   (Write-In)   (Write-	SEP OCT 29 1 8 15 22 29  10 17 24 1 8 15 22 29  Pressure Test Fire Sprinkler System, LVL4-S  Samstall FP Controls at Stainvells, LVL4-S  Samstall FP Controls at Stainvells, LVL4-S  Samstall FP Controls at Stainvells, LVL5-S  Samstall FP Controls at Stainvells, LVL6-S  Samstall FP Contr	m. LVL4-S -VL4-S -VL4-S -VL4-S irwelis, LVL5-S ection, LVL6-S esprinkler syste
14-5  S	17SEP07 18SEP07 19SEP07 26SEP07 26SEP07 26SEP07 010CT07 03OCT07 03OCT07	10 17 24 1 8 //  Emergen Rough-In Fire Protection, LVL4-S  Embressure Test Fire Sprinkler Systems and Stainwells  Embressure Test Fire Sprinkler Systems and Stainwells  Embressure Test Fire Sprinkler Sprink	m. LVL4-S -VL4-S -VL4-S ler System, LVL5-S invells, LVL5-S ection, LVL6-S estinnkler Syste
1.4.5. System, LVL4-S. S. 1  1.5.5. System, LVL5-S. S. 2  1.5.5. System, LVL5-S. S. 1  1.6.5. System, LVL6-S. S. 1  1.6.5. System, LVL6-S. S. 1  1.6.5. System, LVL6-S. S. 1  1.6.5. S. 2  1.6.5. S. 2  1.6.5. System, LVL6-S. S. 5  1.6.5. System, LVL6-S. S. System, LVL6-S. S	17SEP07 19SEP07 19SEP07 24SEP07 26SEP07 26SEP07 010CT07 03OCT07 03OCT07 03OCT07 03OCT07	Pressure Test Fire Sprinkler Systems Blustall FP Controls at Statrwells  Blustall FP Controls at Statrwell FP Control	m, LVL4-S -VL4-S -VL5-S irvelis, LVL5-S ection, LVL6-S espinkler syste
## Company of the com	18SEP07 19SEP07 24SEP07 26SEP07 26SEP07 010CT07 03OCT07 03OCT07 03OCT07 25SEP07 25SEP07	Eginstall FP Controls at Statuwels  Eginstall FP Controls at Statuwels  Eginstall FP Controls at Statuwels  Eginstall FP Controls at S  Eginstall FP Control S  Eginstall	WLALSS WLASS WLASS WLASS WLASS WITWELLS WITWELLS STATING WITMAR WLASS WL
## Company of the Property of	24SEP07 24SEP07 26SEP07 26SEP07 010CT07 030CT07 030CT07 030CT07 030CT07 25SEP07A 25SEP07	Manual IFP Controls at Stairweis Estairweis Manual IFP Controls at Stairweis Manual IFP Control Manual I	VL6-S irwells, LVL5-S ectioh, LVL6-S ectioh, LVL6-S a Sprinkler Syste
A.5.S. S. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	24SEP07 26SEP07 26SEP07 26SEP07 010CT07 020CT07 030CT07 030CT07 25SEP07A 25SEP07	Remark Rough in Fire Protection, Remark Rough in Fire Protection, Remark Rough in Fire Protection, LVL7 Remarks Remark Rough in Fire Protection, LVL7 Remarks Remark Rough in Tank & Pump Remark Rough in Tank & Rough Remark Rough in Tank & Rough in Rough in Tan	VL6-S irwells, LVL6-S ectioh, LVL6-S ectioh, LVL6-S a Sprinkler Syste
A.6-S. S. 5 5 5 5 5 6 6 9 6 9 6 9 6 9 6 9 6 9 6 9	24.SEP07 26.SEP07 26.SEP07 26.SEP07 01.0C.T07 03.0C.T07 03.0C.T07 03.0C.T07 03.0C.T07 25.SEP07A 25.SEP07	Cough-In Fire Protection, LVL7.	irwells, LVL5-S ection, LVL6-S ection, LVL6-S estion, LVL6-S estion, LVL6-S estion, LVL6-S every experience of the series of the
System, LVL5-S S 1  Ale.S S 2  Ale.S S 5  Ale.S S 6  System, LVL6-S S 1  Ells, LVL6-S S 7  Al.7-S S 5  MTROLLERS  MTROLLERS  S 6  mp to Emergency S 5  R Pump S 15	26SEP07 26SEP07 010CT07 020CT07 030CT07 090CT07 05SEP07A 25SEP07	Regissure Test Fire Sprin Regissure Test Fire Sprin Regissure Test Fire Ford Regissure Test Fire Ford Regissure Test Fire Ford Regissure Test Fire Fordection, LVL7 Regissure Regissure Ford Dil Tank & Pump Regissure Fuel Dil Tank & Pump Regissure Fuel Dil Tank & Regissure Fuel D	irwells, LVL5-S ectioh, LVL6-S ectioh, LVL6-S a Sprinkler syste
ALT-S S 2 2  ALG-S S 5 5  System, LVL6-S S 1  ALT-S S 2  ALT-S S 5  MTROLLERS  MTROLLERS  S 5  mp to Emergency S 5  R Pump S 15	26SEP07 010CT07 020CT07 030CT07 090CT07 06SEP07A 25SEP07	Cough-In Fire Protection, LVL7 STREETS II FP Controls at Street Freet Fr	ectioh, LVL6-\$ ectioh, LVL6-\$ es Sprinkler Syste bis at Stairwells, bump to Emerge
A. System, LVL6-S S 1 1 ells, LVL6-S S 2 2 A.7-S S 5 5 5 A.7-S S 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	010CT07 020CT07 030CT07 090CT07 06SEP07A 25SEP07	Cough-In Fire Protection, LVL7 STREETS II FP Control Dil Tank & Pump  STREETS II Fuel Dil Tank & Pump  STREETS II Fuel Dil Tank & Bump  STREETS II Fuel Dil Tank & Bump  STREETS II Fuel Dil Tank & Bump	ectioh, LVL6-\$ es Sprinkler Syste bis at Stairwells, bump to Emerge
A.6-S. S. 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	030CT07 030CT07 030CT07 090CT07 06SEP07A 25SEP07	Cough-In Fire Protection, LVL7 SERVING SIND Flee Protection, LVL7 SERVING SIND SIND SIND SIND SIND SIND SIND SIND	ectioh, LVLG-S e Sprinkler Syste
System, LVL6-S S 1  RIS, LVL6-S S 2  A.7-S S 5  INTROLLERS  MP 10 Emergency S 5  R Pump S 15	030CT07 030CT07 090CT07 06SEP07A 25SEP07	Cough-In Fire Protection, LVL7 SERVINGER   Expension   Fort Fire Protection, LVL7 SERVINGER   Expension   Fort Fire Protection, LVL7 SERVINGER   Expension   Fort Fire Fire Fire Fire Fire Fire Fire Fire	e Sprinkler systemells, startwells, but at Stairwells, but to Emerge
A.T.S. S. S. Z. A.T.S. S. MTROLLERS.  NTROLLERS.  S. S	03OCT07 09OCT07 06SEP07A 25SEP07 27SEP07	Cough-In Fire Protection, LVL7 SESSESSING TO THE PROPERTY OF THE OIT THE PROPERTY OF THE OIT THE OIT THE PROPERTY OF THE PROPE	ols at Stairwells,
A.7-S S 5 NTROLLERS  amp to Emergency S 5 S 9 Whyp S 15	080CT07 06SEP07A 25SEP07 27SEP07	Cough-In Fire Protection, LVL7 STREETS IN The Protection of LVL7 STREETS IN THE Protection of LVL7 STREETS IN THE Protect Fuel Oil Tank & Bump STREETS Commission Fuel Oil Tank & STREETS Commission Fuel Oil Tank & STREETS IN THE STREET STREETS IN THE STREET STREETS IN THE STRE	oump to Emerge
A.T.S. S 5 NTROLLERS  on the following of 5 NP and the following of 5	080CT07 06SEP07A 25SEP07 27SEP07	Cough-In Fire Protection, LVL7 Secretarian  Instal Fuel Dif Tank & Pump  Excess Connect Fuel Dif Tank & Bank & Ban	bump to Emerge
NTROLLERS  but to Emergency S 5  R Pump S 15	06SEP07A 25SEP07 27SEP07	Instal Fuel Dif Tank & Pump	Pump to Emerge
0 LEVELA           Install Fuel Oil Tank & Pump         \$ 5           P Connect Fuel Oil Tank & Pump to Emergency         \$ 5           T Commission Fuel Oil Tank & Pump         \$ 2           FuelSys: Install Inner Piping         \$ 15           LUMBING         \$ 15	06SEP07A 25SEP07 27SEP07	Instal Fuel Dil Tank & Pump Connect Fuel Dil Tank & Importantesion Fuel Oil Tank & Importante	Jump to Emerge
Oil Tank & Pump S 5 5 6 Oil Tank & Pump to Emergency S 5 5 1 Fuel Oil Tank & Pump S 2 2 stall Inner Piping S 15	06SEP07A 25SEP07 27SEP07	Instal Fuel Dil Tank & Pump	ump to Emerge
Oil Tank & Pump to Emergency   S   5   CANNIS	25SEP07 27SEP07	EXECUTE OIL Tank & EXECUTE OIL T	ump to Emerge
5         2         CANNIS           5 stall Inner Piping         S         15         WFLYN           24IjQN         S         15         WFLYN	27SEP07	SCommission Fuel Oil	
stall Inner Piping S 15 WFLYN	_		ank & Pump
5.400 PLUMBING	17OCT07		FuelSys: Install In
15.400.10.00 LEVEL A			
PLMB_RZS_1 Rough-In Hot & Cold Water Dist./Pipe - Riser S 20 WFLYN 30AUG07A	27SEP07	Rough-In Hot & Cold Water Dist./Pipe - R	ater Dist./Pipe - I
PLMB_RZS_2 Rough-In Sanitary Waste & Vent Pipe - Riser S 25 WFLYN 30AUG07A	05OCT07	Rough-In Sa	age Rough-In Sanitary Waste & Ven
PLMB_RZN_3 Rough-In Roof/Rain Drainage - Riser N 20 WFLYN 10SEP07A	28NOV07		
PLMB_RZS_3 Rough-In RooffRain Drainage - Riser & Branches S 20 WFLYN 12SEP07*	10OCT07	Responsible to the second seco	Rough-In Roof/Rain Drain
PLMB_R_BS1 Rough-In Hot & Cold Water Dist./Pipe, BASMNT-S S 20 WFLYN 24SEP07	220CT07		Rough-In H
15400-INST Set Ejector Pumps N 2 WFLYN 26SEP07	27SEP07	Set: Ejector Pumps	
PLMB_RZN_1 Rough-In Hot & Cold Water Dist./Pipe - Riser N 20 WFLYN 010CT07	29OCT07		Ro
PLMB_R_BS2 Rough-In Sanitary Waste & Vent Pipe, BASMNT-S S 20 WFLYN 010CT07	29OCT07		Ro
PLMB_RZN_2 Rough-In Sanitary Waste & Vent Pipe - Riser N 25 WFLYN 010CT07	05NOV07		
PLMB_R_RN3 Rough-In Roof/Rain Drainage Pipe, ROOF-N N 20 WFLYN 12SEP07	10OCT07	Contraction of the Contraction o	■Rough-In Roof/Rain Drain
15.500 HEATING, VENTILATION AND AIR CONDITIONING			
MILES_H_S Start HVAC Work - South S 0 WFLYN 17SEP07*		Start HVAC Work - South	

				E E				1999
ID Description	Side	Ž	RESP	Start	Start	Finish	Actual Finish	SFP 2007
					(Write-In)		(Write-In)	24 1 8
HVAC_SHFT2 Install HVAC Ductwork: Shaft 2	S	10	WFLYN 1	17SEP07		28SEP07		Market Market Shartwork: Sh
HVAC_SHFT1 Install HVAC Ductwork: Shaft 1	S	10	WFLYN	01OCT07		15OCT07	=	Install IVAC Ductwork: Shaft
15.500.10.08 PENTHOUSE		-	1					
15505-CURB Set Prefab Fan Curb		2	WFLYN 17SEP07*	7SEP07*		21SEP07		Samuel Set Prefab Fan Clurh
		20						
48 000 ELECTRICAL								
ISSUE ELECTRICAL	Control of the State of the	Message of the same						
15:000.10.00 LEVEL A								
16000_10 Set: Transformer & Switchgear, BASE-N	z	2	OGHEI	COGHLI 04SEP07A		12SEP07		Set: Transformer & Switchoos RASE N
EPWRD_R_B' Rough-In Electrical Power Distribution: BASE-S	S	2	COGHLI 24SEP07	4SEP07		28SFP07		ROLIGH-IN Flortrical Dougs Distribution:
EPWRD_R_BI Rough-In Electrical Power Distribution; BASE-N	z	5	COGHLI 03OCT07	13OCT07		100CT07		Sample Supplied to the supplined to the supplied to the supplied to the supplied to the suppli
16.000.10.07 LEVEL 7								
16000.9_7S Run Conduit: LVL7-S	S	10	COGHLI 17SEP07*	17SEP07*		28SEP07		Material Run Conduit: LVI 7-S
16.000.10.08 PENTHOUSE		-						
16000-INST Set: 750kW Generator	S	4	COGHLI 19SEP07	I9SEP07		24SEP07		Sarkage Set: 750kW Generator
16001-INST Set: Electrical Substation: Penth-S	Ø	4	COGHLI 20SEP07	SOSEP07		25SEP07		
								Marsanset: Electrical Substation: Penth-S
								Section Substation: Perting
								Section Substation: Perting

