GFS-1001



New Worcester North High School: Construction Management and Constructability Analysis

A Major Qualifying Project Submitted to the faculty of Worcester Polytechnic Institute In partial fulfillment of the requirements for the **Degree of Bachelor of Science**

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Abstract

This project presents three main deliverables concerning the construction of North High School in Worcester, Massachusetts. These are: a construction management analysis, a construction cost estimate developed by using a Building Information Model, and an alternative design of the retaining wall located near the corner of the auditorium and Building B. In addition, an earned value analysis of two steel oil tank replacements in South Portland, Maine was also conducted.

Authorship Page

1.0 Introduction	Matt
2.0 Background	Matt, Ryan, & Scott
3.0 Scheduling & Safety	Ryan & Scott
4.0 Project Estimate Using Revit	Matt & Ryan
5.0 Earned Value Analysis	Scott
6.0 Retaining Wall Design	Matt
7.0 Results and Conclusions	Matt, Ryan, & Scott

Acknowledgments

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Capstone Design Experience Statement

In order to complete the capstone design requirements for this Major Qualifying Project, the group conducted an alternative design for a retaining wall located near the corner of the Building B and the auditorium of the new Worcester North High School in Worcester, Massachusetts. The retaining wall performs load carrying capabilities during construction and at the same time protects lower lying houses from any potential soil falling off of the sixty foot cliff that the wall would be built into. The alternative design for the retaining wall included economic factors as well.

The alternative design of the retaining wall consisted of investigating the advantages and disadvantages different types of retaining walls, determining the vertical and horizontal pressures against the wall as well as the type of soil located on the construction site, and performing a structural analysis. The vertical surcharge of the wall was determined by using the live loads that are typically carried by fire lanes.

The proposed solution for the wall is a cantilever retaining wall with counterforts. Adding counterforts to the wall adds more strength without making the heel slab very long. Also, counterforts are typically added to embankments that are greater than eight meters in height. As some parts of the embankment at the construction site exceeds sixty feet, it was necessary to add counterforts to the retaining wall.

The economic aspects of the proposed solution for the retaining wall was compared with the one actually implemented in the site primarily in terms of the total amount of material and cost required to build both solutions. The economic issues surrounding this retaining wall are rather important as the type of wall was changed from a semi-gravity retaining wall to a smaller in size counterfort retaining wall, costing an estimated \$10,000 less. The proposed design addressed the constructability aspects of the retaining wall and the safety aspects of the design process as well. We addressed safety and constructability issues that included wall overturning, base sliding, and soil bearing capacity failures. After investigating these different constructability issues and calculating factor of safety values, we found that our solution exhibits structurally sound qualities and is publically safe as well. The key to successful engineering is analyzing the situation from a public safety point of view, and determining whether a conservative or an aggressive approach should be used for that particular situation.

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Chapter 1- Introduction

Anywhere in the United States, whether it is in the warm, tropical atmosphere of Florida or the frigid, arctic air of Alaska, structures have been a necessity of living for thousands of years and will continue to be in the future as well. The construction industry is one of the largest industries in the nation contributing to around 5% of the United States' gross domestic product in 2007(http://www.bea.gov/). Currently with a tight economy, it is more important than ever for management to keep construction projects on time and within budget.

In the construction industry, project management involves the organizing and working with people to identify problems and determine solutions to situations that eventually occurs within the work site. With more sustainable times ahead, many owners are looking to save money on energy, water, waste disposal, and also reducing their carbon footprint and these changes generally reflect on the engineer and designer's ability to stay within a project scope. Not only do managers need to solve problems, but they also need to be a good motivator and communicator in order for a project to become successful. Projects use methods and tools to perform traditional management functions such as earned value analysis, scheduling, estimating, and now there is an increasing use of virtual construction and Building Information Modeling (BIM) to assist the managers in meeting the time, cost, and quality objectives of the project.

In 1980, students and faculty of Worcester North High School moved from Salisbury Street in Worcester, Massachusetts to what was then called a temporary location at an old middle school building at 150 Harrington Way. This "temporary location" would serve as such for a period close to 30 years as plans for a new high school building were delayed several times due to lack of funding because the immediate need for a new school was not highly prioritized. Often seen during the last decade, the old middle school building was having trouble withstanding a growing student population and could not keep up with the major changes in technology that have occurred over the years. Finally in 2003, the project was given the go ahead with the funding coming solely from the city of Worcester. The project for a new Worcester North High School broke ground in 2008 and has an estimated completion date for the fall of 2011. After the bidding process was completed, the city of Worcester selected The Gilbane Building Company as the professional construction manager, Maguire Group Inc. as the owner's project manager, and the city's own architect group, Worcester Architectural Services as the designer.

The 72 million dollar project includes 2 buildings, an auditorium, and gymnasium encompassing a total of 225,000 square feet. A project of this size in the heart of Worcester, Massachusetts requires efficient coordination between the owner, designer, general contractor, and subcontractors in order to be on time and on budget. Since construction started in 2008, there have been many issues with design and subcontractors which may have impacted the cost and schedule of the project

The focus of the report was to investigate and analyze the challenges of the construction of the new Worcester North High School. These are a construction management analysis, a construction cost estimate developed by using a Building Information Model, and an alternative design of the retaining wall located near the corner of the auditorium and building B

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Chapter 2 - Background

This chapter presents the general information that is associated with the project. The planning and development of a new high school demands a lot of time, coordination effort, and money. The first part of this chapter discusses some of the history of the old Worcester North High School and the reasons behind the need for building a new, state of the art high school. Also included in this chapter are the general concepts developed for the management of the project, including the parties involved and the type of contract agreed upon between the owner and general contractor.

2.1 Development of Previous Worcester North High Schools

North High School is a four year public high school and is located on 150 Harrington Way in Worcester, Ma. North High is one of five public high schools that are in the city of Worcester and it is responsible for the education of 1,124 students as of October 1st, 2009. North High School is home to a diverse student population with 40.0% Hispanic, 31.7% White, 19.9% African American, 7.8% Asian or Pacific Islander, and 0.6% Native American. North High School also has a large percentage of its students, 22.2%, receiving special education services. All previous statistics are stated as of October 1st, 2009 by Principal Matthew Morse.

The building in which North High School currently inhabits was built in 1971 to be a Junior High School for the city; however in 1980 it became North High School. Prior to the move to the current site, North High School was located on Salisbury Street but after the move this building was closed and sold to a private developer. The move to Harrington Way was considered to be a temporary solution at the time. In 2000 the Worcester City Council agreed to the construction of a new North High School. The completion of the new North High School is

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expected to be done by September 2011, in time for the 2011-2012 school year and finally finishing a 30 year period that was spent in the temporary building.

2.2 Demand for a New High School

The community in the temporary building was long overdue for a new high school. In the year 2000 the Worcester City Council deemed the current building old and worn down, and they decided to go ahead with the plan to construct a new high school. Recent malfunctions of the current building were reported in the press (Worcester Telegram & Gazette, 2007). According to the article; Lauren E. Morocco, 17, and Kamerin J. Perkins, 18, both seniors, said they're happy future generations won't be subjected to the conditions of the current building, with its broken floor tiles, moldy ceiling tiles, small lockers built into classrooms instead of hallways and lights occasionally sparking (http://www.thefreelibrary.com).

In 2008 Worcester North High School set out to develop an improvement plan for its students from 2008 to 2010. Part of this plan included the building of a new, modern high school that could supply all of its students the proper classrooms and equipment to succeed. As stated in North High School's improvement plan mission statement, "The design plans for a new North High School will provide a facility that thoroughly supports our conversion to smaller learning communities."

2.3 Development of the Worcester North High project

Troubles for the building of a new North High School in Worcester started with the move to a temporary building meant for middle school students in 1980. This switch has lasted for almost 30 years because of lack of funding to build a new high school. Then in the year 2000, the Worcester City Council gave the go-ahead to the building of a new North High School, a project that was long overdue. The original estimated cost for the new Worcester high school was \$50 million in 2000. This project was slow to start and ran into delays. With the rising construction costs from 2000 to 2006 the estimated cost for this project jumped to roughly \$78 million.

Then in 2006 the Massachusetts School Building Authority took over the school building aid. The new authority made changes to the states reimbursement schedule for new school projects, changing a Massachusetts's city reimbursement for new schools from 90% to 70%. This new ruling left the city of Worcester with a \$23.6 million funding gap for the new North High School. The North High project seemed to be dormant again.

In October of 2006 the city manager of Worcester, Michael V. O'Brien, revived the new Worcester North High School project. He unveiled a new plan starting with the reduction of square footage in the school. The plan stated 40,000 square feet was to be removed from the design of the new North High School. This reduction left North High School with 190,000 square feet. Reductions were made in public rooms and classrooms in the building. The reduction shrunk parts of the atrium, reduced seating accommodation in the auditorium from 700 to 425 seats, and the gymnasium capacity to 1,295 people. The 16% shrinkage of the building lowered the overall projected cost from \$78 million to \$72.8 million. The redesign of the school delayed the project start date by 2 ½ months, town officials however were still confident they could make up this time and stay on schedule to finish in September of 2011 for the beginning of the school year.

The new arrangement set up a new financing plan which would have the state of Massachusetts contribute \$45 million to the new North High School's project cost. The plan had the city responsible for the remaining \$27 million. Out of the city's responsibility \$15 million of this would come from the state as part of a 2% interest loan. The other \$12 million the city is responsible for was to be borrowed at a higher undisclosed interest rate.

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2.4 Project Organization

The City of Worcester is the owner of the new North High School in Worcester. The construction is being managed by Gilbane Building Company. The contractual arrangement between the owner and the contractor is Construction Management (CM) at risk. CM at-Risk is a delivery method which entails a commitment by the construction manager to deliver the project within a Guaranteed Maximum Price (GMP). The architect on the job is Architectural Services, an entity of the city. The Maguire Group is a consultant to the city of Worcester for the design of the project. There are also many subcontractors associated with the project. An organization chart is shown in Figure 1.



Figure 1: Organizational Chart of the Worcester North High project

The agreement between Gilbane Building Company and the City of Worcester for the construction of the new North High is divided into two phases. The first phase includes site work, concrete, and steel amendments worth roughly \$13 million dollars using a GMP contract. Major site work was completed by Marion Brothers, Inc. from 2008 to March of 2009. The cast-in-place concrete was completed in early spring 2009 by Francis Harvey & Sons, Inc., while the cast-in-place flat work was completed by October 2009 by JL Marshall and Sons. The structural steel was completed by United Steel, Inc., in November of 2009. The second phase will be a GMP contract negotiated between the two parties. At the time of the completion of this study a GMP had yet to be agreed upon between the two parties. The project is broken down into 2 phases because it is a fast track project, which means construction starts before the final design is complete. This allows the contractor, Gilbane to start construction on the early parts needed for the building, that is, site clearing and excavation, concrete, steel erection, rough-in plumbing and electrical.

The sub-contractors hired on this job are being selected through the filed sub-bid process. Massachusetts General Laws require what is known as the "filed sub-bid" system for selecting certain subcontractors on various public construction projects. The Law requires that contractors submit construction bids in two phases. First, subcontractors must submit their bids to the Awarding Authority, which will compile a list of all sub-bids received. The Awarding Authority will send the list to all interested general contractors. Interested contractors will then need to submit their bid including any filed sub-bidders that will be used on the work. It's important to note that the general contractor is not obligated to use the lowest bidder. In the case of North High, Gilbane needs to get approval by the owner before contracting any sub-contractors.

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2.4.1 Gilbane Building Company

Gilbane Building Company is a leading construction management firm, based in Providence RI, providing a full slate of facilities-related services for clients in the healthcare, education, government, convention/cultural, mission-critical, corporate, sports/recreation, life sciences, transportation, and criminal justice markets. Gilbane is a highly respected firm in the construction industry with annual revenues that top \$3.5 billion and is # 18 on the top contractors in the US according to ENR (http://enr.construction.com/toplists/Contractors/001-100.asp). The main individuals working on this project from Gilbane include:

- **Project Executive** William Kearney
- **Project Manager** Tony Iaccarino
- Field Superintendent Al Abdella
- **Project Engineer** Don Venerus
- **Project Engineer** Melissa Hinton

2.4.2 The Maguire Group

The Maguire Group is one of the nation's leading Architectural, Engineering, Planning and Construction Management firms. They are assisting the owner in both the engineering and construction phases of the work. They mainly help the city of Worcester on major decisions when it comes to cost. Other projects they have worked on in the city of Worcester include WPI's new Gateway education facility and Union Station. Some of the main individuals working on this project from the Maguire group include:

- Vice President of Project Management Tony DiLuzio
- **Project Manager** Ted Fiffy

2.4.3 The City of Worcester-Architectural Services

The city of Worcester is the owner and architect for this project. It is unusual to come across a party assuming the responsibly of both the owner and the designer/architect, but the city of Worcester decided that this type situation would work best for this project. Architectural Services is a subdivision of the Department of Public Works or Worcester, meaning they are city employees. Architectural Services provides professional services for the design and construction of City of Worcester owned buildings. Since its creation in 1993, this group has completed over 150 assignments. Major individual associated with this project from the city of Worcester include:

- **Designer/Architect** Eric Twickler
- **Principal of Worcester North** Matthew Morse
- Assistant Commissioner of Public Works Paul Moosey

2.5 Construction Manager at Risk

As described briefly above, CM at-Risk is a delivery method which entails a commitment by the construction manager to deliver the project within a Guaranteed Maximum Price. The construction manager acts as construction consultant to the owner in the development and design phases. In addition to acting in the owner's interest, the construction manager must manage and control construction costs to not exceed the GMP, which would be a financial hit to the CM Company. If the contractor completes the job under the GMP, the savings goes back to the owner, or in many cases, shared among the owner and the contractor. This would be determined at the beginning of the project and stated in the contract between the two parties.

This type of project delivery system allows the Owner, Construction Manager and Architect/Engineer to work as a unified team. It is advantageous to include the Construction Manager at the start of the project to gain the full benefits of their construction knowledge for the team. It is also important that all team members understand their duties and responsibilities required for a successful project. Before design of a project is completed the CM is involved with estimating costs of constructing a project based on hearing from the designer and Owner on what is going to be built.

2.6 Project Objectives and Expectations

A major decision that parties involved with the project, especially the general contractor, is establishing a clear difference between the wants versus the needs. A meeting with Melissa Hinton, who is a project engineer for Gilbane, further discussed the importance of choosing between wants and needs. The types of decisions made in this area of the design process could be the difference between performing under budget or over budget (Hinton, 2009).

Major decisions that were discussed in the meeting were deciding on solar water heaters, smart boards, and a high powered air conditioning unit. The problem with choosing these commodities is that they are great to have in the near term but will not give a financial return until the long term. With a tight economy currently, there are hundreds of these decisions that the project team (contractor, architect, owner) have to make. All parties are involved because an architect will present an idea or concept, the contractor will review the financial impact it will have on the project and give input to the owner on what to do or present alternatives and then it is ultimately up to the owner to make the decision. (Hinton, 2009).

2.7 Prior Challenges

Problems are a common in the construction industry. Ranging from the effects of the national economy on the budget of projects to faulty designs of the structure, poor workmanship

by the subcontractor and flawed materials arriving on-site. Delays are a common occurrence during construction and project managers must be diligent to keep the project on schedule. Every construction project has to deal with dilemmas whether they are long term or day to day and this was also a common theme for the Worcester North High Project.

Chapter 3 - Project Scheduling and Safety

The activities that are necessary to build the project are interconnected in terms of their sequencing of execution so a schedule based on the order they can be completed in the most economically logical and physically logical procedure to achieve a fast completion time. Schedules are developed to determine the time and order of execution of each of the activities. Cash flow analysis is an extension of the use of the schedule in which the cost associated to each activity is projected over time.

The summary of the original North High School project schedule dated March 3, 2009, contained 15 main activities that last from the start date, March 2009, until the final estimated early completion date, May 11, 2011. The updated schedule as of September 18, 2009, had a changed estimated early completion date of September 8, 2011. This final date has since changed again to August 29, 2011. Changes to the schedule have been made again as of January 22, 2010. The chart below shows the 13 project milestones and their anticipated completion dates. Figure 2 is a chart displaying the information in Table 1.

	Proposed		
	Completion as		
Item	of 3/12/2009	As of 9/18/2009	As of 1/22/2010
Final GMP Submitted	6/8/2009	11/18/2009	3/11/2010
Final GMP Approved	8/7/2009	1/18/2010	5/10/2010
Interior Framing Complete	3/22/2010	4/28/2010	5/14/2010
MEP Rough-In Complete	8/11/2010	6/24/2010	7/19/2010
Exterior Skin Complete	7/14/2010	10/27/2010	11/30/2010
Elevators Complete	7/19/2010	11/24/2010	12/6/2010
Site-Work + Landscape Complete	8/11/2010	11/24/2010	12/29/2010
Roof Complete	1/28/2010	11/24/2010	12/29/2010
Finishes Complete	11/22/2010	1/6/2011	1/14/2010
General Punch List Complete	3/16/2011	3/17/2011	3/25/2011
Project Substantial Completion	3/16/2011	3/17/2011	7/21/2011
Certificate of Occupancy	3/16/2011	3/17/2011	7/21/2011
Project Final Completion	5/11/2011	9/8/2011	9/16/2011

 Table 1: Comparison of Construction Schedules



Figure 2: Construction Schedule Change Comparison

The most up to date schedule as of January 22, 2010 now shows the final completion date to be September 16, 2011. Along with the final completion date of the project, other critical items have been delayed. A major reason for the delay of the project is the city architect, City of Worcester Architectural Services, who has been unable to answer request for information (RFI's) from subcontractors in a timely manner. In an attempt to pick up the pace of the project activities the Construction Manager Gilbane Building Company, accelerated the installation of gypsum board in building A and B instead of wrapping the building for the winter season. The reason wrapping the building, or closing the building in, is essential is because workers will not be able to work on interior installations during the cold New England winter months.



Figure 3: Floor Plan

The process used by Gilbane Building Company to deliver the North High School project was a fast track method. In the preconstruction phase of the North High School project, two main activities were performed. The architect/engineer designed North High School including Building A and B which is predominantly classrooms and Building C which includes an auditorium and gymnasium. The construction document phase began after development of the detailed design by the architect. Construction documents are extremely critical because these are needed in order to put out and receive bid from construction subcontractors. Since this project is based on the fast track method the procurement phase started upon completion of schematic designs. The construction phase of North High School contains 12 critical activities. Please refer to Appendix A for a schedule of the project. Site work included excavation and tree removal of the site to make room for the four-story high school, gymnasium and auditorium. The concrete foundations were poured and the structural steel was erected. Metal decking with cast in place concrete floors was used for the floors of the second, third and fourth floors. Following the erection of the shell of the building, exterior studs were installed and the exterior skin and exterior roof followed. The summary of activities also included the installation of elevators, exterior metal panels and windows, interior framing, finishes and commissioning. The completion phase of the project is known as the close out phase. As you can see below this is the milestone summary as of March 2009.

Activity	Activity	Rem	Early	Early	2009 2010 2011
ID	Description	Dur	Start	Finish	
WORC	ESTER NORTH HIGH SCHOO) L (V	VN07)		
MILEST	ONE SUMMARY				
PROJEC	T SUMMARY MILESTONE				
GENERAL					
MS-017	Excavation Complete	0		16MAR09	♦ Excavation Complete
MS-049	NGRID - Start Temporary Power	0	16MAR09*		WGRUD -Start Temporary Power
MS-059	NGRID - Start Ductbanks for Permanent Power	0	16MAR09*		WGRID - Start Ductbanks for Permanent Power
MS-020	Foundations Complete	0		20MAR09	Foundations Complete
MS-046	Rev-1st Estimate Reconciled, Reviewed + Complete	0		31MAR09	Rev-1st Estimate Reconciled, Reviewed + Complete
MS-015	Design Phase Complete - CD's Issued	0		15APR09	Obesign Phase Complete - CD's Issued
MS-016	A/E Issue 100% CD's	0		15APR09	● A/E ISSUE 100% CD'B
MS-047	Undergound Utilities Complete	0	04MAY09		Pundergound utilities Complete
MS-022	Start GMP Period	0	07MAY09	12444/00	
MO-019	etate o c	0	20144.000	13WATU9	Outring Permit Received
MS-040	Burnit Complete	0	2000103	OR IL INDO	Bryout Complete
MS-023	Submit GMP	0		OBJUN09	Submitt GMP
MS-200	GMP Approved - GMP Period Complete	ō		07AUG09	GMP Approved - GMP Period Complete
MS-018	Start Structural Steel (6/1)	0	31AUG09		Start Structural Steel (6/1)
MS-025	Structural Steel Complete	0		16NOV09	
MS-026	Start MEP Rough-In	0	17NOV09		♦start MEP Rough-In
MS-024	Start Exterior Skin	0	27NOV09		Start Exterior Skin
MS-027	Start Roof	0	16DEC09		♦ Starf Roof
MS-028	Roof Complete	0		28JAN10	Roof Complete
MS-029	Start Elevators	0	29JAN10		Start Elevators
MS-030	Start Interior Framing	0	23FEB10		QStart Interior Framing
MS-031	Interior Framing Complete	0	02.0000	22MAR10	
MS-032	Start Finishes	0	23JUN10		Staft Finishes
M0-034	Exterior sun complete	0		14JUL10	
MS-035	MED Rough In Complete	0		114UG10	MEP Rough-in Completé
MS-037	Final Stework + Landscape Complete	ō		11AUG10	Final Sitework + Landscape Complet
MS-036	Start Commissioning	0	21SEP10		Start Commissioning
MS-041	Finishes Complete	0		22NOV10	♦Finishes Complete
MS-038	Commissioning Complete	0		23NOV10	Commissioning Complete
MS-039	General Punchiist Complete	0		16MAR11	Gerieral Puḥchlist Completo
MS-040	Occupancy	0		16MAR11	Occupancy
Start Date	25APR08	_	WN07		Sheet 1 of 26 DRAFT
Finish Date Date Date	11MAY11 ISMAROS		GILE	BANE BUILD	Date Revision CheckeRpproved
Run Date	12MAR09 12:19		WORCEST	ER NORTH I	HIGH SCHOOL (WN07)
	A La		REMAINI	NO BY BUIL	
© Prima	vera Systems, Inc.				
© Prima	vera systems, Inc.				

Figure 4: March 2009 Milestone Schedule

3.1 Safety

Safety in the construction industry has changed drastically in the past 20 years. Very rarely do you see men climbing 15 stories above ground level on steel beams without harnesses or sites where construction workers aren't wearing hard hats. Regulations have been set at stricter standards and firms are taking it very seriously. To work for certain owners or even in certain industries, such as the petro-chemical industry, a superb safety record is a must to even be allowed to bid on projects. On a lot of sites, such as Gilbane's North High, new workers must go through a site safety orientation that covers all general safety rules and any site specific rules that may exist. If you are a visitor on site you must be accompanied by someone who has been orientated and familiar with the site. The safety regulations have led to the upbringing of "tool box" meetings and "activity plans" where the foreman goes over with the crew in the morning that activities of the day and the hazards that are accompanied with the tasks. These types of meetings and plans are nearly required on most any large jobsite.

Gilbane Building Company also has an organized monthly man hour report that includes deliveries, visitors and man hours. In this report drug tests are tracked with positive and negative results, incidents and the percentage rate of occurrences are followed, lost time is counted and the project schedule value analysis is calculated. Four workers have tested positive for a banned substance out of 163 since December 2008. The data has tracked 50,421 man hours as of December 2009 and has recorded only 2 incidents, both in the previous 5 months. It's important to note howevere there have been no lost time incidents on the project. This information can be found in Appendix F.

Chapter 4 – Using BIM (Building Information Modeling)

Estimating the cost of construction projects is an extremely important aspect of project management. An estimate of a single job can directly affect the profits made by a construction firm. When a project is awarded the budget is developed from the estimate and the owner expects the contractor to meet their budget. At the same time, if the estimator doesn't accurately estimate a job, the firm may not win that many competitive bidding jobs. There are many different ways to estimate jobs when finding the material quantities, from doing it by hand on smaller jobs to using software to do the take-offs. One the defined quantities are calculated a unit price for each of these quantities is assigned and a total cost estimate is developed. The type of project makes the difference whether you can do the take off by hand or are able to use some software. On civil engineering projects, take-offs are usually done by hand because civil engineering projects encompasses so many different structures. In estimating commercial work, it's easier to do the material take-off with Building Information Models because commercial work is all very similar in that they contain columns, girders, foundations, etc. This software uses an object orientated-parametric 3D technology that makes it possible to extract the quantities directly from the BIM.



Figure 5: North High 3-D Revit Model

The software program that was used by our MQP team to develop the building model of North High School is called Revit Structures. Revit Structures was developed by Autodesk in 2008 that was meant to be used as a program to extract quantities of work for the model that in turn becomes part of the components of a cost estimate. The development of the Revit model came in stages from the grid lines and elevation settings to the final elements and final review. North High School was broken into three main sections; buildings A, B and C. The first buildings developed were buildings A and B of North High School, which are predominately classrooms, because of their structural similarity. Then following the completion of buildings A and B, building C was developed. Building C houses the auditorium, locker rooms, weight room and gymnasium. This model is based on 2D drawings provided to us by Gilbane generated by the architect.



Figure 6: Revit 3D Model Street View (North Elevation)

4.1 Getting Started

The first step in building the North High School model was to develop grid lines and establish elevation levels. The elevation levels were created in order to clarify a correlation between the architectural drawings developed by Architectural Services and our Revit model. The North High School Revit model has 12 elevation levels in all, ranging from the ground floor to the top of the auditorium parapet. After an element is added to a particular level it can be viewed from a 2D view options, the software is created to initially offer north, south, east and west views showing the vertical picture of the element.



Figure 7: Revit Model Elevation Levels (Cross section)

Other viewing options are the 3D views, different 3D views can be developed manually and the standard view is offered initially. The 3D views can be rotated at will using A navigation cube is located in the upper right hand portion of the screen; this cube can be used to change the 3D view to investigate and visualize different parts of the model.

4.2 Foundation

Following the implementation of grid lines and elevation levels the next step of the BIM development process was to insert column footings. This function was very simple and completed by following the specifications and making sure each individual footing property matched the specified size. With the footings in place, there weren't any foundation walls to be

inserted for buildings A and B. The foundation wall for building C was implemented later in the process because it had complex elevation changes.



Figure 8: 2D Ground Floor Plan

4.3 Steel

Once the foundation was completed, the steel columns were placed in REVIT in compliance with the specifications of the project. The columns in buildings A and B were predominately similar. Building C was more advanced in the difficulty of the design. Building C includes the auditorium and gymnasium. The auditorium included the stage, arena seating, and a parapet. Overall over 2500 steel beams were used in the construction of North High School.

4.4 Quantity Take-Off/Cost Estimate

The cost estimate for North High School was developed by using the architectural plans and specifications. The drawings that were used to complete the take-off are comprised of the four floor levels of buildings A and B, the three levels of the auditorium and the gymnasium. The materials that were quantified included concrete and steel. The cost estimate for North High School was created by using pricing from the 2010 version of R.S. Mean's method of Building Construction Cost Data. The R.S. Mean's Construction Cost Data book contained the average prices for different types of material that are used in construction, the book also contains a location factor that adjusts costs to the specified area the project is in. The location factor for Worcester is 109.5.

4.5 Concrete and Steel Quantity Takeoff

The concrete and steel takeoff was performed by Revit Structures using the Schedule function. Revit counted each individual piece of steel or concrete element and created a list of information containing the type of element, the volume and the length. From this all that needed to be calculated was collecting each element into groups of the same element. After the steel elements were properly grouped the tonnage had to be calculated. The tonnage of steel was found by following a few steps. The total length was found by adding up the lengths of each piece of steel with the other pieces of steel in their respective group. Then pounds were found by multiplying the pounds per linear foot with the total length. After each group had a total amount of pounds they were all added together and multiplied by 1.1 to take in account for the connections, this gave the overall weight of the steel in pounds. Tonnage was then found by dividing the weight in pounds by 2000. North High School ended up containing 944.16 tons of structural steel according to the Revit model. Table 2 shows the steel quantity take-off.

Туре	Total Length	Lbs/Ft	Lbs	
HSS5X5X5/16	2705.777	19.08	51626.22516	
W8X10	27.458	10	274.58	
W8X18	54.229	54.229 18		
W10X12	2878.51	12 34542.1		
W10X15	1380.083	15	20701.245	
W10X22	555.458	22	12220.076	
W12X14	1691.635	14	23682.89	
W12X16	42.2	16	675.2	
W12X19	200.281	19	3805.339	
W12x26	2363.198	26	61443.148	
W12X30	74.667	30	2240.01	
W12X35	37.333	35	1306.655	
W12X40	168	40	6720	
W14X22	4335.01	22	95370.22	
W14X30	2506.688	30	75200.64	
W16X26	15749.27	26	409481.02	
W16X31	205.927	31	6383.737	
W16X36	325.416	36	11714.976	
W18X35	2596.5	35	90877.5	
W18X40	368	40	14720	
W18X50	218.667 50		10933.35	
W18X60	140	60	8400	
W18X76	18.25	76	1387	
W18X97	69.167	97	6709.199	
W21X44	165.167	44	7267.348	
W21X48	246.573	48	11835.504	
W24X55	2518.083	55	138494.565	
W24X62	540.833	62	33531.646	
W24X68	82.583	68	5615.644	
W24X76	346.667	76	26346.692	
W27X84	322 84 27		27048	
W30X99	4749.667 99 4702		470217.033	
W30X116	105 116 121		12180	
W33X118	277.333	118	32725.294	
*Multiply by 1.1 for	r connections	Lbs	1716652.978	
		Lbs	1888318.276	
		Tons	944.159	

Table 2: Steel Takeoff

The concrete quantities were grouped into rectangular footings, wall foundations, and foundation slabs. The structural foundation schedule that was developed by Revit did not automatically group the concrete items into families, this was completed manually. Overall there was 113,385.03 cubic feet in the Revit model, the total cubic feet converted to cubic yards is 4200 cubic yards. This was found by dividing the cubic feet by 27.

Structural Foundation Schedule						
Family and Type	Quantity	Volume	Unit			
Rectangular Footing	128	742	CY			
Wall Foundation	9	28	CY			
Foundation Slab	7	3430	CY			
	Subtotal	4200	CY			

 Table 3: Concrete Takeoff

4.6 Steel Estimate

The estimate of the structural steel for North High School, budgeted for by Gilbane Building Company, was \$2,890,000. The actual award amount was \$2,870,000 to United Steel, Inc. As of 10/28/2009 change orders had raised the total cost of the structural steel to \$3,163,901. The quantity developed by the Revit model found to have 944.159 tons of steel and using RS Means Building Construction Cost Data 2010 the average price for steel by ton for a high school was \$3,216 for bare costs. For the Revit estimate the location factor of Worcester, Ma factored into the cost was 109.5. Using the price given by RS Means costs, the overall Revit model estimate for structural steel came to \$3,324,875. The Revit estimate ended up being 4.84%, or \$160,974, higher than the actual cost Gilbane Building Company was required to pay. These numbers are considering that North High School falls directly in the middle of minimum and maximum sized high schools.
Variable	Price
Average \$ per Ton	\$ 3,216.00
Steel Tonnage	\$ 944.16
Location Factor	110%
Revit Estimate	\$ 3,324,875.00
Gilbane Cost (10/28/09)	\$ 3,163,901.00
Difference	\$ 160,974.00

 Table 4: Steel Estimate

4.7 Concrete Estimate

The concrete for North High School was grouped into three main families; rectangular footings, wall foundations, and foundation slabs. Using RS Means, prices were found for the cost per cubic yard of the specific concrete. The average price for 4000 PSI concrete with no additives was \$113 per cubic yard according to RS Means. Each of the three groups have different specifications in their mixes and require certain additives, this can be seen by the varying prices. The Revit model found that North High School had a volume of 4200 CY of concrete and breaking the total amount into three groups and assigning different prices to them the overall estimated cost was \$814,740. Table 5 displays the concrete estimate.

Structural Foundation Schedule					
Family and Type	Price Per C	Y	Volume	Unit	Cost
Rectangular Footing	\$ 277.7	70	742	CY	\$ 206,053.40
Wall Foundation	\$ 371.8	30	28	CY	\$ 10,410.40
Foundation Slab	\$ 152.8	33	3430	CY	\$ 524,206.90
	Location Factor		110%	\$ 74,067.07	
			4200	CY	\$ 814,737.77

Table 5: Concrete Estimate

Chapter 5 - Earned Value Analysis

This part of the report performs an earned value analysis that was not conducted on the new Worcester North High School construction project; however, it was performed on a steel tank bottom replacement job by Cianbro Corporation in South Portland, Maine. The main reason for this decision is based on the level of detail available to conduct the analysis. The North High School project is being managed by Gilbane Building Company who does not self-perform the construction work. Therefore, labor utilization reports are not detailed enough whereas in the case of the steel tank replacement project, Cianbro Corp. self-performs the work, and the detailed documentation needed for the analysis was readily available to one of the authors.

5.1 Earned Value Analysis

Earned Value Analysis (EVA) is a technique project manager's use on all types of construction projects. This analysis is used to determine more accurately if a given project is on schedule and within budget. (Professional Construction Management, Donald S. Barrie, Boyd C. Paulson) Earned Value analysis uses three fundamental factors:

• **Planned Value**: This consists of the planned work, along with the authorized budget, within the authorized time-frame, which in total forms the project baseline.

• Earned Value: This is the real work that has been completed in relation to the Planned Value. A budgeted amount is earned as a task is completed up to the total Planned Value.

• Actual Costs: These are the actual costs incurred in the project regardless of the Planned and Earned Value.

The analysis uses the concept of quantity to complete to perform the analysis and to tie all three values together. An estimate is completed at the beginning of the project which was discussed in a previous chapter. In the estimate quantities of work are put together and money is allocated to the given quantity of work; such as cubic yards of concrete, square footage of brick, tons of steel etc. Throughout the project the management team has to update the quantity of work completed to determine the percent complete. The analysis is performed by looking at the time and money it took to complete the given quantity of work put in place (percent complete) and to forecast the time and money it will take to perform the "quantity to complete." It's important to use the correct units of measurement for work completed in each activity as this could lead to major errors in the budget forecast; for example if the budget is estimated in tons of steel; tons of steel needs to be entered in for the quantity completed, not pounds or kilograms.

From this analysis a project manager can tell if the job is over or under budget and behind or ahead of schedule on lump sum projects. Below is a simple example.

From The Budget:

Formwork estimated at 300 WH's for 1200 SF (total quantity) or .25 WH/SF

At a given time "x" the Planned Work was the following:

120 WH to complete 480 SF. Quantity to complete would equal 720 SF.

The Actual Work at time "x":

130 WH to complete 600 SF (quantity completed, 600 SF to complete; 50% complete)

Earned WH = .25 (from budget) X 600 (SF completed) or **150 WH's**

Cost Variance: 150 WH (Earned) – 130WH (Actual) = 20 WH Under Budget

Schedule Variance: 150 WH (Earned)–120 WH (Planned) = 30 WH Ahead of Schedule

This type of analysis is extremely useful for large general contracting firms who selfperform all or most of their work. This analysis is useful in developing project projections for the end of the job. This analysis can be used for every portion of the job, from pouring concrete to the amount of consumables used to overhead on the job. Not only does this analysis help out the current project but can also help estimate future work that is similar.

For pure construction management firms who do not self-perform any work, the technique is used a bit differently; as they are not so much concerned about budgetary numbers from activity to activity, as they usually contract out packages of work on a lump sum basis, as much so as the schedule. From looking at what a sub-contractor has completed versus what work he has left, the project manager can determine what the production rate of a certain activity is and from that project how much longer it will take the contractor to complete the work. This gives the project manager a leg up on any negotiations with the sub-contractor to bring more people on site if they are falling behind on their work.

The project manager is also concerned about how much more or less he is paying the subcontractor to what it should be paying. At the beginning of the job, when a sub-contractor is brought in, they will usually give the CM what is called a schedule of values. This schedule of values allocates values for the various parts of the work. Mobilization, excavation, backfill and demobilization are typical activities you may find on an earthwork sub-contractors schedule of values. The sub-contractor will associate a cost to each of those different activities and use this as the basis for submitting and reviewing progress payments. It is up to the project management team to confirm the percent complete on the schedule of values by verifying in the field what has been done. This usually does not need to be an exact science but the project manager needs to make sure that the sub-contractor isn't asking for money for work that hasn't been completed at the time of payment.

5.2 Project Background

For the EVA analysis of this report, we looked at steel tank bottom replacement job being performed in South Portland, Maine. The project consisted of replacing the steel bottoms of two 150' diameter oil tanks and installing a foundation and a leak detection system. For this to be performed the old floor (bottom?) had to be cut away from the tank shell and the entire shell had to be jacked up 3' in the air with the use of twenty-four 70 ton air bags. Pictures can be found in Appendix H. This allowed for the excavation to take place for the concrete ring-wall. Inside the tank shell a center sump and leak detection piping was installed to detect if any leaks occurred. On top of the old steel floor an 80mm liner was installed to act as a diaper if a leak were to occur. On top of the liner, rings of cathodic protection were laid to prevent rusting of the new floor. One foot of sand was then installed over the liner and cathodic protection which the new floor was to lay on. The General Contractor (GC) self performed the jacking of the tanks, with the consulting of a professional tank-jacking sub-contractor, the leak detection piping and the concrete work. The GC crews were also needed to assist the sub-contractors on-site. The earthwork, liner, cathodic protection and steel floor work has all been sub-contracted out to various contractors. A "picture slideshow" of the project can be found in the Appendix H.

5.3 Project Plan

Although a smaller project, this type of self-performed lump sum work creates a lot more overlooking with the actual work of the job then than a pure CM job. Not only does the project manager have to manage the self performed work but also the work of the sub-contractors. Responsibilities such as deciding how many workers the job needs from month to month, what sort of hours they are going to work, the buyout of materials and management of equipment onsite make the job more a little more involved. These items need to be combed over with a magnifying-glass weekly because any sort of mistake comes directly out of the contractor's pocket. While overseeing the work, the project manager has to make tough decisions regarding budget and schedule. For example, if an activity is falling behind schedule, is it worth to work the overtime and pay the extra money to get back on schedule?, or does he believe they'll be able to make it up somewhere else on the schedule and continue to work 40 hour weeks? Items like this arise all the time and have to be managed correctly, while also managing sub-contractors on-site.

To getter a better understanding of both types of management we looked at activities that were self performed by the General Contractor which included all the concrete related work of the project. The concrete work included the buyout of all materials required on-site; the concrete itself (5000 psi and 2000 psi), the reinforcing steel and the formwork and all of its accessories. The estimate and schedule of these activities will be discussed in the analysis section.

For the GC's jobs, the project team develops a unit analysis report at the beginning of the job. This report includes what they call phases; these phases include work to be performed, OH costs, equipment costs, burdens, etc. In each phase they break the phase down into sub phases. These sub-phases include regular labor, overtime labor, materials, etc. In each phase there are a total number of units (yards of concrete, square footage of formwork, etc) and a budgeted amount for each sub phase they get from the estimate. Also in each phase are columns for costs to date and projected final costs. When entering the costs to date, the engineer/project manager also has to enter the quantity of work completed. Doing this the report will calculate the production rate and this will be used to determine the projected final costs based on the percentages. This will be elaborated on further on in this section. This report is extremely important to the management team as it tells them whether the job is over or under budget. The

project team however, has to do a good job of updating the quantities in each phase of the report because if not, this could yield falsie projections in the projected final column.

5.4 Means/Methods

The design of the ring-wall was a simple design, it contained a footing and the wall was to be 3' tall by 2' wide around the perimeter of the tank, approximately 472 feet. Where bedrock was encountered above the base of the footing elevation, the ring-wall or footing was to be constructed on the bedrock. The top of the wall contained a ³/₄" chamfer that also contained a slope, special screeds had to be constructed to get this finish. The reinforcing steel in the foundation was relatively large rebar, #6 and # 9 bars. Number 6 bar weighs 1.5 lbs/ft while number 9 bar weighs 3.5 lbs/ft. A drawing of the wall can be seen in Figure 7. Cianbro does a lot of concrete work but this was the first time doing one of these projects so there was an expected learning curve throughout the project. The good part of this job was that two tanks needed to be modified so whatever worked and didn't work on the first could be changed accordingly for the second tank.



Figure 9: Foundation Detail

Once the tank shell was jacked in the air and the excavation was complete, the Cianbro crews needed to pour the footing. Although the footing could have conformed to the excavated trench, it was decided that it would be more cost effective to have the crew spend a day forming up the footing then paying for much more concrete to fill the trench. The formwork was very rough and made out of plain pieces of plywood. Access around the tank was limited so the use of a pump truck was incorporated. The pour started at 7am, was finished by 10am and 86 yards of 2000psi concrete were used. The concrete crew consisted of a man on the end of the pump hose, 2 men on a vibrator and 2 men backfilling the form so they wouldn't blow out. A picture can be seen in Figure 8 below.



Figure 10: Concrete Pour



Figure 11: Concrete Footer Finish

Although the pour only lasted 3 hours, it was important for the management team to have planned other activities for the crews to do the rest of the day. If not, the crews would still get paid for 10 hours of work for that day in the pouring concrete phase which could really hurt the budget on a small project like this. In self-performed work, the planning of work from day to day is extremely crucial for a successful project.

Once the footing was cured, the formwork was removed and the formwork for the wall was put into place. To get the layout of the wall, a tape was pulled from the center of the tank to the inside of the wall every 18 feet. Once the marks were around the perimeter of the footing, a previously made cut-out of the radius was laid and the inside of the wall was marked out on the footing. The inside formwork was put up first and this took 2 days. The rebar was next to been installed and this took 3 days. The #9 bars came in 30' lengths and with a weight of 3.5 lb/ft; these pieces were quite heavy and needed four guys to put up and tie. The installation of the rebar took 3 days. Once the rebar was complete the outer formwork was put up and the crews

were ready to pour. For the first tank, 2 concrete pumps and two finishing crews were used. After completing this with no problem it was decided to only use one pump truck and one finishing crew on the second tank, see Figure 11. The first tank took less time out of the day but the second tank was more cost efficient as we used less work hours than the first tank and the job only had to pay for the use of one pump truck instead of two. Photos of the concrete pour can be seen below and more can be found in the Appendix H.



Figure 12: Tank #2 Concrete Pour



Figure 13: Concrete Hose



Figure 14: Concrete Finishing

5.5 Project EVA Analysis

Throughout the duration of the project each week the management team will updates its "unit analysis reports" better known as earned value reports. For each week the project manger or engineer will look at the number of hours used for a given activity and update the quantity completed for that week. Based on the quantity completed to that point and the WH's used it will determine a new unit/hour number and apply that to the quantity to complete to get the estimated number of work hours to complete the job. By doing this every week the project management team can make sounder decisions on the project.

For this study the team looked at the concrete portion of the job in South Portland. Below is a breakdown of budgeted work hours for each tank and the total quantity of units for each activity. The duration of the concrete portion was estimated at 14 days; by the book this means we should have had 7 men on site to complete the work in that time period.

Activity	Budget WH's	Unit	Quantity
Formwork	612	SF	2850
Rebar	166	Tons	7
Placing	230	Yards	360
Total	1008		

Table 6: Budget Work Hours

For the first tank, everything went accordingly to plan with the actual WH's used nearly identical to the budgeted work hours This doesn't tell the whole story though, not only does the management team need to look at the number of hours used but the wages rates as well. At first glance it will look good if your budgeted hours are the same as your actually WH's but if your actual wage rate is \$5.00 more than your budgeted wage rate, your budget will be shot. To keep confidentiality a wage rate of \$25.00 was used for the budgeted actual wage rate and the actually wage rate was used at \$26.25 (Note: the actual wage rates were 1.05% higher than the budgeted wage rates for the actual job and this is how the \$26.25 was determined.) As described above in the means and methods section the concrete portion of the first tank took 10 days. A spreadsheet giving a good synopsis of the first tank completed can be seen below.

Day	Budgeted WH's	Actual WH's	Earned WH's	Actual Cost	Budgeted Cost
1	72	101	101	\$2,662	\$1,800
2	144	203	202	\$5,324	\$3,600
3	216	304	303	\$7,985	\$5,400
4	288	406	404	\$10,647	\$7,200
5	360	507	505	\$13,309	\$9,000
6	432	608	606	\$15,971	\$10,800
7	504	710	707	\$18,632	\$12,600
8	576	811	808	\$21,294	\$14,400
9	648	913	909	\$23,956	\$16,200
10	720	1014	1008	\$26,618	\$18,000
11	792				\$19,800
12	864				\$21,600
13	936				\$23,400
14	1008				\$25,200
	Delta	-6		Delta	(\$1,418)

Table 7: Tank 24 Actual Cost/Budget Cost

Analyzing these data shows that the concrete activities were 4 days ahead of schedule, 6 hours over budget that equals out to \$1,418 over budget. On a project this size, 6 hours and

\$1,418 is not a bad loss; time is money and getting ahead of schedule by 4 days is economically more beneficial than \$1,418. A graph displaying these different items can be seen below.



Figure 15: Tank 24 WH Analysis



Figure 16: Tank 24 Cost Analysis

The second tank went a lot smoother than the first as there was a "learning curve" from the first tank; the craftspeople knew what to expect and what problems to look for on the second tank. Not only did the "learning curve" assist the craftspeople but also management team. The management team realized that the amount of work needed to be put in place didn't require as much labor as estimated so the crew was cut down by 3 workers. Getting ahead of schedule on the first tank also made it easier to make this decision as there was some "float" in the schedule. The second tank took longer than the first tank to complete but saved a lot of WH's and still finished on schedule. The spreadsheet can be seen below.

Day	Budgeted WH's	Actual WH's	Earned WH's	Actual Cost	Budgeted Cost
1	72	61	78	1531	1800
2	144	122	155	3050	3600
3	216	183	233	4575	5400
4	288	244	310	6100	7200
5	360	305	388	7625	9000
6	432	366	465	9150	10800
7	504	427	543	10675	12600
8	576	488	620	12200	14400
9	648	549	698	13725	16200
10	720	610	775	15250	18000
11	792	671	853	16775	19800
12	864	732	930	18300	21600
13	936	796	1008	19900	23400
14	1008				25200
	Delta	398		Delta	9950

Table 8: Tank 23 Actual Cost/ Budget Cost

Breaking this spreadsheet down shows that the concrete work on the second tank was 1 day ahead of schedule and 398 work hours under budget; equivalent to \$9,950. This means the schedule was done in 93% of the time estimated and used only 79% of the budget.



Figure 17: Tank 23 WH Analysis



Figure 18: Tank 23 Cost Analysis

Looking over the entire concrete portion of the job combining both tanks the activity ended up being 392 WH's ahead of budget, equivalent to \$8,532 and 5 days ahead of schedule. Please note that there is more to the budget that includes cost of materials which also is included in the budget that was not included in this analysis. This analysis just shows a snapshot of a piece of work on a project. This analysis applies to every aspect of the job. It's important to quantify everything that will be billed to the job and is quantifies with a correct unit of measurement; this goes for equipment, small tools, consumables, fuel, etc. These items are usually designated in the OH area and should be quantified in weeks of the job as these items are usually spread out evenly across the duration of the project.

To understand the "time is money" concept we looked at the OH savings associated with beating the schedule. Analyzing the budget it was found that the OH budget was \$680,000 spread out over 180 days. This equals to \$3,778 per day. (The OH phase includes OH labor, equipment, burdens, small tools, consumables etc.) With the schedule being 5 days ahead of schedule this equals out to a savings of \$18,890. The total savings of this activity is the direct savings and the OH savings combined together which equaled out to \$27,422.

