Project ID: GFS-1401



# Worcester State University Sheehan Hall: Project Management and Alternative Floor System Design

## 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

**Submitted on:** 3/26/2014

Submitted by: Matthew C. Blakeman Myo H. Latt Thomas C. Lacroix

Submitted to: Project Advisor: Guillermo F. Salazar

## Abstract

This project proposes an alternative design for the floor system of Worcester State University's Sheehan Hall residence dormitory and compares it to the existing design in terms of scheduling and costs. It also reviews on-site project management practice including scheduling, cost and lean construction. Building Information Modeling is used to visualize the impacts of the alternative design and to create a 5D model of the building structure for the comparison between the planned and actual cost and schedule.

### **Capstone Design Statement**

Sheehan Hall will be a state-of-the-art dormitory building on the campus of Worcester State University when it is completed in the summer of 2014. Our Major Qualifying Project consisted of reviewing the existing floor system design consisting of pre-fabricated concrete planks and exploring an alternative floor system design for the new dormitory consisting of reinforced cast-in-place concrete slabs on metal decking. This study also explores the effects of the alternative design components including schedule and cost. Building Information Modeling (BIM), Autodesk *Revit*, Autodesk *Navisworks* and *Primavera* scheduling software were used to determine design and constructability analysis processes.

The following constraints were addressed during the completion of this project: economic, environmental, health and safety, social and constructability.

The economic impact of the alternative floor system design is the first constraint. A structural analysis was performed, along with a cost and construction schedule impact analysis, to determine the most effective floor system that can support the required loads of the facility. This was completed with aid of the following software applications: *Primavera*, Autodesk *Revit*, and Autodesk *Navisworks*.

The environmental constraint was met through exploring how the existing property was prepared for construction. This included excavation, grading and site drainage.

The health and safety constraint was met by determining that the alternative design sustained the required loads of the facility. It was ensured that the designs met the appropriate provisions of the *Massachusetts State Building Code* with *ASCE 7* to complete the structural designs.

The next constraint explored was the social constraint. This constraint was addressed throughout the duration of our project because the dormitory will serve as housing to students of the Worcester State University.

The last constraint is the constructability of the alternative design. This constraint was met by researching the structural design of the alternative floor system. Design constructability was the principal consideration in proposing the alternative design, which affects the cost and schedule of the project.

## Authorship

The following list indicates the primary areas of focus in the report for each team member:

Myo Latt – Primavera Scheduling, 5D Navisworks Model, Schedule Evaluations Thomas Lacroix – Alternative Design Revit Model, Structural Calculations, Site Logistics Matthew Blakeman – Cost Evaluations, Cost Calculations, Project Management Evaluation

The signatures below indicate the acceptance of above.

Myo H. Latt

Thomas C. Lacroix

Blake

Matthew C. Blakeman

iv

## Acknowledgements

We would like to first thank our advisor, Professor Guillermo Salazar, and our structural consultant, Professor Leonard Albano, for their invaluable guidance throughout the completion of this project. They have provided us with direction, support and constructive feedback which has aided the completion of the project.

We would also like to thank Paul Galligan, Jody Staurk, and Jack Moran of Consigli Construction for their guidance throughout the project. Without their support, this project would not have been possible.

Additionally, we would like to extend our appreciations to Sergio Alvarez and Maria Gomez for their enlightenment in Building Information Modeling.

Finally, we would like to thank Worcester State University for allowing us to complete this project on their site.

## **Table of Contents**

Abstract	i
Capstone Design Statement	ii
Authorship	iv
Acknowledgements	V
Table of Contents	vi
List of Figures	viii
List of Tables	xi
1.0 Introduction	1
2.0 Background	4
2.1 Worcester State's Plan	4
2.2 Sheehan Hall	6
2.3 Construction Project Management (CPM) Overview	7
2.3.1 Organizational Breakdown Structure (OBS)	
2.3.2 CPM Contract	9
2.3.3 Scheduling	
2.3.4 Building Information Modeling in Project Management	
2.3.5 Lean Construction	
2.4 Structural Components Overview	17
2.4.1 Precast Concrete vs. Cast-in-Place	
3.0 Project Management	
3.1 Project Management Evaluation	
3.2 Cost	
3.3 Schedule	
3.4 Uses of BIM	
4.0 Structural Design Overview	45
4.1 Structural Design Criteria and Baseline Loads	
4.2 Structural Steel Frame	53
4.2.1 Structural K-Series Open-Web Joist	
4.2.2 Joist Design	

4.3 Structural Columns	66
4.4 Structural Foundations	71
4.5 Impacts of Alternative Floor System Design on Cost	74
4.6 Impacts of Alternative Floor System Design on Schedule	77
4.7 BIM for Alternative Floor System Design	81
5.0 Site Logistics & Development	85
6.0 Conclusions	95
References	96
Appendix A: Consigli Interview	99
Appendix B: Consultants	
Appendix C: Group Activities List, Bar Chart and Organiza	ational
Breakdown Structure (OBS)	
Appendix D: Consigli's Baseline Schedule	
Appendix E: Consigli's As-Built Schedule	114
Appendix F: Existing Design Material Take-off	134
Appendix G: Alternative Design Phase Costs	144
Appendix H: Proposed Site Development Plans	149
<b>Appendix I: Structural Design Loads &amp; Beam Selection Har</b>	nd-
Calculations	
Appendix J: Structural Design Loads & Beam Design Hand	-
Calculations	176
Appendix K: Electronic Files Directory	
Appendix L: MQP Proposal	

# **List of Figures**

Figure 1: Campus Map of Worcester State University	5
Figure 2: Organizational Breakdown Structure of Sheehan Hall	8
Figure 3: Consigli's Baseline Schedule	12
Figure 4: Consigli's Coordination BIM Model	15
Figure 5: Boom Lift	21
Figure 6: Tower Crane	21
Figure 7: Typical Girder-Slab Section Detail- Reinforced Core with 2-inch Concrete Topping	25
Figure 8: Contract Changes	31
Figure 9: Contingency Changes	32
Figure 10: Baseline Schedule	35
Figure 11: Baseline Schedule (Continued)	36
Figure 12: As-Built Remaining Critical Activities	37
Figure 13: Baseline vs. As-built TimeLiner Schedule	41
Figure 14: Baseline vs. As-Built Animation 1	42
Figure 15: Baseline vs. As-Built Animation 2	43
Figure 16: Baseline vs. As-Built Animation 3	43
Figure 17: Baseline vs. As-Built Animation 4	44
Figure 18: Baseline vs. As-Built Animation 5	44
Figure 19: Complete Revit Structural Model	50
Figure 20: K-Series Open-Web Joist Diagram	55
Figure 21: Types of Steel Joist Bridging	57
Figure 22: Standard ASD Steel Joist Design Load Table	59
Figure 23: Level One Floor Plan	61

Figure 24: Level Two Floor Plan	61
Figure 25: Level Three Floor Plan	62
Figure 26: Level Four Floor Plan	62
Figure 27: Level Five Floor Plan	63
Figure 28: Level Six Floor Plan	63
Figure 29: Level Seven Floor Plan	64
Figure 30: Level 7 Mechanical Roof Plan	64
Figure 31: Example Column BB-13	67
Figure 32: Alternative Design Animation 1	82
Figure 33: Alternative Design Animation 2	83
Figure 34: Alternative Design Animation 3	83
Figure 35: Alternative Design Animation 4	84
Figure 36: Alternative Design Animation 5	84
Figure 37: Existing Site (Pre-Development)	85
Figure 38: Site - November 2012	87
Figure 39: Retaining Wall Construction - December 2012	87
Figure 40: Retaining Wall - January 2013	88
Figure 41: Site Excavation - February 2013	88
Figure 42: Site Excavation - March 2013	89
Figure 43: Foundation Walls - April 2013	89
Figure 44: Steel Framing - June 2013	90
Figure 45: Hollow-cored Precast Planks - July 2013	90
Figure 46: Site Overview - August 2013	91
Figure 47: Curtain Walls - September 2013	91
Figure 48: Site Overview - October 2013	92

Figure 49: Masonry (Wing 1) - November 2013	92
Figure 51: Site Overview - December 2013	93
Figure 50: Interior Finishes - January 2014	93
Figure 52: Site Overview - February 2014	94

## **List of Tables**

Table 1: Baseline vs. As-built	
Table 2: Design Live Loads	48
Table 3 Design Load Criteria	50
Table 4: Factored Loads for Levels 1 - 3	51
Table 5: Factored Loads for levels 4 - 6	52
Table 6 Steel Frame Design Levels 1 - 3	53
Table 7: Proposed Open-Web Bar Joists	60
Table 8: Load Calculations	67
Table 9: Column Tributary Area	69
Table 10: Total Design Load Criteria for Columns	70
Table 11: Final Load and Column Selection	71
Table 12: Footing Modifications	72
Table 13 Revised Footing Schedule	73
Table 14: Cost of Steel	75
Table 15: Cost of Concrete	75
Table 16: Alternative Design Phase Costs	76
Table 17: Baseline vs. Alternative Design Critical Activities	80

### **1.0 Introduction**

Educational institutions all over the world are drawing in more and more students each year, partly owing to the fact that an increasing number of people are realizing the value and importance of higher education nowadays (*Admission Statistics*, 2013). This may be beneficial for universities and colleges in the sense that they are educating an increasing number of the population while generating greater revenue and growing in size, but an increasing student population also demands more on-campus facilities such as dormitories, cafeterias, etc. Many universities and colleges have very limited on-campus accommodation, meaning that a large number of students must live elsewhere and commute to campus, which is not ideal. Due to this increasing demand for construction within the education sector, the construction industry is witnessing a growing number of projects for educational buildings (*Construction Market Research*, 2013).

Such is the case of Worcester State University (WSU). Located in a residential neighborhood on the west of Worcester, MA, WSU is a commuter-heavy university that is currently facing the same problem of not being able to provide enough housing for its current student population. In an effort to address this problem and keep more students on campus, WSU is currently constructing a new facility, namely Sheehan Hall (Kotsopoulos, 2012). It is imperative that this new facility is completed on time and within budget because it needs to be ready for move-in by fall 2014. When completed, Sheehan Hall will rise six stories beside the football field and house 400 beds. In addition, the facility will also feature amenities such as a cafeteria capable of seating 575 people, a large community room, and offices for the residential and health services. The total budget for the design and construction of the project is \$60 million.

This study is based on the observation and analysis of the project during construction and is focused on exploring the impacts of an alternative floor system design on the total project duration and cost. It also includes a thorough analysis and evaluation of the construction management practice, in which the planned schedule and costs are compared with the actual construction schedule and costs.

The current structural design of the facility is comprised of a steel frame, with cast-inplace concrete slabs for the first floor, and pre-cast concrete slabs for floors two through six. This study proposes an alternative floor system design, in which the pre-cast slabs on floors two through six are entirely replaced with cast-in-place reinforced concrete slabs. The benefits of precast slabs are that they could potentially speed up the construction process, eliminate the hassle and coordination involved with pouring concrete on-site, and since they are manufactured in a controlled environment, their quality is strictly monitored (Consigli, 2013). Cast-in-place concrete slabs, on the other hand, do not require equipment such as cranes to be installed, they can be poured to the exact required dimensions on-site, and do not costs as much as pre-cast slabs. By changing the existing pre-cast slabs to cast-in-place, the study examines the effects on the cost and schedule, and determines which method will be more beneficial for the project. The alternative design is first visualized through a 3D model, which is created using Autodesk Revit software, based on manual structural calculations. The impacts that this new design may have on the project are then analyzed in terms of cost and time by preparing a cost estimate and a schedule of activities, using *Primavera* scheduling software. This schedule and cost data are then incorporated with the 3D structural model using Autodesk Navisworks software to create a 5D Building Information Model (BIM). The BIM serves as a complete visual tool of the project and

aids in better understanding the alternative design, including its time and cost implications on the project.

The study also consists of observation and analysis of the overall project management process for the actual construction phase of the project, which entails evaluations of the relationships between different parties involved in the project, cost and schedule, safety practices, and the use of lean construction. However, for the intent of this study, the evaluations are limited to the site work, foundations, structural framing, and floors of the building only. A visual comparison of the baseline cost and schedule to the actual cost and schedule is presented in the form of a 5D BIM model. The 5D model is created through the integration of the *Primavera* schedules with the *Revit* model in *Navisworks*. Lastly, the study involves a site work review section, which provides a description of the existing layout and pre-construction site work.

### 2.0 Background

This chapter discusses the planning and need of a new dormitory on the campus of Worcester State. The section starts with an overview of the project as well as some information about Worcester State. Construction project management practices such as cost estimating and scheduling. The use of Building Information Modeling (BIM) for the construction of Sheehan Hall is reviewed. Structural analyses are discussed along with site implications.

#### 2.1 Worcester State's Plan

More students are attending colleges now more than ever. From 2000 to 2010 there has been an increase in enrollment in degree-granting institutions by 37% (Worcester State University 2013, August 1). Worcester State University (WSU) has been planning on adding more on-campus housing for their students to address this increase in students and students who live on campus. Sheehan Hall, the new dormitory on the campus will meet this need for the college. In the Worcester State University Master Plan from 2007 it was estimated that 700 new beds would be needed by 2014 (Sieniewicz, C. K, 2007). Sheehan Hall helps the university meet the needs of a growing student population. The college has many commuter students and the addition of this residence hall will help the process to have more students that stay and live on campus. Worcester State's President Maloney stated that "When Sheehan Hall is completed in August 2014, two out of every five of our students will be housed here on campus-and we know that residential students will both add vitality to our campus community and positively affect our retention and completion rates" (Reis, J, 2012). "Phase 3: beyond the framework horizon" section of the Campus Framework Plan states that a new residence hall would be implemented on the hillside of the sports field, six years later that plan was put into place. With this new residence hall the opportunity presented itself to enhance the "main street" of the campus

(Sieniewicz, C. K, 2007). The college campus lacks a clean pedestrian path or circulation pattern but this new building will add to the circulation pattern. The reason that the college wants a more prominent pedestrian path is to try to connect all campus buildings in one path, and this hall will fit into that path. **Figure 1** displays where the new residence hall will be located on the campus.



Figure 1: Campus Map of Worcester State University

#### 2.2 Sheehan Hall

Worcester State University's new residence hall construction officially began in March of 2013, and has an expected completion date slated for the fall 2014. The new facility is designed to accommodate 400 students and also includes features such as a large community room, a dining hall with two-story windows capable of seating 575 students, faculty and staff, as well as additional outdoor seating overlooking the John F. Coughlin Field. This new residence hall will add approximately 10 percent to the University's on-campus housing capacity. Sheehan Hall will be named after Lt. Col. James F. Sheehan USMC (ret.) who graduated from the college in 1955. Over the years Lt. Sheehan has provided \$3.6 million in support for the college. Lt. Sheehan's support has gone towards scholarships, academic excellence and international study support. Massachusetts Higher Education Commissioner Dr. Richard M. Freeland stated that the support from Sheehan and the naming of the building was "truly a magnificent achievement for Worcester State and ... as a testament to his loyalty and gratitude towards the college" (Herrin, C 2013). Sheehan Hall will now become the fourth residential complex among those currently part of campus such as Wasylean and Dowden Halls, and the Chandler Village. Positioned on the hillside above the Coughlin Athletic Field, the new residential facility will serve as a clear anchor to the residential area of the campus, offering a panoramic view of the university grounds as well as creating a pedestrian core that integrates all residential life on campus.

Sheehan Hall received an allocation of a budget of \$60 million for design and construction, the bulk of which is financed through the Massachusetts State College Building Authority (MSCBA). The MSCBA is responsible for the financing, designing, constructing and also the management of all revenue-funded projects including housing, dining, athletics, parking and other student recreational facilities with the goal to support the academic mission of the nine Massachusetts state universities. The Authority receives no appropriation from the Commonwealth. All revenues to support facility design, construction and operation are derived from the rents and fees paid by students for the use of these facilities and services (MSCBA, 2013).

#### **2.3 Construction Project Management (CPM) Overview**

Construction Project Management (CPM) is the art of directing and coordinating human and material resources throughout the life of a project by using modern management techniques to achieve predetermined objectives of scope, cost, time, quality and participation satisfaction (What is Construction Project Management, 2014). There are many different components that are critical to completing the project on time and within budget. The CPM overview section explains the main components of the CPM methods that were used for this project. This section includes the contract type that was used for this project, the organization breakdown structure of the people and companies that are working on this project, the CPM practices that were used for cost estimating and scheduling, how Building Information Modeling (BIM) was used in project management and how the concept of Lean Construction and how it was used in this project.

#### 2.3.1 Organizational Breakdown Structure (OBS)

Construction Management at Risk is the contract type used for this project. Under this contract type the Owner hires a design firm to design the project for the owner. Firms that offer construction management (CM) services then bid on the project before the construction drawings are complete. The owner then chooses the best CM contractor to complete the project based on variables such as bid price, projected schedule, and contractor qualifications. The work is being done for Worcester State University, which is a state school and becomes the end user, the owner

is the Massachusetts State College Building Authority (MSCBA). The MSCBA finances, helps design and oversees construction and operation of the residence halls and student activity facilities on the nine State University campuses in Massachusetts (MSCBA, 2013). The Authority uses all revenues derived from the rental and fees of these buildings to the students to support facility design, construction, and operation (MSCBA, 2013). The MSCBA chose Goody Clancy and Associates from Boston, MA as the architectural firm for the design of this project. The CM firm that was chosen for this project is Consigli Construction Co. based out of Milford, MA. Consigli is a Construction Manager and General Contractor that also has offices in Williamstown, MA, Portland, ME and Hartford, CT and Boston, MA as well as having affiliates in NY. Once Consigli was awarded the project they began hiring the subcontractors for the job. There are also many engineering design consultants hired by the MSCBA who are involved with many different trades on the project. A list of all of these consultants can be seen in **Appendix B**. **Figure 2** displays the organization breakdown for this project.



Figure 2: Organizational Breakdown Structure of Sheehan Hall

#### **2.3.2 CPM Contract**

The project delivery system for this project is Construction Management (CM) at risk with a Guaranteed Maximum Price (GMP) as the contract type. A GMP is the maximum possible cost to the owner for total construction of the project, however it is a cost reimbursable contract so that if the cost to complete the project is under the capped GMP amount the owner gets back the remaining amount of money not spent. The main difference between a GMP and a Lump Sum contract type (Lump Sum is the other typical contract type) is the CM's contingency. The contingency is a portion of money in the contract that is used for unforeseen changes that occur to the project due to lack of scope, incomplete drawings or specifications or to cover unforeseen costs to a project. If a change has to be made to the project that is not specified through the scope of work than money from the contingency can be used for this change and it will not change the overall cost of the project. It is called a Guaranteed Max Price because of the contingency aspect so the max price does not change. However the GMP can be subjected to change if the owner or the Architect/Engineer makes a change to the scope of work. The CM is at risk in this contract because after the money from the contingency is used the CM has to pay for unexpected costs that come up on a project, other than owner approved scope changes. The MSCBA likes using this contract type because they receive the remaining amount of contingency back once the project is done if the cost does not exceed the GMP (Consigli, 2013). The initial GMP bid for this project was \$50,262,375 (Consigli, 2013). This cost to complete bid will change through the project based on changes and unforeseen expenditures.

#### 2.3.3 Scheduling

Scheduling is one of the most important tasks involved in construction project management. A carefully planned and well-defined schedule, endorsed by all parties involved, is a necessary component of any project in order to ensure that the project gets completed within the specified time and cost estimate. Construction projects involve a myriad of activities that need to be completed by many different subcontractors and professional teams in order to properly finish the project. A well-coordinated schedule not only helps in determining all the activities in the project as well as the sequence in which the activities are to be performed, but it is also necessary for identifying the critical activities of the project that will determine the overall project duration, as well as the order and timing in which each subcontractor is expected to start and complete their tasks. A schedule can also be used to gauge the progress of the entire project by comparing the activities planned on the schedule with the activities that have been completed. If an activity falls behind schedule and could potentially delay the completion of the project, it is the job of the project management team to manipulate the schedule, reallocating resources and task sequencing in order to finish on time. In the case of Sheehan Hall, finishing on time is essential because WSU needs to have the building ready for move-in by fall 2014.

The design of the Sheehan Hall project began in November of 2012, and the entire project is expected for completion in July of 2014, with a total project duration of 20 months (Consigli, 2013). The project is on a fast-track schedule, meaning that the design and construction phases are overlapped in order to compress the total duration of the project. For example, the construction can begin as soon as the structural design is complete, while the rest of the details and designs can be finalized as the project moves along. This enables the project management to significantly expedite the construction process since they don't have to wait for the complete design to commence construction. A fast-track schedule saves time but it demands greater coordination and communication between the designers and the project management team.

In any schedule, it is important to identify the critical activities whose completion is absolutely necessary in order for the project to be finished on time. The Critical Path Method (CPM) is commonly used in construction schedules to identify the tasks that are critical to the project, and based off these tasks, the total project duration. In the CPM, all activities that have a total float of zero are considered critical while activities whose total floats are greater than zero are considered non-critical. The path with the longest total duration along these critical activities is known as the critical path and the duration of the critical path determines the duration of the entire project. Total float is the leeway between the earliest date at which an activity can start and the latest date it can start without resulting in a delay for the entire project (Halpin & Senior, 2011). Therefore, delaying a critical activity (zero total float) will result in the total duration being extended as well. On the other hand, non-critical activities (total float greater than zero) can be delayed by up to a number of days equal to their total float without impacting the total duration of the project. The CPM is a very useful tool for the project management team in planning and controlling a project from start to finish: critical activities indicate which tasks require continuous and immediate attention and resources. Shortening the duration of the critical path can shorten the total duration of the entire project.

The larger the project, the greater the number of activities involved in the schedule of the project. Large construction projects involve tens of thousands of individual activities and scheduling all these activities can be very complex and time-consuming. For this reason, various computer software exist that make scheduling a project fast, simple, and manageable. Programs

such as *Primavera Project Manager* are very capable of organizing and performing calculations on many information, and can handle various tasks, from planning and generating a simple timeline for all the activities of a project, to evaluating entire projects and portfolios (Primavera Works, 2013). *Primavera* is widely used by many construction and contracting firms to create schedules for projects because the program is also capable of tracking many important aspects of a project such as costs, duration of individual activities, and the relationship between activities. It can even be used to manage risks, keep track of all the contracts, documents, and change orders pertaining to the project, and monitor Requests for Information (RFIs) and unresolved issues (Oracle, 2013). A part of the *Primavera* baseline schedule developed by Consigli for the Sheehan Hall project can be seen in **Figure 3**, with the list of activities on the left and a bar chart showing the activities in sequence on a timeline on the right (please refer to **Appendix D** for a complete display of the baseline schedule that contains all the project activities).

1124 - WSU - Nei	v Student Residence Hall and Dining Facility		1	WBS Layout - Ov	ner Suite TASK filter: 003 Activity Finder. Page 1 of 1
Activity ID	Activity Name	Orig	Rem Start	Finish	2013 2014 2015
Address and		Dur	Dur		Jan Peo Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Peo Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Peo M
WSU - P	IEW STUDENT RESIDENCE HALL AND DINING	FACILITY			
CONSTR	UCTION				
E-FAINT					
424460	Early Stework	54	04 10/31/12 A	03/15/13.4	
Paratico	Hall / Dimen	54	bu tubirizk	War far far fark	
Stewart	nan / Uning				<mark>┟┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞┉┉╞</mark>
A15250	Start Construction	04	01 0304/134		The Continues
A16370	Mohilite ( Install Barriars	54	01 0304/134	03/08/134	Abelite instalifizarias
A15310	Instali Drainane	204	01 03/13/13 A	04/08/13 A	Indial Crainson
A16350	Instal Sewer	20.0	95 03/13/13 A	05/10/13	B DEN MART
A24540	Flectric Ducthank in Chandler	354	354 05/21/13	08/09/13	Electric Durthook to Chandler
A16350	Rough Grade Ste	154	154 08/05/13	05/23/13	Rough Grade Sta
A16420	Set Generator	50	55 1001/13	10/07/13	Sel Genérator
A15440	EREP Courtvard Walk, Sidewalks, Stairs	434	430 03/17/14"	05/14/14	PREP Counsel Wats Stored
A15430	Parting	304	30d 05/05/14	05/16/14	Burning Purchase
*** SECTIO	N 1 *** (Fast Bart			<b>Diriticity</b>	
Structure	/ Shell				
Founda	lone				
A16300	Expande for Ecologia & Ecupdations / Hall - Section 1	154	05 03/20/13 A	04/01/13A	Producte for Engines & Engineering (Hauf - Section 1
A22500	Install Sol Naling - Sector 1	30	0d 03/27/13 A	03/28/13 A	Instal Sof Naling-Section 1
A18520	FREP Footnas - Dector 1	5d	0d 04/02/13 A	04/08/13 A	FREP Postinge- Dection 1
A18530	Elec Ground Wiring to Footings 1	100	0d 04/03/13 A	04/04/13 A	Elec Ground Without Pootnes 1
A18560	FREP Interior Footings - Section 1	21	2d 04/04/13	04/05/13	I FREP Interior Footings - Section 1
A18550	FREP Foundations - Section 1	23d	23d 04/05/13 A	05/06/13	FREP Foundations - Section 3
A16390	Waterproof - Section 1	100	108 05/10/13	05/23/13	Wateborof Section 1
A16410	Backfill Exterior - Section 1	56	56 05/24/13	05/31/13	Badrill Externo - Sector 1
LowerL	IN THE REPORT OF A DESCRIPTION OF A DESC		. Same	- Indexed and -	
A16320	Backfil / Compact / Undersiab MEPs - Section 1-LL	150	15d 07/15/13	08/02/13	Baditti / Compadi / Undersati MEPsi-Section 1-8L
A18540	Place SOG - Section 1-LL	10	1d 08/05/13	08/05/13	I Pabe SOG - Sedson 14L
A18440	Instal MEP Hangers - Section 1-LL	78	78 05/06/13	08/14/13	I IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII
A18450	Instal Spray Fireproofing - Section 1-LL	48	48 08/30/13	09/05/13	instal Spray Friedrooffig - Section 1-LL
Floors 1	-3 [Seq 1 & 2]		and the second second		
A18180	Erect Steel - Section 1-L1-3 [Seq 1]	48	4d 05/13/13	05/16/13	dreut zheei- dector; I-L1-3 [zeg i]
A25240	Deck & Detail Steel - Section 1-L1-3 (Seq 1)	13d	13d 05/14/13	05/31/13	🗰 Deck & Decar Steler - Sector 14-1-3 Seq 1
A18570	Erect Steel - Section 1-L1-3 [Seq 2]	25	2d 05/17/13	05/20/13	Frext Steel - Dectod 1-L1/3 (Dec 2)
A24710	Deck & Detail - Section 1-L1	50	58 05/17/13	05/23/13	Deck & Detail - Section 1-L1
A25060	Deck & Detail Steel - Section 1-L1-3 [Seq 2]	110	11d 05/20/13	05/04/13	🔰 🗰 Deþa & Détall Stéler - Séction 1-L1-3()Seg 2)
A18580	Erect & Grout Precast Planks -Section 1-L1-3 [Seq 1]	5d	5d 05/28/13	06/03/13	📫 Enipt & Grout Priposet Planks Section 1-L1-3 (Seig 1)
A18100	Erect & Grout Precast Planks - Section 1-L1-3 [Seq 2]	50	56 05/30/13	05/05/13	💼 Eneral & Grout Precast Panks)- Dection 1-U1-3 [Seq 2]
A18770	Install Perimeter Radiant Heat- 1-L1	100	100 05/05/13	05/18/13	ing instal Perimeter Radiant Heat- 19L1
A18190	Place SOD - Section 1-L1	2d	2d 06/19/13	05/20/13	Page pool-pector 1-L1
A15200	Instal MEP Hangers - Sector 1-L1	30	36 07/22/13	07/24/13	I InstativeP danges - Section 1/L1
A18210	Install Spray Fireproofing - Section 1-L1	48	48 08/02/13	08/07/13	🗊 Inefall Spray Firéproofing - Section 1-L1
2nd Flor		580.0	- an sour	- Constanting	
A18600	Install MEP Hangers - Section 1-L2	50	58 07/25/13	07/31/13	instál MER Hangers - Section 1-12
A18590	Install Topping Slab - Section 1-L2	46	40 08/01/13	08/06/13	📕 Indping Stab - Section (1-L2
A18610	Install Spray Fireproofing - Section 1-L2	45	46 08/08/13	05/13/13	🖬 Inistal Spray Fiteprodfing - Section 1-42
Sed Floo		10 M			
A18120	Instal MEP Hangers - Section 1-L3	5đ	54 08/01/13	08/07/13	🗰 Ingtal MEP Hangers-Section 1-L3

Figure 3: Consigli's Baseline Schedule

#### 2.3.4 Building Information Modeling in Project Management

Building Information Modeling (BIM) is an emerging computer-based approach in the construction industry that is being adopted by an increasing number of construction firms. BIM enables firms to virtually construct in a digital fashion, a structure or facility before the actual construction occurs, thus minimizing the chances for error and spatial clashes between building components that would likely occur during construction (Consigli, 2013). BIM is mainly based on a 3D model, to which large amounts of information and other models can be added as desired. The BIM of a construction project usually incorporates into a single model significant amount of information from different components of the project such as the architectural details, the structural design, the HVAC and MEP designs, as well as geotechnical information. Different parts of this complete model can then be exported into special application software, such as *Autodesk Robot*, to be structurally analyzed. It also allows to conduct a 3D-spatial verification to detect potential clashes between components so these can be identified and resolved, thus enabling the project management team to eliminate costly adjustments on site.

In addition to being capable of providing a complete 3D model of a facility, BIM can also incorporate other information such as the schedule of the project and the costs associated with the construction of the building into the same model. A BIM model with incorporated cost and schedule data is known as a 5D model. BIM models are great tools for project management because they enable the project management team to simulate the actual construction process and prepare cost estimates along different project phases (Autodesk, 2013).

BIM is a great way of communicating various aspects and objectives of a project with everyone involved, from the owner to the field workers, because it provides a visual model with integrated time and cost data. The complexity of these models enables information from all the

different trades of the project to be stored in a single file, from which data can be pulled as necessary and each individual component of the project can be analyzed. BIM has dramatically enhanced the capabilities of the construction industry with its versatility. It is becoming increasingly popular.

This study incorporates the use of BIM for two purposes; to compare the baseline schedule for the actual construction of the structure to the as-built schedule, and to help with the visualization of the alternative floor system design and its impacts on the schedule and cost. Hence, the 3D model created by the designer using *Autodesk Revit* software has been modified to include the foundations and the structural design only. **Figure 4** displays the complete BIM model that Consigli uses. Consigli's use of BIM in the Sheehan Hall project is much more comprehensive than just for visualization and comparison purposes. Their main uses are primarily for co-location, as a digital mock-up, and for modeling site logistics as well as costs. Co-location is the process of bringing together all the designers for each of the different building systems (MEP, HVAC, plumbing, etc.) in one room and making them design the systems jointly and cooperatively. This ensures that everyone's input is taken into consideration in the designs, thus eliminating chances for errors, omissions, and clashes on site.

Using BIM for digital mock-up purposes is highly advantageous for Consigli because they can virtually go through the entire construction process before actual construction begins on site. This is beneficial because creating a digital mock-up using BIM tools forces the project management team to take a more in-depth look and identify and resolve any issues in their design documents, schedules, and construction and shop drawings. A digital mock-up also helps with detecting possible spatial clashes, as well as ensuring a proper sequencing of construction activities. Consigli also uses BIM to model the site logistics of Sheehan Hall. A site logistics

model is excellent for making sure everyone on the project team understands how to use the site efficiently and effectively, as well as the layout of the site. It takes into consideration factors such as effective location and use of cranes as well as other equipment, accessible drop-off sites for material deliveries, temporary placement locations for steel, slabs, etc., and locations of garbage and waste disposals. Consigli also modeled the costs of the building into the architectural model during the design process so that if the client or designer decides to make a change to the model, the cost data will be automatically updated. This makes the evaluation of alternative designs easier, faster, and more effective (Consigli, 2013).



Figure 4: Consigli's Coordination BIM Model

#### **2.3.5 Lean Construction**

Lean Construction is an increasingly popular method for efficiently managing construction that is being employed by many construction firms nowadays (Consigli, 2013). In lean construction, a production management-based approach is used to help streamline the process of designing and building new facilities, in order to minimize the waste of materials, time and effort, and maximize value (Lean Construction Institute, 2013). Lean construction is especially useful for projects that are complex, uncertain and quick because the techniques used in lean construction call for enhanced collaboration among the different parties involved, reduced waste and redundancy, and improved efficiency and project outcome (Turner Construction, 2013).

Consigli also decided to adopt lean construction practices in the WSU New Dormitory and Cafeteria project in order to make the construction process more efficient and to tighten up the schedule (Consigli, 2013). In order to implement lean construction practices in a project, each work area is sub-divided into smaller sections, in which a single trade focuses on the work they need to complete before the next trade takes over the section. This method of dividing up the work areas into sections and having trades work in these smaller sections over a certain period of time creates a production-line type of effect and increases efficiency, as opposed to giving the work area to just a single trade at a time. This is true due to the fact that each trade is under the responsibility of completing their work properly and on time so that the next trade can move in and begin their work as scheduled with a minimum of wasted time. The added benefit of having multiple trades working simultaneously on different sections of a work area is that there is increased communication among the trades.

The practice of lean construction can also be applied to equipment and resources in order to ensure a better flow of work among the trades and to reduce costs; this is achieved through careful scheduling and allocation of the equipment and resources among the various trades involved in the project. It allows the project management to reduce the planning, coordination, and clutter that would otherwise be involved with moving the equipment frequently from place to place on site among different trades. There are many benefits to incorporating the principles of lean construction in a project. Lean construction achieves better efficiency in the use of materials, time, and effort by streamlining the traditional construction process and making it more like an assembly-line of a manufacturing plant. Consigli realized the benefits of lean construction in the Sheehan Hall project by dividing up each floor into multiple smaller work areas and having different trades work simultaneously on a floor as opposed to giving each trade a floor at a time. In order to ensure a better work flow in this kind of setup, they employed the use of a pre-deficiency log, which looks at potential problems six weeks in advance. Foremen are forced to look at shop drawings and identify problems beforehand, and trades are forced to better understand the scope of work as a result.

#### **2.4 Structural Components Overview**

This project as it pertains to the structural components of WSU's new dormitory building, Sheehan Hall, is based on proposing an alternative design for the current concrete floor system. The alternative design was developed to determine the impact of using a more traditional method in the design of the structural floor systems on the overall construction period as well as on the building's total cost of construction. To achieve this, an alternative to the current floor system's concrete method that uses a girder-slab system utilizing hollow-core precast planks with dissymmetric open-web steel beams. In our proposed alternative, our objective was to design a cast-in-place concrete slab on metal deck supported by Vulcraft K-series open-web steel floor joists added for additional support on the girders. Our design features a non-composite acting reinforced concrete slab (as opposed to the precast composite-acting slab on d beams) as well as the addition of steel floor joists for additional support on the girders. The existing and proposed designs are compared both (precast planks versus composite slab) to identify the advantages and limitations of both systems in terms of the project's constructability and cost.

#### 2.4.1 Precast Concrete vs. Cast-in-Place

Precast Concrete is a type of construction material that is typically used for both architectural and structural applications on a variety of buildings (PCI, 2013). This material is commonly used as the primary structural system for many high rise or multi story buildings because of its ability to transfer roof, floor, and lateral loads while also reducing the overall weight of the entire system (PCI, 2013). The use of precasted hollow core planks allows for designers to integrate both the architectural and structural systems while reducing the total amount of materials, detailing, costs and also construction complexity (PCI, 2013). Precast is also valued for its high versatility, because it can serve many needs for the structure of a building and most importantly, in terms of its growing popularity, precast is more than just a very good building material because it can take almost any form and shape. Other beneficial traits for precast concrete is that there are different types of precast materials such as prestressed concretewhich is a type of structural member that is known for its exceptional load-carrying capacity. Due to having such high load-carrying capacity, this typically results in the use of smaller sections, longer spans, or even both when compared to other structural systems (ACP Co., 2013).

What makes this building material so advantageous to use during construction is its ability to be transported to a construction site where it can then be lifted and set into place all in

the same day. During the production of precast concrete, the controlled environment it is mixed in is typically referred to as a precast plant. At this plant, the production process is done on ground level, which has been proven to help with production safety (ACP Co., 2013). Also this provides a greater ability to control the quality of materials being added to the mixture while also affecting the workmanship in a precast plant versus being on a congested construction site (ACP Co., 2013). After the mixture has been poured and shaped, it begins the curing process where it is closely monitored to reduce the possibility of deformities from being created within the structure that would typically be caused by unnecessary exposure to inclement weather or other disturbances found on any construction site.

This type of concrete is widely being used for construction projects today because it offers numerous positive advantages during construction scheduling and also requires less coordination between the project manager and designers during construction, but most importantly the installation process; Furthermore, in terms of differentiating the differences between poorly structured projects versus smooth and exceptionally well run projects, a project that is managed properly and executed to satisfy both the expectations set by the owners and the demands set by the designers, directly correlates to a reduction in the probability of complications and set-backs from occurring. This idea is reinforced in the example of WSU's new residence hall "Sheehan hall" as it shows many of today's cutting-edge building, construction management and design techniques. Some of these cutting-edge techniques include the projects usage of LEAN construction, the structural design of a precast plank on dbeam girder-slab floor system and also with the project's establishment of a persistent coordination process between ownership, the designers and the projects managers. These techniques all contribute directly to a project's ability to achieve its full and expected potential (an accelerated

project schedule at reduced project cost, simplified installation and closely managed construction processes) when building any high-rise multi-story building.

While spectating the installation of the first level, the use of these hollow-cored planks allowed for them to just lift the material to its desired location and set them in place on the Dissymmetric beams all in the same day. An important installation technique that was used in this project was the way in which each of the floors were turned into a composite system. To establish composite action between the planks and D-beams a process called grouting was used. Grouting ("Grout" also known as super-strength concrete) is the process of filling the hollow cores with this high-strength concrete, and it was done by passing the grout through the open web of the D-beams and into the cores. As it cures, this will essentially connect the two materials together making it possible for the floor system to successfully transfer loads throughout each of the precast planks, to their supporting steel members, down through the system's columns and into the buildings foundation and soil. This grouting technique uses similar steps as in the ordinary cast-in-place concrete, but in terms of this project, the girder-slab system design and its use of open-web D-beams with hollow core planks in combination with high strength grout are the premier contributing factors to a quick and efficient structural erection period; alternatively with the use of site-casted concrete (CIP), additional time is needed for the placement of steel decking, reinforcement and also concrete forming before the actual pouring of concrete can begin. This explains why this project limited the usage of CIP concrete to more effectively satisfy its strict schedule and meet critical deadlines.

Lastly, from more of a financial standpoint, the prep work needed for the use of precast concrete members is very small and consists of the following: the excavation (if needed and is typically done for foundations and footings) of soil for pre determinedly sized members to be

placed in, and the use of a boom lift or tower crane to lift the members off the delivery truck and lowered into place, like what was seen for WSU's Sheehan Hall and their use of prefabricated HC Planks.



**Figure 5: Boom Lift** 



Figure 6: Tower Crane

Precast concrete can be used to expedite a significant portion of the construction process and listed below is a summarization of all the main points previously mentioned in this section (ACP Co., 2013):

- Made easily available by a variety of precast suppliers.
- Manufactured to accommodate almost every construction project need.
- Controlled environment it is made in, inclement weather is not a factor in the planning process, which will help to avoid any unnecessary delays due to unworkable conditions.

Cast-in-Place concrete (also known as ready-mix concrete) is brought onsite in its unhardened liquid state where upon arrival it is poured into site-specific forms (typically "molds") and cured on site. Concrete is typically mixed in a factory or batching plant (according to standard design-mix-proportions), and is then delivered to a site by a truck mounted in-transit mixers. The result from a precise batch provides the ability to create special concrete mixtures and with the convenience of making other alterations to the mix and implemented on a construction site to change properties like handling and strength.

Cast-in-place (also known as ready mix concrete) is the material of choice for slab-onground and foundations as well as on steel or metal decking because of the material's long-term durability as well as its structural support.

CIP concrete can serve many needs for a variety of different types of buildings, some of the common many applications of CIP consist of beams, columns, floors, walls and roofs. Additionally, widely used building material has been shown to have environmental attributes during construction and have also been known for being present during the structure's life span. These environmental benefits during construction are as follows:

- There is very little wasting of material due to the specific state that the material is in during construction applications, it can really only be used and placed on an as-needed basis. This material can't be left around on-site as it will begin to harden unless continuously stirred or mixed.
- Additionally, this material is very easily recycled and used for the creation of other structures like jersey barriers or retaining wall blocks (Mineral Industry, 2011).

Some projects actually prefer the use of cast-in-place concrete instead of precast members because of the precision of the mixture and also due to its reduced worksite confusion. The use of a predetermined concrete mixture (typically associated with concrete suppliers) helps to reduce any inconsistencies as well as the flexibility of both the supply chain and the actual concrete components. Ready mix concrete (Cast-In-Place) is known for its customizability in the type of concrete product being produced for commercial as well as private purposes. Also, ready mix concrete companies typically offer different variations of concrete according to the user's mix design or industrial standard. Each of the variations of RMC can be manufactured to meet the demand specified for each new delivery or project. Some disadvantages from using RMC are (Mineral Industry):

• The materials are batched at a central plant where the concrete is mixed before being shipped to the site. This poses a critical time period beginning from when supply truck leaves the plant and ending once the supply truck reaches its destination. This critical time period becomes increasingly difficult to manage over longer distances. This is the reason for supply trucks to be built not only to ensure a quick and safe delivery but also to prevent the concrete from losing its ideal pouring state through means of installing a continuously rotating holding tank.