Appendix V: 4-D Modeling

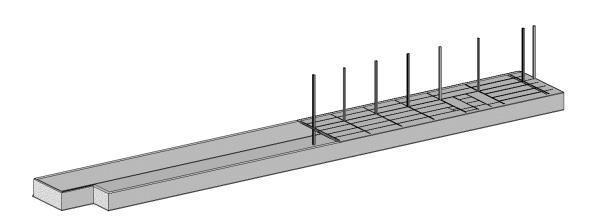
## March 2007





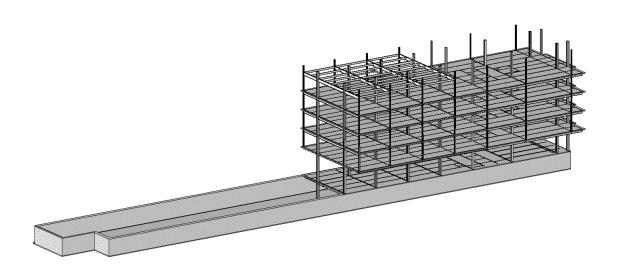
## April 2007





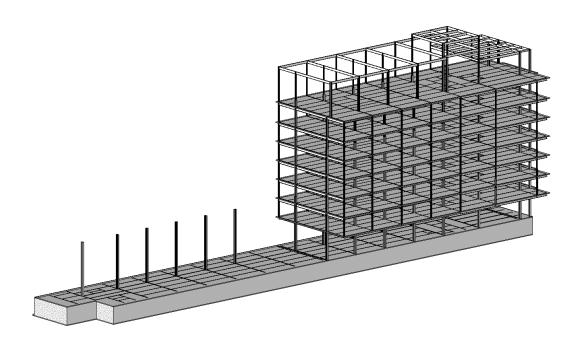
## May 2007





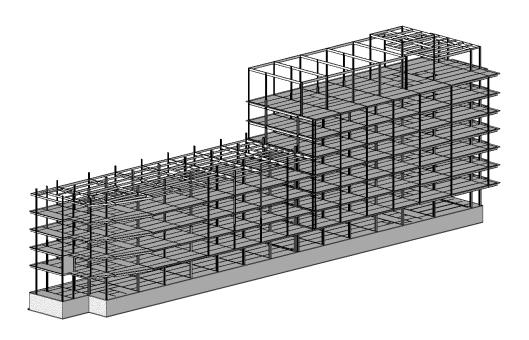
June 2007





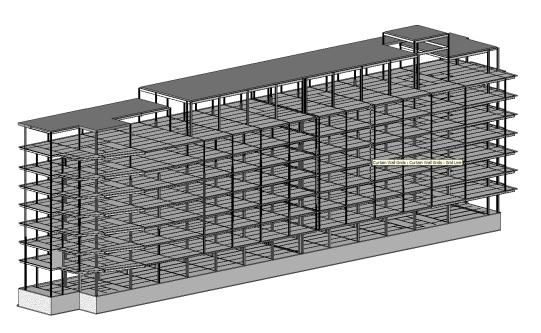
July 2007





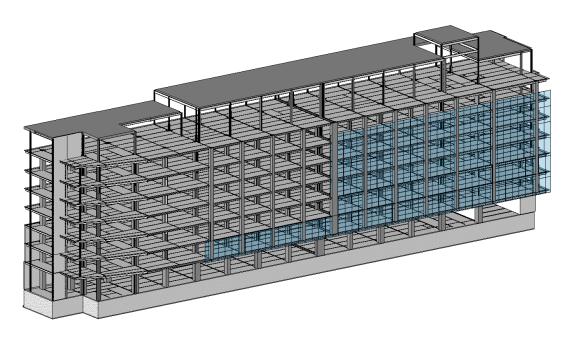
## August 2007





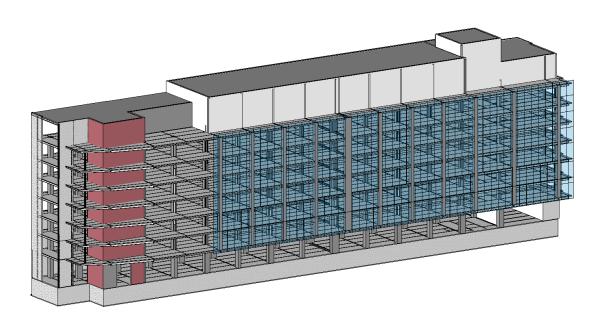
## October 2007





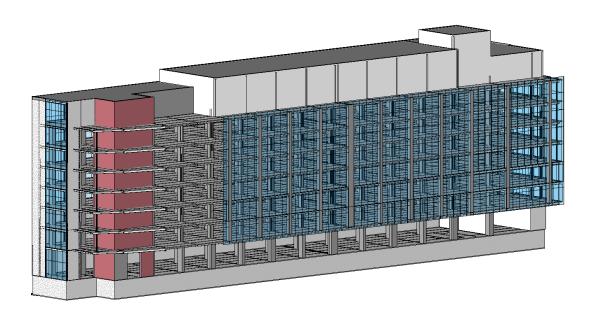
#### November 2007





#### January 2008





#### **Appendix VI: Quantity Tables and Calculations**

<u>Length</u>	Weight/ft(lbs)	Quantity	<u>Subtotals</u>
3'3"	22	6	429
9'	62	2	
	17	2	
	22	5	2412
38'6"	62	4	
	55	2	9163
	57	2	9009
25'	22	1	550
33'	44	1	
	40	3	
	73	1	
	68	1	10065
11'	19	2	
	17	5	1353
27'6"	26	21	15015
	62	6	10230
18'8"	22	1	
	114	2	
	129	1	
	102	3	
	84	1	14380
34'6"	84	2	
	94	1	
	102	4	
	44	2	26151
	114	1	3933
18'10"	22	1	
	114	2	
	102	1	
	94	3	
	84	1	13498

Total: 116188 lbs

Structural Beams & Bra	cing Quantities 3 <sup>rd</sup> Flo	oor (Revit)
Assembly Code	Туре	Length
1100007477 0405		
HSS8X4X.3125 B10	HSS8X4X.3125	11' - 11"
НSS8X4X.3125: 1	П556A4A.3125	11' - 11"
ПЭЭОЛ4Л.Э12Э. Т		11 - 11
W8X10		
B10	W8X10	3' - 4"
B10	W8X10	5' - 4"
W8X10: 2		8' - 8"
W10X17		
B10	W10X17	9' - 11"
B10	W10X17	9' - 11"
B10	W10X17	9' - 11"
B10	W10X17	11' - 11"
B10	W10X17	9' - 4"
B10	W10X17	9' - 4"
B10	W10X17	11' - 11"
B10	W10X17	18' - 3"
W10X17: 8	***************************************	90' - 6"
W12X19		
B10	W12X19	13' - 0"
B10	W12X19	13' - 0"
B10	W12X19	11' - 2"
B10	W12X19	11' - 2"
B10	W12X19	14' - 8"
W12X19: 5		63' - 0"
W14X22		
B10	W14X22	18' - 8"
B10	W14X22	18' - 8"
B10	W14X22	53' - 4"
B10	W14X22	53' - 4"
B10	W14X22	72' - 0"
B10	W14X22	3' - 3"
B10	W14X22	3' - 3"
B10	W14X22	36' - 5"
B10	W14X22	9' - 4"
B10	W14X22	9' - 4"
B10	W14X22	9' - 4"
B10	W14X22	9' - 4"
B10	W14X22	9' - 4"
B10	W14X22	3' - 3"
B10	W14X22	3' - 3"
B10	W14X22	3' - 3"
B10	W14X22	15' - 11 1/2"
B10	W14X22	25' - 6"

W14X22: 18		356' - 9 1/2"
W16X26		
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	26' - 3 1/2"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	26' - 3 1/2"
B10	W16X26	26' - 3 1/2"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	26' - 3 1/2"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	26' - 3 1/2"
B10	W16X26	27' - 6"
B10	W16X26	26' - 3 1/2"
B10	W16X26	26' - 3 1/2"
B10	W16X26	26' - 3 1/2"
B10	W16X26	26' - 3 1/2"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
B10	W16X26	27' - 6"
W16X26: 33		896' - 7 1/2"
W18X40		
B10	W18X40	33' - 0"
B10	W18X40	33' - 0"
B10	W18X40	33' - 0"
W18X40: 3		99' - 0"
W21X44		
B10	W21X44	33' - 0"
W21X44: 1		33' - 0"
W21X50		
B10	W21X50	34' - 6"

B10	W21X50	34' - 6"
W21X50: 2		69' - 0"
W21X55		
B10	W21X55	38' - 6"
B10	W21X55	38' - 6"
W21X55: 2		77' - 0"
		0
W21X57		
B10	W21X57	38' - 6"
B10	W21X57	38' - 6"
W21X57: 2	W21707	77' - 0"
WZINJI. Z		77 - 0
W21X62		
B10	W21X62	9' - 4"
-	W21X62 W21X62	-
B10		38' - 6"
B10	W21X62	27' - 6"
B10	W21X62	27' - 6"
B10	W21X62	38' - 6"
B10	W21X62	38' - 6"
B10	W21X62	38' - 6"
B10	W21X62	27' - 6"
W21X62: 8		245' - 10"
W21X68		
B10	W21X68	9' - 4"
B10	W21X68	33' - 0"
B10	W21X68	33' - 0"
W21X68: 3	,	75' - 4"
WZ1700. 0		70 4
W27X84		
B10	W27X84	18' - 8"
•		
B10	W27X84	18' - 10"
B10	W27X84	34' - 6"
W27X84: 3		72' - 0"
W27X94		
B10	W27X94	18' - 10"
B10	W27X94	18' - 10"
B10	W27X94	18' - 10"
W27X94: 3		56' - 6"
W27X102		
B10	W27X102	18' - 8"
B10	W27X102	18' - 8"
B10	W27X102	18' - 8"
B10	W27X102	34' - 6"
B10	W27X102	34' - 6"
B10	W27X102 W27X102	34' - 6"
W27X102: 6		159' - 6"
**************************************		100 - 0

W27X114		
B10	W27X114	34' - 6"
B10	W27X114	18' - 10"
W27X114: 2		53' - 4"
W27X129		
B10	W27X129	18' - 8"
W27X129: 1		18' - 8"
Grand total: 103		2463' - 8'
Total Weight Calculat	ted: 114620 lbs.	

#### **Quantity Comparison South Third Floor**

Steel:

Weight using Revit: 114,620 lbs.

Weight using Hand Estimates: 116,188 lbs.

(116188-114620)/116188=.0135x100=**1.4% missing in Revit Estimation** 

Floor Concrete:

Volume using Revit: 3916 ft^3

Volume using Hand Estimates: 3716 ft^3

(3916-3831)/3831=0.0222x100=**2.2% overestimate in Revit Estimation** 

Curtain Wall:

Area using Revit: 3577 ft^2

Area using Hand estimates: 3590 ft^2

(3590-3577)/3590=0.0036x100= **0.36% underestimate in Revit** 

# Typical Floor South Side Concrete Quantities (Hand Estimate)

Quantities (Hand Estimate)						
Concrete Section	Length	Width				
Section 1	9'-0"	18'-10"				
	38'-6"	34'-6"				
	33'-0"	18'-8"				
	27'-6"	1'-6"				
	27'-6"					
	27'-6"					
	26'-31/2"					
	1'-21/2"					
	0'-9"					
Section Total	191'-3"	73'-6"				
Section 2	3'-4"	38'-41/4"				
Section Total	3'-4"	38'-41/4"				

	Area ft^2
Section 1	14057
Section 2	127
Total	14184
Total Volume ft^3	3841.5

Total Concrete Volume:

$$(6"/12" \times 43283 \text{ ft}^2) + (3.25"/12" \times 235,727 \text{ ft}^2) = 21,641 \text{ ft}^3 + 63,842 \text{ ft}^3$$
  
= **85,483 ft**<sup>3</sup>

Structural Column Schedule
(Entire Building)
Assembly

Code	Count	Length	Type	Base Level
		J	<b>71</b>	
B10	17		W10X33	
B10	15		W10X39	
B10	27		W10X45	
B10	35		W10X49	
B10	2	30.5	W10X60	Penthouse 5'
B10	3		W12X40	
B10	8		W12X45	
B10	1	42	W12X53	Level 3.5
B10	1	40	W12X58	Level 1
				Basement (Raised
B10	1	49	W12X65	Slab)
B10	1	40	W12X79	Level 1
B10	10		W14X109	
B10	13		W14X120	Level 6.5
B10	15		W14X132	
B10	6		W14X145	Level 6.5
B10	17	42	W14X257	Level 3.5
B10	16		W14X283	
B10	19		W14X311	
B10	9		W14X342	
B10	3		W14X370	
B10	1	53	W14X398	Basement Slab
Grand total: 220				