Chapter 6 – Design and Constructability Analysis of New Retaining Wall

This chapter is dedicated to the analysis and design of an alternative retaining wall at the new Worcester North High School. During the design process, there were many different considerations on what type of retaining wall to use to stabilize the area around the 60 foot cliff that is located in around the back side of the construction site. Cullinan Engineering, an engineering firm located in Auburn, Massachusetts, designed the retaining wall that is currently in place at the construction site. The designers chose a semi-gravity retaining wall, which relies mostly on its' own weight to support compression forces, but has some steel reinforcement. The goal of this chapter is to determine the feasibility of choosing a cantilever retaining wall with counterforts instead of a semi-gravity wall and to compare the economic value of each type of retaining wall. The design process and equations were taken from Arthur Nilsen's textbook *Design of Concrete Structures*.

6.1 Original Retaining Wall Design-Pre Construction Phase

The construction of the new high school was to be built alongside the old high school and a steep cliff shown in Figures 19 and 20. During the pre-construction phase of the design, the engineers at Architectural Services chose a design of riprap to protect the school and soil from the cliff, which at its highest point along the school is around 60 feet, shown in Figure 20. There is a need for some type of retaining wall against the cliff because there is a road that travels around the back of the school and along the cliff. To avoid the soil from sliding due to the live loads that travel along the road during construction and post-construction, retaining walls are placed for the safety of the site. Not knowing how close the road was to the cliff, the engineers suggested that major live loads were not to be included in the design and simple riprap would be a sufficient and cost effective solution to holding back the soil at the cliff.



Figure 19: Approximate Area of Construction



Figure 20: Approximate Area of Cliff

Riprap is a layer made of stones, as seen in the figure below, which is intended to protect the soil from erosion do to runoff from rain. Some limitations of riprap include that it is limited by steepness of slope that are greater than 2:1 because it has the potential of loss due to sliding. Riprap is extremely cost effective, with prices ranging anywhere from 35\$ to 60\$ per cubic yard. Again, the pre-construction thought of engineers was that the road behind the school was far enough away from the cliff to prohibit any more complicated designs than riprap.



Figure 21: Riprap

6.2 Retaining Wall Changes- During Construction

During the site work and excavation for the new Worcester North High School, it was clearly evident that the riprap first designed would not be able to hold the construction loads that would be applied to the area during construction. Figure 22 shows that the corner of the building is only 21 feet from the cliff and that riprap would no longer be a valid solution to the 60 foot drop-off. This would have been extremely dangerous for construction vehicle traveling around this corner.



Figure 22: Plan View of New Retaining Wall



Figure 23: New Semi-Gravity Retaining Wall

Since the new design for retention was to be more complicated than ordinary riprap, Cullinan Engineering was hired to design the new wall. There are many different options Cullinan could have chosen for the design of the wall. The three most common types used is a standard gravity retaining wall, and semi-gravity retaining wall, and a cantilever retaining wall. These options are displayed in Figure 24.Gravity walls are constructed with plain concrete or stone masonry and they depend on their own weight and soil resistance for stability. Typically this type of construction is not economically conducive to high wall design. In some cases, a small amount of steel is used for the construction of a gravity wall, thus making it a semi-gravity wall. Placing steel in the gravity wall will significantly reduce the size of the wall section because it strengthens the concrete in tension, thus saving money. A cantilever wall is made out of reinforced concrete that has a thing stem and base slab.



Figure 24: Cross Sections of Different Retaining Walls

Cullinan Engineering chose a semi-gravity wall for this design as seen in Figure 25. The wall is not the same height around the corner of the road, because the cliff is not the same height. The Cliff drops off drastically the further north it is. This means that the retaining wall does not have to be the same height, but in intervals of height instead. At its highest point, the wall is 14.5 feet and that is where the cliff is at its greatest length of around 60 to 65 feet. Moving northward along the road, the wall significantly drops to lengths of 10 feet and eventually 7 feet.



Figure 25: Cullinan's Retaining Wall Design

6.3 New Cantilever Retaining Wall Design with Counterforts

The proposed alternative solution for the retaining wall design is driven by several factors; ground water and soil conditions, cost and required wall height. The first step in designing the retaining was to obtain information on the earth's lateral pressure in the area. The basic soil parameters include:

- Soil unit weight
- Angle of internal friction (for sands)
- Cohesion and plasticity indices (for clays)
- The water table location.
- Ledge location

From here we were able to size the wall and check for stability; this will include checks for wall overturning, base sliding, and soil bearing capacity failures. After the wall is sized, each wall member was checked for adequate strength and steel reinforcing was determined.

A cantilever retaining wall with counterforts was the type of wall that was chosen for this design. A counterfort retaining wall is very similar to a cantilever wall, except that it has one additional feature. This wall has a triangular shaped cross section spaced at typically one foot which connects the top of the wall to the back of the footer. This added support wall is hidden within the earthen or gravel backfill of the wall. The footer, retaining wall and support wall must be tied to one another with reinforcing steel. The support walls add a great deal of strength to the retaining wall. The supports make it virtually impossible for the wall to become detached from the footer. Counterforts are usually used for high walls with heights greater than 24 to 26 feet. In

this case, the wall is only 10 feet high, but this type of design is also used for situations where high lateral pressures occur; where the backfill is heavily surcharged, in this case like North High where the area in close proximity to the wall will be used as a fire lane.



Figure 26: Typical Counterfort Wall

6.4 Preliminary Design

The first step in our design was to size the members, since we already had drawings of the current retaining wall it was relatively easy to realize what the height would need to be. We used the height of the current retaining wall to gather all of our dimensions, such as footing size, wall thickness and support sizes. These dimensions were based on a function of the retaining wall height from equations found in the foundation engineering handbook. Since the highest point of the current retaining wall at North High School is 14.5 feet, we estimated our height to be a little lower than that at 10 feet. Once we had all of the dimensions of the wall we started the preliminary design on the wall.



Figure 27: Preliminary Design of Retaining Wall (Cross section, in inches)

6.4.1 General Pressures on the Wall

Implementing various equations found in *The Design of Concrete Structures* by Arthur Nilsen, we started the calculation process. The first step in calculating the general pressures on the retaining wall is determining the dead loads and live loads using the equations:

Typically the equation above uses factored numbers to increase the safety of the design. Since there are no dead loads acting on the top of the wall, we only used the live loads for calculating the surcharge acting on the wall. The road running along the wall is intended for a fire lane which typically carries live loads of 225 psf (pounds per square foot, found in The Design of Concrete Structures) to 250 psf. Using the above equation, we found the total surcharge of 425 psf.

After calculating surcharge, the next step was to determine the equivalent height of the surcharge, h'. The equivalent height of the surcharge acts as an increased height in the soil pressure on the back of the wall as seen in figure 28. The following equation was used for calculating the equivalent surcharge height:

h'= Total Surcharge/ Unit Weight of Soil

The soil report indicated the underlying soil at the construction site as glacial till, we categorized the soil from soil reports as silty sand, sand and gravel with high clay content. Properties of this soil include 120 to 130 pounds per cubic foot for the unit weight, and 0.3 to 0.4 for the coefficient of friction. Inserting the appropriate values into the equation, we calculated a equivalent surcharge height of 3.27 feet for the new retaining wall.



Figure 28: Pressure on the Wall Due to the Surcharge

6.4.2 Further Investigation and Shear Calculations

Using the values calculated above, the earth pressure acting horizontally on the wall was then calculated using the following equation:

P=.5*(C_{ah}*w*h*(h+2h') C_{ah}= soil coefficient w= unit weight of soil h=effective height h'= effective surcharge height

From there, the moment arm and total moment was calculated and finally the thickness of the arm. We calculated the arm thickness dimensions and shear values for both a 10 foot and a 12 foot wall. For the 10 foot wall we calculated an arm thickness of 10 inches and a shear value away from the base of 4,310 lbs, which is much lower than the factored shear value of the wall at 12,902 lbs. The 12 foot wall was much of the same. We calculated that an arm thickness of 10 inches sof 10 inches would also be acceptable and that the shear force from the soil was 5594 lbs which is also lower than the factored shear value. Comparing each option, it was found more economical to choose the 10 foot wall over the 12 foot wall at that certain point in the design. Once the preliminary design was completed, the stability and reinforcement steel was determined.

6.5 Stability Investigation

With the wall now having dimensions for the height and arm thickness, it was time to investigate the external stability of the structure. According to Nilsen, a wall may fail in two different ways: (1) its individual parts may not be strong enough to resist the acting forces on it, and (2) the wall as a whole may be bodily displaced by the earth pressure, without breaking up

internally. Using the weights of the soil and retaining, a component weight table was formed with not only the component weight but resulting moment from each part as well. We split up the retaining wall and soil into 6 different sub-weights as seen below and in figure form in Appendix D.

	Weight (lbs)	Moment Arm (ft)	Moment (ft-lbs)
W1	1125	1.92	2160
W2	1175	3.92	4606
W3	104	1.92	199.68
W4	5940	5.083	30,193
W5	360	0.75	270
W6	3714	4.16	15,466
Totals	12,417		52894.68
	m		

 Table 9: Component Weights of Retaining Wall

Using the calculated values of this table, the factor of safety against overturning was determined with the weights, moments and the bearing pressures. We found that the factor of safety against overturning was 3.99 which is adequate according to the theories of Nilsen's book, a value of 3 is an appropriate value for this. Following this procedure, we determined the total resistance due to sliding to be 4809 lbs using values calculated from the friction at the toe, heel, key and passive earth pressure. Dividing 4809 lbs by the total soil pressure of 3305 lbs, we found that the Factor of Safety against overturning was 1.45 which is also adequate.

6.6 Steel Reinforcement

After completing the preliminary design and the stability checks throughout the retaining wall, the steel reinforcement could then be designed again using moments and equations from Nilsen. The bending moment in the arm decreases rapidly with increasing distance from the bottom. The first part of the retaining wall we design steel for was the arm and key. The moment at the bottom section of the arm was already determined in previous calculations and from there, we could use the following equation to receive a proportion of moment, height, and width:

$M_u/\Phi *b*d^2$

With this value, which was calculated to be 340.6, we turned to graph A.1b in Nilsen's book. Graph A. 1b in Nilsen's book shows the relationship with the ratio above and the required steel ratio, ρ , for any given strength of steel. The graphs and tables are shown in Appendix D. Lastly, the area of steel was calculated with the following equation:

$$A_s = \rho * b * d$$

Having the same approach with the toe and heel slabs, steel reinforcement was successfully designed for the retaining wall.

One problem that was encountered during the design of the heel slab was that the shear force from the soil on the heel was greater than the factored shear force of the heel by about 900 lbs. In order to raise the factored shear of the heel slab, we had to increase the overall thickness of the slab to 13 inches instead of the original 12 inches. Increasing the height increased the factored shear by around 1,300 lbs, which in turn made the heel slab adequate against shear forces. The table below shows the calculated values for the steel reinforcement.

Part of Retaining		
Wall	Vertical Bars	Horizontal Bars
		#4 Bars @ 20" O.C.
Arm and Key	#4 Bars @ 24" O.C. Outside Face	Outside Face
		#4 Bars @ 16" O.C. Inside
	#7 Bars @ 24" O.C. Inside Face	Face
	#7 Bars @ 12" O.C. Starting 4.5'	
	from top Inside Face	
Heel	#6 Bars @ 9" O.C.	#10 Bars @ 8" O.C.
Toe	#6 Bars 12" O.C.	#3 Bars @ 12" O.C

Table 10: Vertical and Horizontal Bars

6.7 Design of Counterforts

Counterforts are useful for cantilever retaining walls because they tie the slab and base together thus reducing shear moments and bending moments that are acting on the wall. Since the current retaining wall at the construction is around 84 feet long, we designed the cantilever wall with counterforts for only 42 feet which is half of the total length of the wall. We chose to design only half because the cliff height drops off from significantly from 60 to 65 feet to only around 30 feet towards the North. Since the cliff height is so low, a smaller wall could be designed to make the wall more economical. Figure 29 shows a plan view of our newly designed retaining wall with counterforts.



Figure 29: Plan View of Counterfort Wall

After determining the length of the wall and dimensions in between counterforts from previous projects and theories, which was 9.5 feet, we designed the horizontal and vertical reinforcement bars using the following equations:

$$M_{u} = P^{*}l^{2}/10$$

$$A_{h} = M_{u}/\Phi f_{y}^{*}(jd)$$

$$A_{v} = V_{u}/\Phi f_{y}d$$

Inserting values into the equations above, it was found that the horizontal reinforcement bars would have to be much larger than the vertical reinforcement bars. The placement and types of bars are seen in the table below.

Horizontal Reinforcement			
#8 Bars @ 12" O.C. from 2' above top of heel to top wall			
#9 Bars @ 12" O.C. from 2' above top of heel to top of heel			
Vertical Reinforcement			
#3 Bars @ 24" O.C. to 9' below top of wall			
#3 Bars @ 30" O.C. from 9' below top of wall to bottom of heel			
Table 11: Horizontal and Vertical Reinforcement			

Cross sections of the cantilever wall and counterforts are shown on pages 131 and 135 respectively in the appendices.

6.8 Analysis of Retaining Wall Cross Sections

Now that all of the dimensions of the retaining wall were designed, it was necessary to analyze and compare the cross sections of the retaining wall designed by Cullinan Engineering and the wall designed above. By dividing each wall into sections to calculate the area and then multiplying the area by total length to get volume, we could compare the total volume of each wall to analyze cost. The table below details the cross sectional areas and volumes of each wall.

	Cross Sectional Area	Total Length	Volume
Semi-Gravity Retaining Wall	45.827 sq. ft	42 ft	71.30 cubic yds
Cantilever Retaining Wall	16.560 sq. ft	38.67 ft	640 cubic ft
Counterforts	41.03 sq. ft	3.34 ft	137 cubic ft
Cantilever Retaining Wall With			
Counterforts			28.77 cubic yds

Table 12: Volume of Cross Sectional Area

Comparing the total volume of each 42 foot wall, we found that the total volumes of the semi-gravity wall designed by Cullinan Engineering was almost 3 times more than the 42 foot

cantilever wall with counterforts. Although cantilever walls use much more steel than semigravity walls, the cost of steel would not come close to the amount of money saved with the reduction of concrete. Using a price of roughly \$200 per cubic yard, the choice of a cantilever retaining wall with counterforts would save almost \$10,000 for a 42 foot wall. By completing this analysis, we realized that there are so many different options in design and whichever option is chosen can severely impact the economic value of the project. All calculations and diagrams can be found in Appendix D.

Chapter 7 - Results and Conclusions

7.1 North High Estimate

The North High School estimate developed by tracking quantities using BIM an accurate accumulation of information compared to the actual costs Gilbane Building Company was charged for. The Revit model, which was created by using the Architect's drawings that were obtained from Gilbane Building Company, calculated that 944.16 tons of steel were used in the structural framing of North High School. Using the information that was provided by R.S. Means Construction Cost Data on the current cost per ton of steel for a High School, an estimated cost for the steel was found to be \$3,324,875. As of October 28, 2009, Gilbane Building Company had already committed \$3,163,901 to United Steel Incorporated.

Variable	Price
Average \$ per Ton	\$ 3,216.00
Tonnage	\$ 944.16
Location Factor	110%
Revit Estimate	\$ 3,324,875.00
Gilbane Cost (10/28/09)	\$ 3,163,901.00
Difference	\$ 160,974.00

Table 13: Cost of Steel Difference

The concrete that was quantified by the Revit model came to be 4200 cubic yards that would be used in the foundation walls, rectangular footings and foundation slabs. Using R.S. Means Construction Cost Data, the price for the 4200 cubic yards of concrete came to be \$814,738. The cubic yards of concrete were broken into three groups when the estimated price was created. The groups footings, wall foundations, and slabs; each had varying prices.

Structural Foundation Schedule					
Family and Type	Pric	e Per CY	Volume	Unit	Cost
Rectangular Footing	\$	277.70	742	CY	\$ 206,053.40
Wall Foundation	\$	371.80	28	CY	\$ 10,410.40
Foundation Slab	\$	152.83	3430	CY	\$ 524,206.90
	Location Factor			110%	\$ 74,067.07
			4200	CY	\$ 814,737.77

Table 14: Concrete Estimate per CY

7.2 Earned Value Analysis

The example of the steel tank replacement job in South Portland, Maine shows how critical it is to track work on a construction project, especially general contracted work. With the use of earned value analysis the management team can make important decisions during the duration of the job that will hopefully positively impact the budget and schedule. The job we analyzed shows how making decisions based on how the job is progressing can save quite a bit of money for the company, in this case, \$27,000 on just the concrete portion of the job. It's important to note that without the use of the earned value analysis these decisions wouldn't be able to be made, or at least made correctly.

7.3 Retaining Wall

The capstone design project completed in this report investigated an alternative design of a retaining wall located near the corner of Building B and the auditorium of the new Worcester North High School. For the investigation, we discussed some of the advantages and disadvantages of each type of retaining wall considered, determined the soil properties and earth pressures, performed a structural analysis of the wall, and addressed some economic aspects of each design.

The main reason for a retaining structure in this location is to protect the underlying houses from any sliding of soil due to live loads or precipitation. During the pre-construction design phase of the project, engineers did not know the proximity of the edge of the cliff to the corner of the building and the surrounding road. The engineers assumed the retaining structure would be far enough away from the road and the corner of the building that simple riprap would suffice the design. However, during construction it was seen that the road would be constructed only a few a feet from the retaining structure. Since riprap cannot hold the live loads traveling on the road, a sub-contractor was hired to redesign a retaining wall. As construction continued, it was of high priority of the engineers at Cullinan Engineering to design a retaining wall fast. The change order log that the new retaining wall would cost the project around \$250,000.

Having the economic aspect on high priority, we tried to not only design a retaining wall to withstand the appropriate loads, but to also try and decrease the overall cost of this part of the project. In order to try and save cost on concrete, we decided to design a cantilever wall with counterforts spaced 9.5 feet apart. The dimensions of our retaining wall include an arm that is 10 inches thick and 10 feet long, a toe that is 13 inches thick and 1.5 feet long, a key that is 10 inches thick and 10 inches long, and a heel that is 1.5 feet thick and 5.5 feet long. Also, we designed counterforts that would be 8 inches thick. Since cantilever walls require the use of steel reinforcement because of the wall's slenderness, we designed that aspect of the wall as well. The following tables include our design of steel reinforcement.

Part of Retaining Wall	Vertical Bars	Horizontal Bars
		#4 Bars @ 20" O.C.
Arm and Key	#4 Bars @ 24" O.C. Outside Face	Outside Face
		#4 Bars @ 16" O.C.
	#7 Bars @ 24" O.C. Inside Face	Inside Face
	#7 Bars @ 12" O.C. Starting 4.5'	
	from top Inside Face	
Heel	#6 Bars @ 9" O.C.	#10 Bars @ 8" O.C.
Тое	#6 Bars 12" O.C.	#3 Bars @ 12" O.C

Table 15: Steel Reinforcement

Horizontal Reinforcement
#8 Bars @ 12" O.C. from 2' above top of heel to top wall
#9 Bars @ 12" O.C. from 2' above top of heel to top of heel
Vertical Reinforcement
#3 Bars @ 24" O.C. to 9' below top of wall
#3 Bars @ 30" O.C. from 9' below top of wall to bottom of heel

Table 16: Counterfort Steel Reinforcement

Since the cliff at the new Worcester North High School is not the same height, we could have designed the wall with smaller heights as the steepness of the cliff lowered. However, this was not feasible. In order to compare our design to Cullinan's design, we used an over length of 42 feet for the wall, using our maximum height and their maximum height over that entire span. It was found that the cantilever wall would save 30 square feet in cross sectional area and a
volume of around 42 cubic yards for the 42 feet of length as compared to the semi-gravity wall.

Although the cantilever wall would have much more reinforcing steel than the semigravity wall, it would be insignificant compared to the cost saved due to the decrease in the amount of concrete.

7.4 Gilbane/Owner Architect Meetings

Throughout the 6 months working on this project, we also attended weekly meetings to gain a perspective on how the construction management process really works. The firms that attended this meeting were Gilbane, the construction manager at risk, The Maguire Group, the owner's consultant, and Worcester Architectural Services, the owner architect. The main focus of these meetings was not only about the design of the building, but scheduling, request for information, and change orders. After attending these meetings, we found that the construction management process of North High was filled with headaches and conflicts.

Often times during the meeting, it seemed like Worcester Architectural Services was always behind schedule compared to Gilbane and The Maguire Group. At one of the meetings, it was stated that Worcester Architectural Services had 42 outstanding RFI's that were to be answered, which is generally high compared to a normal project. Throughout the project, The Maguire Group was usually the mediator between Gilbane and Worcester Architectural Services.

One example of a conflict throughout the 5 months we attended meetings was with Guaranteed Maximum Price or GMP. Generally the GMP cannot be decided until most of the building is designed in order for the construction manager to receive a fair price. Since Worcester Architectural Services was behind schedule on the design, the GMP contract deadline date was pushed back from mid November 2009 to mid March 2010. Also, throughout the project there were many issues between Gilbane and Worcester Architectural Services that had to do with the drawings and plans being issued. One major issue with the plans that happened was with the some of the toilet designs in buildings A and B. Worcester Architectural Services had designed the piping of the toilets to come through the floor instead of the wall in the bathroom. After giving the incorrect plans to Gilbane, Gilbane awarded the job to a subcontractor, who then received the incorrect plans. These issues were two of many that we observed occurred throughout the project.

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Appendix A: Project Schedule as of March, 2009