• The travel route taken by the supplier, as high levels of road traffic can become an issue for not only the supplier but can also add delays to construction where deadlines are not met due to late arrivals. Additionally Site access for supply trucks is an unavoidable issue for construction projects, Amongst being a contributing factor in a projects site development plan, access roads must be provided and able to support workers, emergency vehicles as well as large and heavy supply trucks; However this not usually an issue and can be avoided by utilizing what's called a "mini-mix company"- a company that deals with using smaller 4m<sup>3</sup> capacity mixers that have the ability to reach more-restricted construction sites.

#### Cast-In-Place Slab on Steel Deck versus Precast (HC Planks) Girder-Slab Floor Systems

A Precast Girder-Slab floor systems consists of interior girders (also known as an openweb-dissymmetric beam or D-beam) and prestressed hollow-core slabs that are connected using cementitious grout. The use of a Girder-Slab system allows for the concrete slabs, being supported by the steel frame, to resist all gravity and lateral loads. Once the hollow core slabs are placed on the D-beams, the process of creating composite action is done by grouting through the web openings and into the hollow slab cores and is completed once the grout has been cured properly. Similar to the floor system chosen for WSU's new Sheehan Hall, a Girder-Slab system is typically used for mid to high-rise residential structures such as hotels, apartments and condominiums. There are two basic D-beam girder sections available for use with an 8" thick precast slab (generally spanning as long as 28 ft.) and they are a DB-8 and DB-9. The DB-8 provides an 8" thick slab assembly, while the DB-9 is designed to be installed with a 2" concrete topping layer resulting in a 10" total slab thickness. A Girder-Slab system is constructed in
accordance with the "Underwriters Laboratories Inc. Floor-Ceiling Design K912" (Construction Field, 2011). The reason why this system is so highly valued is because it has been shown to greatly improve a projects construction operations as well as a project's ability to stay on schedule and meet critical deadlines. An example of the Floor System used for WSU's new dormitory building can see below in **Figure 7**.



Figure 7: Typical Girder-Slab Section Detail- Reinforced Core with 2-inch Concrete Topping

The use of a pre-topped system allows for faster construction at a slightly more reduced cost than with field-topped systems (Cudney, 1998). However, field topped systems offer less floor vibration, positive drainage (easier to achieve), and also a lower maintenance cost for joint sealants.

A cast-in-place, post-tensioned concrete system is typically constructed by pouring concrete into temporary forms (typically either plywood or steel) that are made on site. This system utilizes a one-way, post-tensioned slab that is supported by long spanned, post-tensioned beams (Cudney, 1998). These beams are typically located at the column line and are about 14 to 18 inches wide by about 32 to 36 inches deep (Cudney, 1998). The advantages and disadvantages for the use of each type of system are listed below in table-3. When properly designed, detailed, constructed and maintained, the durability of the CIP, post-tensioned and precast systems are very similar. Both systems include elements such as expansion joints, joint sealants, and exposed painted metal connections as well as railings that will require preventative maintenance, and even reparations; however, because of the increased number of sealant joints, the precast systems are cost effective and durable, but the decision on which structural system to select comes down to the following points (Cudney, 1998):

- The Owner's preference
- Requirements of the structural component's-lateral load system, foundation, flexibility of the framing, ramping, expansion joints, site dimensions, etc.
- Maintenance considerations
- Aesthetics, facade treatment
- Openness, visibility and lighting
- Economics, including first cost and life cycle maintenance costs.
- Construction schedule
- Ability to utilize local labor
- Availability of competitive contractors

#### **Cost advantages**

Among the many differences found in each type of concrete construction (production and distribution methods for example) the most important difference is the cost of the material. For many contractors and project managers there is a big difference between Price and Cost. Price only happens to be one element of cost; it is the initial and the easier of the two to understand along with being the most visible. Focusing on price is not a preferred strategy in any business, especially when it comes to a material's quality, and the reliability of manufactured goods. Instead, the prime focus should be set on the "Total Cost of Ownership". TCO is equal to the sum of the four cost components: quality, service, delivery, and price (NPCA, 2010). In terms of cost elements, a clear advantage of using precast concrete over cast-in-place (CIP) is the speed of its delivery and also its ease of installation, or service (NPCA, 2010). These collectively contribute to a lower TCO. Precast concrete, especially when produced in controlled plants, boasts the additional benefit of higher quality. The controlled batch proportions placed under uniform conditions consistently creates a better product than can be cast in place (NPCA, 2010).

On any construction site, scheduling is an important but unpredictable and expensive risk. Nature stacks the cost odds against CIP concrete because it is much easier to order precast concrete structures (assembled ahead of time) and have them delivered and installed the same day than it is to have to excavate, form, pour, and strip, the CIP concrete which is then followed by having to cure it, damp proof and backfill each structure. Depending on the type of project and the different constraints present, research shows that on average "the use of precast concrete structures over cast-in place structures can save roughly 5-6 days in construction scheduling" (NPCA, 2010). CIP requires three separate days to pour the base, walls and top of each structure;

additionally, curing and stripping adds one day to the CIP process, totaling seven working days of open-hole time. The TCO of precast is a fixed cost; however the TCO of CIP just begins at an initial cost of the product itself (does not include its delivery and installation costs, etc.) which makes the choice of using precast actually cheaper even though its fixed cost can be higher than CIP's initial cost. It is this concept of TCO that our group plans to implement in our alternative floor system design of Sheehan Hall.

# **3.0 Project Management**

Project management entails many components that must coincide in order for the construction process to be executed to the desired manner. Many of the components interact with each other and therefore all of these components must be done correctly. This chapter evaluates some of the project management components that were important to the construction process. The first topic that is discussed is the evaluation of the project management which entails looking into the communication of the PM and the safety of the project site. The next sections analyze the cost and schedule for the current. The chapter ends with an analysis of how Building Information Technology and Lean Construction are used to complete the project.

### **3.1 Project Management Evaluation**

During construction it is imperative that every party that is involved in the construction process is informed and up to date with the progress and problems that are occurring for the project. These parties include the owner, the design team, and subcontractors. While the corresponding party should be informed of any problems when they happen, a weekly meeting is important so that every party can be informed of any occurrences that have occurred for the project. Every week the project manager, in this case Consigli, has held meetings on site to inform all the parties of the progress and problems that have occurred. One of the important aspects of project management is the communication and the ability to resolve any issues that have come up. From attending the meetings it has been clear to the MQP group that Consigli has handled the issues that have occurred because of their good communication and problem solving ability. It is imperative that all parties are informed of any issues and that every party is involved in making the correct decision in how to handle the issue so that everybody is on the same page. One of the issues that the MQP group has seen handled in a professional way was the delay in delivery of the windows for the exterior of the building. Consigli did a good job in informing every one of the issue, communicating with the window manufacturer on when the windows will eventually be delivered, and working with the subcontractors to work around the delay so that the project stayed on schedule.

Another important aspect of project management is the safety of the project site and the workers on the project. Consigli has safety officers that visit each site every week and provide a safety score each week for a project. These officers observe and record safety aspects that include workers safety, equipment usage and site safety. If any of these aspects are not being followed to the correct specifications or not followed at all the officer will deduct points from the overall score that is provided at the end of the visit. The safety officer will also inform the PM of the issues so that they will be resolved. The PM can also earn extra points for going above and beyond the safety requirements. For this project Consigli has received safety scores that range between 95 and 102. This is a great indication that all the safety requirements have been followed and any safety issues that have arose were handled correctly.

## **3.2 Cost**

The original contract for completed design and construction for this project was \$50,293,915, which included an original contingency amount of \$500,000. Throughout the project changes have been made to the original design that have affected the cost of completion for the project. Change requests and the PM's contingency are used when changes need to be made to the original design. A change request is a form that documents a change that occurred to the project and how much that change will affect the total cost of completion. If the owner approves the alteration and cost of the change then it will be added or subtracted from the cost of completion. The PM can also use the provided contingency amount for changes that occur to the

project, however it will not affect the total cost of the project up to the total amount of the contingency. Change requests are typically used for changes that occurred outside of the original scope of work for the project that could be due to incomplete or incorrect drawings. The contingency is typically used for changes that occurred within the original scope of work. The contract changes due to approved changes through the project can be seen in **Figure 8**. The change in contingency amount can be reviewed in **Figure 9**.



**Figure 8: Contract Changes** 



**Figure 9: Contingency Changes** 

From a project management evaluation perspective these changes are good for the PM. Since the amount for approved contingency is low compared the allowable remaining this means that there have been minimal changes to the project within the scope of work. This is a good indication that the PM had a good understanding of what the scope of work was for the project provided a good cost estimation for the project. At the end of the job the reaming contingency will go back to the owner, therefore it creating a good partnership and a good track record for future work.

#### **3.3 Schedule**

In order to effectively compare Consigli's updated as-built schedule (**Appendix E**) to their original baseline schedule (**Appendix D**), the baseline schedule was first recreated using the Primavera P6 Project Management software. The original baseline schedule obtained from Consigli included all the activities from the Sheehan Hall project. However, the intent of this project is to determine the effects of an alternative floor system design on the cost and schedule. For this reason, the baseline schedule that was recreated in Primavera was reduced to only the foundations, the steel structure, and the pre-cast floor slabs, since these are the only components that would be effected by a new floor system design. **Figures 10** and **11** show the recreated baseline schedule, complete with the list of activities on the left, and a bar chart showing the activities and their relationships on a timeline on the right.

In recreating the baseline schedule, each of the activities were first entered into Primavera, along with its original duration and expected start and finish dates. Once all the activities were entered, the relationships between the activities were determined and assigned in order to create a network and from it generate the bar chart. A majority of the activities have a "Finish to Start" relationship, meaning that an activity would be started only when its predecessors are finished. However, some activities have a "Start to Start" relationship with a time lag, meaning that an activity would be started a certain number of days (equal to the lag time) after its predecessor has been started. A "Start to Start" relationship saves time compared to a "Finish to Start" relationship because activities with the former kind of relationship can be worked on simultaneously but those with the latter kind cannot. Upon running the schedule after the relationships have been established, Primavera automatically identifies the critical activities (those whose combined duration determine the completion date of the project) and highlights them in red on the bar chart. Once the schedule had been recreated, it was possible to obtain the slated start and finish dates: excavation for footings and foundations would start on 20<sup>th</sup> March 2013, and the structure would be complete by 8<sup>th</sup> October, 2013. This baseline schedule was compared to the as-built schedule updated by Consigli on 6<sup>th</sup> November 2013, in order to determine how well they adhered to their baseline schedule.

To compare the as-built schedule to the baseline, the actual start and finish dates for each activity were entered into the baseline schedule created in Primavera. After doing so, Primavera automatically updates the schedule and shows the remaining duration for each activity, based on the percent completion of the activity. The activities that have been completed have a remaining duration of zero, while those that have not yet been started have a remaining duration equal to the original duration. Once the as-built schedule was complete, it was then possible to determine how different it is from the baseline schedule. According to the as-built schedule, the structure would not be complete until 3rd December 2013. This is 40 working days behind the baseline structure completion date of 8<sup>th</sup> October 2013. **Figure 12** shows the remaining activities as of 6<sup>th</sup> November 2013 (blue vertical line), according to the as-built schedule. These activities are shown in red on the bar chart because they have become critical activities, since their durations dictate the completion date of the structure.

In order to take a better look at which activities took longer to complete than expected, **Table 1** was prepared. It compares the original duration with the actual duration, as well as the planned start date with the actual start date of the activities that took longer (Please see **Appendix Y** for a detailed comparison of all the activities). All the activities whose actual duration exceeded its original duration by 10 days are highlighted in red. However, it is important to note that not all the activities listed are critical activities, thus not all of them contribute to the delay. The only ones that would contribute to the delay are those that are critical and took longer than expected, and those that are not initially critical but took longer by a number of days greater than their total float.

Activity ID	Activity Name	Original	Remaining	Schedule % Start	Finish	Total	∧ J	IFMAMJJJASOND
	ha da la	Duration	Duration 145	Complete	09.0 -+ 12	Float	01	12201112011123012201112001230122011200123012201120011220112201122011220112200122
<ul> <li>Baseline Sc</li> </ul>	nedule	101	140	0% 20-Mai-13	00-000-13	0		04 Control, Davenie Sche
Section 1 (I	East Bar)	121	121	0% 20-Mar-13	04-Sep-13	24		04 Sep-13, Section 1 (East Bal)
	evel	38	38	0% 20-Mar-13	04-Sep-13	24		04-Sep-13 Lower Level
A1080	Backfill/ Compact/ Underslab MEPs S1-LL	15	15	0% 15Jul-13	02-Aug-13	35		Backfill/ Compact/ Underslab MEPs S1-LL
A1090	Place SOG S1-LL	1	1	0% 05-Aug-13	05-Aug-13	35		Place SOG S1-LL
A1100	Install MEP Hangers S1-LL	7	7	0% 06-Aug-13	14-Aug-13	35		Install MEP Hangers S1 LL
A1110	Install Spray Fireproofing S1-LL	4	4	0% 30-Aug-13	04-Sep-13	24		Install Spray Fireproofing ST-LL
Δ1120	Frect Steel S1-L1/3-1	4	4	0% 13-May-13	16-May-13	24		r⊷n Erect Steel S1L1/3-1
A1130	Deck & Detail Steel S1-L1/3-1	13	13	0% 14-May-13	30-May-13	25		Deck & Detail Steel S1-L1/3-1
A1140	Erect Steel S1-L1/3-2	2	2	0% 17-May-13	20-May-13	24		Erect Steel S1-L1/3-2
A2510	Deck & Detail S1-L1	5	5	0% 17-May-13	23-May-13	27		Deck & Detail S1-L1
A1150	Deck & Detail Steel S1-L173-2	11	11	0% 20-May-13	03-Jun-13	24		Erect 1 Grout Price and Danks C1 11/0 1
A1160	Frect & Grout Precast Planks S1-L173-1	5	5	0% 20-May-13	05-Jun-13	23		Frect & Grout Precast Planks S1-L1/3-2
A1190	Place SOD S1-L1	2	2	0% 06Jun-13	07-Jun-13	54		Place SOD S1/L1
A1200	Install MEP Hangers S1-L1	3	3	0% 22-Jul-13	24-Jul-13	24		Install MEP Hangers S1-L1
A1210	Install Spray Fireproofing S1-L1	4	4	0% 02-Aug-13	07-Aug-13	24		+ Install Spray Fireproofing S1-L1
= 3rd Floor	Install MER Hangers \$1-1.2	13	13	0% 01-Aug-13	13-Aug-13 07-Aug-13	24		IS-Aug-13, 3rd Floor
A1250	Install Topping Slab S1-L3	4	4	0% 08-Aug-13	13-Aug-13	24		Install Topping Slab S1-L3
A1270	Install Spray Fireproofing S1-L3	4	4	0% 14-Aug-13	19-Aug-13	24		Install Spray Fireproofing S1 L3
E Foundation	ons	52	52	0% 20-Mar-13	30-May-13	35		▼ 30-May-13, Foundations
A2530	Start	0	0	0% 20-Mar-13	01.4. 10	0		◆ Start
A1000	Excavate for Footings & Foundations S1	9	9	U% 20-Mar-13	U1-Apr-13	0		Excavate for Footings & Foundations 51
A1010 A1020	FREP Footings S1	5	2	0% 25-Mar-13 0% 02-Anr-13	01-Apr-13 08-Apr-13	24		FREP Footings S1
A1030	Elec. Ground Wiring to Footings S1	2	2	0% 03-Apr-13	04-Apr-13	24		Elec. Ground Wiring to Footing St
A1040	FREP Interior Footings S1	2	2	0% 04-Apr-13	05-Apr-13	24		FREPI hterior Flootings S1
A1050	FREP Foundations S1	23	23	0% 05-Apr-13	07-May-13	24		FREP Foundations \$1
A1060	Waterproof S1	10	10	0% 10-May-13	23-May-13	24		Waterproof \$1
E 5th Eloor	Backhill Exterior 51	47	47	0% 24-may-13	29-Aug-13	24		29-Aug-13.5th Floor
A1370	Install MEP Hangers S1-L5	5	5	0% 26-Jun-13	02-Jul-13	24		Hangers S1-L5
A1380	Install Topping Slab S1-L5	4	4	0% 03Jul-13	08-Jul-13	58		🛏 Install †dpping Slab S1-L5
A1390	Install Spray Fireproofing S1-L5	4	4	0% 26-Aug-13	29-Aug-13	24		r⊷∎ Install Spray Fireproofing S1-L5
E Roof	E 101 101 D 1	22	22	0% 25Jun-13	24Jul-13	54		The second secon
A1400 A1410	Erect Steel ST-R-T	10	2	0% 255Jun-13	26-Jun-13	54		Creut Steel S1-B-1
A1410	Erect Steel S1-R-2	2	2	0% 27-Jun-13	28Jun-13	54		Figure 5 teel \$1-R-2
A1430	Deck & Detail Steel S1-R-2	9	9	0% 28Jun-13	10-Jul-13	54		Deck & Detail Steel S1-R-2
A1440	Erect & Grout Precast Planks S1-R	1	1	0% 03Jul-13	03-Jul-13	69		Erec & Grout Precast Planks S1-R
A1450	Parapet Framing & Sheathing S1-R	10	10	0% 11Jul-13	24-Jul-13	54		Parapet Framing & Sheathing S1-R
E Floors 4	& 5 Event Chevel C1   AUE 1	58	58	0% 05 Jun-13	23-Aug-13	24		Z3-Aug-13, Floors 4 & 5
A1280	Erect Steel S1-L4/5-2	2	2	0% 055un-13	055un-13	24		► Elect Steel St L4/5-2
A1300	Detail Steel S1-L4/5-1	11	11	0% 06Jun-13	20-Jun-13	24		Detail Steel \$1-L\$/5-1
A1310	Detail Steel S1-L4/5-2	11	11	0% 07-Jun-13	21-Jun-13	24		Detail Steel \$1-L4/5-2
A1320	Erect & Grout Precast Planks S1-L4/5-1	5	5	0% 13Jun-13	19-Jun-13	24		L4/5-1 Erect & Grout Frecast Planks Si-L4/5-1
A1330	Erect & Grout Precast Planks S1-L4/5-2	5	5	0% 17-Jun-13	21-Jun-13	24		Frecht in Grout Precast Planks Si - L4/5-2
A1340	Install Topping Slab S1-L4	4	4	0% 155un-13	255un-15 015lul-13	24		Instal Topping Slab S1-L4
A1360	Install Spray Fireproofing S1-L4	4	4	0% 20-Aug-13	23-Aug-13	24		•
■ 2nd Floor		14	14	0% 25-Jul-13	13-Aug-13	24		13-Aug-13, 2nd Floor
A1220	Install MEP Hangers S1-L2	5	5	0% 25-Jul-13	31-Jul-13	24		Install MEP Hangers S1-L2
A1230	Install Topping Slab S1-L2	4	4	0% 01-Aug-13	06-Aug-13	25		Install Topping Slab S1-L2
A1240	Install Spray Fireproofing ST-L2	109	4	0% 08-Aug-13	29-Aug-13	24		29 Aug-13, Section 3 (West Bar)
<ul> <li>Section 3 (1)</li> <li>Structure</li> </ul>	west bar)	109	109	0% 01.4pr 13	29.0ug.13	28		29-Aun-13 Struchure
E Foundatio	ons	95	95	0% 01-Apr-13	09-Aug-13	42		v concerned to structure
A1460	Excavate for Footings & Foundations S3	10	10	0% 01-Apr-13	12-Apr-13	0		Exclavate for Footings & Foundations S3
A1470	FREP Footings S3	5	5	0% 15-Apr-13	19-Apr-13	28		FREP Footings S3
A1480	FREP Interior Footings S3	1	1	0% 22-Apr-13	22-Apr-13	41		EDED Examplations C2
A1490 A1500	Waterproof S3	10	10	0% 22:Apr-13 0% 10-Mau-13	03-May-13 23-Mau-13	28		Vaterproof S3
A1500	Backfill/Compact/Underslab MEPs S3	15	15	0% 15Jul-13	02-Aug-13	42		Backfill/Compact/Underslab MEPs S3
A1520	Place SOG S3	5	5	0% 05-Aug-13	09-Aug-13	42		Fig. Place SOG 53
E 3rd Floor		33	33	0% 28Jun-13	13-Aug-13	28		13-Aug-13, 3rd Floor
A1620	Install Topping Slab S3-L3	4	4	0% 28-Jun-13	03-Jul-13	48		r≠□ Install Topping Slab S3-L3
A1630 	Install Spray Fireproofing \$3-L3	5	5	0% 22-Jul-13 0% 08-6uo-13	26-Jul-13	36		Install MEP Hangers 53-L3 H⊷m Install Sprau Rivenronfind S3-L3
E Floors 4	8.5	51	51	0% 10Jun-13	19-Aug-13	28		19-Aug-13, Floors 4 & 5
A1660	Erect Steel S3-L4/5-1	1	1	0% 10Jun-13	10-Jun-13	28		Erect Steel S3L4/5-1
A1670	Erect Steel S3-L4/5-2	2	2	0% 11Jun-13	12-Jun-13	28		Figure 1 Steel SB 14/5-2
A1680	Detail Steel S3-L4/5-1	11	11	0% 11-Jun-13	25-Jun-13	28		Detail Stele S3-L4/5-1
A1690 A1700	Detail Steel 53-L4/5-2 Erect & Grout Precast Placks S3J 4/5-1	11	11	0% 12Jun-13	26Jun-13	28		Erect & Girdut Precisis Planks S3-14/5-1
A1700	Erect & Grout Precast Planks S3-L4/5-2	5	5	0% 21Jun-13	27-Jun-13	20		Erect & Grout Precast Planks S3-L4/5-2
A1720	Install MEP Hangers S3-L4	5	5	0% 26-Jun-13	02-Jul-13	28		Irstall MEP Hangers S3-L4
A1730	Install Topping Slab S3-L4	4	4	0% 03Jul-13	08-Jul-13	54		Instal Topping Slab S3-L4
A1740	Install Spray Fireproofing S3-L4	4	4	0% 14-Aug-13	19-Aug-13	28		Inistall Spray Fireproofing S3-L4
E 6th Floor	er Koot Frent Steel S3J 6/R-1	44	44	0% 01-0013	239Aug-13 01.164.10	28		Floor Shael 93.1 6/R.1
A1790	Erect Steel S3-L6/R-2	1	1	0% 02-Jul-13	02-Jul-13	28		Flect Steel S3-L6/R-2
A1810	Deck & Detail Steel S3-L6/R-1	10	10	0% 02-Jul-13	15-Jul-13	30		Deck & Detail Steel S3L6/R-1
A1820	Deck & Detail Steel S3-L6/R-2	11	11	0% 03Jul-13	17-Jul-13	28		Deck & Detail Steel S3-L6/R-2
A1830	Erect & Grout Precast Planks S3-L6/R-1	5	5	0% 05Jul-13	11-Jul-13	30		Eredt & Grout Precast Planks S3-L6/R-1
A1840	Erect & Grout Precast Planks S3-L6/R-2	5	5	0% 09-Jul-13	15-Jul-13	28		HTT Erect & Grout Precast Planks S3-L6/R-2
A1850 	Parapet Framing & Sheathing S3-B	5	5	0% 16500-13	22-90F13	28	+ +	