Grand total: 220

Total Column Weight: 564668 lbs = 282 tons

Code         Family and Type         Count         Length         e         Type           B10         W-Wide Flange: W12X19         1         6         0.15         W12X19           B10         W-Wide Flange: W21X44         1         15.67         1.19         W21X44           B10         W-Wide Flange: W21X44         1         16.67         1.19         W21X44           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X16         1         3.3         2.61         W27X84           B10         W-Wide Flange: W10X15         1         3.3         2.61         W18X40           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange	Structural Fr	aming Schedule (Entire Building)			Volum	
B10         W-Wide Flange: W12X19         1         6         0.15         W12X19           B10         W-Wide Flange: W2X1444         1         15.67         1.19         W21X44           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W2XX84         1         18.67         1.45         w21X44           B10         W-Wide Flange: W1XX68         1         33         4.34         W21X48           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         1         1         0.32         W10X15           B10         W-Wide Flange: W10X15         1         1         1         0.3         3.7         W21X44 <td></td> <td>Family and Type</td> <td>Count</td> <td>Length</td> <td></td> <td>Туре</td>		Family and Type	Count	Length		Туре
B10         W-Wide Flange: W21X44         1         15.67         1.19         W21X44           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W21X68         1         3.3         4.34         W21X44           B10         W-Wide Flange: W10X18         1         3.3         4.34         W21X88           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         33         3.22         W10X15           B10         W-Wide Flange: W10X17         1         33         3.22         W10X15           B10         W-Wide Flan	B10	W-Wide Flange: W18X35	1	28.33	1.85	W18X35
B10         W-Wide Flange: W21X44         1         18.67         1.46         W21X44           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X84         1         33         3.43         W21X48           B10         W-Wide Flange: W10X16         1         33         2.61         W18X40           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         1         0.32         W10X15           B10         W-Wide Flange: W10X15         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange:	B10	W-Wide Flange: W12X19	1	6	0.15	W12X19
B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W21X68         1         33         2.61         W18X40           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W16X26         1         3.3         2.28         W18X35           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide	B10	W-Wide Flange: W21X44	1	15.67	1.19	W21X44
B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W21X68         1         33         4.34         W21X68           B10         W-Wide Flange: W18X40         1         33         2.61         W18X68           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         13         3         2.2         W10X15           B10         W-Wide Flange: W10X15         1         33         2.28         W10X15           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10	B10	W-Wide Flange: W21X44	1	18.67	1.46	W21X44
B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W21X68         1         3.3         4.54         W21X68           B10         W-Wide Flange: W10X15         1         3.3         4.54         W21X68           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         11         0.32         0.26         W10X15           B10         W-Wide Flange: W16X26         1         9.33         0.26         W10X15           B10         W-Wide Flange: W16X26         1         20.33         0.27         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10	B10	W-Wide Flange: W10X17	1	16.42	0.53	W10X17
B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W21X68         1         33.3         4.34         W21X68           B10         W-Wide Flange: W16X40         1         33.3         2.61         W18X40           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W16X26         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W	B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10         W-Wide Flange: W27X84         1         34.5         5.47         W27X84           B10         W-Wide Flange: W21X68         1         33         4.34         W21X68           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         11         0.32         W10X15           B10         W-Wide Flange: W10X15         1         11         0.32         W10X15           B10         W-Wide Flange: W10X15         1         13         3         .7         W21X57           B10         W-Wide Flange: W12X57         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W21X62         1         27.5         1.41         W16X26           B10         W-Wide	B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10         W-Wide Flange: W21X68         1         33         4.34         W21X68           B10         W-Wide Flange: W10X15         1         33         2.61         W18X40           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         11         0.32         W10X15           B10         W-Wide Flange: W16X26         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         33         2.28         W18X35           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X27         1         13,45         4,96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1,32         W14X26           B10         W-Wide Flange: W16X26<	B10	W-Wide Flange: W21X44	1	18.67	1.45	W21X44
B10         W-Wide Flange: W1X8A0         1         33         4.34         W21X68           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         11         0.32         W10X15           B10         W-Wide Flange: W16X35         1         33         3.7         W21X67           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X26         1         27.5         1.32         W21X44           B10         W-Wide Flange: W16X26 </td <td>B10</td> <td>W-Wide Flange: W27X84</td> <td>1</td> <td>34.5</td> <td>5.47</td> <td>W27X84</td>	B10	W-Wide Flange: W27X84	1	34.5	5.47	W27X84
B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W10X15         1         11         0.32         W10X15           B10         W-Wide Flange: W18X35         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26	B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10         W-Wide Flange: W10X15         1         9.33         0.26         W10X15           B10         W-Wide Flange: W21X57         1         11         0.32         W10X15           B10         W-Wide Flange: W18X35         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W21X62         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X	B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10         W-Wide Flange: W10X15         1         11         0.32         W10X15           B10         W-Wide Flange: W16X25         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.46         W21X44           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W	B10	W-Wide Flange: W10X15	1	9.33	0.26	W10X15
B10         W-Wide Flange: W21X57         1         33         3.7         W21X57           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.24         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange:	B10	W-Wide Flange: W10X15	1	9.33	0.26	W10X15
B10         W-Wide Flange: W18X35         1         33         2.28         W18X35           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W21X444         1         18.67         1.45         W21X44           B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Fla	B10	W-Wide Flange: W10X15	1	11	0.32	W10X15
B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Fl	B10	W-Wide Flange: W21X57	1	33	3.7	W21X57
B10         W-Wide Flange: W16X26         1         20.33         0.97         W16X26           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W14X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W24X76         1         34.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W27X102         1         1         3.6         6.6         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10	B10	W-Wide Flange: W18X35	1	33	2.28	W18X35
B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W16X26         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flang	B10	W-Wide Flange: W16X26	1	20.33	0.97	W16X26
B10         W-Wide Flange: W10X17         1         11         0.35         W10X17           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide F	B10		1	20.33	0.97	W16X26
B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide	B10	W-Wide Flange: W10X17	1	11	0.35	W10X17
B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W21X62         1         27.5         3.25         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide	B10	W-Wide Flange: W10X17	1	11	0.35	W10X17
B10         W-Wide Flange: W24X76         1         34.5         4.96         W24X76           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W21X62         1         27.5         3.25         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide	B10	•	1	18.67	1.45	
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W21X62         1         27.5         3.25         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-Wid	B10	•	1		4.96	
B10         W-Wide Flange: W21X62         1         27.5         3.25         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-W		-	1			
B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         3.25         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W	B10	W-Wide Flange: W21X62	1	27.5	3.25	W21X62
B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W	B10	•	1	27.5	1.39	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W27X102         1         34.5         6.64         W27X102           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10 <td< td=""><td>B10</td><td>•</td><td>1</td><td>27.5</td><td>1.39</td><td></td></td<>	B10	•	1	27.5	1.39	
B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W27X102       1       34.5       6.64       W27X102         B10       W-Wide Flange: W16X26       1       27.5       1.41       W16X26         B10       W-Wide Flange: W21X62       1       27.5       3.25       W21X62         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W21X62       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44 <t< td=""><td></td><td>•</td><td>1</td><td></td><td></td><td></td></t<>		•	1			
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W21X62         1         27.5         3.25         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         108.79         5.65         W16X26           B10         W-Wide Flange: W21X62         1         108.79         5.66         W16X26           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         W-Wide Flange: W21X44         1         18.67         1.45         W21X44           B10         <	B10		1	18.67	1.45	W21X44
B10       W-Wide Flange: W21X62       1       27.5       3.25       W21X62         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W21X62       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76 <t< td=""><td>B10</td><td>W-Wide Flange: W27X102</td><td>1</td><td>34.5</td><td>6.64</td><td>W27X102</td></t<>	B10	W-Wide Flange: W27X102	1	34.5	6.64	W27X102
B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76 <td>B10</td> <td>W-Wide Flange: W16X26</td> <td>1</td> <td>27.5</td> <td>1.41</td> <td>W16X26</td>	B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W21X62       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W21X62	1	27.5	3.25	W21X62
B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10       W-Wide Flange: W16X26       1 108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1 108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1 108.79       5.65       W16X26         B10       W-Wide Flange: W21X62       1 108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1 18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1 18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1 18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1 18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1 34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1 34.5       4.96       W24X76	B10		1		1.39	
B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W16X26	1	108.79	5.65	
B10       W-Wide Flange: W16X26       1       108.79       5.65       W16X26         B10       W-Wide Flange: W16X26       1       108.79       5.66       W16X26         B10       W-Wide Flange: W21X62       1       108.79       13.4       W21X62         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W16X26	1	108.79	5.65	W16X26
B10       W-Wide Flange: W21X62       1 108.79       13.4 W21X62         B10       W-Wide Flange: W21X44       1 18.67       1.45 W21X44         B10       W-Wide Flange: W21X44       1 18.67       1.45 W21X44         B10       W-Wide Flange: W21X44       1 18.67       1.45 W21X44         B10       W-Wide Flange: W18X35       1 18.67       1.16 W18X35         B10       W-Wide Flange: W24X76       1 34.5       4.96 W24X76         B10       W-Wide Flange: W24X76       1 34.5       4.96 W24X76	B10	W-Wide Flange: W16X26	1	108.79	5.65	W16X26
B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W16X26	1	108.79	5.66	W16X26
B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W21X62	1	108.79	13.4	W21X62
B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W21X44	1	18.67	1.45	W21X44
B10       W-Wide Flange: W21X44       1       18.67       1.45       W21X44         B10       W-Wide Flange: W18X35       1       18.67       1.16       W18X35         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W21X44	1	18.67	1.45	W21X44
B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76         B10       W-Wide Flange: W24X76       1       34.5       4.96       W24X76	B10	W-Wide Flange: W21X44	1	18.67	1.45	W21X44
B10 W-Wide Flange: W24X76 1 34.5 4.96 W24X76	B10	W-Wide Flange: W18X35	1	18.67	1.16	W18X35
B10 W-Wide Flange: W24X76 1 34.5 4.96 W24X76	B10		1	34.5		
Ç .		•	1			
DIO VV-VVIUE Flatige. VV24A/O I 34.5 4.96 W24X/6	B10	W-Wide Flange: W24X76	1	34.5	4.96	W24X76
B10 W-Wide Flange: W24X55 1 34.5 3.57 W24X55		_	1			

B10	W-Wide Flange: W18X35	1	18.67	1.16	W18X35
B10	W-Wide Flange: W24X55	1	34.5	3.57	W24X55
B10	W-Wide Flange: W21X44	1	18.67	1.45	W21X44
B10	W-Wide Flange: W21X44	1	18.67	1.45	W21X44
B10	W-Wide Flange: W21X44	1	18.67	1.45	W21X44
B10	W-Wide Flange: W21X50	1	18.67	1.64	W21X50
B10	W-Wide Flange: W30X90	1	18.67	2.94	W30X90
B10	W-Wide Flange: W27X84	1	18.67	2.78	W27X84
B10	W-Wide Flange: W24X76	1	34.5	4.96	W24X76
B10	W-Wide Flange: W24X76	1	34.5	4.96	W24X76
B10	W-Wide Flange: W27X102	1	34.5	6.64	W27X102
B10	W-Wide Flange: W27X102	1	34.5	6.63	W27X102
B10	W-Wide Flange: W30X132	1	34.5	8.59	W30X132
B10	W-Wide Flange: W30X116	1	34.5	7.58	W30X116
B10	W-Wide Flange: W16X26	1	108.79	5.66	W16X26
B10	W-Wide Flange: W16X26	1	110.29	5.75	W16X26
B10	W-Wide Flange: W16X26	1	108.79	5.65	W16X26
B10	W-Wide Flange: W16X26	1	108.79	5.65	W16X26
B10	W-Wide Flange: W21X62	1	108.79	13.4	W21X62
B10	W-Wide Flange: W27X102	1	34.5	6.64	W27X102
B10	<u> </u>		34.3		W18X40
	W-Wide Flange: W31VS8	1		2.6	
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X50	1	34.5	3.27	W21X50
B10	W-Wide Flange: W21X50	1	34.5	3.27	W21X50
B10	W-Wide Flange: W10X17	1	11	0.35	W10X17
B10	W-Wide Flange: W10X17	1	11	0.35	W10X17
B10	W-Wide Flange: W10X17	1	11	0.35	W10X17
B10	W-Wide Flange: W8X10	1	8.92	0.17	W8X10
B10	W-Wide Flange: W8X10	1	5.17	0.09	W8X10
B10	W-Wide Flange: W10X17	1	11	0.35	W10X17
B10	W-Wide Flange: W10X17	1	11	0.35	W10X17
B10	W-Wide Flange: W12X19	1	11	0.39	W12X19
B10	W-Wide Flange: W27X84	1	38.5	6.39	W27X84
B10	W-Wide Flange: W27X84	1	38.5	6.39	W27X84
B10	W-Wide Flange: W27X84	1	38.5	6.39	W27X84
B10	W-Wide Flange: W27X84	1	38.5	6.39	W27X84
B10	W-Wide Flange: W27X84	1	38.5	6.3	W27X84
B10	W-Wide Flange: W8X18	1	53.17	1.8	W8X18
B10	W-Wide Flange: W10X17	1	9.33	0.25	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.25	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.25	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.24	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.25	W10X17
B10	W-Wide Flange: W21X62	1	9.33	1.1	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.74	W21X62
B10	W-Wide Flange: W21X44	1	33	2.89	W21X44
B10	W-Wide Flange: W21X44	1	27.5	2.4	W21X44
B10	W-Wide Flange: W21X44	1	81.29	7.17	W21X44
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22

B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	72	3.15	W14X22
B10	W-Wide Flange: W14X22	1	72	3.16	W14X22
B10	W-Wide Flange: W14X22	1	72	3.16	W14X22
B10	W-Wide Flange: W14X22	1	72	3.16	W14X22
B10	W-Wide Flange: W14X22	1	72	3.16	W14X22
B10	W-Wide Flange: W14X22	1	72	3.16	W14X22
B10	W-Wide Flange: W21X68	1	9.33	1.21	W21X68
B10	W-Wide Flange: W21X68	1	38.5	5.22	W21X68
B10	W-Wide Flange: W21X44	1	33	2.89	W21X44
B10	W-Wide Flange: W16X31	1	27.5	1.68	W16X31
B10	W-Wide Flange: W16X31	1	27.5	1.68	W16X31
B10	W-Wide Flange: W16X31	1	53.79	3.32	W16X31
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	36.42	1.59	W14X22
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.35	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.35	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.35	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.35	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.35	W16X26
B10	W-Wide Flange: W16X26	1	82.5	4.29	W16X26
B10	W-Wide Flange: W16X26	1	82.5	4.29	W16X26
B10	W-Wide Flange: W16X26	1	82.5	4.29	W16X26
B10	W-Wide Flange: W16X26	1	82.5	4.29	W16X26
B10	W-Wide Flange: W21X62	1	82.5	10.12	W21X62
B10	W-Wide Flange: W21X62	1	82.5	10.12	W21X62
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W21X55	1	38.5	4.23	W21X55
B10	W-Wide Flange: W21X73	1	38.5	5.46	W21X73
B10	W-Wide Flange: W21X62	1	38.5	4.74	W21X62
B10	W-Wide Flange: W16X26	1	15.21	0.76	W16X26
B10	W-Wide Flange: W21X62	1	38.5	4.74	W21X62
B10	W-Wide Flange: W21X73	1	38.5	5.46	W21X73
B10	W-Wide Flange: W24X55	1	38.5	4.21	W24X55
B10	W-Wide Flange: W16X31	1	25.5	1.56	W16X31
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17