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MS-049	NGRID - Start Temporary Power	0	16MARD9*		NIGRUD - Start Temporary Power
MS-059	NGRID - Start Ductbanks for Permanent Power	0	16MAR09*		HIGRID - Start Ductbanks for Permanent Power
MS-020	Foundations Complete	0		20MAR09	➡Foundations Complete
MS-046	Rev-1st Estimate Reconciled, Reviewed + Complete	0		31MAR09	Rev-1st Estimate Reconciled, Reviewed + Complete
MS-015	Design Phase Complete - CD's Issued	0		15APR09	Ocesign Phase Complete - CD's Issued
MS-016	A/E Issue 100% CD/s	0		15APR09	●A/E Issue 100% CD/s
MS-047	Undergound Utilities Complete	0	04MAY09		◆Undergound Utilities Complete
MS-022	Start GMP Period	0	07MAY09		Start GMP Peinod
MS-019	Building Permit Received	0		13MAY09	
MS-048	Start S.O.G.	0	28MAY09		Start S.O.G.
MS-021	Buyout Complete	0		O8JUN09	i i ∲Buyout Complete i i i i i i i i i i i i i i i i i i i
MS-023	Submit GMP	0		O8JUN09	Submit GMP
MS-200	GMP Approved - GMP Period Complete	0		07AUG09	GMP Approved - GMP Period Complete
MS-018	Start Structural Steel (6/1)	0	31AUG09		i i estart Structural Steel (6/1)
MS-025	Structural Steel Complete	0		16NOV09	Structural Steel Complete
MS-026	Start MEP Rough-In	0	17NOV09		\$tart MEP Rough-In
MS-024	Start Exterior Skin	0	27NOV09		Q Start Exterior \$kin
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MS-028	Roof Complete	0		28JAN10	
MS-029	Start Elevators	0	29JAN10		Start Elevators
MS-030	Start Interior Framing	0	23FEB10		Ostart Interlör Framing
MS-031	Interior Framing Complete	0		22MAR10	Interior Framing Complete
MS-032	Start Finishes	0	23JUN10		
MS-034	Exterior Skin Complete	0		14JUL10	
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070-504 Rec. Award-070- Spray Fireproofing 3 09APR09 13APR09 Index: Award-070- Spray Fireproofing 158U-505 Rev/App Award-1581-Undersiab Plumbing+Redon 1 10APR09 Index: Award-070- Spray Fireproofing 158U-505 Rev/App Award-1581-Undersiab Plumbing+Redon 1 10APR09 Index: Award-070- Spray Fireproofing 158U-505 Award Contract-16A1-Undersiab Electric 1 10APR09 Index: Award-070- Spray Fireproofing 158U-506 Award Contract-16A1-Undersiab Electric 1 10APR09 10APR09 I Award Contract-16A1-Undersiab Electric 16AU-507A PrepiSub SD+Data 16A1-Undersiab Electric-Bidg A 2 13APR09 14APR09 I PrepiSub SD+Data 16A1-Undersiab Electric-Bidg A Set Date 11MAY11 Steet 2 of 28 Sheet 2 of 28 Sheet 2 of 28 Sheet 2 of 28 Finish Date 11MAY11 Sheet 2 of 28 WNO7 Sheet 2 of 28 Sheet 2 of 28 <td></td> <td>03AF-506</td> <td>Rec. Award-03A Concrete Flatwork</td> <td>3</td> <td>09APR09</td> <td>13APR09</td> <td></td> <td>Ì.</td> <td></td> <td>Nec. A</td> <td>ware</td> <td>анра</td> <td>JA C</td> <td>onci</td> <td></td> <td>harv</td> <td>OI</td> <td>.</td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td>1 1</td> <td></td> <td></td> <td></td>		03AF-506	Rec. Award-03A Concrete Flatwork	3	09APR09	13APR09		Ì.		Nec. A	ware	анра	JA C	onci		harv	OI	.	1									1			1 1			
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16AU-507A Preprsub S0+Data 16A1-Undersiab Electric-Blog A 2 13APR09 14APR09 1 Image: Preprsub S0+Data 16A1-Undersiab Electric-Blog A 1		15BU-506	Award Contract-1581-Underslab Plumbing+Redon	1	13APR09	13APR09		į.	4	Award	CON	IUCA	Ct-1:	5814	Unde	91818	ΡМ		npin	(g +1	Keo	n	\rightarrow				1	÷	į.	\perp	Ļį	\rightarrow	÷	÷
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	15BU-507A	Prep/Sub SD+Data15B1	-Underslab Plumbing+Redon-A	2	14APR09	15APR09	l i	I Prep/Sub SD+Data1	15B1-Unders	lab Plumbin	g+Redon-A					i i I I
	15BU-507B	Prep/Sub SD+Data15B1	-Underslab Plumbing+Redon-B	2	14APR09	15APR09		I Prep/Sub SD+Data1	15B1-Unders	lab Plumbin	g+Redon-B					1 1
	158U-507C	Prep/Sub SD+Data15B1	-Underslab Plumbing+Redon-C	2	14APR09	15APR09	1	Prep/Sub SD+Data1	15B1-Unders	lab Plumbin	g+Redon-C					1 1
	03AF-508	Rev/App Award-03A Co	ncrete Flatwork	3	14APR09	16APR09	1	ReviApp Award 03	A Concrete I	lativorik	i i	i i				i i
	07D-505	Rev/App Award-07D- Sp	oray Fireproofing	3	14APR09	16APR09		I Rev(App Award-07)	D- Spray Fin	proofing						1 1
	16AU-508A	Rev/App SD+Data 16A1	-Undersiab Electric-Bidg A	10	15APR09	28APR09		Rev/App SD+Data	16A1-Unde	relab Electri	c-Bidg A					1 1
	16AU-508B	Rev/App SD+Data 16A1	-Undersiab Electric-Bidg B	10	15APR09	28APR09	1	Rev/App SD+Data	16A1-Unde	relab Electri	c-Bidg B					11
	16AU-508C	Rev/App SD+Data 16A1	-Undersiab Electric-Bidg C	10	15APR09	28APR09	-	Rev/App SD+Data	16A1-Unde	rslab Electri	c-Bidg C					
	08A-504	Bid Period-Pikg 08A Mtl	Windows+StoreFronts	16	15APR09*	06MAY09		🛛 📮 Bild Period-Pikg 0	8A Miti Wind	lows+StoreF	ronts					1 1
	04A-504	Bid Period - Masonry		16"	15APR09*	06MAY09		🔲 Bid Period - Mas	onry							1 1
	08C-504	Bid Period -08C Frames	, Doors+Hirdwr	16	15APR09*	06MAY09		Bid Period -08C	Frames, Doo	vrs+Hrdwr						1 1
	07B-504	Bid Period- 07B-Roofing		16	15APR09*	06MAY09		Bid Period- 07B-	Roofing							1 1
	05C-504	Bid Period -05C Metal P	anels + Louvers	16	15APR09*	06MAY09		Bid Period -05C	Metal Panels	+ Louvers						
	07C-504	Bid Period-Waterproofin	ng/Jt Sealants	16	15APR09*	06MAY09		Bid Period-Wate	rproofing/J	Sealants						
	158U-508A	Rev/App SD+Data15B1-	-Undersiab Plumbing+Redon-A	10	16APR09	29APR09		Rev/App SD+Data	15B1-Under	slab Plumbi	ng+Redon-	A				1 1
	15BU-508B	Rev/App SD+Data15B1-	-Underslab Plumbing+Redon-B	10	16APR09	29APR09		Rev/App SD+Data	15B1-Under	slab Plumbi	ng+Redon-	Bii		111		11
	158U-508C	Rev/App SD+Data15B1-	-Undersiab Plumbing+Redon-C	10	16APR09	29APR09	l i	ReviApp SD+Data	15B1-Under	slab Plumbi	ng+Redon-	CII				i i
	03AF-510	Award Contract-03A Cor	ncrete Flatwork	3	17APR09	21APR09		Award Contract-03	A Concrete	Flatwork						
	07D-506	Award Contract-07D- Sp	oray Fireproofing	3	17APR09	21APR09		I Award Contract-07	D- Spray Fl	eproofing						1 1
	07D-507A	Prep/Sub SD+Data-07D	- Spray Fireproofing-A	5	22APR09	28APR09		E Prep/Sub \$D+Dat	a-07D- Spra	/ Fireproofin	g-A					11
	03AF5120	Prep/Sub Conc. Mix Dee	sign - Foundations	10	22APR09	05MAY09		Prep/\$ub Conc. I	Vilx Design -	Foundation	8					1
	03AF512A	Prep/Sub/SD- Rebar Cla	assroom Bidg A	10	22APR09	05MAY09		Prep/\$ub/SD-Re	bar Classro	om Bidg A						i i I I
	05B-504	Bid Period -058-Misc Me	etais	16	23APR09*	14MAY09		Bid Period -058	Misc Metal	3						
	16AU-509A	Fab/Delv-Mts-16A1-Unc	derslab Electric-Bidg A	2	29APR09	30APR09		Fab/Delv-Mtts-16/	1-Undersla	b Electric-Bi	dgA					1 1
	16AU-509B	Fab/Delv-Mtis-16A1-Unc	derslab Electric-Bidg B	2	29APR09	30APR09		Fab/Delv-Mtls-16/	1-Undersla	b Electric-Bi	dgB					1 1
	16AU-509C	Fab/Delv-Mts-16A1-Unc	derslab Electric-Bidg C	2	29APR09	30APR09	l i	Fab/Delv-Mtls-16/	1-Undersla	b Electric-Bl	dgiCi∣	ii				ii
	07D-507B	Prep/Sub SD+Data-07D	- Spray Fireproofing-B	5	29APR09	05MAY09		Prep/\$ub \$D+Da	ta-07D- \$pra	y Fireproofi	ng¦-B ¦					
	07D-508A	Rev/App SD+Data-07D-	Spray Fireproofing-A	10	29APR09	12MAY09		Rev/App SD+Da	ta-07D- Spr	ay Fireproof	ng-A					1 1
	09A-504	Bid Period - 09A Drywal	1	16	29APR09*	20MAY09		Bid Period - 09	A Drywall							
	15A-504	Bid Period-Plumbing		16"	29APR09*	20MAY09	İ	Bid Period-Plu	mbing							i i
	16A-504	Bid Period-Electrical		16"	29APR09	20MAY09		Bid Period-Elec	ctrical							
	15C-504	Bid Period-HVAC		16	29APR09	20MAY09		Bid Period-HV/	AC							
	14A-504	Bid Period - Elevators (1	/28/09)	16"	29APR09	20MAY09		Bid Period - Ele	evators (1/28	(60				111		11
	15-504	Bid Period-Fire Protectio	00	16"	29APR09*	20MAY09	i	Bid Period-Fire	Protection	İİ	i i	i i				i i
	158U-509A	Fab/Delv-Mts15B1-Und	erslab Plumbing+Redon-A	2	30APR09	01MAY09		Fab/Delv-Mtis158	1-Undersial	Plumbing	Redon+A					
L	15BU-509B	Fab/Delv-Mts15B1-Und	erslab Plumbing+Redon-B	2	30APR09	01MAY09		Fab/Delv-Mtis158	31-Undersial	Plumbing	Redon-B					
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	158U-509C	Fab/Delv-Mts15B1-Underslab Plumbing+Redon-C	2	30APR09	01MAY09		Fab/Delv-Mtbs15B	1-Undersial	b Plumbing+Redon+C					
	07D-507C	Prep/Sub SD+Data-07D- Spray Fireproofing-C	5	06MAY09	12MAY09		Prep/Sub SD+D	ata-07D- Sp	ray Fireproofing-C	<u> </u>			i †	; ;
	03AF5140	Rev/App Conc. Mix Design for Conc. Flatwork	10	06MAY09	19MAY09	i i	ReviApp Conc.	Mix Deelgn	for Conc. Flatwork				i	i i
	03AF514A	Rev/App/SD- Rebar Classroom Bidg A	10	06MAY09	19MAY09		Rev/App/SD- R	ebar Classr	oom Blog A					
	03AF512B	Prep/Sub/SD- Rebar Classroom Bidg B	10	06MAY09	19MAY09		Prep/Sub/SD-F	ebar Class	room Bidg B					
	07D-508B	Rev/App SD+Data-07D- Spray Fireproofing-B	10	06MAY09	19MAY09		Rev(App SD+D	ata-07D-Sp	ray Fireproofing-B					11
	08A-506	Rec. Award-Pkg 08A Mtl Windows+StoreFronts	2	07MAY09	08MAY09		Rec. Award-Pkg	08A Mt Wir	dows+StoreFronts	<u> </u>			i †	<u>;</u> ;;
	04A-506	Rec. Award-Masonry	2	07MAY09	08MAY09	i i	Rec. Award-Mas	onry		i i			i	i i
	07B-506	Rec. Award-07B Roofing	2	07MAY09	08MAY09		Rec. Award-078	Roofing						
	05C-506	Rec. Award-05C Metal Panels + Louvers	2	07MAY09	08MAY09		Rec. Award-05C	Metal Panel	IS + LOUVERS					1
	07C-506	Rec. Award- Waterproofing	2	07MAY09	08MAY09		I Rec. Award- Wat	erproofing						11
	08C-506	Rec. Award-08C Frames, Doors+Hirdwr	3	07MAY09	11MAY09		I Rec. Award-08C	Frames, Do	ors+Hrdwr				i	; ;
	08A-508	Rev/App Award-Pkg 08A Mtl Windows+StoreFronts	4	11MAY09	14MAY09		I ReviApp Award	Pkg 08Å M	ti Windows-StoreFronts					
	04A-508	Rev/App Award-Masonry	4	11MAY09	14MAY09		I ReviApp Award	Masonry						
	07B-508	Rev/App Award Doc's-07B Roofing	4	11MAY09	14MAY09		I Rev/App Award	Doc's-07B	Roofing					11
	05C-508	Rev/App Award-05C Metai Panels + Louvers	4	11MAY09	14MAY09		I Rev/App Award	05C Metal I	Panels + Louvers					
	07C-508	Rev/App Award Doc's- Waterproofing/Jt Sealants	4	11MAY09	14MAY09		ReviApp Award	Doc's-Wat	erproofing/Jt Sealants					11
	08C-508	Rev/App Award-08C Frames, Doors+Hrdwr	3	12MAY09	14MAY09		I ReviApp Award	08C Frame	8, Doors+Hrdwr					
	07D-509A	Fab/Delv-Mtis-07D- Spray Fireproofing-A	5	13MAY09	19MAY09		E Fab/Dely-Mits-0	7D-Spray F	Fireproofing-A					
	07D-508C	Rev/App SD+Data1-07D- Spray Fireproofing-C	10	13MAY09	27MAY09		Rev/App SD+C	ata1-07D- 9	Spray Fireproofing-C					11
	05B-506	Rec. Award-05B-Misc Metals	2	15MAY09	18MAY09	i i	Rec Award-05F	-Misc Meta	8	11			i	i i
	08A-510	Award Contract-Pkg 08A Mtl Windows+StoreFronts	3	15MAY09	19MAY09		I Award Contract	t-Pkg 08A M	ti Windows-StoreFront	8				
	04A-510	Award Contract-04A-Masonry	3	15MAY09	19MAY09		I Award Contract	-04A-Maso	nry					
	08C-510	Award Contract-08C Frms/Doors/Hrdwre	3	15MAY09	19MAY09		I Award Contract	-08C Frme/	Doors/Hrdwre					11
	07B-510	Award Contract-07B-Roofing	3	15MAY09	19MAY09	i	I Award Contract	-07B-Roofi		i i			i	Ιİ
	05C-510	Award Contract-05C Metal Panels + Louvers	3	15MAY09	19MAY09		I Award Contract	t-05¢ Metal	Panels + Louvers					
	07C-510	Award Contract- 07C-Waterproofing/Jt Sealants	3	15MAY09	19MAY09		I Award Contract	- 07C-Wate	rproofing/Jt Sealants					
	058-508	Rev/App Award-05B-Misc Metals	4	19MAY09	22MAY09		B ReviApp Awar	d-05B-Misc	Metals				i I	11
	03AF516A	Fab/Delv-Rebar for Flatwork Classroom Bidg A	5	20MAY09	27MAY09	i i	E Fab/Delv-Reba	r for Flatwo	rk Classroom Blog A	ii			i	ii
	07D-509B	Fab/Delv-Mtis-07D- Spray Fireproofing-B	5	20MAY09	27MAY09		E Fab/Delv-Mitis	07D- Spray	Fireproofing-B					
	07C-512A	Prep/Sub SD- Waterproofing+Joint Sealants Bidg A	7	20MAY09	29MAY09		El Prep/Sub \$D-	Waterproof	ing-Joint Sealants Blog	A				11
	08A-5131	Prep/Sub Samples-Mtl Windows+StoreFronts	10	20MAY09	03JUN09		Prep/Sub San	npies Mili W	Indows+StoreFronts					
	03AF514B	Rev/App/SD- Rebar Classroom Bidg B	10	20MAY09	03JUN09) į	Rev/App/SD-	Rebar Class	sroom Bidg B					
	04A-512A	Prep/Sub SD+Data Samples+ Access. Masonry Bidg A	10	20MAY09	03JUN09		Prep/\$ub \$D-	Data Samp	lies+ Access. Masonry B	Agok				
	04A-512C	Prep/Sub SD+Data + Access. Masonry Bldg C	10	20MAY09	03JUN09		Prep/\$ub \$D-	Data + Acc	ass. Masonry Bidg C					11
	08C-512A	Prep/Sub SD++Smpls -08C-Frames/Doors/HrdwrBidg A	10	20MAY09	03JUN09		Prep/\$ub \$D-	+Smpis -08	C-Frames/Doors/Hrdwrl	Bidg A				
	04A-512B	Prep/Sub SD+Data + Access. Masonry Bidg B	10	20MAY09	03JUN09		Prep/Sub SD-	Data + Acc	ses. Masonry Bidg B					
	07B-512A	Prep/Sub SD+Data+Calcs-Roof Bidg A	10	20MAY09	03JUN09		Prep/Sub SD-	Data+Calc	s-Roof Bldg A					
	and Darks	464 DD446										AFT		. ,
Sb Fir	ish Date	11MAY11		CIL			Sheet 4 of 25			Date	Revisio	n b	hecked	Approved
De	ta Date	16MAR09		WORCEST	ER NORTH	HIGH	H SCHOOL (WN07)		A STATE OF THE OWNER	12MAR0	PRELIMINARY	FOR REV		
1.00		LENGTUP LETT		REMAIN	NG BY BUIL	DIN	G/PHASE/LEVEL		2200					
		10 10 10 10												
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	Activity	Activity	Rem	Early	Earty			_	2009				_		20	10					2011	
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	03AF512C	Prep/Sub Conc. Mix Design - Bidg C	10	20MAY09	03JUN09	9	!	Ϊ	Prep/\$u	ub Conc. I	MIX Deel	lgn - I	Bidg C	1 :	1		· ''		ľ	1	:	
	05C-512A	Prep/Sub SD+Data-05C Metal Panels+LouversA	10	20MAY09	03JUN09	9	÷		Prep/\$u	ub SD+Da	ta-05C I	letat	Panel	+Lou	ABTIEN	11		ii		i	i I	ii
	078-5130	Prep/Sub SD+Data Rooting Submittais	10	20MAY09	03JUN09	9	ł		🛱 Prep/\$u	ub SD+Da	ta Roofi	ing Si	ubinitt	88								
	08A-5130	Prep/Sub Calc's Mtl Windows+StoreFronts	20	20MAY09	17JUN09	9	T	Π	Prep/S	Sub Calc's	a Mti Wi	ndow	s+Sto	reFron	ita							1 1
	E1700	Rec. Award-Elevators	2	21MAY09	22MAY09	9	÷		Rec. Awa	ard-Elevat	tors	11		l i	11	11		11			i I	11
	09A-506	Rec/Award - Pkg 09A Drywall	3	21MAY09	26MAY09	9	i		Rec/Awa	ard - Pkg (OPA Dry	wall	i	i	i	İİ		ii		i	i	i i
	16A-506	Rec. Award-Electrical	5	21MAY09	28MAY09	9	ł		Rec. Aw	ard-Electr	rical											
	15C-506	Rec. Award-HVAC	5	21MAY09	28MAY09	9	1		Rec. Aw	ard-HVAC												
	15-506	Rec. Award-Fire Protection	5	21MAY09	28MAY09	9	Ţ	Π	Rec. Aw	ard-Fire P	rotectio	n i									ΙT	
	15A-506	Rec. Award-Plumbing	7	21MAY09	01JUN09	9	÷		Rec. Aw	vard-Plum	nþing		i.							Ì		
	05B-510	Award Contract-058-Misc Metals	3	26MAY09	28MAY09	9	ł		C Award C	Contract-0	5B-Misc	Meta	lis									
	E1710	Rev/App Award-Elevators	4	26MAY09	29MAY09	9	÷		Rev/App	p Award-E	levatora	• :			11							11
	14A-516	Fab/DelvElevator #2-Machine Room Equipment	50	26MAY09	04AUG09	9	i	Ц		Fab/Delv.	-Elevato	or #2-	Machi	ne Roc	om Eq	ulpimenit					<u>i </u>	ii
	09A-508	Rev/App Award 09A Drywall	3	27MAY09	29MAY09	9	Ì		ReviApp	p Award 0	9A Dryv	vall	i							i		
	07D-509C	Fab/Delv-Mtis-07D- Spray Fireproofing-C	5	28MAY09	03JUN09	9	ł			iv-Milla-07	D- Spra	y Fire	proof	ng-Ç						-		1
	16A-508	Rev/App Award-Electrical	3	29MAY09	02JUN09	9	÷		Rev/App	p Award-E	Electrica				11	11						11
	15C-508	Rev/App Award-HVAC	3	29MAY09	02JUN09	9	i		ReviApp	p Award-	HVAC		i	i	i	ii		ii		i	i I	i i
	15-508	Rev/App Award-Fire Protection	3	29MAY09	02JUN09	9	-	Ц	I ReviApp	p Award-F	Fire Prot	tectio	n	ł	-							
	05B-512A	Prep/Sub SD+Data - 058-Misc Metals Bidg A	10	29MAY09	11JUN09	9	1		Prep/S	SUD SD+D	ata - 1056	B-MIS	c Meta	BIO	9 <u>A</u>							
	05B-512C	Prep/Sub SD+Data - 058-Misc Metals Bidg C	10	29MAY09	11JUN09	9	÷		Prep/S	SUD SD+D	ata - 1058	B-MIS	c Meta	is Eld		11						11
	058-5128	Prep/Sub SD+Data - 058-Misc Metals Bidg B	10	29MAY09	11JUN09	9	÷		Prep/S	SUD SD+D	ata - 1058 due dou	B-MIS	C Meta		g B	11		11		i.	i	i i
	09A-510	Award Contract Plkg 09A Drywall	3	01JUN09	03JUN09	9	ł			Contract	HKGUSA		Vall									1 1
	14A-510	Award Contract-Elevators	5	01JUN09	05JUN09	9	4	Ц		Contract-	Elevato						+		\rightarrow			<u>.</u>
	07C-512B	Prep/Sub SD- Waterproofing+Joint Sealants Bidg B	7	01JUN09	09JUN09	9	÷				aterproc	oning	Joint	sealar		g is						11
	07C-514A	Rev/App SD's-Waterproofing+Joint Sealants Bidg A	10	01JUN09	12JUN09	9	÷		- Kewict	pp sus-w	vaterpro	pning	+Jpin	Seala	uts B	A Do		11		÷	i	ii
	08D-504	Bid Period -08D-Special Doors	44	01JUN09*	31JUL09	9	÷			Bid Peno	d -080-8	specia	11 1000 11 -									
	098-504	Bid Period - Ceramic Tile	44	U1JUNU9"	3130109	9	÷			Bid Dodo	d Dka 0		CTICA		11	11						11
	090-504	Bid Period -Pilg USA ACT Cellings	44	UTJUNU9	3130109	9	÷	Ц		Bid Dodo				annyle	i l	<u> </u>	+	<u> </u>	\rightarrow	<u> </u>	i –	÷÷
	090-604	Bid Period -Carpeting	44	01JUN09	3130109	9	÷			Bid Dodo	d Dool	liont is	Johnte									
	096-504	Bid Period - Realient Flooring	44	01JUN09	3130109	9	÷			Bid Darlov	d - Fbox		orina	1						-		
	104-504	Bid Period - Cpoxy Flooring Bid Dariod - Speciation	44	0130809*	31,0009	9	1			Bid Perlo	d - Sner	atte	a									
	108-504	Bid Dariori - Simana	44	01.0000	31.00.09	0	i			Bid Perlo	d - Sion	age			1					i.	i	i i
	124-504	Bid Deriod - Olymaye Bid Deriod - Dkn 124 Theater Seation	44	01.0000	31.00.09	0	+	Η		Bid Perlo	d -Pko 1	20 1	heater	Section			+		+		\vdash	
	09H-504	Bid Period - Paint + Wallonvering	44	01.0000	31.00009	9	ł			Bid Parlo	d - Paint	+ w	licov	aringe	°							
	054-504	Bid Period - Calif. + Walkoveringe	44	01.0000	31.00009	9	ł			Bid Perio	d-06A-	MIIIwo	nik i									
	028-503	Bid Period - Dia 028 Landscaping	44	01.1UN09*	31.00.09	9	÷			Bid Perio	d - Pka	02B L	andac	aping	1	11		11		÷	i	ii
	09E-504	Bid Period - Pika 09F Wood Athletic Flooring	44	01.10009*	31.00.09	9	ł			Bid Perio	d -Pka 0	DE W	ooid A	thietic	Floor	na				-		
P	0.0	and a start of the		01001000	0100203	-	+	+			1.10	1										. .
88	art Date	25APR08		WN07					Sheet !	5 of 28							_		DRA	FT		
Fit Di	nish Date eta Date	11MAY11 16MAR09		GIL	BANE BUILD	DI	G	C	OMPANY		_					Det	ROPR	Re	vision NRY FO	OR REV	Thecked	Approved
R	un Dete	12MAR09 12:19		WORCEST	ER NORTH I	H	GH	S	CHOOL (WN0)	7) 🥖			~	-	-		1					
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ACUVIU	' · · ·	Description	Dur	Start	Finish	F	М	A	MIJIJAIS	OND	J	FM	AM	J.	JΑ	S	0 1	ND	J	E MI	AM	I
15A-508	Rev/App Award-Plumbir	na	3	02JUN09	04JUN09		Υľ		Rev/App Aw	ard-Plumbir	ng !			 !		!			<u></u>			ï
15C-51	Award Contract-15C-HV	IAC	2	03JUN09	04JUN09				Award Contr	act-15C-HV	AC		1	1		1						į
15A-510	Award Contract-15A-Fin	e Protection	2	03JUN09	04JUN09			÷	Award Contr	act-15A-Fin	e Prote	ction	i	!			1				i.	i
16A-510	Award Contract-16A-Ele	ectrical	3	03JUN09	05JUN09			ł	Award Contr	act-16A-Ele	etrical		ł		-							ł
03AF516	B Fab/Delv-Rebar for Flat	work Classroom Bidg B	5	04JUN09	10JUN09			1	Fab/Delv-Re	bar for Flat	work	lasero	om Bl	dg B								ł
09A-512	Prep/Sub SD+Data-Pkg	09A Drywall	10	04JUN09	17JUN09				Prep/Sub S	D+Data Pkg	09A I	Drywall	-		+			+		+	+	t
08A-512	A Prep/Sub SD+Data-Mtl I	Windows+StoreFronts-Bidg A	10	04JUN09	17JUN09			i	Prep/Sub S	D+Data Mti	Windo	wa+Sto	oréFro	nts B	ldig A	i I	i	1	Ιi	11	i	i
08A-514	1 Rev/App Samples-Mtl W	Vindows+StoreFronts	10	04JUN09	17JUN09			i	Rev/App Sa	amples-Mti	Windo	ws+Sto	reFro	nta	Ī		Ì	i.			i.	i
04A-514	A Rev/App SD's + Access	. Masonry Bidg A	10	04JUN09	17JUN09			ł	ReviApp SI	D's + Acces	s. Mas	onry BI	dg A									ł
04A-514	C Rev/App SD's + Access	Masonry Bidg C	10	04JUN09	17JUN09				🗖 ReviApp Si	D'8 + Acces	s. Mas	onry BI	dgiC			:						ł
08C-512/	1 Rev/App SD's+Smpls -0	8C-Frames/Doors/HrdwrBidg A	10	04JUN09	17JUN09	İ	Ħ	i	Rev/App SI	D's+\$mpls -	08C-F	rames/C	Dopra	Hrdw	Bidg	A	İ	İ		1	-i-	Ť
04A-514	B Rev/App SD's + Access	. Masonry Bidg B	10	04JUN09	17JUN09			i	Rev/App SI	D's + Acces	a. Maa	onry Bl	dģ B		1		ł	1			i.	i
07B-514	A Rev/App Shop Drawing	s+Calcs-Roof Bidg A	10	04JUN09	17JUN09			ł	Rev/App St	hop Drawin	gs+Cal	ics-Roo	f Bidg	A								ł
03AF514	C Rev/App/SD- Rebar Bul	iding C	10	04JUN09	17JUN09				Rev/App/Si	D- Rebar Bu	ding	C				!				11		ł
05C-514	A Rev/AppSD's Submittals	5-05C Metal Panels+LouversA	10	04JUN09	17JUN09			÷	Rev/AppSD)'s Submitta	ale-050	: Metal I	Panel	+Lou	versA	i I	- i	1	Ιi	11	- i	i
05C-512	B Prep/Sub SD+Data-05C	Metal Panels+LouversB	10	04JUN09	17JUN09				Prep/Sub S	D+Data-050	C Meta	i Panels	s+Lou	veraB		\square						Ţ
07B-512	B Prep/Sub SD+Data+Cal	cs-Roof Bidg B	10	04JUN09	17JUN09			ł	Prep/Sub S	D+Data+Ca	lica-Rio	of Blog	В		1	:	1	1			ł	ł
08C-512	B Prep/Sub SD+Smpls -08	8C-Frames/Doors/HrdwrBidg B	10	04JUN09	17JUN09			1	Prep/Sub S	D+Smpls -O	BC-Fin	ames/D	oors/h	Indwine	Bldg B							į
07B-515	0 Rev/App Roofing Submi	itals	10	04JUN09	17JUN09			÷	ReviApp R	oofing Subr	nittais		÷.	1		1						i
08A-514	0 Rev/App Calcs for Reco	rd-Mtl Windows+StoreFronts	20	04JUN09	01JUL09			i	Rev/App	Calcs for R	ecord-	M‡I Win	dóws	Store	Front	\$	i	i	i	1	i	i
15B-510	Award Contract-158-Plu	umbing	2	05JUN09	08JUN09				Award Cont	ract-158 Plu	umbing											Ţ
15C-512	Prep/Sub SD+Data- 150	C-HVAC	10	05JUN09	18JUN09			÷	Prep/Sub S	SD+Data-15	i¢-нiv	AC	1			!						į
15A-512	Prep/Sub SD+Data- 15/	A Fire Protection	10	05JUN09	18JUN09				Prep/Sub S	SD+Data-15	i AFIre	Protect	bon			:						ł
15C-52	Prep/Sub SD+Data - 15	CHVAC	10	05JUN09	18JUN09			i	Prep/Sub S	SD+Data - 19	5C НÝ/	۸¢	i	i	i	i I	i	i.	l i	11	i	i
16A-512	Prep/Sub SD+Data- 16/	A-Electrical	8	08JUN09	17JUN09			ł	Prep/Sub S	D+Data-16	A-Elec	trical	1									ł
16A-52	Prep/Sub SD+Data 16A	-Electrical Samples	8	08JUN09	17JUN09		Π	-	Prep/Sub S	iD+Data 164	Lect	riçal Sa	mple		-	:		1		1		Ţ
E1770	Rev/App SD Elevators 1	,2+3	20	08JUN09	06JUL09				Rev/App	SD Elevato	xas 1, 2	+3		!		!						ł
14A-512	Submit SD+Product Dat	ta Elev., Cabs,Mach+ Equip	20	08JUN09	06JUL09			÷	Submit S	SD+Product	t Data I	Elėv., C	abis,M	ach+ E	Equip	i	i	1	Ιi	11	i	i
14A-51	Prep/Sub SD+Data 14A	-Elev. 1,2+3	30	08JUN09	20JUL09	l i		i	Prep/S	ub SD+Data	14A¦E	Ellev. 1,2	2+\$	i	i	i	i	i			i	i
15B-512	Prep/Sub SD+Data-158	Plumbing	8	09JUN09	18JUN09			ł	Prep/Sub S	SD+D ata- 158	8-Plun	ıbing	1		-		ł					ł
15B-522	Prep/Sub SD+Data 158	-Plumbing Samples	8	09JUN09	18JUN09		Π	-	Prep/Sub S	SD+Data 158	B-Plum	ibing Sa	ample	\$	1	i	i	1		1		Ţ
07C-512	C Prep/Sub SD- Waterpro	ofing+Joint Sealants Bidg C	6	10JUN09	17JUN09			÷.	Prep/Sub S	D-Waterpro	oofing	+Joint 9	Sealar	its Bid	lg C	:	1		11	11	1	į
058-514	A Rev/App SD's Submittal	is -058-Misc Metals Bidg A	10	12JUN09	25JUN09				Rev/App \$	SD's Submit	ttals -0	5B-Mile	c Meta	is Bid	g A							Ì
05B-514	8 Rev/App SD's Submittal	is -058-Misc Metals Bidg B	10	12JUN09	25JUN09			ł	Rev/App \$	SD's Submit	ttals -0	58-Mik	c Meta	is Bid	gΒ	!					-	ł
07C-514	B Rev/App SD's-Waterpro	ofing+Joint Sealants Bidg B	10	15JUN09	26JUN09			ł	ReviApp \$	SD'a-Waterp	poofin	g+Join	t Seal:	ants B	idg B							į
07C-516	A Fab/Delv-Waterproofing	g/Jt Sealants Bidg A	20	15JUN09	13JUL09	i		i	Fab/Del	v-Waterpro	opting/	Jt Seala	ints B	ldg A	i	i	i	1		Π	i	Ī
09A-514	Rev/App SD + Submutta	als-Pikg 09A Drywali	10	18JUN09	01JUL09	Í		i	Rev/App	\$D + Subm	uttals	Pikg 0\$/	A Ďryv	llev	i		i	i	[i I	i	i
08C-516	A Fab/Del Materials+Equip	p Blolg A	10	18JUN09	01JUL09				Fab/Del N	Naterials+E c	quip B	long A	1				1	1				ł
and Date	AF1854					,							-									
Start Date Finish Date	25APR08 11MAY11	NORTH		WN07			~	MP	Sheet 5 of 25						D	ete		Revisio	n n	Check	ADDEN	
Data Date	16MAR09			WORCERT	TER NORTH	HIGH		CHUC							12M	AROP	RELIN	INARY	FOR R	8	1	_
Run Date	12MAR09 12:19			REMAIN	ING BY BUIL	DINC	G/P	HAS	E/LEVEL			-	1	10		+				+	+	-
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	ID ID	р	escription	Dur	Start	Finish	F	M A	AM	J	JAS		DJ	FN		1 J	JAI	s 0		ם,		ML/	A M U
	08C-512C	Prep/Sub SD+Smpls -08	C-Frames/Doors/HrdwrBidg C	10	18JUN09	01JUL09	1		!	. 🖨	Prep/Sub	SD+Smpl	8 -08 C	Fram	es/Doo	rs/Hrd	wrBidg C	:				: 1	
	08C-512B1	Rev/App SD's+Smpls -08	BC-Frames/Doors/HrdwrBldg B	10	18JUN09	01JUL09				i 📫	Rev/App	SD's+Smp	ls -08	C-Fran	nes/Do	oria/Hird	twrBldg I	в	11		1.1		1 1
	15-514	Rev/App/SD- Fire Protect	tion	10	19JUN09	02JUL09	i	Ħ	1	i 🗖	Rev/App/	SD- Fire P	rotect	lon	<u> </u>		11	+	; ;	+	11	H	+ +
	058-516A	Fab/Del Materials+Equip	058-Misc Metals Bidg A	10	26JUN09	10JUL09			-	; 🟚	Fab/Del	Materiale+	Equip	058-	Alsc Me	tals BI	dgA		1 1		17		
	08C-512C1	Rev/App SD/s+Smpls -08	8C-Frames/Doors/HrdwrBidg C	10	02JUL09	16JUL09				i 🖡	ReviAp	p SD'a+Sn	npis-0	8C-Fr	ames/D	oors/H	IrdwrBidg	gc					
	08C-516B	Fab/Del Materials+Equip	Bidg B	10	02JUL09	16JUL09				i 🗖	Fab/Del	I Materiale	+Equi	p Bidg	B				11			1	1 1
	15-524	Rev/App Fire Protection	-	10	06JUL09	17JUL09			i	i I	ReviAp	p Fire Prot	tection	1	1	i I	11		ii		11	i I	ii
	15C-520	Fab/Del HVAC		40	06JUL09	28AUG09	1	Ħ			Fa	adv/Dell HN/A	C					+		+			
	15C-526	Fab/Del HVAC		60	06JUL09	28SEP09				i I		Fab/Dell	нуас										
	08C-516C	Fab/Del Materials+Equip	Bidg C	10	17JUL09	30JUL09				1	Fab/D	el Material	Is-Equ	ulp Blo	1g C								
	08D-506	Rec. Award-08D-Special	Doors	3	03AUG09	05AUG09			1	i	Rec.	Award-080	D-Spe	¢lal Do	ors	i l	ii		ii		11	i I	ii
	098-506	Rec. Award-		3	03AUG09	05AUG09					Rec.	Award-											
	09C-506	Rec. Award-Pkg 09A AC	T Cellings	3	03AUG09	05AUG09		Ħ			I Rec.	Award-Pk	g 09A	ACT (xellings					\top			
	09D-506	Rec. Award-		3	03AUG09	05AUG09				1	Rec.	Award-											
	09E-506	Rec. Award-		3	03AUG09	05AUG09			i	i I	Rec.	Award-		i i	11	i I	11		i i		11	i I	ii
	09G-506	Rec. Award-		3	03AUG09	05AUG09	İ		i		Rec.	Award-				i	i i		i i		11		i i
	10A-506	Rec. Award-		3	03AUG09	05AUG09				1	Rec.	Award-							1				
	10B-506	Rec. Award-		3	03AUG09	05AUG09					Rec.	Award-											
	12A-506	Rec. Award-Pkg 12A The	eater Seating	3	03AUG09	05AUG09			1	i	Rec.	Award-Pik	g 12A	Theat	er Sejat	inģi	11		i i		÷.	i I	ii
	09H-506	Rec. Award-		3	03AUG09	05AUG09			1		Rec.	Award-											
	06A-506	Rec. Award-06A-Milwort	k i i i i i i i i i i i i i i i i i i i	3	03AUG09	05AUG09					Rec.	Award-06/	A-MIIN	vork									
	09F-506	Rec. Award-Pkg 09F Wo	od Athletic Flooring	3	03AUG09	05AUG09				1	I Rec.	Award-Pk	g 09F	Wood	Athieti	c Floor	ing		11		1.1	i	1 1
	088-516A	Fab/Del Materials-Pkg 08	8B-Glass+Glazing-Bidg A	10	03AUG09	14AUG09					Fab	vDel Mater	ials-Pi	kg 08E	Glass	+Glazir	ng-Bidg /	4	1 1				
	028-504	Rec. Award-Pkg 02B Lar	ndscaping	10	03AUG09	14AUG09					Rec Rec	: Award-Pi	kg O2E	3 Land	scapin	9¦							
	08D-508	Rev/App Award-08D-Spe	ecial Doors	3	06AUG09	10AUG09					C Revi	/App Awar	d-08D	Speci	al Dool	8							
	098-508	Rev/App Award-		3	06AUG09	10AUG09				1	0 Revi	/App Awar	d -						11			i	1
	09C-508	Rev/App Award-Pkg 09A	ACT Cellings	3	06AUG09	10AUG09					0 Revi	/App Awar	d-Pkg	094 4	CT Cel	lings							
	09D-508	Rev/App Award-		3	06AUG09	10AUG09			-	-	Revi	/App Awar	d -			1							
	09E-508	Rev/App Award-		3	06AUG09	10AUG09					Revi	/App Awar	d -										
	09G-508	Rev/App Award-		3	06AUG09	10AUG09				1	0 Revi	/App Awar	d -										1
	10A-508	Rev/App Award-		3	06AUG09	10AUG09	i		1	i I	DRevi	/App Awar	d -	i i	11	i I	11		i i		i i	i I	ii
	108-508	Rev/App Award-		3	06AUG09	10AUG09	i		i	i	0 Revi	/App Awar	d -		li	i	ii		i i		<u> </u>	i	i i
	12A-508	Rev/App Award-Pkg 12A	Theater Seating	3	06AUG09	10AUG09					Revi	/App Awar	d-Pkg	12A T	heater	Seating	9						
	09H-508	Rev/App Award-		3	06AUG09	10AUG09				1	Revi	/App Awan	d -						1				
	06A-508	Rev/App Award-06A-MII	work	3	06AUG09	10AUG09				i	Revi	App Awar	d-06A	MIIW	Difk				11		11	i	1 1
	09F-508	Rev/App Award-Pkg 09F	Wood Athletic Flooring	3	06AUG09	10AUG09	i		1	i	Revi	App Awar	d-Pkg	09F V	/ood At	hietic	Flooring		i i		11	i	İİ
	08D-510	Award Contract-08D-Spe	ecial Doors	3	11AUG09	13AUG09					Awa	ard Contrac	ct-08D	Spec	ial Deo								
	098-510	Award Contract-		3	11AUG09	13AUG09					I Awa	and Contrac	cit-										
-	at Date	2540004			WA107						heat 7 of 24									DRAF	T		
Fir	ish Date	11MAY11	ORTH		GIU	BANE BUILD	ING	co	MPA	NY		_					Date		Rev	rision		Checker	Approved
De	ta Date	16MAR09 12MAR09 12:10	87		WORCEST	ER NORTH I	HIGH	ISC	HOO	DL (M	(N07)	0					12MAR	OPRE	LIMINA	RY FO	RRE		
		Landrood 12.10			REMAINI	NG BY BUIL	DIN	G/PH	ASE	E/LÈ	/EL	-		1	-			\perp					
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	Activity	Activity	Rem	Earty	Earty	L	-			2009			-	LEL			201	0				.	2011	
	ID	Description	Dur	Start	Finish	H	F IM	LAI	MIJ		AIS				MIA			JIA	13	0		1911		
	09C-510	Award Contract-Pilig 09A ACT Cellings	3	11AUG09	13AUG09	ſ.,			1	1 1	I Awa	ad Cont	act PI	ACO gr	ACT	Çell	ngs	-	;	ł	1		11	
	09D-510	Award Contract-	3	11AUG09	13AUG09)			-		Awa	ard Cpnt	act-			-		1	ł					
	09E-510	Award Contract-	3	11AUG09	13AUG09				1		I Awa	ard Cont	act			1		1	1					
	09G-510	Award Contract-	3	11AUG09	13AUG09)					Awa	ard Cont	act-			i.			i.					
	10A-510	Award Contract-	3	11AUG09	13AUG09)			1		Awa	ad Cont	act-			-	-	ł	1	1			-	
	10B-510	Award Contract-	3	11AUG09	13AUG09)			1		Awa	ad Cont	act-			-		1						
	12A-510	Award Contract-Pkg 12A Theater Seating	3	11AUG09	13AUG09						Awa	ard Cont	act PI	(g 12A	Thes	ter S	eating		1					
	09H-510	Award Contract-	3	11AUG09	13AUG09						Awa	ard Cont	act-	11			11		i i				11	
	06A-510	Award Contract-06A-Milwork	3	11AUG09	13AUG09						Awa	ard Cont	nact-06	A-MIII	work	1		-	1		-		1	
	09F-510	Award Contract-Pikg 09F Wood Athletic Flooring	3	11AUG09	13AUG09)			1		Awa	ard Cont	act Pl	(g OSF	Woo	d Att	lietic i	Floor	ηg					1 1
	028-505	Rev/App Award-Pikg 02B Landscaping	10	17AUG09	28AUG09						R	ev/App A	ward	Pikg 02	BLa	ndac	aping		į.					
	028-506	Award Contract-Pikg 02B Landscaping	5	31AUG09	04SEP09			1	i	1	14	ward Co	Intrac	-Pkg (0	28 L	ands	capin	9	i	i	i	1	i I	ii
	028-507	Prep/Sub SD, SamplesPkg 02B Landscaping	10	08SEP09	21SEP09				i			Prep/Si	ID SD,	Samp	leaPi	(g 02	BLan	dscap	ping					
	028-508	Rev/App SD, Samples Pkg 02B Landscaping	10	22SEP09	05OCT09							ReviA	pp SC	, Samp	ples F	akg o	2B La	INDISC	apin					
	PRECONS	TRUCTION				L		Li	1					11			11		1					11
	141	A/E Prepare 100% CD/s	23"	16JUL08A	15APR09			A I	/E Pre	pare ;	100%	CD's		11		į.	11		i i				11	11
	R-191	Estimate #1R (Q+A Period)	1	27JAN09A	16MAR09			Estin	nate #1	IR (Q	+A Pei	niod)		j i		i	i	i	i i	li	i	i	i I	ii
	R-51	GBC Prepare Estimate #1R Based on Rev. 50% CD's	1	27JAN09A	16MAR09			GBC	Prepa	re Est	timate	#1R Bas	no bec	Rev.i5	50% C	20'8		Ì	i I					
	336.2A	RFQ Period U/G Plumbing	1"	04MAR09A	16MARD9)	- <mark>-</mark> -	RFQ	Period	ING	Plumb	aling				i -		1	1					
	07D-500	Date Required for CD's-Pkg 07D-Fireproofing	0		13MAR09*		- •	Date	Reģuli	red fo	k CD,8	Pkg 071)-Firej	npoliti	9	1		1	1	1			1	
	07D-501	Prep/Issue Doc's-07D- Spray Fireproofing	0"	16MARD9	13MAR09		- I I	Prep	lesue	Doc'a	9-07D-	Spray Fl	tepto	ating										11
	R-181	GBC Submit Estimate #1R Based On Rev. 50% CD/s	0		16MAR09)	- i 🕈	GBC	Subm	it Esti	imate	#1R Bas	ed On	Rev. 5	0% C	0'8	11		i.				11	11
	03AF-502	Prep. Scope-03A Concrete Flatwork	7'	16MARD9	24MAR09)	- i P	Prep). Sco	pe-03/	A Con	crete Fla	twork	11		i i	i	i	i	i	i.		1	11
	07D-502	Prep. Scope-07D- Spray Fireproofing	7"	16MARD9	24MAR09)	- ; P	Prep). Sco	pe-071	D- Spr	ay Firep	(ootin	9				ł	1					
	336.3A	Receive 1st Reponses to RFQ for U/G Plumbing	2	17MAR09	18MAR09)		Reck	ive 1s	t Rep	onses	to RFQ	tor UK	G (Pluțn	ibling	ł		ł	ł	ł	-			
	R-61	Reconcile Estimate #1R Based On Rev. 50% CD's	5	17MAR09	23MAR09)		Rec	ondile	Estin	nate #	1R Base	d On F	lev. 50	% (CD	18		1	i		1			
	16AU-500	Date Required for CD's-Pkg 16A1-U/G Electric	0		18MAR09*		- 19	Pate	Requi	ined to	or dD	s-Pkg 16	A1-UX	G Elect	tric		1	1	1				11	
	15BU-500	Date Required for CD's-Pkg15B U/G Plumbing+Redon	0		18MAR09*	1	- i 🕈	Date	Requi	ined tic	or CD'	s Pkg15i	B WGI	Plumb	ing+F	tėdo	ni	i	i	li	- i	11	i I	ii
	16AU-502	Prep. Scope-16A1-Undersiab Electric	2	19MAR09	20MAR09)	- 11	Prep	. Scor	16 /	A1-Ųno	derslåb E	()ectri	•¦		i I		1	i I		i i			
	336.4A	Review Responses to 1st Reponses to RFQ U/G Plumb	2	19MAR09	20MAR09			Revi	ew Re	spons	ses¦to	1st Repo	nses 1	RFQ	U	Pium	ıb	ł	1		ł		ł	
	15BU-502	Prep. Scope-1581-Undersiab Plumbing+Redon	2"	19MAR09	20MAR09)	- 11	Prep	. Scop	15	B1-Únc	derslab F	lumbi	ng+Re	don	1	i	-		i	1		1	ii
	336.5A	Submit Prequalification List for U/G Plumbing	1	23MAR09	23MAR09)	- i P	l Sub	miti Pr	equal	Inciatio	on List fo	ir UlG	Plumb	ing	i.	11	1	i i				11	11
	R-71	GBC Propose Value Engineering on Revised Design	5	24MAR09	30MAR09)	- i I	GB	C Proj	pose	Value	Enginee	ring or	1 Revis	ed Dec	esig	ni	i	i	i	i		i l	i i
	R-201	Review + Reconciliation With VE for Est #1R	5	25MAR09	31MAR09)	- ; F	Re	rleŵ +	Reco	ncijiai	tion With	VE	r €st #	1R	-		1	1					
	R-451	Owner Approve Estimate#1R Based on Rev.50% CD's	5	01APR09	07APR09			l o	vmer A	pro	ve Ést	imate#1i	Base	donF	lev.5	0% C	D'8	1	1					
	08A-500	Date Required for CD's-Pkg 08A Windows/Strimts	0		02APR09*			O d	te Req	policed	for Cl	D'a-Pkg (8A W	indows	s/Strf	mta			1					
	04A-500	Date Required for CD's-Pkg 04A Masonry	0		02APR09*		- i •	∳Dá	te Req	pering	l for C	D's Pkg	04A N	lasioning	/	i.	i	÷.	i i				11	i i
	07B-500	Date Required for CD's-Pkg 07B Roofing	0		02APR09*		i +	∲D á	te Req	perity	I for C	D's Pkg	078 R	ooffing		i	i I	i	ĺ.	i	i		i l	İİ
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8	art Date	25APR08		WN07						Sheet	18 of 28) and an		D	RAFT	heat	-
D	eta Date	16MAR09		GILI	BANE BUILD	JIN	NG C	OM	ANY	(APL)	171	-	-					12	MARO	PRELIN	INARO	FOR RE	V.	
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	Activity	Activity	Rem	Farty	Farty	2005
	ID	Description	Dur	Start	Finish	FIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMI
	05C-500	Date Required for CD's-Pkg 05C-Metal Panels+Lou	0		02APR09*	Date Required for CD's-Pkg 05C-Metal Panels+Lou
	07C-500	Date Required forCD's-Pkg 07C Wtrprf+Sealants	0		02APR09*	Date Required for CD's-Pkg 07C Wirpirt+Sealants
	08C-500	Date Required for CD's-Pkg 08CFrames, Doors, Hrdwr	0		02APR09*	Date Required for CD's-Pkg 08CFrames,Doors,Hrowr
	07B-502	Prep Scope-07B - Roofing	0.	03APR09	02APR09	I Priep \$cope-07B - Roofing
	05C-502	Prep Scope-05C Metal Panels + Louvers	5	03APR09	09APR09	Prep Scope-05C Metal Panels + Louvers
	08A-502	Prep. Scope-Pkg 08A Mtl Windows+StoreFronts	8	03APR09	14APR09	🛛 🗖 Prepi. Scope-Pkgi 08A Mtti Windows-StoreFronts
	04A-502	Prep Scope-Masonry	8	03APR09	14APR09	Prepi Scope-Masionry
	07C-502	Prep Scope-Waterproofing/Jt Sealants	8	03APR09*	14APR09	Prep Scope-Waterproofing/Jt Sealants
	08C-503	Prep Scope-08C Frames, Doors+Hardware	9	03APR09	15APR09	Prep Scope-08C Frames, Doors+Hardware
	16A-500	Date Required for CD/s-Pkg16A-Electrical	0		15APR09*	Oate Required for CD's Pkg16A-Electrical
	09A-500	Date Required for CD's-Pkg 09A Drywali	0		15APR09*	Oate Required for CD's-Pkg 03A Drywall
	11A-500	Date Required for CD's-Pkg11A Kitchen Equipment	0		15APR09*	Date Required for CD's Pkg11A Kitchen Equipment
	15B-500	Date Required for CD's-Pkg15B-Plumbing	0		15APR09*	
	11B-500	Date Required for CD's-Pkg 11B Lab Equipment	0		15APR09*	Opate Required for CD's Pkg 11B Lab Equipment
	15C-500	Date Required for CD's-Pkg15C-HVAC	0		15APR09*	Oate Required for CD's-Pkg15C-HVAC
	15A-500	Date Required for CD's-Pkg15A-Fire Protection	0		15APR09*	Apate Required for CD's Pkg15A-File Protection
	14A-500	Date Required for C-Pkg 14A Elevators (1/15/09)	0		15APR09*	Oats Required for C-Pkg 14A Elevators (1/15/09)
	05B-500	Date Required for CD's-Pkg 05B-Misc Metals	0		15APR09*	Date Required for CD's Pkg 05B-Misc Metals
	241	A/E Issue 100% CD/s	0		15APR09	♦ A/E issue 100% CD's
	15D-501	A/E Issue - Pkg 15D Foundation Drainage	1	16APR09	16APR09	A/E (ssue - Pkg)15D Foundation Drainage
	05B-502	Prep Scope-05B-Misc Metals	5	16APR09	22APR09	Prep Scope-058-Misc Metals
	09A-502	Prep Scope - Pilig 09A Drywali	9	16APR09	28APR09	🖬 🖾 Prep Scope - Pkg 09A Drywali
	11A-503	Prep Scope-Pilig11A Kitchen Equipment	9	16APR09	28APR09	🖬 Prep Scope-Pkg11A Kitchen Equipment
	15A-502	Prep. Scope-Plumbing	9	16APR09	28APR09	🗖 Prep. Scope-Plumbing
	16A-502	Prep. Scope-Electrical	9"	16APR09	28APR09	🗖 Prép. \$cope-Electrical
	15C-502	Prep. Scope-HVAC	9"	16APR09	28APR09	E Prep. \$cope-HVAC
	14A-503	Prep Scope-Elevators	9	16APR09	28APR09	🖬 🖬 Prep Scope-Elevators
	15-502	Prep. Scope-Fire Protection	9	16APR09	28APR09	D Prep. \$cope-Fire Protection
	11B-503	Prep Scope-Pilig 11B Lab Equipment	9	16APR09	28APR09	🛛 🔲 Prép Scopé-Pkg 11B Lab Equipment
	251	Obtain Building Permit	20	16APR09	13MAY09	🕴 📫 Optain Biuliding Perinit
	402	GBC Prepare GMP	15	07MAY09	28MAY09	GBC Prepare GMP
	08D-500	Date Required for CD's-Pkg 08D-Special Doors	0		15MAY09*	Otate Required for CD's-Pkg 08D-Special Doors
	09B-500	Date Required for CD's-Pkg 09B Ceramic Tile	0		15MAY09*	Oate Required for CD's-Pkg 09B Ceramic Tile
	09C-500	Date Required for CD's-Pkg 09C ACT Cellings	0		15MAY09*	♦ Date Required for CD's Pkg 09¢ A¢T Cellings
	09D-500	Date Required for CD's-Pkg 09D Carpeting	0		15MAY09*	Date Required for CD's-Pkg 09D Carpeting
	09E-500	Date Required for CD's-Pkg 09E Resilient Floors	0		15MAY09*	Otate Required for CD's-Pkg 095; Resilient Floors
	09G-500	Date Required for CD's-Pkg 09G Epoxy Floors	0		15MAY09*	Otate Required for CD's Pkg 09G Epoxy Floors
	10A-500	Date Required for CD's-Pkg 10A Specialties	0		15MAY09*	♦ Pate Required for CD's Pkg 10A Specialties
		0510000				
Start	h Date	254PH08		(NNO)		INC COMPANY Decked corrows
Data	Date	16MAR09		WORCEST	FR NORTH I	IS COMPANY IN IS COMPANY FOR REV
Run		12MAR09 12:19		REMAIN	ING BY BUIL	DING/PHASE/LEVEL
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	Activity		Activity	Rem	Farty	Farty		2009				_	2010	0				2011	
	D	D	escription	Dur	Start	Finish	F	MAMJJAS		J	FIMI/	ALM	J.	JAIS	0	ND	JIF		A I M U
	10B-500	Date Required for CD's-F	Pkg 10B Signage	0		15MAY09*		: Date Required f	or CD'a-Pkg	10B	Signage	• !	!	····	'''''		1 :	1	
	12A-500	Date Required for CD's-F	Pkg 12A Theater Seating	0		15MAY09*	l i	Date Required f	or CD'a Pkg	124	Theater	Spath	òg 🗌						11
	09H-500	Date RequiredforCDs-Pk	g 09H Paint+WallCoverings	0		15MAY09*	İ	Oate Requiredfo	rCDs-Pkg (энр	aint+wa	li¢ov	rings						ii
	06A-500	Date Required for CD's-F	Pikg 05A Milwork	0		15MAY09*	1	Oate Required for	or CD'a-Pkg	064	Milwort	k	1						1 1
	02B-500	Date Required for CD's-F	Pkg 02B Landscaping	0		15MAY09*	1	Date Required for a second	or CD'a-Pkg	02B	Landaca	aping	!	1 1	+			!	11
	09F-500	Date RequiredforCDs-Pk	g 09F Wood-Athletic Floors	0		15MAY09*	1 1	Date Required to	rCDs-Pkg (9F W	looid-Ath	nietic i	loors					i	11
	08B-500	Date Required for CD's-F	Pkg 08B Glass+Glazing	0		15MAY09*	İ	Oate Required for a second	or CD'a-Pkg	088	Glass-O	Slazin	9						
	08B-503	Prep Scope-Pkg 088-Gla	ass+Giazing	5	18MAY09	22MAY09		Prep Scope-Pk	g 08B-Glas	s+Gla	zing	1							
	08D-503	Prep Scope-08D-Special	Doors	9	18MAY09	29MAY09		E Prep Scope-08	D-Special I	pooris	•								11
	09B-503	Prep Scope-Pikg 09B Cer	ramic Tile	9	18MAY09	29MAY09		Prep Scope-Pl	kg 09B Cera	mici	TIIe	-		1 1					
	09C-503	Prep Scope- Pikg 09A AC	CT Cellings	9	18MAY09	29MAY09	ļ	Prep Scope- P	kg (ISA AC	t Cell	Ings	i							
	09D-503	Prep Scope-Pikg 09D Ca	rpeting	9	18MAY09	29MAY09		E Prep Scope-Pl	kg 09D Çarş	peting									
	09E-503	Prep Scope-Pikg 09E Ret	silent Flooring	9	18MAY09	29MAY09		E Prep Scope-Pl	kg 09E Reel	(llenți	Flooring								
	09G-503	Prep Scope-Pkg 09G Ep	oxy Floors	9	18MAY09	29MAY09		Prep Scope-Pl	kg 09G Epo	ky Fik	8100								
	10A-503	Prep Scope-Pkg 10A - S	peciaities	9	18MAY09	29MAY09		Prep Scope-Pl	kg 10A - Sp	ocialit	les	1							
	10B-503	Prep Scope-Pikg 10B Sig	inage	9	18MAY09	29MAY09	i	Prep Scope-Pl	kg 108 \$lgr	age		i							
	12A-503	Prep Scope-Pikg 12A The	eater Seating	9	18MAY09	29MAY09		Prep Scope-Pl	kg 12A The	ater \$	eating	1							
	09H-503	Prep Scope-Pkg 09H Pal	int+Wallcoverings	9	18MAY09	29MAY09		Prep Scope-Pl	kg 09H Pain	it+Wa	licoverti	ngs						1	11
	06A-502	Prep Scope-06A-Milwork	k	9	18MAY09	29MAY09	i	Prep Scope-06	A-Millwork	(i	1	i.	i	11		ii	i	i	i i
	02B-502	Prep Scope-Pkg 02B Lar	ndscaping	9	18MAY09	29MAY09		Prep Scope-Pl	kg 0/28 L/an	decap	ginig	1						-	
	09F-503	Prep Scope-Pkg 09F Wo	od Athletic Flooring	9	18MAY09	29MAY09	ł	E Prep Scope-Pl	kg 09F Woo	d Ath	nietic Fio	xoring							
	412	Recondle GMP Based O	On 100% CD's (Finalize)	10	26MAY09	08JUN09		🛱 Reconcile Gi	MP Based C	n 100	0% CD 8	(Final	EZ9)						11
	422	GBC Submit GMP From	100% CD's + Buyout Complete	0		08JUN09	i	GBC Submit	GMP From	100%	C C D'8 +	Buyo	ýt Con	npiete			1	1	11
	432	Owner Approve GMP Ba	ised On 100% CD's + Buyout	60	09JUN09	07AUG09	i	Owne	r Approve	GMP	Based C	n 100	% do	's + Büy	out				
	GENERA	AL BUILDING										1							
	GENERAL																		11
	213	Fab/Delv-Pkg 02A - Sitev	work&Site MEP	30"	02DEC08A	24APR09	-	Fab/Delv-Pkg 02A	Sitework8	Site	MÉP								11
	05A-512A	Prep/Sub Shop Drawings	s + Calc's Stret Sti Bidg A	20	23MAR09	17APR09	i	Prep/Sub Shop Dra	wings + Ca	C'8 \$	tret St E	Bl ợ g A	į	i i				i l	i i
	05A-512B	Prep/Sub Shop Drawings	s + Calc's Stret Sti Bidg B	10	13APR09	24APR09		Prep/Sub Shop Dr	awings + Ca	lc's s	strict Sti	Bidgi	6						
	05A-513C	Prep/Sub Shop Drawings	s +Calc's Mtl Fir/Roof Deck	20	13APR09	08MAY09		Prep/Sub Shop D	rawings +0	alc's	MU FIL/F	Roof E)eck						
	05A-514A	Rev/App Shop Drawings	+ Calc's Stret Sti Bidg A	20	20APR09	15MAY09	l i	📕 Rev/App Shop D	rawings + (Calcia	s Strct S	ti Bidi	jA	11			1 i	i	11
	05A-512C	Prep/Sub Shop Drawings	s + Calc's Stret Sti Bidg C	10	27APR09	08MAY09	İ	Prep/Sub Shop D	rawings + (Calc's	s Strct S	ti Bidg	jC	11	+		1 i	1	<u> </u>
	05A-514B	Rev/App Shop Drawings	+ Calc's Stret Sti Bidg B	20	27APR09	22MAY09		Rev/App Shop	Drawings +	Calc	's Stret :	Sti Bio	ig B						
	05A-515C	Rev/App Calc's Mtl Fir/Re	oof Deck	19	11MAY09	05JUN09		Rev/App Cak	's Mti Fir/R	d too	eck	-							
	05A-514C	Rev/App Shop Drawings	+ Calc's Stret Sti Bidg C	19	11MAY09	05JUN09	1 1	Rev/App Sho	p Drawings	+ Ca	IC's Stre	t ști e	idg C	11			11	1	11
	05A-516A	Fab/Del-Strct. Steel/Mtl D	Deck Bidg A	40	18MAY09	14JUL09	i	Fab/Del-	Strct. Steel	MILI (eck Bld	A B	i	i i		ii	i	i	i i
	05A-516B	Fab/Del-Strct. Steel/Mtl D	Deck Bidg B	40	26MAY09	21JUL09	ļ	Fab/Del	-Strict. Stee	i/Mt (Deck Bio	dg B							
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11A-508	Rev/App Award-Pkg11A	Kitchen Equipment	3	27MAY09	29MAY09					Rev	App /	Awan	d-Pik	g11/	A KIN	che	n Eq	ulpn	nent	!			\perp		<u> </u>		<u> </u>		1
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11A-510	Award Contract-Plig11A	Kitchen Equipment	3	01JUN09	03JUN09					Awa	ard Co	ontra	ct-PI	gri	AKI	tche	in E	dinbi	ų eu	5	į								i
11B-510	Award Contract-Pkg 11E	3 Lab Equipment	3	01JUN09	03JUN09	i	i I	i		ANN I	ardCo	ontra	ct-PI	(g 1	IBL	abiE	qui	priner	at i	i I	i	i		i.	i	11	i l	i	i
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11A-512A	Prep/Sub SD+Data-Pkg	11A Kitchen Eq Bidg A	10	04JUN09	17JUN09					P P	rep/Su	ıþ St)+Da	ta-P	kg11	AK	Itch	en E	q Bl	dg A						Ľ	-		ł
11B-512A	Prep/Sub SD+Data-Plkg	11B Lab EquipBidg A	10	04JUN09	17JUN09					PI	rep/Su	nd 20)+Da	ta-P	kg 11	18 L	abi	Equip	pBI	q g A	۱ I	ł		1	1				ł
08B-506	Rec. Award-Pkg 08B-Gk	ass+Glazing	3	22JUN09	24JUN09					16	Rec. A	ward	-Pkg	08	-Gla	88+	Ga	ding	į.,	1					1				i
08B-508	Rev/App Award-Pkg 088	3-Glass+Glazing	3	25JUN09	29JUN09					ום	ReviA	A qq	ward	HP N) (18E	3-G1	398-	-Glaz	dng	i I	i			i.					i
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11B-516A	Fab/Del Materials+Pkg 1	118 Lab Equip Bidg A	10	31JUL09	13AUG09						– I	Fab/C	Del M	later	1218+	Pkg	111	B Lat	Eq	¢ip E	Bidg	A	Τ		1				T
11B-516B	Fab/Del Materials+Pkg 1	118 Lab Equip Bidg B	10	14AUG09	27AUG09						-	Fat	VDell	Mat	ertak	s+Pl	kģ 1	1 1 8 L	åb E	quip	Bi¢	ig B		1	-				ł
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11B-516C	Fab/Del Materials+Pkg 1	11B Lab Equip Bidg C	10	28AUG09	11SEP09							🗖 F	ab/p	el M	ateri	als+	Pkg	11B	Lab	Equ	ip 🖗	lidg C	: -						ł
08B-516C	Fab/Del Materials-Pkg 0	8B-Glass+Glazing-Bidg C	10	31AUG09	14SEP09					i	1	jen 🖻	ab/p	el N	ateri	ale-	Pikg	08 B	Gla	\$8+¢	ilazi	ng-Bl	dgo	:	i I	1 i			i
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03AF516C	Fab/Delv-Rebar for Flat	work Bidg C	5	18JUN09	24JUN09					□F	Fab/De	NV-R	ebar	for i	Tatw	ro fk	Blo	gC		!									ł
1564	Rev/App/SD-Mtl Window	vs+StoreFronts	10	18JUN09	01JUL09	i	i I	i			ReviA	(pp/s	D-M	i Wi	ndov	NS+	Stor	eFro	nta 🛛	i I	i	i		÷.	i	i	1	i	i
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04A-516A	Fab/Del Masonry + Acce	essories Bidg A	10	18JUN09	01JUL09					🗖	Fab/D	el M	880	∎ y †	Acc	8880	oriee	Bid	₿A	:		ł			ł				ł
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16A-514	Rev/App/SD- Electrical		10	18JUN09	01JUL09					i 🗖	Rev/A	(pp/s	D-E	lecți	ical	÷	÷		i i	i I	i	1		1					i
16A-524	Rev/App Electrical Samp	pies	10	18JUN09	01JUL09					i 🗖	ReviA	\pp⊫	lectr	ical	Sam	plea	B į		i i	i I	i	÷		÷.	i l	i		i	i
05C-514B	Rev/AppSD's Submittals	+05C Metal Panels+Louvers8	10	18JUN09	01JUL09	i	i I			i 🗖	Rev/A	pps	D'8 \$	ubin	ittal	8- 0 5	SC N	etal I	Pan	ela+L	ou	/ensB		i	i		1		i
05C-512C	Submit SD's Submittals-	05C Metal Panels+LouversC	10	18JUN09	01JUL09					¦ 📫	Subm	nit SO	'a \$i	ιbή	ittals	-0,50	C MA	stal P	ane	(8+L)	ouv	ərs¢		-	-		+		ł
07B-512C	Prep/Submit Shop Draw	ings+Calcs-Roof Bidg C	10	18JUN09	01JUL09	i					Prep/	Subr	nit Si	hop	Draw	ving	8+C	alca	Roo	f Bid	lg C		+		1				t
07B-514B	Rev/App Shop Drawings	+Calcs-Roof Bidg B	10	18JUN09	01JUL09					📫	Rev/A	pp s	hop	Dra	Ming	8+C	alca	Roo	r BI	dg B		ł		1	1				ł
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	15C-514	Rev/App/SD- HVAC	10	19JUN09	02JUL09	9	i		- i	i	9	Rev/Ap	p/SD-	HVA	c	i	i	i	i I	i	i i		1	i	i	i	- i	i
	15-522	Prep/Sub Calculations Fire Protection	10	19JUN09	02JUL09	9					9	Prep/Su	ub Cal	i¢ula¢	ions i	Filde P	rotec	tion		ł	ł							
	15C-524	Rev/App HVAC	10	19JUN09	02JUL09	9					5	Rev/Ap	γpHV/	AC						1	1		: :	!				
	15A-514	Rev/App/SD- Plumbing	10	19JUN09	02JUL09	9	1	Π				Rev/Ap	p/SD-	Plum	ibing						-							-
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	058-5168	Fab/Del Materials+Equip 058-Misc Metals Bidg B	10	26JUN09	10JUL09	9	+				9	Fab/De	el Mat	enale	+Equ	ilp 05	B-Ma	c Met	als Bk	dg B	ł							
	05B-514C	Rev/App SD's Submittals - 05B-Misc Metals Bidg C	10	26JUN09	10JUL09	9					9	Rev/A	pp SD	ra Sul	bmitt	al\$ - (SB-M	lisc M	etals E	Bidg (q		17	1				1
	07C-514C	Rev/App SD's-Waterproofing+Joint Sealants Bidg C	10	29JUN09	13JUL09	9	i				_	Rev/A	App SC	0'8-W	aterp	ropfin	g+Jo	int Se	alanta	Bidg	IC.			<u>i</u>		i		i
	09A-516	Fab/Del Pkg 09A Drywall	10	02JUL09	16JUL09	9	i		i	i		Fab/D	Del Pk	Aeo g	Dryv	vall		i	1	i	i				i	i	i	i
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	15C-516	Fab/Del HVAC	15	06JUL09	24JUL09	9	÷						Del H	VAC							ł			1				
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	05C-516B	Fab/Del Materials-05C Metal Panels+LouversBidg B	15	10JUL09	30,0009	9	÷		1	1				nateria		SC ME			LOUVE		ag s	1	i i	i	- i	11	1	- 11
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	09E-512A	Submit SD's Submittals - Bidg A	12	14AUG09	31AUG09						🗖	Submit SD's	Submittals - Bidg A						
	09G-512A	Submit SD's Submittals - Bidg A	12	14AUG09	31AUG09							Submit SD's	Submittals - Bidg A						
	10A-512A	Submit SD's Submittais - Bidg A	12	14AUG09	31AUG09							Submit SD's	Submittals - Bidg A						
	10B-512A	Submit SD's Submittals - Bidg A	12	14AUG09	31AUG09			1				Submit SD's	Submittals - Bidg A		Ιi		11	11	11
	09H-512A	Submit SD's Submittals - Bidg A	12	14AUG09	31AUG09	1					i 🗖	Submit SD's	Submittals - Bidg A	1				1	
	08A-516B	Fab/Del-Mtl Windows+StoreFronts Bidg B	30	14AUG09	25SEP09						¦ 📫	Fab/Del-M	ti Windows+StoreFronts Bib	₿₿					
	12A-514C	Rev/AppSD's+Sample Pikg12A Theater Seating Bidg C	10	28AUG09	11SEP09						: 🖻	ReviAppSD	s+Sample Pkg12A Theater S	aating	Bidg	C			
	06A-512B	Submit SD's Submittais 06A-Millwork- Bidg B	10	28AUG09	11SEP09			1			; 🖻	Submit SD's	Submittals 06A-Millwork- B	idg B	Ιi		i	i	11
	06A-514A	Rev/App SD's Submittals -06A-Milwork Bidg A	10	28AUG09	11SEP09	i		i	i		i P	ReviApp SD	s Submittals -06A-Millwork I	3løg /	4 1	i	i	1	ii
	09F-514C	Rev/App SD's Submittals Pkg 09F Wood Ath- Bidg C	10	28AUG09	11SEP09						¦	ReviApp SD	's Submittals Pkg 09F Wood	Ath-F	Bidgic	: [1	
	08D-514A	Rev/App SD's Submittals 08D-Special Door- Bidg A	10	01SEP09	15SEP09						; P	ReviApp SC	's Submittals 08D-\$pecial D	oor-B	N gb				
	09B-514A	Rev/App SD's Submittals - Bidg A	10	01SEP09	15SEP09			1			; P	C ReviApp SC	Ys Submittais - Bidg A		11			1	11
	09C-514A	Rev/Ap SDs Submittals-Pkg09A ACT Cellings Bidg A	10	01SEP09	15SEP09	i		i	i		i P	C ReviAp \$De	Submittals Pkg09A ACT Ce	llings	Bidg	A		1	ii
	09D-514A	Rev/App SD's Submittals - Bidg A	10	01SEP09	15SEP09	ł					¦	ReviApp SC	's Submittals - Bidg A						
	09E-514A	Rev/App SD's Submittals - Bidg A	10	01SEP09	15SEP09						P	ReviApp SC	's Submittals - Bidg A						
	09G-514A	Rev/App SD's Submittals - Bidg A	10	01SEP09	15SEP09						; P	ReviApp SC	Ys Submittais - Bidg A		Ιi		11	11	11
	10A-514A	Rev/App SD's Submittals - Bidg A	10	01SEP09	15SEP09	i		i	i		i P	C ReviApp SC	Ys Submittais - Bidg A	- i	l i	- i	l i	i I	ii
	10B-514A	Rev/App SD's Submittals - Bidg A	10	01SEP09	15SEP09	i		į	i		į P	ReviApp SC	's Submittals - Bidg A	i	i	i	i	i	ii
	09H-514A	Rev/App SD's Submittals - Bidg A	10	01SEP09	15SEP09						<u> </u>	C ReviApp SC	's Submittals - Bidg A						
	08D-512B	Submit SD's Submittais -08D-Special Doors Bidg B	12	01SEP09	17SEP09							🛛 Submit SD'	s Submittais -08D-Special Do	xors B	lidg B				
	098-5128	Submit SD's Submittais - Bidg B	12	01SEP09	17SEP09			1			; P	🛛 Submit SD'	s Submittais - Bidg B		11			11	11
	09C-512B	Submit SDs Submittals-Pkg09A ACT Cellings Bidg B	12	01SEP09	17SEP09	i		i	i		; P	🛛 Submit SDa	Submittals Pkg09A ACT Ce	(Ilings	Bidg	в	1	1	ii
	09D-512B	Submit SD's Submittais - Bidg B	12	01SEP09	17SEP09						: P	🛛 Submit SD'	s Submittals - Bidg B						
	09E-512B	Submit SD's Submittais - Bidg B	12	01SEP09	17SEP09							🛛 \$ubmit \$D'	s Suþmittals - Bidg B						
	09G-512B	Submit SD's Submittais - Bidg B	12	01SEP09	17SEP09						; P	Submit \$D	s Submittals - Bidg B		11			11	11
	09H-512B	Submit SD's Submittais - Bidg B	12	01SEP09	17SEP09	i		- i	- i		i 6	Submit SD'	s Submittals - Bidg B		!		11	1	11
	10A-512B	Submit SD's Submittals - Bidg B	12	01SEP09	17SEP09							Submit SD'	s Submittals - Bidg B						
	108-5128	Submit SD's Submittais - Bidg B	12	01SEP09	17SEP09			- 1			¦	Submit \$D	s Submittais - Bidg B						
	12A-516C	Fab/Del Materials Pkg 12A Theater Seating Bidg C	10	14SEP09	25SEP09	ł						Fab/Del M	aterlais Pkg 124 Theater Sea	ting B	Bidg ¢				
	06A-514B	Rev/App SD's Submittais 06A-Milwork- Bidg B	10	14SEP09	25SEP09	i		i	i		ii	ReviApp S	D's Submittals DGA-Millwork	- Bidg	B	i	i	i	ii
	06A-512C	Submit SD's Submittais 06A-Millwork- Bidg C	10	14SEP09	25SEP09			i			1	Submit SD	rs submittals 06A-Millwork-	Bidg (۴ į				
	06A-516A	Fab/Del Materials06A-Millwork-Bidg A	30	14SEP09	23OCT09				-		11	Fab/De	Materials06A-Millwork-Bidg	14		-			
	09F-516C	Fab/Del MaterialsPikg 09F Wood Athletic Fi Bidg C	30	14SEP09	23OCT09						11	Fab/De	NaterialsPkg 09F Wood At	liettc	FI BID	g¢			
	08D-516A	Fab/Del Materials+Equip08D-Special Doors Bidg A	10	16SEP09	29SEP09						i i	Fab/Del M	laterials+Equip08D-Special D	KOOFS	Bidg /	A	ĻĻ	1	<u> </u>
	09B-516A	Fab/Del Materials+Equip Bidg A	10	16SEP09	29SEP09							Fab/Del N	laterials+Equip Blog A						
	09C-516A	Fab/Del Mattis+EquipPkg 09A ACT Cellings Bidg A	10	16SEP09	29SEP09				-		11	Fab/Del N	aris+EquipPkg 09A ACT Ce	lings	Bidg	A			
μ	09D-516A	Fab/Del Materials+Equip Bidg A	10	16SEP09	29SEP09						<u> </u>	Fab/Del N	atenais+Equip Blog A	<u> </u>					
8	art Date	25APR08	_	WN07						Shee	t 13 of 2	8	I			D	RAFT		
F	nish Date	11MAY11		GILI	BANE BUILD	NING	G C	DMI	PANY	1		-		Date		Revisio	n	Checke	Approved
R	an Date	12MAR09 12:19		WORCEST	ER NORTH H	HIG	H S	СН	OOL	(WN	07)		And the second second	ZMARD	PRELIN	INARY	FOR RE		
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	09E-516A	Fab/Del Materials+Equip	Bidg A	10	16SEP09	29SEP09	9		Fab/Del M	aterials+Equip Bidg A				11	
	09G-516A	Fab/Del Materials+Equip	Bidg A	10	16SEP09	29SEP09	9		Fab/Del M	aterials+Equip Bidg A			l i		
	10A-516A	Fab/Del Materials+Equip	Bidg A	10	16SEP09	29SEP09	9		Fab/Del M	aterials+Equip Bidg A					
	10B-516A	Fab/Del Materials+Equip	BidgA	10	16SEP09	29SEP09	9		Fab/Del M	aterials+Equip Bidg A					
	09H-516A	Fab/Del Materials+Equip	Bldg A	10	16SEP09	29SEP09	9		Fab/Del M	aterials+Equip Bidg A	i i		l i	i I	i i
	08D-512C	Submit SD's Submittais	08D-Special Doors- Bidg C	10	18SEP09	01OCT09	9		Submit Si	o's Submittals 08D-Specia	Doors	Bldg C	i	i	i i
	08D-514B	Rev/App SD's Submittals	s 08D-Special Door- Bidg B	10	18SEP09	01OCT09	9	- ■	Rev/App \$	\$D's Submittals 08D-Spec	ial Door	- Bidg B			
	09B-512C	Submit SD's Submittais	- Bidg C	10	18SEP09	01OCT09	9		Submit Si	o's Submittals - Bidg C				!	
	09B-514B	Rev/App SD's Submittals	s - Bldg B	10	18SEP09	01OCT09	9		Rev/App \$	\$D's Submittals - Bidg B					1 1
	09C-512C	Submit SDs Submittais-F	Pikg09A ACT Cellings Bidg C	10	18SEP09	01OCT09	9		Submit Si	os Submittals-Pkg09A AC	T Celling	as Bidg C		i	1 1
	09C-514B	Rev/Ap SDs Submittals-	Plkg09A ACT Cellings Bidg B	10	18SEP09	01OCT09	9		ReiviAp Si	De Sjubrhittele-Pkg09A AC	T Cellin	as Bildg B			
	09D-512C	Submit SD's Submittais	- Bidg C	10	18SEP09	01OCT09	9		Submit Si	o's Submittals - Bidg C					
	09D-514B	Rev/App SD's Submittals	s - Blolg B	10	18SEP09	01OCT09	9		Rev/App \$	SD's Submittals - Bidg B				i	11
	09E-512C	Submit SD's Submittais	- Bidg C	10	18SEP09	01OCT09	9		Submit Si	o's Submittals - Bidg C					11
	09E-514B	Rev/App SD's Submittals	s - Bidg B	10	18SEP09	01OCT09	9		ReviApp \$	SD's Submittals - Bidg B	ii		l i	i	ii
	09G-512C	Submit SD's Submittals	- Bidg C	10	18SEP09	01OCT09	9		Submit Si	o's Submittais - Bidg C					
	09G-514B	Rev/App SD's Submittals	s - Blolg B	10	18SEP09	01OCT09	9		Rev/App \$	SD's Submittals - Bidg B					1 1
	09H-512C	Submit SD's Submittais	- Bidg C	10	18SEP09	01OCT09	9		Submit Si	0's Submittals - Bidg C				:	
	09H-514B	Rev/App SD's Submittals	s - Bidg B	10	18SEP09	01OCT09	9		Rev/App \$	SD's Submittals - Bidg B	i i		i	i	ii
	10A-512C	Submit SD's Submittals	- Bidg C	10	18SEP09	01OCT09	9		Suibmijt Si	o's Submittais - Bidg C					
	10A-514B	Rev/App SD's Submittals	s - Bidg B	10	18SEP09	01OCT09	9		Rev/App \$	SD's Submittals - Bidg B					
	10B-512C	Submit SD's Submittals	- Bidg C	10	18SEP09	01OCT09	9		Submit Si	o's Submittals - Bidg C					
	10B-514B	Rev/App SD's Submittals	s - Bidg B	10	18SEP09	01OCT09	9		Rev/App \$	SD's Submittals - Bidg B			i	i	
	07D-510	Mobilize-07D- Spray Fire	eproofing	0	28SEP09				Mobilize-0	7D- Spray Fireproofing					
	06A-514C	Rev/App SD's Submittals	s 06A-Milwork- Bidg C	10	28SEP09	090CT09	9		Rev/App	SD's Submittals OGA-Milli	work-BI	dg C			
	08A-516C	Fab/Del-Mtl Windows+S	toreFronts Bidg C	30	28SEP09	06NOV09	9		Fab/D	el-Mti Windows+StoreFro	rits Bidg	C		i	11
	06A-516B	Fab/Del Materials06A-M	llwork Bidg B	30	28SEP09	06NOV09	9		Fab/C	el MaterialsOGA-Miliwork	BidgiB		i		ii
	08D-514C	Rev/App SD's Submittals	s 08D-Special Door- Bidg C	10	02OCT09	15OCT09	9		Rev/App	SD's Submittais 08D-\$pe	cial Doc	r-Bidg C			
	08D-516B	Fab/Del Materials+Equip	08D-Special Doors Bidg B	10	02OCT09	15OCT09	9		Fab/Del	Materials+Equip080-Spec	al Door	s Bidg B			1 1
	09B-514C	Rev/App SD's Submittals	s - Bidg C	10	02OCT09	15OCT09	9		Rev/App	SD's Submittals - Bidg C					11
	098-5168	Fab/Del Materials+Equip	o Bidg B	10	02OCT09	15OCT09	9		Fab/Del	Materials+Equip Bidg B	ii		l i	i I	i i
	09C-514C	Rev/Ap SDs Submittals-	Pkg09A ACT Cellings Bidg C	10	02OCT09	15OCT09	9		ReviAp	SDs Submittals Pkg09A A	CT Cell	ngs Bidg C	i		
	09C-516B	Fab/Del Mattis+EquipPk	g 09A ACT Cellings Bidg B	10	02OCT09	15OCT09	9		Fab/Del	Matils+EquipPikg 09A AC1	Celling	s Bidg B			
	09D-514C	Rev/App SD's Submittals	s - Bldg C	10	02OCT09	15OCT09	9		Rev/App	SD's Submittais - Bidg C					1
	09D-516B	Fab/Del Materials+Equip	Bldg B	10	02OCT09	15OCT09	9		Fab/Del	Materials+Equip Bidg B			i	i	11
	09E-514C	Rev/App SD's Submittals	s - Bldg C	10	02OCT09	15OCT09	9		Rev/App	SD's Submittais - Bidg C	İİ		i	i	İİ
	09E-516B	Fab/Del Materials+Equip	Bidg B	10	02OCT09	15OCT09	9		Fab/Del	Materials+Equip Bidg B					
μ	09G-514C	Rev/App SD's Submittais	s - Bidg C	10	02OCT09	15OCT09	9			SD's Submittais - Blog C					
82	et Date	25APR08			WN07			Sheet 14 of 28				D	RAFT		
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D	ta Date n Date	16MAR09 12MAR09 12:19	62		WORCEST	ER NORTH H	H	IGH SCHOOL (WN07)		And a sub-output of	12MARC	PRELIMINARY	FOR REV		
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	ID Í	Description	Dur	Start	Finish	FIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMU
	09G-516B	Fab/Del Materials+Equip Bidg B	10	020CT09	15OCT09	🕴 🔡 🗄 Fab/Del Materials+Equip Bidg B
	09H-514C	Rev/App SD's Submittais - Bidg C	10	02OCT09	15OCT09	🛛 🗧 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬
	09H-516B	Fab/Del Materials+Equip Bidg B	10	02OCT09	15OCT09	🗖 frabylbel Materials+Equip Bidg B
	10A-514C	Rev/App SD's Submittais - Bidg C	10	02OCT09	15OCT09	🗖 ReviApp SD's Submittals - Bidg C
	10A-516B	Fab/Del Materials+Equip Bidg B	10	02OCT09	15OCT09	🗖 Fab/Del Materials+Equip Bidg B
	10B-514C	Rev/App SD's Submittais - Bidg C	10	02OCT09	15OCT09	🛛 🗧 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬
	108-5168	Fab/Del Materials+Equip Bidg B	10	02OCT09	15OCT09	🕴 🔡 🗧 FabyDel Matérials+Equip Bidg 🕸 🔡 👘 👘 👘
	02B-509	Fab/Del SD, Samples Pikg 02B Landscaping	10	06OCT09	19OCT09	FabiDel SD, Samples Pkg 02B Landscaping
	08D-516C	Fab/Del Materials+Equip08D-Special Doors Bidg C	10	16OCT09	29OCT09	Fab/Del Materials+Equip08D-Special Doors Bidg C
	09B-516C	Fab/Del Materials+Equip Bidg C	10	16OCT09	29OCT09	Fab/Del Materials+Equip Bidg C
	09C-516C	Fab/Del Matts+EquipPkg 09A ACT Cellings Bidg C	10	16OCT09	29OCT09	FaþíDel Mátis+EquipPkg/094 ACT Ceilings Bidg C
	09D-516C	Fab/Del Materials+Equip Bidg C	10	16OCT09	29OCT09	🗖 Fab/Del Materials+Equip Blog C
	09E-516C	Fab/Del Materials+Equip Bidg C	10	16OCT09	29OCT09	🖬 🖬 Fab/Del Materials-Equip Bidg C
	09G-516C	Fab/Del Materials+Equip Bidg C	10	16OCT09	29OCT09	🖬 🖬 Fab/Del Materials+Equip Bidg C
	09H-516C	Fab/Del Materials+Equip Bidg C	10	16OCT09	29OCT09	Fab/Del Materials+Equip Bidg C
	10A-516C	Fab/Del Materials+Equip Bidg C	10	16OCT09	29OCT09	Faþíðet Máterjals-Egulp Bidg C
	10B-516C	Fab/Del Materials+Equip Bidg C	10	16OCT09	29OCT09	🖬 🖬 Fab/Del Materials+Equip Bidg C
	15A-518	Mobilize On Site-Plumbing	0	20OCT09		All All All All All All All All All All
	15C-518	Mobilize On Site-HVAC	0	20OCT09		HIVAC I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
	15-518	Mobilize On Site-Fire Protection	0	20OCT09		Image: Image
	06A-516C	Fab/Del Materials06A-Milwork Bidg C	30	09NOV09	21DEC09	Fab/Del Materiais0\$A-Millwork Bidg C
	08C-518	Mobilize-08C Frames, Doors+Hrdwr	0	11NOV09		Mobilize-D8C Frames, Doors+Hidwr
	08D-518	Mobilize-08D-Special Doors	0	11NOV09		Mobilize-08D-Special Doors
	09B-518	Mobilize-098-Ceramic Tile	0	11NOV09		Mobilize-098-Ceramic Tile
	09C-518	Mobilize-Pkg 09A ACT Cellings	0	11NOV09		Mobilize-Pikg 03A ACT Cellings
	09D-518	Mobilize-09D Carpeting	0	11NOV09		Mobilize-09D Carpeting
	09E-518	Mobilize-09E Resilient Flooring	0	11NOV09		i i i i AMODIIZE-09E Resillent Flooring i i i i i i i i
	09F-518	Mobilize-Pikg 09F Wood Athletic Flooring	0	11NOV09		Mobilize-Pkg 09F Wood Athletic Flooring
	09G-518	Mobilize-Epoxy Flooring	0	11NOV09		
	10A-518	Mobilize-Specialities	0	11NOV09		Mobilize-Specialties
	10B-518	Mobilize-Pkg 108-Signage	0	11NOV09		
	12A-518	Mobilize-Pkg 12A Theater Seating	0	11NOV09		remobilize-Pkg 12A Theater Seating
	E1760	Mobilize-Elevators	0	25NOV09		
	E1756	Fab/DelvElevator #2 - Frames, Ralls + Cabs	90	25NOV09	02APR10	Fab/DelvElevator #2 - Framés, Ralis + Çabs
	09H-518	Mobilize-Painter	0	23JUN10		
	GENER/	AL BUILDING				
	GENERAL					
L	15BU-510	Mobilize Undersiab Plumbing+Redon Gas Removal	0	04MAY09		Móbilize Understab Plumbing+Redon Gas Removal
82	art Date	25APR08		WN07		Sheet 15 of 28 DRAFT
F	nish Date	11MAY11		GILE	BANE BUILD	NG COMPANY Date Revision Checked oproved
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	D	Description	Dur	Start	Finish	E	<u>- 1</u>		SIOINID	JIFIM						
	16AU-510	Mobilize Undersiab Electric	0	04MAY09		T	1	Mobilize Unders	slab Electric			1 : :	1 : :		1	
	05A-517C	Fab/Del-Strct. Structural Trusses for Bidg C	20	08JUN09	06JUL09	ē	÷	Fab/Del	I-Strct, Struct	tural Trusse	s for Bidg (
	05A-516C	Fab/Del-Strct. Steel/Mtl Deck Bidg C	40	08JUN09	03AUG09	9		Fab/	Del-Strct. St	eel/Mti Deck	Bldg C					
	05A-517C2	On-site Assembly of Structual Trusses Bidg C	10	07JUL09	20JUL09	9		□ On-ett	te Assembly	of Structual	Trusses B	ldg C				
	05A-518	Mobilize On Site-Struct. Stl/Deck	0	14JUL09			1	- Mobiliz	ze On Site-St	ruct. Sti/Dec	k i i					
	09A-518	Mobilize Metal Studs	0	28SEP09			- İ		Mobilizie N	Aetal Studs						
	07B-618	Mobilize-Roofing	0	05OCT09					Mobilize	Rooting						
	05B-518	Mobilize-Pkg 058 Miscellaneous metals	0	06OCT09					Mobilize	Pkg 05B MB	scellaneou	s metais				
	02B-510	Mobilize Pkg 02B Landscaping	0	20OCT09		٦.			Mobiliz	9 Pkg 02B L	andscapin	9			i	11
	04A-518	Mobilize-Envelope+Masonry	0	11NOV09			1		Awap	lize-Envelo	pe+Masonr	¥ ; ;				
	08B-518	Mobilize-Pkg 088-Glass+Glazing	0	11NOV09		1	1		(\$Mob	elze-Pkg 08	B-Glass+G	lazing				
	08A-518	Mobilize On Site-Metal Windows	0	25NOV09		٦.			M	bilize On Si	te-Metal W	Indows				
	05C-518	Mobilize-Pikg 05C Metai Panels + Louvers	0	24DEC09		1				Mobilize P	kg OSC Met	al Panels -	Louvers			
	16A-518	Mobilize On Site-Electrical	0	09MAR10		1				🎮	obilize On	Site Electr	ical			
	06A-518	Mobilize-06A-Milwork	0	26OCT10			Ť						Mobilit	29-06A-P	Alliwor	ak i
	07C-518	Mobilize-Waterproofing+Joint Sealants	0	12MAY11		1	÷					Mobilize-	Waterpropfir	ıg+J¢int	(Seals	nite ¦
	CLASSR	OOM STRUCTURE				Г	İ									
	GENERAL															11
	C-3001A	Install Foundation Drainage Build A	3	22JAN09A	21APR09	_	÷	I Install Foundation	n Drainage B	A blue					i	11
	C-3001B	Install Foundation Drainage Build B	4	26JAN09A	27APR09	<u> </u>	_		on Drainage I	Build B						
	C-4140B	Fro Foundation Walls @ Building B	5	28JAN09A	20MAR09	9		Frp Foundation Walls	s 🕸 Buliding	B						
	C-4107A	Grade 20 ' Perimeter Of Building	5	29MAY09	04JUN09	9		D Grade 20 P	Perimeter Of	Building						11
	C-4107B	Grade 20 ' Perimeter Of Building- B	5	16JUN09	22JUN09	9		D Grade 20	* Pertmeter C	X Building-	в					
	C-4170A	Erect Struct Steel Lvl 1 + Lvl 2 Bidg A	15	14JUL09	03AUG09	9	÷	Erec	t Struct Stee		2 Bildg A			+÷	÷+	+ +
	C-4092A	Install-Waterproofing+Joint Sealants Bidg A	20	14JUL09	10AUG09	9			tall-Waterpro	ofing+Joint	Sealants E	Apple				
	C-4195A	Detail Steel And Deck Lvl 1 + Lvl 2 Bidg A	10	28JUL09	10AUG09	9		📃 📃 Det	tall Steel And	Deck Lyl 1	+ LVI 2 BIO	A				
	C-4230A	Erect Struct Steel Lvl 3 + Lvl 4 Bidg A	15	04AUG09	24AUG09	9		j i i j 💻 jej	rect Struct S	teel Lvi \$+1	vi 4 Bidg /	1				
	C-4092B	Install-Waterproofing+Joint Sealants Bidg B	10	11AUG09	24AUG09	9	1	⊡)m	nstall-Waterp	roofing-Joi	nt Sealants	Bidg B			i	i i
	C-4175A	Detail Steel And Deck Lvl 3 + Lvl 4 Bidg A	10"	17AUG09	28AUG09	9	÷		Detall Steel A	nd Deck Lv	3+LVI 4 B	adg A		++-	÷	++
	C-4170B	Erect Struct Steel Lvl 1 + Lvl 2 Bida B	15	31AUG09	21SEP09	9			Erect Strue	ct Steel Lvi	+ LVI 2 BI	dg B				
	C-41958	Detail Steel And Deck Lvl 1 + Lvl 2 Bidg B	10	10SEP09	23SEP09	9			Detall Stee	And Deck	LVI 1 + LVI	2 Blog B				
	C-4205A	Insulation / Roofing Membrane Bidg A	10	14SEP09	25SEP09	9			Insulation	Roofing N	emprane B	lidg A			i	11
	C-4230B	Erect Struct Steel Lvl 3 + Lvl 4 Bidg B	15	22SEP09	12OCT09	9	÷		Erect St	ruct Steel L	13+Lv14	Bidg B				i i
	C-41758	Detail Steel And Deck Lvl 3 + Lvl 4 Bidg B	10	29SEP09	12OCT09	9	\pm		Detail S	teel And De	k Lvi 3 + L	vi 4 Bidg B		++-	++	+++
	C-4215A	Roofing Bidg A	30	05OCT09	13NOV09	9			Roo	fing Bidg A						
	C-4280A	Install Metal Pan Stairways	15	060CT09	26OCT09	9			🗖 install	Metal Pan S	tairways					
	C-4240	Exterior Studs And Densglass - Bidg A	15	14OCT09	03NOV09	9	-i-		Exter	tor Studs A	nd Densgla	es - Bidg A			i I	i i
	C-42058	Insulation / Roofing Membrane Bidg B	10	200СТ09	02NOV09	9	-i-		🗖 Insula	ation / Roof	ng Membra	ne Blog B			i	i i
			<u> </u>			<u> </u>	+							<u>+</u>	<u> </u>	
86 FP	art Date hish Date	25APR08		WN07				Sheet 16 of 25	8			Date	Banini	RAFT	Checker	Roomer
D	eta Date	16MAR09		WORCEST				COMPANY				12MAR	PRELIMINARY	FOR REV		
R	in Date	12MAR09 12:19		REMAINI	NG BY BUIL		NG	PHASE/LEVEL					+		\vdash	\vdash
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Г	Activity		Activity	Rem	Early	Earty	2005 2010	2011
	່ວ່	D	escription	Dur	Start	Finish	- IMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJIAISIOINIDIJIF	
	C-4245	Install Air Barrier Densgla	ass @ Bidg A	10	28OCT09	10NOV09	🕴 🕴 🕴 📮 inistali Air Barrier Densglass @ Bidg A	
	C-42158	Install Roofing Bidg B		30	10NOV09	22DEC09	Install Roofing Bidg B	
	C-4290A	Install Masonry + Precas	t Bidg A	30	11NOV09	23DEC09	Install Maspnry + Precast Bidg A	
	C-4301	Set Mechanical Equipme	ent - Classroom Building	10	16NOV09	30NOV09	🗖 Set Mechanical Equipment - Classroom Building	
	C-4280B	Install Metal Pan Stairwa	lys	15	17NOV09	08DEC09	📫 Install Metal Pan Stairways	
	C-4055A	Drill Service Elevator Jac	x Hole #1	3	25NOV09	30NOV09	Drill Service Elevator Jack Hole #1	
	C-4275	Install Metal Windows-Bi	dg A	40	25NOV09	22.JAN10	Install Metal Windows-Bidg A	
	C-42408	Exterior Studs And Dens	glass - Bidg B	15	27NOV09	17DEC09	Exterior, Studs And Deneglass - Bidg B	
	C-6075A	Install Elevator #1		50	01DEC09	10FEB10	Install Elevator #1	
	C-4245B	Install Air Barrier Over De	ensglass @ Bidg B	10	11DEC09	24DEC09	🗖 Install Alr Barrier Over Densglass @ Bidg B	
	C-4301B	Set Mechanical Equipme	ent - Classroom Building	10	23DEC09	07JAN10	Set Mechanical Equipment - Classroom Building	
	C-4291A	Intsall Metal Panels + Lo	uvers Bidg A	10	24DEC09	08JAN10	🖬 👘 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬 🖬	
	C-4250	Install Storefronts-Bidg A		30	24DEC09	05FEB10	Inistali Storeftontis-Bildg A	
	C-42908	Install Masonry + Precas	t-Bldg B	30	28DEC09	08FEB10	Install Masonry + Precast - Bldg B	
	C-42758	Install Metal Windows-Bi	dg B	40	12JAN10	08MAR10	Instali Metal Windows-Bidg B	
	C-4270	Classroom Dry-In - Build	Ing A	0		22JAN10	Classroom Dry-In - Building A	
	C-4255	Install Metal Panels-Bidg	A	20	08FEB10	05MAR10	Install Mețal Panels-Bldg A	
	C-4291B	Intsall Metal Panels + Lo	uvers Bidg B	10	09FEB10	22FEB10	🗖 intsall Metal Panels + Louvers Bidg B	
	C-4250B	Install Storefronts-Bidg B	1	30	09FEB10	22MAR10	Install Storefronts-Bidg B	
	C-42708	Classroom Dry-In - Build	Ing B	0		08MAR10	Classroom Dry-In - Building B	: : :
	C-4260	Install Louvers-Bidg A	-	15	08MAR10	26MAR10	Install Louvers-Bidg A	
	C-4255B	Install Metal Panels-Bidg	в	20	23MAR10	19APR10	📄 👘 👘 👘 👘 👘 👘 👘 İnstall Nietal Panels-Bidg B	
	C-4260B	Install Louvers-Bidg B		15	20APR10	10MAY10	🗖 Install Louvers-Bidg B	
	1ST FLOO	R		'				
	C-4155A	Excavate Underslab Utili	ties-Bidg A	3	04MAY09*	06MAY09	I Excavate Understab Utilițiee Bildg A	i i i
	C-4115A	Excavate Underslab Utili	ties At Servery	5	04MAY09	08MAY09	I Excavate Undersitab Utilities At \$ervery	
	C-4150A	Fine Grade Underslab Ut	tiltes	8	07MAY09	18MAY09	Fine Grade Understab Utilities	
	C-4145K	Install Underslab Plumbir	ng At Servery	5	11MAY09	15MAY09	I Install Underslab Plumbing At Servery	
	C-4147K	Install Underslab Electric	ai At Servery	5	11MAY09	15MAY09	0 Install Underslab Electrical At Servery	
	C-4165A	Install Underslab Plumbir	ng	3	19MAY09	21MAY09	I Install Underslab Plumbing	
	C-4155B	Excavate UnderslabUtilit	les-Bidg B	3	19MAY09	21MAY09	0 Excavate UnderstabUtilities-Bidg B	
	C-4167A	Install Underslab Electric	al Bidg A	3	19MAY09	21MAY09	I install Underslab Electrical Bldg A	
	C-4090A	Install Under Slab Redon	1 Gas Removal System-A	5	19MAY09	26MAY09	🛛 🖬 Install Under Slab Redon Gas Removal System-A	
	C-4150B	Fine Grade Underslab Ut	tiltes	3	22MAY09	27MAY09	II, Fine Grade Understab/Utilities	
	C-4125A	Test/Backfill Utilities		1	27MAY09	27MAY09	i Test /Backfill Utilities	
	C-4105A	Fine Grade For S.O.G.		2	27MAY09	28MAY09	Fine Grade For S.O.G.	
	C-4110A	Prep & Place S.O.G. Bid	g A	9	27MAY09	08JUN09	Prep & Place S.O.G. Bldg A 1	
	C-4165B	Install Underslab Plumbir	ng-Blolg B	4	28MAY09	02JUN09	Install Underslab Plumbing-Bidg B	
Ļ	and Date	0510000			LANCE VIEW		0 to 1 T at 60	
Fi	nish Date	25APR08	ORTH		GU		Dite Revision	Checked pproved
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ID	Description	Dur	Start	Finish	IMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJIAISIOINIDIJIFI	
C-4167	Install Undersiab Electrical-Bidg B	8	28MAY09	08JUN09	; 📔 inistali Unidersiabi Electrical-Bidg B	1 : :
C-40908	Install Under Slab Redon Gas Removal System-B	5	03JUN09	09JUN09	Install Under Slab Redon Gas Removal System B	
C-4125	Test /Backfill Utilities Bidg B	2	10JUN09	11JUN09	I Test /Backmi Utilities Bidg B	
C-4105	Fine Grade For S.O.G Bidg B	2	12JUN09	15JUN09	Fine Grade For \$.O.G Bidg B	
C-4110	Prep & Place S.O.G. Bidg B	9	12JUN09	24JUN09	🛛 🔲 Prep & Place SiO.G. Bldg B	1 1 1
C-4001/	Fireproof Exterior Perimeter 1st-2nd Fir Bidg A	3	28SEP09	30SEP09	Fireproof Exterior Perimeter 1st-2nd Fir Bidg A	
1-5315	R.I.O.H. Sprinkler 1st Fir	10	20OCT09	02NOV09	E) R.I.O.H. Sprinkler 1st Fir	
1-9305	R.I.O.H. Ductmains / Branches - 1st Fir	15	20OCT09	09NOV09	R.LO.H. Ductmains / Branches - 1st/Fir	
1-5325	R.I.O.H. Plumbing 1st Fir	20	20OCT09	16NOV09	i i i E R.I.O.H. Plumbling 1st Fir	111
1-9320	R.I.O.H. Mechanical Piping - 1st Fir	15	03NOV09	23NOV09	R.LO.H: Mechanical Piping - 1st Fir	
C-40016	Fireproof Exterior Perimeter 1st-2nd Fir Bidg B	3	10NOV09	12NOV09	I Fireproof Exterior Perimeter 1st-2nd Fir Bidg B	
1-9304	Test Ductmains / Branches - 1st Fir	3	10NOV09	12NOV09	I Test Ductmains / Branches - 1st Fir	
1-9309	Insulate Ductmains / Branches - 1st Fir	5	13NOV09	19NOV09	0 (nsulate Ductmains / Branches - 1st Fir	
1-9306	Install VAV's / FCU's / CUH - 1st Fir	5	17NOV09	23NOV09	i i i i i i i i i i i i i i i i i i i	
1-9308	Duct Tie In To VAV's - 1st Fir	3	24NOV09	27NOV09	I Duct Tie in To VAV's -1st Fir	
1-9321	Flush/Test Signoff Mechanical Piping - 1st Fir	3	24NOV09	27NOV09	I Flush/Test Signoff Mechanical Piping - 1st Fir	
1-9322	Insulate O.H. Mechanical Piping - 1st Fir	5	24NOV09	01DEC09	Insulate C.H. Mechanical Piping 1st Fir	
1-9307	Piping Tie in To VAV's - 1st Fir	15	24NOV09	15DEC09	🖾 Piping Tie In To VAV's - 1st Fir	
1-5330	Stud Frame Walls 1st Fir	10	23FEB10	08MAR10	i 📄 👘 👘 👘 👘 🖬 StudiFrame Walls 1st Fir	
1-5332	Install Door Frames 1st Fir	5	09MAR10	15MAR10	Install Door Frames 1st Fir	
1-5310	R.I.O.H. Electric, Fire Alarm + AV 1st Fir	10	09MAR10	22MAR10	📕 R.I.O.H. Electric, Fire Alarm + AV 1st Fir	
1-5335	R.I.Plumb In Walls - 1st Fir	10	09MAR10	22MAR10	🗖 🗖 R.L.Plumb in Walls - 1st Fir	
1-5320	R.I.O.H. Controls 1st Fir	10	23MAR10	05APR10	RiLO.H. Controls 1st Fir	
1-5340	R.I Electric In Walls - 1st Fir	10	04MAY10	17MAY10	R.I Electric in Walls- 1st Fir	1 1 1
1-5350	Test & Insulate In Wall MEP -1st Fir	5	18MAY10	24MAY10	i 🛛 i i i i i i i i i i i i i i i i i i	· i i
1-5355	Sheetrock Walls - 1st Fir	10	25MAY10	08JUN10	i 🔋 i i i i i i i i i i i i i i i i i i	
1-9415	Firestop Duct Penetrations - 1st Fir	5	09JUN10	15JUN10	Firestop Duct Penetrations - 1st I	1 1
1-5360	Tape Sheetrock Walls - 1st Fir	10	09JUN10	22JUN10	Tape Sheetrock Walls - 1st Fir	
1-5365	Prime Paint + First Coat Paint - 1st Fir	10	23JUN10	07JUL10	🗧 📄 👘 Pitmei Paint + First Coat Paint	- 1st Fir
1-5385	Ceiling Grid - 1st Fir	10	12AUG10	25AUG10	¦	
1-5395	Spki Heads - 1st Fir	5	26AUG10	01SEP10	Ú Spiki Heada - 1st Fir	
1-5390	Ughting - 1st Fir	10	26AUG10	09SEP10	Ughting - 1st Fir	
1-5400	Install RGD - 1st Fir	10	07SEP10	20SEP10	📕 🔚 🔤 İnstall RGD - 1st Fir	1 1 1
1-5402	Ceiling Tile - 1st Fir	9	220CT10	03NOV10	i i i i i i i i i i i i i □ Celling The - 1a	tFir
1-5410/	Complete Milwork - 1st Fir - Bidg A	3	29OCT10	02NOV10	Complete Millwork - 1st Fir - Blog Al	
1-5405	Install Doors / Hardware - 1st Fir	10	29OCT10	11NOV10	Install Doors / Hardware - 1st Fir	
1-54108	Complete Milwork - 1st Fir - Bidg B	1	03NOV10	03NOV10	Complete Millwork - 1st Fir - Bidg E	
1-5415	Complete Ping @ Milwork - 1st Fir	10	04NOV10	17NOV10	Complete Ping @ Millwork - 1st Fil	111
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Start Date	25APROS		WN07		Sheet 18 of 26 DRAFT	chard opproved
Data Data	16MAR09		GIL	BANE BUILD	IG COMPANY	case-oproved
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Activity	Activity	Rem	Farty	Farty	2009	2010 2011
ID	Description	Dur	Start	Finish	FIMIAIMIJIJIAIS	ONDJFMAMJJJASONDJFMAM
1-5490	Install Ceramic Tile 1st Fir	5	18NOV10	24NOV10		instali Ceramic Tile 1st Fi 🛛
1-5420	Flooring - 1st Fir	15	18NOV10	09DEC10	5	Ficoring - 1st Fir
1-5425	Finish Paint - 1st Fir	5	10DEC10	16DEC10		D Finish Paint - 1st F
1-5440	Install Lockers - 1st Floor	10	10DEC10	23DEC10		Install Lockets - 1st Floor
1-5450	Install White Boards, Tack Boards + Accessories	5	27DEC10	03JAN11		Install White Boards, Tack Boards + Accessorie
1-5430	Punch List - 1st Fir	10	28DEC10	11JAN11		Punch List - 1st Fire
2ND FLOO)R					
C-4202A	Prep And Place Conc Slabs On Deck 2nd Floor-A	5	04SEP09	11SEP09		Prep And Place Coric Slabs On Deck 2nd Floor-A
C-4002A	Fireproof Exterior Perimeter 2nd-3rd Fir Bidg A	3	01OCT09	05OCT09		Fireproof Exterior Perimeter 2nd-3rd Fir Bidg A
C-4202B	Prep And Place Conc Slabs On Deck 2nd Floor-B	5	13OCT09	19OCT09		Prep And Place Conc \$labs On Deck 2nd Floor-B
2-9305	R.I.O.H. Ductmains / Branches - 2nd Fir	15	10NOV09	01DEC09		R.I.O.H. Ductmains / Branches - 2nd Fir
C-4002B	Fireproof Exterior Perimeter 2nd-3rd Fir Bidg B	3	13NOV09	17NOV09		I Fireproof Exterior Perimeter 2nd-3rd Fir Bidg B
2-5315	R.I.O.H. Sprinkler 2nd Fir	10	17NOV09	01DEC09		CI R.LO.H. Sprinkler/2nd Fir
2-5325	R.I.O.H. Plumbing 2nd Fir	20	17NOV09	15DEC09		
2-9320	R.I.O.H. Mechanical Piping - 2nd Fir	15	24NOV09	15DEC09		RI.O.H. Mechanical Piping - 2nd Fir
2-9304	Test Ductmains / Branches - 2nd Fir	3	02DEC09	04DEC09		Test Ductmains / Branches - 2nd Fir
2-9309	Insulate Ductmains / Branches - 2nd Fir	5	07DEC09	11DEC09		Insulate Ductmains / Branches - 2nd Fir
2-9306	Install VAV's / FCU's / CUH - 2nd Fir	5	09DEC09	15DEC09		I Install VAV's / FCU's / CUH - 2nd Fir
2-9308	Duct Tie In To VAV's - 2nd Fir	3	16DEC09	18DEC09		I Duct Tie In To VAV's - 2nd Fir
2-9321	Flush/Test Signoff Mechanical Piping - 2nd Fir	3	16DEC09	18DEC09		I Flush/Test Signoff Mechanical Piping - 2nd Fir
2-9322	Insulate O.H. Mechanical Piping - 2nd Fir	5	16DEC09	22DEC09		U Insulate O.H. Mechanical Piping - 2nd Fir
2-9307	Piping Tie in To VAV's - 2nd Fir	15	16DEC09	07JAN10		LUU Piping Tie In To VAVIS - 200 FIF
2-5330	Stud Frame Walls 2nd Fir	10	09MAR10	22MAR10		
2-5332	Install Door Frames 2nd Fir	5	22MAR10	26MAR10		
2-5310	R.I.O.H. Electric, Fire Alarm + AV 2nd Fir	10	23MAR10	05APR10		
2-5335	R.I.Piumb In Walls - 2nd Fir	10	23MAR10	05APR10		RLPiumo in Walis - 2nd Fir
2-6320	RI.O.H. Controls 2nd Hr	10	06APR10	19APR10		
2-6340	RJ Electric In Walls - 2nd Fir	10	18MAY10	01JUN10		That & Insulate in Walls PETER
2-0300	Test & Insulate In Wall MEP -2nd Fir	5	02JUN10	0630110		Photocock Malle - and Ctr
2-0300	Sneetroox Walls - 2nd Fir	10	0900010	22JUN10		Tone Sheetrory Walls - 2nd Fir
2-0360	Tape Sneetrock Walls - 2nd Fir Rendee Duct Denderstoor - 2nd Fir	10	23JUN10	14 10 10		I Fireston Duct Panetrations - 2nd Fir
2-9410	Priestop Duck Periestations - 2nd Fil		0000010	21.00.10		Drine Daint - First Cost Daint - 2nd Fi
2-0300	Colling Crid - 2nd Fir	10	2641/210	2130L10		
2-0300	Snki Hooris - 2nd Fir	5	1095010	1696040		I Shit Hearts - 2nd Fir
2-6360	Linhing - 2nd Fir	10	1096010	2396040		Lighting - 2nd Fir
2-5400	Install RGD - 2nd Fir	10	249EP10	0700010		Install RGD - 12nd Fir
2-5402	Celling Tile - 2nd Fir	10	04NOV10	17NOV10		! ! ! ! ! ! ! ! ! ! @ Cellina Tile - 2nd Fir
2-0402	seeing me - and m	10	UNITO TO		a I ! ! I ! ! !	
Start Date	25APR08 O R 25-		WN07		Sheet 19 of 28	DRAFT
Finish Date Date Date	11MAY11 16MAR09		GIL	BANE BUILD	DING COMPANY	Date Revision Checked-pprove 12MAR0PRELIMINARY FOR REV
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Activity	Activity	Rem	Early	Early	2009 2010		2011	
ID	Description	Dur	Start	Finish	FIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJIAIS		JIFIMIA	A I M L
2-5405	Install Doors / Hardware - 2nd Fir	10	12NOV10	26NOV10	instali Doors / Hardware - 2	nd Fi 📕		1 1
2-5410A	Complete Milwork - 2nd Fir - Bidg A	15	12NOV10	03DEC10	Çoniplete Millwork - 2nd Fir - 8	alog A nni		ii
2-5520	Install Ceramic Tile 2nd Fir	5	26NOV10	02DEC10	Instali Ceramic Tile	2nd Firt		
2-5410B	Complete Milwork - 2nd Fir - Bidg B	1	06DEC10	06DEC10	Complete Millwork - 2nd Fi	- Bidg B		11
2-5415	Complete Ping @ Milwork - 2nd Fir	10	07DEC10	20DEC10	Complete Pling @ Millwork	2nd File		1 1
2-5420	Flooring - 2nd Fir	15	21DEC10	12JAN11			Flooting -:	2nd Fir
2-5425	Finish Paint - 2nd Fir	5	13JAN11	19JAN11	Finish P	aint - 2nd Fi	r0	
2-5440	Install Lockers - 2nd Floor	10	13JAN11	26JAN11	Inistali Locke	rs - 2nd Floo		
2-5450	Install White Boards, Tack Boards + Accessories	5	27JAN11	02FEB11	Install White Boards, Tack Board	8 + Accesso	ne ()	11
2-5430	Punch List - 2nd Fir	10	28JAN11	10FEB11	Punch	List - 2nd	Fir	
3RD FLOO	R							
C-4203A	Prep And Place Conc Slabs On Deck 3rd Floor-A	5	14SEP09	18SEP09	I Prep And Place Conc Stabs On Deck \$rd Floo	A-A		11
C-4003A	Fireproof Exterior Perimeter 3rd-4th Fir Bidg A	3	06OCT09	08OCT09	I Fireproof Exterior Perimeter 3rd-4th Fir Bio	1gA		11
C-42038	Prep And Place Conc Slabs On Deck 3rd Floor-B	5	20OCT09	26OCT09	Prep And Place Conc Slabs On Deck 3rd	Floor-B		11
C-40038	Fireproof Exterior Perimeter 3rd-4th Fir Bidg B	3	18NOV09	20NOV09	Fireproof Exterior Perimeter 3rd-4th F	ir Bidg B		
3-5315	R.I.O.H. Sprinkler 3rd Fir	10	02DEC09	15DEC09	🗧 🗧 🗧 🗧 🗧 🗧 🗧 🗧 🗧 🗧			
3-9305	R.I.O.H. Ductmains / Branches - 3rd Fir	15	02DEC09	22DEC09	R.I.O.H. Ductmains / Branches - 3	ind Film		11
3-9320	R.I.O.H. Mechanical Piping - 3rd Fir	15	16DEC09	07JAN10	Ril.O.H. Mechanical Piping -3rd	1 Fir		11
3-5325	R.I.O.H. Plumbing 3rd Fir	20	16DEC09	14JAN10	C R.L.O.H. Plumbing 3rd Fir			11
3-9304	Test Ductmains / Branches - 3rd Fir	3	23DEC09	28DEC09	E Teşt Ductmains / Branches - \$rd	Fir		
3-9309	Insulate Ductmains / Branches - 3rd Fir	5	29DEC09	05JAN10	Insulate Ductmains / Branches	- 3rd Fir		
3-9306	Install VAV's / FCU's / CUH - 3rd Fir	5	31DEC09	07JAN10	D Install VAVs / FCU's / CUH - 3rd	d Fir		
3-9308	Duct Tie In To VAV's - 3rd Fir	3	08JAN10	12JAN10	I Duct Tie In To VAV's - 3rd Fir			
3-9321	Flush/Test Signoff Mechanical Piping - 3rd Fir	3	08JAN10	12JAN10	I Flush/Test Signoff Mechanica	Piping - 3rd	Fir	11
3-9322	Insulate O.H. Mechanical Piping - 3rd Fir	5	08JAN10	14JAN10	I iņsuļate O.H. Mechanical Pipir	ig - Sird Filr		ii
3-9307	Piping Tie In To VAV's - 3rd Fir	15	08JAN10	28JAN10	Piping Tie in To VAV's - 3rd i	Anar III		
3-5330	Stud Frame Walls 3rd Fir	12	23MAR10	07APR10	🗖 Stud Frame Walls 3	id Fir		
3-5310	R.I.O.H. Electric, Fire Alarm + AV 3rd Fir	10	06APR10	19APR10	RLO.H. Electric, Fi	lire Alarm + A	V 3rd Fir	11
3-5332	Install Door Frames 3rd Fir	5	07APR10	13APR10	Install Door Frame	3rd Fir		11
3-5335	R.I.Plumb In Walls - 3rd Fir	10	08APR10	21APR10	R.L.Plumb lip Walls	- 3rd Fir		
3-5320	R.I.O.H. Controls 3rd Fir	10	20APR10	03MAY10	R.I.O.H. Contriots	Srd Fir		11
3-5340	R.I Electric In Walls - 3rd Fir	10	02JUN10	15JUN10	R.I Electric	in Walls - 3r	d Fir	
3-5350	Test & Insulate In Wall MEP -3rd Fir	5	16JUN10	22JUN10	Test & Inst	ulate in Wall	MEP-3rd Fir	'i i
3-5355	Sheetrock Walls - 3rd Fir	10	23JUN10	07JUL10		* Walls 3m	d Fit	
3-5360	Tape Sheetrock Walls - 3rd Fir	10	08JUL10	21JUL10		heetrock Wa	lis - 3rd Fir	
3-9415	Firestop Duct Penetrations - 3rd Fir	5	22JUL10	28JUL10	Ci Firest	op Duct Pen	strations - 3m	d Fir 🗄
3-5365	Prime Paint + First Coat Paint - 3rd Fir	10	22JUL10	04AUG10	Prime	Paint + Firs	t Coat Paint ·	- 3rd Fi
3-5385	Celling Grid - 3rd Fir	10	10SEP10	23SEP10	-	Celling Grid	l - 3rd Fir	ii
Start Date Finish Date Data Date Run Date	25APROB 11MAY11 15MAROB 12MAROB 12:19		GIL WORCEST REMAIN	BANE BUILD ER NORTH I ING BY BUIL	ING COMPANY IGH SCHOOL (WN07) ING/PHASE/LEVEL	DR Revision PRELIMINARY P	AFT Checked	Approved
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Activity	Activity	Rem	Farty	Farty	2009		2010	2011
ID	Description	Dur	Start	Finish	FMAMJJA	SONDJ	FIMIAIMIJIJIAISIOIN	DIJIFIMIAIMU
3-5395	Spki Heads - 3rd Fir	5	24SEP10	30SEP10				eads - \$rd Fir
3-5390	Lighting - 3rd Fir	10	24SEP10	07OCT10			🔆 🕴 👘 🛄 🛄 🛄 🛄 🛄 🛄 🛄	ng - Srd Fir
3-5400	Install RGD - 3rd Fir	10	08OCT10	21OCT10				all RGD - 3rd Fir
3-5402	Celling Tile - 3rd Fir	10	18NOV10	02DEC10				Celling Tile - 3rd Fir
3-5405	Install Doors / Hardware - 3rd Fir	10	29NOV10	10DEC10			Install Doors / Hardware - 3rd Fir	.
3-5530	Install Ceramic Tile 3rd Fir	5	03DEC10	09DEC10			install Ceramic Tile 3rd Fi	
3-5410A	Complete Milwork - 3rd Fir - Bidg A	20	06DEC10	04JAN11			Complete Millwork - 3rd Fir - Bidg	, == •
3-5410B	Complete Milwork - 3rd Fir - Bidg B	1	05JAN11	05JAN11			Complete Millwork - 3rd Fir - B	dg Bl
3-5415	Complete Pirng @ Milwork - 3rd Fir	10	06JAN11	19JAN11			Complete Ping @ Millwork - 3	
3-5420	Flooring - 3rd Fir	15	13JAN11	02FEB11			Flooring-3	d Fir 📫
3-5425	Finish Paint - 3rd Fir	5	03FEB11	09FEB11			Finish Paint	Srd Fir
3-5440	Install Lockers - 3rd Floor	10	10FEB11	23FEB11			Install Lockers -	ird Floor
3-5450	Install White Boards, Tack Boards + Accessories	5	24FEB11	02MAR11			Install White Boards, Tack Boards + /	ccessoried
3-5430	Punch List - 3rd Fir	10	25FEB11	10MAR11			Punch Lis	- Srd Fir
4TH FLOO	R							
C-4204A	Prep And Place Conc Slabs On Deck 4th Floor-A	5	21SEP09	25SEP09		Prep And Plac	e Conc Slabs On Deck 4th Floor-A	
C-4004A	Fireproof Exterior Perimeter 4th Fir-Roof Bidg A	3	09OCT09	13OCT09		Fireproof Ex	denor Perimeter 4th Fir-Roof Bidg A	
C-4204B	Prep And Place Conc Slabs On Deck 4th Floor-B	5	27OCT09	02NOV09		Prep And	Place Conc Slabs On Deck 4th Floor-	
C-4004B	Fireproof Exterior Perimeter 4th Fir-Roof Bidg B	3	23NOV09	25NOV09		Firepro	oof Exterior Perimeter 4th Fir-Roof Bid	JB
4-5315	R.I.O.H. Sprinkier 4th Fir	10	16DEC09	30DEC09			I.O.H. Sprinkler 4th Fir	
4-9305	R.I.O.H. Ductmains / Branches - 4th Fir	15	23DEC09	14JAN10			R.I.O.H. Ductmains / Branches - 4th Fi	
4-9320	R.I.O.H. Mechanical Piping - 4th Fir	15	08JAN10	28JAN10			R.LO.H. Mechanical Piping - 4th Fir	
4-9304	Test Ductmains / Branches - 4th Fir	3	15JAN10	19JAN10			Test Ductmains / Branches - 4th Fir	
4-5325	RI.O.H. Plumbing 4th Fir	20	15JAN10	11FEB10			RLO.H. Plumbing 4th Fir	
4-9309	Insulate Ductmains / Branches - 4th Fir	5	20JAN10	26JAN10			I Insulate Ductmains / Branches - 4th I	
4-9306	Install VAV's / FCU's / CUH - 4th Fir	5	22.JAN10	28JAN10			Install VAVS //FCUS //CUH - 4th Fir	
4-9308	Duct Tie In To VAV's - 4th Fir	3	29JAN10	02FEB10			Duct the in 10 VAV 8 - 4th Fir	
4-9321	Flush/Test Signoff Mechanical Piping - 4th Fir	3	29JAN10	02FEB10			I Fluent fest signoir Mechanical Pipir	g-amrir
4-9322	Insulate O.H. Mechanical Piping - 4th Hr	5	29JAN10	04FEB10			U insulate C.H. Mechanical Piping - 40	
4-9307	Piping he in To VAV's - 4th Fir	15	29JAN10	18FEB10			Piping ne in to vav s 441 Fil	
4-5330	Stud Frame Walls 4th Fir	10	08APR10	21APR10				m AV th Fir
4-0310	R.I.O.R. Electric, File Alarm + AV 401 Fil	10	204910	0304110			Install Dovir Eramos Ath E	
4-0.02	R I Diumb in Walic - 4th Fir	10	2040810				R Dumbin Walls - 4th	
4-5300	RLOH Controls (th Er	10	224410	17MAY10				
4-5320	R1.0.1. Controls 401 Fil	10	16 UN10	20 11/10/10		+ + + +	R Flectric in Wal	s - 4th Fir
4-0340	Test & Insulate In Wall MED 4th Fir	5	30 UN10	2900N10			Test & Insulate In	Wall MEP 4th Fir
4-5355	Sheetrook Walk - Ath Fir	10	08 10	21 11 10			Sheetrock Wal	a - Ath Fir
40000	Sheebook Walls - 401 Fil	10	000010	2130010		! !		
Start Date	25APR08		WN07		Sheet 21 of 2	8		DRAFT
Finish Date	11MAY11		GIL	BANE BUILD	DING COMPANY		Date R	vision Checked pproved
Run Date	12MAR09 12:19		WORCEST	ER NORTH	HIGH SCHOOL (WN07)		12MARD PRELIMIN	ART POR REV
			REMAIN	NG BY BUIL	DING/PHASE/LÉVEL		ana –	
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	Activity	Activity	Rem	Early	Early	Т			7	2009	_	_				_			20	10		_	_	_		2011	
	ID	Description	Dur	Start	Finish	H	EII	MIAIM	11	1	AIS	10		DI.		EIN				J			<u>2 I N</u>	<u>ID</u>	JIE	IML	
	4-5360	Tape Sheetrock Walls - 4th Fir	10	22JUL10	04AUG10	10	1	1 :	1	1		1		"		1	1	1	!		Тар	e Sh	ieetr	ojak V	Valls - /	4th Fi	r
	4-9415	Firestop Duct Penetrations - 4th Fir	5	05AUG10	11AUG10	10	÷		i	i	i		i i		i	i		i	i		0 Fin	esto	ρþu	ict Pe	netratio	oins ¦-≀	4th Fir
	4-5365	Prime Paint + First Coat Paint - 4th Fir	10	05AUG10	18AUG10	10	T				i	Pri	me P	aint •	+ FI	reț C	oat	Pair	t - 41	h Fi			1	ì			
	4-5385	Ceiling Grid - 4th Fir	10	24SEP10	07OCT10	10			1				11			1		1	1			P	Célli	ngG	11d - 4th	Fir	
	4-5395	Spki Heads - 4th Fir	5	08OCT10	14OCT10	10	1		1				11		1	÷.		i.	į.				i Spi	diHer	ds - 4t	h Fir	1 1
	4-5390	Ughting - 4th Fir	10	08OCT10	210CT10	10	i		i	i	i		i i		i	i.		i i	i i		i i		∎ µç	,i țtin;	g - 4th	ē 1r	i i
	4-5400	Install RGD - 4th Fir	10	220CT10	04NOV10	10							1 1			ł		ł	1				📫 Ir	nstali	RGD -	4th F	ir:
	4-5402	Celling Tile - 4th Fir	10	03DEC10	16DEC10	10	÷									1		1	1				-		celling "	†11e - 4	4th Fir
	4-5540	Install Ceramic Tile 4th Fir	5	10DEC10	16DEC10	10	÷		1				11			÷		j Ir	stall	Cer	amic	Πļe	4th F	7 410 -			
	4-5405	Install Doors / Hardware - 4th Fir	10	13DEC10	27DEC10	10			1				11			÷	Inst	taji i C)oore	/н	ardwa	re -	4th	ê ⊡		11	
	4-5410A	Complete Milwork - 4th Fir - Bidg A	20	05JAN11	01FEB11	11	Ì		i l	Ì	Ì				ł	i	¢o	niple	ite M	ll w	ork - 4	th F	ir-e	lidg /			
	4-5410B	Complete Milwork - 4th Fir - Bidg B	1	02FEB11	02FEB11	11	÷						1		ł	ł		Çor	nplet	ÞМ	llworl	t - 4	th Fir	r¦-Bk	dg El		
	4-5415	Complete Ping @ Milwork - 4th Fir	10	03FEB11	16FEB11	11	1									1		Con	npiet	e Pl	mg 🙆	MID	work	(† 4 t	h Fil		
	4-5420	Flooring - 4th Fir	15	03FEB11	23FEB11	11			1				11		1				1			Flo	oring	j - 40	Fir	41	
	4-5425	Finish Paint - 4th Fir	5	24FEB11	02MAR11	11	÷		i I	i	i		i i		÷	i		i.	i		i iF	Inis	h Pa	lņt -	4th Fir	4 L	1 1
	4-5450	Install White Boards, Tack Boards + Accessories	5	03MAR11	09MAR11	11	i		i	i	i		ii		ļ	nșta	a w	hite	Boar	ds,	Tack	Bøa	ndija 🗕	Acc	essórie	i	i i
	4-5440	Install Lockers - 4th Floor	10	03MAR11	16MAR11	11	ł				-		1 1			ļ		ł	ł		Insta	ii ka	xcker	18 - 4	th Floor	/ –	
	4-5430	Punch List - 4th Fir	0.	17MAR11	16MAR11	11	Ţ		1						1	-		1	1			Pu	inch	List	- 4th F	ीन	
	LIFE SAFE	TY					1		:	-					1	1		1	!				-	1			
	C-4056A	Final Inspect Elevator #1	3	11FEB10	15FEB10	10	i		i I	i	i		ii		į	l (film	al Ir	népe	фВ	evat	tor #1		i	i		i	ii
	ROOF LEV	/EL					-									1		1						-			
	C-420RA	Prep And Place Conc Slabs at Roof Deck-A	5	28SEP09	020CT09	19	÷		1			0 Pr	ep Aı	nd Pl	ade	Cor	IC SI	abs	at Ri	por	Deck-	A		1		11	
	C-420RB	Prep And Place Conc Slabs at Roof Deck-B	5	03NOV09	09NOV09	19			1				🖲 Pin	ep Ar	nd F	Nace	o ¢o	nic S	labs	at F	toof D	eck	-B			11	
Ľ	GYMNA9	SIUM STRUCTURE					-								-	-		1	1				-	+			
	GENERAL						İ	l i	i	i	i		İİ		i	i		i	İ		İİ		i	i		i	İİ
	G-3001C	Install Foundation Drainage Build C	2	19.JAN09A	29APR09	29	I		stall F	Four	datio	n Dr	alnab	e Bu	IId (ł	ł					ł			
	G-5523	Install Fdn Waterproofing @ Remaing Flos-Bidg C	5	23MAR09	27MAR09	99		0 install	Fdn	Wate	arpiro	ofing	DO R	emai	ng F	tos-	BIO	c	1							!	
	G-4107	Grade 20 ' Perimeter Of Building	5	01JUL09	08JUL09	99	1		1	G	adė 2	0' Pe	enne	terO	rb	ulijdir	ng '		i l					i.		11	
	G-4092C	Install-Waterproofing+Joint Sealants Bidg C	10	25AUG09	08SEP09	99	÷			i	- 📥 I	Instal	i-wa	terpr	oon	ing+.	Join	t. Se	alant	вВ	dg C		i	i			ii
	G-4170C	Erect Struct Steel Basement Level-1st Fir-Bidg C	10	12OCT09	23OCT09	99	÷						Erec	t stn	uct	Stee	Ba	sem	ent L	eve	i-1st F	ır-B	lidg (c'			
	G-4195C	Detail Steel And Deck 1st Fir +Logia Roof-Bidg C	10	26OCT09	06NOV09	99	÷		!	+			De	tall S	teel		1 De	ck 1	st Fli	r+L	ogla R	toof	BIO	jc		<u>†</u> †	
	G-4174C	Install Roof Trusses over Auditorium-Bidg C	15	27OCT09	16NOV09	99	i		i			1	🗖 🖡	stall	Rþ	T	usse	ejs o	ver A	udi	tortun	HBIO	dgiC	i i		i	
	G-4174C1	Install Roof Trusses Over Gymnasium-Bidg C	15	27OCT09	16NOV09	99	Ì			i	Ì	1	🗖 ii	stall	Rø	T	usse	ee O	vier (sym	naslu	m-B	ldg (c¦			
	G-4280C	Install Metal Pan Stairways	15	17NOV09	08DEC09	99	-				1		: 📫	l Inst	al I	Meta	I Pa	n St	airwa	ys			-	1			
	G-4205	Insulation / Roofing Membrane Bidg C	15	24NOV09	15DEC09	99			1				i ¢	3 Ins	suja	tión	/ Ro	din	g Me	mbr	ane B	ldg	C			11	
	G-4055C	Drill Service Elevator Jack Hole #3	3	25NOV09	30NOV09	99			11		-	+	t d	Drill	Ser	vice	Eler	vato	rJac	ĸн	ole #3	F	+	+		\pm	++
	G-4240	Exterior Studs And Densglass - Gym	15	11DEC09	04JAN10	10	÷		i I	i	i		ii	- 1	Ext	arlor	stu	dis /	unid D	ens	glass	- G	ym	i.		i	
	G-4215	Roofing Bidg C	30	16DEC09	28JAN10	10	-								I F	tool	ing E	Bidg	c								
						<u> </u>	+		+ +	_	+	+	+ +	+	+	+	-	+ -	+	-		+	<u> </u>	<u>+</u>	<u> </u>	<u> </u>	<u> </u>
Sta Fin	et Dete ish Dete	25APRO8		WN07				COMPA	NV S	heet 2	2 of 25										Date			DR Revisio	AFT	Checks	Approved
De	ta Date	16MAR09		WORCEST	FR NORTH I		GH	SCHOO	אוד או וכ	NNO	7)				-						12MA8	toPR	ELINI	NARY	FOR REV		
Nu	n Date	12MAR09 12:20		REMAIN	ING BY BUIL	ILD	ING	PHASE	ÊLE	VEL			-	11	-	Y			Y			\pm	_	_			
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Г	Activity	Activity	Rem	Earty	Earty	-				20	009			_				2010						2011	<u> </u>	
	D	Description	Dur	Start	Finish	E	1.00			- الحا		510				MIA		<u>, , , , , , , , , , , , , , , , , , , </u>		311			315		ALM	
	G-4245	Install Air Barrier Densglass @ Gym	10	28DEC09	11JAN10)	1						-	F	Instal	i Air B	arrie r	Dens	glass	@ G	ynh	-	ł	1		
	G-6075C	Install Elevator #3	50	29JAN10	08APR10)	ł									-	nstall	Eleva	tpr#3			1		-		
	G-4290C	Install Masonry + Precast- Bidg C	30	09FEB10	22MAR10)	1						1			🗖 ine	tall Ma	asonr	y + Pn	ecas	t- Bld	1g C	-			1
	G-4291C	Intsall Metal Panels + Louvers Bidg C	10	23MAR10	05APR10)	i I		ii						11	•	ntsall I	Metal	Panel	8+L	evive.	¢8 Bİ	dg¢	11		÷
	G-4275	Install Storefront-Bidg C	30	23MAR10	03MAY10	0	i I		ii		ii		i		11	-	🗖 Inst	all St	oretro	nt-B	ldģ C	i I	i	i I	i	i
	G-5505	Fid Measure Glass Ribbon Windows @ Clearstory	30	04MAY10	15JUN10)	İ.	Fid	Mea	Bane	Glass	Ribbo	n Wir	dow	¢q	sarsto	η	•			l.	1	Ì	1	Ì	Ì
	G-4250	Install Metal Windows-Bidg C	15	16JUN10	07JUL10)	ł												nstall	Meta	al Win	dow	s-Blidg	¢		-
	G-4255	Install Metal Panels-Bidg C	20	16JUN10	14JUL10)							-					p	install	Met	al Par	nels-	Bildig (41		1
	G-5520	Gymnasium Dry-In - Building C	0		07JUL10)	1		: :				1		11		11	•	Symnia	seliun	n Dry-	4n - F	Bulldir	¢C	1	÷
	G-4260	Install Louvers-Bidg C	15	15JUL10	04AUG10)	i.		ii		ii		i		ii		ii		🗖 Inst	tali L	evivo.	rs-B	dgĊ	i	i	i
	1ST FLOO	R					1																			
	G-4155	Excavate Underslab Utilities-Bidg C	3	28MAY09	01JUN09	9			1) Exc	avate (Under	slab L	tilite	s-Bidg	IC	11		11			1				÷
	G-4150	Fine Grade Underslab Utilities	3	02JUN09	04JUN09	9	1		ii) Fine	Grad	e Und	erelat	Utili			i i		11		1	i	- i	i	1	÷
	G-4105	Fine Grade For S.O.G.	2	29JUN09	30JUN09	9	i.		i i	ļ	Fine G	rade F	or S.(D.G.	11		i i		ii		i	1	i	1	i	i
	G-4125	Test/Backfill Utilities	3"	29JUN09	01JUL09	9	ł.			י מי	Tept /E	Jackfil	i ytill	les					1 1			1				
	G-4201C	Prep And Place Conc Slabs at 1st Floor	5	17NOV09	23NOV09	9	ł						¦ 🗖	Prep	A¢d P	lace C	onc \$I	labs a	at 1st F	Floor			1	-		
	G-4200RC	Fireproof Exterior Perimeter 1st-2nd Fir Bidg C	5	04DEC09	10DEC09	9	i I							0 Fir	ptoot	Exter	ior Per	rimete	ər 18t-i	2nd I	Fir Bi	dg C				ł
	G-5460	Stage Areas In Gym	5	09FEB10	15FEB10)	i I		ii	i I	ii	i I	i		i 0 \$	tage /	Vireasi I	in Gyr	mii		- i	i I	i	i I	- i	i
	G1-9305	R.I.O.H. Ductmains / Branches	15	16FEB10	08MAR10)	Ì.									RLC	H. Du	uctma	ins / E	Brain	ches		I			Ì
	G1-9320	R.I.O.H. Mechanical Piping	15	02MAR10	22MAR10)										R I	.р.н.	Mecha	ahical	Pipi	ng					
	G1-9304	Test Ductmains / Branches	3	09MAR10	11MAR10)							1			T BB	Duct	mains	Brar	nche	8					1
	G-5330	Stud Frame Walls Gym	10	09MAR10	22MAR10)	i I						1			🗖 Sti	ud Frai	me W	alls G	ym		i	i			i
	G1-9309	Insulate Ductmains / Branches	5	12MAR10	18MAR10)	i.		ii		1	i	1		11	🗆 (ns	ulate C	Ductn	nains /	Bra	nches	•	i	1	i	÷
	G1-9306	Install VAV's / FCU's / CUH - 1sr Fir	5	16MAR10	22MAR10)	ł.									0 Ins	tali V/	4 V 8/	FCUa	s/Cl	JH - 1	êr Fi	r ¦			
	G1-9308	Duct Tie In To VAV's	3	23MAR10	25MAR10)			! !						11	D	ișt Tie	In To	VAV	8		!	1			1
	G-5332	Install Door Frames Gym	5	23MAR10	29MAR10											0 in	stall D	oor F	irames	s Gyr	m i					
	G-5335	R.I.Plumb In Walls @ Gym	10	23MAR10	05APR10)	i I						1			P F	U.Plu r	mb In	Walls	60	5ym		i			i
	G-5465	Frame Inside High Area - Gym	10	23MAR10	05APR10)	ł.									F	ramel	Inside	High	Are	a-iGy	m	1			
	G1-9307	Piping Tie In To VAV's	15	23MAR10	12APR10)							1			-	Piping) Tie I	πΤογ	/AV	8	1	ł			-
	G1-9321	Flush/Test Signoff Mechanical Piping	3	26MAR10	30MAR10)			: :						11	F	ush/Te	est SI	gnoff	Med	hanio	al Pi	ping			1
	G1-9322	Insulate O.H. Mechanical Piping	5	31MAR10	06APR10)	1						-		11		nisulat	е О .Н	L Me¢i	hanik	al Pip	ping	i	i		j
	G-5475	R.I. Sprinkler In Roof Framing @ High Area	10	06APR10	19APR10)	i.		ii		ii		1		i i		RLS	prink	lėr ln	Roo	f Firan	ning	@ HIQ	ių Vie		i
	G-4301	Set Mechanical Equipment Gym	13	04MAY10	20MAY10	0											S	et Me	chanic	cal E	quipr	nent	Gym			
	G-5310	R.I.O.H. Electric, Fire Alarm + AV Gym	10	08JUL10	21JUL10)			: :								1		RLO	HLE	3ectri	¢, Fl	ne (A) er	m+A	N GY	m
	G-5470	R.I. Elect in Roof Framing @ High Area	12	08JUL10	23JUL10)	1		: :				1		11		11		RLE	Bect	In Ro	of F	aming	1@H	igh A	reja
	G-5340	R.I Electric In Walls - Gym Fir	10	22JUL10	04AUG10)	i I		Ĺ	i		i	i		<u>i i</u>		<u>i i</u>		RI	Elec	tric in	Wa	18 - G	/m Fli	۲į.	j
	G-5315	R.I.O.H. Sprinkler Gym	10	22JUL10	04AUG10)	ł.													0.н.	Sprin	nkier	Gym	1		
	G-5480	Paint Steel Trusses And Ceiling @ High Area	10	26JUL10	06AUG10)	ł				Pair	It Stee		888 /	nd Ce	iling (s Hig									
	ut Date	16400/10										130										00	AFT			
F	ish Date	11MAY11		GIU			GC	OM		NY	10.25 0								Deb	•	R	evision	1	Checks	Appre	over
D	ta Date In Date	16MAR09 12MAR09 12:20		WORCEST	ER NORTH	HIG	iH i	SCH	100	LW	N07)								12MA	ROPR	ELIMIN	WARY I	FOR RE		+	
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Г	Activity	Activity	Rem	Early	Earty	
	D	Description	Dur	Start	Finish	FIMIAIMIJIJIAISIOINIDIJIFIMIAIMIJIJIAISIOINIDIJIFIMIAIMI
	G-5350	Test & Insulate In Wall MEP - Gym	5	05AUG10	11AUG10	U Test & Insulate in Wall MEP - Gym
	G-5320	R.I.O.H. Controls Gym	10	05AUG10	18AUG10	🗧 🤁 🥵 🖓 👘 👘 👘
	G-5355	Sheetrock Walls - Gym	12	12AUG10	27AUG10	🖬 Sheetrock Walts - Gym
	G-5325	R.I.O.H. Plumbing Gym Fir	10	19AUG10	01SEP10	🗖 R.I.O.H. Plumbing Gym Fir
	G1-9415	Firestop Duct Penetrations	5	30AUG10	03SEP10	I Firestop Duct Penetrations
	G-5360	Tape Sheetrock Walls - 1st Gym	15	30AUG10	20SEP10	🛛 📋 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘 👘
	G-5365	Prime Paint + First Coat Paint - Gym	10	21SEP10	04OCT10	Prime Paint + First Coat Paint - Gym
	G-5500	Remove Staging From Gymnasium	5	05OCT10	110CT10	Remove Staging From Gymnasium
	G-5375	Install Gym Equipment, Back Board, Score Board	5	05OCT10	110CT10	Install (Gym Equipment, Black Board, Score Board
	G-5385	Celling Grid- Gym	10	05OCT10	180CT10	🗖 Çəlling Grid-Gym
	G-5390	Ughting - Gym	10	05OCT10	180CT10	
	G-5440	Install Gymnasium Flooring	20	12OCT10	08NOV10	instali (Syminasium) Fiopring
	G-5395	Spki Heads - Gym	10	19OCT10	01NOV10	🗧 🔄 🖬 🔤 🔤 🔤 🔤 🖬
	G-5400	Install RGD - Gym	10	19OCT10	01NOV10	🗖 Install RGD - Gym
	G-5420	Install Gymnasium Ceramic Tile In Locker Rooms	15	19OCT10	08NOV10	install Gymnasium Ceramic Tile in Locker Room
	G-5402	Ceiling Tile - Gym	10	26OCT10	08NOV10	Celling The - Gym
	G-5410	Complete Milwork - Gym	20	26OCT10	22NOV10	Compléte Millivionk - Gym
	G-5415	Complete Ping @ Milwork - Gym	10	02NOV10	15NOV10	Complete Pimg @ Millwork - Gym
	G-5425	Finish Paint - Gym	5	09NOV10	15NOV10	D Finish Paint - Gym
	G-5405	Install Doors / Hardware - Gym	10	09NOV10	22NOV10	Install Doors / Hardware - Gynt
	G-5450	Install Bleacher Seating	10	09NOV10	22NOV10	🔄 🗌 🖂 🔤 🔤 🔤 🔤 🔤 🔤 🔤 🔤 🔤 🔤 🔤 🔤 🔤
	G-5490	Install Electrical Finishes - Gym	5	16NOV10	22NOV10	instali Electrical Finishes - Gymu
	G-5430	Punch List @ Gym	10	23NOV10	07DEC10	🖬 Punch List 🇶 Gym
	LIFE SAFE	ТҮ				
	G-4056C	Final Inspect Elevator #3	3	09APR10	13APR10	
	BASEMEN	T FLOOR				
	G-4165	Install Underslab Plumbing	8	05JUN09	16JUN09	🗖 install Understab Plumbing
	G-4167C	Install Underslab Electrical	8	09JUN09	18JUN09	🔲 install Undersiab Electrical
	G-4090C	Install Under Slab Redon Gas Removal System-C	8	17JUN09	26JUN09	🛛 🛛 Install Under Slab Redon Gas Removal System-C
	G-4110C	Prep & Place S.O.G. Build C	9"	29JUN09	10JUL09	Di Pirep & Placel S.O.G. Build C
	G-400BC	Fireproof Exterior Perimeter Barnt-1st Fir Bidg C	5	27NOV09	03DEC09	0 Fireproof Exterior Perimeter Bant-1st Fir Bidg C
	LOW ROO	F				
	G-4202C	Prep And Place Conc Slabs at Logia Roof	6	24NOV09	02DEC09	E Prep And Place Conc Slabs at Logia Roof
	FINAL S	ITEWORK + LANDSCAPING				
	GENERAL					
	02B-512	Lavout Pilig 02B Landscaping	5	20OCT09	26OCT09	II Layout Pkg 02B Landscaping
	S-4117	Final Grade Site	5	20APR10	26APR10	II, Final Grade Site
	S-4127	Prep For Curbing, Sidewalks And Roadways	20	27APR10*	24MAY10	Prep For Curbing, Sidewalks And Roadways
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SB Fir Di R	nish Date ta Date in Date	254/108 11MAY11 16MAR09 12MAR09 1220		GILI WORCEST	BANE BUILD	ING COMPANY IIGH SCHOOL (WN07)
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D	Description	Dur	Start	Finish	
S-4157	Install Curbing	15	04MAY10	24MAY10	
S-4167	Install Site Lighting	10	11MAY10	24MAY10	
S-4177	Install Sidewalks	15	25MAY10	15JUN10	i i i i i i i i L Install Sidewalks i i i i i
S-4187	Install Pavement At Parking + Roads	15	02JUN10	22JUN10	Install Pavement At Panding + Roads
S-4147	Install Hardscape	20	09JUN10	07JUL10	
S-4137	Install Landscaping	30	16JUN10	28JUL10	Linstali Landiscaping
PROJEC	T COMPLETION				
LIFE SAFE	TY				
6436	Final Connect Equipment Start-Up & Commissioning	50	14SEP10	22NOV10	Final Connect Equipment Start-Up & Commissioning
6435	Fire Alarm in House Test	5	04FEB11	10FEB11	Fire Alarm in House Test
GENERAL					
11B-518	Mobilize-Pkg 11B Lab Equipment	0	09JUN10		Mobilize-Pkg 11B Lab Equipment
G-4160C	Excavate For Footing @ Building C -Int. Columns	5	23MAR09	27MAR09	I Excavate For Footing @ Building C -int. Columns
C-4160B	Excavate For Footing @ Building B -Int. Columns	5	30MAR09	03APR09	II Excavate For Footing @ Building B -Int. Columns
C-4140B1	F/R/P Foundation Walls @ Building B @ K Line	5	06APR09	10APR09	🛛 F/R/P Foundation Walls @ Building B @ K Line
G-4161C	F/R/P Footings @ Building C -Int. Columns	5	06APR09*	10APR09	I F/R/R Footings @ Building C Int. Columns
C-4161B	F/R/P Footings @ Building B -Int. Columns	5	13APR09	17APR09	I F/R/P Footings @ Building B -Int. Columns
G-4160C1	Remove Ramp @ C + Excavate for Footing @ 20-Line	5	20APR09	24APR09	I Remove Ramp @ C + Excavate for Footing @ 20-Line
G-4160C2	Fro Foundation Walls @ 20 Line Ramp -Building C	5	27APR09	01MAY09	Il Frip Foundation Walls @ 20 Line Ramp -Building C
G-5525	Install Foundation Waterproofing@High Wall@Ramp	2	04MAY09	05MAY09	I Install Foundation Waterproofing@High Wall@Ramp
COMPL	ETION PHASE				
PROJEC					
COMPLET					
MS-100	Substantial Completion	0		16MAR11	Substantial Completion
MG-100	Continente Of Occurrency	0		16140011	Certificate Of Occurants
MS-105	Close Out	40	17MAR11	11MAV11	Close-Out
MG-110	Deplost Elect Completion		1/10/03/11	1104211	Protect Final Completion
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6440	City Inspection File Atality Life Safety	9	TIFEDIT	1/FCD11	
GENERAL					
11B-512B	Submit SD's Submittais-Pkg 11B Lab EquipBidg B	10	18JUN09	01JUL09	🗖 Submit SD's Submittals-Pkg 11B Lab Equip-Bidg B
11B-512C	Submit SD's Submittals-Pkg 11B Lab EquipBidg C	10	02JUL09	16JUL09	🗖 Submit SD's Submittals-Pkg 118 Lab EquipBidg C
Start Date	25APR08		WN07		Sheet 25 of 26 DRAFT
Finish Date Date Date	11MAY11 15MAR09		GILI	BANE BUILD	ING COMPANY Date Revision Checked-pprov
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Appendix B: Schedule January 2010