Figure 10: Baseline Schedule

41000	Provent Francis - & Charathia - CO P	10	10	08/	10 1.110	01.4	1 10		
A1880	Parapet Framing & Sheathing 53-H	10	10	0%	19-Jul-13	UI-Aug-13	48		
A1860	Install Topping Slab S3-L6	4	4	0%	23-Jul-13	26-Jul-13	48		
A1870	Install Spray Fireproofing S3-L6	4	4	0%	26-Aug-13	29-Aug-13	28		
= Floors 1-	3	56	56	0%	22-May-13	07-Aug-13	28		
A1530	Erect Steel S3-L1/3-1	2	2	0%	22-Mau-13	23-May-13	28		
A1E40	Deals & Datail Steel \$211/21			0%	22 May 12	00 hm 12	20		
A1340	Deck @ Detail Steel 55-L175-1			0%	23-may-13	06501113	20		
A1550	Erect Steel S3-L1/3-2	1		0%	24-May-13	24-May-13	28		
A1560	Deck & Detail Steel S3-L1/3-2	10	10	0%	28-May-13	10-Jun-13	28		
A1570	Erect & Grout Precast Planks S3-L1/3-1	5	5	0%	03-Jun-13	07-Jun-13	28		
A1580	Erect & Grout Precast Planks S3-L1/3-2	5	5	0%	04-Jun-13	10Jun-13	28		
A1590	Instal SOD S3J 1/2	5	5	0%	11.Jup.13	17.lup.13	52		
A1000	Install MER Hannes C211/2		с С	0%	221412	26 1412	20		
A1600	Install MEP Hangers 53-L172	0	0	0%	22-JUI-13	26-JUI-13	28		
A1610	Install Spray Fireproofing S3-L1/2	4	4	0%	02-Aug-13	07-Aug-13	28		
5th Floor		32	32	0%	11-Jul-13	23-Aug-13	28		
A1750	Install MEP Hangers S3-L5	5	5	0%	11-Jul-13	17-Jul-13	28		
A1760	Install Topping Slah S3-L5	4	4	0%	19Jul-13	24-Jul-13	46		
61770	Install Spray Eiropropfing 92.1 5			0%	20.Aug.12	22.000.12	20		
Airio	Inistali opiay i liepiooning 55-25	4	4	0%	20Mug-10	20%ug-10	20		
Section 2 (	Center Bar)	113	113	0%	10-Apr-13	18-Sep-13	14		
Structure		113	113	0%	15-Apr-13	18-Sep-13	14		
E Foundati	ons	80	80	0%	15-Apr-13	02-Aug-13	14		
A1890	Excavate for Englings & Enundations S2	10	10	0%	15-Anr-13	26-Apr-13	0		
A1900	EREP Sections \$2	10	10	0.0	29 Apr 12	02 May 12	0		
ATSUU	FREP Footings 52	4	4	U/&	23 April 3	U2-May-13	U		
A1910	FREP Interior Footing S2	1	1	0%	03-May-13	U3-May-13	19		
A1920	FREP Foundations S2	19	19	0%	03-May-13	29-May-13	0		
A1930	Waterproof S2	15	15	0%	31-May-13	20-Jun-13	0		
A1940	FREP Elevator Pits S2	10	10	N%	18-Jun-13	01-Jul-13	0		
A19E0	Waterproof Elevator Pite S2	10	10	- *	0250112	15-10112	0		
A1350	Paskel/Composition fits 32	10	10	0%	32-50F13	100ur13			
A1960	Dacknizcompact/Underslab MEPs S2	15	15	υ%	rovuH13	uz-Aug-13	14		
E Floors 1-	3	31	31	0%	TI-Jul-13	22-Aug-13	33		
A1970	Erect Columns & Steel S2-L1/3-1	3	3	0%	11-Jul-13	15-Jul-13	0		
A1980	Deck & Detail Steel S2-L1/3-1	13	13	0%	12-Jul-13	30-Jul-13	0		
A1990	Erect Steel S2-L1/3-2	3	3	۱۱%	16Jul-13	18Jul-13	0		
A 3000	Deck & Detail Steel \$2.11/2.2	10	10	0%	17.0.19	01,Aug 12	0		
A2000	Deck a Detail Steel 52/L1/3/2	12	12	0%	on units	01940g-13	0		
A2010	Erect & Grout Precast Planks S2-L1/3-1	5	5	υ%	20-Jul-13	31-Jul-13	0		
A2020	Erect & Grout Precast Planks S2-L1/3-2	5	5	0%	26-Jul-13	01-Aug-13	0		
A2030	Place SOG S2-L1	5	5	0%	05-Aug-13	09-Aug-13	14		
A2040	Install MEP Hangers S2-L1	6	6	0%	12-Aug-13	19-Aug-13	14		
42050	Install Sprau Eireproofing S2-L1	4	4	0%	15-åug-13	20-Aug-13	14		
A2030	Place COD COL1	4		0%	01 Aug 10	20%ug-10			
A2060	Place SUD S2-L1	2	2	0%	21-Aug-13	22-Aug-13	33		
E 3rd Floor		17	17	0%	08-Aug-13	30-Aug-13	14		
A2100	Install Topping Slab S2-L3	4	4	0%	08-Aug-13	13-Aug-13	17		
A2110	Install MEP Hangers S2-L3	1	1	0%	14-Aug-13	14-Aug-13	22		
A2120	Install Spray Eireproofing S2-L3	4	4	0%	27-Aug-13	30-Aug-13	14		
Finance 4	nikali opidy niepidoling dzied	20	20	0%	20 14 12	00 Aug 10	1.4		
E FIOOTS 4	6 D	30	30	0/6	2000110	00-5ep-15	14		
A2130	Erect Steel 52-L4/5-1	1		0%	29-Jul-13	29-Jul-13	U		
A2140	Erect Steel S2-L4/5-2	1	1	0%	30-Jul-13	30-Jul-13	0		
A2150	Detail Steel S2-L4/5-1	10	10	11%	30-Jul-13	12-Aug-13	0		
				4.4		-			
A2160	Detail Steel S2-L4/5-2	10	10	0%	31-Jul-13	13-Aug-13	0		
A2160 A2170	Detail Steel S2-L4/5-2 Erect & Grout Precast Planks S2-L4/5-1	10	10	0%	31-Jul-13 06-Aug-13	13-Aug-13 12-Aug-13	0		
A2160 A2170 A2180	Detail Steel S2-L4/5-2 Erect & Grout Precast Planks S2-L4/5-1 Frect & Grout Precast Planks S2-L4/5-2	10	10 5	0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13	13-Aug-13 12-Aug-13 14-Aug-13	0		
A2160 A2170 A2180 A2190	Detail Steel S2-L4/5-2 Erect & Grout Precast Planks S2-L4/5-1 Erect & Grout Precast Planks S2-L4/5-2 Install Tonning Slab S2-L4	10 5 5	10 5 5	0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13	13-Aug-13 12-Aug-13 14-Aug-13 20-Aug-13	0 0 15		
A2160 A2170 A2180 A2190	Detail Steel S2-L4/5-2 Erect & Grout Precast Planks S2-L4/5-1 Erect & Grout Precast Planks S2-L4/5-2 Install Topping SIab S2-L4 Install Topping SIab S2-L4	10 5 5 4	10 5 5 4	0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13	13-Aug-13 12-Aug-13 14-Aug-13 20-Aug-13 27-Aug-12	000000000000000000000000000000000000000		
A2160 A2170 A2180 A2190 A2200	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-2 Install Topping Slab S2L4 Install MEP Hangers S2L4	10 5 5 4 5	10 5 5 4 5	0% 0% 0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13	13-Aug-13 12-Aug-13 14-Aug-13 20-Aug-13 27-Aug-13	0 0 16 16		
A2160 A2170 A2180 A2190 A2200 A2210	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-2 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Spray Fireproofing S2L4	10 5 5 4 5 4	10 5 5 4 5 4	0% 0% 0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 03-Sep-13	13-Aug-13 12-Aug-13 14-Aug-13 20-Aug-13 27-Aug-13 06-Sep-13	0 0 16 16 14		
A2160 A2170 A2180 A2190 A2200 A2210 E 5th Floor	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-2 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Spray Fireproofing S2L4	10 5 5 4 5 4 5 4	10 5 5 4 5 4 5 4 17	0% 0% 0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 03-Sep-13 21-Aug-13	13-Aug-13 12-Aug-13 14-Aug-13 20-Aug-13 27-Aug-13 06-Sep-13 12-Sep-13	0 0 16 16 14		
A2160 A2170 A2180 A2190 A2200 A2210 E 5th Floor A2220	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-2 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Spay Freproofing S2L4 Install Topping Slab S2L5	10 5 5 4 5 4 5 4 17 4	10 5 5 4 5 4 5 4 17 4	0% 0% 0% 0% 0% 0%	31Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 03-Sep-13 21-Aug-13 21-Aug-13	13-Aug-13 12-Aug-13 14-Aug-13 20-Aug-13 27-Aug-13 06-Sep-13 12-Sep-13 26-Aug-13	0 0 16 16 14 14 17		
A2160 A2170 A2180 A2190 A2290 A2210 <b>5 th Floo</b> A2220 A2230	Detai Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-2 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Spray Fireproofing S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L5	10 5 5 4 5 4 5 4 17 4 5	10 5 5 4 5 4 17 4 5	0% 0% 0% 0% 0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 03-Sep-13 21-Aug-13 21-Aug-13 28-Aug-13	13Aug-13 12Aug-13 14Aug-13 20Aug-13 27Aug-13 06-Sep-13 12-Sep-13 26Aug-13 03-Sep-13	0 0 16 16 14 14 17 16		
A2160 A2170 A2180 A2190 A2200 A2210 A2210 A2220 A2220 A2220 A2220 A2240	Detail Steel \$21,4/5-2 Erect & Grout Precast Planks \$21,4/5-1 Erect & Grout Precast Planks \$21,4/5-2 Install Topping Slab \$21,4 Install SP pray Fireproofing \$21,4 Install Spray Fireproofing \$21,4 Install Topping Slab \$21,5 Install MEP Hangers \$21,5	10 5 5 4 5 4 17 4 5 4 5 4	10 5 5 4 5 4 17 4 5 4 5 4	0% 0% 0% 0% 0% 0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 03-Sep-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Sep-13	13Aug13 12Aug13 14Aug13 20Aug13 27Aug13 06Sep13 12Sep13 26Aug13 03Sep13 12Sep13	0 0 16 16 14 14 17 16 14		
A2160 A2170 A2180 A2190 A2200 A2200 A2210 A2220 A2230 A2230 A2230 A2230	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/52 Erect & Grout Precast Planks S2L4/52 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L5 Install Spray Freproofing S2L5 Rest. 6/1	10 5 5 4 4 5 4 17 4 5 5 4 2 9	10 5 4 5 4 17 4 5 4 5 4 29	0% 0% 0% 0% 0% 0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Sep-13 09-Sep-13	13Aug-13 12Aug-13 14Aug-13 20Aug-13 27Aug-13 06-Sep-13 12-Sep-13 03-Sep-13 12-Sep-13 13-Sep-13	0 0 16 16 14 14 17 16 14 14		
A2180 A2170 A2180 A2190 A2200 A2210 A2200 A2210 A2220 A2230 A2240 C Floors 6 A2280 A2240	Detai Steel S214/5-2 Erect & Grout Precast Planks S214/5-1 Erect & Grout Precast Planks S214/5-2 Install Topping Slab S214 Install MEP Hangers S214 Install MEP Hangers S215 Install MEP Hangers S215 Install MEP Hangers S215 Install Spay Freproofing S215 Roof, PH Erect Star S212/2004 1	10 5 5 4 5 4 7 4 5 4 5 4 2 9 1	10 5 4 5 4 17 4 5 4 5 4 5 4 29 1	0% 0% 0% 0% 0% 0% 0% 0%	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 03-Sep-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Aug-13 09-Aug-12	13Aug-13 12Aug-13 14Aug-13 20Aug-13 27Aug-13 06Sep-13 06Sep-13 26Aug-13 03Sep-13 12Sep-13 18Sep-13 18Sep-13 09Aug-12	0 0 16 16 14 17 16 14 14 14 14		
A2180 A2170 A2180 A2190 A2200 A2210 <b>5 th Floor</b> A2220 A2230 A2230 <b>2 th Floor</b> A2240 A2240 A2250	Detail Steel S2L4/5-2 Erect & Grout Preceast Planks S2L4/5-1 Erect & Grout Preceast Planks S2L4/5-2 Install Topping Slab S2L4 Install SPEP Angers S2L4 Install Speng Freproofing S2L5 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Roof, PH Erect Steel S2L5/PH-1	10 5 5 4 5 4 7 7 4 5 4 5 4 5 4 4 5 4 29 1	10 5 5 4 5 4 17 4 5 4 5 4 29 1	0% 0% 0% 0% 0% 0% 0% 0% 0%	31.Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Sep-13 09-Aug-13	13Aug-13 12Aug-13 14Aug-13 20Aug-13 27Aug-13 26Aug-13 26Aug-13 26Aug-13 03Sep-13 12Sep-13 12Sep-13 18Sep-13 09Aug-13	0 0 16 16 14 17 16 14 14 14		
A2160 A2170 A2180 A2180 A2190 A2200 A2200 A2200 A2220 A2220 A2220 A2220 A2220 A2220 A2220 A2220 A2250 A2250	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1	10 5 5 4 5 4 17 4 5 4 5 4 28 1 1 1	10 5 5 4 5 4 7 4 5 4 5 4 5 4 5 4 29 1 1 1	0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31 Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Aug-13 09-Aug-13 12-Aug-13	13Aug-13 12Aug-13 14Aug-13 20Aug-13 27Aug-13 26Aug-13 26Aug-13 26Aug-13 12Sep-13 12Sep-13 12Sep-13 13Sep-13 13Sep-13 26Aug-13 12Sep-13	0 0 16 16 14 14 17 16 14 14 14 0 0 0		
A2160 A2170 A2180 A2190 A2200 A2200 A2200 A2230 A2240 Floors 6 A2250 A2260 A2260 A2270	Detail Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/52 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install MCP Hangers S2L5 Install MCP Hangers S2L5 Install MCP Hangers S2L5 Read, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1	10 5 5 4 5 4 17 4 5 4 28 1 1 1 10	10 5 5 4 5 4 17 4 5 4 5 4 29 1 1 1 1	02 02 03 03 03 03 03 03 03 03 03 03 03 03 03	31 Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Sep-13 09-Sep-13 09-Aug-13 12-Aug-13	13Aug-13 12Aug-13 14Aug-13 20Aug-13 20Aug-13 27Aug-13 06Sep-13 12Sep-13 12Sep-13 12Sep-13 12Sep-13 12Sep-13 12Aug-13 23Aug-13	0 0 16 16 14 14 17 16 14 14 0 0 0 0 0		
A2160 A2170 A2180 A2190 A2200 A2200 A2200 A2220 A2230 A2240 A2240 A2250 A2250 A2250 A2250 A2250 A2250 A2250 A2250 A2250	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/52 Erect & Grout Precast Planks S2L4/52 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Topping Slab S2L5 Install Spray Freproofing S2L5 Roof, PH Erect Steel S2L6/PH-1 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2	10 5 5 4 5 4 17 4 5 4 5 4 28 1 1 1 10 10	10 5 5 4 5 4 17 4 4 5 4 29 1 1 1 1 10 10	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31 Jul 13 06 Aug 13 08 Aug 13 15 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 28 Aug 13 09 Sep 13 09 Aug 13 12 Aug 13 12 Aug 13 12 Aug 13	13Aug-13 12Aug-13 14Aug-13 20Aug-13 27Aug-13 06-Sep-13 12-Sep-13 13-Sep-13 13-Sep-13 13-Sep-13 19-Aug-13 12-Aug-13 23Aug-13 23Aug-13	0 0 16 16 14 17 16 14 14 14 14 0 0 0 0 0 0 0		
A2160 A2170 A2180 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200	Detail Steel S2L4/5-2 Erect & Grout Precest Planks S2L4/5-1 Erect & Grout Precest Planks S2L4/5-2 Install Topping Slab S2L4 Install Spay Fieproofing S2L4 Install Spay Fieproofing S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Roof, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-1 Erect & Grout Recest Planks S2L6/PH-1	10 5 4 5 4 17 4 5 4 29 11 1 1 1 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10 5 5 4 5 4 17 4 5 4 5 4 29 1 1 1 10 10 5 5	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31 Jul 13 06-Aug 13 08-Aug 13 15-Aug 13 21-Aug 13 21-Aug 13 21-Aug 13 28-Aug 13 09-Sep 13 09-Aug 13 12-Aug 13 12-Aug 13 12-Aug 13 13-Aug 13	13Aug-13 12Aug-13 12Aug-13 20Aug-13 20Aug-13 27Aug-13 06-Sep-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Aug-13 23Aug-13 23Aug-13 23Aug-13	0 0 0 16 14 14 14 14 14 14 0 0 0 0 0 0 0 0 0 0		
A2160 A2170 A2180 A2200 A2200 A2200 A2200 A2220 A2220 A2220 A2220 A2260 A260 A	Detail Steel S2L4/52 Erect & Grout Precast Planks S2L4/52 Erect & Grout Precast Planks S2L4/52 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Roof, PH Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Erect & Grout Precast Planks S2L6/PH-1 Detail Steel S2L6/PH-2 Erect & Grout Precast Planks S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1	10 5 5 4 4 5 4 4 5 4 4 5 4 4 2 9 1 1 1 100 100 5 5	10 5 5 4 5 4 7 4 5 4 5 4 29 1 1 1 1 10 10 5 5 5	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31 Jul 13 06 Aug 13 08 Aug 13 15 Aug 13 15 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 28 Aug 13 09 Sep 13 09 Aug 13 12 Aug 13 12 Aug 13 13 Aug 13 19 Aug 14 19 Aug 14	13Aug-13 12Aug-13 14Aug-13 20Aug-13 27Aug-13 06-Sep-13 26Aug-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Sep-13 12-Aug-13 12-Aug-13 23Aug-13 23Aug-13 23Aug-13 27-Aug-13	0 0 16 16 14 14 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
▲ 2160 ▲ 2170 ▲ 2170 ▲ 2180 ▲ 2210 ■ 51h Fior ▲ 2220 ▲ 2250 ▲ 250 ▲ 250 ▲ 250 ▲ 250 ▲ 250 ▲ 250 ▲ 250 ▲ 250 ▲	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-2 Install Topping Slab S2L4 Install Spay Fieproofing S2L4 Install Spay Fieproofing S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Spay Fieproofing S2L5 Roof, PH Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-2 Install Composition S2h S216	10 55 4 4 5 4 4 5 4 4 5 4 1 1 1 1 10 10 5 5 5 5	10 5 5 4 4 7 4 7 4 5 4 4 5 4 4 23 1 1 1 1 10 0 5 5 5 <i>4</i>		31 Jul 13 06 Aug 13 08 Aug 13 15 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 28 Aug 13 09 Aug 13 09 Aug 13 12 Aug 13 12 Aug 13 13 Aug 13 13 Aug 13 21 Aug 13 21 Aug 13	13Aug-13 12Aug-13 12Aug-13 12Aug-13 22Aug-13 22Aug-13 05Sep-13 12Sep-13 05Sep-13 12Sep-13 09Aug-13 12Aug-13 23Aug-13 23Aug-13 22Aug-13 22Aug-13 02Sen-19	0 0 0 16 16 14 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A2160 A2170 A2180 A2190 A2190 A2200 A2200 A2200 A2200 A2200 A2260 A260 A	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Roof, PH Erect Steel S2L5/PH-1 Erect Steel S2L5/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1 Install Topping Slab S2L5	10 5 5 4 4 5 4 4 5 4 4 5 5 1 1 1 1 10 0 5 5 5 4 4	10 5 5 4 17 4 17 4 5 4 29 1 1 10 10 5 5 5 4		31 Jul 13 06 Aug 13 08 Aug 13 15 Aug 13 15 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 28 Aug 13 09 Aug 13 12 Aug 13 12 Aug 13 13 Aug 13 13 Aug 13 28 Aug 13 28 Aug 13 29 Aug 13 28 Aug 13 29 Aug 13 28 Aug 13 28 Aug 13 29 Aug 13 29 Aug 13 28 Aug 14 28 Aug 14	13Aug13 12Aug13 14Aug13 24Aug13 27Aug13 27Aug13 065ep13 12Sep13 28Aug13 03Sep13 12Sep13 13Sep13 03Aug13 23Aug1	0 0 0 16 16 14 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
▲ 2160 ▲ 2170 ▲ 2180 ▲ 2190 ▲ 2200 ▲ 200 ▲ 200	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spay Fireproofing S2L4 Install Spay Fireproofing S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Spay Fireproofing S2L5 Roof, PH Erect Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-2 Paraget Fireming & Shashing S2-R	10 5 5 4 4 5 4 4 5 4 4 5 5 4 4 11 1 10 10 0 5 5 5 5 4 4 10	10 5 5 4 17 4 5 4 7 7 4 5 5 1 1 1 1 1 0 10 5 5 5 5 4 4 100		31 Jul 13 06 Aug 13 08 Aug 13 15 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 28 Aug 13 09 Aug 13 12 Aug 13 12 Aug 13 12 Aug 13 13 Aug 13 19 Aug 13 28 Aug 14 28 Aug 14	13Aug13 12Aug13 12Aug13 14Aug13 20Aug13 22Aug13 06Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 10Sep13 10Sep13	0 0 0 16 16 14 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A2160 A2170 A2180 A2180 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2260 A260 A	Detail Steel S2L4/5-2 Erect & Grout Preceast Planks S2L4/5-1 Erect & Grout Preceast Planks S2L4/5-1 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Roof, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Erect & Grout Preceast Planks S2L6/PH-1 Erect & Grout Preceast Planks S2L6/PH-1 Install Topping Slab S2L6 Paraper Froming & Sheathing S2-R Install Topping Slab S2L6	10 55 4 4 5 4 4 5 4 4 29 1 1 1 10 10 5 5 5 4 4 10 0 5 5 5 5 5 5 5	10 5 5 4 5 4 17 4 4 29 1 1 10 10 5 5 5 4 4 10 5	02 02 02 02 02 02 02 02 02 02 02 02 02 0	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 21-Aug-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Sep-13 09-Sep-13 09-Aug-13 12-Aug-13 12-Aug-13 12-Aug-13 28-Aug-13 28-Aug-13 04-Sep-13	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 06Sep13 28Aug13 03Sep13 12Sep13 09Aug13 12Aug13 28Aug1	0 0 0 16 16 14 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
▲ 2160 ▲ 2170 ▲ 2170 ▲ 2180 ▲ 2200 ▲ 200 ▲ 200	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install Spray Fireproofing S2L5 Install MEP Hangers S2L5 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-2 Install Topping Slab S2L6 Parapet Framing & Sheathing S2R Install MEP Hangers S2L6	10 5 5 4 4 5 5 4 4 7 7 4 5 5 10 10 10 5 5 5 4 4 10 5 5 4 4 10 5 5 4 4	10 5 5 4 5 4 7 4 5 4 4 29 1 1 1 10 10 5 5 5 4 4 10 5 5 4 4	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	31 Jul 13 06 Aug 13 08 Aug 13 15 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 23 Aug 13 29 Aug 13 09 Aug 13 12 Aug 13 12 Aug 13 13 Aug 13 13 Aug 13 28 Aug 13 28 Aug 13 28 Aug 13 28 Aug 13 28 Aug 13 28 Aug 13 29 Aug 13 20 Aug 14 20 Aug 14	13Aug13 12Aug13 12Aug13 20Aug13 20Aug13 22Aug13 06Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 10Sep13 10Sep13 10Sep13	0 0 0 16 16 14 14 17 7 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
▲ 2160 ▲ 2170 ▲ 2170 ▲ 2180 ▲ 2290 ▲ 290 ▲ 290	Detai Steel S2L4/52 Erect & Grout Preceast Planks S2L4/51 Erect & Grout Preceast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Roof, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-1 Erect & Grout Preceast Planks S2L6/PH-2 Install Topping Slab S2L6 Parapet Framing & Sheathing S2-R Install MEP Hangers S2L6 Install MEP Hangers S2L6	10 5 5 4 4 5 4 4 5 5 4 4 29 9 1 1 1 10 10 5 5 5 5 5 4 4 100 5 5 4 4 11	10 5 4 4 5 4 5 4 4 29 1 1 1 10 10 5 5 4 4 10 5 5 4 4 10 5 5 4 4	02 02 02 02 02 02 02 02 02 02	31 Jul 13 06 Aug 13 08 Aug 13 15 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 21 Aug 13 28 Aug 13 09 Aug 13 12 Aug 13 12 Aug 13 13 Aug 13 13 Aug 13 28 Aug 13 28 Aug 13 28 Aug 13 28 Aug 13 13 Sep 13	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 27Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 23Aug13 28Aug1	0 0 0 16 16 18 14 14 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0		
▲ 2160 ▲ 2170 ▲ 2180 ▲ 2190 ▲ 2200 ▲ 2200 ▲ 2200 ▲ 2220 ▲ 2200 ▲ 200 ▲ 200	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install Spray Fireproofing S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Root, PH Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-2 Erect & Grout Precast Planks S2L6/PH-2 Erect & Grout Precast Planks S2L6/PH-2 Erect & Grout Precast Planks S2L6/PH-2 Install MEP Hangers S2L6 Parapet Froming & Sheathing S2-R Install MEP Hangers S2L6 Install Topping S2L5	10 5 5 4 4 5 5 4 4 5 5 1 1 1 1 1 0 10 5 5 5 4 4 10 5 5 4 4 10 5 5 4 4 17 1 4 10 10 10 10 10 10 10 10 10 10 10 10 10	10 5 5 4 5 4 5 4 5 4 5 4 4 5 7 1 1 1 1 1 1 0 5 5 5 4 0 0 5 5 4 10 10 10 5 5 4 4 7 11 10 10 10 10 10 10 10 10 10 10 10 10	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	31Jul-13 06Aug13 08Aug13 21Aug13 21Aug13 03-Sep13 21Aug13 21Aug13 28Aug13 09-Sep13 09-Sep13 12Aug13 12Aug13 12Aug13 12Aug13 28Aug13 28Aug13 28-Aug13 13-Sep13 02Aug14	13Aug13 12Aug13 12Aug13 14Aug13 20Aug13 27Aug13 06Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Aug13 23Aug13 23Aug13 22Aug13 10Sep1	0 0 0 16 16 14 14 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
▲ 2160 ▲ 2170 ▲ 2170 ▲ 2180 ▲ 2290 ▲ 2300 ▲ 230	Detail Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Spray Freproofing S2L5 Read, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Install Topping Slab S2L6 Install Topping Slab S2L6 Install MEP Hangers S2L6 Install Spray Freproofing S2L6 Install Topping Slab S2L2 Install Topping Slab S2L2	10 5 5 4 4 5 4 4 5 4 4 5 5 5 5 5 5 5 5 5	10 5 4 5 4 5 4 5 4 4 5 4 4 5 5 1 1 10 10 5 5 5 4 4 10 5 4 4 17 4 17	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	31-Jul-13 06-Aug-13 08-Aug-13 15-Aug-13 03-Sep-13 21-Aug-13 21-Aug-13 28-Aug-13 09-Sep-13 09-Sep-13 09-Sep-13 12-Aug-13 12-Aug-13 12-Aug-13 13-Aug-13 28-Aug-13 28-Aug-13 02-Sep-13 13-Sep-13 13-Sep-13 02-Aug-13 02-Aug-13 02-Aug-13	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 27Aug13 06Sep13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 10Sep1	0 0 0 16 14 14 17 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
▲ 2160 ▲ 2170 ▲ 2180 ▲ 2190 ▲ 2200 ▲ 2200 ▲ 2200 ▲ 2220 ▲ 2220 ▲ 2220 ▲ 2220 ▲ 2220 ▲ 2220 ▲ 2280 ▲ 2280 ▲ 2290 ▲ 2070 ▲ 207	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install Spray Fireproofing S2L5 Install MEP Hangers S2L5 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-2 Erect & Grout Precast Planks S2L6/FH-2 Erect & Grout Precast Planks S2L6/FH-2 Install MEP Hangers S2L6 Parapet Framing & Sheashing S2-R Install Topping Slab S2L6 Install Topping Slab S2L6 Install Topping Slab S2L6	10 5 5 4 4 5 4 4 5 7 4 4 2 2 9 1 1 10 0 10 5 5 5 4 4 10 5 4 4 17 7 4 4 17 10 10 10 10 10 10 10 10 10 10 10 10 10	10 5 5 4 4 5 4 4 5 5 4 1 1 1 10 10 5 5 5 5 4 4 10 10 5 4 4 17 4 4 17	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	31Jul-13 06Aug13 08Aug13 21Aug13 21Aug13 03Sep13 21Aug13 21Aug13 28Aug13 09Sep13 09Sep13 09Sep13 12Aug13 12Aug13 12Aug13 12Aug13 28Aug13 28Aug13 28Aug13 09Sep13 09Aug13 09Aug13	13Aug13 12Aug13 12Aug13 14Aug13 20Aug13 27Aug13 06Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Aug13 23Aug13 22Aug13 22Aug13 22Aug13 10Sep1	0 0 0 16 14 14 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A 2160 A 2170 A 2170 A 2180 A 2200 A 200 A 20	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install MEP Hangers S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Steel S2L6/PH-1 Erect Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Install Topping Slab S2L6 Praapet Framing & Sheathing S2R Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S2L2 Install Topping Slab S2L6 Install MEP Hangers S2L2 Install MEP Hangers S2L2 Install MEP Hangers S2L2 Install MEP Hangers S2L2	10 5 5 4 4 5 4 4 5 4 4 5 5 5 5 5 5 5 5 5	10 5 4 5 4 17 4 4 5 4 4 29 1 1 10 10 5 5 4 4 10 5 5 4 4 17 4 17 4		31Julri3 06Aug13 08Aug13 15Aug13 21Aug13 21Aug13 21Aug13 21Aug13 28Aug13 09Aug13 12Aug13 12Aug13 12Aug13 13Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 29Aug13 21Aug13	13Aug 13 12Aug 13 12Aug 13 12Aug 13 20Aug 13 27Aug 13 06Sep 13 12Sep 13 12Sep 13 12Sep 13 12Sep 13 12Sep 13 23Aug 13 23Aug 13 23Aug 13 23Aug 13 23Aug 13 10Sep	0 0 0 16 14 14 17 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2000</li> <li></li></ul>	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install Spray Fireproofing S2L5 Install MEP Hangers S2L5 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-1 Detail Steel S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-1 Detail Steel S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-1 Install Topping Slab S2L6 Install Topping Slab S2L5 Install Topping Slab S2L5 Install Topping Slab S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2	10 5 5 4 4 5 4 4 5 4 4 23 1 1 10 10 5 5 4 4 10 5 5 4 4 10 5 5 4 4 11 2 11 1 2 5 1 1 10 10 10 10 10 10 10 10 10 10 10 10	100 55 44 55 44 17 4 5 4 4 23 1 1 1 100 55 5 5 5 4 4 17 4 4 11 3	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	31Jul13 06Aug13 08Aug13 15Aug13 21Aug13 21Aug13 21Aug13 21Aug13 28Aug13 09Aug13 12Aug13 12Aug13 13Aug13 13Aug13 28Aug13 28Aug13 28Aug13 13Sep13 02Aug13 02Aug13 21Aug13	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 02Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug13 02Sep13 22Aug1	0 0 0 16 14 14 17 16 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A2160 A2170 A2170 A2180 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2200 A2300 A200 A2	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Frect Steel S2L6/FH-1 Erect Steel S2L6/FH-2 Detail Steel S2L6/FH-2 Detail Steel S2L6/FH-2 Install MEP Hangers S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-2 Install MEP Hangers S2L6 Install Steel S2L6/FH-2 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S2L2 Install MEP Hangers S2L2 Install MEP Hangers S2L2 Install Steal S2L2/FH-2 Install MEP Hangers S2L2 Install Steal S2L2	10 5 5 4 4 5 4 4 5 4 4 5 5 4 10 10 5 5 5 5 4 4 10 0 5 5 4 4 117 11 10 10 10 10 10 10 10 10 10 10 10 10	100 5 5 4 4 5 4 4 7 4 4 5 5 4 1 1 1 1 1 1 0 0 5 5 5 4 4 100 5 5 4 4 100 5 5 4 4 100 5 5 5 100 100 100 100 100 100 100 1	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	31Julri3 06Aug13 08Aug13 15Aug13 21Aug13 21Aug13 21Aug13 21Aug13 23Aug13 09Aug13 12Aug13 12Aug13 12Aug13 12Aug13 12Aug13 28Aug13 28Aug13 28Aug13 28Aug13 02Aug13 02Aug13 02Aug13 02Aug13 02Aug13 02Aug13 02Aug13 03Aug13	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 065ep13 22Aug13 03Sep13 12Sep13 03Sep13 12Sep13 03Aug13 12Aug13 22Aug13 22Aug13 22Aug13 10Sep1	0 0 0 16 14 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2100</li> <li>A2180</li> <li>A2200</li> <li>A2300</li> <li>A2000</li> <li>A2000</li> <li>A2000</li> <li>Section 4 (</li> </ul>	Detai Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install Spray Fireproofing S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Root, PH Erect Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1 Install Topping Slab S2L6 Parapet Framing & Sheathing S2-8 Install MEP Hangers S2L6 Install Topping Slab S2L6 Install Topping Slab S2L2 Install MEP Hangers S2L2 Install MEP Hangers S2L2 Install MEP Hangers S2L2 Install MEP Hangers S2L2	10 5 5 4 4 5 4 4 5 4 4 29 1 1 1 10 0 5 5 4 4 10 5 5 4 4 10 5 5 4 4 117 10 10 10 10 10 10 10 10 10 10 10 10 10	10 5 5 4 4 4 5 4 4 7 7 4 4 5 5 5 5 5 5 5 5	0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31Jul13 06Aug13 08Aug13 21Aug13 21Aug13 21Aug13 21Aug13 21Aug13 23Aug13 23Aug13 09Aug13 12Aug13 12Aug13 13Aug13 13Aug13 23Aug13 28Aug13 28Aug13 28Aug13 28Aug13 23Aug13 02Aug13 03Aug13 03Aug13 03Aug13	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 26Aug13 27Aug13 26Aug13 26Aug13 26Aug13 26Aug13 27Aug13 26Aug13 26Aug13 26Aug13 27Aug13 26Aug13 26Aug13 26Aug13 26Aug13 27Aug13 26Aug1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A2160 A2170 A2170 A2170 A2180 A2200 A200	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Reod, PH Erect Steel S2L6/PH-1 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Install MEP Hangers S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install MEP Hangers S2L6 Install Steal S2L6 Install Stear Precast Planks S2L6/PH-2 Install MEP Hangers S2L6 Install Topping Slab S2L2 Install MEP Hangers S2L2 Install Stear S2L6 Install St	10 5 5 4 4 5 4 4 5 4 4 7 3 1 1 1 1 1 0 5 5 5 5 4 4 10 0 5 5 4 4 113 113 22	10 55 4 4 17 4 4 4 4 4 4 4 4 4 4 3 3 17 10 0 5 5 5 5 5 5 5 5 5 5 5 4 4 4 4 10 0 0 5 5 5 5 4 4 4 5 5 5 5 4 4 4 5 5 5 5	0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0% 0	31Jul13 06Aug13 08Aug13 03Aug13 15Aug13 21Aug13 21Aug13 21Aug13 03Sep13 09Sep13 09Sep13 09Sep13 09Aug13 12Aug13 12Aug13 21Aug13 21Aug13 28Aug13 03Sep13 02Sep13 02Sep13 02Aug13 02Aug13 02Aug13 02Aug13 03May13 03May13	13 Aug 13 12 Aug 13 12 Aug 13 14 Aug 13 20 Aug 13 27 Aug 13 27 Aug 13 27 Aug 13 28 Aug 13 08 Sep 13 12 Sep 13 12 Sep 13 12 Aug 13 28 Aug 13 29 Aug 13 20 Aug 13	00000000000000000000000000000000000000		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2000</li> <li>A2000</li> <li>Section 4 (</li> <li>Structure</li> <li>Foundation</li> </ul>	Detai Steel S2L4/5-2 Erect & Foruk Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install MEP Hangers S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Root, PH Erect Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-1 Install Topping Slab S2L6 Parapet Framing & Sheathing S2-8 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S2L2 Cafeteria) ONE FREP Foolings Slab	10 5 5 4 4 5 4 4 5 4 4 5 1 1 1 10 0 5 5 4 4 10 5 5 4 4 11 10 10 5 5 3 4 4 11 11 10 0 2 5 3 4 3 3 3 3 3 3	10 5 5 4 4 5 5 4 4 4 4 2 3 1 1 10 10 10 10 10 10 10 10 10 10 10 10	0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31Juli 3 06Aug1 3 06Aug1 3 06Aug1 3 15Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 22Aug1 3 28Aug1 3 28A	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 06Sep13 25Aug13 03Sep13 12Sep13 13Sep14 03Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 28Aug1	00000000000000000000000000000000000000		
A2160 A2170 A2180 A2190 A2200 A200 A200 A2000 A2000 A2000 A20	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Recof, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-2 Install MEP Hangers S2L6 Install Topping Slab S2L6 Install Topping Slab S2L6 Install Topping Slab S2L6 Install Topping Slab S2L2 Install MEP Hangers S2L2 Install Spray Fireproofing S2L2 Cafeteria) PREP Poolings S4 FREP Inteior Footing S4	10 5 5 4 4 5 4 4 5 4 4 7 10 10 5 5 5 5 4 4 10 0 5 5 4 4 10 10 5 5 2 4 4 113 113 113 113 113 113 113 113 113	10 5 5 4 4 4 4 4 4 5 5 5 5 5 4 4 1 1 1 1 1		31Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 05Aug1 3 05Aug1 3 03Sep1 3 03Sep1 3 03Sep1 3 24Aug1 3 24Aug1 3 28Aug1 3 08Sep1 3 28Aug1 3 12Aug1 3 24Aug1 3 24A	13 Aug 13 12 Aug 13 12 Aug 13 14 Aug 13 20 Aug 13 20 Aug 13 20 Aug 13 20 Sep 13 12 Sep 13 22 Aug 13 00 Sep 13 12 Sep 13 12 Aug 13 22 Aug 13	0 0 0 16 14 14 17 17 16 14 17 17 16 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A21700</li> <li>A2180</li> <li>A21700</li> <li>A2180</li> <li>A2200</li> <li>A2300</li> <li>A2300</li> <li>A2070</li> <li>A2080</li> <li>A2080</li> <li>A2080</li> <li>A2080</li> <li>A2300</li> <l< td=""><td>Detai Steel S2L4/5-2 Erect &amp; Grout Preceast Planks S2L4/5-1 Erect &amp; Grout Preceast Planks S2L4/5-2 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Roof, Pl Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Erect &amp; Grout Preceast Planks S2L6/PH-1 Erect &amp; Grout Preceast Planks S2L6/PH-1 Erect &amp; Grout Preceast Planks S2L6/PH-1 Erect &amp; Grout Preceast Planks S2L6/PH-2 Erect &amp; Grout Preceast Planks S2L6/PH-1 Install Topping Slab S2L5 Install Spray Freproofing S2L8 Install MEP Hangers S2L6 Install Spray Freproofing S2L2 Cafeteria) Ons FREP Footings S4 FREP Footings S4 FREP Footings S4 FREP Footings S4</td><td>10 5 5 4 4 5 4 4 5 4 4 5 7 1 1 10 0 5 5 4 4 10 0 5 5 4 4 10 0 5 5 4 4 10 10 3 3 3 3 3 1 1</td><td>10 5 5 4 4 4 7 7 7 4 4 3 3 3 1 1 5 5 5 5 4 4 4 10 0 5 5 5 4 4 11 10 10 10 10 5 5 5 5 5 5 7 4 8 4 9 10 10 10 10 10 10 10 10 10 10 10 10 10</td><td>0% 0% 0% 0% 0% 0% 0% 0% 0% 0%</td><td>31Juli 3 06Aug1 3 06Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 28Aug1 3 28A</td><td>13 Aug 13 12 Aug 13 12 Aug 13 14 Aug 13 20 Aug 13 20 Aug 13 20 Aug 13 20 Aug 13 20 Aug 13 26 Aug 13 26 Aug 13 26 Aug 13 26 Aug 13 29 Aug 13 20 Aug 13</td><td>00000000000000000000000000000000000000</td><td></td><td></td></l<></ul>	Detai Steel S2L4/5-2 Erect & Grout Preceast Planks S2L4/5-1 Erect & Grout Preceast Planks S2L4/5-2 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Roof, Pl Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Erect & Grout Preceast Planks S2L6/PH-1 Erect & Grout Preceast Planks S2L6/PH-1 Erect & Grout Preceast Planks S2L6/PH-1 Erect & Grout Preceast Planks S2L6/PH-2 Erect & Grout Preceast Planks S2L6/PH-1 Install Topping Slab S2L5 Install Spray Freproofing S2L8 Install MEP Hangers S2L6 Install Spray Freproofing S2L2 Cafeteria) Ons FREP Footings S4 FREP Footings S4 FREP Footings S4 FREP Footings S4	10 5 5 4 4 5 4 4 5 4 4 5 7 1 1 10 0 5 5 4 4 10 0 5 5 4 4 10 0 5 5 4 4 10 10 3 3 3 3 3 1 1	10 5 5 4 4 4 7 7 7 4 4 3 3 3 1 1 5 5 5 5 4 4 4 10 0 5 5 5 4 4 11 10 10 10 10 5 5 5 5 5 5 7 4 8 4 9 10 10 10 10 10 10 10 10 10 10 10 10 10	0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31Juli 3 06Aug1 3 06Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 21Aug1 3 28Aug1 3 28A	13 Aug 13 12 Aug 13 12 Aug 13 14 Aug 13 20 Aug 13 20 Aug 13 20 Aug 13 20 Aug 13 20 Aug 13 26 Aug 13 26 Aug 13 26 Aug 13 26 Aug 13 29 Aug 13 20 Aug 13	00000000000000000000000000000000000000		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2170</li> <li>A2180</li> <li>A2200</li> <li>A2300</li> <li></li></ul>	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spay Fieproofing S2L4 Install MEP Hanger S2L5 Install MEP Hanger S2L5 Install MEP Hanger S2L5 Reof, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Install Spray Fieproofing S2L5 Install Spray Fieproofing S2L6 Install MEP Hanger S2L6 Install MEP Hanger S2L6 Install Spray Fieproofing S2L6 Install Spray Fieproofing S2L6 Install Spray Fieproofing S2L6 Install Spray Fieproofing S2L2 Install Spray Fieproofing S2L3 FREP Interior Footing S4 FREP Foundations S4	10 5 5 4 4 5 4 4 5 4 4 7 1 1 1 1 1 1 1 1 1 0 5 5 5 5 4 4 10 0 5 5 5 4 4 10 10 5 5 5 4 4 10 10 10 5 5 5 3 4 4 10 10 10 10 10 10 10 10 10 10 10 10 10	10 5 5 5 5 5 4 4 4 4 4 5 5 5 4 4 4 5 5 5 5 1 1 1 1	022 022 022 022 022 022 022 022	31Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 05Aug1 3 05Aug1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 02Aug1 3 02A	13Aug13 12Aug13 12Aug13 12Aug13 27Aug13 27Aug13 27Aug13 28Aug13 05Sep13 05Sep13 12Sep13 03Sep13 12Sep13 12Sep13 12Aug13 27Aug13 02Sep13 12Sep13 27Aug13 02Sep13 10Sep13 10Sep13 12Sep13 10Sep13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug1	0 0 0 16 14 14 14 17 17 16 14 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A21700</li> <li>A21700</li> <li>A2180</li> <li>A2200</li> <li>A2300</li> <l< td=""><td>Detai Steel S2L4/52 Erect &amp; Grout Preceast Planks S2L4/51 Erect &amp; Grout Preceast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Rect, FIH Erect Steel S2L6/FH-1 Erect Steel S2L6/FH-1 Erect &amp; Grout Precast Planks S2L6/FH-2 Install MEP Hangers S2L6 Install MEP Hangers S2L2 Cafeteria) ONS FREP Footings S4 FREP Footin</td><td>10 5 5 4 4 5 4 4 5 4 4 5 1 1 1 1 1 0 0 5 5 4 4 10 0 5 5 4 4 10 0 5 5 3 4 4 11 3 11 3 12 2 2 3 3 3 1 1 4 4 12 1 1 1 1 10 10 10 10 10 10 10 10 10 10 1</td><td>10 10 5 5 5 4 4 5 5 5 4 4 5 5 5 4 4 5 5 5 7 4 6 5 5 7 17 7 17 7 17 10 10 10 10 10 10 10 5 5 5 14 4 10 10 10 5 5 14 11 11 11 11 11 11 11 11 11 11 11 11</td><td>0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>31Juli 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 07Aug1 3 07A</td><td>13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 20Sep13 22Aug13 22Aug13 23Sep13 22Sep13 12Sep13 03Sep13 12Sep13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 02Sep13 10Sep13 10Sep13 03Sep1</td><td>0 0 0 16 14 14 14 17 17 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td></td><td></td></l<></ul>	Detai Steel S2L4/52 Erect & Grout Preceast Planks S2L4/51 Erect & Grout Preceast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Install Spray Freproofing S2L5 Rect, FIH Erect Steel S2L6/FH-1 Erect Steel S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-2 Install MEP Hangers S2L6 Install MEP Hangers S2L2 Cafeteria) ONS FREP Footings S4 FREP Footin	10 5 5 4 4 5 4 4 5 4 4 5 1 1 1 1 1 0 0 5 5 4 4 10 0 5 5 4 4 10 0 5 5 3 4 4 11 3 11 3 12 2 2 3 3 3 1 1 4 4 12 1 1 1 1 10 10 10 10 10 10 10 10 10 10 1	10 10 5 5 5 4 4 5 5 5 4 4 5 5 5 4 4 5 5 5 7 4 6 5 5 7 17 7 17 7 17 10 10 10 10 10 10 10 5 5 5 14 4 10 10 10 5 5 14 11 11 11 11 11 11 11 11 11 11 11 11	0 0 0 0 0 0 0 0 0 0 0 0 0 0	31Juli 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 07Aug1 3 07A	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 20Sep13 22Aug13 22Aug13 23Sep13 22Sep13 12Sep13 03Sep13 12Sep13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 02Sep13 10Sep13 10Sep13 03Sep1	0 0 0 16 14 14 14 17 17 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A 2160 A 2170 A 2170 A 2180 A 2200 A 220	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spay Fieproofing S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Roof, PH Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Install Opping Slab S2L5 Parapet Firainig & Sheathing S2-R Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install Spray Fireproofing S2L6 Install Spray Fireproofing S2L2 Install Spray Fireproofing S4 FREP Foundations S4 Backfill S4	10 5 5 4 4 5 4 4 5 4 4 5 4 4 5 5 5 5 5 5	10 5 5 4 4 4 5 5 4 4 4 4 5 5 5 5 5 5 5 5		31 Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 05Aug1 3 05Aug1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 02Aug1 3 02	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 27Aug13 28Aug13 05Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Aug13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 10Sep13 10Sep13 12Sep13 10Sep13 28Aug1	0 0 0 16 14 14 14 17 17 16 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A21700</li> <li>A21700</li> <li>A2180</li> <li>A2200</li> <li>A2300</li> <l< td=""><td>Detai Steel S2L4/52 Erect &amp; Grout Precest Planks S2L4/51 Erect &amp; Grout Precest Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install MCP Hangers S2L4 Install MCP Hangers S2L5 Install MCP Hangers S2L5 Install Spray Freproofing S2L5 Ready, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Install Topping Slab S2L6 Parapet Framing &amp; Sheathing S2R Install MCP Hangers S2L6 Install Spray Freproofing S2L5 Install MCP Hangers S2L6 Install MCP Hangers S2L6 Install Spray Freproofing S2L6 Install MCP Hangers S2L6 Install MCP Hangers S2L2 Install Topping Slab S2L2 Install MCP Hangers S2L2 Install Steel S2L6/FM-1 BCP Fooling S4 FREP Fooling S4</td><td>10 5 5 4 4 5 4 4 5 4 4 5 1 1 1 1 1 1 1 1 1</td><td>10 0 10 10 10 10 10 10 10 10 10 10 10 10</td><td>0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>31Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 03Sep1 3 24Aug1 3 03Sep1 3 28Aug1 3 03Sep1 3 28Aug1 3 03Sep1 3 28Aug1 3 12Aug1 3 28Aug1 3 24Aug1 3 24Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 08Aug1 3 08A</td><td>13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 27Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 08Sep13 10Sep13 10Sep13 10Sep13 10Sep13 08Aug1</td><td>0 0 0 16 14 14 17 17 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td></td><td></td></l<></ul>	Detai Steel S2L4/52 Erect & Grout Precest Planks S2L4/51 Erect & Grout Precest Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install MCP Hangers S2L4 Install MCP Hangers S2L5 Install MCP Hangers S2L5 Install Spray Freproofing S2L5 Ready, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Install Topping Slab S2L6 Parapet Framing & Sheathing S2R Install MCP Hangers S2L6 Install Spray Freproofing S2L5 Install MCP Hangers S2L6 Install MCP Hangers S2L6 Install Spray Freproofing S2L6 Install MCP Hangers S2L6 Install MCP Hangers S2L2 Install Topping Slab S2L2 Install MCP Hangers S2L2 Install Steel S2L6/FM-1 BCP Fooling S4 FREP Fooling S4	10 5 5 4 4 5 4 4 5 4 4 5 1 1 1 1 1 1 1 1 1	10 0 10 10 10 10 10 10 10 10 10 10 10 10	0 0 0 0 0 0 0 0 0 0 0 0 0 0	31Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 03Sep1 3 24Aug1 3 03Sep1 3 28Aug1 3 03Sep1 3 28Aug1 3 03Sep1 3 28Aug1 3 12Aug1 3 28Aug1 3 24Aug1 3 24Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 08Aug1 3 08A	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 27Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 28Aug13 08Sep13 10Sep13 10Sep13 10Sep13 10Sep13 08Aug1	0 0 0 16 14 14 17 17 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A 2160 A 2170 A 2170 A 2180 A 2200 A 220	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spay Fieproofing S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Roof, PH Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Install MEP Hangers S2L5 Parapet Framing & Sheathing S2R Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install Spay Fireproofing S2L6 Install Spay Fireproofing S2L2 Install Spay Fireproofing S4 FREP Foundations S4 Backtli S4 Place S0G S4LL	10 5 5 4 4 5 4 4 5 4 4 5 4 4 5 5 5 5 4 4 10 0 5 5 5 4 4 11 11 3 22 3 3 1 1 4 4 113 113 113 113 113 113 113	10 5 5 4 4 4 5 5 4 4 4 5 5 5 5 5 5 5 5 5	02 02 02 02 02 02 02 02 02 02	31 Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 05Aug1 3 05Aug1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 02Aug1 3 02	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 22Aug13 22Aug13 05Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 02Sep13 10Sep13 25Aug13 08Aug13 08Aug13 26Aug13 08Aug13 26Aug13 08Aug13 26Aug13 08Aug13 26Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug1	0 0 0 16 14 14 14 17 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2170</li> <li>A2170</li> <li>A2180</li> <li>A2200</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2000</li> <li></li></ul>	Detai Steel S2L4/52 Erect & Grout Precest Planks S2L4/51 Erect & Grout Precest Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Freproofing S2L4 Install MEP Hanger S2L5 Install MEP Hanger S2L5 Install MEP Hanger S2L5 Install Steel S2L6/PH-1 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Install Topping Slab S2L6 Praapet Fraining & Sheathing S2R Install MEP Hanger S2L6 Install Spray Freproofing S2L6 Install MEP Hanger S2L6 Install MEP Hanger S4 FREP Interior S4 FREP Interior S4 FREP Foundations S4 Waterproof Foundations S4 Backfil S4	10 5 5 4 4 5 4 4 5 4 4 5 5 1 1 1 1 1 1 1 1	10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0% 0% 0% 0% 0% 0% 0% 0% 0% 0%	31 Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 03Sep1 3 2 1 Aug1 3 2 2 Aug1 3 3 2 Aug1 3 3 3 2 Aug1 3 3 2 Aug1 3 3 3 3 Aug1 3 3 3 3 Aug1 3 3 3 3 Aug1 3 3 3 3 Aug1 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3 3	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 20Sep13 22FAug13 00Sep13 12Sep13 12Sep13 03Sep13 12Sep13 03Sep13 12Sep13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 00Sep13 10Sep13 10Sep13 10Sep13 10Sep13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 07Aug13 06Aug13 07Aug13 06Aug13 07Aug13 06Aug13 25Aug13 07Aug	0 0 0 16 14 14 14 17 17 16 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2400</li> <li>A2400</li> <li>A2400</li> </ul>	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Stepay Fireproofing S2L4 Install Stepay Fireproofing S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-2 Detail Steel S2L6/FH-2 Install MEP Hangers S2L6 Parapet Framing & Sheathing S2R Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install Steay S1L6 Install Steay Fireproofing S2L5 Install Steay Fireproofing S2L5 Install Steay Fireproofing S2L2 Install Steay Fireproofing S4 FREP Foundations S4 Backtll S4 evel Place S0G S4LL Install MEP Hangers S4LL Install MEP Hangers S4LL	10 5 5 4 4 5 4 4 5 4 4 5 4 4 5 5 5 4 4 10 5 5 5 4 4 10 5 5 4 4 11 12 12 3 3 3 1 1 11 12 5 5 5 4 4 12 10 10 10 10 10 10 10 10 10 10 10 10 10	10 5 5 4 4 4 5 5 4 4 4 5 5 5 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5 4 4 4 10 10 0 5 5 5 5 4 4 4 11 10 0 0 5 5 5 5 5 6 6 7 4 8 4 9 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10		31 Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 07Aug1 3 03Sep1 3 2 4Aug1 3 2 4Aug1 3 08Sep1 3 2 4Aug1 3 2 8Aug1 3 0 8Sep1 3 2 4Aug1 3 2 8Aug1 3 3 8Aug1 3 3 3 8Aug1 3 3 8Aug1 3 3	13Aug13 12Aug13 12Aug13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 05Sep13 12Sep13 12Sep13 12Sep13 12Sep13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 0Sep13 10Sep13 26Aug13 06Aug13 26Aug13 06Aug13 26Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 07Aug13 06Aug13 06Aug13 06Aug13 07Aug13 06Aug13 06Aug13 07Aug13 06Aug13 07Aug13 06Aug13 07Aug13 06Aug13 07Aug13 06Aug13 07Aug13 06Aug13 07Aug13	0 0 0 16 14 14 14 14 17 17 16 14 14 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	· · · · ·	
<ul> <li>A2160</li> <li>A2170</li> <li>A2170</li> <li>A2170</li> <li>A2180</li> <li>A2200</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2090</li> <li></li></ul>	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Steel S2L6/FH-1 Erect Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S4L6 Install MEP Hangers S4L6 Install MEP Hangers S4L2 Install MEP Hangers S4L2 Install MEP Hangers S4L2 Install MEP Hangers S4L2 Install MEP Hangers S4L8 FREE Precise Footing S4 FREE Precise FREE Precise FREE FREE Precise FREE FREE Precise FREE FREE FREE Precise FREE FREE FREE Precise FREE FREE FREE FREE FREE FREE FREE FREE	10 5 5 4 4 5 4 4 5 4 4 5 1 1 1 1 1 1 0 5 5 5 5 4 4 10 0 5 5 4 4 11 1 1 1 10 10 5 5 5 5 5 1 4 4 11 11 10 10 5 5 5 5 5 5 5 1 4 4 12 12 12 12 12 12 12 12 12 12 12 12 12	10 10 5 5 5 5 4 4 4 5 5 5 5 7 4 4 4 4 5 5 5 7 4 4 4 2 9 10 10 10 10 10 10 10 10 10 10 10 10 10		31 Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 03Sep1 3 24Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 24Aug1 3 24	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 06Sep13 27Aug13 03Sep13 12Sep13 12Sep13 12Sep13 12Sep13 28Aug13 23Aug13 22Aug13 22Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 28Aug13 08Aug13 08Aug13 28Aug13 08Aug13 08Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug13 28Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug13 08Aug13 28Aug13 28Aug13 08Aug13 28Aug1	0 0 0 16 14 14 14 17 17 16 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2000</li> <li>A2100</li> <li>A2000</li> <li>A2100</li> <li>A2000</li> <li></li></ul>	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spay Fireproofing S2L4 Install Spray Fireproofing S2L5 Install MEP Hangers S2L5 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-2 Install MEP Hangers S2L6 Parapet Framing & Sheathing S2R Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S4 FREP Foundations S4 Backtll S4 avet Place S0G S4LL Install MEP Hangers S4LL Install MEP Hangers S4L2 Install ME	10 5 5 4 4 5 4 4 5 4 4 5 4 4 5 5 5 5 4 4 10 5 5 5 4 4 10 5 5 5 4 4 10 5 5 3 4 11 10 10 10 10 10 10 10 10 10 10 10 10	10 5 5 5 5 4 4 4 7 7 4 4 5 5 5 7 4 4 10 10 0 5 5 5 5 7 4 4 10 10 10 0 5 5 5 4 11 11 10 10 0 10		31 Juli 2 06 Aug 13 06 Aug 13 06 Aug 13 06 Aug 13 06 Aug 13 15 Aug 13 07 Aug 13 16 Aug 13 17 Aug 13	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 22Aug13 22Aug13 22Aug13 22Aug13 05Sep13 12Sep13 03Sep13 12Sep13 12Sep13 12Sep13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 0Sep13 10Sep13 10Sep13 10Sep13 10Sep13 26Aug13 06Aug13 06Aug13 06Aug13 06Aug13 06Aug13 08Aug13	0 0 0 16 14 14 14 14 17 17 16 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A 2160 A 2170 A 2170 A 2170 A 2210 A 2200 A	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install MCP Hangers S2L4 Install MCP Hangers S2L5 Install MCP Hangers S2L5 Install MCP Hangers S2L5 Erect Steel S2L6/FH-1 Erect Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Install MCP Hangers S2L6 Install Steel S2L6/FH-2 Install MCP Hangers S2L6 Install MCP Hangers S2L6 Install Steel S2L6/FH-2 Install MCP Hangers S2L6 Install Steel S2L6/FH-2 Install MCP Hangers S2L6 Install MCP Hangers S2L6 Install MCP Hangers S2L2 Install MCP Hangers S4L2 Install MCP Hangers S4L3 Waterpoof Foundations S4 Backfill S4 Erect Columns S4 S4L1 Install MCP Hangers S4L1	10 5 5 4 4 5 4 4 5 4 4 5 1 1 1 1 1 1 1 0 5 5 5 5 5 4 4 10 0 5 5 5 3 4 4 11 1 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10 5 5 5 5 5 5 5 5 4 4 4 4 5 5 5 5 4 4 4 11 1 10 10 10 10 10 10 10 5 5 5 5 4 4 4 11 11 11 10 10 10 10 10 10 10 10 10 10		31Juli 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 15Aug1 3 16Aug1 3 16Aug1 3 16Aug1 3 16Aug1 3 16Aug1 3 12Aug1	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 06Sep13 22Aug13 03Sep13 12Sep13 03Sep13 12Sep13 09Aug13 12Sep13 22Aug13 22Aug13 22Aug13 22Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 09Aug13 23Aug13 09Aug13 09Aug13 09Aug13 23Aug13 09Aug13 09Aug13 23Aug13 09Aug13 23Aug13 09Aug13 23Aug13 09Aug13 23Aug13 09Aug13 23Aug13 23Aug13 09Aug13 23Aug1	0 0 0 16 14 14 17 17 16 14 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2070</li> <li>A2080</li> <li>A2300</li> <li>A2400</li> <li>A2400</li> <li>A2400</li> <li>A2400</li> <li>A2400</li> <li>A2400</li> <li>A2400</li> </ul>	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spay Fireproofing S2L4 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L5/FH-1 Erect Steel S2L6/FH-2 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-2 Install MCP Hangers S2L6 Parapet Freming & Sheathing S2-R Install MCP Hangers S2L6 Parapet Freming & Sheathing S2-R Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S4L FREP Foundations S4 Backtll S4 Evel Place S0G S4LL Install MEP Hangers MEP H	10 5 5 4 4 5 4 4 5 4 4 23 1 1 1 1 1 1 0 5 5 5 4 4 10 5 5 5 4 4 10 5 5 4 4 10 10 5 5 5 4 4 11 10 10 10 10 10 10 10 10 10 10 5 5 5 5	10 5 5 5 5 5 4 4 4 4 4 4 5 5 5 5 7 1 1 1 10 10 10 10 10 10 10 10 10 10 10	022 022 022 022 022 022 022 022	31 Juli 2 06Aug 13 06Aug 13 06Aug 13 06Aug 13 07Aug 12 16Aug 13 03Sep 13 24Aug 13 24Aug 13 28Aug 13 28Aug 13 28Aug 13 28Aug 13 27Aug 13 28Aug 13 27Aug 13 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 22Aug13 22Aug13 22Aug13 22Aug13 03Sep13 12Sep13 03Sep13 12Sep13 12Sep13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 02Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 07Aug13 08Aug13 08Aug13 08Aug13 22Sep13 00Sup13 23Mg13 23Mg13 23Mg13 22Sep13 00Sup13 23Mg13 22Sep13 00Sup13 22Sep13 10Sep13 22Sep13 22	0 0 0 16 16 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A2160 A2170 A2170 A2170 A2180 A2200 A2000 A200 A200 A2000 A2000 A2000 A20	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Erect Steel S2L6/FH-1 Erect Steel S2L6/FH-1 Detai Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Install MEP Hangers S2L6 Fract & Grout Precast Planks S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-2 Install Steel S2L6/FH-2 Install MEP Hangers S2L6 Install Steal S2L6 FREE Precision S0 FREE Providence S4 FREE Precision S4 FREE Precision S4 FREE Precision S4 FREE Precision S4 FREE Precision S4 FREE Proundations S4 Waterproof Foundations S4 Waterproof Foundations S4 Waterproof S4L1 Install MEP Hangers S4L1 Install MEP Hangers S4L1 Install MEP Hangers S4L1 Install Spray Freproofing S4L1 Erect Columns & Steel S4L1 Deck & Detail Steel S4L1 Deck & Detail Steel S4L1	10 5 5 4 4 5 4 4 5 4 4 5 4 4 5 5 5 5 5 5	10 5 5 4 4 4 4 4 5 5 5 5 5 5 5 5 5 5 5 5	022 022 022 022 022 022 022 022	31Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 03Sep1 3 21Aug1 3 24Aug1 3 28Aug1 3 28Aug1 3 28Aug1 3 24Aug1 3 24A	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 065ep13 22Aug13 03Sep13 12Sep13 03Sep13 12Sep13 03Aug13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 10Sep13 22Aug13 02Sep13 22Aug13 22Aug13 03Un13 07Aug13 06Aug13 22Sep13	0 0 0 16 14 14 17 17 16 14 17 17 16 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2300</li> <li>A2070</li> <li>A2080</li> <li>A2070</li> <li>A2080</li> <li>A2070</li> <li>A2080</li> <li>A2300</li> <li>A2300</li> <li>A2070</li> <li>A2080</li> <li>A2080</li> <li>A2070</li> <li>A2080</li> <li>A2080</li> <li>A2070</li> <li>A2080</li> <li></li></ul>	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spay Fireproofing S2L4 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L5/FH-1 Erect Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-2 Install MEP Hangers S2L6 Parapet Framing & Sheathing S2R Install MEP Hangers S2L6 Parapet Framing & Sheathing S2R Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L5 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S2L2 Install Spray Fireproofing S4L FREP Foundations S4 Backtll S4 evel Place S0G S4L1 Install MEP Hangers S4L1 Erect Columns & Steel S4L1 Deck & Detail Steel S4L1 S0D S4L1	10 5 5 4 4 5 4 4 5 4 4 5 4 4 5 5 5 5 4 4 10 5 5 5 4 4 10 5 5 5 4 4 10 10 5 5 5 4 4 11 11 10 10 10 10 10 10 10 10 10 10 10	10 5 5 4 4 4 4 5 5 4 4 4 4 5 5 5 4 4 4 10 10 0 5 5 5 5 4 4 4 10 10 0 5 5 5 4 4 4 11 11 10 0 0 5 5 5 5 4 4 4 4 5 5 5 5 5 5 5 5 6 6 7 9 9 10 10 10 10 10 10 10 10 10 10 10 10 10		31 Juli 2 06Aug 13 06Aug 13 06Aug 13 15Aug 13 15Aug 13 21Aug 13 22Aug 13 23Aug 13 2 2 2 2 2 2 2 2 2 2 2 2 2	13Aug13 12Aug13 12Aug13 12Aug13 27Aug13 27Aug13 22Aug13 22Aug13 22Aug13 05Sep13 12Sep13 03Sep13 12Sep13 12Sep13 12Sep13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 02Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 07Aug13 08Aug13 08Aug13 08Aug13 08Aug13 08Aug13 22Aug13 08Aug1	0 0 0 16 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A 2160 A 2170 A 2170 A 2170 A 2170 A 2210 A 2200 A 2400 A 240	Detail Steel S2L4/5-2 Erect & Grout Precest Planks S2L4/5-1 Erect & Grout Precest Planks S2L4/5-1 Install Topping Slab S2L4 Install Topping Slab S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Terct Steel S2L6/FH-1 Erect Steel S2L6/FH-2 Detail Steel S2L6/FH-2 Detail Steel S2L6/FH-2 Detail Steel S2L6/FH-2 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install MEP Hangers S4L6 Install Steel S2L6/FH-2 Install MEP Hangers S2L6 Install MEP Hangers S4L2 Install Steel S2L6/FH-2 Erect & Grout Precest Planks S2L6/FH-3 Erect & Grout Precest Planks S2L6/FH-3 Install MEP Hangers S4L2 Install MEP Hangers S4L2 Install MEP Hangers S4L2 FREE Precision S4 Waterproof Foundations S4 Waterproof Foundations S4 Waterproof Foundations S4 Waterproof Foundations S4 Waterproof Foundations S4 Waterproof Foundations S4 Backfill S4 Erect Columns & Steel S4L1 Deck & Detail Steel S4L1 Install MEP Hangers S4L1 Erect Columns & Steel S4L1 Install MEP Hangers S4L1 Erect Columns & Steel S4L1 Install MEP Hangers S4L1 I	10 5 5 4 4 5 4 4 5 4 4 5 5 5 5 5 5 5 5 5	10 5 5 4 4 4 4 5 5 5 5 4 4 4 4 5 5 5 5 5		31Juli 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 15Aug1 3 15Aug1 3 12Aug1	13Aug13 12Aug13 12Aug13 12Aug13 20Aug13 27Aug13 06Sep13 22Aug13 03Sep13 12Sep13 03Sep13 12Sep13 03Aug13 03Sep13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 03Aug13 06Aug13 06Aug13 07Aug13 06Aug13 07Aug13 06Aug13 23Aug13 07Aug13 06Aug13 23Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 23Aug13 07Aug13 06Aug13 23Aug13 07Aug1	0 0 0 16 14 14 17 17 16 14 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2300</li> <li>A2400</li> <li>A2420</li> <li>A2400</li> <li></li></ul>	Detai Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-2 Detai Steel S2L6 Detai Steel S2L6 Detai Steel S2L2 Detai	10 10 5 4 4 5 4 4 5 4 4 5 4 4 23 1 1 1 10 10 5 5 4 4 10 5 5 4 4 10 5 5 4 4 11 10 10 5 5 4 4 11 10 10 5 5 5 4 4 10 10 10 5 5 5 4 4 10 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 5 4 4 10 10 5 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 4 4 10 10 5 5 5 5 4 4 4 11 11 11 11 11 11 5 5 5 5 6 4 4 4 11 11 11 5 5 5 6 6 6 6 11 11 11 11 11 5 5 6 6 6 6 6 6 6 6 6 6 6 6 6	10 5 5 4 4 4 4 4 4 5 5 4 4 4 4 4 1 1 1 0 5 5 5 5 5 4 4 4 10 10 5 5 5 5 4 4 4 11 11 10 0 0 5 5 5 5 4 4 4 4 4 4 5 5 5 5 5 5 4 4 4 4 4 4 5		31 Juli 2 06Aug 13 06Aug 13 06Aug 13 06Aug 13 07Aug 12 16Aug 13 21 Aug 13 22 Aug 13 23 Aug 13 23 Aug 13 23 Aug 13 23 Aug 13 24 Aug 13 23 Aug 13 24 Aug 13 26 Aug 13 27 Aug 13 28	13Aug13 12Aug13 12Aug13 24Aug13 27Aug13 22Aug13 22Aug13 22Aug13 22Aug13 03Sep13 12Sep13 03Sep13 12Sep13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 02Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 07Aug13 06Aug13 08Aug13 08Aug13 22Sep13 00Sup13 23Mug13 23Mug13 08Aug13 22Sep13 00Sup13 23Mug13 22Sep13 00Sup13 00Sup13 22Sep13 22Sep1	0 0 0 16 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A2160 A2160 A2170 A2180 A2190 A2190 A2200 A240	Detai Steel S2L4/52 Erect & Grout Precast Planks S2L4/51 Erect & Grout Precast Planks S2L4/51 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spay Fieproofing S2L5 Roof, PH Erect Steel S2L5/PH-1 Erect Steel S2L6/PH-2 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-1 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Detai Steel S2L6/PH-2 Install MEP Hangers S2L6 Install Spay Fieproofing S2L6 Hanger S2L6 Install Spay Fieproofing S2L6 Install Spay Fieproofing S2L6 Install Spay Fieproofing S2L2 Install Spay Fieproofing S4 FREP Foundations S4 Backfill S4 Waterproof Foundations S4 Backfill S4 Install MEP Hangers S4L1 Install MEP Hangers S4L1	10 5 5 4 4 5 4 4 5 4 4 5 4 4 7 10 10 5 5 5 5 4 4 10 0 5 5 5 4 4 10 10 5 5 5 5 4 4 10 10 5 5 5 6 4 11 11 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10 5 5 5 5 5 5 5 4 4 4 4 4 4 5 5 5 5 5 1 1 1 1	022 022 022 022 022 022 022 022	31Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 03Sep1 3 02Aug1 3 24Aug1 3 24A	13Aug13 12Aug13 12Aug13 12Aug13 27Aug13 27Aug13 065ep13 22Aug13 03Sep13 12Sep13 22Aug13 03Sep13 12Sep13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 06Aug13 22Aug13 07Aug13 06Aug13 22Aug13 06Aug13 22Aug13 07Aug13 06Aug13 22Aug13 10Sep13 10Sep13 22Aug13 07Aug13 06Aug13 22Aug13 07Aug13 06Aug13 22Aug13 10Sep13 22Aug13 22Aug13 10Sep13 22Aug13 22Aug13 22Aug13 22Aug13 10Sep13 22Aug1	0 0 0 16 14 14 17 17 16 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2400</li> <li></li></ul>	Detai Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spray Fireproofing S2L4 Install Spray Fireproofing S2L5 Roof, PH Erect Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-2 Erect & Grout Precast Planks S2L6/FH-1 Erect & Grout Precast Planks S2L6/FH-2 Install Topping Slab S2L6 Install MEP Hangers S2L8 Install Topping Slab S2L6 Install Topping Slab S2L4 Install Spray Fieproofing S2L2 Cafeteria) Cafeteria FREP Foolings S4 FREP Foolings S4 FREP Foolings S4 FREP Foolings S4 FREP Foolings S4 FREP Foolings S4 Erect Steel S4L1 Deck & Detai Steel S4L1 Install Spray Fieproofing S4L1 Erect Steel S4L1 Install Spray Fieproofing S4L1 Erect Steel S4L1 Install Spray Fieproofing S4L1 Erect Steel S4L1	10 10 5 4 4 5 4 4 5 4 4 5 4 4 23 1 1 1 1 1 1 1 1 1 1 1 1 1	10 5 5 5 5 5 4 4 4 4 4 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1	200 200 200 200 200 200 200 200	31 Juli 2 06Aug 13 06Aug 13 06Aug 13 06Aug 13 06Aug 13 07Aug 14 07Aug 14 07Aug 14 07Aug 14 07Aug 13 07Aug 13 07	13Aug13 12Aug13 12Aug13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 23Aug13 23Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 03Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 07Aug13 06Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug13 08Aug13 23Aug1	0 0 0 16 14 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
A2160 A2170 A2180 A2190 A2190 A2190 A2200 A240	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Spray Fieproofing S2L4 Install MEP Hangers S2L5 Install MEP Hangers S2L5 Install Steel S2L6/FH-1 Erect Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Erect Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-2 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-1 Detail Steel S2L6/FH-2 Install MEP Hangers S2L6 Install MEP Hangers S2L6 Install Spray Fireproofing S2L6 Install Spray Fireproofing S2L2 Cafeteria) FREP Interior Footing S4 FREP Footings S4 FREP Footings S4 FREP Footings S4 FREP Footing Fo	10 5 5 4 4 5 4 4 7 7 4 7 4 7 10 10 5 5 5 5 4 4 10 0 5 5 5 4 4 10 0 5 5 5 4 4 10 10 5 5 5 6 4 4 117 10 10 10 5 5 5 5 6 4 4 10 10 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10 5 5 4 4 4 4 4 4 4 4 4 4 11 1 10 10 10 10 5 5 5 5 4 4 11 10 10 10 0 5 5 5 5 4 4 4 11 11 10 10 0 5 5 5 5 5 6 4 11 11 11 11 10 10 0 5 5 5 5 5 5 5 5 5 5	0 0 0 0 0 0 0 0 0 0 0 0 0 0	31Juli 2 06Aug13 06Aug13 06Aug13 06Aug13 05Aug13 05Aug13 03Sep13 03Sep13 03Sep13 03Sep13 03Sep13 02Aug13 24Aug13 02Aug13 12Aug	13Aug13 12Aug13 12Aug13 12Aug13 27Aug13 27Aug13 06Sep13 22Aug13 03Sep13 12Sep13 12Sep13 12Aug13 12Aug13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 07Aug13 06Aug13 22Aug13 10Sep13 10Sep13 10Sep13 10Sep13 22Aug13 10Sep13 22Aug13 10Sep13 10Sep13 22Aug13 10Sep13 10Sep13 22Sep13 11Sep1	0 0 0 16 14 14 17 17 16 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2400</li> <li>A2420</li> <li>A2400</li> <li></li></ul>	Detai Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-1 Install Topping Slab S2L4 Install Spage Fieproofing S2L4 Install Spray Fieproofing S2L5 Roof, PH Erect Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-1 Detai Steel S2L6/FH-2 Erect Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Erect Steel S2L6/FH-2 Detai Steel S2L6/FH-2 Erect Steel S4L2 Install Spage Fieproofing S2L5 Erstel Topping S1ab S2L6 Install Spage Fieproofing S2L2 Cafeteria) Cots FREP Foolings S4 EREP Foolings	10 5 5 4 4 5 4 4 5 4 4 5 4 10 10 5 5 4 4 10 0 5 5 4 4 10 0 5 5 4 4 10 0 5 5 4 4 10 0 5 5 6 4 11 11 10 10 10 5 5 5 6 4 4 11 11 10 0 5 5 5 5 4 4 10 10 10 5 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 4 4 10 10 10 5 5 5 5 6 6 4 4 10 10 5 5 5 5 6 6 6 4 4 10 10 5 5 5 5 6 6 4 4 10 10 5 5 5 5 6 6 6 6 6 6 6 7 11 10 10 5 5 5 5 6 6 6 6 6 7 10 10 5 5 5 5 6 6 6 6 6 7 10 10 5 5 5 5 6 6 6 6 6 6 6 7 10 10 5 5 5 5 6 6 6 6 6 6 7 10 10 5 5 5 5 6 6 6 6 6 6 7 10 10 5 5 5 5 6 6 6 6 7 10 10 10 10 5 5 5 6 6 6 6 6 6 6 7 10 10 10 5 5 5 6 6 6 6 6 6 7 10 10 10 10 10 10 10 10 10 10 10 10 10	10 5 5 4 4 4 4 7 7 4 4 5 5 4 4 7 7 4 4 10 0 5 5 4 4 10 0 5 5 4 4 17 10 0 10 0 10 10 10 10 10 10 10 10 10 10	0 0 0 0 0 0 0 0 0 0 0 0 0 0	31 Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 07Aug1 3 07Aug1 3 24Aug1 3 24Aug1 3 26Aug1 3 26Aug1 3 27Aug1 3 27	13Aug13 12Aug13 12Aug13 24Aug13 20Aug13 27Aug13 27Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 23Aug13 08Aug13 23Aug13 07Aug13 28Aug13 08Aug13 28Aug13 11Sep1	0 0 0 16 14 14 14 14 0 0 0 0 0 0 0 0 0 0 0 0 0 0		
<ul> <li>A2160</li> <li>A2170</li> <li>A2180</li> <li>A2170</li> <li>A2180</li> <li>A2190</li> <li>A2200</li> <li>A2300</li> <li>A2000</li> <li>A2000</li> <li>A2300</li> <li>A2000</li> <li>A2000</li> <li>A2300</li> <li>A2400</li> <li>A2410</li> <li>A2430</li> <li>A2440</li> <li>A2450</li> <li>A2450</li> <li>A2460</li> <li>A2480</li> <li></li></ul>	Detail Steel S2L4/5-2 Erect & Grout Precast Planks S2L4/5-1 Erect & Grout Precast Planks S2L4/5-2 Install Topping Slab S2L4 Install Topping Slab S2L4 Install Steel AL4 Install Steel S2L5 Install MEP Hanger S2L5 Reof, PH Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Detail Steel S2L6/PH-1 Erect Steel S2L6/PH-1 Erect Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-2 Detail Steel S2L6/PH-1 Erect & Grout Precast Planks S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Erect & Grout Precast Planks S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Install Steel S2L6/PH-2 Erect Govername FREP Interior Footing S2L2 Install Spray Freproofing S2L2 Erect Columns S4 Weterpoof Foundations S4 Backfill S4 Erect Columns & Steel S4L1 S0D S4L1 Install MEP Hangers S4L1 Install MEP Hangers S4L1 Erect Steel S4-R Deck & Detail Steel S4-R Pace S0E S4L1 Erect Steel S4-R Pace S0E S4-R	10 5 5 4 4 5 4 4 5 4 4 5 4 4 5 5 5 5 5 4 4 10 0 5 5 5 4 4 10 0 5 5 5 5 4 4 10 10 5 5 5 5 4 4 10 10 5 5 5 5 6 4 11 11 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5	10 5 5 4 4 4 4 4 4 4 4 5 5 5 4 4 4 11 1 10 0 0 5 5 5 5 5 4 4 4 11 10 0 0 5 5 5 5 5 6 6 6 6 6 6 6 6 6 6 6 6	022 022 022 022 022 022 022 022	31Juli 2 06Aug1 3 06Aug1 3 06Aug1 3 06Aug1 3 05Aug1 3 05Aug1 3 03Sep1 3 24Aug1 3 28Aug1 3 28Aug1 3 05Sep 13 28Aug1 3 28Aug1 3 28A	13Aug13 12Aug13 12Aug13 12Aug13 27Aug13 27Aug13 27Aug13 065ep13 22Aug13 05sep13 12Sep13 22Aug13 03sep13 12Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 22Aug13 05sep13 10Sep13 10Sep13 22Aug13 06Aug13 22Aug13 06Aug13 22Aug13 22Aug13 06Aug13 22Aug13 06Aug13 22Aug13 06Aug13 23Aug13 06Aug13 23Aug13 07Aug13 06Aug13 23Aug13 13Hap13 23Aug13 13Hap13 22Aug13 13Hap13 23Aug13 13Hap13 23Sep13 07Aug13 06Aug13 23Sep13 13Hap13 07Aug13 06Aug13 23Sep13 13Hap13 13Hap13 13Hap13 13Hap13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug13 08Aug13 13Sep13 07Aug1	0 0 0 16 14 14 14 17 17 16 14 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		