B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W16X26	1	82.5	4.29	W16X26
B10	W-Wide Flange: W16X31	1	27.5	1.68	W16X31
B10	W-Wide Flange: W16X31	1	27.5	1.68	W16X31
B10	W-Wide Flange: W16X31	1	27.5	1.68	W16X31
B10	W-Wide Flange: W21X44	1	33	2.88	W21X44
B10	W-Wide Flange: W16X26	1	27.5	1.42	W16X26
B10	W-Wide Flange: W16X26	1	6	0.29	W16X26
B10	W-Wide Flange: W16X26	1	28.33	1.43	W16X26
B10	W-Wide Flange: W16X26	1	11.08	0.53	W16X26
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W16X26	1	18.83	0.96	W16X26
B10	W-Wide Flange: W16X26	1	21.42	1.02	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.53	W16X26
B10	W-Wide Flange: W16X31	1	108.79	6.75	W16X31
B10	W-Wide Flange: W16X31	1	72	4.45	W16X31
B10	W-Wide Flange: W16X31	1	72	4.45	W16X31
B10	W-Wide Flange: W16X31	1	72	4.45	W16X31
B10	W-Wide Flange: W16X31	1	72	4.45	W16X31
B10	W-Wide Flange: W16X36	1	27.5	1.96	W16X36
B10	W-Wide Flange: W14X22	1	70.5	3.09	W14X22
B10	W-Wide Flange: W14X22	1	27.52	1.19	W14X22
B10	W-Wide Flange: W17X114	1	16.33	3.49	W27X114
B10	W-Wide Flange: W21X44	1	33.72	2.92	W27X114 W21X44
B10	W-Wide Flange: W21X44 W-Wide Flange: W24X55	1	9.42	0.92	W24X55
B10	W-Wide Flange: W24X33 W-Wide Flange: W16X26	1	23.4	1.14	W16X26
B10	W-Wide Flange: W16X26 W-Wide Flange: W16X31	1	26.29	1.14	W16X31
B10	-				
B10	W-Wide Flange: W16X31	1	27.5	1.68	W16X31
	W-Wide Flange: W19X35	1	27.5	1.68	W16X31
B10	W-Wide Flange: W18X35	1	33.33	2.29	W18X35
B10	W-Wide Flange: W16X31	1	62.58	3.86	W16X31
B10	W-Wide Flange: W16X31	1	62.58	3.86	W16X31
B10	W-Wide Flange: W21X68	1	163.79	22.32	W21X68
B10	W-Wide Flange: W21X68	1	163.79	22.32	W21X68
B10	W-Wide Flange: W16X26	1	163.79	8.54	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.54	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.54	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.54	W16X26
B10	W-Wide Flange: W14X22	1	72	3.16	W14X22
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W18X35	1	33	2.29	W18X35

B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X57	1	33	3.73	W21X57
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W14X22	1	16.42	0.7	W14X22
B10	W-Wide Flange: W16X26	1	16.42	0.81	W16X26
B10	W-Wide Flange: W16X26	1	16.42	0.83	W16X26
B10	W-Wide Flange: W18X35	1	34.33	2.37	W18X35
B10	W-Wide Flange: W16X26	1	16.42	0.79	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	6	0.29	W16X26
B10	W-Wide Flange: W21X44	1	33	2.85	W21X44
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X84	1	18.67	2.97	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.61	W27X114
B10	W-Wide Flange: W24X84	1	18.83	2.99	W24X84
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X57	1	28.33	3.16	W16X57
B10	W-Wide Flange: W16X26	1	11.08	0.53	W16X26
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W16X26	1	18.83	0.96	W16X26
B10	W-Wide Flange: W16X26	1	21.42	1.02	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.52	W16X26
B10	W-Wide Flange: W16X31	1	108.79	6.72	W16X31
B10	W-Wide Flange: W16X31	1	72	4.43	W16X31
B10	W-Wide Flange: W16X36	1	27.5	1.96	W16X36
B10	W-Wide Flange: W14X22	1	70.5	3.08	W14X22
B10	W-Wide Flange: W14X22	1	27.52	1.19	W14X22
B10	W-Wide Flange: W27X114	1	16.33	3.49	W27X114
B10	W-Wide Flange: W21X44	1	33.72	2.92	W21X44
B10	W-Wide Flange: W16X26	1	23.4	1.14	W16X26
B10	W-Wide Flange: W18X35	1	33.33	2.3	W18X35
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W21X68	1	163.79	22.32	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X57	1	33	3.73	W21X57
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31

B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W16X26	1	16.42	0.79	W16X26
B10	W-Wide Flange: W21X62	1	9.33	1.08	W21X62
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	18.67	0.77	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	72	3.14	W14X22
B10	W-Wide Flange: W21X68	1	9.33	1.19	W21X68
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	36.42	1.59	W14X22
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	-	1	34.5		
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
	W-Wide Flange: W21X50			3.39	W21X50
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W12X19	1	6	0.2	W12X19
B10	W-Wide Flange: W27X129	1	18.67	4.56	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.59	W27X102
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W24X84	1	18.67	2.96	W24X84
B10	W-Wide Flange: W16X26	1	163.79	8.53	W16X26
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W21X68	1	82.5	11.14	W21X68
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W18X40	1	33	2.55	W18X40

B10	W-Wide Flange: W27X114	1	34.5	7.61	W27X114
B10	W-Wide Flange: W27X114	1	34.5	7.61	W27X114
B10	W-Wide Flange: W27X114	1	34.5	7.6	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.58	W12X19
B10	W-Wide Flange: W10X17	1	17.04	0.56	W10X17
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X31	1	26.29	1.58	W16X31
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.57	W12X19
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W18X35	1	33	2.29	W18X35
B10	W-Wide Flange: W18X35	1	28	1.9	W18X35
B10	W-Wide Flange: W10X17	1	16.42	0.53	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	11.08	0.34	W10X17
B10	W-Wide Flange: W27X84	1	18.83	3	W27X84
B10	W-Wide Flange: W27X84	1	18.83	3	W27X84
B10	W-Wide Flange: W27X84	1	18.83	2.99	W27X84
B10	W-Wide Flange: W21X62	1	38.5	4.69	W21X62
B10	W-Wide Flange: W18X40	1	33	2.59	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X40
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	-	1			
В10	W-Wide Flange: W16X26 W-Wide Flange: W16X26	1	27.5	1.39	W16X26
В10	· ·	1	26.29	1.33	W16X26
	W-Wide Flange: W21X57		38.5	4.25	W21X57
B10	W-Wide Flange: W27X129	1	18.67	4.54	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102
B10	W-Wide Flange: W27X84	1	18.67	2.97	W27X84
B10	W-Wide Flange: W21X57	1	38.5	4.34	W21X57
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26

B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W21X62	1	27.5	3.25	W21X62
B10	W-Wide Flange: W21X62	1	27.5	3.25	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W27X102	1	34.5	6.79	W27X102
B10	W-Wide Flange: W14X22	1	15.96	0.67	W14X22
B10	W-Wide Flange: W14X22	1	25.5	1.11	W14X22
B10	W-Wide Flange: W8X10	1	3.33	0.06	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W8X10	1	5.33	0.1	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
D40	LICC Hallan Christian Continue IICCOVAV 2425	4	44.00	0.50	HSS8X4X.312
B10	HSS-Hollow Structural Section: HSS8X4X.3125	1	11.92	0.52	5 W04Y55
B10	W-Wide Flange: W21X55	1	38.5	4.12	W21X55
B10	W-Wide Flange: W21X55	1	38.5	4.2	W21X55
B10	W-Wide Flange: W21X62	1	38.5	4.69	W21X62
B10	W-Wide Flange: W21X44	1	33	2.85	W21X44
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X84	1	18.83	3	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.61	W27X114
B10	W-Wide Flange: W21X62	1	27.5	3.25	W21X62
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X102	1	34.5	6.8	W27X102
B10	W-Wide Flange: W27X102	1	34.5	6.8	W27X102
B10	W-Wide Flange: W27X84	1	34.5	5.61	W27X84
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26

B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W12X19	1	14.67	0.54	W12X19
B10	W-Wide Flange: W27X94	1	18.83	3.34	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.34	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.35	W27X94
B10	W-Wide Flange: W27X114	1	18.83	4.06	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.42	W16X26
B10	W-Wide Flange: W16X26	1	6	0.29	W16X26
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W27X84	1	18.67	2.97	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W24X84	1	18.83	2.98	W24X84
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X57	1	28.33	3.16	W16X57
B10	W-Wide Flange: W16X26	1	11.08	0.54	W16X26
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W14X26	1	18.83	0.96	W16X26
B10	W-Wide Flange: W16X26	1	21.42	1.02	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.52	W16X26
B10	W-Wide Flange: W16X31	1	103.79	6.73	W16X31
B10	W-Wide Flange: W16X31	1	72	4.43	W16X31
B10	W-Wide Flange: W16X36	1	27.5	1.96	W16X31
B10	W-Wide Flange: W10X30 W-Wide Flange: W14X22	1	70.5	3.08	W14X22
B10	W-Wide Flange: W14X22 W-Wide Flange: W14X22		70.5 27.52		
B10	· ·	1 1	16.33	1.19 3.5	W14X22
	W-Wide Flange: W21X114				W27X114
B10	W-Wide Flange: W46Y26	1	33.72	2.92	W21X44
B10	W-Wide Flange: W16X26	1	23.4	1.14	W16X26
B10	W-Wide Flage: W18X35	1	33.33	2.3	W18X35
B10	W-Wide Flage: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W21X68	1	163.79	22.32	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X57	1	33	3.73	W21X57
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17

B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W16X26	1	16.42	8.0	W16X26
B10	W-Wide Flange: W21X62	1	9.33	1.09	W21X62
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	18.67	0.77	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	72	3.14	W14X22
B10	W-Wide Flange: W21X68	1	9.33	1.2	W21X68
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	36.42	1.59	W14X22
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W12X19	1	6	0.2	W12X19
B10	W-Wide Flange: W27X129	1	18.67	4.56	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.32	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.32	W27X94
B10	W-Wide Flange: W24X84	1	18.67	2.97	W24X84
B10	W-Wide Flange: W16X26	1	163.79	8.53	W16X26
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W10X20	1	82.5	11.15	W21X68
B10	W-Wide Flange: W21X06 W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W18X40	1	33	2.55	W18X40
B10	W-Wide Flange: W10X40 W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W27X114 W-Wide Flange: W27X114	1	34.5	7.63	W27X114 W27X114
B10	W-Wide Flange: W27X114 W-Wide Flange: W27X114	1	34.5	7.62	W27X114 W27X114
B10	W-Wide Flange: W27X114 W-Wide Flange: W16X26	1	27.5	1.39	W16X26
		•	20	1.00	