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144-644	RetwApp 50's + Appses - Brick	15	15 16FEB10	DBMAR 10 S	AND DOMA	FaviApp SD's + Acriaes, - Brick
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4282	Fab/Del/Instal Selamic Clips	20	20 CSMAR10	05APR10 :	\$8 -35 04A	Feb/DeMpstall Scients Clips
04A-538	FawDel Masonry + Accessenes - Frecsst	60	50 CSMAR10	17MAY10 3	ANO ONA	Execution Fabrical Maganny + Accessionities - Presser
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04A-518	Nobil ze Masonry	9	0 06AFR10		23 -18 04A	Mabilize Mesoney
42950	Build Elev C Shaft & Slaging - Sidy C Musonry	15	15 06AFR10	28APR:0 2	28 -15:04A	BB Build Blovic Shaft & Staging Bldg C Masonry
42 9 98	Stell 4 (E) Sheft & Staging - Masonny Blog B	25	25 07APR 10	11MAY10 4	47 -1E 04A	📟 Stair 4 (E) Sharft & Staging - Mesonry Bidg B
4250A	Meeonry + Prepast Lintels - Bidg A/B W.S,+E (1-4)	15	45 1.5WPR10	17.1,N10	16 -22 C44A	Masjonry +Freebst Lintels - Elvig A/B W, 8 +E (1-4)
4296A	Skii: 2 (SW) Snaft & Steging - Mesonry Bing A	26	25 0564910	3000010	47 -18 CHA	Here Stair 2 (Sw) Shaft & Staging - Mesonny Bigs A
4SDBC	CNU Intenor Walls Ont 17-52 - Locker Area	15	15 21 MAY 10	11110-	10 -aa c4Ä	CNU/Interior Wells Coult7-22 - LockernArea
4260B	Masonry + Procest Unleis - Bidg AB North (2-4)	30	30 04JUN10	15.UL10	15 -22 C4A	Meaonry + Prevasit, intels - Bidg AlD North (2-4)
481EC	GML Interfor Wells Co. 22-28 - Looker Area	20	20 14JUNTO	12JULIO ·	10 33 644	CMU Interior Walls Col. 22,29 Locker Area
4257B	Star 3 (SE) Shafi & Staging - Masonry Blog B	25	25 17./UN10	22JUL10 1	27 -28 C4A	Stair 3 (SE) Shaft & Stagling - Neconry Blug B
428CC	Masonry +Precast Linicks -Ring C South +East (1)	33	30 12JUL10	2040910	16 -22 C4A	Massonry +Precast Lintels -Bidn C South +East (1)
4297A	Stor 1 (W) Shaft & Steging - Masonry Bidg A	25	26 - 5JUL10	19AUG10 · ;	27 -26 04A	3(air 1 #0) Shafi & Steping - Mesonry Oldg A
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35 4, 676	Fab/Del Tubo Steel - K The Library 2nd C	10	10 IBJAN10A	28.4M10	95 0.06A	Petr Del Tubo Steel - K lino Library 2nd fir
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358- 652	Prep/Sub SD Aud Lodders - 05B Bidg A	39	6 GENOVERA	22J/N10	¥95 -14 05B	Prop/Sub SD Aud Ladders - 058 - Blog A
05B-622	Prep/Sub SD+Lance s) = 358 = 3idg A	15	11 USNCATISA	20JAN 10	12 -44 06B	Prep/Sub (3D+Lintels) - 088 - Bidg A
058-642	Prep/Sub SD Elev holst beem - C58 - Bidy A	18	11 09NOVE5A	23JAN 10	387 -41 UbG	🗮 PropiSub SD Elsov holist beem - 058 - Bldg 🛦
668-611A1	RowApp Re-sub SD's Sters (F, SF, SW, W)	40*	18" 140EC02A	09FE810	10 0 058	ER RewApp Re-auto 80's Stains (E,SE,SW,W)
058-554	RenVApp SD & Aud Ladders - Miss Met Bidg A	10	1D 25JAN10	06FEB 10	395 14 USB	Revià po SCre Aud Ladders - Miss Mel Blog A
038-634	RowApp SD e Lintels -05B-Miss Met Bidg A	10	10 01FEB10	:2filla10	12 -44 05B	📕 ReviApp SD's Lincels -938-blies: Met Bidg A
052-544	RawApp SD 8 Elev Holdt Beam-Misc Met. Biog A	10	1D 01FEB10	12FE-10	391 -41 05B	ReviApp SC/s Elev Holst Beam-Miss Met Bidg A
053-555	F9b/Def Abui Ladders - D6B Mise Motals Bidg A	15	15 08FEB10	26FIEB10	2298 -14 05B	FebrDel Aut _adders - 068-Mise Materia Bidg A
058-51652	Fab/Del Stair 4 (E) - 058 Miso Nictala Rida B	20	20 10FE810*	39MAR 10	10 -38 058	Feb/Cal Stat 4 (2) - 058-Mise Metaja B(dg B
05B-516A2	FaivDel Stair 2 (SW) DSE-Miled Melale Bidg A	カ	20 10FFB10*	OBMAR 10	30 -38 059	Fabilitei Stall 2 (SW) - Q58 Mist; Metals Bidg A
068-533	Fabilici Limas - 358-Mien Metale Diog A	15	15 15FFR10	05MAR40	12 44 058	FebuDal Lintale (050-bloc Motals Bold A
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056-51681	Fao/Del Stair 3 (SE) - 009/Mitc Metals P dg B	22	22 DOMARIO	0*APR:0	70 -4E (CSB	And Pab/Dal Spar's (SE) - 055-Mise Metals Bidg B
05B-816A1	Fao/Del Stair 1 (VV) DSE-Mac Meleje Rojg A	22	22 031APR 101	01APR10	SO -281038	GEE Fabricei Stairri (W) - 056-Milae Metalia Bisto A
058-51801	Has/Del Statr 5 (N) - 05R-Millor Metale Bidg C	10	10 05AF610*	16APR10	361 24 068	Feb(Del Stair 5 [N] 058-What Metals Bloip C
050-619	Mobilize Pkg R6B Misocileneous metals	п	0 10MAR10		10 25 CBB	Interview Pkg 058 Miscellarizou's metals
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428047	Inetel Metal Per Stair 2 (SW)	20	20 <u>87APR10</u>	C4MAY10	<u>10 28</u> C58	📫 Install Mctal Pan Stair 2 (944)
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064-505	Kewapp Award-00A Milwork		2 PEJAN10	28JAN 10	102 -35 06A	J RewApp Aunto-08A-Millwork
064-510	Award Contract 05A Milwork	3	3 29JAN13	C2FCIB10	102 -38 064	Award Contried-Q\$A-45 Mork
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034-5120	jeuo tra etra europada a 354-Miliwort- Bida C	20	20 0SFEB10	C2MAR1D	102 -38 08A	Sybmit SD's Submittals D6A-Millwoht- Aldy C
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876-512	Prop/Sus Samples & Data Air Bartier/Waterproof	11	i 15	16JAN10	04FE010	- 28	-47 07C	PrepuBuki Samples & Deta - Air Bartlar,Waterproof
P7C-515	Prop/Sus Samples & Data - Joini Sea anta	1!	\$ 15	16JAN10	04FEB10	88	47 07C	PrepuSubi Samples & Data - Joint Spalants
070-522	RowApp Semp to & Oats Alt Barrion'Alstronom	1!	i 15	05F8510	25FE810	28	47 07G	RevApp Samples & Data AinBarrier Waterproof
07C-528	ReviApp Samples & Data - Joint Sealanta	1 1	5 15	C5F6610	25FEB10	ଞ	-47,070	PerviApp Samples & Data - Joint Scatants
670-532	Fao/Delv-Air Bonier/Waterorcof	12	• 12 ⁴	26FEB10	15MAR10	28	-44.07C	🖬 Rab/Dety-Air Barné/Matelproof
BYG-505	Faoffiely - Joint Gealants	12	12*	26FE910	15MAR:0	- 63	-44 07C	🕮 Febloet - Joint Sealer to
· 070:518	Mohijize: Weterproofing+Joint Scelarits	1	ò	01/JPR.10		16	-22 07C	Mobilize Waterproofing+Joint Spalanta
4280A	AVB pre-Meeowy - Sidg A/B W(S,+E (1-4)	48	5 45	01APR10	33JUN10	16	23 070	AND AND pre-Masonny - Bidg A/B W.S.+E (11-4)
4310A	AVB pre-Windows - Bk/g A/B W/S,+E (1-f)	4	5 45	19MAY10	16JUI 10	16	-52 070	2000001 AVE per Windows - Bidg Arb W.S.+E (1-4)
428UÜ	AVD pre-Masonry - Blog A/B North (2-4)	່ 30	> 30	20MAY13	0-JUL-0	18	-23 070	AVB physical and - Bidg A/B North (2-4)
433ûA	Window Secienzs - Eldg A/B W(S,+E (1-4)	44	5 4E	16JUN10	20AUG10	· 16	-22 070	Window Seelervie -Birle A/B W.S.+E (1-4)
42800	AVB pre-Meannry -Biog C South +East (1)	3	J 30	25JUN10	DEAL G 10	16	28 0/10	SEED AVE pro-bissionry -Bidg C South + Seat (1):
<310B	AVB pre-'Allodows - Bidg A/B North (2-4)	3	3E C	62.iU.10	13ALX310	16	-22 07G	AVB pre-Mindows - Bidg A/B North (2-4)
12620	AVB pre-Massimy -Bidg C N,W,+S (Cynr-Aud	3	5 35	02AUG10	205EP 10	19	-25 070	HING AVB pre-Mascory -Blog C N.W.+S (Gyra-Aud
43100	AVE pre-Windows -Bidg C South +East (*)	30	3C	DaAUG10	205EP 10	15.	-22 07C	SEE AVB pre-Windows -Bbig & South +Best (1)
43308	Window See onto - 3 og A/B North (2.4)	j.	J 20	09AUG10	208E910	1a,	-22 07C	Window Bealonis - Bidg ArB Beath (24)
42830	AVB pro-Meachry - Bidg A/E/C, W E-N (1)	а	0S C	14SEP10	25DGT 10	10	-23 376	AVB pre-Maximuy -Bidy A/B/C W(E+N)
43300	Window Sea and: -Bidg C South +East (*)	3	98 C	148EP10	2500110	1ā	22 a76	Window Séalants -Bling & South +Edet (1)
4012C	AVB pre-Mindowe -Bidg C N.W. (5 (Gym-Aug		i 95	148EP19	CHNOV10	1ā	-22 07C	AVB pre-Windows -Bidgl C N,W/+S (Gyp+4
42040	AVB pre-Masony -Bidg A/5/C Filbins	- i	10	19OCT10	01NOV10	51	-23 070	AVB pro-Masonay -Bidg ARXC Pill-Ine
43320	Window Sectants -Bidg C N/W/+S (Sym-Aud	3	s 35	190CT10	07DEC10	:9	-22 070	EXEMPTI Window Scalants -Bldg C N/W/+S (Gy
43190	AVB pre-Windows -Blog A/B/C W/E+N (1)		ນ ່ 20	2600710	07DEC10	- 3	-22 07C	ESCI AVE hre-Windows -Bldg AIB/C: W.E+I
4814C	AVB pre-Windows -Sidg A/B/C Fill- ns.	10	J 10	010EC10	rabEC19	31	-22 u7C	AVB pre-Windows -Bidg A/B/C Filling
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4333C	Window Scelania Bidg A/BRC W(E+N(*)	30 30	01DEC10	- 3JAN1-	18	-22 07C	Window Scelants - Bidg Areve W.
4354G	Mindow Sea ants -Bidg AvB/C -P; Fins	10	07JAN11	2CJANTA	18	-22 070	Winneriv Seistehte Blog A)B/G Fill-Ins
D7C-COBT	Cost Summery: Waterprosting & Sealarcs 57C	208* 208*	01APR10	2CJAN14	: 18	-22 07C	Cost Summary: Waterproofing 8
N-SERAY/S	OM FIREPROVEIND						
4210RC	Creared Interior Perimeter 1st F) Block C Aud	57' 8'	\$10GT09A	22JAN1.C	22	21 07 D	Findpring of Interfior Performater 1st Fill Bilding C Aburt
42000	Firegroof Exterior Parin eter Blac C (Gym)	7 7	01APR105	DSAPR10	24	-31 070	🖬 Areproof Exterior Perimeter Badg 🛇 (Gyin)
44160	Fregroot Patching (2) Deláng Auditor uni	ē 5	21MAY10	2744110	22	0 070	Firepreor Patching (g CeSing - Auditorium
46240	Fireproof Palching - Looker Area		20,00,10	22JUL10	52	-33 070	Fireprest Patching - Locker Area
070-0031	Cos; Summery: Sprey Presidents D/D	141* 61*	22SEP08A	CGAPR10	- 24 -	-76 070	Cost Summary: Spray Fireprociting 070
D METAU	SIDING & LOUVERS						
050-500	100% CD's lesued for -Pike 075-Metel Pencis+Lou	0 0		06FEB10*	124	-67 07E	●100% CD's issued for -Ping 07E-Metal Panéja+Lou
05C-E06	Rep Award-07E Metal Panels	7 7	15JAN13	25JAN1D	127	-30 UYE	Rec. Award-07E Metel Panets
050-604	Rev/App Award-07E Metz, Panels	3 3	26JAN10	28JAN10	127	-30 ft7E	I RewApp Award-07E Metal Panels
050 510	Award Contract-07E Metal Panels	5 3	26JAN10	C2F 20 10	127	-37 07E	Award Contract-07E Metal Panels
05C-512A8	P.ep/Sits SD & Dete-07E Mana Fanara B dg A/B	20 20	OSHEE10	C6MMR10	124.	-33 07E	F Prepaisub SO B Date-07E Metel Peniele Biolg A/B
36C-612C	Prep/Sub SD & Dsta-07E Mate Panels Rulg C	20 20	09FE810	DIMAR 10	· 44	-33 U7E	PrepiŞub 3D & Data 07E Metal Panels Bids C
05C-614AB	Rev/AppSD's Submittals-37E Metal Panels Bidg A/8	(5 15	38MAR10	28MAR10	-74	-93 N7F	🖬 ReviApp3D's Submittals-07E Metal Panels Bildy AlB
35G 514C	RevunpoSD's Submittals-37E Metal Panels Bidg C	18 16	OFRAMEC	287447.10		-39.07E	ReviAppED's Submittala-01E Metal Panels Bidg C
05C/516AB	 Feb/Doi Metonels O/E Motel Hanols Bidg A/B 	50 60	29MAR10	07JUN10	124	-33 G7E	FohrDej Materials-07E Metal Panels Bidg AiB
R5C-516C	Fab/Del Materials-07E Melal Panels C	នុង 😡	29MAR40	0/JUN10	144	-33 C7E	50. EPI FebrDel Materiala-07E Metal Panels C
050-518	Metaljag-Pkg 07E Metal Panejs	: a o	050CT40		41	-22 07E	♦Mphilise Pirg 07E Mittal Penale
-1291C	Intes) Metal Panela Bidg C	30 30	05DC11D	15NOV10	, 6 1	22 CVE	lintadii Metal Penels Bidg C
4291AB	Initsal Metal Panels Bidg A/B (@ Slairs only)	30, 30	19DGT10	33NOV10	j 31	-22 D7E	Intrali Metal Panels Bidg A/B (@ Stairs
050 GDS1	Cost Summary, Meta, Panels 87E	40*; 40*	050CT10	33NOV10	51	-22 07E	Cost Summary: Metal Panels 07E
:#EYAL:	WWOOWS/STOREFRONDS (SSB)						
08A-5161	Fab/DeFMd Skirstronta Blog AIR	40 43	2106C03A	115AVR10	76	-30 C&A	Fab Del-Mil Storefronte Birlg All8
08A-6162	Fate/DeHMtl StoreFrome DHg C	10 40	2" DE030A	11MAR10	205	-30 C6A	MabiDel-Mid StockFrients Bildin C
UBA 6151	Fat/Del Nil Vondows / Receptors Bidg A	60 63	2" DEC09A	08APR10	55	-30;05A	Standard Fabrical-All Windows / Receptors Blog A
CRA-5152	Fac/Del-Wit Windows / Receptors Bidg B	60 63	210CC09A	094PR 0	55	-30 08A	Feb/Del-Mil Windows / Receptors Blog B
GEA-5153	FaorDol-Md Windows (Receptors Bidg D	60 63	2%DEC09A	09APR10	116	-30 08A	FehrCiel-Hill Windows / Receptors Bidg C
084-519	(Mohi) ze On Ste-Metel Winskie Berephone	D Q	C4JUN10		16	22 (JSA	Adobilize On \$30-Metal Vilation Receptors
4320A	Windows - Bidg A/B W.S,+E (1-4)	45 45	F4.01N10	REALIGY C	16	-72 084	BECHER Windows - Bldg MB;W,S,+E (1-4)
43203	Windows - Didg A/D North (2-4)	30 30	26JUL10	CSSEP10	18	-77 084	Windowsi- Bidg A/B North (2-4)
4820C	Windows (2 og C South +Easil (*)	30 33	30AUG10	110CT40	16	-32 ORA	Windows - Bblg C South +forst (1)
42500	nelali Shrafroni-Bidg C	30 30	BOST10	1ENOV:0	61	-22 08A	install Storefront Bidg C
4822C	Windowe -3 op C N.W.+8 (Gym-Auc	3/5 35	DSOCTIO	22NOV10	16	-22 08A	Minderka - Skig C N,W, +B (Gym.4ud
1250A	nstall Storaficens-Blog A/B	30 30	1900710	30NOV10	· 31'	-22 OBA	6 InétalliStorefronte-Birlg A/B;
43290	Windows -Blog A/B/C -W/E-N (1)	30 30	18NOV10	290E010	16;	-22 ORA	Simili Windows-Bidg A/B/C W/E+N (1)
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208-000	Newspip Factor Pag 200-35024-362015	a	DAMARID	03/10/10 11	5 -52 028		
328-010	award contract-Proj (USE-19968965 2210)	· 3 8	USMAR1D	11MAR10 11	5 -52 088	Awata Contract/Pkg 999-Glass+Glasing	
200-51X	Preproduction of the control of the	. 15 16	12MAN10	01AP310 11	5 -52 088		
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100-5475	Patrice Interesting Vol-Lanser Langer (1993) Alls	10 10	22APR10	1300/0710 11	5 -52 028	i μα τραγισμι ματά τη την την την την την την την την την	
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415 860	Interface Ping 055-Grader Disc 4 Pin 4	0 0	060CT10	1	5	WMODIIIZO-PKg G8B-G625+E822irg	
4 450445	Montor (1996) & Giszing - Blog Add 17, 4	10 10	0800110	18DCT10 1	-17 04B	Tenterilor Bilass & Bilozing - Bildg AfB Fir. 4	
3-4500AB	manici (stass) 6. Gizzing - Biog AUS I-7. D	10 10	2700110	09NOV10	C -17 0488	Infantor Glesse & Glesse ge Bidg;A/E Fir. 3	
2-4500AB	imenor Glass & Glazing - Blog AvB Fir. 2		17NOV10:	B1DEG10	-17 DRB	Ref Britenion Glazer & Glazing - Bildgr AUS Far.	
1-4530AB	Interior Glass & Glazing - Biog A/B Fir. 1	10 10	0906510	22DEC10	C -17 08B	■ Interiori Giass & Glazing - Bidg A/B	
45000	Interior Glass A Glazing - Blog C	10 10	280FC.0	07JAN11	C -17 08B	📕 interior Glass & Glasing - Bidg C	
(ISB COST	Cost Summary: Clese & Glazing 368	65 65	06000110	07JAN11	C -17 08B	Cast Summary: Globe & Glozing (
-9003(S)	RANGO F NAROWARE						
09C-519A	Feb/Del Door Franzes Bidg A/B	4 <u>1</u> ° 40°	HJANICA	11MAR 10	3 41 UBG	Fab/Del Door Frames Bidg A/B	
030-6160	Fsb/Del Door Frames/ Bidg C	414 404	1JAN1CA	11MAR 108	5 31 DRC	Stands Fot Decy Frence Bidg C	
09C-516B	Pab/DeJ DoorsyHrdwr Bidg A/B	- 60 BC	14JAN10A	25MAR 10 13	0 -41 DBC	FaivDel Doors-Hirdwr BMb AR	
090-5160	FabiDel Doon/Hptw - Bidg C	00 SD	14.1AN10A	25MAR 10 18	5 0 200	FabiDel DocesHidy - Bidg C	
D80-518	Mobilize-080 Frames, Doors (Histar	'o n	26MAR10	<u>م</u>	0 -24 080	Mabilize-05C Frames, Doors+Hindry	
CSC-CORT	Cost Summary: Dooroff rameol Samware UBC	1881 1881	26MAR10	20DEC 10	0 17 300	Covi Summer Doors Frimmer	
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080 534	Ela Ponda (USLA-Spezial Unon)	202 211*	1SNOV394	29NOV10 9	1 -252 080	Bid Penod -OSD-Special Davis	
1000 005	Parti Amerika Shirebedel Uoona		SONDV10	08DEC*C 9	1 -2E2 050	Rec. Award-03D-Special Doors	
030-508	New Pop Award-050-Special Doars	3 3	09DEC10	130EC.C 8	1 -252 090	RawApp Award-080-Special Doorts	
0805-610	yware Contract-CSD Special Doors	3 3	14DEC10	10DEC10 9	1 252 050	Awaird Contract-48D-Special Doots	
069-612A	Submit SD's Submittals - Space Doore B (/) A/8/C	·6 15	17DEC10	CLAN11 9	1 -257 080	EVEL Submit SD & Superittals -Special C	
000-614A	Renimp SD's Sulomite s -8pectal Occi-3 up A/B/C	15 15	11JAN11	31,JAN11 9	1 -252 090	l i i B≣ RevtApp ≴D's Submittelê -9ped	
040 6160	Habitici Metensie -Speck: Coare Bitig AQ/C	60 53	C1F5311	:::APR:1 9	1 -252 050	Hawbold Materials - Bpecial Doors Bidg AVE/0,00000000	
08C-518	Mahij 76-080-Special Dabie	<u> </u>	124/7611	9	1 -524 09D	Michelitze-08D-Special Doorate	
4750	Ir ale!! Special Doors - Didgs A/IS/C	20 23	12AFR11	C6MA(Y11 9	1 -124 080	inatelii Special Doore - 20dps Alth/2000	
38D-COST	Cost Summary Special Doors DSD	20* 20*	125/28.11	E##V/Y*1 9	1 -124:080	Cost Schmiary, Special Doors 08C000	
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Activity III	15:11:11:11:11:11:11:11:11:11:11:11:11:1		н. 1	11. - 11 - 14			Vagreon.	第1111年1月1日 - 通知の、************************************
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1 588¢	Stud Frame Walts 1st Fir (intening)	15	8	SONDADA	26.00010	29	-47 090	
2-5390	Slud Frame Walls 2nd Fin	15	.11	14DEC034	29JAN10	24	-30 C9A	Silua Praneo Ivalis 200 Fir
2-5332	Instal Door Frames 2no Fin	5	5	: 15JAN10	2° JAN10	- 55	-74 094	a menjari peder Frames zeto en
4402C	Inst LGMP & GVB 2 Aud + Stage Wats - Auditorium	45	45	25JAN 10	28MAR10	22	-21 C9A	net Low is the standard grad + Stage views - Autoconum
4706K	Stort Frame Walls - Kitchen/Caf	6	8	27JAN10	12FEB10	166	-46 CSA	Stud Frame Walls - Kirchen Cali
47086	Door Frames (Mngr Offes HM Frames - MichanyGe		. 5		SUFEB10	195	-46109A	. Door Frames I Mnor Office HMPFrames - Katchen/Ga
2-5544	Sluce / Dere K I no Librory Woll -	5	5	CSFEB10	11FEB10	- 96	C-08A	81ids / Dens K Ene/Lintary Wall -
3-6320	·Stuo Frame Walls Ord Fin	15	15	C5F6610	25FEB:0	25	-26 (9 A	Stud Frame Walls Stor Fin
1-6322	Install Goor Frames - 1st Pin	6	8	42MAR.10	18MAR10	의	-7E 09A	Install Door Frames - 1et Fir
4.5320	Shud France Walls 4th Hr	· 5	15	1214AR10	UNAPRIC	20	34 09A	Sturd France Walls 4th Fir
3-5322	inglejj Door Frames Srd Fjr	5	-5	1574AR10	2564R*C	25	-45 09A	Install Dodr Frames and Pir
1-5355	Biteetrock Walle - 1et Fir		13	19MAR10	01APR10	9	-17 09A	Sinestrocé Wélls 1st Fir
4-5812	relail Door Frames 4th Fi-	6	5	26MAR10	0"APR10	×0	-84 OBA	Inacell Dolor Frankes Ath Fir
4404C	Erect Work Platform - Auditorium	4	4	29MAR101	01,4PR 10	- 22	6 09A	Erect Wolk Platform - Auditorium
1.6360	Tape Sheetrock Walts - 1st Fin	1.0	16	0ZAPH10	18APR10	109	- 1 7 03A	Tape Streatrock Walls - 1st Fin
4/330K	Sheeroek Walks - Kitchers/Cat	10	16	02/44810	1546610	168	17 OBA	Sheetrook Walls - Kitohen/Caf
4414G	Tape + Sand Weila - Audéntium	15	15	02APR10	22APR10	- 22 .	A6C C	Tape + Sarjd Yyaljs - Auditoritum
2-6355	Silveoundk Walter - 2nd Fil	20	20	024FR10	28APR 10	0.	-17 OBA	eliestrock Walls - 2nd Fir
4732K	Tape Sheebook Walls - Kitchen/Car	ţ)	10	16A9R10	25APR 10	180	-17 BBA	Tape Sheetrock Walle - Kitchen/Caf
2 6860	Tape Sheetrook Walls - 2nd Fir	20	20	1649810	1 3M AY 10	70	-17 39A	Bill Tape Shoutrock Walls - 2nd Pir
53390	Soud Freme Walls - Bidg C	ţ,	15	25APR10	14 00 0110	- 24	-14 08A	E Eng Frienz Walls - Bidg C
3-6355	Sheerrock Walla - Brd Fi-	ဆံ	20	S0APR10	277MAY10	3	-17 09A	Bilectrock Walle - 3rd Fir
52320	reta i Door Frances - Ridg C	5	5	10MAX-0	1/MAY10	-54	-14 08A	Binstell Door/Fremes - Bidg C
3-6350	Tape Sheetrook Walis - Bro Fin	· 20	20	14646010	11JUN 10	35	-17 08A	Tape Sheeuroch Welle - 3rd Fir
4-0355	Sheevock Wals - 4th Fir	20	20	28//90110	25JUN 10	IJ	-17 USA	Sheelrock Walls - 4th Fir
4-6360	Tape Sheetrock Walk - 4to Fir	20	20	I4JUN10	12JUL10	3	17 QQA.	Tape Sheetrook Walls 44th Fir
5460C	Stage Arces in Gym	5	Ē	20JUN13	OF ILL 10	54	-44 NSA	Stage Areas in Gyne
54650	Frame Inside High Area - Gym	10	10	07JUL13	20JUL-10	78	-44 08A	🖾 Frame Inside High Area - Byrn
5355C	Sheetrock Wala - Bido C	20	20	20,0013	16AUG10	10	-33 UBA	EN Sheetrack Walls - Skily C
4526C	Frame/ Board GVP Ceilings - Locker Area	10	10	2330110	DEAUG10	50	281 U.D.A	Frame/ Board GYP Ceilings - Locker Area
5350C	Tape Sheetneck Walls - Bidg C	20	· 20	D3AUC/C	304.0010	 + C	-33 09A	HIM Tape Sheetrock Walls Blog C
224NG	Dismance Work Platform - Aunifadum	3		23AUG10	254,0310	3	-10 09A	Dismantie Work Platipres - Auditasium
4442C	LCMF & Deck Q Size - Aukito Lto	20	20	28AUG^0	236EP10	ä	-19 094	BSI LGMF & Deck @ Steps - Aud Sortum
5500C	Remove Staaing From Gymnazium	ĸ	ň	168EP00	21SEP10	60	-33 084	Remove Steering Prov. Gymnestian
4-5405	Instel Lippers / Mantware - 400 Fr	- 20		225CP 101	1900010		-1/ 1/84	instali Dours / Hershvare - 4th Fir.
3-5496	Instal Coors / Hardware - And Fi-	20	20	13007001	CONCV10	- - t	17 08.4	Install Doors / Handware - Brd Fir
2-5405	Instal Corra / Hardware - 2nd Fit	23	20	i paverund	C1DEC.10	5	-17 09A	SCH. Install.Ocors / Hendware - 2nd Fir
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44466	Instal Dear (Hasterray, Art Dr.	46	10	SVAND SVAND	5000-224.0		13 Devi	Install Dones (Haniware - 1st Fir
1-5400 5454C	Instal Doors (Hardware - Ist Fir	10	10	24402010	1505010	40	33.060	D Install Doors (Bardware - Bitle C
4764M	Indel Deer (Hasterre - KisheelOut			HOLANHA	14 14 14	46.	-77 0004	Install Doots / Hardware - Kitchels/CM
TIOTA	Call Constant Devel 204	20.04	1070			10		Cost Summers: Disput
JEAROUS	Coel Sommary Drywall Vax	aue.	2021	CANORCAN	2034N11	•.		
L-CERAIM	(C 1112 (* 32)							
C6D-500	100% CD's leaved for -Pkg B6B Ceramic Tile	<u> </u>	<u> </u>		01FEB10	- 96	-53 098	•100% CD's lissual for -Pkg 098 Ceramip Tile
C68-504	Bid Period - Cetamic Tile	16	15	02FEB10	22PE810	36	52 U9B	Bid Petrod - Gerathic Tile
058-505	Res. Award - Ceramis Tile	7	7	22F2B10	03NAR10	95	-52 098	B Res. Award - Ceramic The
058-508	ReviApp Award - Caremic Tile	3	3	048/AAR 10	98MAR10	95	-52 OVB	Revulappiaward - Centrelle (Bo
C68-510	Award Contract - Ceramic Tile		. 3	000AAR10	11MAR10	_ 95	-52 090	Avend Contract- Carsonic Tile
C68-512	PreptSub Submitta s - Ceramis Trie	16	15	; :2MAR.10	UIAPR10	90 90	52 U9B	1 3 Prep Sub Submittels - Gerantics Tile 1
CE8-514	ReviApp Submittels - Geramis 'N e Submittals	16	15	DZAPR10	22APR10	96	52 O9B	III RevApp Submittals - Ceramin Tile Submittals
Ç98 518	Festillet Metonels - Coramic Tric	30	33	2SAPR 10	94.AJN10	- 95	-52.00B	Initial Fabricial Identifield - Commite Tilla
C98-518	Nobil 28-096-Deremic Tile	0	n	20001.10		65	-17(098	●Monijijize-D#B-Ciencentic,Tite
4-5540	Instal! Ostainic Tile Wall Base – 4th Fit	10	10	20JUL10	02AUG10	- 65	-17 (09B	📕 Anstall Ceramic Tile Wall Base - Hih Fir
3-55-10	Install Cetamic Tile Wall Base - 3rd Fin	°	13	33AJG10	18AUG40	70	-17 098	Instal Ceramic Tile Wall Base - Sed The
2-E640	Install Ceramic Tile Wall Base - 2nd Fin	10	10	17A0G10	acAUG10	76	17 098	i 🖬 install(Cerjamio Tije Wall Base - 2nd Fir)
1-6640	install Ceramic Tile - 1st Fin	10	10	31AUG10	145EP* C	- 80	-17 G9B	🗰 instáli Ceramic (Tile - 1st Fir
58400	instali Gymnas um Coractic Tile (n Locker Rooms	15	15	15860-10	050CT10	50	-33 ODB	📫 instell Gymnasium Ceramio Tile in Locker R
DSE-COST	Cost Surrenary, Ceremit: The RRB	55 /	55*	20JUE 10	050CT1C	-95	-32 098	Cost Summary: Geramie The Des
CACOUS	OC OF IL INSIS (ESLA							
CSC-500	:10054 CD/s Issues for -Eks CSC ACT Ceil one	0	D		01FEB/ 0	20	-62 090	◆100% CD's issued for Pkg 00C ACT Collings
CEC-504	Bid Berind 2kn DBA AGT Ceil.cos	15	19	62EE810	22568/0	20	-=2 000	Bid Period -Pkg DSA, AC71 Collings
090-506	Hec. Avariation Fig. ACT Cellings	7	7	25EEB10	03MAR*C		-52 090	S Rec. Award-Pie 094 ACT Chillings
CEC 508	Browkers Award Bra DOC ACT Cellings	s	9	CAMAR 10	OBMAR-C	20	-52 090	EvenApp Avend-Pike OSC ACT Certificas
ESC-510	Avend Contrart-Eko 354 ACT Calinga	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		097441710	1:MAD/C	20	-52 090	: Antini Contract-Pico 094 ACT Ceillures
090-0178	Submit SEs Submittak, Physics Act College Bids A	16	15	127448-10	0.408.0	20	-52 090	Submit 3Da Submitiala-Pko03AIAGT Grillings Pilds A
00C-512B	Submit SDe Submittels-PerOSA ACT Call row Bide B	15	-5	(r)ADE(10	22APD 11	200	-+> (ar)	Submit SDs Sobmittals-PicabRA ACT Collines (Edg 2)
290-5149	Review SDa St. hmilters Pixe004, ACT Call are Rida &	16	- 6	0247613	2340040	20	62/190	THE Reward Sits Submittals-Planes ACT Collings Bidg A
29C-514B	Review SP4 Submitted a Place 204 ACT Cederare Alda B	10		23454410	12810210	20	-82 /300	Rewing SD-Submittais Pro08A ACT Cellings Bits B
(90-5120	Submit Size Submittale Mentale ACL Cell on Mits C	10		2344410	13804110	20	-62 000	Bubmik SDei Sudmittala Pico 94 ACT Collinge Bide C
900-5125	Entrific MathetCariaDka (23 40) Calcas 204 5			7940013		- 0-0 - 0-4	52 380	FFR Fahmal Nakia Faula Div Div DD L APT Callings Blog
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2002 2140	Fahata Mullaten india 199 ACT Cullings Riggi.	10		7466713		- 26	-02 390	
200-3195	Fabbe Matarequiping 334 Act Cellege and C	<i>1</i> 0 ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	26	14000713	153000.0	20U	-52 JBL	
090-0163	I SOUE MARE+EQUIPHIQ (ISA ACT CEINGS BIOD C	20	20	14.0.010	12000-50	501	-52 390	
2 5995	Ceing Grid Shall Fr	15	* <u>=</u>	14MAY13	04.0JNSC	741	-17 390	Celling Line 2nd Fir
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Sé Primaver	ra Systems, Inc.							