Figure 11: Baseline Schedule (Continued)



Figure 12: As-Built Remaining Critical Activities

The reason for the two backfilling activities taking much longer than expected can be attributed to the fact that the design drawings for Sheehan Hall were delayed by a month. This resulted in the electrical subcontractor not being able to plan ahead and understand the scope of the work as well as they could have. The delay in the design drawings also impacted the erection of steel for the roof of the cafeteria (Section 4), since the design for that particular roof was significantly different from all the other roofs (Consigli, 2013). The excavation for the footings and foundations of the west building (Section 3) taking longer than expected is not surprising because any type of geotechnical or site work can be highly variable depending on the conditions of the ground.

Baselir	ne vs. As Bu	uilt		
Activity Name	Original Duration	Actual Duration	Planned Start	Actual Start
FREP Interior Footings S1	2	7	4/4/2013	4/12/2013
Backfill/ Compact/ Underslab MEPs S1-	<mark>15</mark>	<mark>65</mark>	7/15/2013	7/2/2013
Place SOG S1-LL	1	5	8/5/2013	10/16/201 3
Erect Steel S1-L1/3-2	2	4	5/17/2013	5/20/2013
Erect & Grout Precast Planks S1-L1/3-1	5	10	5/28/2013	5/29/2013
Erect & Grout Precast Planks S1-L1/3-2	5	9	5/30/2013	6/3/2013
Install Spray Fireproofing S1-L3	4	5	8/14/2013	8/13/2013
Erect Steel S1-L4/5-2	2	3	6/6/2013	6/11/2013
Erect Steel S1-R-2	2	3	6/27/2013	6/24/2013
Erect & Grout Precast Planks S1-R	1	6	7/3/2013	7/8/2013
Excavate for Footings & Foundations S3	10	20	<mark>4/1/2013</mark>	<mark>4/1/2013</mark>
FREP Footings S3	5	8	4/15/2013	4/16/2013
FREP Interior Footings S3	1	4	4/22/2013	5/20/2013
FREP Foundations S3	10	15	4/22/2013	4/29/2013
Backfill/Compact/Underslab MEPs S3	<mark>15</mark>	<mark>35</mark>	7/15/2013	7/15/2013
Erect Steel S3-L1/3-2	1	2	5/24/2013	5/24/2013
Erect Steel S3-L4/5-2	2	4	6/11/2013	6/14/2013
Parapet Framing & Sheathing S3-R	10	13	7/19/2013	8/19/2013
Excavate for Footings & Foundations S2	10	11	4/15/2013	4/16/2013
FREP Footings S2	4	10	4/29/2013	5/3/2013
Waterproof S2	<mark>15</mark>	<mark>52</mark>	<u>5/31/2013</u>	<u>5/20/2013</u>
Erect Steel S2-L1/3-2	3	4	7/16/2013	7/16/2013
Erect & Grout Precast Planks S2-L1/3-1	5	7	7/25/2013	7/24/2013
Erect & Grout Precast Planks S2-L1/3-2	5	8	7/26/2013	7/25/2013
Install Spray Fireproofing S2-L4	4	6	9/3/2013	9/5/2013
Erect & Grout Precast Planks S2- L6/PH-2	5	7	8/21/2013	8/26/2013
Parapet Framing & Sheathing S2-R	10	19	8/28/2013	9/16/2013
FREP Footings S4	3	4	5/3/2013	6/17/2013
FREP Interior Footing S4	1	3	5/8/2013	7/2/2013
Erect Columns & Steel S4-L1	3	10	8/22/2013	9/2/2013
Erect Steel S4-R	2	20	8/27/2013	9/2/2013

## Table 1: Baseline vs. As-built

### **3.4 Uses of BIM**

One of the main purposes of BIM for this study is to provide a visual comparison of Consigli's baseline and as-built schedules, in the form of an animation of the construction. In order to do so, a 3D Revit model of the structure obtained from Consigli was initially supposed to be integrated with the schedule and cost to create a 5D model. However, due to a delay in obtaining the structural Revit model, Consigli's original BIM model that was used for coordination purposes was integrated with the schedule and cost instead. This BIM model was obtained from Consigli's BIM expert, Jack Moran, in the form of an Autodesk Navisworks file. The 3D model that had already been imported into the Navisworks file was in the form of a Tekla model (Tekla is a BIM modeling tool used primarily for steel and concrete detailing and fabrication). Since the Tekla model was a steel fabrication model, it contained numerous details such connections and bolts, as well as detailing for the steel. Being a BIM model that was used for coordination, the model also included the architectural components, as well as all the other building systems such as HVAC, MEP, plumbing, etc. For the purposes of this study, the model was limited to show just the foundations and the structure by hiding all the other systems and components.

Once all the other systems and components were hidden in the model, the next step was to import the baseline schedule that had already been updated with the as-built dates in Primavera. Although Navisworks directly supports Primavera files to be imported, a software add-on that allows Navisworks to access the Primavera online database needs to be installed locally on the computer to be used. Due to the fact that students do not have the permission to install software applications on school computers at WPI, an alternate format was considered to import the schedule into Navisworks. The schedule from Primavera was first exported as a

Microsoft Project (.mpx) file, which could then be imported into the TimeLiner function of Navisworks with the click of a button (TimeLiner is the function in Navisworks that allows a schedule to be imported and integrated with the 3D model).

After the schedule had been successfully imported, the next step was to divide the objects from the 3D structural model into sets. These sets had to correspond to the activities and their sequencing on the schedule because the sets will be attached to the activities in order to create an animation of the construction of the building. Consigli, for the purpose of construction, had decided to divide the entire building into four different sections, three large ones and one small one. Each of the three large building sections were erected two floors at a time, in two separate phases. For example, half of the bays of the first two floors were first erected, followed by the other half of the bays of both floors. Then, the next two floors would be erected, also half at a time. The sets created had to match this construction sequencing so that the animation of the construction of the building will match the way the building was actually built on site. Once the entire structural model had been divided into sets, the model and schedule can then be integrated to obtain a 4D model.

In order to integrate the model with the construction schedule, each of the sets that had been created were assigned to individual activities on the schedule in TimeLiner. **Figure 13** shows the baseline versus as-built schedule in TimeLiner, with the sets (in blue text), attached to some of the activities, on the right. The reason for not all the activities being attached to sets is that the level of detail contained in the schedule is much higher than the level of detail of the 3D model. For example, the 3D model does not contain objects that correspond to activities such as backfilling, waterproofing, installation of fireproofing, etc. As a result, of the 128 total activities on the schedule, only 49 had sets attached to them.

TimeLine	er									
Tasks	s Data	Sources Configure Simulate								
A	dd Task	😫 瘫 • 🙀 🙀		· • • • • • • • • • • • • • • • • • • •	• =• 🖵 [	•		Zoom: —		
A	ctive	Name	Status	Planned Start	Planned End	Actual Start	Actual End	Task Type	Attached	Total Cost
	<b>V</b>	FREP Footings S3		4/15/2013	4/19/2013	4/16/2013	4/26/2013	Construct	Sets->53 Foundations->53 Footings	152,689.79
	<b>V</b>	FREP Interior Footings S3		4/22/2013	4/22/2013	5/20/2013	5/24/2013			
	<b>V</b>	FREP Foundations S3		4/22/2013	5/3/2013	4/29/2013	5/20/2013	Construct	Sets->53 Foundations->53 FREP Foundations	145,716.39
	<b>V</b>	Waterproof 53		5/10/2013	5/23/2013	5/13/2013	5/24/2013			
	<b>V</b>	Backfill/Compact/Underslab MEPs S3	-	7/15/2013	8/2/2013	7/15/2013	9/2/2013			
	<b>V</b>	Place SOG 53		8/5/2013	8/9/2013	9/18/2013	9/25/2013	Construct	Sets->53 Foundations->53 SOG	112,750.28
	<b>V</b>	3rd Floor		N/A	N/A	N/A	N/A			
	<b>V</b>	Install Topping Slab 53-L3		6/28/2013	7/3/2013	7/10/2013	7/12/2013			
	<b>V</b>	Install Spray Fireproofing 53-L3		8/8/2013	8/13/2013	8/22/2013	8/23/2013			
	<b>V</b>	Floors 4 & 5		N/A	N/A	N/A	N/A			
	<b>V</b>	Erect Steel S3-L4/5-1		6/10/2013	6/10/2013	6/13/2013	6/14/2013	Construct	Sets->53 Steel->53 L4/5-1	160,915.11
	<b>V</b>	Erect Steel S3-L4/5-2		6/11/2013	6/12/2013	6/14/2013	6/20/2013	Construct	Sets->S3 Steel->S3 L4/5-2	95,214.85
	<b>V</b>	Detail Steel S3-L4/5-1		6/11/2013	6/25/2013	6/17/2013	7/1/2013			
	<b>V</b>	Detail Steel 53-L4/5-2		6/12/2013	6/26/2013	6/18/2013	7/2/2013			
	<b>V</b>	Erect & Grout Precast Planks 53-L4/5-1		6/19/2013	6/25/2013	6/27/2013	7/3/2013	Construct	Sets->53 Precast->53 L4/5-1	82,531.25
	1	Erect & Grout Precast Planks 53-L4/5-2		6/21/2013	6/27/2013	6/28/2013	7/3/2013	Construct	Sets->S3 Precast->S3 L4/5-2	95,500.44
		Figur	e 13	3: Basel	ine vs.	As-buil	t Time	Liner <b>S</b>	Schedule	

Once all the sets had been attached to activities, the "Task Type" for each activity that has a set attached to it was set to "Construct." This tells TimeLiner to animate the construction of the activity and the set attached to it on the 4D model. The next step before running the animation was to assign costs to the activities that will be constructed. In order to do this, a quantity take-off was performed for each set using Navisworks' Quantification function. Once the quantity and volume of all the objects in each set was known, the cost for each set was calculated based on the per unit prices of materials calculated from Consigli's cost packages. The costs can then be assigned to their corresponding activities and sets in TimeLiner to complete the 5D model.

The last step of creating the visual schedule comparison was to configure the animation in such a way that objects that were constructed as planned appear in green, those that were constructed earlier than planned appear in yellow, and those that were constructed later than planned appear in red. However, for this to work, the view in the Animation Settings of TimeLiner must be set to "Planned against Actual" so that the animation shows a comparison of the baseline and as-built schedules. Such color coding makes it easier to visually identify any variances between the two schedules. At this point, the animation was ready to be run, and an animation file can be exported from Navisworks in the form of a Windows AVI file. **Figures 14** through **18** below show screenshots of the construction of Sheehan Hall along the timeline of the 5D model. Information such as the day, date, and total costs up to that date are shown in the upper left corner of the animation.



**Figure 14: Baseline vs. As-Built Animation 1** 

















# **4.0 Structural Design Overview**

For this project, we examined the differences between two types of structural floor system designs pertaining to the development and construction of multi-story residential buildings. Also through our examination we have identified the construction and design applications of these two different but related floor systems. Our project dealt with evaluating WSU's new residential building "Sheehan Hall" and its modernized construction and design process and comparing it to a more traditional method of construction. The most significant difference between both types of design, of which will be explained in greater detail in this section, is the transformation of building materials from the modern usage of hollow-cored precast concrete planks partnered with dissymmetric open-web steel beams to the most commonly seen and traditional design of a reinforced cast-in-place concrete slab on metal decking. Throughout this project we have outlined the significance of changing a design's construction materials and its impacts to the overall design, construction, cost and scheduling process. For our design, instead of using a girder-slab system with the existing steel frame setup, we were tasked with modifying the existing frame into more of a skeletal steel frame. Skeletal steel frames are designed so that all structural steel can transmit all of the dead loads and live loads from the roof down through the steel beam and column framework and into the foundations (Construction Field, 2011). This type of framework is commonly used today in many commercial and industrial builds as well as for buildings with two or more stories (Construction Field, 2011). Below is a list of many of the advantages as well as the disadvantages for using steel frame construction (Construction Field, 2011):

#### Advantages

- Consistent material quality
- Light weight and very strong
- Non-Combustible material
- Dimensionally stable in any climate
- Insect resistance very good and steel will not rot
- Can be used to build very tall and wide structures (used in some of the tallest buildings in the world)
- Prefabricated- allows for quick assembly
- Precise and predictable with excellent quality control

#### Disadvantages

- Steel is an expensive material (more costly than masonry or concrete)
- Frames can become unstable without proper bracing
- Need for fire protection

The next major component of our design is reinforced concrete (C.I.P.) floor slabs. This building material is almost always used with steel-framed buildings (McCormac & Csernak, 2012). The reinforced concrete offers exceptional strength, as well as great fire ratings; furthermore, concrete is noncombustible and provides an insulated barrier between building floors. Consequently, concrete floors are heavy, they require reinforcement to boost its strength properties, and they can be difficult to make waterproof. Below is a list of commonly used concrete floor systems supported by steel frames:

- Concrete slabs supported with open-web steel joists.
- One-way and two-way reinforced concrete slabs supported on steel beams.
- Concrete slab and steel beam composite floors.
- Concrete-pan floors.
- Steel-decking floors.
- Flat slab floors.
- Precast concrete slab floors.

When selecting a concrete floor system there are many factors that must be considered such as loads, fire rating code regulations, sound and heat transmission code regulations, ceiling types, MEP concealment, time restraints for construction, etc. To begin the design process, a floor system is chosen in the architectural design that most adequately meets the project building's requirements in the most economical manner (i.e. the architect selects the best suited floor system at the cheapest construction cost). For WSU's dormitory project "Sheehan Hall" a Precast Concrete Girder-Slab system was chosen as it offers speedy construction, a lighter structure and a more efficient use of construction materials as well as labor. There are many alternatives to this system that may offer other advantages, but at the same time it is important to note that this can substantially affect the project's total cost of construction or even impact the project's schedule. The goal of an architect is to design a building that meets the specified requirements of the owner, while choosing from a multitude of designs. For our Project (as previously indicated above), we proposed an alternative floor system using reinforced CIP concrete on 20 gage metal decking. Additionally, our alternative design adds K-series open-web steel joists on top of our altered steel frame meant for supporting the extra-anticipated weight of our slab on deck system.

### 4.1 Structural Design Criteria and Baseline Loads

The design loads are critical to the structural analysis of a building. The design criteria for the analysis were provided by the structural engineer and are outlined for the entire building in the structural general notes and schedules (S0.00 in plan set). The applicable code identified is the Massachusetts State building code – 8th edition. The performance requirements for Sheehan Hall are outlined in the project specifications (Structural section). For this project, all structural design calculations will follow the allowable stress design (ASD) requirements and standards. The service-load levels to be used are identified in the structural plans. For a conservative analysis of the floor and roof systems, wind loads were not included in the analysis, as they generally provide uplift to the roof system, which counteracts the gravity loads. Other loads that were neglected for this design were seismic loads, as their major effect is on the frame of a building. The design live loads that were used for analysis can be seen below in Table 2.

**Table 2: Design Live Loads** 

Occupancy Loads	First Floor	Second Floor	Residences	Mechanical Roof
Live Load	100	100	40	100

The next step was to determine the dead load for the floor system of the building. To do this, the Vulcraft catalog was used for obtaining the dead load of a 3 3/4 inch normal weight concrete slab on 1 <sup>1</sup>/<sub>2</sub> inch 20-gage steel decking carrying a dead load of 63 psf as indicated by the design load table for 150 Pcf concrete ("Vulcraft steel deck," 2008). The current floor system

on floors two through six consists of normal weight concrete on steel decking. Each of the floors have been subdivided into 3 groups based on their anticipated loads as well as for their expected occupancy/layouts. These groups are used throughout the entire design process as they help to reduce the overall difficulty of the design and the time needed for manual calculations, which can be referenced throughout the appendices section. The groups are as follows: floors one to three, floors four to six and both the lower roof and upper level mechanical penthouse roof.

For our roofs there is a 1 1/2 inch 20 gage steel decking without concrete. The weight of the steel used for each roof dead load was 2.14 psf, which was based on the weight of the steel decking only. The insulation on top of the steel deck is neglected, as the weight of the insulation was not significant. Snow loads were provided by the design criteria located in the structural drawings (S0.00); however the snowdrift calculations were not included resulting in the need of a manual calculation. After our snowdrift load was calculated at maximum intensity using information provided by the Massachusetts State Building Code on snow loads ("Structural Loads,"2001), the maximum drift was then applied to the entire roof system to ensure that the design satisfies the worst possible snow conditions (see **Appendix J**). The maximum load was found to be for leeward drift, which was 151.56 psf, which is a very substantial live load for the design of a roof system. This load would be applied to the entire roof area as a snow load and additionally, the snowdrift calculations need to be included for review as specified in ASCE 7 (Minimum Design Loads for Steel Buildings), a standard code for the design of snow loads.

After determining all the service loads for the floors and roof systems, the ASD load combinations provided in the IBC (International Building Code) section 1605.3.1 were then used for determining our factored combined loads. After obtaining our combined factored loads for

all levels, we were then able to being the structural design process. Below is a 3-Dimensional representation (**Figure 19**), created using Revit 2014, of our complete alternative design which includes the following features: Our CIP concrete slabs on metal deck, our modified skeletal steel framing system and our new addition of the K-series open-web steel joists.



**Figure 19: Complete Revit Structural Model** 

Design Load Criteria												
(D) total design dead load (Psi)	47.14	124	81.1	37.1								
E	0	0	0	0								
F	0	0	0	0								
L (Psi)	0	0	0	0								
Lr	0	100	0	0								
S	151.56	0	151.56	151.56								
W(Neglected)	0	0	0	0								
R (normal load due to rainwater or Ice)	0	0	0	0								
DL + LL	198.7	224	232.66	188.66								

**Table 3 Design Load Criteria** 

Floors 1-3: (30'x30') ASD Load Combinations- Baseline												
Equations	Office	Residence										
D	76	76										
D + L	176	114										
D + (Lr or S or R)	76	74										
D + .75(L) + .75(Lr or S or R)	151	104										
D +(.6W or .7*E)	76	74										
D + .75(.6W or .7E) + .75(L) + .75(Lr or S or R)	151	104										
.6(D) + .6(W)	45.6	44.4										
.6(D) + .7(E)	45.6	44.4										
Governing Load	176	114										

Table 4: Factored Loads for Levels 1 - 3

Our design loads were provided by the structural engineer and shown in the structural detail sheet (S0.00). The tables above are used to illustrate the most critical loading scenario for levels one through three (Table 2) and also illustrates the design criteria for all load types used for obtaining our factored load (Table 3). This table only refers to the first three levels because they are assumed to experience similar types of loads as a result of their architectural design along with their expected usage and occupancy. After we calculated our critical loading case, which resulted from our combined dead and live loads, we concluded that the office areas were our critical loading area. Finally, after finding where our most critical loads would be located, we designed each of the first three levels to withstand our factored load of 176 psf through both the steel frame and joists design process.

For this project it was important that we checked the capacity of all existing steel members because our alternative design was expected to be slightly heavier as a result of our floor's material change from hollow-cored precast planks to a CIP reinforced concrete slab. Therefore, we assumed that our alternative design would receive higher gravity loads to be supported by the frame, which would ultimately make the existing frame design less desirable while also creating the possibility for failure to occur. To avoid any type of failure from occurring, we conservatively addressed this concern by reselecting new steel members with higher capacities and replaced nearly all of the existing steel with them, ultimately resulting in a partially new frame design.

Our dead load used during the design of the first three levels consisted of the following components: the weight of our reinforced concrete slab and the 20 gage steel decking; furthermore we tried to enhance the precision of our design by factoring an additional 25 psf to account for other attributes of the building such as ceilings, mechanicals, ECT. This same approach would be taken for the design of the next 3 levels with the only difference being in the amount of loading, which can be seen in the corresponding load table in **Appendix J**.

Floors 4-6: (30'x30') ASD Load Combinations- Baseline											
Equations	Office	Residence									
D	76	76									
D + L	176	116									
D + (Lr  or  S  or  R)	76	76									
D + .75(L) + .75(Lr  or  S  or  R)	151	106									
D +(.6W or .7*E)	76	76									
D + .75(.6W or .7E) + .75(L) + .75(Lr or S or R)	151	106									
.6(D) + .6(W)	45.6	45.6									
.6(D) + .7(E)	45.6	45.6									
Governing Load	176	116									

 Table 5: Factored Loads for levels 4 - 6

## **4.2 Structural Steel Frame**

	Floors 1-3 Frame Design													
Bay Size	Trib. Spacin g (ft)	Span Length L (ft)	W <sub>u</sub> (klf)	M <sub>max</sub> (k-ft)	M <sub>n</sub> = (Fy *Zx) (ksi)	I <sub>x</sub> (in <sup>4</sup> )	Z <sub>x, Actual</sub> (in <sup>3</sup> )	$Z_{x,Min} (in^3).$ $=$ (1.67*M <sub>max</sub> )/F	M <sub>allow</sub> = (M <sub>n</sub> /1.67) (Kips)	Deflection Check:1 =D ≤ (L/240)	Deflection Check:2 =D ≤ (L/360)	Beam Selection &(#) of members	Total Wt of Steel (Lbs)	
28'-9" x 29'-2 1/4"	7.30	28.75	1.54	158.745	277.083	510.0	66.50	63.62	165.918	0.08148	0.01504	(4) W18x35	4025	
28'-9" x 22'-7 3/4"	7.55	22.65	1.54	98.561	277.083	510.0	66.50	39.50	165.918	0.02979	0.00579	(3) W18x35	2378.25	
29'-2 1/4" x 24'-0"	7.30	24.00	1.46	105.467	197.083	291.0	47.30	42.27	118.014	0.06433	0.01280	(4) W14x30	2880	
22'-7 3/4" x 24'-0"	8.00	22.65	1.63	104.816	197.083	291.0	47.30	42.01	118.014	0.05251	0.01015	(3) W14x30	2038.5	
24'-0" x 20'-7 5/8"	8.00	20.64	1.61	85.969	179.583	238.0	43.10	34.46	107.535	0.04341	0.00856	(3) W12x30	1857.6	
29'-6" x 22'-7 3/4"	7.40	22.65	1.47	94.449	179.583	238.0	43.10	37.86	107.535	0.06158	0.01241	(4) W12x30	2718	
29'-6" x 20'-7 5/8"	7.40	20.64	1.46	77.626	179.583	238.0	43.10	31.11	107.535	0.04177	0.00856	(4) W12x30	2476.8	
28'-9" x 23'-11"	7.20	23.92	1.45	103.450	197.083	291.0	47.30	41.46	118.014	0.06358	0.01262	(4) W14x30	2869.92	
13'-9" x 20'-7 5/8"	6.90	13.75	1.32	31.097	122.083	156.0	29.30	12.46	73.104	0.01190	0.00257	(3) W12x22	907.5	
13'-9" x 8'-6 5/8"	4.60	8.55	0.87	7.974	122.083	156.0	29.30	3.20	73.104	0.00176	0.00038	(3) W12x22	564.3	
9'-3" x 22'-7 3/4"	7.55	9.25	1.40	14.937	122.083	156.0	29.30	5.99	73.104	0.00232	0.00053	(3) W12x22	610.5	
9'-3" x 29'-2 1/4"	7.30	9.25	1.34	14.286	122.083	156.0	29.30	5.73	73.104	0.00228	0.00053	(4) W12x22	814	

#### Table 6 Steel Frame Design Levels 1 - 3

The design of the Structural steel frame on the Roof level was designed to accommodate the critical loading case being the "Green Roof" as it is exposed to the highest total load of the three types of roofs listed above and also, that its design loads will be used throughout all roof calculations for the entirety of the roof level (with the exception of the Mechanical Penthouse Roof). The reason for not including the Mech. Penthouse roof in the table above is mainly due to the types of loading that each of the different roofs would need to be designed to withstand. As it can be seen in the above tables entitled, "30'x30' ASD Load Combinations Baseline", the only roof not experiencing a Snow load of 151.56 psf is the Mechanical Penthouse Roof. Additionally, it can also be seen that the mechanical penthouse roof is again the only roof experiencing a roof live load of 100 psf. Each roof is exposed to a dead load that varies from 47.14 psf to 124 psf, this variation corresponds to the type of roof and its required building materials and components. Each of the design loads discussed above were used throughout all steel frame calculations on the roof level.