B10						
B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X31         1         15.67         0.58         W12X19           B10         W-Wide Flange: W16X31         1         26.29         1.53         W16X26           B10         W-Wide Flange: W16X36         1         26.29         1.53         W16X26           B10         W-Wide Flange: W16X36         1         27.5         1.4         W16X26           B10         W-Wide F	B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         1.567         0.58         W12X17           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         1.567         0.57         W12X19           B10         W-Wide Flange: W16X26         1         1.567         0.57         W12X19           B10         W-Wid	B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X21           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide	B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         15.67         0.58         W12X19           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X31           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X31           B10         W-Wide Flange: W16X26         1         15.67         0.57         W12X19           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide F	B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X31         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X31         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X36         1         26.29         1.33         W16X26           B10         W-Wide Flange: W10X17         1         18.25         0.6         W10X17           B10         W-Wide Flange: W10X17         1         18.25         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide	B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         15.67         0.58         W12X19           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide F	B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10         W-Wide Flange; W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange; W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange; W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange; W16X26         1         15.67         0.58         W12X19           B10         W-Wide Flange; W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange; W16X26         1         26.29         1.58         W16X31           B10         W-Wide Flange; W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange; W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange; W16X26         1         27.5         1.4         W16X26           B10         W-Wide Fl	B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.44         W16X26           B10         W-Wide Flange: W10X17         1         15.67         0.58         W12X19           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.58         W16X21           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W10X17         1         18.67         0.57         W12X19           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Fla	B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.41         W16X26           B10         W-Wide Flange: W10X17         1         15.67         0.58         W12X19           B10         W-Wide Flange: W10X17         1         17.04         0.56         W10X17           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flan	B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10         W-Wide Flange: W12X19         1         15.67         0.58         W12X19           B10         W-Wide Flange: W16X26         1         17.04         0.56         W10X17           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X31         1         26.29         1.33         W16X31           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X26         1         27.5         0.6         W10X17           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flang	B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10         W-Wide Flange: W10X17         1         17.04         0.66         W10X17           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X31         1         26.29         1.58         W16X31           B10         W-Wide Flange: W12X19         1         15.67         0.57         W12X19           B10         W-Wide Flange: W10X17         1         18.25         0.6         W10X17           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide F	B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W16X31         1         26.29         1.58         W16X31           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W10X17         1         18.25         0.6         W10X17           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flang	B10	W-Wide Flange: W12X19	1	15.67	0.58	W12X19
B10         W-Wide Flange: W16X31         1         26.29         1.58         W16X31           B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W10X17         1         15.67         0.57         W12X19           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.642         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.642         0.54         W10X17           B10         W-Wid	B10	W-Wide Flange: W10X17	1	17.04	0.56	W10X17
B10         W-Wide Flange: W16X26         1         26.29         1.33         W16X26           B10         W-Wide Flange: W10X17         1         15.67         0.57         W12X19           B10         W-Wide Flange: W10X17         1         18.25         0.6         W10X17           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide	B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10         W-Wide Flange: W12X19         1         15.67         0.57         W12X19           B10         W-Wide Flange: W16X17         1         18.25         0.6         W10X17           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.63         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.63         0.99         W27X84           B10         W-Wide F	B10	W-Wide Flange: W16X31	1	26.29	1.58	W16X31
B10         W-Wide Flange: W10X17         1         18.25         0.6         W10X17           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         28         1.9         W18X35           B10         W-Wide Flange: W18X35         1         28         1.9         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.62         0.53         W10X17           B10         W-Wide Flange: W10X17         1         11.62         0.54         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flan	B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide	B10	W-Wide Flange: W12X19	1	15.67	0.57	W12X19
B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide	B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide	B10	-	1	27.5	1.4	W16X26
B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W16X26         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wid	B10	-		27.5	1.4	W16X26
B10         W-Wide Flange: W18X35         1         33         2.29         W18X35           B10         W-Wide Flange: W18X35         1         28         1.9         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W18X40         1         33.5         4.71         W21X62           B10         W-Wide Flange: W18X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Fla	B10	-	1	27.5	1.4	W16X26
B10         W-Wide Flange: W18X35         1         28         1.9         W18X35           B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         11.883         2.99         W27X84           B10         W-Wide Flange: W27X84         1         11.883         2.99         W27X84           B10         W-Wide Flange: W27X84         1         11.883         2.99         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wid	B10	-	1	33	2.29	W18X35
B10         W-Wide Flange: W10X17         1         16.42         0.53         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide		-				
B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W16X26         1         38.5         4.71         W21X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W27X129         1         18.67         3.61         W27X129           B10	B10	-	1			
B10         W-Wide Flange: W10X17         1         16.42         0.54         W10X17           B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.98         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X40         1         33         2.6         W18X40           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W21X57         1         38.5         4.26         W21X57           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide F	B10	-	1	16.42		
B10         W-Wide Flange: W10X17         1         11.08         0.35         W10X17           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.98         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W21X57         1         38.5         4.26         W21X57           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide		-	1	16.42		
B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.98         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W27X129         1         18.67         4.55         W27X129           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-		-				
B10         W-Wide Flange: W27X84         1         18.83         2.99         W27X84           B10         W-Wide Flange: W27X84         1         18.83         2.98         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W21X57         1         38.5         4.26         W21X57           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X84         1         18.67         3.6         W27X102           B10         W-Wid		-				
B10         W-Wide Flange: W27X84         1         18.83         2.98         W27X84           B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W16X26         1         33         2.6         W18X40           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W21X57         1         38.5         4.26         W21X57           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X84         1         18.67         3.6         W27X102           B10         W-Wide		· · · · · · · · · · · · · · · · · · ·				
B10         W-Wide Flange: W21X62         1         38.5         4.71         W21X62           B10         W-Wide Flange: W18X40         1         33         2.6         W18X40           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W21X57         1         38.5         4.26         W21X57           B10         W-Wide Flange: W27X129         1         18.67         3.61         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X84         1         18.67         2.97         W27X84           B10         W-Wide Flange: W18X40         1         38.5         4.34         W21X57           B10         W-W		-	1			
B10       W-Wide Flange: W18X40       1       33       2.6       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.34       W16X26         B10       W-Wide Flange: W21X57       1       38.5       4.26       W21X57         B10       W-Wide Flange: W27X129       1       18.67       4.55       W27X129         B10       W-Wide Flange: W27X102       1       18.67       3.61       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       3.6       W27X102         B10       W-Wide Flange: W16X26       1       38.5       4.34       W21X57         B10       W-Wide Flange: W16X26       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10		_	1			
B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W21X57         1         38.5         4.26         W21X57           B10         W-Wide Flange: W27X129         1         18.67         4.55         W27X129           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W16X26         1         1         18.67         3.6         W27X102           B10         W-Wide Flange: W16X26         1         38.5         4.34         W21X57           B		· ·				
B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         26.29         1.34         W16X26           B10         W-Wide Flange: W21X57         1         38.5         4.26         W21X57           B10         W-Wide Flange: W27X129         1         18.67         4.55         W27X129           B10         W-Wide Flange: W27X102         1         18.67         3.61         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X102         1         18.67         3.6         W27X102           B10         W-Wide Flange: W27X84         1         18.67         2.97         W27X84           B10         W-Wide Flange: W16X26         1         33         2.61         W18X40           B10         W-Wide Flange: W16X26         1         27.5         1.4         W16X26           B10         W-Wide Flange: W16X26         1         27.5         1.39         W16X26           B10         W-W		_				
B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.34       W16X26         B10       W-Wide Flange: W21X57       1       38.5       4.26       W21X57         B10       W-Wide Flange: W27X129       1       18.67       4.55       W27X129         B10       W-Wide Flange: W27X102       1       18.67       3.61       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W18X40       1       33.5       4.34       W21X57         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10		· ·				
B10       W-Wide Flange: W16X26       1       26.29       1.34       W16X26         B10       W-Wide Flange: W21X57       1       38.5       4.26       W21X57         B10       W-Wide Flange: W27X129       1       18.67       4.55       W27X129         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W15x7       1       38.5       4.34       W21X57         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10<		-				
B10       W-Wide Flange: W21X57       1       38.5       4.26       W21X57         B10       W-Wide Flange: W27X129       1       18.67       4.55       W27X129         B10       W-Wide Flange: W27X102       1       18.67       3.61       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W21X57       1       38.5       4.34       W21X57         B10       W-Wide Flange: W18X40       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26		Ü	1			
B10       W-Wide Flange: W27X129       1       18.67       4.55       W27X129         B10       W-Wide Flange: W27X102       1       18.67       3.61       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W21X57       1       38.5       4.34       W21X57         B10       W-Wide Flange: W18X40       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26		· ·				
B10       W-Wide Flange: W27X102       1       18.67       3.61       W27X102         B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W21X57       1       38.5       4.34       W21X57         B10       W-Wide Flange: W18X40       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26		•				
B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W21X57       1       38.5       4.34       W21X57         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26		-				
B10       W-Wide Flange: W27X102       1       18.67       3.6       W27X102         B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W21X57       1       38.5       4.34       W21X57         B10       W-Wide Flange: W18X40       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		W-Wide Flange: W27X102	1			
B10       W-Wide Flange: W27X84       1       18.67       2.97       W27X84         B10       W-Wide Flange: W21X57       1       38.5       4.34       W21X57         B10       W-Wide Flange: W18X40       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		_	1			
B10       W-Wide Flange: W21X57       1       38.5       4.34       W21X57         B10       W-Wide Flange: W18X40       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		· ·				
B10       W-Wide Flange: W18X40       1       33       2.61       W18X40         B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		-				
B10       W-Wide Flange: W16X26       1       27.5       1.4       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		_	1			
B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		· ·				
B10       W-Wide Flange: W16X26       1       27.5       1.39       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		-				
B10       W-Wide Flange: W16X26       1       26.29       1.33       W16X26         B10       W-Wide Flange: W16X26       1       26.29       1.3       W16X26		-				
B10 W-Wide Flange: W16X26 1 26.29 1.3 W16X26		-				
· ·		-				
•		-				

B10	W-Wide Flange: W21X62	1	27.5	3.26	W21X62
B10	W-Wide Flange: W21X62	1	27.5	3.26	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W14X22	1	15.96	0.67	W14X22
B10	W-Wide Flange: W14X22	1	25.5	1.11	W14X22
B10	W-Wide Flange: W8X10	1	3.33	0.06	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W8X10	1	5.33	0.1	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17 HSS8X4X.312
B10	HSS-Hollow Structural Section: HSS8X4X.3125	1	11.92	0.52	5
B10	W-Wide Flange: W21X55	1	38.5	4.12	W21X55
B10	W-Wide Flange: W21X55	1	38.5	4.2	W21X55
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X84	1	18.83	3	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.62	W27X114
B10	W-Wide Flange: W21X62	1	27.5	3.26	W21X62
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W27X84	1	34.5	5.62	W27X84
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
	-				

B10	W-Wide Flange: W12X19	1	14.67	0.54	W12X19
B10	W-Wide Flange: W27X94	1	18.83	3.35	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.35	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.35	W27X94
B10	W-Wide Flange: W27X114	1	18.83	4.07	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.42	W16X26
B10	W-Wide Flange: W16X26	1	6	0.29	W16X26
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W27X84	1	18.67	2.97	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W24X84	1	18.83	2.98	W24X84
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X57	1	28.33	3.16	W16X57
B10	W-Wide Flange: W16X26	1	11.08	0.54	W16X26
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W16X26	1	18.83	0.96	W16X26
B10	W-Wide Flange: W16X26	1	21.42	1.02	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.52	W16X26
B10	W-Wide Flange: W16X31	1	103.79	6.73	W16X31
B10	W-Wide Flange: W16X31	1	72	4.43	W16X31
B10	W-Wide Flange: W16X36	1	27.5	1.96	W16X36
B10	W-Wide Flange: W14X22	1	70.5	3.08	W14X22
B10	W-Wide Flange: W14X22	1	70.3 27.52	1.19	W14X22 W14X22
B10		1	16.33		W27X114
B10	W-Wide Flange: W27X114	1	33.72	3.5	W21X114 W21X44
	W-Wide Flange: W21X44 W-Wide Flange: W16X26	1	23.4	2.92 1.14	W16X26
B10	•				
B10 B10	W-Wide Flange: W18X35	1	33.33	2.3	W18X35
	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W21X68	1	163.79	22.32	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X57	1	33	3.73	W21X57
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W16X26	1	16.42	0.8	W16X26
B10	W-Wide Flange: W21X62	1	9.33	1.09	W21X62
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22

B10	W-Wide Flange: W14X22	1	18.67	0.77	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	72	3.14	W14X22
B10	W-Wide Flange: W21X68	1	9.33	1.2	W21X68
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	36.42	1.59	W14X22
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W12X19	1	6	0.2	W12X19
B10	W-Wide Flange: W27X129	1	18.67	4.56	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.32	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.32	W27X94
B10	W-Wide Flange: W24X84	1	18.67	2.97	W24X84
B10	W-Wide Flange: W16X26	1	163.79	8.53	W16X26
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W21X68	1	82.5	11.15	W21X68
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W18X40	1	33	2.55	W18X40
B10	W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W27X114 W-Wide Flange: W27X114	1	34.5	7.62	W27X114 W27X114
B10	W-Wide Flange: W27X114 W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5 27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5 27.5	1.39	W16X26
210	Triad Flange. WTO/20	ı	21.0	1.00	** 10/120

B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.58	W12X19
B10	W-Wide Flange: W10X17	1	17.04	0.56	W10X17
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X31	1	26.29	1.58	W16X31
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.57	W12X19
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W18X35	1	33	2.29	W18X35
B10	W-Wide Flange: W18X35	1	28	1.9	W18X35
B10	W-Wide Flange: W10X17	1	16.42	0.53	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	11.08	0.35	W10X17
B10	W-Wide Flange: W27X84	1	18.83	2.99	W27X84
B10	W-Wide Flange: W27X84	1	18.83	2.99	W27X84
B10	W-Wide Flange: W27X84	1	18.83	2.98	W27X84
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W18X40	1	33	2.6	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W21X57	1	38.5	4.26	W21X57
B10	W-Wide Flange: W27X129	1	18.67	4.55	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.61	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102
B10	W-Wide Flange: W27X84	1	18.67	2.97	W27X84
B10	W-Wide Flange: W21X57	1	38.5	4.34	W21X57
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W10X20 W-Wide Flange: W21X62	1	27.5 27.5	3.26	W21X62
B10	W-Wide Flange: W21X62 W-Wide Flange: W21X62	1	27.5 27.5	3.26	W21X62
B10	W-Wide Flange: W21X62 W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W21X62 W-Wide Flange: W21X62	1	38.5	4.72	W21X62
2.0			30.0	7.12	

B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W14X22	1	15.96	0.67	W14X22
B10	W-Wide Flange: W14X22	1	25.5	1.11	W14X22
B10	W-Wide Flange: W8X10	1	3.33	0.06	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W8X10	1	5.33	0.1	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	HSS-Hollow Structural Section: HSS8X4X.3125	1	11.92	0.52	HSS8X4X.312 5
B10	W-Wide Flange: W21X55	1	38.5	4.12	W21X55
B10	W-Wide Flange: W21X55	1	38.5	4.2	W21X55
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X84	1	18.83	3	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.62	W27X04 W27X114
B10	W-Wide Flange: W21X62	1	27.5	3.26	W21X62
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.30	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102 W27X102
B10	W-Wide Flange: W27X102 W-Wide Flange: W27X84	1	34.5	5.62	W27X102 W27X84
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5 27.5	1.39	W16X26
B10	W-Wide Flange: W10X20	1	18.25	0.6	W10X20
B10	W-Wide Flange: W16X17 W-Wide Flange: W16X26	1			
	· ·	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26		27.5	1.39	W16X26
B10 B10	W-Wide Flange: W16X26 W-Wide Flange: W12X19	1 1	27.5 14.67	1.39 0.54	W16X26 W12X19
B10	W-Wide Flange: W12X19 W-Wide Flange: W27X94	1 1	18.83	3.35	W12X19 W27X94
В10 В10	W-Wide Flange: W27X94 W-Wide Flange: W27X94	1 1	18.83	3.35	W27X94 W27X94
B10	W-Wide Flange: W27X94 W-Wide Flange: W27X94	1 1	18.83	3.35	W27X94 W27X94
510	VV VVIGO I Idilyo. VVZI/NOT		10.03	3.33	VVZ1/\34

B10	W-Wide Flange: W27X114	1	18.83	4.07	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.42	W16X26
B10	W-Wide Flange: W16X26	1	6	0.29	W16X26
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W27X84	1	18.67	2.97	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W24X84	1	18.83	2.98	W24X84
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X57	1	28.33	3.16	W16X57
B10	W-Wide Flange: W16X26	1	11.08	0.54	W16X26
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W16X26	1	18.83	0.96	W16X26
B10	W-Wide Flange: W16X26	1	21.42	1.02	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.52	W16X26
B10	W-Wide Flange: W16X31	1	108.79	6.73	W16X31
B10	W-Wide Flange: W16X31	1	72	4.43	W16X31
B10	W-Wide Flange: W16X36	1	27.5	1.96	W16X36
B10	W-Wide Flange: W14X22	1	70.5	3.08	W14X22
B10	W-Wide Flange: W14X22	1	27.52	1.19	W14X22
B10	W-Wide Flange: W27X114	1	16.33	3.5	W27X114
B10	W-Wide Flange: W21X44	1	33.72	2.92	W21X44
B10	W-Wide Flange: W16X26	1	23.4	1.14	W16X26
B10	W-Wide Flange: W18X35	1	33.33	2.3	W18X35
B10		1		3.85	W16X33
B10	W-Wide Flange: W16X31 W-Wide Flange: W16X31	1	62.58		
	W-Wide Flange: W10A31 W-Wide Flange: W21X68	1	62.58	3.85	W16X31
B10	5		163.79	22.32	W21X68
B10 B10	W-Wide Flange: W21X68 W-Wide Flange: W21X57	1	33 33	4.34	W21X68
	•	1		3.73	W21X57
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W16X26	1	16.42	0.8	W16X26
B10	W-Wide Flange: W21X62	1	9.33	1.09	W21X62
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	18.67	0.77	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	72	3.14	W14X22

B10	W-Wide Flange: W21X68	1	9.33	1.2	W21X68
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	36.42	1.59	W14X22
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X68	1	33	4.34	W21X68
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.35	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W12X19	1	6	0.2	W12X19
B10	W-Wide Flange: W27X129	1	18.67	4.56	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X123
B10	W-Wide Flange: W27X102	1	18.67	3.31	W27X102 W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.31	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.32	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.32	W27X94
B10	W-Wide Flange: W24X84	1	18.67		W24X84
B10	-	1		2.97	
	W-Wide Flange: W16X26		163.79	8.53	W16X26
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W21X68	1	82.5	11.15	W21X68
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W18X40	1	33	2.55	W18X40
B10	W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W27X114	1	34.5	7.63	W27X114
B10	W-Wide Flange: W27X114	1	34.5	7.62	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26