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1 5395	Goling Odd 1st Fir	10 1	0 21MAV10	C4JUN 10	84	-32 09C	
4792K	Celling Orid - Altenen/Cer	10 1	0 07.WA.6	18JUN 10	1-12	-32 09C	Crailing Land - Kinchenicar
3-5385	Calling Grid - 3rd Fir	15 1	6 14JUN'C	02JUL10	36	-17 04C	9 Cephnig (Srid - Sid Fir
1-5402	Ceiling Tile - 1st F'r	5 6	29JUN10	OSJUL10	95	-32 1/90	Geiling Tile - 1st Fir
4424C	Hang Celling Pasels - Auditorium	10 1	0 12.6.11*0	23/01/10	3	-19 09G	Hous Calling Panels - Auditorium
2-5402	Colling Tile - 2nd Fir	1/2 1	0 13.NJL*0	29.00.10	RC.	-17 NSC	Ed Cadling Tile - 2nd Fir
4-5385	Celling Odd - 4th Fir	15 1	5 13JUL-C	02AUG10	C	-17 09C	Ceiling Ceild - 4th Fir
3-5402	Celling Tile - 344 Fil	10 1	0 <u>104LG1</u> C	23AJG10	SĽ	-17 USC	El Calling Tike - 3rd Ptr
4590C	Ceiling Grid - Locker Area	7 7	20AUG10	30AUG10	ĞĊ	33 08C	Ceilling Grid - Leeken Arda
4 5492	Goiling fuls - 4th Fir	10 1	D ; DSSEP10	21SEP10	ᅚ	-17 B9C	Colling Tile - 4th Fir
53850	Calling Orld - Bing C	15 1	5 (65FP10	28SEP10	-:C	-39 09C	🖬 Celling Grid - Bidg C
4598C	Ociling Tiles - Locker Aree	3 3	1086010	146EP10	SC	-33 090	Cailing Tiles - Locker Area
44460	Wei Penels - Audionium	10 1	0 22CCT10	64NOV10	2	-19 08C	🛤 Waß Panels Auditorium
6402C	Ceiling Tile - Bug C	10_1	0 00 000 00	16NOV10	ap	38 190	: 🛛 Gending Tile-Biolg C
4762K	Ceiling Tile - Kitshen/Cal	7 7	Z206010	032AM11	22	-17 080	Celling Tue - Kitched/Cat
090-CCST	Cest Summary: Acoustical Ceilings 390	125* 12	5° 21MAY1D	16NQV13	32	-33) 00 G	Handble Bir Cost Summary Acountical Collings 09C
E-CARCET	1NvG						
030 200	100% CD's issued for -Pkg 09D Ceresting	3 ()	C1FEB10	182	-63 ¹ 09D	\$100% CD's issued to Prig 09D Carpeting
030-506	Reprose on finals & Rec. Award-Carbeing	10 1	0 02111816	167EB10	- 82	-35,04D	3 Reprice on Jingle & Res. Award-Campeling
000-508	ReviApp Award-Carpeting	а 3	10/10/10	16/0010	<u>.ez</u>	-35-050	RewApp Award-Carpeling
090-510	Award Contract-Carpeting	3 3	13FEB10	237EB10	182	-as insta	Award Contract-Corpeting
090-612	Suomr, SD's Carost Submittals - Biep	15 1	5 24FE810	18 51 4310	482	-35 090	Bubinii 50's Carpot Butimittei± - Bidg
090-514	RewApp SD's Cartel Submittels - Rido	15 1	5 17MAR1D	OSAPR 10	-82	-35.09D	Rev/App 80's Corpet Submittale - Bidg
090-516	Feb Dol Carpo: Matariais+Equip Bidu	23 2	0 0740810	04MAY10	182	<15 0.902	Fab/Del Carpat Materiala+Equila Bido
020-518	Mehilize-CSD Center rat		23DEC10		20	17 06D	●Mobilize-09D Campeting
4 0 00AB	los al Cauelica - Bito A/B	10 1	U 2308010	OT JOK 11	20	-17.05D	🖾 Install Carpeting - Bidg A/B
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09D-CCGT	Cost Summary Cametion CSD	25* 25	230EC10	28 JAN 11	- 6	-17 09D	Cost Summerry: Campating 09D
C ESPULIC						10 000	
	NT PECAUASSIS (PSE)						
381-600	100% GD% ES360 for -Pikg 33E Neshert, Filosis	a (,	01FEB19	- 75	-63 09E	The state of the second s
096 604	s a menoal Resilient Floating	15 1:	02FED10	22FEB10	75	-52 06E	
396-206	Ker. metri - Resilent Finolog	7 7	23FEB10	DOM/AR19	78	52 DEE	E KEC. Anano - Familiant Flab ing
J9E-608	NewApp Award - Naailient Fibbring	33	34MAR1D	DEMARID	7B	82 DEE	: However power as reasing the fooring
395-640	Award Cantract - Resi tant Flooring	3 3	S SSWAH1D	11MAR10	75	-52 QGE	I AWARI CANIDICE - NAME WIRE FIGOTING
39E-612	Suomit SU's Submittals Resixen: Floening	15 1	5 12MAR10	01APR10	75	-52 OSE	summa SD's Subhititais - Resilient Floering
366-014	ReviApp SD's Submittais Resilient Ficoring	: 15 1	5 C2APR10	22AP310	75	-52 DEC	MiliReviAge 30's Submittais - Rosilient Flooning
99E-\$ 1 E	Feb/Del Matarlete & Equip - Rea Flooring	20 2	0 22APR10	20MAY10	76	52 06E	Fab Der Matanen & Equip - Rea Flooring
36F-618	Mohilize-CGE Resilient Flooring	i a c) USSEP10		D	-17 D2E	The set of the set of
tul Duty	LAND CONTRACT CONTRACT	anter l				Steet-Gid 21	1 Tab. 1 Tab.
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4-5420	Ficking - 4lh Fit	15 15	C8SEP*C	zeSEP10	0 -17 CSE	Flaoring - 4th Fir
3-6420	F coving - and Fin	16 18	295EP::0	18OCT10	0 -17 CSE	Flooring - 2rd Fir
2 5420	Fooring - and Fin	15 15	20030110	J9NOV10	0 -17 CEE	Finanting - 2rid Pir
\$420C	F coming - Bidg C	20 20	03NOV10	01DBC13	10 •33 CSE	Ficering - Bidg C
1-6420	Flooring - fal Fr	10 10	10NOV10	23NOV10	0 -17 COE	📕 Filoering - 1st Fir
4762X	Fibaring - Kitcher/Caf	-0 10	2400/10	0aDEC10	18 -17 CSC	Plooring - Kitchen/Caf
055-0081	Cost Summary: Resilent Flöpring CSE	65/ 65/	OBREPIO	OSOFC.,C	⊺is n∖oe∈.	Cost Summary: Res Bent Floaring (88
WOOD 6	ATHLETICH FLOORING					
02F- 0 33	100% QO s (sound to Pkg 09F Wood-Athletic F ###	° c a		01FE810	135 ¹ -63 09P	◆100% GD's Equeb fo;Pký CQF Wood-Athletic Floors
09P-503	Pres Roope-Pkg 39F Wood Atrictic Hooning	. 18 2	20NOVOBA	18JAN10	145 -37 09F	Preb Scope Ply DIF Wood Alhielic Flucture
09F-504	Bid Period - Play 05F Wents Attikatio Flooring	10 18	0270810	122FEB10	135 -47 99F	🖬 Bid Panad -Pkg 09F Wood Athletic Flooring
097-508	Rep. Award-Pag 02F Wood Alhielic Flooting	4 7	23FEB10	COMAR10	135 -17 09F	E Rec. Award-Rkg D9F/Wood Athintic Mooring
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09F-51C	Awars Contract-Fks DEF Wood Athletic Fichting	3 3	05414810	1: NAB10	135 -47 181	Comment Continued Plag 09F Wood Allphale Flooring
D9E 6120	Support SD's Supportation Peop OSE Wood Athin-Oldo C	15 15	12MAR10	D1AFH10	135 47 U8F	🗧 Submit SD's Submittele Pieg OFF Wood, Athi-Blog C 👘 🕴
D9F-614C	RowApa SU's Submittals Figure Wood Ath Bide C	15 16	DZAPRIO	22AF-B10	135 - 47 09F	RevitApp SD's Submittals Pky G9F Wood AU- Birlig C
09E-616C	FalvDel MaterialsPixt 39F Wood Ath etits Fi Bitlo G	33 30	ZJAPRID	C4JUN 10	-351 -47 ¹ 09F	Fabilital MaterialsPkg 09F Wood Athletic P Billip Q
199-10	M-hitze-Pka 09F Wand Ath Alic Flamion	a D	225EP10		TBD 60- 33	Mebilize-Pig 09F Wood Athletic Flooring
54400	Instal Bernadur Fronka	20 20	228EP10	1500710	EU 93 USF	install Gynnasium Fideriog
PREFOST	Frat Summer: Wood Alartia Election (AE	1 30 204	22855-10	1502710	ED -33 CFF	Cuel Burnnand Wood Athletic Flooring Of
	in the overlap in the second second and the second se	- EU 20	E2.0-1-10			
POXY	EDORANG			Lines		Annu rok lange to the tot English Bank
QAR L SEC	100% CD's laued for Pkg 39G Epoxy Flaors	0 0		01FEB10	130 -63 (463	winow core isobed for the grow spake spake i
086-504	Re-Bid Period - Epoxy Floating	15 15	. C2FEB10	22FEB10	150 -47 693	Keese Pened - Epoxy Flooring
09G-506	Rea Award-Epoxy Flooring	7 7	23F9B10	03MAR10	150 -47 09G	Hec. Award-Epoty Plooting:
09G-668	RevApp Award-Epony Plooting	3.3	1/4/MIN/R 10	OBMARTO	130 -47 (96	reewapp Award Endry Flagring
396-510	Award Contract Epoxy Flooring	3 3	0\$ 14A R10	11MAR*C	130 47 096	Averat Contract, Epoxy Floeting
093-512A	Submit SD's Epoxy Finnr Submittais - Bidg A	°5 15	12MAR19	01APR10	130 -47 093	Submit SD's Epoky Floor Submittels - Bitig A
09G-514A	ReviApp Stre Earcy Floor Submitters - Blog A	SB 16	02APR10;	22APR70	130 -17 096	RewApp SD's Epcky Floot Submittels - Bidg A
09G-518A	PabiDel Epoxy Floor Materia a+Equin Bidg A	20 20	28/4/10	20 M AY10	130 [°] -47 09G	ZEE Fabil0e Eppary Finan Materials + Equip Bildo A
09G-618	Mobilize-Epicoy Flooring	άп	2BJUN10		10432 096	●■ do⊒co-Eproxy Flooring
4760	Epocy Flacking - Disg A Fit (10 10	20JUN10	13JUL10	301 22 09G	📕 Eipersy Filoconing - Biolog & Fir 1
4750K	instal Ecoly Floor - Kitchen/Caf	10 10	15AUQ10	27AU/B10	89 -31 996	🖬 Install Epoxy Floor - Kitchan Caf
4540C	Eporey Flooring - Looker Area	20 20	158EP10	1200T10	53 -58 099	Epoxy Flooring - Lockier Area
(90-0067	Cost Summary: Epoxy Floating 59G	74" 74"	28JUN13	- · · 1200T10	237 -58 090	Cost Sum mary Epoxy Flooring 049
-FAINT	WALLCOV/RING (SSP)		·			
09H-600	10D%, CD's issued for Play felt Paint+WailCoverings	a é		C1FEB10	47 -68 DBH	\$100% CO's logued for-Pilg 09H Paint+WallCoverings
0911-504	Dic Period - Paint	15 15	15JAN10*	CEFEB10	42 -42 0811	Bid Parlod - Point
09H-505	Ho Price & Reg. Award Paint	10 10	OFFR10	227EB10	42 43 091	🖬 Re-Prise & Rec. Award - Paint
Date Lato	25NFR00 165EF11 Patrician Early Bar	W#18	GILBANE BU	LENING COM	Sten - 10'S PANY	11
1040 1040	21.0440 1429	er 				
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@ Pdmave	sa Systems, Inc.					