#### 4.2.1 Structural K-Series Open-Web Joist

The use of open-web steel joists are a very common practice for steel-frame buildings as they allow for easier installation of metal decking and a stronger supporting surface for concrete slabs to be placed on (McCormac & Csernak, 2012). These k-series joists consist of small parallel chord trusses that are made up of members of bar, small angles, or other rolled steel shapes, as displayed in **Figure 20** below. Steel decking is then typically attached to the joists through a welded or self-drilled/self-tapped screw connection. The use of steel joists is a very economical and lightweight type of concrete floor system. Additionally, Open-web steel joists are ideal for relatively light loads and structures that do not have much vibration (McCormac & Csernak, 2012). They are well suited for low-level buildings, but they can be used in tall building constructions as well. The bar joists must be braced laterally to prevent twisting and buckling, using either horizontal rods fastened to the top and bottom chords of the joists or diagonal cross bracing.

The use of open-web steel joists are a very common practice for steel-frame buildings as they allow for easier installation of metal decking and a stronger supporting surface for concrete slabs to be placed on (McCormac & Csernak, 2012). These k-series joists consist of small parallel chord trusses that are made up of members of bar, small angles, or other rolled steel shapes, as displayed in Figure -. Steel decking is then typically attached to the joists through a welded or self-drilled/self-tapped screw connection. The use of steel joists is a very economical and lightweight type of concrete floor system. Additionally, Open-web steel joists are ideal for relatively light loads and structures that do not have much vibration (McCormac & Csernak, 2012). They are well suited for low-level buildings, but they can be used in tall building constructions as well. The bar joists must be braced laterally to prevent twisting and buckling,

using either horizontal rods fastened to the top and bottom chords of the joists or diagonal cross bracing.



Figure 20: K-Series Open-Web Joist Diagram

Open-web joists are very quick to erect and easy to handle. Furthermore, they provide open spaces in the web that can be used to conceal MEP (McCormac & Csernak, 2012). They also offer the ability to accommodate a variety of geometric configurations that a typical steel beam cannot. The open-web bar joists offer advantages that an I-beam or other typically used steel beam cannot. However, there are some disadvantages to open-web bar joists. For instance, they need to be pre-manufactured for the job, and may not offer the same desirable strength capacity as an I-beam. It is very important to account for all possible design approaches along with any advantages/disadvantages they could have before choosing any kind of steel to support a floor system.

#### 4.2.2 Joist Design

Open-web bar joists are designed by a number of different joist manufacturers. The Steel Joist Institute (SJI) is a United States based nonprofit organization of active joist manufacturers who address the lack of uniform joist standards for the industry (Steel Joist Institute, 2010). SJI also offers seminars along with a multitude of training and research aids. After looking into the information offered by the SJI a manufacturer of the steel needed to be chosen, as the bar joists are unique to their manufacturer. Some of the major manufacturers that are recognized by the SJI are Nucor Vulcraft, Canam Steel Corp, and SMI Joist Company (Delhi University). For this project our group chose to reference Nucor Vulcraft Group information in the design of the joist floor system as they have a large number of catalogues available online.

A major advantage of using Vulcraft was that they offer multiple catalogues for each of the different types of steel products that they produce. Three main catalogues that we used were the Composite and Non-composite Joists, Steel Joists and Girders, and Steel Roof and Floor Deck. Using the steel deck catalogue a dead weight for the 20 gage steel and normal weight concrete slab was found to be 63 pounds square foot ("Vulcraft steel deck," 2008). This number would be carried throughout the design of the floor systems. The catalogue was also used to determine the weight of the steel deck for the purpose of calculating the roof dead load. The other design loads to be used in the selection of the open-web bar joists would be the building's service live loads, snow loads, and snowdrift loads discussed previously. All other loads were neglected, as they do not have a major effect on the design and performance of the floor systems. The design of the floor system consisted of K series standard joists that range from 16 inches to 22 inches in depth due to the floor-ceiling clear height that maintained as much as possible instead of choosing the lightest selection. The first step in the design of the joists is determining what size joist to use. To do so the spacing between the joists is determined so that the joists will satisfy the magnitude of the floor load over a given span. The spacing can range from 2 feet to 10 feet (Ching, 2008). Furthermore, the joists spans are limited to 24 times their depth. The spacing of the joists used in our design was the maximum possible spacing for a joist spanning a given distance in order to minimize the number of joists. **Figure 21** below shows K series joists and the different types of bridging.



**Figure 21: Types of Steel Joist Bridging** 

It is important to verify that the steel decking is able to support the newly designed joist spacing for both the decking and the slab. As specified in the Vulcraft Steel Deck catalogue, it provides alternative live load information for reinforced concrete slabs. It can be seen in the catalogue that for the 20 gage galvanized steel decking the capacity increases with a decrease in the clear span between beams. We confirmed that the steel decking was sufficient for up to a 12-foot clear span in our revit model; therefore our decking would then be sufficient for our smaller designed spacing. The spacing of the joists range from 2 ½ feet to about 3 feet, so the 20 gage steel would easily be able to maintain its structural integrity, also suggesting that the use of a lighter steel decking could possibly be used of support the loads at a 3 foot span. However, for the design of this system the 20 gage steel decking will be used in the structural analysis.

After determining the spacing of the joist the next step was selecting the correct joist to be used. This was done by listing the possible joists that met the load criteria at a proposed spacing and choosing the option with the smallest depth due to the architectural restriction mentioned above. The Vulcraft catalogue was used to find the possible joists over a given span. For a given joist size, the catalogue would display a maximum total allowable load for the corresponding joist (listed in black) and also the maximum allowable live load (listed in red), as a function of the span which can be seen below in **Figure 22**.

For rectangular bays to achieve the design's maximum strength, the joists were oriented to span in the short direction and are to be spaced along the long dimension (Lecture 18-open web). The design of a 30-foot by 30-foot bay was used to review this guideline as it would ensure that our 28' 9" by 29' 2 1/4 " would be more than adequate. This was chosen, as the width and length of the bays are fairly similar. After checking manually, it was confirmed that the joists

are more efficient when orientated in the short spanning direction. An important note is that when there is a greater difference in length and width, that it will only be magnified. For all other designs the spanning direction was carried out in each bay design, and a bar joist was chosen for each bay as seen in **Figures 23, 24, 25, 26, 27, 28, 29,** and **30**. **Table 7** below is a summary of all of the open-web joist designs for the bay systems of the building. The column outside the figure shows the reference page in **Appendix I** for review of the supporting calculations.

	STANDARD LOAD TABLE FOR OPEN WEB STEEL JOISTS, K-SERIES																				
	Based on a 50 ksi Maximum Yield Strength - Loads Shown In Pounds Per Linear Foot (plf)																				
Joist	18K3	18K4	18K5	18K6	18K7	18K9	18K10	20K3	20K4	20K5	20K6	20K7	20K9	20K10	22K4	22K5	22K6	22K7	22K9	22K10	22K11
Designation																					
Depth (In.)	18	18	18	18	18	18	18	20	20	20	20	20	20	20	22	22	22	22	22	22	22
Approx. Wt.	6.4	7.2	7.7	8.4	8.9	10.1	11.6	6.5	7.2	7.7	8.4	8.9	10.1	11.6	7.3	7.7	8.5	9.0	10.2	11.7	11.9
(lbs./ft.)																					
Span (ft.)																					
+																					
18	550	550	550	550	550	550	550														
	550	550	550	550	550	550	550														
19	514	550	550	550	550	550	550	550	550	550	550	550	550	550							
	494	523	523	523	523	523	523	550	550	550	550	550	550	550							
20	463	550	550	550	550	550	550	517	550	550	550	550	550	550							
	423	490	490	490	490	490	490	517	550	550	550	550	550	550							
21	420	506	550	550	550	550	550	468	550	550	550	550	550	550	550	550	550	550	550	550	550
	364	426	460	460	460	460	460	453	520	520	520	520	520	520	550	550	550	550	550	550	550
22	382	460	518	550	550	550	550	426	514	550	550	550	550	550	550	550	550	550	550	550	550
	316	370	414	438	438	438	438	393	461	490	490	490	490	490	548	548	548	548	548	548	548
23	349	420	473	516	550	550	550	389	469	529	550	550	550	550	518	550	550	550	550	550	550
	276	323	362	393	418	418	418	344	402	451	468	468	468	468	491	518	518	518	518	518	518
24	320	385	434	473	526	550	550	357	430	485	528	550	550	550	475	536	550	550	550	550	550
	242	284	318	345	382	396	396	302	353	396	430	448	448	448	431	483	495	495	495	495	495
25	294	355	400	435	485	550	550	329	396	446	486	541	550	550	438	493	537	550	550	550	550
	214	250	281	305	337	377	377	266	312	350	380	421	426	426	381	427	464	474	474	474	474
26	272	328	369	402	448	538	550	304	366	412	449	500	550	550	404	455	496	550	550	550	550
	190	222	249	271	299	354	361	236	277	310	337	373	405	405	338	379	411	454	454	454	454
27	252	303	342	372	415	498	550	281	339	382	416	463	550	550	374	422	459	512	550	550	550
	169	198	222	241	267	315	347	211	247	277	301	333	389	389	301	337	367	406	432	432	432
28	234	282	318	346	385	463	548	261	315	355	386	430	517	550	348	392	427	475	550	550	550
	151	177	199	216	239	282	331	189	221	248	269	298	353	375	270	302	328	364	413	413	413
29	218	263	296	322	359	431	511	243	293	330	360	401	482	550	324	365	398	443	532	550	550
	136	159	179	194	215	254	298	170	199	223	242	268	317	359	242	272	295	327	387	399	399
30	203	245	276	301	335	402	477	227	274	308	336	374	450	533	302	341	371	413	497	550	550
	123	144	161	175	194	229	269	153	179	201	218	242	286	336	219	245	266	295	349	385	385

ASD

Figure 22: Standard ASD Steel Joist Design Load Table

Proposed Open-Web Bar Joists											
	Bay Size	Live Load	Proposed Selection	Wt / Ft (lb/ft)	Span Length	Spacing	# of Joists	Total (Lbs) of Joists			
	24'-0" x 22'-7 3/4"	188.78	16K9	10	24	2.517	9	2160			
	13'-9" x 29'-2 1/4"	171.90	20K10	11.6	29.19	2.292	6	2031.624			
	10'-3" x 30'-0 3/8"	192.23	22K10	11.7	30.0313	2.563	4	1405.4648			
	18'-11 1/4"x 30'-0 3/8"	202.95	22K10	11.7	30.0313	2.706	7	2459.5635			
	24'-0" x 29'-2 1/4"	200.03	22K10	11.7	29.19	2.667	9	9221.121			
Roof	28'-9" x 22'-7 3/4"	188.78	20K10	11.6	28.75	2.517	9	3001.5			
	28'-9" x 29'-2 1/4"	196.05	20K10	11.6	29.19	2.614	11	3724.644			
	9'-3" x 22'-7 3/4"	173.48	16K7	8.6	22.65	2.313	4	779.16			
	9'-3" x 29'-2 1/4"	173.48	20K10	11.6	29.19	2.313	4	1354.416			
	29'-6" x 29'-2 1/4"	199.05	22K10	11.7	29.5	2.654	11	3796.65			
	29'-6" x 22'-7 3/4"	188.78	20K10	11.6	29.5	2.517	9	3079.8			
	10'-3" x 10'- 0"	200.00	16K9	10	10.25	2	5	512.5			
	13'-9" x 12'-7 3/4"	180.70	20K10	11.6	13.75	1.807	7	1116.5			
Mechanical	10'-3" x 6'-1 1/4"	152.50	22K10	11.7	10.25	1.525	4	479.7			
Penthouse Roof	10'-3" x 12'-0"	170.80	22K10	11.7	12	1.708	6	842.4			
	13'-9" x 10'-0"	200.00	22K10	11.7	13.75	2	5	804.375			
	9'-3 7/16" x 10'-0"	185.80	18K10	11.6	10	1.858	5	580			
	11'-3 7/16" x 12'-7 3/4"	188.30	20K10	11.6	12.65	1.883	6	880.44			
	28'-9" x 29'-2 1/4"	292	20K10	11.6	29.19	2.92	10	3386.04			
	28-9" x 22-7 3/4"	251.7	20K10	11.6	28.75	2.517	9	3001.5			
	29'-2 1/4" x 24'-0"	300	22K10	11.7	29.19	3	8	8196.552			
	22-7 3/4 x 24-0	285	16K9	10	24	2.85	0	1920			
	24-0 x 20-7 3/8	282	201/10	11.6	24	2 92	0	2727.6			
Floors 4-6	29-6 x 22-7 3/4	285	20K10	11.6	29.5	2.85	8	2757.6			
	29-6 x 20-7 3/8	294	20K10	11.6	29.3	2.94	/	2595.4			
	12' 0" x 20' 7 5/8"	200	1686	× 1	20.75	2.00	7	1170.0045			
	13-9 x 20-7 3/8	294	12K1	5	12 75	2.94	5	242.75			
	9'-3" x 22'-7 3/4"	273	12K1 16K7	86	22.65	2.73	3	1558 32			
	9'-3" x 29'-2 1/4"	203	20K10	11.6	29.19	2.05	10	3386.04			
	28'-9" x 29'-2 1/4"	292	20K10	11.6	29.19	2.92	10	3386.04			
	28'-9" x 22'-7 3/4"	251.7	20K10	11.6	28.75	2.517	9	3001.5			
	29'-2 1/4" x 24'-0"	300	22K10	11.0	29.19	3	8	8196 552			
	22'-7 3/4" x 24'-0"	283	16K9	10	24	2.83	8	1920			
	24'-0" x 20'-7 5/8"	300	16K9	10	24	3	8	1920			
	29'-6" x 22'-7 3/4"	283	20K10	11.6	29.5	2.83	8	2737.6			
Floors 1-3	29'-6" x 20'-7 5/8"	294	20K10	11.6	29.5	2.94	7	2395.4			
	28'-9" x 23'-11"	2.66	18K10	11.6	28.75	2.66	9	3001.5			
	13'-9" x 20'-7 5/8"	294	16K6	8.1	20.635	2.94	7	1170.0045			
	13'-9" x 8'-6 5/8"	275	12K1	5	13.75	2.75	5	343.75			
	9'-3" x 22'-7 3/4"	283	16K7	8.6	22.65	2.83	8	1558.32			
	9'-3" x 29'-2 1/4"	292	20K10	11.6	29.19	2.92	10	3386.04			
	Total Wt of Op	en-Web Bar J	oists (lbs) -Re	oof			3301	3.94331			
Total Wt of Open-Web Bar Joists (lbs) -Mech. Roof 5215.915											
Total Wt of Open-Web Bar Joists (lbs) - Floors 1 - 3 33016.7065											
	Total Wt of Open-	Web Bar Jois	ts (lbs) -Floors	4 - 6			3301	6.7065			
	Total Wt of Propo	sed Open-W	eb Bar Joist	s (lbs)			1042	63.2713			

# Table 7: Proposed Open-Web Bar Joists


Figure 23: Level One Floor Plan



Figure 24: Level Two Floor Plan



**Figure 26: Level Four Floor Plan** 



Figure 28: Level Six Floor Plan



Figure 30: Level 7 Mechanical Roof Plan

It can be seen in the figures above and also for the design of the open web joist system that some bays do not have open-web bar joists. Not all bays in the building are rectangular; therefore the baseline I-beam system was kept intact to ensure it maintained is structural integrity. There are many openings throughout each of the floor systems which were meant to accommodate for ductwork, elevators, stairs, etc. which provided complications to our design design and also to our revit model. Also, the building has many edges with awkward geometry that proved to even further complicate the design process for our open web steel joists. To reduce the complexity of our design these bays with special geometry were also not altered, but the original beam designs were instead just replicated. The entire design of the floor system was changed in order to incorporate the open web steel joists into our alternative floor system for our building. The intent of this project is to evaluate the differences between the concrete slab on deck with open-web joists and the girder-slab system with hollow-core precast planks using D-beams using as much of the original design as possible to help magnify the effects of changing the concrete floor material to the rest of the project.

Another important factor for the design of open-web bar joists is horizontal or diagonal bridging to prevent any lateral movement of joist chords (Ching, 2008). Bridging can be seen above in **Figure 21**. Bridging was designed similarly to the design of joists with the use of Vulcraft catalogues that were able to specify all necessary bridging requirements. This was not completed for all of the bays however, as it is not necessary in the scope of our group's structural analysis along with our Revit model. It is just important to note that in an actual joist design, bridging in open-web bar joist systems should be properly specified to stay in accordance with the SJI and also the ASD regulations.

#### **4.3 Structural Columns**

In order to analyze the load on each column and determine the required strength a spreadsheet was created. The complete spreadsheet can be found in **Appendix J**. The first step in the analysis was to organize the columns by, locations, original sizes and their lengths.

Next Additional Tabs were created based on their similarity of the calculations and also by bay size. When using revit to evaluate the 3-D structure, all the columns are modeled and placed on intersecting grid lines where their location can then be recorded. After identifying all the critical bay sizes by wing or by typical bay sizes, we then began to gather necessary information (like column sizes, lengths, ect.) needed in order to be able to analyze each of the columns' required capacities for our alternative design. The analysis was first completed on the first level of the building because the columns on the first floor are the most critical since they are responsible for supporting the entire weight of all the floors above. For our project we were looking only to increase column capacities where it was necessary without having to change locations or creating an alternative column design; additionally, this part of our structural analysis was only needed due to our anticipation of our design yielding higher gravity loads and thereby yielding an overall heavier structure that is located within the column spreadsheet are many tabs of calculations pertaining to different critical loading areas where we have determined our alternative design will be impacted the most. It can also be seen that inside the spreadsheet that not all columns were included in calculations which was purposely done to help expedite this part of the analysis as there are many repeating sections of the design. The first table called load calculations (**Table 8**) sums the loads of the concrete slab, metal decking and all surrounding steel beams, girders and joists.

Load Calculations			
Concrete	Thickness (ft)	Weight (lb/cu ft	Load (psf)
Slab	0.4375	145	63.438
Steel	Weight (lb/ft)	Length (ft)	Weight (lb)
Girder Below	30	11.32	339.6
Girder Above	30	11.32	339.6
Girder Left	30	12	360
Girder Right	30	12	360
Extra Beams	30	6	1080
Joists	22.2	12.9599	287.70978
Total			2766.9098
All Floors			16601.459
Column	170	23.33	11898.3

#### **Table 8: Load Calculations**

The first section calculates the expected weight of the cast-in-place concrete slab. This calculation is based on our slab being 3 ¼ inches and the weight of our reinforced concrete being 150 pounds per cubic foot. We obtained a total load for our concrete slab to be 40.6 psf. The next section totals the beams, girders, and joists whose weight is being carried by the column around it. Below in Figure 12, we provided an example of this calculation process by using column BB-12 and all the surround steel members.



The Blue box identifies Column BB-13. The Green Girder is what is referred to as girder right and the yellow girders are is referred to as girder left. The Purple and Red Girders are respectfully referred to as girder below and girder above. The blue beams are referred to as large and small beams. Finally, all members that are similar to those highlighted in Cyan are referred to as joists. This table contains the weight (plf) of the girders and beams, the length of the members being supported by column BB-13. From these two properties we can calculate the total weight in pounds that the column must be able to support. For girders, the column will carry half of the length because these members are connected between two columns by which each half carries loads to its nearest column. For each Surround beam located in the frame this figure (the column's tributary area in both the vertical and horizontal directions) the columns is responsible for carrying a quarter of the member's length because these beams are connecting two girders which distributes its weight between four columns. For joists, their total weight being carried by column BB-13 is similar to the beams in that of the total length of each joist located inside the tributary area only transfers a portion of its weight to the nearest column. Located near the bottom of **Table 8** is the total weight in pounds of the beams, girders and joists and then multiplies this by the number of floors above which is 6 due to there being 6 levels including one roof above column BB-13. Lastly, the bottom row contains the weight of the column, the height of the column above the first floor, and therefore calculates the weight of the column that the first floor column BB-13 must be able to support.

The next table called Variables involves the length of the column and the areas of the floor that the column supports. An example of this can be seen below with BB-13's calculation (**Table 9**). The first row demonstrates the length of the column that is on the first floor. The next four rows are used to sum up the lengths in the x and y direction of the floor that column BB-13

68

supports. In order to find the total Column tributary area, which represents the area for which the column is designed to support, it is typically half of the length between each column both vertically and horizontally. Also, this tributary area can be visualized above in figure 12 by assuming the exterior edge of the image on all sides is the combined tributary area of column BB-13 as it roughly half way between all surrounding columns. To calculate the total tributary area we multiplied both combined lengths in the y and x directions and obtained an area of 565.056 square feet.

Variables	Feet
Height	21.1133
Total Tributary Width (x)	21.8
Tributary Width (y)	25.92
Tributary Area	565.056

**Table 9: Column Tributary Area** 

This area is then used in determining the total dead load in pounds that column BB-13 contains, an example of this is shown below in **Table 10**. The snow load and roof loads were both given by the Structural Engineers except for snow drift calculations as mentioned previously in design load section 4.2. The concrete load is based on the concrete slab that was calculated in **T**. The metal deck, ceilings, insulation, and MEP loads are typically used in most Structural analysis (McCormac, 41 -42). The row referred to as dead load totals the concrete slab, metal deck, ceilings, insulation and MEP. The row called Largest Lr, S, or R refers to the largest roof load, which changes depending on the location of the column. The last few rows of this table refer to the live loads of the building. For typical residential buildings these loads are about 100 pounds per square foot for common areas/office areas and about 40 pounds per foot for living areas and these values are usually used throughout the building in their respective areas

(McCormac, 43). The third column of the table multiples the pounds per square feet of the second column by the tributary area the column supports in order to convert the total weight into pounds that the column carries. It is important to note that the tributary area for each column varies and must be recalculated for each column that is checked. Lastly, the fourth column multiplies the weight per foot by the number of floors above it to give the total load being supported by the first level.

			Upper
Loads	psf	lbs	Floors
Snow Load	151.56	85639.88736	
Roof Load	47.14	26636.73984	
Concrete	65.438	36976.13453	221856.81
Metal Deck	2.14	1209.21984	7255.319
Ceiling	1.5	847.584	5085.504
Insulation	1.5	847.584	5085.504
MEP	5	2825.28	16951.68
Total Dead Load	75.578	71205.56105	427233.37
Largest Lr, S, or R	151.56	85639.88736	
Live Load 1	100	56505.6	339033.6

**Table 10: Total Design Load Criteria for Columns** 

The last table used for the column analysis (**Table 11**) sums up all the calculation results by providing the column's required capacity (Pu) or ultimate load in the first row. The second row of the table contains the design load ( $\Omega$ Pn), which is the strength of the selected column. The column that is selected is displayed in the last row just to help identify and conclude each columns capacity check/ analysis. These strengths can be referenced in the American Institute of Steel Construction's (AISC) Steel construction manual part 4. This section of the manual contains a variety of tables that display all the design loads, ultimate loads/story height for each column type; However for this project, we mainly used tables 4-3 and 4-4 for selecting our desired columns.

Final Load	
Required Load (Pu) Kips	767.1492036
Design Load (φPn) Kips	960
Column Size	(3)W10x77

**Table 11: Final Load and Column Selection** 

# **4.4 Structural Foundations**

The foundation is the part of a structure that is placed below the ground level and is responsible for transmitting the loads from the structure above to the underlying soil (Nilson, 2009). For our project with an increase in weight from the original design to our alternative design, adds more bearing loads to the soil that must be distributed evenly without causing the soil experience failure for the life of our building. To accommodate this increase in load being transmitted to our spread footings, we needed to address the size of our footings and modify them as needed to again satisfy the demand of our structure. In order to design the size of a footing, the actual stress being applied for our column loads must be less than or equal to the allowable pressure (equation used to describe this scenario is listed below).

$$\frac{P}{Q} = A_{\text{req}}$$

Q = Soil Bearing Pressure (pounds per square foot)

P = Acting Loads (pounds)

A<sub>req.</sub> = Required area for bottom of footing (square foot)

The variables in the equation above were used to obtain the required area needed for each footing in order to maintain the existing spread design. The loads variable referred to as (P) is based on the calculations obtained from our structural analysis of the columns described in the previous section of the report. The loads used to obtain all of the required areas relate to each of the selected columns' locations and were provided in kip units where they were eventually converted to pounds for the purpose of this part of our analysis. Below in **Table 12** is the recommended spread footing modifications. Also, this table includes all of the footings for the columns that were evaluated based on their locations.

Column Location	Previous Column Type	Column Type	Original Footing	total load on Footing (P)-lbs	Allowable Pressure/Soil Bearing Capacity (6 ksf for all) (Pa) - psf	Proposed Footing	Previous Footing size Ft <sup>3</sup>	Required Area (Ar)= P/pa
B-1	14x61 14x53	W14x61	F8	354,506	6000	Same	64	59.084
D-1	14x61 14x53	W14x90	F9	477,412	6000	Same	162	79.569
D-3	W14x74 W14x48	W14x61	F10	938,233	6000	Same	225	156.372
D-4.5'	W14x61	14x90	F6	407,601	6000	F'6	85.75	67.934
B-3	W10x49 W10x45 W10x33	W10x60	F1	262,562	6000	Same	96.5	43.76
B'-5	W10x100 W10x77 W10x39	W10x77	F13	150,763	6000	Same	429	25.127
A.1'-4	W14x61 (2)	HSS7x7x3/8	F4	324,167	6000	F'4	63	54.028
D-2	W10x77 W10x39	W10x49	F11	672,842	6000	Same	302.5	112.14
B'- 8	W10x100 W10x68 W10x39	W14x61	F12	635,693	6000	Same	396	105.949
BB-13	W10x49 W10x33	W10x77	F7	827,077	6000	F'7	162	137.846
BB-14	W10x100 W10x60 W10x33	W10x77	F2	850,874	6000	Same	687.375	141.812

**Table 12: Footing Modifications** 

In the table above for all areas highlighted in green, it was determined that the existing footing size was sufficient in supporting our newly selected columns at the location specified in the first column on the left. For the areas highlighted in red, it was determined that the previous footing size was not able to support our newly chosen columns. For column BB-14 for example,

it can be seen that the required area needed for the footing is 137.846 square feet and the previous footing size was 73.5 square feet. To fix this problem without having to redesign the entire footing, which would be outside the scope of this project, we used adjusted the width, height and thickness of the footing (previously 7'- 0"x 7'-0"x 1'- 6") to match the size of footing F9 which has a total area of 162 square feet. In changing the size of footing F7 to match F9, the same concept would apply to the reinforcement which was previously 8-#7 EW BOTT and would now become 10-#7 EW BOTT to satisfy the original design for F9. Lastly, to address the remaining footings highlighted in red above, the same process for modifying footing F7 was followed. Below in **Table 13** is the updated footing schedule based on the calculations made in **Table 12**.

Revised Footing Schedule		
F1	18'-3"x 9'-0"x 2'-0"	#8@12 EW BOTT
F2	23'-5"x 13'-0"x 2'-3"	#8 @ 9 EW BOTT
F3	3'-0" x 3'-0" x 1'-3"	3-#5 EW BOTT
F'4	6'-0"x6'-0"x1'-9"	5-#5 EW BOTT
F5	5'-0"x5'-0"x1'-3"	5-#5 EW BOTT
F'6	7'-0"x7'-0"x1'-9"	6-#8 EW BOTT
F'7	9'-0"x9'-0"x2'-0"	8-#7 EW BOTT
F8	8'-0"x8'-0"x1'-9"	8-#7 EW BOTT
F9	9'-0"x9'-0"x2'-0"	10-#7 EW BOTT
F10	10'-0"x10'-0"x2'-3"	10-#8 EW BOTT
F11	11'-0"x11'-0"x2'-6"	12-#8 EW BOTT
F12	12'-0"x12'-0"x2'-9"	14-#8 EW BOTT
F13	13'-0"x12'-0"x2'-9"	16-#8 EW BOTT

**Table 13 Revised Footing Schedule** 

From the calculations that were conducted to determine the newly required area for our proposed spread footings schedule, our alternative design has been concluded. Our group has

observed, based on the procedure we used to conduct our structural analysis, how increasing the gravity loads for an entire building by simply changing a floor system's building material and also the addition of new features (steel joists) can have an adverse effect on the design of a foundation.

# 4.5 Impacts of Alternative Floor System Design on Cost

Once the alternative design Revit model of our building was created a cost comparison to the existing model was created. This entailed comparing the quantities of materials used in each design to determine which design is more cost efficient. The first step was to determine the amount of material used in the existing design. This was performed using the existing design in Revit. Material Takeoff schedules were created in Revit for each of the structural components of the project that included structural framing, columns, foundations, walls and floors. A full list of the material takeoff schedules for the existing design can be viewed in **Appendix F**. Once the total amount of steel tonnage and concrete volume were determined using the material takeoff schedules the total cost of steel and concrete were calculated. Consigli provided the MQP group with the cost of each package so the total cost of steel per ton and concrete per cubic yard were calculated. **Table 14** below displays the total cost of steel per ton for the project, and **Table 15** displays the total cost of concrete per cubic yard for the existing design.

#### **Table 14: Cost of Steel**

	\$3,265,000.00
Cost of Steel Package:	
Total Volume of Steel	2719.94
Total Volume of Steel	4901bs/ft^3
Total Tons of Steel	666.3853
Steel cost per ton	\$4,899.57

# Table 15: Cost of Concrete

Total Cost of Concrete	\$1,692,118.00
Total Volume of Concrete (CF)	95954.98
Cost per CF	\$17.63
Total Volume of Concrete (CY)	3553.9
Cost per CY	\$476.13

Using these numbers as a basis we were able to calculate the cost of the alternative design based on the cost of the packages for the existing design. To determine the amount of material that was used in the alternative design material takeoff schedules were used for the alternative design. In order to complete a correct 5D BIM model it was necessary to perform the material takeoff schedules for each of the pre-determined phases of the alternative design. The design was split up into 10 sections or phases and the cost of each phase was calculated. Using the cost per ton of steel and cost per cubic yard for the existing design the cost per ton of steel and cubic yard of concrete were calculated for each phase of the alternative design. **Table 16** below displays the total cost for each phase of the alternative design. The calculations for each phase can be reviewed in **Appendix G**.

Phase	Cost of Concrete	Cost of Steel	Total Cost
Building 1 Phase 1	\$114,842.53	0	\$114,842.53
Building 1 Phase 2	\$236,674.17	\$557,706.91	\$794,381.07
Building 1 Phase 3	\$177,782.14	\$838,931.08	\$1,016,713.22
Building 2 Phase 1	0	0	0
Building 2 Phase 2	\$310,889.01	\$621,444.04	\$932,333.05
Building 2 Phase 3	\$167,531.06	\$1,104,734.72	\$1,272,265.78
Building 3 Phase 1	\$261,990.47	0	\$261,990.47
Building 3 Phase 2	\$248,254.12	\$825,114.91	\$1,073,369.03
Building 3 Phase 3	\$122,703.43	\$678,066.63	\$800,770.06
Building 4 Phase 1	\$455,442.04	0	\$455,442.04
Building 4 Phase 2	0	\$311,682.33	\$311,682.33
Total Alternative Design Cost			\$7,033,789.58

# Table 16: Alternative Design Phase Costs

Summing the total cost of each phase it was determined that the total cost of the alternative design was \$7,033,789.58. Using the total cost of the packages provided by Consigli the cost of the existing design was \$6,027,760. The cost of the alternative design came out to be \$1,006,029.58 more than the existing design. According to these calculations the existing design was more cost effective than the alternative design for the building.

#### 4.6 Impacts of Alternative Floor System Design on Schedule

In order to determine the impacts the alternative floor system design has on the construction schedule, a new schedule that includes the activities required for the installation of the cast-in-place concrete slabs needed to be created. To create this alternative design schedule, appropriate changes and adjustments were first made to the original baseline schedule that was created in Primavera. Changing the floor system from pre-cast planks to cast-in-place (CIP) slabs required two major changes to be made in terms of the schedule. The first of these was to add floor joists and decking in order to properly support the new CIP slabs, and the second was to actually replace the pre-cast planks with CIP ones.

In order to address the addition of the floor joists, some of the existing activities of the baseline schedule were edited. When using pre-cast planks, the floors required neither joists nor decking to support the slabs. The steel only needed to be detailed after it was erected, before the pre-cast planks could be installed. Therefore, the corresponding activities on the baseline schedule were named "Detail Steel", and each of these activities required between 10 to 13 days to complete, depending on the specific floor and section of the building. For these activities to represent the installation of the joists and the decking to support the CIP slabs, their names were changed to "Deck & Detail Steel." After consulting with Jody Staruk, the Consigli project manager for Sheehan Hall, it was determined that adding floor joists and decking would take

77

approximately two additional working days for each floor. Therefore, the durations of the activities were also increased by two days.

Originally, the next activity after "Detail Steel" was to "Erect & Grout Precast Planks", and these activities were connected via a start-to-start relationship with a time lag. The time lag ensured that the steel would be detailed and ready by the time the pre-cast planks are to be installed. Since the addition of the floor joists and decking added two days to the duration of the activity, the original time lags were also increased by two days to still ensure that the steel would be ready for the new CIP slabs. The next step in creating the new alternative design schedule was to address the replacement of the pre-cast planks with the CIP ones in the schedule. Originally in the baseline schedule, the activities that represented the installation of the pre-cast planks were named "Erect & Grout Precast Planks", and each activity took five working days to complete. These activities were renamed "Place SOD" (slab on deck) in order to represent the pouring and setting of the new CIP slabs. The durations for the activities were left at five days because it was determined that that was approximately the amount of time it would take for each slab to be poured and set.

Once these adjustments had been made, the new schedule for the alternative floor system design was ready. The original sequencing of the activities was left unchanged because it was determined that erecting each of the four sections of the building, two levels at a time would still work with the new CIP slabs and was the most efficient way to work around waiting for the slabs to set after being poured (Consigli). It should also be noted that, by erecting the structure two levels at a time, Consigli will comply with the regulations set by the Occupational Safety & Health Administration (OSHA) that a steel structure cannot be taller than three levels or 30 feet, whichever comes first, without having installed a floor or deck below. In other words, at least

78

one floor must be installed for every 30 feet, or three levels, the steel rises. This regulation primarily serves to protect steel workers, so that in the unfortunate event that someone should fall, he/she will not fall more than 30 feet, or three levels.

**Table 17** below shows a comparison of the critical activities of the alternative design schedule with those of the baseline schedule. Only the critical activities were compared because they are the only activities that had an impact on the date of completion of the structure. The activities that are highlighted in red are those to which changes were made. The activities highlighted in yellow are those that were originally not on the critical path but became critical as a result of the changes made to the activities highlighted in red. In total, the new schedule for the alternative floor system design incurred eight additional calendar days, and as a result, the completion date for the structure was pushed back from October 8<sup>th</sup> 2013 to October 16<sup>th</sup> 2013.

The rest of this page was left intentionally blank.

Alternative Design Critical Activities			
Activity Name	Original Duration	Early Start	Early Finish
Start	0	3/20/13	
Excavate for Footings &			
Foundations S1	9	3/20/13	4/1/13
Excavate for Footings &			
Foundations S3	10	4/1/13	4/12/13
Excavate for Footings &	40	4/45/40	4/00/40
	10	4/15/13	4/26/13
	4	4/29/13	5/2/13
FREP Foundations S2	19	5/3/13	5/29/13
Waterproof S2	15	5/31/13	6/20/13
FREP Elevator Pits S2	10	6/18/13	7/1/13
Waterproof Elevator Pits S2	10	7/2/13	7/15/13
Erect Columns & Steel S2- L1/3-1	3	7/11/13	7/15/13
Deck & Detail Steel S2-L1/3-			
1	15	7/12/13	8/1/13
Erect Steel S2-L1/3-2	3	7/16/13	7/18/13
Deck & Detail Steel S2-L1/3- 2	14	7/17/13	8/5/13
Place SOD S2-L2/3-1	5	7/29/13	8/2/13
Place SOD S2-L2/3-2	5	7/30/13	8/5/13
Erect Steel S2-L4/5-1	1	7/31/13	7/31/13
Erect Steel S2-L4/5-2	1	8/1/13	8/1/13
Deck & Detail Steel S2-L4/5-			
1	12	8/1/13	8/16/13
Deck & Detail Steel S2-L4/5- 2	12	8/2/13	8/19/13
Place SOD S2-L4/5-1	5	8/12/13	8/16/13
Place SOD S2-L4/5-2	5	8/13/13	8/19/13
Erect Steel S2-L6/PH-1	1	8/15/13	8/15/13

Baseline Critical Activities			
Activity Name	Original Duratio n	Early Start	Early Finish
Start	0	3/20/2013	
Excavate for Footings & Foundations S1	9	3/20/2013	4/1/2013
Excavate for Footings &	Ŭ	0/20/2010	1/ 1/2010
Foundations S3	10	4/1/2013	4/12/2013
Excavate for Footings & Foundations S2	10	4/15/2013	4/26/2013
EREP Footings S2	4	4/29/2013	5/2/2013
FREP Foundations S2	19	5/3/2013	5/29/2013
Waterproof S2	15	5/31/2013	6/20/2013
EREP Elevator Pits S2	10	6/18/2013	7/1/2013
Waterproof Elevator Pite S2	10	7/2/2013	7/15/2013
Frect Columns & Steel S2-	10	1/2/2013	7/15/2015
L1/3-1	3	7/11/2013	7/15/2013
Deck & Detail Steel S2-			
L1/3-1	13	7/12/2013	7/30/2013
Erect Steel S2-L1/3-2	3	7/16/2013	7/18/2013
Deck & Detail Steel S2- L1/3-2	12	7/17/2013	8/1/2013
Erect & Grout Precast Planks S2-L1/3-1	5	7/25/2013	7/31/2013
Erect & Grout Precast Planks S2-L1/3-2	5	7/26/2013	8/1/2013
Erect Steel S2-L4/5-1	1	7/29/2013	7/29/2013
Erect Steel S2-L4/5-2	1	7/30/2013	7/30/2013
Detail Steel S2-L4/5-1	10	7/30/2013	8/12/2013
Detail Steel S2-L4/5-2	10	7/31/2013	8/13/2013
Erect & Grout Precast Planks S2-L4/5-1	5	8/6/2013	8/12/2013
Erect & Grout Precast Planks S2-L4/5-2	5	8/8/2013	8/14/2013
Erect Steel S2-L6/PH-1	1	8/9/2013	8/9/2013

Erect Steel S2-L6/PH-2	1	8/16/13	8/16/13
Deck & Detail Steel S2- L6/PH-1	12	8/16/13	9/2/13
Deck & Detail Steel S2- L6/PH-2	12	8/19/13	9/3/13
Place SOD S2-L6/PH-1	5	8/27/13	9/2/13
Place SOD S2-L6/PH-2	5	8/28/13	9/3/13
Place SOG S4-LL	5	9/25/13	10/1/13
Install MEP Hangers S4-LL	6	10/2/13	10/9/13
Install Spray Fireproofing S4-LL	4	10/7/13	10/10/13
Erect Columns & Steel S4- L1	3	8/30/13	9/3/13
Deck & Detail Steel S4-L1	13	9/3/13	9/19/13
SOD S4-L1	2	9/23/13	9/24/13
Install MEP Hangers S4-L1	6	10/2/13	10/9/13
Install Spray Fireproofing S4-L1	4	10/11/13	10/16/13
Erect Steel S4-R	2	9/4/13	9/5/13
Deck & Detail Steel S4-R	13	9/6/13	9/24/13
Parapet Framing & Sheathing S4-R	10	9/30/13	10/11/13
Structure Complete	0		10/16/13
	Incurred 8 additional days		

Erect Steel S2-L6/PH-2	1	8/12/2013	8/12/2013
Deteil Steel SS I C/DLL4	10	0/40/2012	0/00/0040
Detali Steel S2-L6/PH-1	10	8/12/2013	8/23/2013
Detail Steel S2-L6/PH-2	10	8/13/2013	8/26/2013
Erect & Grout Precast Planks S2-L6/PH-1	5	8/19/2013	8/23/2013
Frect & Grout Precast		0,10,2010	0/20/2010
Planks S2-L6/PH-2	5	8/21/2013	8/27/2013
Place SOG S4-LL	5	9/17/2013	9/23/2013
Install MEP Hangers S4-LL	6	9/24/2013	10/1/2013
Install Spray Fireproofing S4-LL	4	9/27/2013	10/2/2013
Erect Columns & Steel S4-			
L1	3	8/22/2013	8/26/2013
Deck & Detail Steel S4-L1	13	8/26/2013	9/11/2013
SOD S4-L1	2	9/13/2013	9/16/2013
Install MEP Hangers S4-L1	6	9/24/2013	10/1/2013
Install Spray Fireproofing S4-L1	4	10/3/2013	10/8/2013
Structure Complete	0		10/8/2013

 Table 17: Baseline vs. Alternative Design Critical Activities

#### **4.7 BIM for Alternative Floor System Design**

A 5D BIM model was created for the alternative floor system design, in order to provide a visualization of the impacts that the new design had on the cost and construction schedule of the building. The first step in creating the alternative design model was to make the necessary changes to the structure of the building in the original 3D Revit structural model obtained from Consigli. These changes included updating the original beam, column, and girder sizes to the revised sizes calculated in the structural analysis, replacing the hollow-core pre-cast planks with cast-in-place (CIP) slabs, and adding floor joists to the beams and girders.