B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.58	W12X19
B10	W-Wide Flange: W10X17	1	17.04	0.56	W10X17
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X31	1	26.29	1.58	W16X31
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.57	W12X19
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W18X35	1	33	2.29	W18X35
B10	W-Wide Flange: W18X35	1	28	1.9	W18X35
B10	W-Wide Flange: W10X17	1	16.42	0.53	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	11.08	0.35	W10X17
B10	W-Wide Flange: W27X84	1	18.83	2.99	W27X84
B10	W-Wide Flange: W27X84	1	18.83	2.99	W27X84
B10	W-Wide Flange: W27X84	1	18.83	2.98	W27X84
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W18X40	1	33	2.6	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W21X57	1	38.5	4.26	W21X57
B10	W-Wide Flange: W27X129	1	18.67	4.55	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.61	W27X123 W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102 W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.6	W27X102 W27X102
B10	W-Wide Flange: W27X84	1	18.67	2.97	W27X102 W27X84
	-	1		4.34	
B10 B10	W-Wide Flange: W18X10	1	38.5 33		W21X57
B10	W-Wide Flange: W18X40	1		2.61	W18X40
	W-Wide Flange: W16X26		27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W21X62	1	27.5	3.26	W21X62
B10	W-Wide Flange: W21X62	1	27.5	3.26	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W14X22	1	15.96	0.67	W14X22
B10	W-Wide Flange: W14X22	1	25.5	1.11	W14X22
B10	W-Wide Flange: W8X10	1	3.33	0.06	W8X10

B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W8X10	1	5.33	0.1	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	HSS-Hollow Structural Section: HSS8X4X.3125	1	11.92	0.52	HSS8X4X.312 5
B10	W-Wide Flange: W21X55	1	38.5	4.12	W21X55
B10	W-Wide Flange: W21X55	1	38.5	4.2	W21X55
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X26	1	20.29	1.34	W16X26
B10	· ·	1	27.5 27.5	1.36	W16X26
	W-Wide Flange: W16X26				
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X84	1	18.83	3	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.62	W27X114
B10	W-Wide Flange: W21X62	1	27.5	3.26	W21X62
B10	W-Wide Flange: W16X26	1	27.5	1.36	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.3	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W27X102	1	34.5	6.81	W27X102
B10	W-Wide Flange: W27X84	1	34.5	5.62	W27X84
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W12X19	1	14.67	0.54	W12X19
B10	W-Wide Flange: W27X94	1	18.83	3.35	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.35	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.35	W27X94
B10	W-Wide Flange: W27X114	1	18.83	4.07	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.42	W16X26
B10	W-Wide Flange: W16X26	1	6	0.29	W16X26
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44

B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W27X84	1	18.67	2.99	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.67	W27X114
B10	W-Wide Flange: W24X84	1	18.83	3.01	W24X84
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X57	1	28.33	3.16	W16X57
B10	W-Wide Flange: W16X26	1	11.08	0.54	W16X26
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W16X26	1	18.83	0.96	W16X26
B10	W-Wide Flange: W16X26	1	21.42	1.03	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.52	W16X26
B10	W-Wide Flange: W16X31	1	108.79	6.74	W16X31
B10	W-Wide Flange: W16X31	1	72	4.43	W16X31
B10	W-Wide Flange: W16X36	1	27.5	1.96	W16X36
B10	W-Wide Flange: W14X22	1	70.5	3.08	W14X22
B10	W-Wide Flange: W14X22	1	27.52	1.19	W14X22
B10	W-Wide Flange: W27X114	1	16.33	3.53	W27X114
B10	W-Wide Flange: W21X44	1	33.72	2.92	W21X44
B10	W-Wide Flange: W16X26	1	23.4	1.14	W16X26
B10	W-Wide Flange: W18X35	1	33.33	2.3	W18X35
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W21X68	1	163.79	22.34	W21X68
B10	W-Wide Flange: W21X68	1	33	4.36	W21X68
B10	W-Wide Flange: W21X57	1	33	3.73	W21X57
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W16X26	1	16.42	0.8	W16X26
B10	W-Wide Flange: W21X62	1	9.33	1.09	W21X62
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	72	3.15	W14X22
B10	W-Wide Flange: W21X68	1	9.33	1.2	W21X68
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	36.42	1.59	W14X22

B10	W-Wide Flange: W21X68	1	33	4.35	W21X68
B10	W-Wide Flange: W21X68	1	33	4.36	W21X68
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.36	W14X22
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.36	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W12X19	1	6	0.2	W12X19
B10	W-Wide Flange: W27X129	1	18.67	4.58	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W24X84	1	18.67	2.98	W24X84
B10	W-Wide Flange: W16X26	1	163.79	8.53	W16X26
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W16X26	1	26.29	1.31	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W21X68	1	82.5	11.16	W21X68
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W18X40	1	33	2.56	W18X40
B10	W-Wide Flange: W27X114	1	34.5	7.67	W27X114
B10	W-Wide Flange: W27X114	1	34.5	7.67	W27X114
B10	W-Wide Flange: W27X114	1	34.5	7.66	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.58	W12X19

B10	W-Wide Flange: W10X17	1	17.04	0.56	W10X17
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X31	1	26.29	1.58	W16X31
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.57	W12X19
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W18X35	1	33	2.29	W18X35
B10	W-Wide Flange: W18X35	1	28	1.9	W18X35
B10	W-Wide Flange: W10X17	1	16.42	0.53	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	11.08	0.35	W10X17
B10	W-Wide Flange: W27X84	1	18.83	3.02	W27X84
B10	W-Wide Flange: W27X84	1	18.83	3.02	W27X84
B10	W-Wide Flange: W27X84	1	18.83	3.01	W27X84
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W18X40	1	33	2.6	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W21X57	1	38.5	4.27	W21X57
B10	W-Wide Flange: W27X129	1	18.67	4.58	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X84	1	18.67	2.99	W27X84
B10	W-Wide Flange: W21X57	1	38.5	4.34	W21X57
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.31	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W21X62	1	27.5	3.27	W21X62
B10	W-Wide Flange: W21X62	1	27.5	3.27	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W21X62	1	38.5	4.72	W21X62
B10	W-Wide Flange: W27X102	1	34.5	6.85	W27X102
B10	W-Wide Flange: W14X22	1	15.96	0.67	W14X22
B10	W-Wide Flange: W14X22	1	25.5	1.11	W14X22
B10	W-Wide Flange: W8X10	1	3.33	0.06	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W8X10	1	5.33	0.1	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
-		-		J	

D40	WW.d. Flores WAOVAO	4	44.47	0.4	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17 HSS8X4X.312
B10	HSS-Hollow Structural Section: HSS8X4X.3125	1	11.92	0.52	5
B10	W-Wide Flange: W21X55	1	38.5	4.14	W21X55
B10	W-Wide Flange: W21X55	1	38.5	4.2	W21X55
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X84	1	18.83	3.02	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.66	W27X114
B10	W-Wide Flange: W21X62	1	27.5	3.27	W21X62
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.31	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X102	1	34.5	6.85	W27X102
B10	W-Wide Flange: W27X102	1	34.5	6.85	W27X102
B10	W-Wide Flange: W27X84	1	34.5	5.65	W27X84
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W12X19	1	14.67	0.54	W12X19
B10	W-Wide Flange: W27X94	1	18.83	3.36	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.37	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.37	W27X94
B10	W-Wide Flange: W27X114	1	18.83	4.09	W27X114
B10	W-Wide Flange: W16X26	1	27.5	1.42	W16X26
B10	W-Wide Flange: W16X26	1	6	0.29	W16X26
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
	-				

B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W27X84	1	18.67	2.99	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.67	W27X114
B10	W-Wide Flange: W24X84	1	18.83	3.01	W24X84
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X57	1	28.33	3.16	W16X57
B10	W-Wide Flange: W16X26	1	11.08	0.54	W16X26
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W16X26	1	18.83	0.96	W16X26
B10	W-Wide Flange: W16X26	1	21.42	1.03	W16X26
B10	W-Wide Flange: W16X26	1	163.79	8.52	W16X26
B10	W-Wide Flange: W16X31	1	108.79	6.74	W16X31
B10	W-Wide Flange: W16X31	1	72	4.43	W16X31
B10	W-Wide Flange: W16X36	1	27.5	1.96	W16X36
B10	W-Wide Flange: W14X22	1	70.5	3.08	W14X22
B10	W-Wide Flange: W14X22	1	27.52	1.19	W14X22
B10	W-Wide Flange: W27X114	1	16.33	3.53	W27X114
B10	W-Wide Flange: W21X44	1	33.72	2.92	W21X44
B10	W-Wide Flange: W16X26	1	23.4	1.14	W16X26
B10	W-Wide Flange: W18X35	1	33.33	2.3	W18X35
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W16X31	1	62.58	3.85	W16X31
B10	W-Wide Flange: W21X68	1	163.79	22.34	W21X68
B10	W-Wide Flange: W21X68	1	33	4.36	W21X68
B10	W-Wide Flange: W21X57	1	33	3.73	W21X57
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W16X31	1	21.88	1.32	W16X31
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	12	0.39	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W10X17	1	21.42	0.71	W10X17
B10	W-Wide Flange: W16X26	1	16.42	0.8	W16X26
B10	W-Wide Flange: W21X62	1	9.33	1.09	W21X62
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	18.67	0.78	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	53.33	2.31	W14X22
B10	W-Wide Flange: W14X22	1	72	3.13	W14X22
B10	W-Wide Flange: W21X68	1	9.33	1.2	W21X68
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	36.42	1.59	W14X22
B10	W-Wide Flange: W21X68	1	33	4.35	W21X68
B10	W-Wide Flange: W21X68	1	33	4.36	W21X68
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50
B10	W-Wide Flange: W21X50	1	34.5	3.39	W21X50

B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	9.92	0.32	W10X17
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.36	W14X22
B10	W-Wide Flange: W10X17	1	9.33	0.3	W10X17
B10	W-Wide Flange: W14X22	1	9.33	0.36	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	9.33	0.39	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W14X22	1	3.25	0.12	W14X22
B10	W-Wide Flange: W12X19	1	6	0.2	W12X19
B10	W-Wide Flange: W27X129	1	18.67	4.58	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W27X94	1	18.67	3.33	W27X94
B10	W-Wide Flange: W24X84	1	18.67	2.98	W24X84
B10	W-Wide Flange: W16X26	1	163.79	8.53	W16X26
B10	W-Wide Flange: W18X40	1	33	2.62	W18X40
B10	W-Wide Flange: W16X26	1	26.29	1.31	W16X46
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W21X68	1	82.5	11.16	W21X68
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W18X40	1	33	2.56	W18X40
B10	W-Wide Flange: W27X114	1	34.5	7.67	W27X114
B10	W-Wide Flange: W27X114 W-Wide Flange: W27X114	1	34.5		W27X114 W27X114
B10	W-Wide Flange: W27X114 W-Wide Flange: W27X114	1	34.5	7.67	
B10	W-Wide Flange: W27X114 W-Wide Flange: W16X26	1		7.66	W27X114
	W-Wide Flange: W16X26	1	27.5	1.39 1.39	W16X26 W16X26
B10	3		27.5		
B10 B10	W-Wide Flange: W16X26	1	27.5 27.5	1.39	W16X26
	W-Wide Flange: W16X26	1		1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flage: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flage: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W12X19	1	15.67	0.58	W12X19
B10	W-Wide Flage: W10X17	1	17.04	0.56	W10X17
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X31	1	26.29	1.58	W16X31
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26

B10	W-Wide Flange: W12X19	1	15.67	0.57	W12X19
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W18X35	1	33	2.29	W18X35
B10	W-Wide Flange: W18X35	1	28	1.9	W18X35
B10	W-Wide Flange: W10X17	1	16.42	0.53	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	16.42	0.54	W10X17
B10	W-Wide Flange: W10X17	1	11.08	0.35	W10X17
B10	W-Wide Flange: W27X84	1	18.83	3.02	W27X84
B10	W-Wide Flange: W27X84	1	18.83	3.02	W27X84
B10	W-Wide Flange: W27X84	1	18.83	3.01	W27X84
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W18X40	1	33	2.6	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W21X57	1	38.5	4.25	W21X57
B10	W-Wide Flange: W27X129	1	18.67	4.58	W27X129
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X102	1	18.67	3.62	W27X102
B10	W-Wide Flange: W27X84	1	18.67	2.99	W27X84
B10	W-Wide Flange: W21X57	1	38.5	4.34	W21X57
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	•	1	27.5	3.27	W21X62
B10	W-Wide Flange: W21X62 W-Wide Flange: W21X62	1	27.5	3.27	W21X62 W21X62
B10	•	1	38.5		
B10	W-Wide Flange: W21X62 W-Wide Flange: W21X62	1	38.5	4.72	W21X62 W21X62
B10	· ·		34.5	4.72 6.82	
	W-Wide Flange: W27X102	1			W27X102
B10	W-Wide Flange: W14X22	1	15.96	0.67	W14X22 W14X22
B10	W-Wide Flange: W14X22	1	25.5	1.11	
B10	W-Wide Flange: W8X10	1	3.33	0.06	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W8X10	1	5.33	0.1	W8X10
B10	W-Wide Flange: W12X19	1	13	0.47	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W12X19	1	11.17	0.4	W12X19
B10	W-Wide Flange: W10X17	1	11.92	0.39	W10X17 HSS8X4X.312
B10	HSS-Hollow Structural Section: HSS8X4X.3125	1	11.92	0.52	5 W21 VEE
B10	W-Wide Flange: W21X55	1	38.5	4.12	W21X55

B10	W-Wide Flange: W21X55	1	38.5	4.2	W21X55
B10	W-Wide Flange: W21X62	1	38.5	4.71	W21X62
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W18X40	1	33	2.61	W18X40
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.34	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X84	1	18.83	3.02	W27X84
B10	W-Wide Flange: W27X114	1	34.5	7.66	W27X114
B10	W-Wide Flange: W21X62	1	27.5	3.27	W21X62
B10	W-Wide Flange: W16X26	1	27.5	1.37	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.31	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W16X26	1	26.29	1.33	W16X26
B10	W-Wide Flange: W27X102	1	34.5	6.85	W27X102
B10	W-Wide Flange: W27X102	1	34.5	6.85	W27X102
B10	W-Wide Flange: W27X84	1	34.5	5.65	W27X84
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W10X17	1	18.25	0.6	W10X17
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W12X19	1	14.67	0.54	W12X19
B10	W-Wide Flange: W27X94	1	18.83	3.36	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.37	W27X94
B10	W-Wide Flange: W27X94	1	18.83	3.37	W27X94
B10	W-Wide Flange: W27X114	1	18.83	4.09	W27X114
B10	W-Wide Flange: W16X31	1	18.67	1.11	W16X31
B10	W-Wide Flange: W16X26	1	27.5	1.39	W16X26
B10	W-Wide Flange: W14X22	1	16.5	0.7	W14X22
B10	W-Wide Flange: W12X19	1	16.5	0.6	W12X19
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X31	1	27.5	1.67	W16X31
B10	W-Wide Flange: W16X31	1	15.67	0.92	W16X31
B10	W-Wide Flange: W16X31	1	27.5	1.68	W16X31
B10	W-Wide Flange: W24X55	1	34.33	3.75	W24X55
B10	W-Wide Flange: W14X22	1	16.5	0.7	W14X22
B10	W-Wide Flange: W14X22	1	18.83	0.79	W14X22