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0814-538	Rev/App Award - Part	3	3	23HEB10	26FEB10	4Z	-40	29 0 1	1	Re	MApp Award - Peint
004 F 5:0	;Award Contract - Paint	8	а	26FE310	02MAR10	42	-46 (29 H	!!!	A	vard Contract / Paint
U9H1 512	Prop/Sus Susmittals - Paint	:5	15	U2MAR10	23MAR10	42	-45 (DOM:			PrepaSub Submittions Palmt
09H 614	(Real-pp Submittaja - Patri	:5	15	24MAR10	13APR10	42	-45 (D9H			Rev/App Submittelp - Reint
09:1-516A	Fac/Del Materiale - Paint	:0	10	14APR10	27APR 10	42	-4E (Dal Hist			E Fah-Del Materials - Peint
2-5365	Prime Paint + First Coat Paint - 2nd Fir	- 6	16	30APR10	20MAY10	70	-17 (14e0	1	i I	Prime Paint + First Cost Prime 2nd Fir
00H-5-6	Nobil ze-Painter	U	u	33MAY101		39	-4 0	180	1.	i	◆Mokelaze-Pair@or
1-6363	Prime Paint + First Coat Paint 1st Fir	É	â	33MAV10	1260010	- <u>ea</u>	28 C	Hec	<u> </u>		B Prime Paint & First Coat Paint - 1st Fir
47358	Frmo Peint + First Coat Paint - Kitenen/Def	7	7	13MAY10	21MAY 10	151	-24 (HRC	11		E Prime Reint + First Cost Peim - Kitchen Cer
44180	Paint Celling' MEPs - Augitor um	6	5	26MAY10	04.JUN-0	22	0	D9H	·	i I	Punt Celling WEPs : Auditorium
3-6366	Prime Paint + First Coat Paint - 3rd Fir	·5	15	28MAY10	IBJUN SU	35	-170	5901	1.	i I	🖬 Prime Paint + Pirat Cost Phint - Ind Fir
48/100	Paint CMU Interior Walls Col 17-22 - Looker Area	ء	5	14JUN10	18JUN10	90	22 (Hec	1.	iI	8 Pairle CMU Interior Walls Col. 17-22 - Cocker Area
4.5355	Frme Part + First Cost Pani - 4th Fir	15	15	28.IUN10	19.01110	a	-17 (HAG	;		Prime Faint + First Cost Paint - 4h Fir
5-5480	Paint Steel Trusses And Celling @ High Area	- 0	10	OKAUG10	17AUG10	79	-14	овн			🖷 Palist Steel Trusses And Califing 🖓 High Area
45280	Peint CN'U Wale + GYP Cellinse - Locke: Area	-0	10	08AUG10	19ALG10	50	-33	DBH	Ľ	1	B Paint CMU Wells + GVP Ceilings - Lacket Ares
53 55 C	Prime Psint + First Cost Paint - Bidg C	···	15	24AUG10	14SEP 10	10	-45 0	0911	11		Prime Paint, + First Coat Paint, - Bido C
4-5425	Enleh Pelix, - 4th Fit	10	10	060CT10	190CT 10	20	47 0	JAH			Finish Paint - 4th Pir
3-5425	Emish Paint - 2rd Fir	10	10	2705119	CENCIV10	21	17	ран	<u></u> +i−	H	51 Finish Palant and Fin
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1.5425	Exist Paint - 1st Fr		10	190 =010	220EC10	20	-17	DDH	1		Findah Paant - ter Fin
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COST	Cost Surgery Painting 09H	175*	479*	D2MAV12	14.14.14.14		17	590 590		ΞI	Cost Summary Painting 08H
E- GEN'IL Y	RADES OPEN PARVICULET PARTIAG	0635	: 77:				21				
05J 8CO	100% CD's issued for Fkg 05J Gen I Trades	0	n		01FE810	107	-6S (ານ	Ф 1	ios,	CID's leaved for Plig 09J Gen'l Trades
00.45C6	Ro-Price & Rec. Award - Gen' Trades	10	10	09FER10	15FEB 10	107	-10 :	າຍ		Re-	nice & Rec. Award - Cen'l Trades
39,4508	Rev/App Award - Gen'l Trades	3	3	16FEB10	18FEB 10	107	· 40	09J	111	Rev	App Award - Gen Trades
35J-510	Award Contract - Gen' Traces	з	з	19+-6810	Z3FEB10	107	40 (UBU -	1 .	٨v	and Contrast - Gen I Trades
10/-612	Submit SD's Specialities Submittais – Loskers	16	15	24FEB10	15MAR10	107	35 0	- Upc	11	– 4	ubmit 90's apecialities Submittals - Lockors
C9J &120	Submit SD's Submitters - White/Lock Boards + Acc	15	15	24FEB10	15MAR 10	142	-40 :	ໝ			ubanit SD's Submittals - Walte Tack Boards + Ace i
093-512E	Submit SD's Specialities Submittals - Telist Part	15	15	24FFB1()	15MAR 10	1/2	i -101:	JBJ			nihenit SD's SpecialNes Submittele - Tollet Part
104-5120	Submit SD'a Submita's - Blaechara	15	15	24FEB10	BMAR 10	147	-35	0BJ	li I	i	ubenit SO's Sybmittale - Bleachers
36,4512	Prep/Sub-Submittels - Operable Partitions	15	1E	24FEB10	1 SMAR 10	329	-40 :	09J	111	68 (rep'Sub Submittals - Operable Partitions
090-5128	PrevSeb Sebmittals - Skyfeld Partitions	16	th	24HEB10	1EMAN 10	329	-40 :	נפנ	11	i e	nep/Sub Submittals - Skyfold Partitions
08,46121	Prep/Sab Sabmitals - Gym Diwder Curtain	16	15	24EEB10	15MAR 10	325	40	າເມື	11	21	represes Submittels - Gym Division Curisia
CŞJ \$120	Prop/Bub Submittela - Blinds and Drapes	15	15	2%FEB13	1EMAR 10	329	-101	DBJ			rep/Sub Sylbmittels - Blinds and Drapse
19.1512	Prep/Sub-Submittels - Triller Access	15	16	247EB19	TBMAR 10	339	-40	OBJ			rep/Sub Submittale - Toilet Access
CEU-512H	PretvSub Submittele - Ano jancea	15	15	24FEB11	LEMAR ID	349	-4019	191			rep/Sub Submittele - Appliances
12B-512C	Submit 6D's Sample Pks 128 Athletic Equipment	20	20	245EB10	22MAR 10	142	31 5	ÓВJ		i i i	Submit SU's+Sample Pkg12B Athlotae Equipment
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109-5140	Revision SIVe Si Ivenitais - Biochars	15	15	1784810	0566210	147	-16 (%)	11	Revulano SD's Submittala - Bleacthere
091-514	Dec/Ace Submittaba, Oracable Datilization	15	15	17866810	0849810	329	AD COL	۰i	ReviApp Submittale - Operable Partitions
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093-5160	Fabrical Special deal-Anthani sok Boarde + Acc		50	C/APAC'S	- K.IIJN 10	1. 142	-40119.1	-	Eabling Secondations - Tollet Postitions
090-5-80	FEBDOI Specta les - Tarel Performa		- 20	0/AP-3-6	EJUNI	142	-40 000	-11	Enhibed Sectores - Force Particulars
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4 5450	White Boards, Tack Boards + Accessories 4In Pir	5	ć	20000110	26OCT1	I 65	-17 04J	-11	in territoria international in a second s
546CC	Install Bleacher Seating - Gym	13	10	2300110	@2NOV1:	1 602	-33 DAT	-L'	insten Blocchar Stocchar Stating - Sym
4-544U	[Instat Leekers 4th Floor	15	16	2000T10	USNOV1:	1 20	17 06J	-	i i i i i i i i i i i i i i i i i i i
4544C	Tollet Partilions - Accessories - Locker Area	17	10	2700710	03NDV10	90	-33 DGJ	_	B Tole1 Parbtions+ Accessones - Locker
S-5450	White Boards, Tack Boards + Accessories and Fil	5	- 5	- 6N OV10	19NOV10	45	-17 08J		White Boards, Task Boards + Accessori
4646C	Lookers - Looker Area	6		10MCV10	18NOV10	i, ∉D	-33 OSJ		Unelicers'- Locker Area
3-544U	Instal Lockers - 8rd Fleor	15	16	101401/10	04DEC10	1 20	17 06J	_	I matall(Lockeea - 3rd Floor
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2-5440	Instal Lockens - 2nd Pleor	15	15	. 020EC 10	220F010	1 20	-17 (29.)		🖬 Insthill Lisckars - 2nd Floor
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103-503	Prap Scope-Pkg 108 Rightage	9	₿-	0200010*	125 53-10	126	-24 108	Pred Scope-Pkg 10B Signage
103-504	Rid Period - Signage	20	20	16PEB10	12MAR10	126	-21 198	Call City Period - Signage
103-508	Rec Award - Signage	γ	7	15MAR10	23MAR.10	126	-21 138	3 Rec, Award - Bignage
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108-510	Award Comract Signage	З	3	23MAR10	31 MAR10	126	-21 108	Award Contract - Signage
103-512	Submit SD's Submittals - Signage	15	-6	01A9R10	21APR 10	126	-21 108	Submit SD's Submittels - Signage
106 514	Rev/App 50's Submitte a - Signage	25	25	2249R10	26MAY10	126	-21 138	RewApp SD's Submittals - Signage
108-5164	Fabilite Meterlais - Signege Bidg A/B	- 50	30	27MAY13	CEUUL/C	126	21 198	Feblüel Motoriele - Signago Birig AlB
108-5160	Fab/De Materials- Signage Bldg C	20	30	27MAY13	ESNUL-C	131	-24 108	FelwDei Materiale-Signage Bidg C
103-610	Malalaz-Pkg 108-Signage	0	Ð	2000710		55 '	-17 108	●Mobilize Pkg 108-Signapp
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4760	reball Kitchen Equipment - Kitchen/Cof	żo	20	C9DEC-10	07.JAN11	1.8	-17 11A	Install Kitchen Equipment - Kitchen Collin
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118-518	Mobil 26-Pkg 118 Lab Equipment	U	0	10NDV10		15	-17 118	+ Mobilize-Pkg 118 Lab Equipment
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11C-505 Ren. Award - 11C Stiege F	Foulp / Fligging	7	7	25FE910	05MAR ⁺ C	10	-44 1	10	Rec. Award - 11C Strage Explip Rigging
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11C-516 Fax/De Materials - Stage	Equip / Rigging	- 20	33	11MAY10	22 ./UN 30	10	-44 1	16	Feb/De Meterialis - Stege Equip / Ridging
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13D-504 Bid Period - 110 Theatre i	lghiling	15	15	18,MN10	05FEB*C	3	-91 1	1D	Bid Period - 11D Theacre Lighting
11D-506 Foc. Award - 11D Theatre	Ughdna	7	7	06FEB10	16FEB . C	3	-911	10	Rec Award - 11D Thedbre Lighting
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1-5395AB	Sux Heads - Tet Fin			2	7 07JUN10	15JUN13	100	-32 36A	SpidiHeads - 141 Fit
2-5396AD	Sok Heads - 2nd Fit			10	10 07JUN10	16JUN19	60	17 36A	BpkiHeads - 2nd ⊯r
4428C	Adjust Celling Surink a	er Heads - Auditonum		5	6 21.JUN10	25JUN10	22	-0-19A	Adjust Celling Sprinkler Healts - Aud Kortum
3-6386/48	Sold Heads - 3rd Sir			10	10 OBJUU 10	1910110	45	-17 16A	M Spiki Heeda - Stal Fir
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4-5395AB	Spk Heads - 4th Fit		i	10	10 08AUG10	18AUG10	10	-17 16A	📕 Spiel Heads = 44) Fir
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5386C	Sok Heads - Bidg C			10	10 23582910	1200710	. 20	-33 15A	galdy+eqds;Bidg ¢
475.4K	Spk Heads - Khohen	Cart		Э	3 030FC10	1SIDEC10	. 26	-17 15A	
6443	City Inspection Fire Al	ermi i tie Safety	i	6	5 23DEC10	SOLEC10	142	-33 16A	City Inspection Fire Alsoni Life Safeta
15A-008T	Cost Guininauy, Fire P	rotection 15A	· · ·	258*	1607 \$20CTL9A	1200110	20	-33 16A	Cost Summary) Fire Protection 164
-PL'JMiß'	24G (*SB)		· ·	>		·			
158-638	Feb/Del Acki Neuralia	:ei		40	40 10NL/VD84	11MAR10	16D	-41 108	Billi Fabubel Asig Neutralizzy
15A-300	Fah/Del Plumbing Fild	Lines		20	20 11JAN/0A	11+6810	j 220	45 153	PatyDel Plumbing Fixtures
16A-518C	Fab/Del Plumbing Ma	erias Bog C		16.	10 15JAN10	01FEB10	115	-5 158	Fab/Del Flumbing Neterlais - Bfrig C
1-5325AB	RECULT. Plumbing - 1:	2 FF		ហេដ	1/1 298FP10A	04FEB10	25	-49 158	🕮 R.I.G.H. Filmoksing - Tel Fil-
47 12K	HLLQ.B. Pymbing - K	tchen/Oet		5	5 09NDV08A	11/0910	204	-42 166	R.I.O.H. Plumbing - Kitchen/Cal
4714K	RiPumb n Wells - K	toher (Caf	- ·	10	10 04.3AN10A	10FEB1u	185	40 188	RI.Plumb in Walls - Kitchen Gat
1-53%AB	R (Numb in Walls - 1)	si Fl-		н	5 Z7JAN10	OZFEB10	29	-47 138	I RAPlumb in Wals - Isi Fir
2-533EAB	R.iPumbin Walls - 2	nd Fr		15	15 0165810	10FEB10	24	-30 158	BE RULPIUGID IN WARE 200 For
1-1:356/48	Cest & Inspect in Wall	NEP -1st Fr			3 C3FFB-10	05FEB10	29	12 150	That & Inspect & Walli MER det Fil
2-5325AB	BLC.H. Pumbing 2nd	Fr	· · · · ·	. 20	20 CEFER10	OKMAR10	26	-39 16R	RLOH Plumbing 2nd Fir
4725 K	Fost & francel in Wall	MEP - Kilchen/Cer		2	2 1759540	15101410	160	40 108	Test & Inadect in Walli MEP - Klitchen/Car
2-5350AB	Teal & Preparel jo Well	NEP -Striff-		81	5 22FEB40	25FEB10	24	15 16B	T Yest & Inspect in Wall MEP (and Fin
	1000 and 1000				- 11. ED 10				
alt Dece	265EP14	·	Eary Ber	PANIE	OIL DAME D			5ref 15.cl 2	Rate Block Constant (pp. 17
la Darlo	15JAN-C		Progress Ee	r	DIDBANE B		AL, VILLA		
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3-5336AB	R. Plant a Wells - Bro Fil	15	15	29FEB10	18MAR10	25	-29 158	R. R. Plumb in Wolls - Sep Fir 1
3-5326AR	R Q.H PourLing Sul Fir	26	20	05MAR1D	31APR10.	25	-39 158	R.L.O. H. Flumbing and Fir
3-5360AB	Test & Inspect in Wall MEP -3rd Fil	6	5	19MAR10	25MAR103	25	-29 168	Test & inspect in Wall MEP and Fir
4-5336.43	R.: Humb in Walls - Alh I- r	15	15	E2APR40	22APR10:	20	-34 158	🔲 RJ Plumb in Walls - 48) Fir
4 5325/48	R.10.H. Pumbing 4th Fin	SC.	20	C2APR-10	29APR10	25	-33 169	E R.KO.H. Plumbing 4th Fit
4-535CAB	Teat & Inspect in Well MEP -Iffn Fir	•	5	23APR ID	29APR10	20	34 168	Test & Inspect In Wall MEP -th Fir
5325C	RICH Purbing - Reg C	201	20	10MAY10	07.JL; N10	49	-44 138	Bear RU.O.H. Plumibling blidg C
4742K	Instal Reling, Lines - Kitchers/Caf	50	10,	02JUN10	15JUN10	69	-31 158	🕲 Ipetalii Retrig. Lines - Kitchen/Cat
623.00	R.IPumbin Walls - Bidg C	111	15	07JUN10	25JUN10	10	-33 150	R.I.Pluieb n Walls - Blog C
4812C	Instali Acid Neutralizer - Locker Area		5	21JUN10	ZNUNID	90	33 168	I Install Acid Neutralizer - Backer Area
46200	in-wali Plumbing Rough Li coker Area	20	21	0FMULES	19JUL10	80	-33 18B	1779 (n-wall Plumbing Rough - Locker Area
53500	Teat & Instead In Wall MEP - Bids C	5	51	15JUL10	1920110	10	-32 15B	Test & (respect)n Viall (MSP - Blog C ; ;
46420	Plumbing Fixtures - Locker Area	10	10	13OCT10	260.0010	-50	-33 15B1	🗧 🗧 📕 📕 📕 📕 📕 📕 🗧
4-6415A3	Complete Ping @ Millacro - 4th Fir	10	- 10 İ	20OCT10	02NOV10	20	-17 15B	🖼 Çeneplete Pirne 🙆 Nellwork - 4th Fir
a natiaA≥	(Complete Pimp @ Milwors - Ord Fb	. 10	13	17NCV10	OIDECIO	10	-37(158	🖬 Complete Pirrig 😰 Millwork - Sini Film
2-5415AB	Complete Ping @ Milleork - 2nd Fin	10	19	CSDEC10	2205010	6	-1/[16B	🖬 Complete Pinig 😥 Millwork - 2nd Fi
1-511548	Complete Ping @ Miltwork - 1at Fir	10	17	28DEC10	07.IAN11	5	-17 15B	Complete Pineg @ Mildeotk - 1st Fills
5415C	Comulete P)-to @ Milwork - B to C	10	10	10.JAN11	21JAN1-	5	-17 15B	Complete Ping 😤 Willy noti- Biog 🗃
168-COST	Cost Summary: Plumaing 15B	336*	250*	28SEP09A	21.JAN :	5	-17 150	Coal Biremary: Plumbing 15B
D-SVAC (2	5518)			·				
10C 246	FabDe Iver MEP Bida A/B Fir 4	16	< 5	A20CT03A	26FEB/10	20	-26 18C	Fab Deliver MEP - Blog A/B Fir. 4
150-546	FabiCe Mar Roof Environment - 15C - HVAC	ED	45	1206 1094	10MAR10	39	-83 15C	and Patribeliver Roof Equipment - 156 - HVAG
150-576	Fab/Gelver VAVa / FCJ - 15C - HVAC	47'	26'	15DEQ38A	18F-B1C	74	D 15C	Fabibeliver VAV's / FOU-16C - HVAC
15C-678	Eab/De iver Cooling Tower - HVAC	50	50	1SDECORA	25MAR 10	377	0 150	FabiDelPra-Cooling Town - HVAC
100-622	Re-sub SD Chiller - 15C IVAC	20	20	04JAN10A	11F-2B-10	327	0 150	Re-cub SD Chiller - 162 - HVAC
15C-10-01	MEP Coorcingtion Evide Bidg C - 15C-HVAC	40	2	15.JAN10	1&LAN' C	53.	15 150	ALCP Coordination Dwgs Bidg C - 13C-HVAC
150-260	Est/De for MEP_Bids A/B Er 3	15	15	15.MN10	04FFB10	20	45 15C	BS Fabilite liver MEP - Biblig A/B Fiz. 3
150-554	Feb/Do tvor Gee Fireo Bollors	20	20	15JAN10	11F6810	437	D 15C	Fabiliteiner Gas Fired Gallers
150-556	Fabrica iver Reseboard Heat	20	20	15.JAN10	1*FFB10	407 i	0 150	EabiDeliver Baseboard Hert
150-558	FalsDeiver Fin Jule Badiation	Ś	ac	15.JAN10	25FF6.10	397	0 150	Feb/Deliver Fin Tube Rediation
180-680	PabDeber BTU +I	70	70	16JAN10	22APR 10	357	0 150	Feb/Dellver RTU -H
192 552	Feb/Deliver H (U) for Cafe/Aud/ Lib	70	70	15.JAN10	22/JPH10	357	0 150	Bandwall Pab/Deliver R3U - for Cafe/Aud/ Lib
157-626	Esb/Deliver Foot Equipment - 190 - HVAC	i 80	RD	15.IAN10	05MAY10	5	-31 15D	Fab Deliver Roof Equipment - 15C - HYAC
150-660	Feb/Coliver HS V Unit - Sam	ණ	80	-5.JAN10	DBMAY10	347	0 150	Fab.Deliver H& V Unit - Sym
150-626	Fah'Deirer Brot Fruipmen; - 15C - HVAC	80	PLQ I	16.JAN10	DBMAY10	347	0 15C	FebDeliver Roof Equipment - 15C - HVAC
150-269	Fab/Deliver Nech Pice / Duct - Bido C	20	20	19.JAN-0	16FEB10	63	-6 16C	Fab Deliver, Mech Pipe (Duct - Bidg G
150-623	AE Reva Re-sub SD Chiler - 15C - HVAC	- 20	20 3	12FED 10	11MAR10	327	0 150	Are Rever Re-sub SO Chiller - 15C - HVAC
150-625	-Fab & der Chttler - 150 - HVAC	63	БО	12MAR10	O4JUNIO	327	0 150	and the sole of th
lad Form Inisa Forda Inisa Forda	Standard Ingept4 Ingept4	Bea	5	GILBANE BU	LUING CON	IPAN	5 M 17 8 3	11 10 10 10 10 10 10 10 10 10
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a Niber					
2-9320AB	R.I.O.H. Mechanica, Ploto Sand Fr	20 6	14DEC05A	21JAN 10 40 10 15C	RJ/GH. Mechanical Piping - 2nd Fir
2 9305AB	R.I.O.H. HVWC and Fin	20 b	29DECCEA	11FEB10 25 -24 16C	RLI.Q.H. HVAC - and Fir
4704K	S.I.O.H. Machanika Plining - Kilchen/Cat	5 6	15.LAN10	21JAN10 2'4 -32 15C	R1.0.N. Mcchanical Piping - Kitchen/Caf
3-9320AB	R.I.O.H. Macherikas Piloiny - Std Fir	20 16	OSFEB10	26FEB10 35 -25 15C	R.I.C.S. Machanical Piping - 3rd Fir
▲5 02C	RIOII Mechanica - Locker Area	15 16	16000	CENAR10 63 -515C	R.I.O.H. Mechanica) - Locker Area
1/9306AB	Instal WAV's / POU's / CUH - 1st Fin	8 C	22FE810	26FEB10 24 -70 16C	I Install/VAYs / FOUs / CUH - 1st Fir
4746K	Set BTU 1 Nitchen/Cat	2 2	20FEB10	DINAR 10 207 42 100	Set RTU-1 - Kitchan/Caf
4-0305AB	R.I.O.H. EVAC - 4th Fit	20 20	26FE810	25MAH10 20 -34 150	Well RLCO H. HVAC 4th Pir
472CK	Instal VAVa J FCU a / CUH - Kitchan/Caf	5 6	O1MAR10	D5MA810 27 -70 15C	Einstall VAV's / FGU's / CUH - Killchan/Cal
1-9308AB	Duct Tie to To VAVa - Tet Fit	a a	01MAR1D	10W4B10 24 -7015C	Duct Tegn To VAVe - 1st Fir
1-9307AB	Brinn Tello To VAVs - 1et Dr	···· • • •	OT MAR ID	11M4810 48 -70 50	Pipiris Tie In To YAV's - 1st Fir
Addine V	Instal VWAs (ECIIIs / COH, 2nd Sir	10 10	01MAR1C	12004310 24 -50 60	Dinschi VAVis / FCUis / CUM - 2nd Fir
4774K	Duct Tie in To VANs - Kitchen/Cof	7 2	11114810	12048310 24 -001/150	Duci Tisin To VAV's - Kitzhen/Cat
193201AB	IR OH Machanica: Piping, 4th Fit	· · · · · · · · · · · · · · · · · · ·	12MAR-10	084F810 30 -94 -90	BLOHL Mechanicol Piping 4th Fir
47920FD	Prine Telle Te VALA - Minhead af		1544840	1994 210 -07 -27 -60	Picing Fig in To VAVia - Kitchen/Car
200000	Duel Texas Te VAVa: 2 and Sta	fo 10	15448-10	2854AP10 14 50 50	Dut Tielo ToWAVa - 201 Fit
1 0305 813	Included the first of the first of the first state	10 10	15444210	20101110 24 03 80	Event VAVe / ECI / a / CI N - 3rd Eir
2.0907AB	Robo To to To VALa - 2nd Er	10 10	1586810	20640 P10 44 -51 160	Fining Tale To VAV's - 3nd Fir
2-0301AD	E pring a Calific Provide - 216 Els	10 10		20040010 44 -20 100	Pinima Tip in To Vél/3 - 3mi Fin
2 8301 AM	ingung ingen no wearge and rate. Dual Tay a Tagada sa sa ra	; 10 10 I 10 10	20MAR40	3000-10 24 -40 10C	7 Duct Tiale To VAVa - Stat Fig
1.04/565	Exercise Port Descentions - 1st Els	1 10 10	20000010	24 44 100 24 44 100	Elemente Durb Penetentióne à 1et El
4 630660	Interactive And Andrews Statement and Andrews Statements and Andrews		CONDICIO	200427-010, 121 -13 133	Director HANGE / FOINE CONS 400 Fit-
4 5406745	Instal WAVS (PODS/CDH 2/h Fir	16 10	LEVIPR10	2209-R10; 26 -33 160	
441:212	H Magnatical - Aunozinem	316 330	1384PH10	20.00AF101 221 3118C	
99050	H U.H HWAG-Blag C	26 20	12APR10	67/MA710 24: -44 15G	
4-6307AD	Plang lasti lo VAVS-4in Fr	16, 10	234PR10	CBMAY 10 25 -38 16C	mine repring the in to wave e-reprint re
4 930248	Duct the inite VAVs 4th Fit	10:10	25APH10	DSI PE dE UTYAMBO	
9970C	R I C.F. Mechanical Piping - Fildg C	201 20	25APR10	21MA**0 49 -44 13G	
4784K	Finastopping - Kitchen/Caf	2 2	SCAPR10	C2NAY10 158 -17 150	1 Filestopping - Kitchenoxa
2-8416AB	Firestop Duck Penetrations - 2r.d i in	E 5	3GAPR10	CEMAV-0 807 15C	
4309/08	Set Mechanica, Root Equipment – Classroom Bildg	10 10	a/MAY10	2286AV10 6 31 16G	B Set Mechanical Rout Country - Classroux Bigg
43010	Set Mechanice Equipment Gym	13 13	07MAY10	29NAY10 162 -31 160	Set Nechanical Equipment Gym
94060	instel VAVs / FOU's / CUH - 1sr Fir Bidg C	10 10	i 17MAY10	25NAY"0 59 44 150	IF Install VAV's (FCU's / CUH - 1sr Fir Bidg C)
3-5415AB	Firearop Durá Penetrations - 3rd Fir	5 5	28MAY10	0434JN10 45 -17 150	Finado p Euct Penethatidos 4 3rd Fir
9867C	Pioling The In To VAV's - Birlg C	10 10	C1JUN10	14.UN10 59 -11113C	i 🖬 Pholog The In Tri VAV's Billig C
9605C	Duct Tie In To VAVe - Blag C	10 13	G1JUN.10	14.JUN10 59 -11 15G	i Duel Twija €a VAVia - Bidg C i i i i
1-6400.43	, Install RGD - 1st Fr	8 8	67JUN10	15JUN10 99 -22 15C	■ Install RGO- 1et Fir
2 6400AB	install -RGD - 2nd Fir	15 15	D7JUN10	25JUN10 76 17 15C	🚾 install RGD - 2nd Fir j
4 9416AB	Erosson Duct Penelredors - 40 Fir	5 5	25JUN10	C2JUI 10 10 -17 15C	Firostop Duct Popetradions - 4th Fit
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		流进	, đđi			losi		以《周秋》卷注:"我们是没有的"我们"的"别儿"的"我们"。 第149章 \$279年9月20日,我们有些我们的"我们是不知道是你们的是你们。"			
44392C	OF Ceiling RGDs - Auditorium	10	10	28.0.N10	12JUL10	22	0 15G	GH Celling RGDs - Auditorium			
2-5490AB	Instal RGD - Std Ft	is	16	06JUL10	26JUL10	-10	-17 150	🖬 lestall RGD – 3rd Fir			
4 5400AB	Instal RGD - 4th Fr	15	15	uanti Gr.c	23AUG10	6	-17 15C	🖬 Instati RGO - 4th fir			
9415C	Firestop Duct Penetrations - Bldg C	5	٠e	17AL(G10	234UG10	272	-33 (50	Firestop Duet Penstrattors - Bldg C			
4634C	Celling RGDs - Locker Area	- 7	- 7	3 AUG10	098EP10	50	aaj 16G	Colling RGDs - Locker Area			
0436	Final Convect Equipment Star-Up & Commissioning	53	60	22SEP10	C1DFC10	an	-93,150	Billion Print Connect Equipment Start Op & C			
5400C	Instal RGD - Bidg C		15	296EP 10	16OCT10	1E-	-93 16C	an install RGD: Edg G			
4-5422AB	Test & Balance HVAC 44h Fir	i 10	10	2300710	62NOV18	15	-12 160	Test & Balance HVAC - 4th Hir			
3-5422AB	Test & Balance HVAC - '3rd Hit	10	19	10/00/10	23NOV10	10	-17 100	The Balance HVAC - and Pir			
2-5122AB	Teat & Belance HVAC 2nd Hr	10	10	J2DEC10	15DEC10		-17 19G				
47 <i>58</i> K	Instal RGD - Kitchen/Cat	<u>'</u>		99CEC10	17DEC10	22	-17 16C	The A Defense ADA C. Ash Ele			
1-54Z2AB	Test & Eslance HVAC - 1st FI	10	10	22DEC-10	07JAN11	U	-7,150	Test & Budunia Mitari, der die Bien des			
54270	Test & Balance HVAC - 1st FF Bidg C	15	. 15	10.4N11	28JAN11	0	-17 150	The second second second second second second second second second second second second second second second se			
15C-COST	Cast Summary: HVAC 168	290*	225*	130007034	010EC10	80	-23 150 1				
B-UNDER 8	SLAB PALMSING (FSB)										
16828-0087	Cost Summary: U/3 Electro 16828 Spring 2010	60	- 6 0	01APR10-;	24.JUN' C	313	D 15U	Gast Summary: U/3 Electric 16828/3pring 2010			
D-CEEONRI	1: (41 (FS5))										
16A-522	Prep/Bub 80+Dele 1EA-Light Fotures	46	1E	C7AUG09A	MFEB10	40	-53 15A	Prop Sub SO+Date 16A+Light Fixbures			
164-532	Prep/Sub SD+Deb- 164- Perel Roxes	10	5	Z9CICTU9A	21JAN10	367	0 19A	Prep/Eub 8D+Data- 16A- Panel Boxes			
D12-000	Price Asd # 30 Revises Election (Adds)	10	10	14.JAN1.08	29JAN10	169	0 t6A	Price Add # 30 Revieed Electical (Adds)			
D12-602	Gwner ApPrice Add # 20 Revised Electical (Adde)	িম	10	14.IAN10A	12FEB10	159	0 16A	Conner ApPrice Add # 30 Revised Electical (Adds)			
012-601	Mig to Clarify # 36 Reviewd Electical/woruba	1	1	16JAN10	15JAN10	159	Q 16A	intg'to Glarity # 30 Revised Electicality/subs			
16/4-634	Rev:App/SD-Pane-Ecces	15	15	22.JAN10	11FEB10	387	0 16A	RewApperD Panel Bakes			
14 4- 824	Rev:App Light Fistures	15	15	OSFEB10	2826815	40	-63: 16A	Revia to Light Fedura			
154-636	Fab/Del Pane Boxes	23	20	12FE810	116147610	327	U 16A	Fablüei Panpi Boxee			
D12-512	Prep & Ro-sub s.d 16s - Switchgear	10	10	15FEB 10	26FEB10	199	0 16A	🖬 Prep & Resub av 10a - Switchgeur : :			
394-617	Fab/Del Light Fbturce	79	70	28FED 10	04JUN10	40	-113 16A	Example Fab Det Light Fixtures			
18A-514	Rev/App/6D- Swict gest	15	18	C1MAR 10	19MAR1D	169	-89 16A	Rev(AphSC) Switchgeer			
•sAlete	Fab/Del Switchgean	50	50	22MAH 10.	28140,710	169	108 16A	Feb/D4 Syntehgebr			
2-5340AI3	R. Electric in Wards - 2nd Fin	20	10	2306C08A	ZBJAN10	40	8 16A	Rul Electric In/Weller - 2nd Fir			
2-5510AB	BLIGH Erstina, Fire Alarm + AV 2ad Fir	20	10	23DEC084	25FEB10	65	-15 164				
1-554QAB	BU Eacldo In Walls - 1st Fit	10	10	15JAN 10	26.JAN10	32	15 164	R: Plactric in Walls - 1st fir			
1 6810AB	R.I.O.H. Electric, Fire Alarm + AV - Sat Fir	: <u>1</u> 0	110	15.WK10	. 28JAN10	76	-34 18A	RLO.R Electric, Fire Alarm - AV - 1st Fir			
4710K	R.I Liectric In Wells - KitshewCel	10	10	CAFEBIO	foreB10	150	-40 18A	RJETSetric in Wells - Kitchan(Cal)			
48040	R.J.O H. Electrical - Locker Area	15	15	16FEB10	03MAR1D	-59	5 164	RI.O.H. Electrical - Locks Afai			
4725K	R.I.D H. Electro, Fire Alarm + AV - Kitanen/Caf	10	-0	19FEB10	04MAR10	204	-42 15A	E RJ.O.H. Cleckic, Fire Alerci + AV - KilchewGer			
3-53%JAB	R Fechic in Walls - Brd Fr	ੜਾ	20	19FEB10,	* aMEAR 10	25	-20 15A				
~412G	R.I. In-weil Electrical - Aussiter um	- 17	- 17	22/0010	66,448,10	54	-21 19A	and H.J. In-wait Eleconcal - Auditionsmi			
Start Date	254F618 Early Bar	won	16				Shael 16 of 21	tale through the second system			
Constantiana Constantia	1866F11	ыг [.]		GREBANE BU	ILDING COM	PAN	ť				
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1-5220/3	RIOUL Contras - 1st Fk	7	7	12MAR10	22MAR*C	48 -64 16	A I	BRLON. Compares 166 Fir
4744%	R I O H. Contro s - Kitchen/Cof	s s	3	16MAR 10	19MAR^C	197 -49 16	ia :	I R.I.O.H. Controls - Kitchen/Gel
4.59409.8	R IE edit in Viais - 4th Fin	20	20	20MAR 10	226PR10	20 -84 18	A I	🗰 Rul Eloquic in Waljs - 44h Pir
2-520148	R LOH Controls 7no Els	-0	10	2564AR10	08APR1C	A1 -28 18	i li	RJ.O.H. Controls 2nd Fir
3-511348	PLOH Flechic Fire Asraul AV SullEx	20	20	25144810	2268810	34 40 10		RLO,H Bectric, Fire Alarm + AVi3rd Fir
44786	Terms Linkling (Jerms & Jelica AME) - At dilecture		5	0247810	CRAPS 10	72 D 15		Tomp Lighting (shows + below AWP) - Auditorium
44097	E Sadakiers - Audom um	ŝ	30	(9APR10	20MAY10	22 0 15		Russi R.L. Sprinkders - Auditorium
44100	B.I. E contral - Aughtndum	30	30	09APR10	2044Y10	22 0.18	a i	RL Electrical - Auditorium
3-532346	R LO H. Controls 3rd Fir	10	10	26APR10	07MAY10	34 -10 18		R.J.O.H. Corntrols and Fir
AwataaR	BLOH Elevente Free Alerente AV dita Er	20	. 2D	2542513	Z1MAY10	24 -40 18		R.I.O.H. Electric, Fire Alarm HAVAth Fir
4-532046	2 I G II. Controls 4th Fi-	10	10	24/46/10	07JUN 10	24 40 10		R.I.O.H. Controls #th Fir
1.74410	D 1 O H Electric Ere Abron 4 AV - B reaf:	20	20	01.8.013	28.IUN 10	45 44 16		R.I.O.H. Electric, Fire Alarm + AV - Bion G
44200	House Listing - Auddonum	10	10	07.8.19:2	18.IUN 10	22 016		House Liphting - Auditorium
1.520440	Labring - Int Er	13	13	O CALINT C		- 04 - 30 - 6		185 Lighting - 1st Fir
2-59004D	Light man - Soul EX	31	10	028.187.0	02/08/10	20 -17/26		Lishting 2nd Fir
2-3380AD	D. Dentric In Markey, Date 2	20	- 20	141.040	1208-1/	10 39 48	<u></u>	X.I Electrics in Wallie - Blog C
34900	Summed AV Suppler attra Arritorium		-	21 01010	25/08/10	52 3.30		I Suspend AV/ Speakers at: - Auditoristm
44160	In wall Electrical Pourby Locar Area	1 1	- xi	21 10110	120111	-50 -39 16	14	In-mali Electrical Routh - Locker Aree
461100	In white Ecolor Res Exception Lector Area	4.	45	2190410	12-1140.	CO	<u>m</u>	221 Install #jectr. Rin Poulogeant - Locker Area
45 140	R 20 K Controls Elds C	10	19	2620110	10.0010	40 -00 10	2	
632000	R : G F, Conorig - Skig C And anna Banda Sadhar & Sable - Anallada M			cellul do	79.0010	40 444 10	<u>~</u>	. Audieres treater tottede & lights - Audiforium
44220	And area breach banders a lights - Auchonich				0360210		20	tintime and Fi
3 6390765		20	10	21 11 10	12401010	20 44146	2 44	BL Election Bool Praming (® High Area
54700	Aut Sector Room Framming ny High Area	- 10	10	2130210	034013-0		<u>.</u>	DH Coiling 1 Initian 1 Auditorium
449063	DH Celling Lighting - Australium	10	10	2010010		0 18 10	<u></u>	
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113400	Artivete Housevstageword upone - Accolonum	10	10		20403-0	3 19 16 50 - 33 44		Geiling Lighting: Lynker Area
46320	Cer wig Lights g - Locker Area	<u>`</u> ا		.11401010	URGEP-L	90 •33 15		E Linding - Ride C
63900	Lighting - Liddy C	80	20	286EP10	2900110	10 35 15		E kabilan - Kitchen Caf
4/58K	Lighting Kitchen/Gar	- 4	Ļ.	- vectorial	1 /1/FC:10	221 -17 12		i Egneing - Reciprover
5435	Fire Alarm in House Test	<u> </u>	b	1805010	2208010	142 -33 11	1A	Inerall Electrical Einlehae, BMn (15
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Finiali Dato Dina Dato Rut.Date	15.5410 22.4H01428)ar Mitv Man⊃ca	CESTER NOR	тн наон эсн		Cilhono