Once the necessary changes had been made in the 3D Revit model, the next step was to break down the model into phases that correspond to the way the building would be actually built on site. This can be done in Revit by creating new phases and selecting and adding the desired objects to each of the phases. Once the different phases were created, it was possible to perform a quantity take-off for each phase; the quantity information obtained from the quantification process was used to calculate the cost for each phase, as well as the cost for the entire alternative design. Then, the next step was to export the updated 3D Revit model in the format of a Navisworks file. Thanks to the great interoperability of Revit with other BIM applications, this export can be done with the click of a button in Revit.

At this point, the updated 3D model was ready to be imported into Navisworks, in order to integrate it with the cost and schedule. Upon opening the file in Navisworks, the 3D model was automatically imported, along with the phases created in Revit: the phases can be accessed from the Selection Tree in Navisworks. Next, the updated schedule for the alternative floor system design in Primavera was exported in the format of a Microsoft Project file. This file can then be easily imported into the TimeLiner function of Navisworks. Once the schedule had been imported into TimeLiner, the phases can be attached to the corresponding activities on the schedule. Once again, as with the baseline versus as-built BIM model, there were far more activities than there were phases, resulting in only some of the activities being attached to phases. Next, the calculated costs for each of the phases were attached to the activities, and the "Task Type" for these activities was set to "Construct" in TimeLiner. Once these steps were finished, the 5D model for the alternative floor system design was complete and the animation was ready to be run. **Figures 32** through **36** below show the progress of construction along the timeline of the 5D BIM model. The upper left corner of the animation displays information such as the day, date, and costs as the construction of the building progresses throughout the timeline. Objects are shown in green while they are being constructed, and become gray when completed.



**Figure 32: Alternative Design Animation 1** 















**Figure 36: Alternative Design Animation 5** 

# 5.0 Site Logistics & Development

This section of the report is a generalized recap of the pre-construction, site work or land development stage of Sheehan hall. This section will discuss the design goals for the site as well as providing project site development photos to help visualize the process of prepping a site for construction. For WSU's "Sheehan Hall" before any construction could begin, the first step that was taken was to evaluate the site's existing conditions and to establish the project boundaries. The photo below shows the site during this evaluation period.



Figure 37: Existing Site (Pre-Development)

Now that the site has gone through its initial evaluation period, the designers are now able to sub-divide the project area and begin the site design process. To help understand the main focus areas or design objectives for the development of Sheehan Hall's new construction site our group met with one of Consigli's project engineers Paul Galligan. In our interview, we asked for Paul to identify the site designer's main focus areas during the site development phase of the project and the advantages of choosing their design approach in comparison to other possible approaches, He said "I think the differentiator for the preliminary site work for this project was the modular bi-level retaining wall that was put in the winter before we began work here.

Originally, the site was a parking lot and a relatively steep hill down to the wetlands/football field. Using a modular approach (i.e. the wall is built out of precast concrete blocks instead of a cast-in-place wall) we were able to bring up the level of the blocks and the elevation of the grade in the same day. This allowed for us to avoid waiting for cure times and also having to consistently monitor the temperature of newly casted concrete over the course of the winter." He continued further by describing another objective for the site development "As with any building, we focused on hitting the low utilities on the project first while keeping contact with the school to make sure we were not impacting their operations."

The Proposed Site Development plans taken from the official plan set for Sheehan Hall can be viewed in **Appendix H.** Additionally, Consigli had provided the team with photos representing each accomplishment/milestone that was achieved throughout the construction process. Below is a list of project photos dating back to November 2012 and leading up to February 2014.



Figure 38: Site - November 2012



Figure 39: Retaining Wall Construction - December 2012



Figure 40: Retaining Wall - January 2013



Figure 41: Site Excavation - February 2013



Figure 42: Site Excavation - March 2013



Figure 43: Foundation Walls - April 2013



Figure 44: Steel Framing - June 2013



Figure 45: Hollow-cored Precast Planks - July 2013



Figure 46: Site Overview - August 2013



Figure 47: Curtain Walls - September 2013



Figure 48: Site Overview - October 2013



Figure 49: Masonry (Wing 1) - November 2013



Figure 50: Site Overview - December 2013



Figure 51: Interior Finishes - January 2014



Figure 52: Site Overview - February 2014

# **6.0 Conclusions**

This MQP for Sheehan Hall dormitory on the campus of Worcester State University contains the design of an alternative floor system and an analysis of the alternative design's effects on the project's cost and schedule. The existing design includes the use of precast planks in the floor system while the alternative design uses only cast in place concrete. The dormitory hall will provide the campus with extended on campus housing to meet the demands of the growing student population. The MQP group used Autodesk *Revit*, and *Primavera* software to determine the most effective design with regards to cost and scheduling. The alternative design meets the desired loading for the project, this being verified through the structural hand calculations.

The best way to compare the existing design to the alternative design is by comparing the respective cost and schedules. The alternative design resulted in an increase in cost of \$1,006,029.58. There was also an increase in the project duration, which resulted in an additional 8 days. The alternative design examined did not provide a favorable result with regards to the cost and schedule, compared to the existing design. A 5-D model of the existing design was created to provide a visualization of the construction of the project and see the relation to cost and schedule. A 5-D model was also created for the alternative design to provide a visual comparison of the two designs. The 5-D models combine the Revit models with the cost estimations and Primavera schedules in Autodesk Navisworks to display the advancement of the project. Using a 5-D model aids the construction process as the progression of the project can be seen and the two models can be visually compared.

Through this MQP an alternative floor system was designed that could meet the structural requirements, however after analyzing the impacts of cost and schedule to the existing design the MQP team has recommended the use of the existing design for the project.

95
#### References

- 3D/International, Inc. (2013). *CM at Risk*. Retrieved from: <u>http://www.aci-na.org/static/entransit/cmatrisk.pdf</u>
- Admission Statistics / College Acceptance Rates / College Fun Facts / Admission Rates. (n.d.). Retrieved October 17, 2013, from: <u>http://www.ivywise.com/admission\_statistics.html</u>
- Advance Concrete Products Co (2013). *Here's How Precast Concrete from ACP Outperforms Cast-in-Place*. Retrieved from: http://www.advanceconcreteproducts.com/1/acp/precast\_vs\_cast\_in\_place.asp
- Autodesk (2013). Building Information Modeling BIM Programs Autodesk. Retrieved September 20, 2013, from: <u>http://usa.autodesk.com/building-information-modeling/</u>
- Autodesk, Inc. (n.d.). Structural Design Using Autodesk\_ RobotTM Structural Analysis. Retrieved October 18, 2013, from: <u>http://aucache.autodesk.com/au2009/sessions/5237/AU09\_SpeakerHandout\_SE9300-1.pdf</u>
- Baker, S. L. (2010, July 21). *Critical Path Method (CPM)*. Retrieved from: <u>http://hadm.sph.sc.edu/courses/J716/CPM/CPM.html</u>
- Building & Construction Authority (n.d.). Design of Precast Connections. Retrieved October 18, 2013, from: <u>http://www.bca.gov.sg/publications/BuildabilitySeries/others/spch2\_ch3.pdf</u>
- Construction Field (2011). *Steel Frame Construction Process*. Retrieved from <a href="http://constructionfield.net/steel-frame-construction-process/">http://constructionfield.net/steel-frame-construction-process/</a>
- Construction market research Industry intelligence and analysis for construction professionals. McGraw-Hill Construction. (n.d.). Retrieved October 20, 2013, from: <u>http://construction.com/market\_research/</u>
- Cudney, G. (1998, May). Precast VS. Cast-In-Place -How do They Compare? Retrieved from: <u>http://www.carlwalker.com/wp-content/uploads/2012/10/precast\_vs\_cast-in-place.pdf</u>
- Fast Facts. (n.d.). Retrieved December 14, 2014, from: http://nces.ed.gov/fastfacts/display.asp?id=98
- Halpin, D. W., & Senior, B. A. (2011). *Construction management* (4th ed.). Hoboken, NJ: Wiley.

- Herrin, C. (2013, March 21). WSU Celebrates Groundbreaking of New Residence and Dining Hall. Retrieved from: <u>http://wp.worcester.edu/eNews/sheehanhallgroundbreaking/</u>
- Kotsopoulos, N. (2012, October 2). Site work to begin on new 400-bed dorm at Worcester State University - Worcester Telegram & Gazette - telegram.com. Retrieved from: http://www.telegram.com/article/20121002/NEWS/121009881/1116
- Lean Construction Institute (2013). *What is Lean Design & Construction*. Retrieved October 19, 2013, from: <u>http://www.leanconstruction.org/about-us/what-is-lean-construction/</u>
- Mineral Industry of the State of New York (2011). *READY MIX CONCRETE*. Retrieved from: <u>http://www.nysm.nysed.gov/publications/record/vol\_03/pdfs/vol\_03-CH07.pdf</u>
- MSCBA (2013). *Massachusetts State College Building Authority*. Retrieved from: <u>http://www.mscba.org/</u>
- Nakaki, S. D. (n.d.). *Precast Concrete Design*. Retrieved October 18, 2013, from: <u>http://c.ymcdn.com/sites/www.nibs.org/resource/resmgr/BSSC/p751\_ch8.pdf</u>
- National institute of Building Sciences (2010, May 28). *Structural Engineering / Whole Building Design Guide*. Retrieved from: <u>http://www.wbdg.org/design/dd\_structeng.php</u>
- NPCA (2010, May 30). Why Precast Costs Less. Retrieved from: <u>http://precast.org/2010/05/why-precast-costs-less/</u>
- NRCS (n.d.). *Soil Survey Manual Chapter Six / NRCS Soils*. Retrieved October 18, 2013, from: <u>http://soils.usda.gov/technical/manual/contents/chapter6.html</u>
- Oracle (n.d.). *Primavera Enterprise Project Portfolio Management Solutions*. Retrieved October 8, 2013, from: <u>http://www.oracle.com/us/primavera-ppm-brochure-070808.pdf</u>
- Portland Cement Association (n.d.). *Cast-In-Place Concrete*. Retrieved October 18, 2013, from: <u>http://www.concretethinker.com/applications/Cast-in-place.aspx</u>
- *Precast concrete Wikipedia, the free encyclopedia.* (2013, September 12). Retrieved October 18, 2013, from: <u>http://en.wikipedia.org/wiki/Precast\_concrete</u>
- Precast/Prestressed Concrete Institute (n.d.). PCI / Design Resources / Building Engineering Resources. Retrieved October 18, 2013, from: <u>http://www.pci.org/design\_resources/building\_engineering\_resources/</u>
- Precast/Prestressed Concrete Institute (2013). PCI / Design Resources / About Precast. Retrieved from: <u>http://www.pci.org/Design\_Resources/Precast\_Components/About\_Precast/</u>

- Precast/Prestressed Concrete Institute (n.d.). Precast Floor and Roof Systems. Retrieved October 18, 2013, from: <u>http://www.pci.org/Design\_Resources/About\_Precast/Floors\_and\_Roofs/</u>
- Primavera Works (2013). Primavera P6 Enterprise Project Portfolio Management | PrimaveraWorks.com. Retrieved October 20, 2013, from: <u>http://www.primaveraworks.com/Primavera-P6-Enterprise-PPM.asp</u>
- *Ready-mix concrete Wikipedia, the free encyclopedia.* (2013, October 15). Retrieved October 18, 2013, from: <u>http://en.wikipedia.org/wiki/Ready-mix\_concrete#Standard\_ready-mix\_concrete\_vs.\_site-mix\_concrete</u>
- Reis, J. (2012, February 4). New dorm going up at Worcester State Worcester Telegram & Gazette - telegram.com. Retrieved from: <u>http://www.telegram.com/article/20120204/NEWS/102049875/0</u>
- Sieniewicz, C. K. (2007, August). ISSUU WSU Master Planning State & Community Colleges by Worcester State University. Retrieved from: <u>http://issuu.com/worcesterstateuniversity/docs/masterplanningforstatecommunitycolleges</u> <u>?e=2404387/2004844</u>
- *Steps in initial investigation of a building site and program.* (n.d.). Retrieved October 18, 2013, from: <u>http://academics.triton.edu/faculty/fheitzman/preliminary%20design.html</u>
- Turner Construction (2013). *Lean Construction | Turner Construction Company*. Retrieved October 19, 2013, from: <u>http://www.turnerconstruction.com/experience/lean</u>
- "What Is Construction Project Management?" (2014) *Construction Project Management* - *How to Plan and Manage*. N.p., 2014. Web. Jan. 2014.
- Worcester State University (2013, August 1). Campus Expansion and Renewal. Retrieved from: <u>http://www.worcester.edu/construction/Shared%20Documents/ResidenceHalls.aspx</u>

#### **Appendix A: Consigli Interview**

## This appendix contains the interview of the Consigli project manager and engineer who are working on Sheehan Hall.

#### Consigli Interview 2013

- 1. Is the project currently on schedule? Are there any outstanding issues that might potentially delay the project?
  - Progress is good
  - Financial incentive for finishing project by June 13th
  - Possible problem areas: 25th bulletin, Cogen coordination, MEP delivery
  - Windows coming in the 21st, won't affect the end date...Contractual document that if it had impacted end date, claim to transfer risk to subcontractor
- 2. What are the challenges of being on a fast track schedule?
  - CPM not only critical path...anything with a 10 day float
  - Tougher to make up time on a fast track schedule
- 3. What was the impact of the design drawings being delayed by a month?
  - GC as well as subs are impacted because without drawings not able to plan and understand scope as well as they could have
  - Architect left MEP drawings 80% complete...Electrical bid date pushed back 2 weeks
- 4. Were there any impacts to the project due to sub-contractors being brought on board late?
  - Windows impacted due to subs being brought on late
  - Focus more on what needs to be done momentarily, not able to look at the future
  - Not Proactive...more reactive
- 5. Does having to work on an occupied campus affect the schedule?
  - Conscientious about parking and students
  - Delivery is hardest part
- 6. How is the practice of "lean construction" affecting the schedule of the project?
  - Forces foreman to look at drawings and figure out possible problems beforehand
  - Trades understand scope of work better
  - Tighten up schedule
  - Anticipated readiness vs. guaranteed
  - Exterior faster, but does not really affect the schedule of the project
  - Constraint Log Pre deficiency log look at problems 6 weeks in advance
  - Practice on site...working in smaller spaces as opposed to whole floors
- 7. Why was cast in place used only on the first floor?
  - Considered a public space...a lot of people at one location at a time
  - Main reasons
    - o Loading
    - Anticipated deflection and movement
    - Piping fed into the floor easier for equipment

- Building 4 loading dock needs to be heated
- 8. Are there any significant benefits from using the current concrete method?
  - Faster to install and cheaper
  - Curing time 3-5 days for cast in place
  - Using crane for 2 activities at the same time
- 9. Why was a GMP bid contract chosen for this project?
  - MSCBA prefers it...competitive bid.... any money not spent goes back to the GMP
  - GMP...open estimate...open book can be seen the whole time
- 10. How will winter affect the construction schedule, has the schedule been altered so that exterior work will be complete by the time that winter comes?
  - There is no way around doing masonry work during the winter
- 11. How is the relationship between the Owner/Arch,Eng/GC, have any communication problems occurred?
  - Relationship is good
  - When there is a problem MSCBA likes to hear the problem and the solution
  - Only real problem was with national grid feeding power to site through manholes...problem with the manhole covers
  - Communication is good...need to understand the personalities that you are dealing with
- 12. What steps were taken to determine the current foundation plan, and what factors were considered in its design process?
  - For the development of the current foundation, a Geotechnical soil report was done to determine if soil is adequate for designed structure.
    - 1. Soil Report
      - 1. Analysis of Existing Site Conditions
      - 2. Groundwater and Soil Observations
      - 3. Particle size analysis
- 13. Were there any issues during the development of the foundation?
  - Found that for a few boring locations along the east and western sides of the site that there was greater fill thicknesses of approximately 6.5 ft. (boring HA12-8), 7.5 ft. (HA12-9), and 12.3 ft. (HA12-12).
  - Determined that since the basement floor will be constructed below groundwater levels, a foundation perimeter drain and under-drain system should be constructed to provide permanent groundwater control around foundation walls and beneath slabs.

#### **Appendix B: Consultants**

This appendix provides a list of all the consultants involved in the Sheehan Hall project.

LANDSCAPE ARCHITECTS: Brown, Richardson and Rowe, Inc

CIVIL ENGINEERING: Nitsch Engineering

GEOTECHNICAL: Haley & Aldrich, Inc

STRUCTURAL ENGINEERING: RSE Associates

DOOR HARDWARE CONSULTANT: SMOOT Associates

ENERGY MODELING: Andeiman Lilek

FOOD SERVICE CONSULTANT: Vision Builders

ELEVATOR CONSULTANT: VERTRAN Enterprises

MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION ENGINEERING

TEL-DATA & AV: AKF Engineering

LIGHTING DESIGN CONSULTANT: Ateller Ten

CODE CONSULTANT: Rolf Jensen and Associates

SUSTAINABILITY: Soden Sustainability Consulting.

SPECIFICATIONS CONSULTANT: Wil-Spec LLC

# **Appendix C: Group Activities List, Bar Chart and Organizational Breakdown Structure (OBS)**

This appendix includes a list of activities to be completed by the project group, along with a bar chart and a breakdown of the tasks among the group members.

1	

Activ	ity ID	Activity Name	Original Duration	Planned Start	Planned Finish
	WSUMQP G	roup Activities Barchart	80	29-Oct-13	17-Feb-14
	WSUMQP.(	1 Project Management Evaluation	18	29-Oct-13	21-Nov-13
	A1000	Evaluate Relationship bet. Owner & GC	4	29-Oct-13	01-Nov-13
	A1010	Evaluate Relationship bet. A/E & GC	3	04-Nov-13	06-Nov-13
	A1060	Evaluate Baseline Schedule vs. Current Schedule	2	07-Nov-13	08-Nov-13
	A1070	Evaluate Original Cost vs. Current Cost	3	15-Nov-13	19-Nov-13
	A1080	Analyze Safety Practices	2	20-Nov-13	21-Nov-13
	A1250	Analyze Impacts of Lean Construction	4	11-Nov-13	14-Nov-13
	WSUMQP.(	4 BIM	29	29-Oct-13	06-Dec-13
	A1130	Create 5D BIM Model	20	29-Oct-13	25-Nov-13
	A1140	Analyze Impact of BIM on Project	4	26-Nov-13	04-Dec-13
	A1150	Compare Scheduled BIM vs. Actual	2	05-Dec-13	06-Dec-13
	WSUMQP.(	5 Structural Analysis	34	29-Oct-13	13-Dec-13
	A1200	Propose & Design Alternative Floor System	8	29-Oct-13	07-Nov-13
	A1210	Analyze Alternative Floor System	5	08-Nov-13	14-Nov-13
	A1230	Calculate Cost of Alternative Floor System	7	15-Nov-13	25-Nov-13
	A1240	Compare Cost of Alternative Floor System vs. Current	2	26-Nov-13	02-Dec-13
	A1260	Determine Effects on Schedule of Alternative Floor System	7	02-Dec-13	11-Dec-13
	A1270	Compare Schedule Differences of Alternative vs. Current Floor Sys	2	11-Dec-13	13-Dec-13
	WSUMQP.(	6 Geotechnical Analysis	5	29-Oct-13	04-Nov-13
	A1160	Analyze Soil Report	3	29-Oct-13	31-Oct-13
	A1220	Describe Sitework & New/Existing/Proposed Changes	2	01-Nov-13	04-Nov-13
	WSUMQP.(	7 Project Wrap Up	46	16-Dec-13	17-Feb-14
	A1170	Complete Analysis & Results	20	16-Dec-13	06-Feb-14
	A1180	Compile & Edit Final Report	7	07-Feb-14	17-Feb-14

<sup>&</sup>lt;sup>1</sup> Note: The schedule is based on the WPI Undergraduate Calendar for the Academic year 2013-2014.

Group	Activities	Barchart								2 Wee	k Lookahe	ead								14-D	)ec-13 1	4:20
		Novemb	er 2013			Dece	mber 201	3			January 2	2014			Februar	y 2014			Marc	:h 2014		
27	03	10	17	24	01	08	15	22	29	05	12	19	26	02	09	16	23	02	09	16	23	30
	Evaluate	e Relation valuate R Evaluate	ship bet. Relationshi e Baseline	21-Nov-1 Owner & ( ip bet. A/E e Schedule	3, WSUM GC & GC	QP.01 Pr	roject Mai dule	nagement	Evaluat	ion												
			Analyze I	aluate Ori Analyze S mpacts of	ginal Cost afety Prac Lean Cor	vs. Curr ctices nstruction 06-Dec- 1 Model	ent Cost 13, WSUI	MQP.04 B	IM													
	Ę	Propose	& Design Analyze A	Alternative	Floor Sy	nalyze Im Compar stem tem	pact of BI e Schedul 13-Dec-	M on Proje ed BIM vs 13, WSUM	ect . Actual /QP.05	Structura	l Analysis											
	<b>0</b> 4-1	Nov-13, W	/SUMQP	Calc	chnical Ar	t of Altern pare Cos D D halysis	ative Floo t of Altern etermine Compare	or System ative Floo Effects on e Schedule	r Systen Schedu e Differe	n vs. Curr ule of Alter ences of A	ent native Flo Iternative	or System vs. Currei	nt Floor \$	System								
	Analyze S	Soil Repor	t work & N	lew/Existir	g/Propos	ed Chan	ges ▼								Complete		Feb-14, V & Result	VSUMQP.	07 Projec	ct Wrap U	p	
							•							Ę	Complete	Analysis Co	& Result mpile & E	s s dit Final Re	eport		/vrap U	лгар Ор

### Group Organizational Breakdown Structure

Activity	Team Member Assignment
Project Management Evaluation	Ben, Matt
BIM	Ben, Matt
Structural Analysis	Tom
Geotechnical Review	Tom
Project Wrap Up	Ben, Matt, Tom

#### **Appendix D: Consigli's Baseline Schedule**

This appendix contains the planned baseline schedule from Consigli for the construction of Sheehan Hall.



1124 - WSU - Ne	4 - WSU - New Student Residence Hall and Dining Facility			WBS Layout - C	Owner Si	UDS TASK	filter: 000 Activity F	Finder.	Page 3 of 17					
Activity ID	Activity Name	Orig F	Rem Start	Finish				2013	2014 2015					
		Dur	Dur		_lan	Eeb M	ar Apr May Ju	n Jul Aun Seo Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Seo Oct Nov Dec Jan Feb Mar					
A1834	Waterproofing [1N]	6d	6d 10/08/13	10/16/13					Vatergroofind (1N)					
A1833	Install Windows (1N1	1d	10 10/17/13	10/17/13	. 13	1			hstall Windows [1N]					
A2534	Strip in Window Flange [1N]	10	10 10/18/13	10/18/13		1 1		1 1 1 1 1	trip in Window Flakoe (\$N)					
A1832	Masonry Veneer [1N]	7d	7d 11/08/13	11/19/13	518	1 1		1 1 1 1 1	Masonry Veneer (14)					
A1836	Install Curtainwall [1N]	10d	10d 11/13/13	11/26/13	-			1 1 1 1 1	Instal Curtanwal (IN)					
A2241	Remove Staging [1N]	1d	10 11/27/13	11/27/13	1000	1			I Remove Staging (1N)					
Weat E	ievation													
A2184	Erect Staging [1W]	2d	2d 08/06/13	08/07/13				Erect Staging [1						
A2183	Waterproofing [1W]	6d	6d 10/17/13	10/24/13					Waterproofing [1W]					
A2182	Install Windows [1W]	3d	3d 10/25/13	10/29/13			1 A		Install Windows [fW]					
A2535	Strip in Window Flange [1W]	1d	1d 10/30/13	10/30/13	2			1 1 1 1 1	Strip in Window Plange [1W] ;					
A2181	Masonry Veneer [1W]	14d	14d 11/20/13	12/10/13	- 8	1 1		1 1 1 1 1	Masonry/Veneer [1W]					
A2242	Remove Staging [1W]	1d	1d 12/11/13	12/11/13	-				Remove Staging [1W]					
Interior						1 1		1 1 1 1 1						
LowerL	evel													
A25480	Rough-In Overhead MEPs- 1-LL	10d	10d 09/06/13	09/19/13				Rough	In Overhead MEPe-1-LL					
A18630	CMU Interior Walls- 1-LL	15d	15d 09/20/13	10/10/13	- 8			- CI	IU Interior Wale- 1HL					
A18640	Rough-In In-Wall MEPs- 1-LL	10d	10d 10/01/13	10/15/13	_			<b>I</b>	ough-in In-Wall MBPs- 1-LL					
A18660	Prime Paint Walls & Ceilings- 1-LL	50	50 10/11/13	10/18/13					Prime Paint Walls & Cellings- 1-UL					
A18710	MEP Inspections- 1-LL	20	20 10/16/13	10/17/13					IEP Inspections- 1-LL					
A18650	Install ACT Celling Grid- 1-LL	2d	20 10/18/13	10/21/13	100				Install ACT Clelling Grid- 1-LL					
A18700	Install FE / Cabinets- 1-LL	10	10 10/21/13	10/21/13	2 8			1 1 1 1 1	Install FE / Cabinets- 1-LL					
A18670	Trim Out MEPs & Install Lighting- 1-LL	15d	150 10/22/13	11/12/13	- 3	1			TTIM Out MEPs & Install Lighting- 1-LL					
A18720	Install Celling Tie- 1-LL	10	10 11/13/13	11/13/13					I Install Claiing Re- 1-LL					
A18680	Install Doors & Hardware- 1-LL	4d	40 11/13/13	11/18/13		}}			stal Doors & Hardware-1-LL					
A18690	Finish Paint- 1-LL	20	20 11/19/13	11/20/13	1118				Frish Pant- 1-LL					
Health	Services	10.4	104 00 00 11 0	00100103										
A2541	Rough-In MEPS Overhead - 1-LL	100	100 09/06/13	09/19/13	- 3	1 1	18 8 8	Rough	In MEP's Overneilig - 1-La					
A2188	Prame Interior Walls-1-LL	150	150 09/20/13	10/10/13	-				ame interior wast-1-LL					
A2100	Rough-In MEPS In-Wal- 1-LL	100	100 10/11/13	10/25/13					Rough-In MEPS Interaction					
A2181	Report Male & College, 1-11	20	20 10/20/13	11/25/13	1.1				Road Make & Calloon 111					
A210/	Tana Wale & Callans, 1.11	54	54 11/06/13	11/13/13	- 3	1		1 1 1 1 1	These Wests & challingher 1 at 1					
A2185	Prime Paint Wals & Cellings, 1-11	50	50 11/14/13	11/20/13	- 1				Drime Daint Walk & Cellins, 1-1					
A2195	Grid Accustical Cellons, 1-11	20	20 11/21/13	11/22/13	-			1111	I Orti Amustini Callons, S.I.					
A219/	Trim Out MEDs & Install Lighting, 1-11	150	154 11/25/13	12/16/13		+			Trim Cut MEDs & Install   White, 1.4					
A2191	Install FE / Cabinets- 1-LL	10	10 12/17/13	12/17/13					Install PE / Cabinets 1-LL					
A2196	ACT TIE 1-11	20	20 12/17/13	12/18/13	- 8				ACT TR- 1-1					
A2191	Install Flooring- 1-LL	9d	90 12/18/13	12/31/13		1 1		1 1 1 1 1	Install Findring- 1-LL					
A2192	Install Doors & Hardware- 1-LL	4d	40 01/02/14	01/07/14					Install Doors & Hardware- 1-LL					
A2194	Finish Paint- 1-LL	20	20 01/08/14	01/09/14	-				Fisish Paint- 1-LL					
1st Floo	IC													
Reside	nital Life Offices													
A2550	Rough-In MEPs Overhead - 1-L1	10d	10d 08/14/13	08/27/13	1			Rough-In M	EPs Overhead - 1-£1					
A1873	Frame Interior Walls- 1-L1	15d	150 08/28/13	09/18/13	5		Second Second	Frame	Interky Walia 1-L1					
A1874	Rough-In MEPs In-Wal- 1-L1	10d	10d 09/19/13	10/02/13				Rou	gh-In (MEPs (n-Wal)- 1-L1					
A1887	Inspect MEP- 1-L1	2d	20 10/03/13	10/04/13	1			1 Insp	ect MEP- 1-L1					
A1875	Board Walls & Cellings- 1-L1	5d	50 10/07/13	10/11/13	- 3			I B	ard Wals & Cellings- 1-Lit					
A1886	Tape Walls & Cellings- 1-L1	5d	5d 10/15/13	10/21/13	518	1 1		1 1 1 1 1	Tape Walls & Cellings- 1-41					
A1876	Prime Paint Walls & Cellings- 1-L1	5d	50 10/22/13	10/28/13	1				Prime Paint Walls & Cellings- 1-L1					
A1883	Grid Acoustical Cellings in Corridons- 1-L1	2d	2d 10/29/13	10/30/13	1000	1990			GridiAcoustical Cellings in Contidors- 1-L1					
A1878	Trim Out MEPs & Install Lighting- 1-L1	15d	15d 10/31/13	11/21/13	2 3			1 1 1 1 1	Trim Out MEPs & Install Lighting- 1-L1					
A1885	Install FE / Cabinets- 1-L1	1d	1d 11/22/13	11/22/13	- 8				Install FE / Cabinets- 1-L					
A1884	ACT TIE- 1-L1	2d	20 11/22/13	11/25/13	1 3				ACT Re-1-1					
A1879	Install Flooring- 1-L1	9d	9d 11/26/13	12/09/13					Install Figoring-1-L1					
A1880	Install Doors & Hardware- 1-L1	4d	40 12/10/13	12/13/13	2.12				Inistall Doors & Hardware- 1-L1					

124 - WSU - Nev	v Student Residence Hall and Dining Facility			WBS Layout - C	wner S	UDS TAS	K filter	000 Activity Finder.		Page 4 of 17
Activity ID	Activity Name	Orig	Rem Start	Finish .	1			2013		2014 2015
			Dur		Jan	Feb I	Mar	Apr May Jun Jul	Aug Sep Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
A1882	Finish Paint- 1-L1	20	20 12/16/13	12/17/13	1					finish Paint-1-L1
2nd Floe						1 1				
Bedroo	ms / Common Areas					1 1			1000	
A2551	Rough-In MEPs Overhead - 1-L2	10d	10d 08/28/13	09/11/13					Rough-	IR MEP6 Overhead -11-L2
A1885	Frame Interior Walls- 1-L2	15d	15d 09/19/13	10/09/13		1 1			E F	rame interior Walis-1-L2
A1890	Rough-In MEPs In-Wal- 1-L2	10d	10d 10/10/13	10/24/13	-	1 1			i i	Rough-In MEPs In-Wall-1-L2
A1902	Inspect MEP- 1-L2	20	2d 10/25/13	10/28/13	_	i i	1	1 1 1 1		Inspect MEP- 1-L2
A2487	Install Shade Pocket - 1-L2	2d	2d 10/25/13	10/28/13	_	1	i			Install Shade Pocket - 1-L2
A1891	Board Walls & Cellings- 1-L2	50	5d 10/29/13	11/04/13						Board Walls & Cellings- 1-L2
A1781	Complete Bedroom Unit Mock-Up- 1-L2	10d	10d 10/29/13	11/12/13	-	1 1	1	1 1 1 1	11	Complete Bedroom Unit Mock-Up- 1-L2
A1903	Tape Walls & Cellings- 1-L2	5d	5d 11/05/13	11/12/13	-	1 1	1	1 1 1 1		Tape Walls & Gelings- 1-L2
A1895	Prime Paint Walls & Cellings- 1-L2	50	50 11/13/13	11/19/13		1 1				Prime Paint Wals & Cellings- 1-12
A1901	Install FE / Cabinets- 1-L2	10	10 11/20/13	11/20/13	-	1 1				Install FE / Cabnets- 1-La
A1895	Grid Acoustical Cellings in Corridors- 1-L2	20	20 11/20/13	11/21/13						Gind Apoustical Cellings in Compons- 1-L2
A1894	Trim Out MEPS & Install Lighting- 1-L2	150	150 11/22/13	12/13/13	-	1 1				TITIM OUT MEHS & Install Lighting- 1-L2
Algol	ACT THE T-L2	20	20 12/10/13	12/17/13		1 1				
A1892	Instal Plooring- 1-L2	90	90 12/18/13	12/31/13	_					install Flooring- 1-L2
A2488	Install Motorized Shades - 1-L2	20	20 01/02/14	01/03/14	-		2			Install Motorized/Shades - 1-62
A1090	Instal Doors & Hardware- 1-L2	40	40 01/02/14	01/07/14		·				Install Doors & Hardware- 1-L2
A1090	Pinen Paint- 1-L2	20	20 01/06/14	01/07/14		1 1				rigen Parts-1-12
· · ·	Onto Contract of LO		24 00 00 11 2	00.00143		1 1				
A2220	Set Plumping Carners- 1-L2	30	30 08/28/13	08/30/13	-	1 1		1 1 1 1	Set Plumb	Reg Cathlen Policy of Comment 1 12
A2211	Hong Down & Batteroom 112	Su	50 10/20/13	10/31/13	-	1 1	1	1 1 1 1		House Oniversited Baltimerer 112
10171	Thang Drywai (g Babriothie 1-C2	50	50 11/01/13	11/07/13	+	· +				The Date Control of Process 110
A2473	Tape & Sand Drywai gr Bathrooms- 1-L2	50	50 11/00/13	11/15/13	-					ape a part prywar g patricone 1-02
A222	Install Ceramo? Waterprooning Memorane- 1-L2	50	24 11/10/13	11/22/13	-					I Indal Ceranic/ Waterprooning Wemprane-1-L2
A2221	Install Counters- 1-L2	20	20 11/25/13	11/26/13						mical counters- 1-12
A222	The Ord Demokra 410	40	40 11/25/13	11/29/13	-	1 1		1 1 1 1		instal prover onder 1-12
A2224	Trim-Out Plumoing- 1-L2	50	50 12/02/13	12/06/13		+				Instanting 1-62
ALLL:	Insal Tole: Accessories- 1-L2	30	30 12/09/13	12/11/13		1 1				I Inical Infectiones-1-L2
Jinter 100	The common American					1 1				
40551	Parab is MED Contend 112	104	104 00/10/13	00/05/43		1 1		1 1 1 1	- Dave	
A1011	Frome Interior Male, 1-13	100	100 09/12/13	10/17/13	-	1 1	i	1 1 1 1	rou	frame laterier Wate, 1,1 1
A101/	Pound- in MEDr In Wale 1-13	104	104 10/25/13	11/07/13		+				Rauth MAEDele Web 1.0
A1074	Incoset MED, 1,1 3	24	24 11/08/13	11/12/13		1 0				Internet MED. 1.1.2
42495	Index MCF- FCS	20	24 11/08/13	11/12/13	-					Hertal Charles Device 1,1,2
A1016	Board Walk & College, 1-1-2	20	Ed 11/13/13	11/10/12	-	1 1	1	1 1 1 1		Board Mate & Californ 11 3
A1975	Tane Walk & Cellings, 14 3	50	54 11/20/13	11/26/13	-			1 1 1 1		Tano Walk & Celling, 1/13
A1016	Prime Daint Walls & Cellings, 1-13	50	54 11/27/13	12/04/13		· • • • • • • • • •				III Dritte Date Wale & Cellings 1.1 3
A1923	Critt Acoustical Calibras in Corridors, 1-13	24	20 12/05/13	12/06/13	-	1 1		1 1 1 1		Critit Acquisting Californi In Contridens, 1,1 3
A1915	Trim Out MEPs & Instal Liphting- 1-13	15d	15d 12/09/13	12/30/13	-					Trim Out MEPs & Instal Lighting- 1-13
A1925	Install FE / Cabinate 1-1 3	10	16 12/31/13	12/31/13	-					Incial EE (Cabinete 143
A192/	ACT Tio 1J 3	24	20 12/31/13	01/02/14						ACT THE RUIS
A1010	Instal Flooring, 1,13	b0 b0	94 01/03/14	01/15/14	+	+				istal Rootes 1.1
A2490	Instal Motorized Shades - 1-L3	20	20 01/16/14	01/17/14		1 1		1 1 1 1		Install Motorized Sharles - 1-1.3
A1920	Instal Doors & Hardware- 1-L3	44	40 01/15/14	01/21/14	-	1 1				InstallDoors(& Hardware) 1-13
A1925	Finish Paint- 1-L3	20	20 01/20/14	01/21/14						Finish Paint, 1-13
Bathro	Dma	20	and a subset for			L				
A1915	Set Plumbing Carriers- 1-L3	3d	3d 10/18/13	10/22/13	+	+				Set Plumbing Carriers- 14L3
A1905	Rough-In Bathrooms & Showers- 1-L3	50	50 11/08/13	11/15/13		1 1				Rough-In Bathrooms & Shewers- 1-L3
A1910	Hang Drywall @ Bathrooms- 1-L3	50	50 11/18/13	11/22/13	-					Hang Drwall @ Bathrooms- 1-L3
A2474	Tape & Sand Driwall @ Bathrooms- 1-L3	50	50 11/25/13	12/02/13		1 1				Tape & Sand Driveal & Bathrooms- 1-L3
A1907	Instal Ceramic / Waterproofing Membrane- 1-L3	50	50 12/05/13	12/11/13	-	1 1		1 1 1 1		Instal Ceramic / Waterproofing Membrane- 1-L3
A1911	Install Counters- 1-L3	20	20 12/12/13	12/13/13	+	+				I Initial Chunteris- 1-L3
A1904	Instal Shower Units- 1-L3	44	40 12/12/13	12/17/13	-	1 1				Install Shower Units 1-L3
0120		40		100 D7 19		1 1	11			