B10	W-Wide Flange: W14X22	1	16.5	0.69	W14X22
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W14X22	1	18.83	0.81	W14X22
B10	W-Wide Flange: W14X22	1	16.5	0.69	W14X22
B10	W-Wide Flange: W14X22	1	18.83	0.78	W14X22
B10	W-Wide Flange: W14X22	1	16.5	0.69	W14X22
B10	W-Wide Flange: W16X26	1	27.5	1.38	W16X26
B10	W-Wide Flange: W16X26	1	24.25	1.24	W16X26
B10	W-Wide Flange: W12X19	1	10.08	0.37	W12X19
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.4	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W16X26	1	27.5	1.41	W16X26
B10	W-Wide Flange: W14X22	1	27.5	1.19	W14X22
B10	W-Wide Flange: W14X22	1	27.5	1.19	W14X22
B10	W-Wide Flange: W14X22	1	27.5	1.19	W14X22
B10	W-Wide Flange: W24X55	1	34.33	3.72	W24X55
B10	W-Wide Flange: W21X50	1	34.33	3.4	W21X50
B10	W-Wide Flange: W24X55	1	34.33	3.68	W24X55
B10	W-Wide Flange: W10X15	1	16.5	0.48	W10X15
B10	W-Wide Flange: W10X15	1	16.5	0.48	W10X15
B10	W-Wide Flange: W10X15	1	16.5	0.48	W10X15
B10	W-Wide Flange: W10X15	1	16.5	0.48	W10X15
B10	W-Wide Flange: W10X15	1	16.5	0.48	W10X15
B10	W-Wide Flange: W10X15	1	16.5	0.48	W10X15
B10	W-Wide Flange: W14X22	1	27.5	1.2	W14X22
B10	W-Wide Flange: W14X22	1	27.5	1.19	W14X22
B10	W-Wide Flange: W14X22	1	27.5	1.19	W14X22
B10	W-Wide Flange: W16X26	1	27.5	1.42	W16X26
B10	W-Wide Flange: W18X35	1	53.17	3.7	W18X35
B10	W-Wide Flange: W12X26	1	9.33	0.42	W12X26
B10	W-Wide Flange: W21X62	1	38.5	4.68	W21X62
B10	W-Wide Flange: W16X57	1	34.5	3.88	W16X57
B10	W-Wide Flange: W21X44	1	18.67	1.58	W21X44
B10	W-Wide Flange: W21X50	1	38.5	3.8	W21X50
B10	W-Wide Flange: W12X19	1	9.33	0.33	W12X19
B10	W-Wide Flange: W12X19	1	9.33	0.33	W12X19 W12X19
B10	W-Wide Flange: W18X35	1	18.67	1.24	W12X19
B10	W-Wide Flange: W18X35	1			
В10	W-Wide Flange: W10X33	1	34.5	2.35	W18X35
	· ·	1	9.33	0.33	W12X19
B10	W-Wide Flange: W12X19	1	9.33	0.33	W12X19
B10	W-Wide Flange: W12X19		9.33	0.33	W12X19
B10	W-Wide Flange: W21Y52	1	9.33	0.33	W12X19
B10	W-Wide Flange: W21X62	1	38.5	4.67	W21X62
B10	W-Wide Flange: W21X44	1	38.5	3.36	W21X44
B10	W-Wide Flange: W21X44	1	38.5	3.36	W21X44
B10	W-Wide Flange: W21X44	1	38.5	3.36	W21X44
B10	W-Wide Flange: W21X44	1	38.5	3.37	W21X44
B10	W-Wide Flange: W21X44	1	33	2.84	W21X44
B10	W-Wide Flange: W21X44	1	34.5	2.96	W21X44

B10	W-Wide Flange: W21X44	1	33	2.85	W21X44
B10	W-Wide Flange: W21X44	1	34.5	2.98	W21X44
B10	W-Wide Flange: W21X44	1	33	2.79	W21X44
B10	W-Wide Flange: W21X44	1	33	2.79	W21X44
B10	W-Wide Flange: W21X44	1	34.5	2.92	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	57.17	4.98	W21X44
B10	W-Wide Flange: W21X44	1	108.79	9.54	W21X44
B10	W-Wide Flange: W21X44	1	108.79	9.59	W21X44
B10	W-Wide Flange: W21X44	1	108.79	9.54	W21X44
B10	W-Wide Flange: W21X44	1	108.79	9.59	W21X44
B10	W-Wide Flange: W21X44	1	53.17	4.64	W21X44
B10	W-Wide Flange: W21X44	1	33	2.86	W21X44
B10	W-Wide Flange: W21X44	1	33	2.84	W21X44

### Total Weight:

Framing 1,818,482 lbs. = 909 tons

Columns 564,668 lbs. = 282 tons

TOTAL: 1191 tons

# Wall Quantities (Entire Building)

wall Quantities (Entire	σ,			
Wall Assembly	Calculated To Butt		Length - Center To Center	Width
	Area	Volume		
Exterior Glazing	452.59		21' - 10"	
Exterior Glazing	261.27		13' - 5"	
Exterior Glazing	259.11		12' - 6"	
Exterior Glazing	549.32		26' - 6"	
Exterior Glazing	507.86		24' - 6"	
Exterior Glazing	507.86		24' - 6"	
Exterior Glazing	507.86		24' - 6"	
Exterior Glazing	507.86		24' - 6"	
Exterior Glazing	493.18		23' - 9 1/2"	
Exterior Glazing	487.14		23' - 6"	
Exterior Glazing	507.86		24' - 6"	
Exterior Glazing	507.86		24' - 6"	
Exterior Glazing	507.86		24' - 6"	
Exterior Glazing	611.51		29' - 6"	
Exterior Glazing	4968		310' - 6"	
Exterior Glazing	567		40' - 6"	
Exterior Glazing	31.5		2' - 9"	
Exterior Glazing	35		2' - 6"	
Exterior Glazing	221.67		15' - 10"	
Exterior Glazing	297.57		19' - 6"	
Exterior Glazing	375.52		23' - 11 7/8"	
Exterior Glazing	529.14		33' - 8 27/32"	
Exterior Glazing	433.6		27' - 6 3/16"	
Exterior Glazing	415.21		26' - 6"	
Exterior Glazing	266		19' - 6"	
Exterior Glazing	334.83		23' - 11"	
Exterior Glazing	472.5		33' - 9"	
Exterior Glazing	385		27' - 6"	
Exterior Glazing	367.5		26' - 3"	
Exterior Glazing	4347		310' - 6"	
Exterior Glazing	221.67		15' - 10"	
Exterior Glazing	32.96		2' - 4 1/4"	
Exterior Glazing	567		40' - 6"	
Exterior Glazing	29.46		2' - 1 1/4"	
Exterior Glazing	4151		296' - 6"	
Exterior Glazing	2311.5		22' - 4"	
Exterior Glazing	1083		19' - 6"	
Exterior Glazing	1363.43		23' - 11 1/32"	
Exterior Glazing	1923.75		33' - 9"	
Exterior Glazing	1567.5		27' - 6"	
Exterior Glazing	1496.25		26' - 3"	
Exterior Glazing	4869.75		65' - 0"	
Exterior Glazing	16900.5		296' - 6"	
Exterior Glazing	18319.5		310' - 6"	
Exterior Glazing	888.25		15' - 7"	
Exterior Glazing	134.19		2' - 4 1/4"	
5			•	

Exterior Glazing	2308.5		40' - 6"		
Exterior Glazing	119.94		2' - 1 1/4"		
Foundation - 36" Footing	446.33	1317.45	34' - 4"	3	
Foundation - 36" Footing	356.19	1052.48	27' - 6"	3	
Foundation - 36" Footing	236.59	709.78	18' - 10"	3	
Foundation - 36" Footing	4888.6	14665.8	389' - 1 1/2"	3	
Foundation - 36" Footing	652.17	1901.63	53' - 2"	3	
Foundation - 36" Footing	5455.13	16365.38	416' - 7 1/2"	3	
Retaining - 12" Concrete	254.04	254.04	12' - 6"		1
Retaining - 12" Concrete	1164.26	1163.62	56' - 2"		1
Retaining - 12" Concrete	260.84	260.62	12' - 7"		1
Retaining - 12" Concrete	233.31	232.96	12' - 6"	1	
Retaining - 12" Concrete	41.43	41.43	1' - 6"	1	
Retaining - 12" Concrete	7776.13	7776.13	370' - 3 1/2"	1	
Retaining - 12" Concrete	289.33	289.33	20' - 2"	1	
Retaining - 12" Concrete	5839.75	5839.75	418' - 1 1/2"	1	
Retaining - 12" Concrete	176.17	176.17	12' - 7"	1	
Retaining - 12" Concrete	289.33	289.33	20' - 2"	1	
Retaining - 12" Concrete	5839.75	5839.75	418' - 1 1/2"	1	
Retaining - 12" Concrete	1720.92	1720.92	13' - 6"	1	
Retaining - 12" Concrete	1126.21	1126.21	12' - 7"	1	
Retaining - 12" Concrete	3822.19	3822.19	50' - 7 1/2"	1	
Retaining - 12" Concrete	490.75	490.75	6' - 0"	1	
Retaining - 12" Concrete	1484.83	1484.83	20' - 2"	1	
Retaining - 12" Concrete	233.18	233.18	13' - 5"	1	
Retaining - 12" Concrete	233.18	233.18	13' - 5"		1
Grand total: 292	195844.5	140350			

Entire Building Curtain Wall Total:

79,004 ft<sup>2</sup>

Floor Quantitie Assembly	es by Assembly (Entire Building)	Area (Defined By	
Code	Floor Assembly	Modeler)	Perimeter
B1010	Concrete Slab - 6" Typical Concrete on Metal	43283	1879.17
B1010 Grand total:	Decking	235727	8932.69
18		279010	10811.86

### Concrete Totals:

Slabs 
$$(43,282' \times 6/12') + (235,727' \times 3.25/12') = 85,483 \text{ ft}^3$$

$$TOTAL = \frac{152,770 \text{ ft}^3}{}$$

**Appendix VII: Capstone Design Proposal** 

MQP Project: Capstone Design Experience Proposal

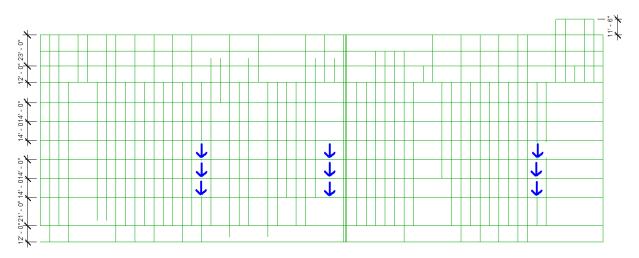
Objective: To evaluate the structural capacity of the steel framing of the UMass AECPC building in Worcester and redesign the building's steel structure to accommodate the extra dead load which it had not been designed for.

Why: The capstone design portion of our group's MQP consists of analyzing and reevaluating the entire steel framing of the UMass building before and after at least twelve 10,000 lb. cameras were added. When the project was originally designed, the cameras were not part of the expected dead load. Because the project is design-build, there were still many factors which had not been determined and still haven't been established. The main factors being what exactly each floor will be used for, whether it be educational, medical or rented out to other companies. Early in construction the owner brought up the possibility of reserving three floors (floors three four and five), for medical use. One of the options for making this building one of the most up to date and high tech facilities in the country was to add a three cameras to each floor, each weighing ten thousand pounds. With the current design, the trusses would fail under the added load. In the end they decided not to change the plans they had and would relocate the cameras or not use them at all.

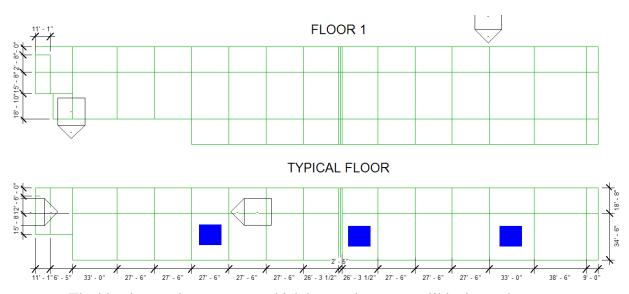
What: Our group will figure out what floor design would work to compensate for the cameras. We plan to determine if it would be better to redesign the trusses or would it just be better to add steel to the columns already in place. We want to see how much work it would have been to add the steel and how much it would have added onto the budgeted

cost. Also answer how this added construction would affect the project duration. These problems are what can hinder projects, especially one which is fast-tracked. The project is already behind schedule and changing the floor plans would probably push it farther back. We will conduct a structural review of the current load bearing capacity of the floor and steel frame as designed and then re- design the structural members as needed to carry the new loading condition imposed by the weight of the camera equipment. After, we will determine the cost and schedule impact of this work.

#### FRONT VIEW



The blue arrows show where each camera will be located.