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Appendix C: Bid Package Cost vs. Budget Estimate

· · · · · ·				· 16/28/2502 -						
Bid Pa¢opge ≄ & Name (Trado Santación Did Packages - In BoH)	Contractor	8P Est Budget (4-13-09)	Felintated Contract Value	Aciusi Award Ameuoi	CR Amount	Tobal Cret's to State	8 001	. * *	Compenie	
						2 .	Varli	ayaA.		
	And the state of the state	19 - 18			1. Sec. 2.		2. : . : : : : : : : : : : : : : : : : :	8010 18	201 S. C. C. C. C.	
S - Landscaping		\$183,226	\$*83,228	\$0 \$0		\$103,290	se Se	7926.iq 226.r 0.00%.	1997 - 1997 -	
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analising and the second	STRUCTURE STRUCTURE STR	24,004,889	\$4,098,869	30		\$4,008,859	30	0.00%		
B . Microllanonue Metale		BECCHARGE STREET	12 CL 12 262				語いな報告			
A - Millomek		\$37.9,038	3 0	5689,000			(\$285,630)	-27,25%		
	si⊨≋an bies≏in :	852,500 (1994) 1995 - 1995 - 1995	9873,444	ÉD.		3873,444 ;	\$0	0.03%		
				n ann ann ann ann ann ann ann ann ann a			iui Miliauto	Secie Refere		
slands-		\$348,777	80	\$369,000		8565,000	#218.223	61.89%	(**) 2010 10.000 (*) 00000	
	and dia milazar per gibien i Salar di tamang di salar di salar di salar di salar di salar di salar di salar di s	a Maria		ing a state of the second state of the second state of the second state of the second state of the second state	Sec. Sec.	ia - Vorlissia	Star Connector	ೆ ಕೆಂಡನೆ:	529 ⁻¹⁰ - 20 ⁻¹⁰ - 18	
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9 - Glass & Glažing		5113,780	\$118,780	4 13		arta,780	SU-SU SU	0.00%	C-10/200103/(3120)	
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	ar Star a Star	negeliker.	2		CH SOME		te and a second	8 . A		
B - Ceramic Tie		2422,327	2022 - 2200 (20 1 -20) - 22	20 ST		2011 2012	100 CONF	2005:2521 -200 CCIN		
C - AccuMical Ocilings		\$663,220	\$885.220			8985 220	(102,32) 40	0.00%		
D - Carpeting		\$86,175	\$86.175			836 175	<u></u>	0.00%		
E - Resiliant Flooring	- :	\$728.295	\$726,236			8728 258		0.00%		
F - Wood (Athletic) Flooring		3264,040	\$254,04D	50	_·	5064.040	. <u></u>	0.00%	· .	
9 - Epicor Flooring	· · ·	\$37,399	587,899	\$0		597,990			·	
P Palating & Walcovering	· [3469,475	\$459,486					0.0074		
J - General Trades		\$576,241	\$\$75,241	· · · ·		\$579.265	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		·]	
A - Lochen		\$ 348 ,640	\$348,845			3343.90	•n		· [
	·							0.00%		
				Page 1		73	-uret set child an	akago esat -	A budget estimate 10-57	-09
							F-			

Appendix D: Retaining Wall Design

 \odot pesign of petaining wall with counterfects - MAP 0 Current retaining wall talkest portion is 14.5' and the talkest partian of cliff is around 60-65 at the highest point. The driveway is intensible at a forlane and typically liveloods for a fireline are approx. 250 psf. Suse counter arts because they add tremendous Strength without making the slab of the head Very long Soil properties - glacial till (very dance, find Sardy sitt) - Frating designs can be used with an allowable bearing persoure of stons/saft, value of 0.6 For coefficient between concrete and booring soil for sliding peristance.

٨ General pressures on returning walls Artine Garassure (Manur Sliding Frichan 1) Determine DL and LL for the wall We need to design the wall for the driveway that is intended as a filelane. Typically for filelanos, LL= 250 pst . U= 140 + 17L There is no DL on the wall, 50 U=1.7L = 1.7 (25045f) = 425 psf Design for F'e = 4000 ps' fy= 60,000 ps; _``



Find h' due to the surcharge of the LL

$$h' = \frac{S}{W} \quad assume \quad w = 120 \text{ pcf}$$

$$S = 425 \text{ psf}$$

$$h' = \frac{425 \text{ psf}}{120 \text{ pcf}} = 3.27'$$

$$\text{Assumed pressures}$$

$$h' = \frac{S}{120 \text{ pcf}} = 3.27'$$

$$h' = \frac{S}{W} = 3.27'$$

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$$\frac{Pressure P}{P = \frac{1}{2} (ah wh (h+2h'))} = \frac{1}{2} (6.333) (120) (9') (9' + 2(3.27)') = \frac{1}{2} (6.333) (120) (9') (9' + 2(3.27)') = \frac{1}{2} (6.333) (120) (9') (9' + 2(3.27)') = \frac{1}{2} (120) (120) (9') = \frac{1}{2} (120) (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) = \frac{1}{2} (120) (120) (120) (120) = \frac{1}{2} (120) (120) (120) (120) (120) (120) (120) (120) = \frac{1}{2} (120) (120$$

From the book
$$\ge$$
 appendix A Graph A.1b

$$\frac{M_0}{4ba^2} = 590$$
Unit length of wall (b=12'') with $d=0.90$
 $d = \sqrt{\frac{M_0 \times 12}{0.90 \times 12 \times 590}} = \sqrt{\frac{206952}{6372}} = \sqrt{32.12}$
 $d = \sqrt{\frac{17240 \times 12}{0.90 \times 12 \times 590}} \sqrt{\frac{206952}{6372}} = \sqrt{32.12}$
 $d = 5.69$ " $\propto 5.70$ " form
 $d = 5.69$ " $\propto 5.70$ " form
 $d = 5.70$ " $+ 2.0$ " $+ .5$ " = 8.2 " make
 $d = 5.70$ " $+ 2.0$ " $+ .5$ " = 8.2 " make
 10 " = d at base of aim
Check arm for shear at distance d above the
 $base$
 $d = \frac{10}{12}$ " $= 0.833$ " $= distance = 9^{\circ} - 0.853$ " $= 3.1667$ "

$$\frac{(l_{eck} \text{ Shear away from base}}{P = \frac{1}{2} \times 0.333 \times 120 \times 8.1667 \times 15.54} = 2535 \text{ lbs}$$

$$V_{U} = 1.7 \times 2535 = \frac{14310.6265}{14310.6265}$$

$$\frac{d_{V_{c}}}{d_{V_{c}}} = 26 \sqrt{f_{c}} \text{ bd}$$

$$= 2(.85)(\sqrt{1000})(12)(10'')$$

$$= 2(.85)(63.24)(12)(10) = \frac{12902.865}{12902.865}$$

$$\frac{1310.865}{Paseg shoar + 54}$$

Design for a 12' wall
Soil numbers remain the same
i prit wt = 110-720 p.f
$$d = 25-30^{11}$$

 $f = 0.6 / per vito from Collingan
 $q = 5 \tan i / 5iff = 10,000 prf$
Find h' due to the surcharge - will be the same
 $h' = \frac{5}{40}$ assume $w = 120 pcf$
 $s = 425 psf$
 $h' = 3.27'$
Cah will be the same as well = 0.333]
Pressure $P = \frac{1}{2}$ (ah wh (h+2h')
estimated finding thickness = 1.5' / effective height = $10.5'$
 $P = \frac{1}{2} (0.333) (120) (10.5') (10.5 + 2(3.27))$
 $= 3.57'4.82 \ lbs$
 $y = \frac{h^2 + 3hh'}{3(h+2h')} = \frac{10.5^2 + 3(10.5)(3.27)}{3(17.04)} = 4.17'$$

Mu = 1.7 (3574.82)(4.17) = 25341.88 ft-1bs
Paili the same as the previous wall
Paili = 0.011
lookin appendix fir Mu value
Mu = 590 from chart

$$D = \int \frac{Mux_{12}}{0.90x_{12}x_{590}} = \int \frac{25342 \times 12}{0.90(12)(590)} = \frac{2.911}{100}$$

Assume $\frac{1}{2}$ " diameter for Rebar
also, 211 Gover for Stal
 $d = 6.911 + 211 + .511 = 9.9112 \approx 10^{-11}$
Check arm for shoar disland above base
 $d = \frac{10}{12}^{11} = 0.833^{12}$ disland above base
 36671

(a)
Chack shoar away from basic

$$P = \frac{1}{2} \times 0.333 \times 120 \times 9.667 \times 17.04 =$$

 $3291.2 \ lbs$
 $1.7(3291.2) = 5594.7 \ lbs$
 $dV_c = 2b \ fr_c \ bd = \frac{12902 \ lbs}{12902 \ lbs}$
 $5594.7 \ lbs < 12902 \ lbs}$
 $paixes shoar$





$$\frac{10}{10} \frac{1}{10}$$

Frichen at the toe

$$\frac{7.53}{5.5} = \frac{2425.3}{x}$$

$$\frac{7.53}{5.5} = \frac{2425.3}{x}$$

$$\frac{7.53}{5.5} = \frac{2425.3}{x}$$

$$\frac{7.53}{2125.8} = 1702$$

$$x = 1702$$

$$x = 1702$$

$$\frac{1702}{2125.8} \times 1.5 \times 0.577$$

$$= 1785.5265$$
Frichen hed, by: 1702 x.5 × 1.5 × 0.577
$$= 1785.5265$$
Frichen hed, by: 1702 x.5 × 1.33 × 05

$$= 7695 265$$
Passive Earth Pressure = 0.5 × 120 × 3.0 × (.833)
$$= 329 265$$
Total Resistance to stiding = 4809.5265

$$F5.= 1.45 = adequate$$

$$F5.= 1.45 = adequate$$

$$F5.= 1.45 = adequate$$

$$F5.= 1.45 = adequate$$



Design Steel for Toe Slab 2710
lood factor of 1.7
Find moreat =
$$(1200)$$

 $M_0 = 1.77 (\frac{2423.8}{2} \times 1.5^2 \times \frac{2}{3}t)$
Find W from a to C $M_0 = the sume$
 $a = \frac{52}{1875} - \frac{13220}{2} = 3.19^{12}$
Bigger 12417 inside middle 3^{ch}
 $9 = (41-6a) \frac{P_V}{L^2}$
 $q_1 = (7.833(4) - b(3.19) (\frac{12417}{7.933^2})$
 $(31.32 - 19.14) (202.37) =$
 $q_1 = 2465.265$ 2760
 $g_2 = (6a - 2L) \frac{P_V}{L^2}$
 $q_2 = 7.04.28$ lbs 2765 757 5.5'
 $q_2 = 7.04.28$ lbs 2765 709.28
Surcharge $bb = \frac{1761}{7.85} = \frac{x}{433}$
Surcharge $at b = \frac{1723}{2}$

Toc Slab
Find moment

$$M_{U} = 1.7(\frac{24238}{2} \times 15^{2} \times \frac{2}{3} + \frac{1423}{2} \times 1.5^{2} \times \frac{1}{3})$$

 $= 0.9(150 \times 1.5^{2} + \frac{1}{2})$
 $= 1.7(1818 + 533.1) - 0.9(168.75)$
 $M_{U} = 3996.87 - 151.875 =$
 $M_{J} = 3845$ F411bs
For concret case exposed to Earth,
protective corer of 3in is required bar $\Phi = 1''$
 $effective dupth = 12'' - 3.0'' - 0.5'' = 8.5''$
 $\frac{M_{U}}{\Phi b^{2}} = \frac{3845 \times 12}{0.4 \times 12 \times 72.25} = 59.13 \text{ cm}$
 M_{Inimum} required $pb = \frac{200}{60,000} = 0.0033 \text{ cm}$
 $M_{S} = 0.0033 \times 12 \times 8.5 = 0.3366 \ln^{2}/r +$
 $\pm \frac{1}{2} \text{ bars } \Theta 12^{4} \text{ O.C} (A_{S} = 0.447 \ln^{2}/r +)$
$$\frac{100}{100} = \frac{100}{100} +$$

with height= 13" effective depth will

$$bz 9.5"$$

 $dV_c = 2x0.85[4000 \times 12 \times 9.5] =$
 12256.98165
 $dV_c > V_U = 11861.5765$ passes theory
increase bars to #10 bars @ 8" 0.c
 $A_3 = 1.80in^2/Et$
USE #6 bars @ 9" 0.c for
Crack Control
increase the same, 21" past the sign





Counterfirt steel design

$$M_{0} = \frac{Pi^{2}}{10} \qquad P = \text{pressure of bottom of } \text{mail} \text{p} = 3305865 \text{ from previous} \text{mail} \text{p} = 3305865 \text{ from previous} \text{mu} = 3305(9.5 \times 12)^{2} \quad \text{Calculations} \text{mu} = 4.295.(78 \text{ in}^{2}\text{lb}) \text{ jk} = \frac{4.295.(78 \text{ in}^{2}\text{lb})}{10} \text{ jk} = \frac{4.295.(78 \text{ in}^{2}\text{lb})}{10} \text{ jk} = \frac{4.295.(78 \text{ in}^{2}\text{lb})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{10} \text{ km} = \frac{4.295.(78 \text{ in}^{2}\text{lm})}{12} \text{ km} = \frac{6.797.(178 \text{ km})}{12} \text{ km} = \frac{6.797.(178 \text{ km})}{12} \text{ km} = \frac{3.305.(9.5.(12)^{2}}{12} \text{ km} = \frac{3.305.(9.5.(12)^{2}}{12} \text{ km} = \frac{3.579.315}{12} \text{ km} = \frac{3.579.315}{0.9.(60.00)(.875)(95)(12)} = 10.0665 \text{ in}^{2}/\text{Ft}} \text{ km} = \frac{4.295.(78 \text{ in}^{2}/\text{sm})}{12} \text{ km} = \frac{3.5779.315}{0.9.(60.00)(.875)(95)(12)} = 10.0665 \text{ in}^{2}/\text{Ft}} \text{ km} = \frac{4.295.(78 \text{ in}^{2}/\text{sm})}{12} \text{ km} = \frac{4.295.(78 \text{ in}^{2}/\text{sm})}{12} \text{ km} = \frac{3.5779.315}{0.9.(60.00)(.875)(95)(12)} \text{ km} = 10.0665 \text{ in}^{2}/\text{Ft}} \text{ km} = \frac{4.295.(78 \text{ km})}{12} \text{ km} = \frac{6.297.(78 \text{ km})}{12$$

$$A_{V} = \frac{V_{W}}{\sqrt{F_{0}}} \quad V_{i} = V + \frac{M}{d} (tan O + tan \phi)$$

$$0.85 \qquad 0 \quad 30^{5}$$

$$Shen Keye Shal = 0 \quad 0.055$$

$$V_{i} = 118601 \text{ lbs} + \frac{3.579,315}{8"} (0.577)$$

$$A_{V} = \frac{11861}{\phi 60000(8)} = 0.027 \text{ in } 2/\text{ Ft}$$

$$VIA \quad \text{H3 bars } @ 21 \text{ in } OC$$

$$A_{S} = 0.055$$

$$Shrinkay \quad 5tel$$

$$0.0035 \text{ k} \text{ d} = 0.035 \text{ in } 2/\text{Ft}$$

$$VSC \quad \text{H3 bars } @ 30" \text{ 0.C}$$

$$Ni \text{ H} \quad Ni \text{ S} V$$

$$Ni \text{ H} \quad Ni \text{ S} V$$

$$Ni \text{ H} \quad Ni \text{ S} V$$







: 21 Valume. \mathbb{C} Cullinan 42' (45.857s2ft) = 1925 Ft3 ANONE Ours 38665 (16.56 59 Ft) = 690.32 Ft 3 Durs with Counterfick ft + 3 + 5667 (5) (41.03) ft 2 į = 640.3, $ft^{3} + 136.8ft^{3}$ = 777,1 Ft3



860 DESCRIPTION OF CONCERNING SUBJECT REPS

Table A.2	Areas	of	growns	of	standard	bars,	ío²
						-	-

Ray Kumber of Jury												
2404	1	2	3	4	5	6	7	8	9	10	11	12
456789	0.28 0.51 0.44 0.40 0.79 1.03	0.39 0.61 0.88 1.29 1.57 2.00	0.58 0.91 1.32 1.80 2.35 3.00	0,78 1.23 1.77 2.41 3.14 4.00	0,98 1.53 2.21 3.01 3.93 2.00	1.18 1.84 2.65 3.61 4.71	1.37 2.15 3.09 4.21 5.50 7.00	1.57 2.45 3.53 4.91 6.28	1.77 3.76 3.98 5.41 7.07	1.96 3.07 4.42 6.01 7.85	2.16 3.37 4.86 6.61 8.64	2.30 3.68 5.30 7.32 9.43
10 11 14 15	1,27 1.56 2.25 4.38	2.50 3.12 4.50 8.00	3.79 4.68 6.75 13.00	3.06 6.25 9.00 16.00	6.53 7.81 11.25 20.00	7.39 9.37 13.51 24.00	8.86 10.94 15.75 33.00	8.00 10.12 12.50 18.00 32.00	9.00 11.39 14.06 20.25 36.00	10.00 12.66 13.62 22.50 40.00	11.00 13.92 17.19 24.75 44.00	12.00 15.19 18.75 27.00 48.00

Table A.3	Perimeters of	POINTS	of standord	famos de
	THE REAL PROPERTY OF	Growhs	or scanoling	nars, in.

Ikar	Bar Number of bars											
No.	1	2	З	4	5	6	7	8	9	10	11	12
4 1	1.6 2.0	3.1	4,7	6.2	7.8	9.4	11.0	12.6	14.1	15-7	17.2	18.8
ě.	Z.4	4.7	7.1	9.4	11.3	11.a 14.t	12.7	15.7 13.5	17.7 21.2	19.5 23.6	21.6 25.9	23.6 28.3
ŝ	3.1	6.5	9.4	12.6	13.7	16. <u>5</u> 18.9	19.2 22.0	22.0 25.1	24.7 28.3	27.5 31.4	30.2 34.6	89.0 87.7
10	4.0	8.0	10.5	14.2 16.0	17.7 20.0	21,2 23,0	24.8. 27.9	28.4	30.9 35.9	05.4 39.9	39.0 41.9	42.5
14	4.4 5.3	8.9 13.6	13.3 16.0	17.7 21.3	22,3 30,6	26.6	31.0 37.2	35.4	39.9 47.0	44.3	48.7 SP 5	55.2
18	7.1	14,2	27.3	28.4	35.5	425	49.6	56.7	63.8	70.9	78.0	85.1

		-					
Table A.4	Areas	of	hars	ìn	slabs,	in ¹ //t	

Spacing	That No.									
io.	З	4	5	6	7	8	9	10	11	
3	0.44	0.78	1,23	1.77	2.40	3.12	4.005	5.05	6.05	
32	0.38	0.67	1.05	1.51	2.06	2.69	4.00	1.23	0.25	
4	0.33	0.59	11.92	.32	1,80	2.36	3.00	3.40	4.62	
43	0.29	0.52	0.82	1.18	1.60	3.09	7.67	9,97	4,495	
5	0.26	0.47	0.74	1.06	1.44	1.88	2.40	3.05	3.74	
22	0.24	-0.42	0.97	0.90	1.31	1.71	2.18	3,5%	2.41	
ń.	9.22	0.39	0.51	0.88	1.20	1.57	2.00	2.51	8 12	
62	0.20	0.36	31.57	6.82	1.11	1.45	1.85	2.34	2.20	
2,	0.19	0.34	0,53	0.76	1.03	1.35	1.71	2.17	2.69	
7±	0.18	0.11	15,49	0.72	0.96	1.26	1.03	2.02	2.08	
9	0.17	0.29	1.46	0.66	0.90	1.18	1.50	1.50	4.30	
9	0.15	0.25	0.45	0.59	0.80	1.05	1.33	1.60	3,700	
10	0.13	0.24	0.37	0.33	0.72	0.94	1.20	1.52	1.97	
12	0,11	0.20	0.31	0.44	0.60	0.78	1.00	1.27	1.56	

F			
//	.f _c	ß,	P_{θ}'
40,000	38700	0.85	0.015
	4000	0.85	0.031
	3000	0.83	0.05%
	15 KIO	0.75	0.065
	2000	0.78	0.070
-	8160	0.65	0.075
58,000	3000	0.85	0.0273
	\$0.0	0.83	0.0367
	31.00	0.30	0.0432
	6000	0.75	0.0495
	7006	0.76	0.0520
	80/10	0.65	0.0561
69.000	2000	0.85	0.0214
	4000	0.83	0.0285
	2000	0.80	0.0335
	0000	0.75	0.0377
	7000	0.70	0.0411
	9000	0.55	0.0436
80,000	2000	0.85	9.0(4)
	40.00	0.85	9,0182
	26630	0.80	8.0221
	6000	0.25	0.0229
	2030	0.70	0.0271
	8000	0.65	0.0288

 $c_{B_{F}}=0.85 g \ \frac{f_{y}^{2}}{f_{y}} \frac{87,000}{87,000} \frac{r_{y}}{r_{y}}$



Appendix E: Cullinan's Retaining Wall Design

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Appendix F: Monthly Man Hour Totals

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Appendix G: Capstone Design Proposal

11/21/2009 Scott MacDonald Matt Moreau Ryan Marques

North High Capstone Design

The original design for the banking on the southeast corner of the building was to cover the banking in rip-rap. As construction began, Gilbane wanted to keep the access road open. This original design of rip-rap could not allow this to happen; as there needed to be more room and Gilbane was concerned about the forces from the construction vehicles so close to the banking. The height of the banking is 62' with a steep drop off, this was an additional concern for the movement of

The solution was to build a cantilevered retaining wall around the banking to accommodate the space for the construction vehicles and the load associated with them. Pictures can be seen on the next page. The design portion of this project will be developing an alternate solution for this problem.

Our retaining wall design will be driven by several factors; ground water and soil conditions, cost and required wall height. The first step in designing the retaining wall will be to get information on the earth's lateral pressure in the area. The basic soil parameters include:

- Soil unit weight
- Angle of internal friction (for sands)
- Cohesion and plasticity indices (for clays)
- The water table location.
- Ledge location

This information should be relatively easy to get since the retaining wall is already constructed on-site.

From here we will be able to size the wall and check for stability; this will include checks for wall overturning, base sliding, and soil bearing capacity failures. After the wall is sized, each wall member will be checked for adequate strength and steel reinforcing can be determined. One area that also needs to be looked at is the necessity to drain the backfill of rainwater and/or groundwater.

Our Solution:

Our group decided to look at a counterfort retaining wall design. A counterfort retaining wall is very similar to a cantilever wall, except that it has one additional feature. This wall has a triangular shaped wall which connects the top of the wall to the back of the footer. This added support wall is hidden within the earthen or gravel backfill of the wall. The footer, retaining wall and support wall must be tied to one another with reinforcing steel. The support walls add a great deal of strength to the retaining wall. The supports make it virtually impossible for the wall to become detached from the footer. Counterforts are usually used for high walls with heights greater than 8 to 12 m. In this case, the wall is only 10' high but this type of design is also used for situations where high lateral pressures occur; where the backfill is heavily surcharged, in this case like North High where there will be a lot of heavy construction vehicles making their way through.

The first step in our design was to size the members, since we already had drawings of the current retaining wall it was relatively easy to realize what the height would need to be. We used the height of the current retaining wall to gather all of our dimensions, such as footing size, wall thickness and support sizes. These dimensions were based on a function of the retaining wall height from equations found in the foundation engineering handbook.