1124 - WSU - New	Student Residence Hall and Dining Facility	ľ	WBS Layout - C	Owner Subs TASK filter.	000 Activity Finder.		Page 5 of 17
Activity ID	Activity Name	Orig Rem St	art Finish		2013	2014	2015
		Duir Dur		Jan Feb Mar A	Apr May Jun Jul Aug Sep Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep	Oct Nov Dec Jan Feb Mar
A1908	Trim-Out Plumbing- 1-L3	5d 5d 12	/18/13 12/24/13			Trim-Dut Plumbing- 1-L3	
A1905	Install Tollet Accessories- 1-L3	3d 3d 12	/26/13 12/30/13			Install Tollet Accessories- 1-L3	3 8 1 8 3
4th Floor							
Bedroor	na / Common Areas						
A255:	Rough-In MEPs Overhead - 1-L4	10d 10d 09	/26/13 10/09/13		Re Re	ugh-In MEPs Overhead - 1-L4	
A1925	Frame Interior Walls- 1-L4	15d 15d 10	/18/13 11/07/13			Frame Interior Walls- 1-L4	
A1930	Rough-In MEPs In-Wal- 1-L4	10d 10d 11	/12/13 11/25/13			Rough-In MEPs In-Wall-1-L4	
A1942	Inspect MEP- 1-L4	2d 2d 11	/26/13 11/27/13	- Indiana indi		Inspect MEP- 1-L4	
A2491	Install Shade Pocket - 1-L4	20 20 11	/26/13 11/27/13			I Install Shade Pocket - 1-L4	
A1931	Board Walls & Cellings- 1-L4	50 50 11	/29/13 12/05/13	- 1 1 1		Board Walls & Gelinge-1-L4:	
A1943	Tape Walls & Cellings- 1-L4	50 50 12	/05/13 12/12/13			Tape Walls & Cellings- 1-L4;	
A1935	Prime Paint Wals & Cellings- 1-L4	50 50 12	12/26/13			Prime Paint Walls & Cellings- 1-L4	
A1935	Grid Acoustical Cellings in Corridors- 1-L4	20 20 12	12//13 12/30/13			Gno Acoustical Cellings in Contidors-11-L4	
A1934	Trim Out MEPs & Install Lighting- 1-L4	150 150 12	131/13 01/21/14			i rm out Mers & install ugning- 1-L4	
A1941	Install FE / Cabinets- 1-L4	10 10 01	22/14 01/22/14			I Install HE / Gabinets- 1-L4	
Algel	AUT THE T-LA	20 20 01	122/14 01/23/14			NUT HE 154	
A1930	FINEL PAINE 1-LA	20 20 01	123/14 01/24/14			Trining Partie 1-L4	
47495	Install Proving- 1-04	24 24 07	02/02/14			I Indtal Eddorfted Shades 1114	
A1036	Install Proofs & Hardware, 1-14	44 44 02	05/14 02/11/14	- 1 1 1		In Initial Diving Schartherer, 1.1.4	
Bathroo		40 40 02	02/11/14				
A1051	Set Dumbing Carriers, 1-14	74 74 11	11/13/13			Chi Diuteina Carriete, 1.1	
A194	Rough In Bathrooms & Showers, 1,14	50 50 11	/26/13 12/03/13			Bouldt-in Bathridoms & Showers, 1-1.4	
A1941	Install Ceramic / Waterproofing Membrane, 1-14	54 54 12	27/13 01/03/14			Instal Cetamic /Watedorooffin Membrane, 1-14	
A1057	Install Counters, 1-1 4	24 24 01	/05/14 01/07/14			Instal Counters, 1,1 4	3 8   1 8 8
A1946	Install Shower Lints, 1-14	44 44 01	05/14 01/09/14			Instal Shower Lints, 4,1,4	
A194F	Trim-Cut Plumbing- 1-14	41 41 01	/10/14 01/15/14			Trim-Cut Plumbing-1-14	
A1946	Install Tollet Accessories- 1-14	14 14 01	/16/14 01/16/14	a han han had he		I litistall Toilet Atness tries- 1-1 4	
Sth Floor							
Bedroor	na / Common Areas						
A2554	Rough-In MEPs Overhead - 1-L5	10d 10d 10	/10/13 10/24/13			Rough-In MEPs Overhead - 1-15	
A195	Frame Interior Walk- 1-L5	15d 15d 10	/25/13 11/15/13			Rrame Interiot Wals- 1-L5	
A1953	Rough-In MEPs In-Wal- 1-L5	10d 10d 11	/19/13 12/03/13			Rough-In MEPsin-Wal- 1-LS	
A1965	Inspect MEP- 1-L5	20 20 12	/04/13 12/05/13			Insect MEP- 1-L5	
A2493	Install Shade Pockets - 1-L5	2d 2d 12	04/13 12/05/13			Instal Shade Podkets - 1-L5	
A1954	Board Walls & Cellings- 1-L5	5d 5d 12	/05/13 12/12/13			Beard Walls & Cellings 1-L5	
A1966	Tape Walls & Cellings- 1-L5	5d 5d 12	/13/13 12/19/13			Tape Wals & Cellings- 1-U5	
A1955	Prime Paint Walls & Cellings- 1-L5	5d 5d 12	/27/13 01/03/14			Prime Paht Wals & Cellings-1-L5	
A1952	Grid Acoustical Cellings in Corridors- 1-L5	20 20 01	/05/14 01/07/14			Grid Accestical Cellings in Corridors- 1-L5	
A1957	Trim Out MEPs & Install Lighting- 1-L5	15d 15d D1	/08/14 01/28/14			Trim Out MEPs & Instal Lighting- 1-L5	
A1964	Install FE / Cabinets- 1-L5	1d 1d 01	/29/14 01/29/14			Install FE / Cabinets- 1-L5	
A1963	ACT TIE- 1-L5	2d 2d 01	/29/14 01/30/14			ACT TIEL5	
A1958	Install Flooring- 1-L5	9d 9d 02	/06/14 02/19/14			install Flooring- 1-L5	
A2494	Instali Motorized Shades - 1-L5	2d 2d 02	/20/14 02/21/14			I Install Motorized Stades 1-L5	
A1955	Install Doors & Hardware- 1-L5	4d 4d 02	/20/14 02/25/14			Instal Doors & Hardware- 1-L5	
A1961	Finish Paint- 1-L5	2d 2d 02	/24/14 02/25/14			Finish Paint 1-L5	
Bathroo	me						
A1972	Set Plumping Carriers- 1-L5	3d 3d 11	/18/13 11/20/13	+		Set Plumbing Carriers- 1-L5	
A1968	Rough-In Bathrooms & Showers- 1-L5	5d 5d 12	104/13 12/10/13			Rougn-in Bathrooms & Showers- 1-L5	
A1965	Install Shower Units- 1-L5	40 40 01	/06/14 01/09/14			instal Slower Unts- 1-L5	
A1972	Install Ceramic/Waterproofing Membrane- 1-L5	50 50 01	/06/14 01/10/14			Instal Ceramidwaterproofing Memorane 1-L5	
A1972	Install Counters- 1-L5	20 20 01	nana 01/14/14			I Install Counters- 1-L5	
A1970	Irm-Out Humbing- 1-L5	50 50 01	/15/14 01/21/14			m arm-out Pumoing-1-L5	
A19/1	Insult foliet Accessories- 1-L5	10 10 01	122/14 01/22/14			1 ansulas romet.ecce650/166-7-L5	
SECTIO	a [weet cal]						3 4 1 1 9
Structure	Stick						

124 - WSU - Nev	Student Residence Hall and Dining Facility	1	1	WBS Layout - O	ner Subs TASK filter: 000 Activity Finder. Page (
Activity ID	Act/My Name	Orig	Rem Start	Finish	2013 2014 201
		Dur	Dur		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Fe
Foundat	iona				
A22510	Excavate for Footing & Foundations / Haul - Section 3	14d	14d 04/01/13 A	04/12/13	Excavaté for Fboting & Foubdations / Hald - Section 3
A16590	FREP Footings - Section 3	5d	50 04/15/13	04/19/13	FREP Footings - Section 3
A16620	FREP Interior Footings - Section 3	10	10 04/22/13	04/22/13	1 FREPIntendr Footings - Sector 3
A16610	FREP Foundations - Section 3	10d	10d 04/22/13	05/03/13	FREP Foeindations - Section 3
A16380	Waterproof - Section 3	10d	10d 05/10/13	05/23/13	Wateproof Section 3
A16340	Backfil / Compact / Underslab MEPs - Section 3	15d	15d 07/15/13	08/02/13	Backfil / Chmpact / Understab MEPs/- Section 3
A16600	Place SOG - Section 3	5d	5d 08/05/13	08/09/13	Place SOG- Section 3
Floors 1	- 3 [Seq 3 & 4]				
A16630	Erect Steel - Section 3-L1-3 [Seq 3]	20	26 05/22/13	05/23/13	I Ered steel-Sector 3-L1-3 (Sec 3)
A24950	Deck & Detail Steel - Section 3-L1-3 [Seq 3]	110	110 05/23/13	06/07/13	Degx & Detail Steel - Section 3-L1-3 [Seq 3]
A16660	Erect Steel - Section 3-L1-3 [Seq 4]	10	10 05/24/13	05/24/13	Eredpieer Secon 3-L1-3 (sep 4)
A25100	Deck & Detail Steel - Section 3-L1-3 [Seq 4]	100	100 05/28/13	06/10/13	Deor & getal stee- sector 3-L1-3 (seq.4)
A166/U	Erect & Grout Precast Planks - Section 3-L1-3 [Seq 3]	50	50 06/03/13	06/07/13	<ul> <li>Effort &amp; Grout Precase Hanks- Section 3-U1-3 (Section)</li> </ul>
A25250	Erect & Grout Precast Planks - Section 3-L1-3 [Seq 4]	50	50 06/04/13	06/10/13	IIII Elect & Grout Precase Hanks - Section 3-L1-3 (seq 4)
A24900	Install SOD - Section 3-LT/L2	50	50 00/11/13	00/1//13	Estat SOU-Secon SCI12
A10640	Install Prove Electronics - Section 3-L1/L2	50	44 08/02/13	08/07/13	Instance more transfere - Section 2-Links in the section of t
A16650	Install Spray Pireproofing - Section 3-L1/L2	40	40 00/02/13	00/07/13	<ul> <li>Insuit spray Preproding - Section 5-L1/L2</li> </ul>
3/0 1/00	Install Taxolina Clab. Costion 2   2		44 05 09 11 2	07/02/12	
A1000U	Install Topping Stab - Section 3-L3	40	40 06/28/13	07/03/13	■ msgai topping sapo - section p=L3
A16690	Install MEP Hangers - Section 3-L3	50	50 0//22/13	0//26/13	Instal MEP Hangers - Secon 4-L3
A16/00	Install Spray Fireproofing - Section 3-L3	40	40 08/08/13	08/13/13	Install spray Freproding - Bedion 3-L3
A23400	instal metal Statis (gl courges 3-c3	50	Su Dalitaria	DavDav12	
F10018 4	a s [seq / a s]	14	44 DC #042	00100103	
A16/20	Electrolection 3-L4-5 (Sec 7)	10		06/10/13	T Electroler - security-ca-s [see] a
A1004U	Detail Steel - Section 3 L 4 5 (Sec 7)	20	20 00/11/13	06/12/13	Detail Detail Detail 21 (6 2007)
425110	Detail Steel - Section 31.4 5 (Sec 9)	110	114 06/10/13	06/20/13	
A16720	Erect & Creet Dreamt Diseks - Codies 3   4 5 (Cos 7)	54	Fr 05/10/13	06/20/13	Event alter deutine triangle of
A16730	Erect & Grout Prevals Planks - Section 3-04-5 [Seq 7]	ou Ed	54 05/01/13	06/23/13	E conde couper request relation - pecuality 2 - ( for a relation - )
A16750	Install MED Hanners - Section 3-14	54	54 06/26/13	07/02/13	Intelling a chique repair repair - percurs of sets of sets of a chick set of the se
A16740	Install Taxoing Clab - Cection 3-14	44	44 07/02/13	07/02/13	In table Theorem (Think, Charles )
A16760	Install Spray Firenconflor - Section 3-14	40	40 08/14/13	08/19/13	Instal Second Reported to a Section 34.8
Sth Floo	and on of the second seco		40 00114110	Barrario	
A16870	Instal MEP Hangers - Section 3-15	50	50 07/11/13	07/17/13	Install VEP Hanners-Section 3-15
A15850	Install Topping Slab - Section 3-15	41	44 07/19/13	07/24/13	Instal Topping Stati - Section 3-15
A15880	Install Spray Fireproofing - Section 3-15	h	41 08/20/13	08/23/13	InstallStrayEreptoring_Section 3-15
A25470	Install Metal Stairs (%) Journes 3-15	50	54 09/10/13	09/16/13	Instal Metal State (%) runnes 3,5 5
Sth Floo	r& Roof (Seg 11 & 12)	50	00 00 1010	00000	
A16780	Erect Steel - Section 3-L6-R (Seg 11)	1d	1d 07/01/13	07/01/13	Erect Steel - Section 3-US-R (Sect 11
A16560	Erect Steel - Section 3-6-R [Seg 12]	10	10 07/02/13	07/02/13	Erect Steel - Section 3-6-R (Seg 12)
A25130	Deck & Detail Steel - Section 3-L6-R [Seg 11]	100	10d 07/02/13	07/16/13	Deck & Detail Steel - Section 3-L6-R (Sep 11)
A16570	Deck & Detail Steel - Section 3-6-R [Seq 12]	11d	110 07/03/13	07/18/13	Deck & DetailSteel Section 3-6-R (Sect 12)
A16790	Erect & Grout Precast Planks - Section 3-L6-R (Sec 11)	50	50 07/05/13	07/11/13	Elect & Grout Precasi Plants - Section 3-16-R Kee 11
A25300	Erect & Grout Precast Planks - Section 3-L6-R [Seg 12]	5d	5d 07/09/13	07/15/13	Bredt & Strout Precast Plants - Section 3/L6-R (Sect 12)
A16810	Install MEP Hangers - Section 3-L6	5d	5d 07/16/13	07/22/13	Install MEP Hangers - Section 3-L6
A16800	Install Topolno Slab - Levels 3-L6	4d	40 07/23/13	07/25/13	III Instat Topping State - Levels 3-U6
A16820	Install Spray Fireproofing - Section 3-L6	4d	4d 08/26/13	08/29/13	Instal Spray Fredrooting - Section 34.6
Root					
A16580	Parapet Framing & Sheathing - Section 3-R	10d	10d 07/19/13	08/01/13	Parapet Planing & Shelathing - Section 3-R
Shell					
A16900	Roofing [3]	10d	10d 08/02/13	08/15/13	
A24970	Set & Pipe Solar Panels [3]	20d	20d 08/16/13	09/13/13	Set & Pipe Sour Panels (3)
South E	Jevation				
A1694	Erect Staging [3S]	4d	4d 07/30/13	08/02/13	Erekt Stading 1351
A1730	Frame & Sheath Exterior Walls- 3-L3	10d	100 08/14/13	08/27/13	Frame & Sheath Exterior Walts 3-L3
		27.7	on other second second second	0.000.000.000	

1124 - WSU - Ner	v Student Residence Hall and Dining Facility			WBS Layout - O	owner Subs TASK filter: 000 Activity Fin	er. Page	7 of 17
Activity ID	Activity Name	Orig	Rem Start	Finish	2	3 2014 20	15
		Duir	Dur		Jan Feb Mar Apr May Jun	Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan F	eb Mar
A1782	Frame & Sheath Exterior Walls- 3-L4	10d	10d 08/23/13	09/06/13		Frame & Sheath Exterior Walls- 3-14	and a second
A1756	Frame & Sheath Exterior Wals- 3-L5	10d	1Dd 08/28/13	09/11/13		Frame & Sheath Externor Walls- 34L5	
A1798	Frame & Sheath Exterior Walls- 3-L6	10d	10d 09/09/13	09/20/13		🖬 Framela. Shelath Experior Walis-13-L6	
A1693	Waterproofing [3S]	4d	4d 09/23/13	09/26/13		Watekproofing [35]	1
A1692	Install Windows [3S]	4d	4d 09/27/13	10/02/13		Instal Windows (\$51	
A2536	Strip in Window Flange [35]	10	10 10/03/13	10/03/13		Strip in Window Flance: ISSI	
A1691	Masonry Veneer [3S]	140	14d 10/07/13	10/25/13		Maschry Veheer [35]	
A1695	Curtainwall [3S]	6d	6d 10/28/13	11/04/13		Cuttainwall [35]	5
A2243	Remove Staging[3S]	10	10 11/05/13	11/05/13		Remove Staging[35]	
West E	evation						
A1698	Erect Staging (3W)	20	2d 08/05/13	08/06/13		Erect Staging (3W)	
A1697	Waterproofing [3W]	6d	6d 09/27/13	10/04/13		Waterproofing (SW)	
A1696	Masonry Veneer [3W]	7d	70 10/28/13	11/05/13		Makonry Veneer[3W]	1
A1699	Curtainwali (3W)	8d	8d 11/06/13	11/18/13		Curtariwal (3W)	2
A2244	Remove Staging/3W1	10	10 11/19/13	11/19/13		Remove Stading[3W/I	
North I	Jevation						18
A170:	Erect Staging [3N]	5d	5d 08/07/13	08/13/13		Efect Staging BNI	
A170	Waterproofing [3N]	4d	40 10/07/13	10/10/13		Waterprisoning 3NI	1
A1701	Install Windows [3N]	4d	40 10/11/13	10/17/13		Install Windows (3N)	i
A2531	Strip in Window Flange [3N]	10	10 10/18/13	10/18/13		1 Strip in Window Flakee (3N)	
A1700	Masonry Veneer [3N]	14d	140 11/06/13	11/26/13		Masonry Veneer (SNI	. K
A1704	Curtainwall (3N)	100	100 11/19/13	12/03/13		Curtamwali (3N)	
A2245	Remove Staging(3N)	10	10 12/04/13	12/04/13		Remove Staging3N	
Interior	an and a second s	1000	and the second s	Contractor (			
1at Floo	r - Servery & Kitchen Area						12
A1730	Install Interior LGMF & Door Frames- 3-L1	50	50 12/04/13	12/10/13		Instal Interior LGMF & Doot Frames- 3-L1	
A1700	Above HVAC Rough-In- 3-L1	15d	150 12/04/13	12/24/13		Above HVAC Rough-In-3-L1	
A1740	Install Plumbing Rough-In- 3-L1	8d	8d 12/11/13	12/20/13		Instal Plumbing Rough-Ini-3-L1	12
A1750	In-wall Electrical Rough-In- 3-L1	8d	8d 12/11/13	12/20/13		n-wailEedtrica Rdugh-Iri- 3-L1	12
A1710	Above Celling Electrical Rough- 3-L1	15d	15d 12/11/13	01/02/14		Abdue Celling Electrical Rough- 3-L1	
A1720	Install Sprinkler Rough- 3-L1	10d	10d 12/16/13	12/30/13		Install Sprinker Rough-I3-L1	18
A1770	Hang GWB- 3-L1	6d	60 12/18/13	12/25/13		Hand GWB-3-L1	
A1780	Tape/Finish GWB- 3-L1	7d	7d 12/23/13	01/02/14		TapleFindh GwB-3-L1	
A1790	Prime Paint- 3-L1	3d	3d 12/31/13	01/03/14		Printe Parts - 3-Ut	
A2590	Frame Soffts- 3-L1	50	5d 12/31/13	01/07/14		Frame Shma-3-L1	1
A1870	Install Servery Flooring- 3-L1	70	70 01/03/14	01/13/14		Inistal Servery/Flooring-3-L1	- 1
A1890	Install Kitchen Hoods- 3-L1	5d	5d 01/07/14	01/14/14		Install Attchen Hoods-3-L1	- T.
A2600	Hang & Finish Sofft GWB- 3-L1	5d	50 01/08/14	01/14/14		Hang & Finish Sofft SWB-3-L1	1
A1900	Install Kitchen Hood Ansul System- 3-L1	3d	3d 01/14/14	01/16/14		Install Kitchert Hood Ansul System- 3-L1	
A1880	Install Kitchen Equipment- 3-L1	20d	200 01/14/14	02/10/14		Inistali Kitchen Equiprijent-3-L1	1
A1940	Install Milwork- 3-L1	10d	100 01/28/14	02/10/14		🖬 Inistali Milworki 3-L1	- E
A1810	Install Celling Grid- 3-L1	5d	50 02/11/14	02/18/14		Install Celling Grid- 3-L1	T
A1800	Finish Paint- 3-L1	3d	3d 02/19/14	02/21/14		FinishPaint-3-L1	6
A1820	Install Lighting & Finish MEPs- 3-L1	5d	50 02/19/14	02/25/14		Instal Lighting & Finish NEPs- 3-L1	10
A1950	Install All Other Flooring- 3-L1	5d	5d 02/19/14	02/25/14		Instal AI Other Figoring-3-L1	12
A1960	Install Doors & Hardware- 3-L1	4d	40 02/24/14	02/27/14		Install Doods & Hardwarle- 3-L1	
A1830	Drop Celling Tile- 3-L1	20	20 02/26/14	02/27/14		Drog Celling Tile-3-L1	T
3rd Floo	6						2
Bedroc	ms / Common Areas						12
A2555	Rough-In MEPs Overhead- 3-L3	100	10d 08/14/13	08/27/13		Rough-In MEPs Overhead- 3-L3	
A1715	Frame Interior Walls- 3-L3	15d	150 09/10/13	09/30/13		Frame Interior Walls- 3-1.3	in line
A1716	Rough-In MEPs In-Wal- 3-L3	100	10d 10/01/13	10/15/13		Rough-In MERs In-Vital- 34L3	1
A1721	Inspect MEP- 3-L3	2d	2d 10/16/13	10/17/13		I Ihspect MEP-3-L3	Č.
A1715	Board Walls & Cellings- 3-L3	5d	5d 10/29/13	11/04/13		Board Walls & Celling= 3-L3	2
A1728	Tape Walls & Cellings- 3-L3	5d	5d 11/05/13	11/12/13		Tape Walls & Gelings- 3-L3	1
A1718	Prime Paint Walls & Ceilings- 3-L3	5d	5d 11/13/13	11/19/13		Prime Paint Waits & Cellings- 3-\$3	

24 - WSU - Nev	V Student Residence Hall and Dining Facility	4	WBS Layout - Or	Subs TASK filter: 000 Activity Finder.		Page 8 of 1
stvity ID	Activity Name	Orig Rem Start	Finish	2013	2014	2015
		Dur Du		Feb Mar Apr May Jun Jul Aug Sep	Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov	Dec Jan Feb M
A1724	Grid Acoustical Cellings in Corridors- 3-L3	2d 2d 11/20/13	11/21/13		I Grid Aboustical Cellings In Corridors- 34L3	
A1725	Finish Paint Ceiling - 3-L3	2d 2d 11/20/13	11/21/13		Finish Pant Celling- 3-L3	
A1720	Trim Out MEPs & Install Lighting- 3-L3	15d 15d 11/22/13	12/13/13		Thim Out MEPIs & Install Lighting- 3-L3	
A1726	Install FE / Cabinets- 3-L3	1d 1d 12/16/13	12/16/13		Install FE / Cabinets- 3-L3	
A172:	Finish Paint- 3-L3	2d 2d 12/16/13	12/17/13		Finish Paint- 3-L3	
A1725	ACT TIE- 3-L3	2d 2d 12/16/13	12/17/13		ACT TI⊫-3-L5	i i
A1721	Install Flooring- 3-L3	9d 9d 12/18/13	12/31/13		Install Flodring- 3-L3	1 1 1
A1/24 Bathrou	Instal Doors & Hardware- 3-L3	40 40 01/02/14	01/07/14		Install Doors & Hardware- 3-L3	
A1714	Set Plumbing Carriers- 3-L3	2d 2d 10/01/13	10/02/13		Set Plumbing Carriers- 8-L3	
A1707	Install Shower Units- 3-L3	4d 4d 10/01/13	10/04/13		Install Shower Uhits- 34.3	
A1705	Rough-In Bathrooms & Showers- 3-L3	3d 3d 10/16/13	10/18/13		Rough-In Bathrooms & Showers+ 3-L3:	
A1712	Hang Drwall @ Bathrooms- 3-L3	5d 5d 10/29/13	11/04/13		Hate Dryval @Bathrboms-3-L3	
A2475	Tape & Sand Drwall @ Bathrooms- 3-L3	5d 5d 11/05/13	11/12/13		Thee & Sand Drywall @ Bathrooms- 3-18	
A170f	Prime Paint Wals & Cellings- 3-L3	5d 5d 11/13/13	11/19/13		Prime Paint Wals & Cellings 3-83	
A1708	Install Ceramic / Waterproofing Membrane- 3-L3	7d 7d 11/20/13	11/29/13	·····	Install Ceramic / Waterproofing Memorane- 3-L3	
A171	Install Counters- 3-L3	2d 2d 12/02/13	12/03/13	1 F F F I I I I I	Install Counters-3-L3	141
A1711	Finish Paint- 3-13	20 20 12/04/13	12/05/13		Erish Palit-3-13	
A1705	Trim-Out Plumbing- 3-L3	5d 5d 12/06/13	12/12/13		Tim-Out Pumbing- 3-L3	1 1 1
A1710	Install Tollet Accessories- 3-L3	3d 3d 12/13/13	12/17/13		Install Tollet Accessories- 3-L3	1 1
4th Floo	1			+		
Bedroo	ms / Common Areas					1 1 1
A2556	Rough-In MEPs Overhead- 3-L4	10d 10d 08/28/13	09/11/13	R	ough-In MEPs Overhead- 3-L4	
A1766	Frame Interior Walls- 3-L4	15d 15d 09/12/13	10/02/13		Frame Interior Walls-3-L4	
A1767	Rough-In MEPs In-Wal- 3-L4	10d 10d 10/04/13	10/18/13		Rough-In MEPs In-Wall- 3-L4	
A1775	Inspect MEP- 3-L4	2d 2d 10/21/13	10/22/13		Inspect MEP- 3-L4:	
A1768	Board Wals & Cellings- 3-L4	5d 5d 11/13/13	11/19/13		Board Walls & Cellings- 3/L4	
A1780	Tape Walls & Cellings- 3-L4	5d 5d 11/20/13	11/26/13		Tape Walls & Cellhgs- 34L4	
A1765	Prime Paint Wals & Cellings- 3-L4	5d 5d 11/27/13	12/04/13		Prime Palit Wals & Cellings-3-L4	1 1 1
A1776	Grid Acoustical Cellings in Corridors- 3-L4	2d 2d 12/05/13	12/06/13		Grid Acoustical Cellings in Corridors 3-L4	and and have b
A1771	Trim Out MEPs & Install Lighting- 3-L4	15d 15d 12/09/13	12/30/13		Trim Out MEPs & Instal Lighting- 3-U4	1 1
A1778	Install FE / Cabinets- 3-L4	1d 1d 12/31/13	12/31/13		Install FE ( Cabinets- 3-L4	9 6
A1775	Finish Paint- 3-L4	2d 2d 12/31/13	01/02/14		Finish Paint- 3-L4	
A1771	ACT TILE 3-L4	2d 2d 12/31/13	01/02/14		ACT THE-3-L4	1 3 1
A1772	Install Flooring- 3-L4	9d 9d 01/03/14	01/15/14		🖿 Install Flooring- 3-L4	
A1773	Install Doors & Hardware- 3-L4	4d 4d 01/16/14	01/21/14		Install Doorst& Handware 3-L4	
Bathroo	pma					
A176	Set Plumbing Carriers- 3-L4	3d 3d 10/03/13	10/07/13		Set Plumping Carriers- 3-L4	
A1/5/	Rougn-In Bathrooms & Showers- 3-L4	50 50 10/21/13	10/25/13		Rough-in Bathrooms & Showers- 3-L4	1 1 6
A1/6:	Hang Drywai @ Bathrooms- 3-L4	50 50 10/28/13	11/01/13		Hang Drywai g pathrooms- 8-L4	
A24/t	Tape & Sand Drywal @ Bathrooms- 3-L4	50 50 11/04/13	11/08/13		Tape & stand Drywai (g) Bathrooms- 3-L4	
A1/35	Install Ceramic/ waterprooring Memorane- 3-04	50 50 11/2//13	12/04/13		Insali Ceramic //waterprooting Memorane- 3-L4;	
A1764	Install Counters- 3-L4	20 20 12/05/13	12/06/13		Install Countersy 3-L4	
A1758	Install Snower UNIS- 3-L4	40 40 12/05/13	12/10/13		Install Shower Units- 2-L4	
A1760	Inn-Out Humbing- 3-L4	50 50 12/11/13	12/17/13	·┝╌╍┝╍╋┝╍┍┝╍╍┝╍╍┝╍╍┝	Imm-Out Plumbing-I3-L4	
A1761	Install Totel Accessories- 3-L4	30 30 12/18/13	12/20/13		<ul> <li>Install InterAccessories- 5-L4</li> <li>Ended Datest 3-L4</li> </ul>	
A1762	Filian Partie 3-04	20 20 12/23/13	12/24/13		I ratist Pane 3-L4	
Bedroo	ms / Common Amee					
A2551	Rough-In MEPs Overhead - 3-15	10d 10d 09/12/13	09/25/13		Rough-In MEPs Overhead - 3-15	
A1741	Frame Interior Wals- 3-15	15d 15d 09/26/13	10/17/13	+	Frame Interior Walls 3-15	++-
A174	Rough In MEDc In Walk 3 I 5	104 104 10/21/13	11/01/13	1 1 1 1 1 1 1 1	Routh In MERs In Walk 34 9	
A175/	Incond MED, 215	24 24 11/04/13	11/05/13		I Inchart MED. 215	
A1741	Board Wals & Cellings 3-15	50 50 11/20/13	12/05/13		Board Walls & Celling- 3-15	
41754	Tane Walk & Calling, 31 5	54 54 12/06/13	12/12/13		Time Wills & Collings 2.15	
1 mm + 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1 / 1	THE PARTY IN THE PARTY INTERPARTY		time time that			

1124 - WSU - Ne	w Student Residence Hall and Dining Facility		WBS Lay	out - Owner	Subs TASK	filter: 000 Activity Fine	der.	Page 9 of 17
Activity ID	Addwity Name	Orig Rem	Start Finish	R		20	013	2014 2015
		Dur Dur		Ja	n Feb Ma	ar Apr May Jun	Jul Aug Sep Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar
A1751	Grid Acoustical Cellings in Corridors- 3-L5	20 20	12/20/13 12/23	13				Grid Apoustical Cellings in Corridors- 3-L5
A1746	Trim Out MEPs & Install Lighting- 3-L5	15d 15d	12/24/13 01/15	14	1 1	1 1 1 1		Trim Out MERs & Install Lighting-13-L5
A1753	Install FE / Cabinets- 3-L5	1d 1d	01/16/14 01/16	14	1 1			I Install #E / Calometel- 3-L5
A1750	Finish Paint- 3-L5	2d 2d	01/16/14 01/17	14	1.1			I Finish Paint- 2-L5
A1752	ACT TILe 3-L5	2d 2d	01/16/14 01/17	14				I ACT THE 3-L6
A1747	Install Flooring- 3-L5	9d 9d	01/16/14 01/28	14	1 1			Instal Flooting- 3L5
A1748	Install Doors & Hardware- 3-L5	4d 4d	01/29/14 02/03	14	1 1			Instal Doors & Hardware- 3-L5
Bathro	oma							
A1740	Set Plumbing Carriers- 3-L5	3d 3d	10/18/13 10/22	13				Set Plumbing Carriers- 3-L5
A1731	Rough-In Bathrooms & Showers- 3-L5	5d 5d	11/04/13 11/08	13				Rough-In Bathrpoms & Showers- 3-L5
A1738	Hang Drywall @ Bathrooms- 3-L5	5d 5d	11/12/13 11/18	13	1 1			Hang Drywali@ Bathrooms- 3-US
A2471	Tape & Sand Drywall @ Bathrooms- 3-L5	5d 5d	11/19/13 11/25	13				Tape & Sand Dryvial @ Bathrooms- 3-L5
A1732	Prime Paint Walis & Cellings- 3-L5	5d 5d	12/13/13 12/19	13	1 1			Prime Paint Wals & Cellings- 3-US
A1734	Install Ceramic / Waterproofing Membrane- 3-L5	5d 5d	12/20/13 12/27	13				Install Ceramic / Waterproofing Membrane- 3-L5
A1735	Install Counters- 3-L5	2d 2d	12/30/13 12/31	13	1 1			Install Counters- B-L5
A1733	Install Shower Units- 3-L5	4d 4d	12/30/13 01/03	/14	1 1			Install Shower Units- 3415
A1735	Trim-Out Plumbing- 3-L5	5d 5d	01/05/14 01/10	/14				Trim-Out Plumbing- 3-L5
A1736	Install Tollet Accessories- 3-L5	3d 3d	01/13/14 01/15	/14				Install Tolet Accessories- 3-L5
A173	Finish Paint- 3-L5	2d 2d	01/16/14 01/17	/14				Finish Paint- 3-L5
Sth Floo	r -				1			
Bedroo	ms / Common Areas				1 1			
A2558	Rough-In MEPs Overhead - 3-L6	10d 10d	09/26/13 10/09	13			Rd Rd	ugh-lig MEPs Overbead - 3-L6
A1783	Frame Interior Walls- 3-L6	15d 15d	10/10/13 10/31	/13				Frame Interior Wals- 3-L6
A1784	Rough-In MEPs In-Wall- 3-L6	10d 10d	11/04/13 11/18	13				Rough-In MEPs In-Wall- 3-L6
A1796	Inspect MEP- 3-L6	2d 2d	11/19/13 11/20	13				I inspect MEP 3-L6
A1785	Board Walls & Cellings- 3-L6	5d 5d	12/11/13 12/17	13	3 1			Board Walls & Cellings- 3-L6
A1795	Tape Walls & Cellings- 3-L6	5d 5d	12/18/13 12/24	13				Tape Walls & Cellings- 3-L6
A1786	Prime Paint Walls & Cellings- 3-L6	5d 5d	12/26/13 01/02	/14	1 1			Printe Patht Walts & Cellings-3-L6
A1793	Grid Acoustical Cellings in Corridors- 3-L6	2d 2d	01/03/14 01/06	14				Gritt Accustical Cellings in Corridors 3-L6
A1788	Trim Out MEPs & Install Lighting- 3-L6	15d 15d	01/07/14 01/27	14	1			Trim; Out MEPs 8; Install Lighting- 3-L6
A1795	Install FE / Cabinets- 3-L6	1d 1d	01/28/14 01/28	14	1 1			li Install FE / Cabinets- 3-8.6
A1790	Finish Paint- 3-L6	2d 2d	01/28/14 01/29	14	1 1			I: Finish Paint- 3-L8
A1794	ACT TILe- 3-L6	2d 2d	01/28/14 01/29	/14		8 8 9 8		I ACT TIE-3-L5
A1785	Install Flooring- 3-L6	9d 9d	01/30/14 02/11	14				🔲 Iristali Fiboring- 3-L6
A1790	Install Doors & Hardware- 3-L6	4d 4d	02/12/14 02/18	14				Instal Doors & Hardware 3-L6
Bathro	smo							
A1808	Set Plumbing Carriers- 3-L6	3d 3d	11/01/13 11/05	13				Set Plumbing Carriers+ 3-L6
A1795	Rough-In Bathrooms & Showers- 3-L6	5d 5d	11/19/13 11/25	13				Rough-In Bathrooms & Showels- 3-L6
A1806	Hang Drywall @ Bathrooms- 3-L6	5d 5d	11/26/13 12/03	13				Hang Drywal @Bathrooms- 3-L6
A2478	Tape & Sand Drywall @ Bathrooms- 3-L6	5d 5d	12/04/13 12/10	13				Tape & Sand Dywall @ Bashrooms- 3-L6
A1800	Prime Paint Walls & Cellings- 3-L6	5d 5d	12/26/13 01/02	114				Prine Palnt Wals & Cellings-3-L6
A1802	Install Ceramic / Waterproofing Membrane- 3-L6	5d 5d	01/03/14 01/09	14				Instal Ceramici Waterprooting Memorane- 3-L5
A1807	Install Counters- 3-L6	2d 2d	01/10/14 01/13	/14				Inistal Countess- 3-L6
A1801	Install Shower Units- 3-L6	4d 4d	01/10/14 01/15	14		<u> </u>		Inistali Showed Units 3-L6
A1803	Trim-Out Plumbing- 3-L6	5d 5d	01/16/14 01/22	/14	1 1			Trim-put Plymbing- 3-L6
A1804	Install Tollet Accessories- 3-L6	3d 3d	01/23/14 01/27	14	1			Install Tolle Accessories 3-L6
A1805	Finish Paint- 3-L6	2d 2d	01/28/14 01/29	14				l Finish Pairs-3-L6
*** SECTK	0N 2 *** [Center Bar]				1 1			
Structure	/ Shell							
Founda	tions							
A22520	Excavate for Footings & Foundations - Section 2	10d 10d	04/15/13 04/26	13		Excavate for	Footings & Foundations	Section 2
A19770	FREP Footings - Section 2	4d 4d	04/29/13 05/02	13		FREP Fod	tings - Section 2	
A19800	FREP Interior Footing - Section 2	1d 1d	05/03/13 05/03	13		FREP Inte	rior Footing - Section 2	
A19790	FREP Foundations - Section 2	19d 19d	05/03/13 05/30	13	1.1	FRE	P Foundations - Section 2	
A16400	Waterproof - Section 2	15d 15d	05/31/13 06/20	/13			Waterproof - Section 2	
A19750	FREP Elevator Pts - Section 2	10d 10d	06/18/13 07/01	13			FREP Elevator Pts - Sec	ston 2

124 - WSU - New	Student Residence Hali and Dining Facility	Ĩ	1	WBS Layout - (	Owner S	ubs TASK	filter: 000 Ar	tivity Finder.	Pa	age 10 of 17
Activity ID	Activity Name	Orig	Rem Start	Finish	-			2013	2014	2015
	Watermark Elevater Elevator A	11 A	100		Jan	Feb M	ar Apr M	ay Jun Jul Aug Sep Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan	1 Feb Mar
A19700	Waterproof Clevalor Pilo - Sector 2	100	100 07/02/13	0//10/13		4	2 3	waterpoor Devalue	Plast pector 2	3 12
A16330	Eadmin / Compact / Undersido MEP6 - Section 2	150	150 0//15/13	06/02/13				Backin / Compac	a / Undersido MEPIS- Section 2	
Floors 1	-3 [Seq 13 & 14]		24 0204 02	07/05/02						
A19010	Ered Columns & Steer - Section 2-L1-3 [Seq 15]	30	30 0//11/13	0//15/13				Breat Columns & Ste	eer- secon 2/1-5 joed toj	
A24980	Deck & Detail Steel - Section 2-L1-3 [Seq 13]	130	130 07/12/13	07/30/13		i i	10	Deck & Detail Ste	eei - Section 2-L1-3 (seq 1p)	1 E
A22270	Erect Steel - Section 2-L1-3 [Seq 14]	30	30 0//16/13	0//18/13	-	1		Erect Steel - Section	R2-L1-5 [Seq14]	1 18
A22280	Dedx & Detail Steel - Section 2-L1-3 [Seq 14]	120	120 0/11/113	08/01/13	-	1 1	10 10	Deck & Detail Ste	eel - Section 2-L1-3 (Seq 14)	1 1
A19860	Erect & Grout Precast Planks - Section 2-L1-3 [Seq 13]	50	50 0//25/13	0//31/13			- ii	Erect & Grout Pre	ecast Hanks - Section 2-L1-3 (Sec 13)	
A25310	Erect & Grout Precast Planks - Section 2-L1-3 [Seq 14]	bd	50 0//26/13	08/01/13		1 1	E E	Erect & Grout Ph	recast Hanks - Section 2-L1-3 [Seq 14]	1 1
A19/80	Place SUG - Section 2-L1	50	50 08/05/13	08/09/13	-	1 1	La La	Place SUG - Se		3 1
A19830	Install MEP Hangers - Section 2-L1	6d	6d 08/12/13	08/19/13	-	1 1	16 18	Install MEP H	tangers - Section 2-1	1 1
A19840	Install Spray Fireproofing - Section 2-L1	40	40 08/15/13	08/20/13		1 1		Install Spray	Fireprooning - Section 2-La	3 E -
A19820	Place SOD - Section 2-L1	2d	20 08/21/13	08/22/13				Place SOD -	-Section 2-L1	
2nd Flo	or			- de la casa de la	-	1 1	IE E			1 E
A22290	Install Topping Slab - Section 2-L2	4d	40 08/02/13	08/07/13	-			Instal Topping S	Slab - Section 2-L2	
A22300	Install MEP Hangers - Section 2-L2	10	10 08/08/13	08/08/13				Instal MEP Har	ngers-(section 2-L2)	3 K -
A22310	Install Spray Fireproofing - Section 2-L2	4d	40 08/21/13	08/26/13				Install Spray	V Fireptooling - Section 2-L2	
3rd Floor	Lordel Research Control & L.D.		11 00 00 00	0010010						4
A19870	Install Topping Stab - Section 2-L3	40	40 08/08/13	08/13/13				Install Topping	Siab -/Section 2-L3	
A19880	Install MEP Hangers - Section 2-L3	10	10 08/14/13	08/14/13		1 1	13 13	I Instal MEP Ha	angers- Section 2-LB	1 12
A19890	Instal Spray Fireproofing - Section 2-L3	4d	4d 08/27/13	08/30/13	<u></u>	1 1		t Install Spra	ay Fireproofing - Section 24L3	4 R.
Floors 4	& 5 [Seq 15 & 16]					1 1				4 1
A20190	Erect Steel - Section 2-L4-5 [Seq 15]	10	10 07/29/13	07/29/13			. ii	Erect Steel- Sect	tbn 2-L4-5 [Seq 15]	
A20030	Erect Steel - Section 2-L4-5 [Seq 16]	10	10 07/30/13	07/30/13				Erect Steel- Sect	ton 2-44-5 [Seq 16]	
A25150	Detail Steel - Section 2-L4-5 [Seq 15]	10d	10d 07/30/13	08/12/13	-	1 1		Detail Steel - S	Section 2-L4-6 [Seq §5]	
A25160	Detail Steel - Section 2-L4-5 [Seq 16]	10d	10d 07/31/13	08/13/13		1 1	18 18	Detal Steel - S	Section;2-L4-\$ [Seq #6]	1 11
A20200	Erect & Grout Precast Planks - Section 2-L4-5 [Seq 15]	5d	50 08/06/13	08/12/13		1 1	10 10	Erect & Grout	Precast Planks - Section 2/L4-5 (Seq 15)	1 1
A20040	Erect & Grout Precast Planks - Section 2-L4-5 [Seq 16]	50	50 08/08/13	08/14/13	-	L		Erect & Grout	Precast Plants - Seption 2-L4-5 [Seq 16]	
A20210	Install Topping Stab - Section 2-L4	4d	40 08/15/13	08/20/13	_	1 1	18 18	install Toppin	ng Slabi- Section 2-Li4	1 1
A20220	Install MEP Hangers - Section 2-L4	5d	50 08/21/13	08/27/13		1 1		Instal MEP	Hangers - Section 2-L4	1 1
A20230	Install Spray Fireproofing - Section 2-L4	4d	4d 09/03/13	09/06/13			18 19	Install Spi	itay Fireproofing - Section 2-L4	3 13
Sth Floor				1000						1 1
A20050	Install Topping Stab - Section 2-L5	4d	4d 08/21/13	08/26/13		<u></u>	<u>E E</u>	Instal Toppi	Ing Slab - Section 2-1.5	1 1
A20060	Install MEP Hangers- Section 2-L5	5d	50 08/28/13	09/04/13	1000			install ME	P Hangers- Section 2-L5	
A20070	Install Spray Fireproofing - Section 2-L5	4d	4d 09/09/13	09/12/13	_			Inistal S	aray Fireproofing - Section 2-L5	
Floors 6	Roof, PH [Seq 17 &18]			- 19 C				A loss becker		
A20130	Erect Steel - Section 2-L6-PH [Seq 17]	10	1d 08/09/13	08/09/13				Erect Steel - Se	ection 2-L6-PH [Seq 17]	1
A20090	Erect Steel - Section 2-6-PH [Seq 18]	1d	10 08/12/13	08/12/13				Etect Steel - S	Action 2-6-PH [Seq 18]	1
A25170	Detail Steel - Section 2-L6-PH [Seq 17]	10d	10d 08/12/13	08/23/13				Detail Steel	Section 2-L6-PH [Seq 17]	
A25180	Detail Steel - Section 2-6-PH [Seq 18]	10d	100 08/13/13	08/26/13	-	1 1		Detai Steel	Section 2-6FPH [Seq 18]	1 1
A20100	Erect & Grout Precast Planks - Section 2-6-PH [Seq 17]	5d	5d 08/19/13	08/23/13	2			Erect & Grou	ut Precast Planks - Sector 2-6-PH [Seq 17]	
A20140	Erect & Grout Precast Planks - Section 2-L6-PH [Seq 18]	5d	50 08/21/13	08/27/13	-	1	16 13	Erect & Gro	out Prepast Planks - Section 2-L6+PH [Seq 18]	1 1
A20150	Install Topping Slab - Section 2-L6	4d	40 08/28/13	09/03/13		.L	<u> </u>	🔋 Install Top	oping Stab - Section 2-L6	
A20160	Install MEP Hangers - Section 2-L6	5d	5d 09/04/13	09/10/13	_	1 1		Install M	EP Hangers - Section 2-L6	1 1
A20170	Install Spray Fireproofing - Section 2-L6	4d	4d 09/13/13	09/18/13				I instal :	Spray Erepropting - Section 2-L8	
Roof					_		12 13			1 12
A20110	Parapet Framing & Sheathing - Section 2-R	10d	10d 08/28/13	09/11/13	9	1 1		Parapet	Framing & Sheathing - Section 2-R	3 E
Shell							- <u> </u>   -			4
A19910	Roofing [2]	15d	150 09/12/13	10/02/13	1000			Roc	ofing [2]	
A25000	Set & Connect Solar Panels	15d	15d 10/03/13	10/24/13			16 13		Set & Connect Solar Panels	1
A20120	Set ERUs 1, 2 & 3	5d	5d 10/16/13	10/22/13		1			Set ERUs 1, 2 & 3	4 K
A24190	Set Chillers	5d	5d 10/30/13	11/05/13		1 1	16 18		Set Chilets	1 1
A24230	Connect ERUs / Chillers	50d	50d 11/06/13	01/20/14		. <u> </u>			Connect ERUs / Callers	
South E	levation									
A1997	Erect Staging [25]	4d	40 08/28/13	09/03/13	-			Erect Stac	ging (2\$)	4 E -
A2156	Frame & Sheath Exterior Walls- 2-L2	10d	10d 09/04/13	09/17/13		1		Frame	& Sheath Exterior Walls- 2-L2	3