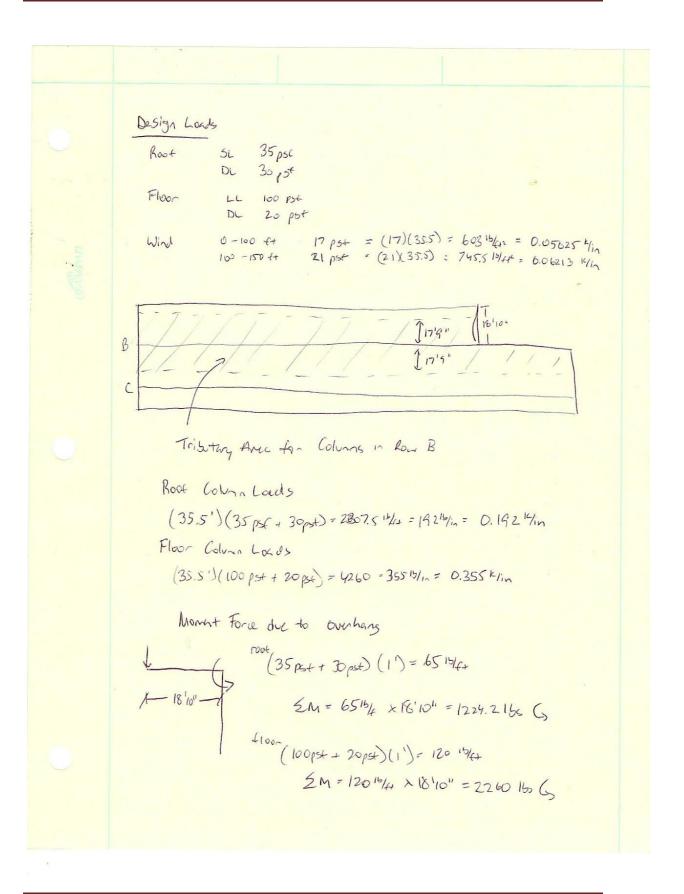


The blue boxes also represent which bay each camera will be located.

#### Design Steps

- A: To determine the actual strength of the current steel structure.
- B. Using loads given by Consigli, determine how much weight could safely be added to the structure.
- C. Decide whether we will use an alternate design or only change the size of the beams.
- D. Once an alternative has been chosen we can proceed to redesigning the structure to resist the dead and live loads given in the plans and the extra force of the cameras during construction in accordance with Massachusetts building codes.
- E. When the design is concluded, we will determine the time and cost difference of actually implementing the new design.

# **Appendix VIII: Camera Loading Design Calculations**



			1
Critical Colum	ทศร		
Rone			
4- Force	- Wode	4+5 - 812+ 613	
		14+15 - 133+34	
		8+9-88.1+39	
Colunn	Bottom Size	middle Size	
JB3 (14)=	4 14 x 342	U14×283	
184 (15)	W14 ×342	W14 x 257	
B 8.1 (8)	W14 x 311	W14×257	
89 (9)	414 x 311	U14 x 257	
J B12 (4)	W14 x 342	W14 x 2 83	
1 B13 (5)	414 ×370	Uly ×311	
		757	
		p3. 782	

$$P_{a} = 967 k$$
Assume  $\frac{kL}{r} = 60$ 

$$\frac{F_{r}}{2} = 24.9 ks;$$
Area =  $\frac{967}{24.9} = 38.8 m^{2}$ 

$$T_{r3} = 14.4 + 145 M = 42.2, n^{2}, r_{+} = 6.33, r_{3} = 3.98$$

$$\frac{kL}{r} = \frac{(12)(21)}{3.98} = 63.32$$

$$\frac{F_{cr}}{R_{c}} = 27.3 ks;$$

$$I_{n} = (27.3)(42.7) = 95221 < 1000 k N.6.$$

$$T_{r3} = 14.7 m^{2}, r_{+} = 6.4, r_{3} = 4.0$$

$$\frac{kL}{r} = \frac{(12)(21)}{40} = 63$$

$$\frac{F_{cr}}{r} = 27.3 ks;$$

$$I_{n} = (27.3)(46.7) = 1041.41 > 967 \text{ ok}$$

$$T_{r3} = 14.159$$

ASD Method
Column B3 (14) ASD
$P = 1103 \text{ k}$ $P_0 = 1103 \text{ k}$ Assume $\frac{\text{KL}}{C} = 50 \text{ ks}$
214.
1111 and Fir = 24.9 KS
$Arcs = \frac{1003}{24.9} = 44.3 in^3$
Try W14 x159 (A=46.7 in2, rx=6.4, ry=4.0)
$\frac{KL}{r} = \frac{(12)(21)}{4} = 63$
Fer = 22.4/65i
Pn = (22.4/462) = 1046.08 k 4 1103 k N.6.
Try 14 x 176 (A = 51.8 in2, cx: 6.43 cx: 4.02)
$\frac{16L}{C} = \frac{(12)(21)}{4.02} = 62.69$
Fir = 22.4 Ks!
P. : (27.4 \ 51.8) = 1160.3 x7 1103 k OK
USE W14 × 176

Column B9 (9)	
Pa = 453 K	
ASSUME KL = 50ks; Fer = 24.9ks;	
ANA = 453 = 18.2 1/2	
Try W14 x 68 (A= 20 m2, (y= 2.45in)	
$\frac{KL}{f} = \frac{(12)(21)}{2.45} = 102.9$	
Fir = compress. 14 ks.	
$\frac{\rho_a}{2}$ = (14)(20) = 280 4 453 N.b.	
Try W14 x74 (A= 21.8, 14: 2.48)	
$\frac{ KL }{r} = \frac{(12)(21)}{2.16} = 101.6$	
Fir = 14 Ksi	
Pa = (14)(21.8) = 305.2 6453K N.6.	
Try W14x82 (A=24, 164=248)	
$\frac{KC}{c} = \frac{(12)(21)}{2.48} = 101.6$	
Fec = 14 toi	
Pr = (14)(24) = 336 K K 453 K N.6.	

	<b>7</b> )
89) Try WIMX90 (A: 265, 14: 3.70)	
1/1 (3/1-)	
$\frac{14L}{c} = \frac{(2)(21)}{3.7} = 68.1$	
For = 21.4 Kg	
Pn = (21.1/26.5) = 567. 1 7 453 O.K.	
•	

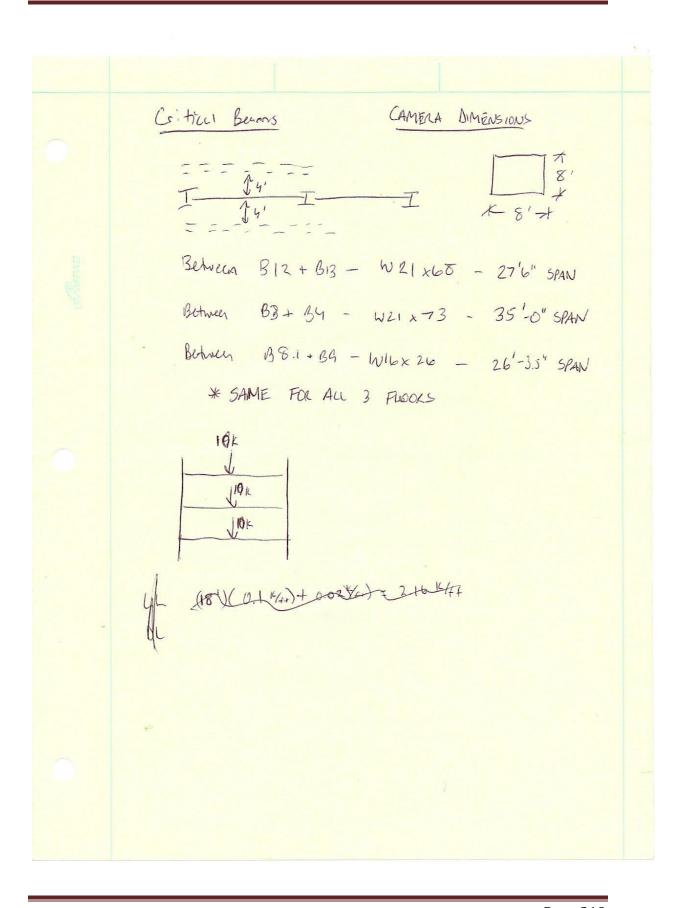
$$\begin{array}{l} 84-60 \text{ damn} \\ P_0=1306 \text{ K} \\ Assume & \frac{1}{7}=50 \\ \hline \frac{F_{\pi}}{R_c}=24.9 \text{ Ks}; \\ Aren=\frac{1306}{24.9}=41.6 \text{ in}^2 \\ \hline T_{7} a \text{ Li}{4}\times 145 & A=47.7 \text{ m}^2, \ rx=6.33.n, \ rs=3.98.n \\ \frac{KL}{r}=\frac{(12)(21)}{3.98}=63.32 \\ \hline \frac{F_{er}}{R_c}=223 \text{ ks}; \\ \hline \frac{P_n}{R_c}=(22.3)(42.7)=932.21 \text{ K} 1306 \text{ K} \text{ M.6.} \\ \hline T_{7} a \text{ Li}{4.02}=62.69 \\ \hline \frac{F_{er}}{R_c}=22.4 \text{ Ki}; \\ \hline \frac{P_n}{R_c}=22.4 \text{ Ki}; \\ \hline \frac{P_n}{R_c}=22.4 \text{ Ki}; \\ \hline \frac{P_n}{R_c}=(22.4)(51.8)=1160.32 < 1306 \text{ M.6.} \\ \hline \end{array}$$

$Tr_{5} = w / 4 \times 193$ $A = 56.8, r_{x} = 6.48, r_{5} = 4.05$ $\frac{kL}{r} = \frac{(12)(21)}{401} = 62.2$
$\frac{F_{cr}}{\pi c} = 27.6 \text{ ksi}$
$\frac{P_n}{n_c} = (27.6)(56.8) = 1283.68 < 1306 N.6.$
Trs a w14x211 A=62.0 m², rx=6.55, rs = 4.07
$\frac{kC}{7} = \frac{(12)(21)}{4.07} = 61.9$
Fer = 27.6 ks;
Pn = (226)(62.0) = 1356 > 1306 Vok
[use a n/4+21]

B1Z, B13 column

$$ASD$$
 $P_{a}=1000 \text{ K}$ 

Assume  $kL = SO$ 
 $T = 24.9 \text{ kg};$ 
 $A req = \frac{1000}{24.9} = 40.16 \text{ in}^2$ 
 $Tr_3 \text{ w} 14 \times 145 \quad A = 42.7 \text{ in}^2, r_x = 6.33 \text{ in}, r_3 = 3.98 \text{ in}$ 
 $\frac{kL}{r} = \frac{(12)(21)}{3.98} = 63.32$ 
 $\frac{F_{cr}}{S_{c}} = 22.3 \text{ ki};$ 
 $\frac{f_n}{f_n} = (22.3)(42.7) = 95221 \leq 1000 \text{ k} \text{ M.6.}$ 
 $Tr_3 \text{ in} 4 \times 159 \quad A = 46.7, r_x = 6.4, r_3 = 4.00$ 
 $\frac{kL}{r} = \frac{(12)(21)}{4} = 63$ 
 $\frac{F_{cr}}{S_{c}} = 22.4 \text{ ki};$ 
 $\frac{f_n}{f_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k} \times 1000 \text{ k}$ 
 $\frac{g_n}{g_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k}$ 
 $\frac{g_n}{g_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k}$ 
 $\frac{g_n}{g_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k}$ 
 $\frac{g_n}{g_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k}$ 
 $\frac{g_n}{g_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k}$ 
 $\frac{g_n}{g_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k}$ 
 $\frac{g_n}{g_n} = (22.4)(46.7) = 1046.08 \text{ k} \times 1000 \text{ k}$ 



	B8.1-B9 Shear	
	W14x48 (A=14.1, 1 = 13.71, tw: 0.34 , Kdes=1.19)	
	h: 13.8 - 216ds = 13.6-2(1.19) = 11.42 in	
	$\frac{h}{+u} = \frac{11.42}{.34} = 33.59 \ \angle 2.24 \int_{50}^{2900} = 53.95$	
	Vn = 0.6 Fy AUCV	
	= 0.6 (50) (13,8.034) (1.0) = 140.76 K	
	Wg = 1.36	
	Va = (1.36 × 13) + 10(13)	
	149.7 K	
	$\frac{\sqrt{n}}{\sqrt{N}} = \frac{140.76}{1.5} = 43.8 \text{ K}$	
	149.9 > 92.8 N.G	
	In Wy x 687	
	Un =/117 K	
	117 7/113 8 OK	
	105 W14×68	
-	Try 618x60	
	Vn = 151 k 7 149.7 k OKS	
	USE W18×60	

		1 =
Shran	$68.1-69$ Deflection  WIDE X60 $\Delta = \frac{5 \text{ LVL}'}{384 \text{ EI}} = \frac{5(1 39 12)(26.29 \times 12)^4}{384(29 \times 10^4)(1350)} = 0.313 \text{ in total local deflection}$ $\Delta = \frac{5 \text{ LVL}'}{384 \text{ EI}} = \frac{5(1 39 12)(26.29 \times 12)^4}{384(29 \times 10^4)(1350)} = 0.313 \text{ in total local deflection}$	

	1
B3-B4 moment	
O O O O	
38,	
w 21 x 73	
$Mu = \frac{429 \text{ ft-k}}{8} + \frac{(0)(33)}{4}$	
429-112/302	
429= nd (35)2 nd= 7.80 HA	
Whi (.80 k) tok	
1-35'	
$mh = 2.80 \text{ k/A}$ $Pa = 10^{k}$	
Mu= 2.80 (35) 2 (10)(21)	
= 516.25 Ft-k	
Tro w14 x120 wt= 2,80 + 0,120 = 2,92	
$M_u = 2.92(35)^2 + (10)(35)$	
= 534.625 f1-k	
w 21 x 93	
Mu=551ft-k >534.625ft-k ok	
	2

B3-B4 Shear
W21×93
$U_6 = (2.80) \times \frac{35}{2} + 10(31)$
= 49 + 175
= 224 K
$\frac{\sqrt{n}}{37} = 251 > 224 k$ OK
USE W21 x 93
Deflection
W21 x 43
$\Delta = \frac{5wL^4}{3846I} = \frac{5(1289/12)(35 \times 12)^7}{384(29 \times 10^9)(1350)} = 1.10 \text{ in}$
∠ 1/360 (12×35) = 1.16 OK /
use n21x93 for the beam between
B3-B4.

$B12 - B13$ Shear $W_{4} = (4.68 \times \frac{27.5}{2}) + 10(\frac{27.5}{2})$
= 64.35 + 137.5 = 201.85
$\frac{1}{3}$ = 171 6 701.85 N.6.
Try W12×136  12 = 212 7 201.85 O.K \( \square \text{USE W12×136} \)
Deflection W12x136
$\Delta = \frac{5 L L^4}{384 EI} = \frac{5 (1468/12) (27.5 \times 12)^4}{384 (29 \times 10^6) \times (1350)} = 0.483 \text{ in}$
∠ 1/360 (12×27.5) = 0.917 OK V