Dimensions of Retaining Wall

Height: 10' Footer: 4' x 1' Wall Thickness: 13" Counterforts: 8" thick; spaced every 3'

Counterfort Retaining Wall



Design Analysis:

There are three pressures acting on a retaining wall:

Active earth pressure: The pressure exerted on the back of the wall

Bearing pressure: The vertical bearing pressure of the soil of rock supports the footing

Passive earth pressure: Lateral movement of the wall is resisted by passive earth pressure

Current Retaining Wall



Appendix H: Pictures – North High



















Appendix I: Tank Replacement Project Pictures






















Appendix J: Revit Takeoff Sheets

Structural Foundation Schedule

Family and Type	Volume	Unit	Width
Footing-Rectangular: 5x5x2	46.88	CF	5' - 0"
Footing-Rectangular: 5x5x2	46.88	CF	5' - 0"
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 6x6x2	63.00	CF	6' - 0''
Footing-Rectangular: 6x6x2	63.00	CF	6' - 0''
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 9x9x2	131.63	CF	9' - 0"
Footing-Rectangular: 4x4x2	30.00	CF	4' - 0''
Footing-Rectangular: 4x4x2	28.00	CF	4' - 0''
Footing-Rectangular: 4x4x2	26.00	CF	4' - 0''
Footing-Rectangular: 4x4x2	30.00	CF	4' - 0''
Footing-Rectangular: 4x4x2	28.00	CF	4' - 0''
Footing-Rectangular: 4x4x2	28.00	CF	4' - 0''
Footing-Rectangular: 4x4x2	30.00	CF	4' - 0''
Footing-Rectangular: 5x5x2	40.63	CF	5' - 0"
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 5x5x2	40.63	CF	5' - 0"
Footing-Rectangular: 4x4x2	28.33	CF	4' - 0''
Footing-Rectangular: 4x4x2	28.00	CF	4' - 0''
Footing-Rectangular: 4x4x2	28.00	CF	4' - 0''
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 8x8x2	112.00	CF	8' - 0''
Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 4x4x2	28.00	CF	4' - 0''
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0"
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''

Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
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Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 9x9x3'11"	276.75	CF	9' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
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Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0''
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0''
Footing-Rectangular: 9x9x2	121.50	CF	9' - 0"
Footing-Rectangular: 8x8x2.5	128.00	CF	8' - 0''
Footing-Rectangular: 8x8x2.5	128.00	CF	8' - 0''
Footing-Rectangular: 8x8x2.5	128.00	CF	8' - 0''
Footing-Rectangular: 8x8x2.5	128.00	CF	8' - 0''
Footing-Rectangular: 8x8x2.5	128.00	CF	8' - 0''
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0''
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0''
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0''
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"

Footing-Rectangular: 8x8x2.5	128.00	CF	8' - 0"
Foundation Slab: 6" Foundation Slab	17497.11	CF	
Footing-Rectangular: 7x7x2	91.88	CF	7' - 0"
Footing-Rectangular: 8x8x2.5	128.00	CF	8' - 0''
Footing-Rectangular: 4x4x2	28.00	CF	4' - 0"
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0''
Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 9x9x2	141.75	CF	9' - 0"
Footing-Rectangular: 5x5x2	46.88	CF	5' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 6x6x2	63.00	CF	6' - 0"
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 10x10x3'11"	341.67	CF	10' - 0"
Footing-Rectangular: 7x7x2	85.75	CF	7' - 0"
Footing-Rectangular: 7x7x2	80.50	CF	7' - 0"
Footing-Rectangular: 8x8x2	96.00	CF	8' - 0"
Foundation Slab: 6" Foundation Slab	4711.00	CF	
Foundation Slab: 6" Foundation Slab	18208.19	CF	
Foundation Slab: 6" Foundation Slab	16694.44	CF	
Foundation Slab: 6" Foundation Slab	16694.44	CF	
Foundation Slab: 6" Foundation Slab	12872.40	CF	
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0''
Footing-Rectangular: 5x5x2	37.50	CF	5' - 0''

Total	4200	CY	
Total	113385.03	CF	
Foundation Slab: 6" Foundation Slab	5931.37	CF	
Wall Foundation: Bearing Footing - 36" x 12"	144.62	CF	
Wall Foundation: Bearing Footing - 36" x 12"	37.13	CF	3' - 0"
Wall Foundation: Bearing Footing - 36" x 12"	170.25	CF	3' - 0"
Wall Foundation: Bearing Footing - 36" x 12"	80.58	CF	3' - 0"
Wall Foundation: Bearing Footing - 36" x 12"	46.32	CF	3' - 0"
Wall Foundation: Bearing Footing - 36" x 12"	83.64	CF	3' - 0"
Wall Foundation: Bearing Footing - 36" x 12"	83.64	CF	3' - 0"
Wall Foundation: Bearing Footing - 36" x 12"	40.89	CF	3' - 0"
Wall Foundation: Bearing Footing - 36" x 12"	55.06	CF	3' - 0"
Footing-Rectangular: 5x5x2	43.75	CF	5' - 0"
Footing-Rectangular: 9x9x3'11"	276.75	CF	9' - 0"
Footing-Rectangular: 7x7x2	73.50	CF	7' - 0''
Footing-Rectangular: 7x7x2	73.50	CF	7' - 0''
Footing-Rectangular: 7x7x2	73.50	CF	7' - 0''
Footing-Rectangular: 7x7x2	73.50	CF	7' - 0''
Footing-Rectangular: 7x7x2	73.50	CF	7' - 0''
Footing-Rectangular: 5x5x2	37.50	CF	5' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing-Rectangular: 6x6x2	54.00	CF	6' - 0"
Footing Rectangular: 5x5x2	43.73	CF	5 - 0 6' 0"
Footing-Rectangular: 5x5x2	43 75	CF	5' - 0"

Structural Framing Schedule

Family and Type	Volume	Unit	Length
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 4 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 6 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 6 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 6 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 6 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.53	CF	13' - 8 1/8"

HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.48	CF	13' - 6 1/2"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 6 1/2"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.48	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.53	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.51	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.48	CF	13' - 6 1/2"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 6 1/2"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.46	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.48	CF	13' - 6 1/2"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 6 1/2"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow	Structural	Section:	HSS5X5X5/16	0.47	CF	13' - 8 1/8"

HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 8 7/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 8 7/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 7 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 7 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.48	CF	13' - 8 1/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 8 7/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.47	CF	13' - 8 7/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.49	CF	13' - 7 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.66	CF	13' - 7 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.68	CF	18' - 6"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 10"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 7 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 3"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 7 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.68	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.66	CF	18' - 10"
HSS-Hollow Structural Section: HSS5X5X5/16	0.78	CF	18' - 6"
HSS-Hollow Structural Section: HSS5X5X5/16	0.78	CF	22' - 2 5/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.8	CF	22' - 2 5/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.8	CF	22' - 6 1/2"
HSS-Hollow Structural Section: HSS5X5X5/16	0.78	CF	22' - 6 1/2"

HSS-Hollow Structural Section: HSS5X5X5/16	0.81	CF	22' - 10 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.79	CF	22' - 10 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.81	CF	22' - 11 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.79	CF	22' - 11 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.81	CF	22' - 11 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.79	CF	22' - 11 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.81	CF	22' - 11 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.79	CF	22' - 11 3/4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.81	CF	22' - 11 3/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	22' - 11 3/8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.67	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.95	CF	18' - 8"
HSS-Hollow Structural Section: HSS5X5X5/16	0.39	CF	26' - 0''
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	11' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	18' - 3"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.39	CF	18' - 3"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	11' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.39	CF	18' - 3"
HSS-Hollow Structural Section: HSS5X5X5/16	0.39	CF	11' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	11' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	18' - 3"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.39	CF	18' - 3"
HSS-Hollow Structural Section: HSS5X5X5/16	0.39	CF	11' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	11' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	18' - 3"

HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.65	CF	17' - 4''
HSS-Hollow Structural Section: HSS5X5X5/16	0.39	CF	18' - 3"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	11' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.63	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.63	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.63	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.63	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.62	CF	17' - 4"
HSS-Hollow Structural Section: HSS5X5X5/16	0.02	CF	17' - 4"
W-Wide Flange: W8X10	0.17	CF	1' - 0"
W-Wide Flange: W8X10	0.22	CF	9' - 1 1/2"
W-Wide Flange: W8X10	0.03	CF	11' - 4"
W-Wide Flange: W8X10	0.07	CF	2' - 0"
W-Wide Flange: W8X10	0.23	CF	4' - 0''
W-Wide Flange: W8X18	0.23	CF	7' - 4''
W-Wide Flange: W8X18	0.18	CF	7' - 4"
W-Wide Flange: W8X18	0.18	CF	5' - 9 3/8"
W-Wide Flange: W8X18	0.18	CF	5' - 9 3/8"
W-Wide Flange: W8X18	0.18	CF	5' - 9 3/8"
W-Wide Flange: W8X18	0.28	CF	5' - 9 3/8"
W-Wide Flange: W8X18	0.28	CF	8' - 2 5/8"
W-Wide Flange: W8X18	0.15	CF	8' - 2 5/8"
W-Wide Flange: W10X12	0.15	CF	7' - 0''
W-Wide Flange: W10X12	0.15	CF	7' - 0''
W-Wide Flange: W10X12	0.15	CF	7' - 0''
W-Wide Flange: W10X12	0.15	CF	7' - 0''
W-Wide Flange: W10X12	0.2	CF	7' - 0''
W-Wide Flange: W10X12	0.15	CF	9' - 0"
W-Wide Flange: W10X12	0.2	CF	7' - 0''
W-Wide Flange: W10X12	0.15	CF	9' - 0"
W-Wide Flange: W10X12	0.2	CF	7' - 0''
W-Wide Flange: W10X12	0.15	CF	9' - 0"
W-Wide Flange: W10X12	0.2	CF	7' - 0''
W-Wide Flange: W10X12	0.09	CF	9' - 0"
W-Wide Flange: W10X12	0.14	CF	4' - 4''

W-Wide Flange: W10X12	0.07	CF	6' - 7"
W-Wide Flange: W10X12	0.1	CF	3' - 8"
W-Wide Flange: W10X12	0.09	CF	4' - 6 1/8"
W-Wide Flange: W10X12	0.09	CF	4' - 3 3/8"
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.1	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4 5/8"
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.09	CF	4' - 4''
W-Wide Flange: W10X12	0.1	CF	4' - 4''
W-Wide Flange: W10X12	2.66	CF	4' - 6 1/2"
W-Wide Flange: W10X12	2.66	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.22	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''

W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.23	CF	10' - 0''
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.66	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.66	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.22	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.03	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.21	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''

W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.23	CF	10' - 0''
W-Wide Flange: W10X12	0.2	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.2	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"

W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.66	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.66	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.22	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.03	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.21	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.23	CF	10' - 0"
W-Wide Flange: W10X12	0.2	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.2	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"

W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.66	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.67	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.22	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.03	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.2	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.23	CF	10' - 0''

W-Wide Flange: W10X12	0.2	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.66	CF	11' - 0 3/8"
W-Wide Flange: W10X12	2.66	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.22	CF	111' - 11 3/4"
W-Wide Flange: W10X12	0.03	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.21	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0''

W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0"
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.22	CF	10' - 0''
W-Wide Flange: W10X12	0.23	CF	10' - 0''
W-Wide Flange: W10X12	0.2	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.2	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.23	CF	11' - 0 3/8"
W-Wide Flange: W10X12	0.54	CF	11' - 0 3/8"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"

W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 6"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"

W-Wide Flange: W10X15	0.54	CF	18' - 8''
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 7 3/4"
W-Wide Flange: W10X15	0.54	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 8''
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.54	CF	18' - 10"
W-Wide Flange: W10X15	0.54	CF	18' - 8''
W-Wide Flange: W10X15	0.55	CF	18' - 8"
W-Wide Flange: W10X15	0.55	CF	18' - 10"
W-Wide Flange: W10X15	0.55	CF	18' - 10"
W-Wide Flange: W10X15	0.92	CF	18' - 10''
W-Wide Flange: W10X22	0.92	CF	21' - 4"
W-Wide Flange: W10X22	0.35	CF	21' - 4"
W-Wide Flange: W10X22	0.35	CF	8' - 7''
W-Wide Flange: W10X22	0.38	CF	8' - 7''
W-Wide Flange: W10X22	0.64	CF	9' - 1 1/2"
W-Wide Flange: W10X22	0.81	CF	15' - 0"
W-Wide Flange: W10X22	0.8	CF	18' - 10''
W-Wide Flange: W10X22	0.8	CF	18' - 8''
W-Wide Flange: W10X22	0.8	CF	18' - 8''
W-Wide Flange: W10X22	0.46	CF	18' - 8''
W-Wide Flange: W10X22	0.46	CF	11' - 4"

W-Wide Flange: W10X22	0.79	CF	11' - 4"
W-Wide Flange: W10X22	0.78	CF	18' - 10"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.79	CF	18' - 8"
W-Wide Flange: W10X22	0.8	CF	18' - 10''
W-Wide Flange: W10X22	0.8	CF	18' - 8''
W-Wide Flange: W10X22	0.8	CF	18' - 8"
W-Wide Flange: W10X22	0.8	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.79	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 10''
W-Wide Flange: W10X22	0.78	CF	18' - 8"
W-Wide Flange: W10X22	0.78	CF	18' - 8''
W-Wide Flange: W10X22	0.79	CF	18' - 8"
W-Wide Flange: W10X22	0.12	CF	18' - 10''
W-Wide Flange: W12X14	0.12	CF	5' - 0''
W-Wide Flange: W12X14	0.18	CF	5' - 0''
W-Wide Flange: W12X14	0.18	CF	7' - 0''
W-Wide Flange: W12X14	0.12	CF	7' - 0''
W-Wide Flange: W12X14	0.12	CF	5' - 0''
W-Wide Flange: W12X14	0.13	CF	5' - 0''
W-Wide Flange: W12X14	0.13	CF	5' - 0''
W-Wide Flange: W12X14	0.18	CF	5' - 0''
W-Wide Flange: W12X14	0.18	CF	7' - 0''
W-Wide Flange: W12X14	0.18	CF	7' - 0''
W-Wide Flange: W12X14	0.17	CF	7' - 0''
W-Wide Flange: W12X14	0.18	CF	6' - 8''
W-Wide Flange: W12X14	0.17	CF	7' - 0''
W-Wide Flange: W12X14	0.18	CF	6' - 8''
W-Wide Flange: W12X14	0.17	CF	7' - 0''
W-Wide Flange: W12X14	0.18	CF	6' - 8''
W-Wide Flange: W12X14	0.17	CF	7' - 0''
W-Wide Flange: W12X14	0.19	CF	6' - 8''
W-Wide Flange: W12X14	0.19	CF	7' - 4''

W-Wide Flange: W12X14	0.51	CF	7' - 4''
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.24	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	9' - 1 1/2"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.52	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 10''
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.52	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 10"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.52	CF	18' - 8"
W-Wide Flange: W12X14	0.19	CF	18' - 10"
W-Wide Flange: W12X14	0.19	CF	7' - 4"
W-Wide Flange: W12X14	0.19	CF	7' - 4"
W-Wide Flange: W12X14	0.18	CF	7' - 4"
W-Wide Flange: W12X14	0.18	CF	7' - 4"
W-Wide Flange: W12X14	0.18	CF	7' - 4"
W-Wide Flange: W12X14	0.18	CF	7' - 4"
W-Wide Flange: W12X14	0.18	CF	7' - 4"
W-Wide Flange: W12X14	0.5	CF	7' - 4"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.18	CF	18' - 8''

W-Wide Flange: W12X14	0.18	CF	7' - 4''
W-Wide Flange: W12X14	0.19	CF	7' - 4''
W-Wide Flange: W12X14	0.19	CF	7' - 4''
W-Wide Flange: W12X14	0.19	CF	7' - 4''
W-Wide Flange: W12X14	0.18	CF	7' - 4''
W-Wide Flange: W12X14	0.18	CF	7' - 4''
W-Wide Flange: W12X14	0.5	CF	7' - 4''
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8"

W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.51	CF	18' - 8"
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.5	CF	18' - 8''
W-Wide Flange: W12X14	0.53	CF	18' - 8"
W-Wide Flange: W12X14	0.62	CF	19' - 8 1/2"
W-Wide Flange: W12X14	0.6	CF	22' - 7 3/8"
W-Wide Flange: W12X14	0.57	CF	21' - 7 3/4"
W-Wide Flange: W12X14	0.51	CF	20' - 8 1/4"
W-Wide Flange: W12X14	0.49	CF	18' - 9"
W-Wide Flange: W12X14	0.46	CF	17' - 9 3/8"
W-Wide Flange: W12X14	0.38	CF	16' - 9 7/8"
W-Wide Flange: W12X16	0.38	CF	12' - 5 3/8"
W-Wide Flange: W12X16	0.31	CF	12' - 5 3/8"
W-Wide Flange: W12X16	0.22	CF	10' - 0''
W-Wide Flange: W12X16	0.67	CF	7' - 3 3/4"
W-Wide Flange: W12X19	0.67	CF	18' - 8"
W-Wide Flange: W12X19	0.67	CF	18' - 8"
W-Wide Flange: W12X19	0.24	CF	18' - 8"
W-Wide Flange: W12X19	0.39	CF	7' - 4''
W-Wide Flange: W12X19	0.99	CF	11' - 4"
W-Wide Flange: W12X19	0.87	CF	26' - 8"
W-Wide Flange: W12X19	0.97	CF	23' - 6 7/8"
W-Wide Flange: W12X19	0.94	CF	25' - 10 3/4"
W-Wide Flange: W12X19	0.91	CF	25' - 1 1/2"
W-Wide Flange: W12X19	1.06	CF	24' - 4 1/4"
W-Wide Flange: W12X26	1.06	CF	21' - 0"
W-Wide Flange: W12X26	1.03	CF	21' - 0"
W-Wide Flange: W12X26	1.05	CF	20' - 8"
W-Wide Flange: W12X26	1.03	CF	21' - 0"
W-Wide Flange: W12X26	1.06	CF	20' - 8"
W-Wide Flange: W12X26	1.06	CF	21' - 0''
W-Wide Flange: W12X26	0.55	CF	21' - 0''
W-Wide Flange: W12X26	0.55	CF	11' - 0''
W-Wide Flange: W12X26	0.58	CF	11' - 0''
W-Wide Flange: W12X26	0.58	CF	11' - 0"
W-Wide Flange: W12X26	1.05	CF	11' - 0"
W-Wide Flange: W12X26	1.05	CF	21' - 0"

W-Wide Flange: W12X26	1.05	CF	21' - 0"
W-Wide Flange: W12X26	1.05	CF	21' - 0"
W-Wide Flange: W12X26	1.41	CF	21' - 0"
W-Wide Flange: W12X26	0.69	CF	27' - 6"
W-Wide Flange: W12X26	0.69	CF	14' - 0''
W-Wide Flange: W12X26	0.69	CF	14' - 0''
W-Wide Flange: W12X26	0.69	CF	14' - 0''
W-Wide Flange: W12X26	0.91	CF	14' - 0''
W-Wide Flange: W12X26	0.85	CF	18' - 2"
W-Wide Flange: W12X26	0.85	CF	17' - 4''
W-Wide Flange: W12X26	0.85	CF	17' - 4''
W-Wide Flange: W12X26	0.85	CF	17' - 4''
W-Wide Flange: W12X26	0.6	CF	17' - 4''
W-Wide Flange: W12X26	0.31	CF	12' - 0''
W-Wide Flange: W12X26	0.92	CF	6' - 0''
W-Wide Flange: W12X26	0.94	CF	18' - 3"
W-Wide Flange: W12X26	0.94	CF	18' - 8"
W-Wide Flange: W12X26	0.94	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.9	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 3"
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 8''
W-Wide Flange: W12X26	0.95	CF	18' - 8''
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.93	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 3"
W-Wide Flange: W12X26	0.93	CF	18' - 8''
W-Wide Flange: W12X26	0.95	CF	18' - 3"
W-Wide Flange: W12X26	0.93	CF	18' - 8''
W-Wide Flange: W12X26	0.33	CF	18' - 3"
W-Wide Flange: W12X26	0.92	CF	7' - 4''
W-Wide Flange: W12X26	0.92	CF	18' - 8''
W-Wide Flange: W12X26	0.92	CF	18' - 8''
W-Wide Flange: W12X26	0.92	CF	18' - 8''
W-Wide Flange: W12X26	0.92	CF	18' - 8''
W-Wide Flange: W12X26	0.92	CF	18' - 6"
W-Wide Flange: W12X26	0.92	CF	18' - 10"
W-Wide Flange: W12X26	1.31	CF	18' - 8"
W-Wide Flange: W12X26	0.54	CF	26' - 0''

W-Wide Flange: W12X26	0.9	CF	11' - 4''
W-Wide Flange: W12X26	0.9	CF	18' - 3"
W-Wide Flange: W12X26	0.91	CF	18' - 3"
W-Wide Flange: W12X26	0.92	CF	18' - 6"
W-Wide Flange: W12X26	0.96	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.9	CF	18' - 8"
W-Wide Flange: W12X26	0.91	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 6"
W-Wide Flange: W12X26	0.9	CF	18' - 7 3/4"
W-Wide Flange: W12X26	0.92	CF	18' - 3"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.46	CF	18' - 7 3/4"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.46	CF	18' - 8"
W-Wide Flange: W12X26	0.46	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.46	CF	18' - 8"
W-Wide Flange: W12X26	0.79	CF	18' - 8''

W-Wide Flange: W12X26	0.92	CF	15' - 10 3/8"
W-Wide Flange: W12X26	0.96	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.9	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 3"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 3"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.96	CF	18' - 8"
W-Wide Flange: W12X26	0.97	CF	18' - 8"
W-Wide Flange: W12X26	0.95	CF	18' - 8"
W-Wide Flange: W12X26	0.92	CF	18' - 8"
W-Wide Flange: W12X26	0.91	CF	18' - 7 3/4"
W-Wide Flange: W12X26	0.92	CF	18' - 6"
W-Wide Flange: W12X26	0.91	CF	18' - 7 3/4"
W-Wide Flange: W12X26	1.1	CF	18' - 6"
W-Wide Flange: W12X30	1.1	CF	18' - 8"
W-Wide Flange: W12X30	1.1	CF	18' - 8"

W-Wide Flange: W12X30	1.1	CF	18' - 8"
W-Wide Flange: W12X30	1.3	CF	18' - 8"
W-Wide Flange: W12X35	1.3	CF	18' - 8"
W-Wide Flange: W12X35	1.05	CF	18' - 8"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	1.05	CF	14' - 0"
W-Wide Flange: W12X40	0.58	CF	14' - 0"
W-Wide Flange: W14X22	0.58	CF	13' - 8"
W-Wide Flange: W14X22	0.58	CF	13' - 8"
W-Wide Flange: W14X22	0.58	CF	13' - 8"
W-Wide Flange: W14X22	0.6	CF	13' - 8"
W-Wide Flange: W14X22	0.6	CF	13' - 8"
W-Wide Flange: W14X22	0.9	CF	13' - 8"
W-Wide Flange: W14X22	0.9	CF	21' - 0"
W-Wide Flange: W14X22	0.88	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	20' - 8"
W-Wide Flange: W14X22	0.87	CF	21' - 0"
W-Wide Flange: W14X22	0.9	CF	20' - 8"
W-Wide Flange: W14X22	0.9	CF	21' - 0"
W-Wide Flange: W14X22	0.88	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	20' - 8"
W-Wide Flange: W14X22	0.87	CF	21' - 0"
W-Wide Flange: W14X22	0.9	CF	20' - 8"
W-Wide Flange: W14X22	0.9	CF	21' - 0"
W-Wide Flange: W14X22	0.88	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	20' - 8"
W-Wide Flange: W14X22	0.87	CF	21' - 0"
W-Wide Flange: W14X22	0.9	CF	20' - 8"
W-Wide Flange: W14X22	0.9	CF	21' - 0"
W-Wide Flange: W14X22	0.88	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	20' - 8"

W-Wide Flange: W14X22	0.87	CF	21' - 0"
W-Wide Flange: W14X22	0.87	CF	20' - 8"
W-Wide Flange: W14X22	0.89	CF	20' - 8"
W-Wide Flange: W14X22	0.87	CF	21' - 0"
W-Wide Flange: W14X22	0.88	CF	20' - 8"
W-Wide Flange: W14X22	0.89	CF	20' - 8"
W-Wide Flange: W14X22	0.88	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	20' - 8"
W-Wide Flange: W14X22	0.87	CF	21' - 0"
W-Wide Flange: W14X22	0.87	CF	20' - 8"
W-Wide Flange: W14X22	0.88	CF	20' - 8"
W-Wide Flange: W14X22	0.89	CF	20' - 8"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.91	CF	21' - 0"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.89	CF	21' - 4"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.91	CF	21' - 0"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.91	CF	21' - 4"
W-Wide Flange: W14X22	0.89	CF	21' - 4"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"

W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	1.18	CF	21' - 0"
W-Wide Flange: W14X22	1.18	CF	27' - 6"
W-Wide Flange: W14X22	1.18	CF	27' - 6"
W-Wide Flange: W14X22	1.18	CF	27' - 6"
W-Wide Flange: W14X22	0.89	CF	27' - 6"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.89	CF	21' - 0"
W-Wide Flange: W14X22	0.76	CF	21' - 0"

0.76	CF	18' - 2"
0.76	CF	18' - 2"
0.78	CF	18' - 2"
0.77	CF	18' - 2"
0.77	CF	18' - 2"
0.73	CF	18' - 2"
0.72	CF	17' - 4"
0.72	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
0.72	CF	17' - 4"
0.72	CF	17' - 4"
0.73	CF	17' - 4"
0.72	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
0.72	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
0.72	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
0.72	CF	17' - 4"
0.77	CF	17' - 4"
0.76	CF	18' - 2"
0.76	CF	18' - 2"
0.76	CF	18' - 2"
0.77	CF	18' - 2"
0.77	CF	18' - 2"
0.77	CF	18' - 2"
0.77	CF	18' - 2"
0.77	CF	18' - 2"
0.77	CF	18' - 2"
0.72	CF	18' - 2"
0.72	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
0.73	CF	17' - 4"
	0.76 0.78 0.77 0.77 0.77 0.73 0.72 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.73 0.72 0.77 0.73 0.730	0.76CF0.76CF0.77CF0.77CF0.77CF0.73CF0.72CF0.73CF0.73CF0.73CF0.72CF0.73CF0.72CF0.73CF0.74CF0.75CF0.75CF0.76CF0.77CF0.73CF0.73CF0.73CF0.73CF0.73CF0.73CF0.73CF0.73CF0.73CF0.74CF0.75CF0.76CF0.77CF0.77CF0.77CF0.77CF0.77CF0.77CF0.77CF0.77CF0.77CF0.77CF0.77CF0.77CF0.73CF0.73CF0.73CF0.73CF0.73CF0.73CF

W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.74	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.74	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.74	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.74	CF	17' - 4"
W-Wide Flange: W14X22	0.72	CF	17' - 4"
W-Wide Flange: W14X22	0.72	CF	17' - 4"
W-Wide Flange: W14X22	0.72	CF	17' - 4"
W-Wide Flange: W14X22	0.72	CF	17' - 4"
W-Wide Flange: W14X22	0.74	CF	17' - 4"
W-Wide Flange: W14X22	0.75	CF	17' - 7 1/4"
W-Wide Flange: W14X22	0.77	CF	17' - 9 5/8"
W-Wide Flange: W14X22	0.77	CF	18' - 2"
W-Wide Flange: W14X22	0.77	CF	18' - 2"
W-Wide Flange: W14X22	0.73	CF	18' - 2"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.73	CF	17' - 4"
W-Wide Flange: W14X22	0.7	CF	17' - 4"
W-Wide Flange: W14X22	0.65	CF	16' - 6 1/2"
W-Wide Flange: W14X22	0.77	CF	15' - 4 1/4"
W-Wide Flange: W14X22	1.26	CF	18' - 2"
W-Wide Flange: W14X22	0.74	CF	29' - 3"
W-Wide Flange: W14X22	0.75	CF	17' - 7 1/4"
W-Wide Flange: W14X22	0.74	CF	17' - 9 5/8"
W-Wide Flange: W14X22	1.25	CF	17' - 8 1/2"
W-Wide Flange: W14X22	1.26	CF	29' - 3"
W-Wide Flange: W14X22	1.26	CF	29' - 3"
W-Wide Flange: W14X22	1.26	CF	29' - 3"

W-Wide Flange: W14X22	1.23	CF	29' - 3"
W-Wide Flange: W14X22	1.21	CF	28' - 7 1/4"
W-Wide Flange: W14X22	1.18	CF	27' - 11 1/2"
W-Wide Flange: W14X22	0.22	CF	27' - 3 3/4"
W-Wide Flange: W14X22	0.83	CF	4' - 6''
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.83	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.85	CF	19' - 9 7/8"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.83	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.83	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.83	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	0.85	CF	20' - 4 1/2"
W-Wide Flange: W14X22	1.24	CF	20' - 4 1/2"
W-Wide Flange: W14X30	1.22	CF	21' - 4"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.24	CF	7' - 0''
W-Wide Flange: W14X30	1.2	CF	21' - 4"
W-Wide Flange: W14X30	1.22	CF	20' - 8"

W-Wide Flange: W14X30	1.2	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	20' - 8"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.63	CF	21' - 0"
W-Wide Flange: W14X30	1.24	CF	28' - 0"
W-Wide Flange: W14X30	1.24	CF	21' - 4"
W-Wide Flange: W14X30	2.05	CF	21' - 4"
W-Wide Flange: W14X30	2.03	CF	35' - 0"
W-Wide Flange: W14X30	2.03	CF	34' - 8"
W-Wide Flange: W14X30	0.81	CF	34' - 8"
W-Wide Flange: W14X30	0.71	CF	14' - 0"
W-Wide Flange: W14X30	0.81	CF	12' - 0"
W-Wide Flange: W14X30	0.71	CF	14' - 0"
W-Wide Flange: W14X30	1.24	CF	12' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 4"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.24	CF	7' - 0''
W-Wide Flange: W14X30	1.2	CF	21' - 4"
W-Wide Flange: W14X30	1.22	CF	20' - 8"
W-Wide Flange: W14X30	1.2	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	20' - 8"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	2.03	CF	21' - 0"
W-Wide Flange: W14X30	2.03	CF	34' - 8"
W-Wide Flange: W14X30	1.24	CF	34' - 8"
W-Wide Flange: W14X30	1.22	CF	21' - 4"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.24	CF	7' - 0''
W-Wide Flange: W14X30	1.2	CF	21' - 4"
W-Wide Flange: W14X30	1.22	CF	20' - 8"
W-Wide Flange: W14X30	1.2	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	20' - 8"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	2.03	CF	21' - 0"

W-Wide Flange: W14X30	2.03	CF	34' - 8"
W-Wide Flange: W14X30	0.81	CF	34' - 8"
W-Wide Flange: W14X30	0.71	CF	14' - 0"
W-Wide Flange: W14X30	0.81	CF	12' - 0"
W-Wide Flange: W14X30	0.71	CF	14' - 0"
W-Wide Flange: W14X30	1.24	CF	12' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 4"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.24	CF	7' - 0''
W-Wide Flange: W14X30	1.2	CF	21' - 4"
W-Wide Flange: W14X30	1.22	CF	20' - 8"
W-Wide Flange: W14X30	1.2	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	20' - 8"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	2.03	CF	21' - 0"
W-Wide Flange: W14X30	2.03	CF	34' - 8"
W-Wide Flange: W14X30	1.21	CF	34' - 8"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	7' - 0''
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	0.8	CF	21' - 0"
W-Wide Flange: W14X30	0.81	CF	14' - 0"
W-Wide Flange: W14X30	1.21	CF	14' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	7' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"

W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0''
W-Wide Flange: W14X30	0.8	CF	21' - 0"
W-Wide Flange: W14X30	0.81	CF	14' - 0"
W-Wide Flange: W14X30	1.22	CF	14' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	7' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	0.8	CF	21' - 0"
W-Wide Flange: W14X30	0.81	CF	14' - 0"
W-Wide Flange: W14X30	1.22	CF	14' - 0''
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	0.38	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	7' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	1.22	CF	21' - 0"
W-Wide Flange: W14X30	0.8	CF	21' - 0"
W-Wide Flange: W14X30	0.81	CF	14' - 0"
W-Wide Flange: W14X30	1.04	CF	14' - 0"
W-Wide Flange: W14X30	0.98	CF	18' - 2"
W-Wide Flange: W14X30	1	CF	17' - 4"
W-Wide Flange: W14X30	1	CF	17' - 4"
W-Wide Flange: W14X30	1.01	CF	17' - 4"
W-Wide Flange: W14X30	0.69	CF	17' - 6 1/4"
W-Wide Flange: W16X26	0.32	CF	14' - 0"
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W-Wide Flange: W16X26	1.08	CF	7' - 0''
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.03	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.09	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.09	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	0.69	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	14' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.03	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.09	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.09	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"

W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	0.69	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	14' - 0''
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0''

W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.04	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.03	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"

W-Wide Flange: W16X26	1.09	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.09	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	0.69	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	14' - 0''
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.04	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.03	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.09	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.09	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	20' - 8"
W-Wide Flange: W16X26	1.03	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	20' - 8"
W-Wide Flange: W16X26	0.69	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	14' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 4"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.08	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 4"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	0.87	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	17' - 6"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0''

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	0.39	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	7' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.07	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"

W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.05	CF	21' - 0"
W-Wide Flange: W16X26	1.06	CF	21' - 0"
W-Wide Flange: W16X26	0.92	CF	21' - 0"
W-Wide Flange: W16X26	0.94	CF	18' - 3"
W-Wide Flange: W16X26	0.94	CF	18' - 8"
W-Wide Flange: W16X26	0.94	CF	18' - 8"
W-Wide Flange: W16X26	0.94	CF	18' - 8"
W-Wide Flange: W16X26	1.49	CF	18' - 8"
W-Wide Flange: W16X26	0.94	CF	29' - 3"
W-Wide Flange: W16X26	0.9	CF	18' - 8"
W-Wide Flange: W16X26	0.54	CF	18' - 3"
W-Wide Flange: W16X26	0.75	CF	11' - 4"
W-Wide Flange: W16X26	0.75	CF	15' - 3"
W-Wide Flange: W16X26	0.75	CF	15' - 3"
W-Wide Flange: W16X26	0.75	CF	15' - 3"
W-Wide Flange: W16X26	0.75	CF	15' - 3"
W-Wide Flange: W16X26	0.86	CF	15' - 3"
W-Wide Flange: W16X26	0.86	CF	17' - 4"
W-Wide Flange: W16X26	0.9	CF	17' - 4"
W-Wide Flange: W16X26	0.88	CF	18' - 3"
W-Wide Flange: W16X26	0.85	CF	17' - 6 1/4"
W-Wide Flange: W16X26	0.85	CF	17' - 4"
W-Wide Flange: W16X26	1.25	CF	17' - 4"
W-Wide Flange: W16X31	1.25	CF	21' - 0"
W-Wide Flange: W16X31	1.25	CF	21' - 0"
W-Wide Flange: W16X31	1.25	CF	21' - 0"
W-Wide Flange: W16X31	1.25	CF	21' - 0"

W-Wide Flange: W16X31	1.25	CF	21' - 0"
W-Wide Flange: W16X31	1.25	CF	21' - 0"
W-Wide Flange: W16X31	1.25	CF	21' - 0"
W-Wide Flange: W16X31	1.19	CF	21' - 0"
W-Wide Flange: W16X31	1.09	CF	19' - 9 1/8"
W-Wide Flange: W16X31	2.08	CF	18' - 2"
W-Wide Flange: W16X36	2.07	CF	29' - 7"
W-Wide Flange: W16X36	2.08	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	2.1	CF	29' - 7"
W-Wide Flange: W16X36	0.93	CF	29' - 7"
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.91	CF	14' - 0''
W-Wide Flange: W18X35	0.89	CF	14' - 0''
W-Wide Flange: W18X35	0.91	CF	13' - 8"
W-Wide Flange: W18X35	1.43	CF	14' - 0''
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.4	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	20' - 8"
W-Wide Flange: W18X35	1.4	CF	21' - 0"
W-Wide Flange: W18X35	1.42	CF	20' - 8"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0''

W-Wide Flange: W18X35	0.91	CF	14' - 0"
W-Wide Flange: W18X35	0.89	CF	14' - 0"
W-Wide Flange: W18X35	0.91	CF	13' - 8"
W-Wide Flange: W18X35	1.43	CF	14' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.4	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	20' - 8"
W-Wide Flange: W18X35	1.4	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	20' - 8"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.91	CF	14' - 0"
W-Wide Flange: W18X35	0.89	CF	14' - 0"
W-Wide Flange: W18X35	0.91	CF	13' - 8"
W-Wide Flange: W18X35	1.43	CF	14' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.4	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	20' - 8"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.42	CF	20' - 8"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.91	CF	14' - 0"
W-Wide Flange: W18X35	0.89	CF	14' - 0"
W-Wide Flange: W18X35	0.91	CF	13' - 8"
W-Wide Flange: W18X35	1.43	CF	14' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.4	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	20' - 8"
W-Wide Flange: W18X35	1.43	CF	21' - 0"

W-Wide Flange: W18X35	0.91	CF	20' - 8"
W-Wide Flange: W18X35	1.42	CF	14' - 0''
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.92	CF	14' - 0''
W-Wide Flange: W18X35	0.89	CF	14' - 0''
W-Wide Flange: W18X35	1.42	CF	13' - 8"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.91	CF	21' - 0"
W-Wide Flange: W18X35	1.42	CF	14' - 0''
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.93	CF	14' - 0''
W-Wide Flange: W18X35	0.92	CF	14' - 0''
W-Wide Flange: W18X35	0.89	CF	14' - 0''
W-Wide Flange: W18X35	1.42	CF	13' - 8"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.95	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	14' - 0''
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.92	CF	14' - 0"
W-Wide Flange: W18X35	0.9	CF	14' - 0"
W-Wide Flange: W18X35	1.42	CF	13' - 8"

W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.95	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	14' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	21' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.93	CF	14' - 0"
W-Wide Flange: W18X35	0.92	CF	14' - 0"
W-Wide Flange: W18X35	0.9	CF	14' - 0"
W-Wide Flange: W18X35	1.42	CF	13' - 8"
W-Wide Flange: W18X35	1.42	CF	21' - 0"
W-Wide Flange: W18X35	1.41	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	1.43	CF	21' - 0"
W-Wide Flange: W18X35	0.72	CF	21' - 0"
W-Wide Flange: W18X35	1.15	CF	11' - 4"
W-Wide Flange: W18X35	1.24	CF	17' - 4"
W-Wide Flange: W18X35	1.24	CF	18' - 8"
W-Wide Flange: W18X35	1.22	CF	18' - 8"
W-Wide Flange: W18X35	1.22	CF	18' - 2"
W-Wide Flange: W18X35	1.22	CF	18' - 2"
W-Wide Flange: W18X35	1.22	CF	18' - 2"
W-Wide Flange: W18X35	1.22	CF	18' - 2"
W-Wide Flange: W18X35	1.22	CF	18' - 2"
W-Wide Flange: W18X35	1.22	CF	18' - 2"
W-Wide Flange: W18X35	1.16	CF	18' - 2"
W-Wide Flange: W18X35	1.17	CF	17' - 4"
W-Wide Flange: W18X35	1.17	CF	17' - 4"
W-Wide Flange: W18X35	1.16	CF	17' - 4"
W-Wide Flange: W18X35	1.14	CF	17' - 4"
W-Wide Flange: W18X35	1.15	CF	17' - 4"
W-Wide Flange: W18X35	1.15	CF	17' - 4"
W-Wide Flange: W18X35	1.15	CF	17' - 4"
W-Wide Flange: W18X35	1.15	CF	17' - 4"

W-Wide Flange: W18X35	1.15	CF	17' - 4"
W-Wide Flange: W18X35	0.91	CF	17' - 4"
W-Wide Flange: W18X35	0.91	CF	13' - 0"
W-Wide Flange: W18X35	0.89	CF	13' - 0"
W-Wide Flange: W18X35	0.89	CF	12' - 8"
W-Wide Flange: W18X35	1.6	CF	12' - 8"
W-Wide Flange: W18X40	1.62	CF	20' - 8"
W-Wide Flange: W18X40	1.6	CF	21' - 0"
W-Wide Flange: W18X40	1.62	CF	20' - 8"
W-Wide Flange: W18X40	1.6	CF	21' - 0"
W-Wide Flange: W18X40	1.62	CF	20' - 8"
W-Wide Flange: W18X40	1.6	CF	21' - 0"
W-Wide Flange: W18X40	1.62	CF	20' - 8"
W-Wide Flange: W18X40	1.62	CF	21' - 0"
W-Wide Flange: W18X40	1.61	CF	21' - 0"
W-Wide Flange: W18X40	1.62	CF	20' - 8"
W-Wide Flange: W18X40	1.61	CF	21' - 0"
W-Wide Flange: W18X40	1.64	CF	20' - 8"
W-Wide Flange: W18X40	1.61	CF	21' - 0"
W-Wide Flange: W18X40	1.64	CF	20' - 8"
W-Wide Flange: W18X40	1.61	CF	21' - 0"
W-Wide Flange: W18X40	1.36	CF	20' - 8"
W-Wide Flange: W18X40	1.36	CF	17' - 4"
W-Wide Flange: W18X40	1.66	CF	17' - 4"
W-Wide Flange: W18X50	1.66	CF	17' - 4"
W-Wide Flange: W18X50	1.77	CF	17' - 4"
W-Wide Flange: W18X50	1.77	CF	18' - 8"
W-Wide Flange: W18X50	1.79	CF	18' - 8"
W-Wide Flange: W18X50	1.81	CF	18' - 8"
W-Wide Flange: W18X50	1.79	CF	18' - 8"
W-Wide Flange: W18X50	1.81	CF	18' - 8"
W-Wide Flange: W18X50	1.79	CF	18' - 8"
W-Wide Flange: W18X50	1.81	CF	18' - 8"
W-Wide Flange: W18X50	1.66	CF	18' - 8"
W-Wide Flange: W18X50	1.66	CF	17' - 4"
W-Wide Flange: W18X50	4.12	CF	17' - 4"
W-Wide Flange: W18X60	4.12	CF	35' - 0"
W-Wide Flange: W18X60	4.12	CF	35' - 0"
W-Wide Flange: W18X60	4.12	CF	35' - 0"
W-Wide Flange: W18X60	2.66	CF	35' - 0"

W-Wide Flange: W18X76	5.64	CF	18' - 3"
W-Wide Flange: W18X97	5.64	CF	29' - 7"
W-Wide Flange: W18X97	1.83	CF	29' - 7"
W-Wide Flange: W21X44	1.79	CF	21' - 4"
W-Wide Flange: W21X44	1.79	CF	21' - 0"
W-Wide Flange: W21X44	1.83	CF	21' - 0"
W-Wide Flange: W21X44	2.11	CF	21' - 4"
W-Wide Flange: W21X44	1.18	CF	24' - 6"
W-Wide Flange: W21X44	1.18	CF	14' - 0''
W-Wide Flange: W21X44	1.18	CF	14' - 0''
W-Wide Flange: W21X44	1.18	CF	14' - 0''
W-Wide Flange: W21X44	1.96	CF	14' - 0''
W-Wide Flange: W21X48	1.96	CF	21' - 0"
W-Wide Flange: W21X48	1.92	CF	21' - 0"
W-Wide Flange: W21X48	1.94	CF	20' - 8"
W-Wide Flange: W21X48	1.91	CF	21' - 0"
W-Wide Flange: W21X48	1.94	CF	20' - 8"
W-Wide Flange: W21X48	1.94	CF	21' - 0"
W-Wide Flange: W21X48	1.94	CF	21' - 0"
W-Wide Flange: W21X48	1.95	CF	21' - 0"
W-Wide Flange: W21X48	2.19	CF	21' - 0"
W-Wide Flange: W21X48	1.63	CF	23' - 6 7/8"
W-Wide Flange: W21X48	1.63	CF	17' - 4"
W-Wide Flange: W21X48	2.99	CF	17' - 4"
W-Wide Flange: W24X55	2.23	CF	28' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.23	CF	21' - 4"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.21	CF	21' - 4"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"

W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.23	CF	21' - 4"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.21	CF	21' - 4"
W-Wide Flange: W24X55	2.27	CF	21' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.23	CF	21' - 4"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.21	CF	21' - 4"
W-Wide Flange: W24X55	3.77	CF	21' - 0"
W-Wide Flange: W24X55	3.77	CF	35' - 0"
W-Wide Flange: W24X55	2.27	CF	35' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.23	CF	21' - 4"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	20' - 8"
W-Wide Flange: W24X55	2.18	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	20' - 8"
W-Wide Flange: W24X55	2.21	CF	21' - 4"
W-Wide Flange: W24X55	2.6	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	24' - 6"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"

W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.21	CF	21' - 0"
W-Wide Flange: W24X55	2.23	CF	21' - 0"
W-Wide Flange: W24X55	2.25	CF	21' - 0"
W-Wide Flange: W24X55	1.91	CF	21' - 0"

W-Wide Flange: W24X55	1.95	CF	18' - 3"
W-Wide Flange: W24X55	1.95	CF	18' - 8"
W-Wide Flange: W24X55	3.77	CF	18' - 8"
W-Wide Flange: W24X55	3.77	CF	34' - 8"
W-Wide Flange: W24X55	3.75	CF	34' - 8"
W-Wide Flange: W24X55	3.78	CF	34' - 8"
W-Wide Flange: W24X55	3.78	CF	34' - 8"
W-Wide Flange: W24X55	3.75	CF	34' - 8"
W-Wide Flange: W24X55	3.75	CF	34' - 8"
W-Wide Flange: W24X55	3.78	CF	34' - 8"
W-Wide Flange: W24X55	3.78	CF	34' - 8"
W-Wide Flange: W24X55	3.75	CF	34' - 8"
W-Wide Flange: W24X55	1.95	CF	34' - 8"
W-Wide Flange: W24X55	1.95	CF	18' - 8"
W-Wide Flange: W24X55	2.86	CF	18' - 8"
W-Wide Flange: W24X55	1.61	CF	26' - 8"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.63	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	3.36	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	28' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.63	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.63	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.63	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	3.36	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	27' - 6"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"

W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	1.61	CF	14' - 0"
W-Wide Flange: W24X62	2.24	CF	14' - 0"
W-Wide Flange: W24X62	2.24	CF	18' - 8"
W-Wide Flange: W24X62	2.47	CF	18' - 8"
W-Wide Flange: W24X68	4.67	CF	18' - 8"
W-Wide Flange: W24X68	3.9	CF	34' - 8"
W-Wide Flange: W24X68	5.16	CF	29' - 3"
W-Wide Flange: W24X76	5.16	CF	34' - 8"
W-Wide Flange: W24X76	5.16	CF	34' - 8"
W-Wide Flange: W24X76	5.16	CF	34' - 8"
W-Wide Flange: W24X76	5.24	CF	34' - 8"
W-Wide Flange: W24X76	5.24	CF	34' - 8"
W-Wide Flange: W24X76	5.24	CF	34' - 8"
W-Wide Flange: W24X76	5.24	CF	34' - 8"
W-Wide Flange: W24X76	5.22	CF	34' - 8"
W-Wide Flange: W24X76	5.22	CF	34' - 8"
W-Wide Flange: W24X76	6.99	CF	34' - 8"
W-Wide Flange: W27X84	6.99	CF	42' - 0"
W-Wide Flange: W27X84	5.77	CF	42' - 0"
W-Wide Flange: W27X84	6.99	CF	35' - 0"
W-Wide Flange: W27X84	6.99	CF	42' - 0"
W-Wide Flange: W27X84	6.99	CF	42' - 0"
W-Wide Flange: W27X84	6.99	CF	42' - 0"
W-Wide Flange: W27X84	5.77	CF	42' - 0"
W-Wide Flange: W27X84	6.72	CF	35' - 0"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"

6.75	CF	34' - 8"
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6.72	CF	34' - 8"
6.72	CF	34' - 8"
6.72	CF	34' - 8"
6.79	CF	34' - 8"
6.72	CF	35' - 0"
6.72	CF	34' - 8"
6.72	CF	34' - 8"
6.72	CF	34' - 8"
6.75	CF	34' - 8"
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6.75	CF	34' - 8"
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6.72	CF	34' - 8"
	6.75 6.75 6.75 6.72 6.72 6.72 6.72 6.72 6.72 6.72 6.72 6.75	6.75 CF 6.75 CF 6.75 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.72 CF 6.72 CF 6.72 CF 6.72 CF 6.75 CF 6.75 CF 6.75 CF 6.75 CF 6.75

W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"

Totals	3358.52	CF	
W-Wide Flange: W33X118	16.26	CF	69' - 4"
W-Wide Flange: W33X118	16.26	CF	69' - 4"
W-Wide Flange: W33X118	16.26	CF	69' - 4"
W-Wide Flange: W33X118	16.26	CF	69' - 4"
W-Wide Flange: W30X116	16.31	CF	35' - 0"
W-Wide Flange: W30X116	7.97	CF	35' - 0"
W-Wide Flange: W30X116	7.97	CF	35' - 0"
W-Wide Flange: W30X99	7.97	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.72	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"
W-Wide Flange: W30X99	6.75	CF	34' - 8"

Appendix K: Development of the WPI Recreational Center

Over the past couple years WPI has tried to modernize the buildings and facilities on campus, with the construction of the Bartlett Center, East hall and alumni field; this year the plan was to build a brand new athletic facility. Last spring, when our MQP was assembled, WPI was going through the process of a evaluating a conceptual design of the facility. Construction was slated to start in the summer of 2009 and was our initial project for completing our MQP, unfortunately, due the economy at the time, WPI decided to hold off on the project for at least another year; resulting in us needing to find another MQP.

To get a good understanding of how the different parties worked together we attended the design meetings and watched the interactions between the different groups. WPI is the owner and Gilbane Building Co was hired as the construction manager. Many different people within the WPI community attended these meetings, from the president down to the equipment manager. All parties worked together to develop a conceptual design that looked good and fit in with the surrounding the buildings and a facility that would fall within budget. The budget for the project was roughly 60 million and Gilbane's part of the project at that point was to help WPI decide what parts of the facility were wants vs. needs. We attended roughly 4 meetings and saw the conceptual design change quite a bit from the 1st meeting to the last meeting. Overall, although the project didn't go through, it was a good experience to see how a CM can assist an owner in the early stages of a project. Through this experience, our group has learned the hard way on how quickly a project can change because of the economy.