1124 - WSU - Ner	w Student Residence Hall and Dining Facility		WBS Layout - O	wher Subs TASK filter: 000 Activity I	Finder.		Page 11 of 17
Activity ID	Activity Name	Orig Rem Start	Finish		2013	2014	2015
		Dur Dur		Jan Feb Mar Apr May Ju	in Jul Aug Sep Oct 1	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Seo Oct Nov	Dec Jan Feb Mar
A213	Frame & Sheath Exterior Walls- 2-L1	10d 10d 09/12/13	09/25/13		Frame	& Sheath Exterior Walls 2-L1	
A2041	Frame & Sheath Exterior Walls- 2-L4	10d 10d 09/18/13	10/01/13		Franke	e & Sheath Exterior Walls- 2-L4	- I I -
A2064	Frame & Sheath Exterior Walls- 2-L3	10d 10d 09/26/13	10/09/13		Frar	me & Sheath Exterior Walls- 2-L3	6 3
A2110	Frame & Sheath Exterior Walls- 2-L6	10d 10d 10/02/13	10/16/13		Bra Bra	ame & Sheath Exterior Walls- 2-L6	
A2087	Frame & Sheath Exterior Walls- 2-L5	10d 10d 10/10/13	10/24/13	1 1 1 1 1 1		rame & Sheath Exterior Walls 2-L5	
A1996	Waterproofing [25]	4d 4d 10/17/13	10/22/13			Vaterproofing [25]	
A1995	Install Windows [25]	5d 5d 10/23/13	10/29/13			Install Windows [25]	1.1
A2538	Strip in Window Flange [25]	1d 1d 10/30/13	10/30/13			Strip in Window Plange [25]	
A1994	Metal Panels [25]	20d 20d 10/31/13	11/29/13	1 1 1 1 1 1		Metal Panels (25)	1 1 1
A1995	Install Curtainwall [25]	5d 5d 12/02/13	12/06/13			Install Cutainwall [25]	
A2246	Remove Staging [25]	1d 1d 12/09/13	12/09/13			1 Remove Staging [25]	
East El	evation						and the states
A2002	Erect Staging [2E]	2d 2d 09/04/13	09/05/13		Ereict Stagin	ng (2E)	1 1
A2001	Waterproofing [2E]	1d 1d 10/23/13	10/23/13		I IV	Vaterproofing [2E]	
A2000	Metal Panels [2E]	3d 3d 12/02/13	12/04/13			Metal Panels (25)	1.1
A2247	Remove Staging [2E]	1d 1d 12/05/13	12/05/13			Remove Staging [2E]	
North I	Elevation				- I I I I I I I		and the second second
A2204	Erect Staging [2N]	4d 4d 09/06/13	09/11/13		Elect Stag	ing (2N)	1
A2203	Waterproofing [2N]	4d 4d 10/24/13	10/29/13			Waterproofing (2N)	
A2205	Install Windows (2N)	4d 4d 10/30/13	11/04/13			Instal Windows [2N]	1 1 2 2
A2535	Strip in Window Flange (2N)	10 10 11/05/13	11/05/13			Strip in Window Flange (2N)	
A2201	Metal Panels (2N)	20d 20d 12/05/13	01/03/14	1 1 1 1 1 1		Metal Parlels (2N)	12.2
A2248	Remove Staging [2N]	1d 1d 01/06/14	01/06/14			Remove Staging [2N]	
South	Elevation Curtainwall / Lobby						
A1998	Install Curtainwall - Lobby Vestibule (2S)	33d 33d 10/03/13	11/20/13			Instal Curtainwal - Lobby Vestibule [25]	
A2231	Install Wood Siding - Main Entry (25)	2d 2d 01/28/14	01/29/14		1 1 1 1 1 1 1	Install Wood Skipp - Main Entry (25):	8.2
Main	Canopy						
A243	Erect Structural Steel Framing & Decking [25]	10d 10d 12/10/13	12/23/13			Erect Etructural Steel Framing & Decking [25]	
A243	Install LG Metal Framing & Blocking [25]	6d 6d 12/24/13	01/02/14	1 1 1 1 1 1 1		Instal LG Metal Framing & Biboking (23)	
A243	Instal Roofing [25]	2d 2d 01/03/14	01/06/14			I Install Rooting (\$5)	16 23
A243	Install Metal Fascia (25)	4d 4d 01/07/14	01/10/14			Install Metal Fascia (25)	
A225	Install Wood Panel Sofft (2S)	11d 11d 01/13/14	01/27/14	and the Karlin Street in	- K. K. K. K.	Instal Wood Panel Soft (2S)	
Interior	and a second	and a second second					1 1
1st Flog	ir i						
Multi-P	urpose / Game Room / Lobby						
A2555	Rough-In MEPs Overhead - 2-L1	10d 10d 08/23/13	09/06/13		Rough-In N	/EPa Overnead - 2-L1	
A2118	Frame Interior Walk- 2-L1	15d 15d 09/26/13	10/17/13			ameInterior Walis- 2-L1	
A2119	Rough-In MEPs In-Wal- 2-L1	10d 10d 10/21/13	11/01/13			Rough-In MEPs In-Wal- 2-L1	
A2132	Inspect MEP- 2-L1	2d 2d 11/04/13	11/05/13			Inspect MEP- 2-L1	
A2501	Install Shade Pocket - 2-L1	20 20 11/04/13	11/05/13			Install Shade Podket - 2-L1	
A2120	Board Wals & Cellings- 2-L1	5d 5d 11/21/13	11/27/13			Board Walls & Cellings- 2-L1	
A2131	Tape Walls & Cellings- 2-L1	5d 5d 11/29/13	12/05/13			Tape Wals & Cellings-2-L1	
A2121	Prime Paint Wals & Cellings- 2-L1	5d 5d 12/06/13	12/12/13	1		Prime Paint Walls & Cellings- 2-L1	
A2128	Grid Acoustical Cellings - 2-L1	20 20 12/13/13	12/16/13			Grid Acquistical Cellings - 2-L1	
A2288	Interior Storefront - 2-L1	5d 5d 12/13/13	12/19/13			Interior Storefront - 2-L1	
A2123	Trim Out MEPs & Install Lighting- 2-L1	150 150 12/17/13	01/08/14			Trim Out MEPe & Install Lighting- 2-L1	
A2308	Install Wood Cellings - 2-L1	50 50 12/24/13	12/31/13			Install Wood Cellings - 2-L1	
A2130	Install FE / Cabinets- 2-L1	1d 1d 01/09/14	01/09/14	+		I Instal FE / Catinets- 2-L1	
A2121	Finish Paint- 2-L1	20 20 01/09/14	01/10/14			Ethish Paint- 2-L1	
A2125	ACT TIE- 2-L1	20 20 01/09/14	01/10/14			ACT THE 2-L1	
A2287	Install Protection Screen - 2-L1	20 20 01/13/14	01/14/14			I Install Projection Screen - 2-L1	
A2124	Install Flooring- 2-L1	9d 9d 01/13/14	01/23/14			Install Flooring- 2-L1	
A741/	Instal Milwork - 2-L1	6d 6d 01/16/14	01/23/14			Instal Milwork - 24 1	
A2125	Install Doors & Hardware- 2-L1	40 40 01/20/14	01/23/14			Instal Doors & Hardware 2-L1	
A2500	Install Motorized Shades - 2-L1	40 40 01/20/14	01/23/14			Instal Motorzed Shades - 2-L1	
Bathro	oma						1 5 8

124 - WSU - Nev	Student Residence Hall and Dining Facility		WBS Layout - C	ner Subs TASK filter: 000 Activity Finder. Page 12
ctivity ID	Activity Name	Orig Rem Start	Finish	2013 2014 2015
		Dur Dur		Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
A2135	Set Plumbing Carriers- 2-L1	4d 4d 10/18/13	10/23/13	Set Plumbing Carriers-21.1
A2134	Rough-In Bathrooms- 2-L1	6d 6d 11/04/13	11/12/13	Rbugh-h Bathfooms-2-L1
A2135	Install Ceramic / Waterproofing Memorane- 2-L1	10d 10d 12/13/13	12/27/13	instat Ceratric / Waterphoting Membrane-12-L1
A2415	ACT Cellings - 2-L1	5d 5d 12/30/13	01/06/14	ACT Cellings - 2-L1
A2138	Install Counters- 2-L1	2d 2d 01/07/14	01/08/14	Install Counters-2-L1
A2136	Trim-Out Plumbing- 2-L1	4d 4d 01/09/14	01/14/14	Trim-Oit Purdoing-2-L1
A2137	Install Tollet Partitions / Accessories- 2-L1	3d 3d 01/15/14	01/17/14	I Install Tollet Partitions / Advessories- 2-01
2nd Flor	Kana ana araa			
Laundr	y / Filness / Kilchen / Offices			
A2560	Rough-In MEPs Overhead- 2-L2	10d 10d 09/09/13	09/20/13	Rough-in MEPs Overhead- 2-L2
A214[	Frame Interior Walls- 2-L2	15d 15d 09/23/13	10/11/13	Fijame Interior Walls-12-1.2
A2141	Rough-In MEPs In-Wall- 2-L2	10d 10d 10/15/13	10/28/13	Rough-In MEPs In-Walk 2-L2
A2154	Inspect MEP- 2-L2	2d 2d 10/29/13	10/30/13	Inspect MEP- 2-L2
A2142	Board Walls & Cellings- 2-L2	5d 5d 11/25/13	12/02/13	📕 Board Walks & Chillings 2-L2
A2155	Tape Walls & Cellings- 2-L2	5d 5d 12/03/13	12/09/13	Tabe Walls & Cleiings 2-L2
A214;	Prime Paint Walls & Cellings- 2-L2	5d 5d 12/10/13	12/16/13	I 📕 Finne Faint Walk & Cellings- 2-L2
A2150	Grid Acoustical Cellings - 2-L2	2d 2d 12/17/13	12/18/13	I Grid Acbustical Cellings - 2L2
A2283	Install Cabinets- 2-L2	3d 3d 12/17/13	12/19/13	I Install Cabindis- 2-U2
A2286	Instal Interior Storefront- 2-L2	5d 5d 12/17/13	12/23/13	Installinterior Storefront-2-L2
A2145	Trim Out MEPs & Install Lighting- 2-L2	15d 15d 12/19/13	01/10/14	Thm Out MEP6 & Install Lighting- 2-L2
A2284	Install Counters- 2-L2	2d 2d 12/20/13	12/23/13	InstatiCounters-24L2
A2152	Install FE / Cabinets- 2-L2	1d 1d 01/13/14	01/13/14	1 Iristal PE / Cabinets 2-L2
A2146	Install Flooring- 2-L2	9d 9d 01/24/14	02/05/14	ingtal Flopring-12-L2
A2147	Install Doors & Hardware- 2-L2	4d 4d 02/06/14	02/11/14	Irjstall Dpors & Hardware- 2-L2
A2285	Install Appliances / Laundry Equipment - 2-L2	4d 4d 02/06/14	02/11/14	Inistal Applances / Laundry Equipment - P-L2
A2151	Install Post Office Boxes- 2-L2	5d 5d 02/12/14	02/19/14	I Instal Post Office Boxes- 2-L2
A2145	Finish Paint- 2-L2	2d 2d 02/20/14	02/21/14	FinishPant-2-L2
3rd Floo	<b>f</b>			
Bedroo	ma / Common Areas			
A2561	Rough-In MEPs Overhead - 2-L3	10d 10d 09/23/13	10/04/13	Rough-in MEPs Dverhead - 2-L3
A2045	Frame Interior Walls- 2-L3	150 150 10/10/13	10/31/13	Frame Interior Walls-24.3
A2050	Rough-In MEPs In-Wall- 2-L3	10d 10d 11/04/13	11/18/13	Roughen MEPs In-Wal-2-L3
A2061	Inspect MEP- 2-L3	20 20 11/19/13	11/20/13	Inspect MEP42-L3
A2051	Board Wals & Cellings- 2-L3	5d 5d 11/26/13	12/03/13	Board Walls & Cellings 2-L3
A2063	Tape Walls & Cellings- 2-L3	5d 5d 12/04/13	12/10/13	Tape Wais & Oelings 2-L3
A2052	Prime Paint Walls & Cellings- 2-L3	5d 5d 12/11/13	12/17/13	Rime Paint Wais & Cellings 2-LB
A2059	Grid Acoustical Cellings in Corridors- 2-L3	20 20 12/18/13	12/19/13	1 Grid Addustical Cellings in Corridons- 2-L3
A2054	Trim Out MEHs & Install Lighting- 2-L3	150 150 12/20/13	01/13/14	TIM Out MEPs & Instal Lighting-2-L3
A2061	Instan FC / Catolifets- 2-L3	10 10 01/14/14	01/14/14	I Install HE / Cappinese 2-L3
A2060	ACT TIE- 2-L3	20 20 01/14/14	01/15/14	
A2055	Instal Hooring- 2-L3	9d 9d 02/06/14	02/19/14	instal Flooring-2-LS
A2056	msai Doors & Haroware- 2-L3	40 40 02/20/14	02/25/14	Instal Loors & Hardware- 2-La
A2058	Finish Paint- 2-L3	20 20 02/26/14	02/27/14	Finish Party-24.3
Bathro	ons			4 T T T T T T T T T T <u>T L L L L L L L L </u>
A2071	Set Plumbing Carners- 2-L3	3d 3d 11/01/13	11/05/13	set Humping Carriery 2-L3
A2066	matal shower UNIS- 2-L3	40 40 11/01/13	11/06/13	Initial souver Unit-2-LS
A2065	rougn-in bashdoms & Showers- 2-L3	50 50 11/19/13	11/25/13	Rough-in Isumrooms & Snowers-2-L5
A2475	mang unywaii gi Bathrooms- 2-L3	50 50 11/26/13	12/03/13	Hang Drywaii gjearnroom- 2-L3
A2480	Tape & Sand DryWall @ Bathrooms- 2-L3	50 50 12/04/13	12/10/13	Tape & spand Unywailing Istaprooms-2-LA
A2067	Install Ceramic/ waterprooring Memorane- 2-L3	50 50 12/18/13	12/24/13	Immuliceration / Waterplooring/vemprane-2-L3
A2070	Install Counters- 2-L3	20 20 12/26/13	12/27/13	Initial Counter6-2-L3
AZDEE	Inm-Out Humoling- 2-L3	50 50 12/30/13	01/06/14	Tran-OudPlumding-2433
A2065	Install Tollet Accessones- 2-L3	1d 1d 01/07/14	01/07/14	I Install Tolet Addessories-2-U3
4th Floo				
Bedroo	ma / common Areas		10.011	
A2562	Rougn-in MEPs Overhead - 2-L4	100 100 10/07/13	10/21/13	Rough-In MEPs Overnead - 2-L#

1124 - WSU - Ne	w Student Residence Hall and Dining Facility		WBS Layout - O	wher Subs TASK fib	er: 000 Activity Find	der.		Page 13 of 17
Activity ID	Activity Name	Orig Rem Start	Finish		20	013	2014	2015
		Dur Dur		Jan Feb Mar	Apr May Jun	Jul Aug Sep Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov	Dec Jan Feb Mar
A2026	Frame Interior Walls- 2-L4	15d 15d 10/22/13	11/12/13				Frame Interior/Walls- 2-L4	
A2021	Rough-In MEPs In-Wall- 2-L4	10d 10d 11/14/13	11/27/13				Rough-In MEPs Id-Wall 2-L4	
A2035	Inspect MEP- 2-L4	20 20 11/29/13	12/02/13				Inspect MEP- 2-14	
A2028	Board Walls & Cellings- 2-L4	5d 5d 12/03/13	12/09/13				Board Walls & Cellings- 2-L4	
A2040	Tape Walls & Cellings- 2-L4	5d 5d 12/10/13	12/16/13				Tape Walls & Cellings- 2-L4	
A2025	Prime Paint Walls & Cellings- 2-L4	5d 5d 12/17/13	12/23/13				Prime;Paint Walls & Cellbgs- 2-1.4	
A2036	Grid Acoustical Cellings In Corridors- 2-L4	2d 2d 12/24/13	12/26/13				Grid Acoustical Cellings to Corritions- 2-L4	
A2031	Trim Out MEPs & Install Lighting- 2-L4	15d 15d 12/27/13	01/17/14				Trim Clut MEPs & Instal Lighting- 2-L4	
A2038	Install FE / Cabinets- 2-L4	1d 1d 01/20/14	01/20/14				Instal FE / Cabinets- 2-L4	
A2037	ACT TIE- 2-L4	2d 2d 01/20/14	01/21/14				I ACT THE 2-14	
A2032	Install Flooring- 2-L4	9d 9d 02/20/14	03/04/14				instal Flopring- 2-L4	
A2033	Install Doors & Hardware- 2-L4	4d 4d 03/05/14	03/10/14				Install Doors & Hardware- 24L4	
A2035	Finish Paint- 2-L4	2d 2d 03/11/14	03/12/14				Finish Paint- 2-L4	
Bathro	oma							
A2048	Set Plumbing Carriers- 2-L4	3d 3d 11/13/13	11/15/13		See Second and		Set Plumbing Carriers- 2-U4	and see here here
A2043	Install Shower Units- 2-L4	4d 4d 11/13/13	11/18/13	1 1 1		<u> </u>	Install \$hower Units 2-L4	
A2043	Rough-In Bathrooms & Showers- 2-L4	5d 5d 11/29/13	12/05/13				Rough-In Bathrooms & Showers- 24L4	
A2481	Hang Drywall @ Bathrooms- 2-L4	5d 5d 12/06/13	12/12/13				Hang Driwall @ Bathrooms- 2-L4	1 1
A2482	Tape & Sand Drywall @ Bathrooms- 2-L4	5d 5d 12/13/13	12/19/13				Tape & Sand Drywall @ Bathrooms- 2-L4	
A2044	Install Ceramic / Waterproofing Membrane- 2-L4	5d 5d 12/24/13	12/31/13				Install Ceramic / Waterproofing Membrane 2-L4	
A2047	Install Counters- 2-L4	20 20 01/02/14	01/03/14			·····	Instal Counters-2-L4	
A2045	Trim-Out Plumbing- 2-L4	5d 5d 01/06/14	01/10/14				Tran-Out Plumbing- 2-L4	
A2046	Install Tollet Accessories- 2-L4	10 10 01/13/14	01/13/14				I Iristal Tolet Addessocies- 24.4	
Sth Floo								
Bedroo	ma / Common Amaa							
A2561	Rough-In MEPs Overhead - 2-L5	10d 10d 10/22/1	11/04/13				Rough-in MEPs Overhead - 2-L5	
A207;	Frame Interior Walk- 2-L5	15d 15d 11/05/13	11/26/13				Frame Interior Walls- 2-L5	8 8
A2073	Rough-In MEPs In-Wal- 2-L5	10d 10d 11/29/13	12/12/13				Rough-In MERs In-Wait- 2-L5	
A2085	Inspect MEP- 2-L5	2d 2d 12/13/13	12/16/13				Inspect MEP-12-LS	
A2074	Board Walls & Cellinos- 2-1.5	5d 5d 12/17/12	12/23/13				Board Walti & Cellhos- 2-1.5	
A2086	Tape Walls & Cellings- 2-L5	5d 5d 12/26/13	01/02/14			tttt	Tape Walk & Cellings- 2-L5	
A2075	Prime Paint Walls & Cellings- 2-L5	5d 5d 01/03/14	01/09/14				Prime Paint Walls & Cellmost 2-LS	
A2055	Grid Acoustical Cellings In Corridors- 2-L5	24 24 01/10/14	01/13/14				Child Addustical Cellinos in Corridors- 2-1.8	1 1 1
A2071	Trim Out MEPs & Install Lighting- 2-L5	15d 15d 01/14/14	02/03/14				Trin Out MEPs & Install Lighting- 2-L5	
A2084	Instal FE / Cabinets- 2-1.5	1d 1d 02/04/14	02/04/14				I Instal FEV Cabiets- 2-L5	
A2083	ACT THE 2-15	20 20 02/04/14	02/05/14			++++	ACT TIE-2-15	
A2078	Instal Flooring- 2-15	9d 9d 03/05/14	03/17/14				Instal Election - 2-15	
A2074	Instal Doors & Hardware- 2-15	41 41 03/18/14	03/21/14				Instal Doors & Hartware- 2-15	
A2081	Finish Paint- 2-15	2d 2d 03/24/14	03/25/14				Finish Paints 2-15	
Bathro	0/08							
A209/	Set Plumping Carriers- 2-15	3d 3d 11/27/13	12/02/13				Set Plumbing Carriers-2-15	
A2085	Install Shower Units- 2-L5	4d 4d 11/27/13	12/03/13				Instal Shower Units- 24.5	
A2085	Rough-In Bathrooms & Showers- 2-L5	5d 5d 12/13/13	12/19/13				Rough in Bathrooms & Stiowers- 2-L5	
A2483	Hang Drywall @ Bathrooms- 2-15	54 54 12/20/13	12/27/13				Hand Drivel @ Rathrooms- 215	
4248/	Tane & Sand Draval @ Bathrooms, 2,15	54 54 12/20/13	01/05/14				Tage & Sand Dowal @ Bathroome 2.15	
A2090	Instal Ceramic / Waterproofing Membrane- 2-15	5d 5d 01/10/14	01/16/14			<u>++++</u> +	Install Ceramic / Waterproofing Membrane- 24 5	
A2093	Instal Counters- 2-15	24 24 01/17/14	01/20/14				Install Counters- 2-15	
A2001	Trim-Out Plumbing- 2-15	54 54 01/21/1	01/27/14				Trim-Out Plumbing- 24 5	
A2001	Instal Tolet Amessaries- 2-15	24 24 01/28/1	01/29/14				Install Tollet Agreesories 2-15	
Sth Elor			W114					
Bedroe	ms / Common Amas					<del>└──┼──┼──┼</del>	╍╍┼╍╍╂╍╍╂╍╍╂╍╍╂╍╍╂╍╍╂╍╍╂╍╍╂╍╍╂	+++
A256/	Rough-In MEDs Overhead - 2-16	104 104 11/05/13	11/10/13				Boundary MEDis Command - 2-16	
A2004	Frame Inferior Walks 2.1 6	154 154 100010	12/11/12				Frame Interior Walk, 2, 1 6	
A2095	Pound-In MEDc In-Wal- 2-16	104 104 12/13/13	12/11/13	1 1 1 1			Rough in MEDs M.Wall 24 6	
A2050	Inspect MED, 2-16	24 24 10/00/12	12/31/13				Internet MED. 2.16	
A2100	Board Walk & College, 2-16	20 20 12/30/1-	01/08/14	+		┟╍╍╆╍╍╆╍╍╆	Beneri Wale & College, 2.14	+++
A2091	Loain mais a Ceilige 2-Lo	ou ou 01/02/14	01/00/14				Logid Vidio & Celliger 2*L0	1 1 1

1124 - WSU - New	Student Residence Hall and Dining Facility		WBS Layout - O	owner Subs TASK filte	er: 000 Activity Finder.	Page 14 c
Addvity ID	Activity Name	Orig Rem Start	Finish		2013	2014 2015
		Dur Dur		Jan Feb Mar	Apr May Jun Jul Aug Sep Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
A2105	Tape Walls & Cellings- 2-L6	5d 5d 01/09/14	01/15/14			Tape Vitalis & Cellings- 2-L6
A2098	Prime Paint Walls & Cellings- 2-L6	5d 5d 01/16/14	01/22/14			Prime Paint Walls & Cellings- 2-L6
A2105	Grid Acoustical Cellings in Corridors- 2-L6	2d 2d 01/23/14	01/24/14			Grid Acoustical Cellings In Corribors- 2-L6
A2100	Trim Out MEPs & Install Lighting- 2-L6	15d 15d 01/27/14	02/14/14			Trim Oat MERs & Install Lighting- 2-L6
A2107	Install FE / Cabinets- 2-L6	1d 1d 02/18/14	02/18/14			Install FE / Cabineta- 2-L6
A2106	ACT TIE- 2-L6	2d 2d 02/18/14	02/19/14			ACT THE 2-66
A2101	Instal Flooring- 2-L6	9d 9d 03/18/14	03/28/14	- 1 1 1		Install Flooding- 24L6
A2104	Finish Paint- 2-Lb	20 20 03/26/14	03/27/14			Finish Panty 2-L6
A2102	Instal Doors & Hardware- 2-L6	40 40 03/31/14	04/03/14			Instal Doors & Haroware- 2-up
A2117	Set Rumbing Carriers, 2-16	30 30 12/12/13	12/16/13			Set Dumbing Carriers, 2,16
A2112	Instal Shower Units- 2-L6	40 40 12/12/13	12/17/13			Install Shower Linite 2-L6:
A2111	Rough-In Bathrooms & Showers- 2-L6	50 50 12/30/13	01/06/14			Rough-In Bathrooms & Showers- 2-L6
A2485	Hang Drywall @ Bathrooms- 2-L6	5d 5d 01/07/14	01/13/14	- i i i		Hang Drywall (b) Bathrooms- 2-L6
A2486	Tape & Sand Drywall (b) Bathrooms- 2-L6	50 50 01/14/14	01/20/14			Tape & Sand Drwiel @ Bathrooms- 24.6
A2113	Install Ceramic / Waterproofing Membrane- 2-L6	5d 5d 01/23/14	01/29/14			Install Ceramic / Waterproofing Membrane 2-L6
A2116	Install Counters- 2-L6	2d 2d 01/30/14	01/31/14			1 Install Counters-12-L6
A2114	Trim-Out Plumbing- 2-L6	5d 5d 02/03/14	02/07/14			I Trim-Out Plumbing- 21.6
A2115	Install Tollet Accessories- 2-L6	1d 1d 02/10/14	02/10/14			Install Tollet Accessories- 2-L6
*** SECTIO	N 4 ***					
Structure	/ Shell					
Foundat	lons	40 2004 TO MANDON MICH				
A22050	FREP Footings - Section 4	3d 3d 05/03/13	05/07/13	i i i	FREP Foblings - Section 4	
A22080	FREP Interior Footing - Section 4	1d 1d 05/08/13	05/08/13	-	FREP Interior Footing- Section 4	
A22070	FREP Foundations - Section 4	14d 14d 05/10/13	05/30/13	-	FREP Foundations - Section 4	
A25420	Waterproof Foundations - Section 4	1d 1d 05/31/13	05/31/13	- 1 1 1	Waterprropt Foundations - Sep	
A25430	Backfill - Section 4	10 10 06/03/13	06/03/13		Backfill - Section #	
A22050	Place POC - Section 4	54 54 00/17/13	09/23/13		E Drose B	00 Destree 4
A22000	Instal MED Hansarr - Cartion A.I.I.	50 50 0977713	10/01/13	+	Pate s	MED Manahar - Section 4.11
A22100	Instal Snrav Firenconfine - Section 4-11	44 44 09/27/13	10/02/13		il instal	Spray Expronting - Section 411
1st Floor	(Sec 19)		Torder to			
A22090	Erect Columns & Steel - Section 4-L1 (Sec 19)	3d 3d 08/22/13	08/26/13	- i i i	Erect Column	is & Steel - Section 4-L1 ISea 191
A25030	Deck & Detail Steel - Section 4-L1 [Seg 19]	13d 13d 08/26/13	09/12/13		Deck & D	etail Steel - Section 4-L1 (Seg 19)
A22340	SOD - Section 4-L1	2d 2d 09/13/13	09/16/13		\$00-\$	ection 4-L1
A22350	Install MEP Hangers - Section 4-L1	6d 6d 09/24/13	10/01/13		Instal	MEP Hangers - Section: 4-L1
A22360	Install Spray Fireproofing - Section 4-L1	4d 4d 10/03/13	10/08/13		🗐 🔤 🖬 Inst	all Spray Fireproofing - Section 4-L1
Roof [Se	q 20j					
A22120	Erect Steel - Section 4-R [Seq 20]	2d 2d 08/27/13	08/26/13		Erec Steel	Section 4-Fi [Seq 20]
A25040	Deck & Detail Steel - Section 4-R [Seq 20]	13d 13d 08/29/13	09/17/13		peck &	Detai[Steel Section 4-R [Seq 20]
A22130	Parapet Framing & Sheathing - Section 4-R	10d 10d 09/20/13	10/03/13		Para	pet Framing & Sheathing - Section 4-R
A22730	Roofing [4]	15d 15d 10/04/13	10/25/13			Roofing [4]
A22140	Set Kitchen Exhaust Fans - Section 4-R	5d 5d 10/28/13	11/01/13			Set Kitcher Exhaust Fahs - Section &-R
A24240	Connect Kitchen Exhaust - 4R	50d 50d 11/04/13	01/16/14			Connect Kitchen Exhaust -4R
Shell						
North E	levation	54 54 00110112	00/04/43			
A23/L	mane o orean citerior wars (4N)	50 50 09/18/13	09/24/13		- Frame	6 Original Chief Chief (1997)
A221/	Material Guitaniwar (4N)	2/0 2/0 09/18/13	10/25/13			modele California
A234	Install Windows (4N)	14 14 09/26/13	09/25/13	+	I wate	Allindhais [4k]
A254	Strip in Window Flance (4N)	10 10 09/2013	09/27/13		1 though	Window Flance (4N)
A2385	Install OHD @ Loading Dock [4N]	3d 3d 10/18/13	10/22/13			nstallSOHD (%) Loading Dick (4M)
A2215	Cast Stone I4NI	9d 9d 10/28/13	11/07/13			Calit Stone I4NI
Interior	and store field	56 56 1625115			T	
LowerL	svel		- 26			╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼╍╍┼
RD Apa	rtment					
				i li		

1124 - WSU - N	ew Student Residence Hall and Dining Facility	1		WBS Layout - C	wner Subs TASK filter	r: 000 Activity Finde	er.	Page 1	15 of 17
Activity ID	Activity Name	Orig	Rem Start	Finish		201	13	2014 20	15
		Duir	Dur		Jan Feb Mar	Apr May Jun	Jul Aug Sep Oct	Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan F	ieb Mar
A256	Rough-In MEPs Overhead - 4-RD	50	50 10/03/13	10/09/13			Re Re	ough-lit MEP\$ Overfeead -(4-RD)	1
A234	Frame Interior Walk- 4-RD	5d	50 10/10/13	10/17/13		1 1 1	1 1 1	BrameInterior Wald- 4-RD	1
A236	Instal Shower Unit- 4-RD	10	1d 10/18/13	10/18/13				Install \$hower Unit- 4-RD	1
A234	Rough-In MEPs In-Wall- 4-RD	5d	50 10/21/13	10/25/13		1 1 1		Rough-In MEPs In-Wall-4-RD	1
A235	Inspect MEP- 4-RD	20	2d 10/28/13	10/29/13				Inspect MEP- 4-RD	1
A236	Rough-In Bathroom & Shower- 4-RD	5d	50 10/28/13	11/01/13				Rough-In Bathroom & Shower- 4-RD	
A235	Hang & Tape Walls & Cellings- 4-RD	5d	5d 11/04/13	11/06/13				II Hang & Tape Walls & Cellings- 4-RD	13
A235	Prime Paint Walls & Ceilings- 4-RD	20	2d 11/12/13	11/13/13				Prime Paint Walls & Ceilings- 4-RD	and the sec
A236	E Install Ceramic / Waterproofing Membrane- 4-RD	20	20 11/14/13	11/15/13				I Install Geramit / Waterproofing Membrane- 4-RD	
A235	E Trim Out MEPs & Install Lighting- 4-RD	5d	50 11/14/13	11/20/13			1 1 1	Trim Out MEPs & Install Lighting- 4-RD	
A236	install Cabinets & Counters- 4-RD	2d	2d 11/18/13	11/19/13				I Instal Cabinets & Counters- 4-RD	18
A235	E Install Flooring- 4-RD	20	2d 11/20/13	11/21/13				I Instal Flooring- 4-RD	2
A236	E Trim-Out Plumbing- 4-RD	20	20 11/20/13	11/21/13				Trim-Qut Plumbing- 4-RD	100
A236	1 Install Doors & Hardware- 4-RD	1d	1d 11/22/13	11/22/13				instal Doors & Hardware 4-RD	1
A236	Install Tollet Accessories- 4-RD	1d	1d 11/22/13	11/22/13	1 1 1		1 1 1	I Install Tollet Accessiones- #-RD	18
A236	Finish Paint- 4-RD	20	2d 11/26/13	11/27/13				Finish Paint- 4-R0	18
Mecha	anical Rooms								
A320	0 Install Int CMU / Set Doors Frames - Mech/Elec Rms [4]	100	10d 10/03/13	10/17/13			1 1	ihstall Iht CMU / Set Doors Frames - Mech/Exec Rms [4]	18
A122	f Set Equipment - Mech Rm [4]	5d	50 10/18/13	10/24/13				Set Ebuipment - Mech Rhn [4]	
A123	HVAC Rough-In - Mech Rm [4]	20d	20d 10/25/13	11/22/13				HVAC Rough-In - Mech Rm [4]	
A122	Electrical Rough - Mech Rm [4]	15d	15d 11/08/13	12/02/13				Electrical Pough - Mech Rm [4]	
A238	Controls Rough - Mech Rm [4]	10d	10d 11/18/13	12/02/13				Controls Rough - Mech Rm [4]	1
A122	E Plumbing Rough - Mech Rm [4]	15d	15d 11/18/13	12/09/13				Plumbing Rough - Melch Rnt [4]	in Same
A122	Fire Protection Rough - Mech Rm [4]	5d	50 12/10/13	12/16/13			1 1 1	Fire Protection Rough - Mech Rn [4]	
Electr	lc Room								1
A123	1 Set Elect Equip - Elec Rm [4]	20	2d 10/18/13	10/21/13			1 1 1	Det Elect Equip - Elec Rm [4]	18
A123	f Electrical Rough-In - Elec Rm [4]	11d	11d 10/22/13	11/05/13				Eleptrical Rough+In - Elec Rm [4]	10
A123	I HVAC Rough-In - Elec Rm [4]	20d	20d 10/22/13	11/19/13				HVAC Rough-In - Blec Rni [4]	
A123	Electric Finish - Elec Rm [4]	20d	20d 11/06/13	12/05/13		1 1 1	1 1 1	Electric Fightsh - Elec Rdn [4]	1
A123	4 Fire Protection Rough-In - Elec Rm [4]	3d	3d 11/19/13	11/21/13				Fire Protection Rough-In Elec Rm [4]	
A238	Controls Rough-in - Elec Rm [4]	3d	3d 11/19/13	11/21/13				Controlis Rough-In - Elec Rm [4]	12
A123	Fire Protection Finish - Elec Rm [4]	10	10 12/06/13	12/06/13			1 1 1	1 Fire Protection Finish - Elec Rm [4]	
A123	E Fire Alarm Finish - Elec Rm [4]	10	1d 12/09/13	12/09/13	1 1 1			Fine Alarth Finidh - Elelo Rm [4]	
Fire P	ump Room								
A101	Place Housekeeping Pads - Fire Pump Room [4]	20	20 10/18/13	10/21/13				Place Housekeeping Pads - Fire Pump Room [4]	
A980	0 Instal Fire Pump & Equipment [4]	20	20 10/22/13	10/23/13	-			Install/Fire Pump & Equipment (#)	
A101	Install Sprinkler Piping - Fire Pump Room [4]	15d	150 10/22/13	11/12/13				Install Sprinklet Piping - Fire Pump Room [4]	2
A102	E Control / Fire Alarm Wiring - Fire Pump [4]	50	50 11/13/13	11/19/13	· · · · · · · · · · · · · · · · · · ·			Control / Fire/Alarm Wiring - Fire Pump [4]	
A109	Electrical Connections - Fire Pump [4]	50	50 11/13/13	11/19/13				Electridal Connections - File Purtip [4]	
A101	t MCP rough-in - Fire Pump Room [4]	10d	100 11/13/13	11/26/13	- 1 1 1			MEP rough in - Fire Puttop Room [4]	8
A101	Test Sprinkler Equipment - Fire Pump Room [4]	3d	3d 11/20/13	11/22/13			1 1 1	Test Sprinker Equipment- Fire Pump Room[4]	
A102	: Paint Wais - Fire Pump Koom	20	20 11/27/13	11/29/13				E Pant Walst- Piret Pumpt Koom	
Load	ng Llock	1.000		10.00					
A238	E Rough-In Heating & Lighting [4]-LD	6d	6d 10/18/13	10/25/13	- 1 1 1			Rough-In Heating & Lighting [4]-LD	3
A238	E Install Dock Leveler / Bumpers [4]	5d	50 10/23/13	10/29/13	- 1 1 1		1 1 1 2	Instal Dock Leveler / Bumperst[4]	1
A239	L Prime & Pant Wals (4)-LD	30	30 10/25/13	10/29/13	- 1 1 1			Prime & Paint Walls (4)-LD	8
A238	/ Instal Doors & Hardware [4]-LD	30	30 10/30/13	11/01/13				Instal Doors & Hardware (4)-CD	1
Dinie	a pack of House								
A239	Rouginin Overnead Plumoing- 4-L1 - BOH	50	50 10/03/13	10/09/13				ough in Overnead Humong- 4-Lit - BOH	
A239	Development in Comparison of Contract of Contract	100	100 10/03/13	10/17/13				New Masorine Water 4-LT- DUTE	1
A239	Rougn-In Overnead DuckWork- 4-L1 - BOH	100	100 10/03/13	10/1//13				soughen Overnead Journa 411 - BOH	Ú.
A239	rouginin overnead Medh Piping- 4-L1 - BOH	100	100 10/10/13	10/24/13				rrouge in Oremean wech Piping- 4-Li - BOH	18
A239	Rougn-In Overnead Sprinker- 4-L1 - BOH	100	100 10/10/13	10/24/13	+			rouge in Overneap Sprikker- 4-L1 - BOH	
A239	Metal Stud Framing- 4-L1 - DOR	50	50 10/18/13	10/24/13			111	Measoud maring- e-Li - Don	1
A239	Rougn-in Overnead Electric- 4-L1 - BOH	100	100 10/18/13	10/31/13	- 1 1 1			Rougin-in overnepia ciedito- 4-L1 - BOH	12
A239	Kougn-in Plumoing - In-Wai- 4-L1 - BOH	5d	50 10/22/13	10/28/13		1 1 K K K K K K K K K K K K K K K K K K		Hough-in Humbing - In-Wai- 4-L1 - BOH	

- wso - new suderic residence hall and Dining Facility	Wes Layout - 0	Jumer Sada TASK Intel. UUU AcilVity Finder.	Pag
ty ID Activity Name	Orig Rem Start Finish Dur Dur	2013	2014 New Dea tea Eab Mar Ave New New Net Ave Dea Ord New Dea tea
A2401 Instal Biocking, 4-L1 - BOH	3d 3d 10/25/13 10/29/13	Jan Feo Mar Apr May Jun Jul Aug sep Oct	Nov Dec Jan Peo Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan
A2407 Round-In Fledric - In-Walk 4-I 1 - BOH	54 54 10/25/13 10/31/13		Bouth-In Flectrick In Walk 44 1 - BOH
A2401 MED Inspection (Overhead), 4-I 1 - BOH	10 10 100/13 100/13		MED Insertion (Dverblauf), 411-80H
A240E MEP Inspection [In-Wall- 4-L1 - BOH	1d 1d 11/01/13 11/01/13		MEP Inspection (In-Wall- 4-L1 - BOH
A240/ Hann & Tane Driwalk 4-I 1 - BOH	10d 10d 11/04/13 11/18/13		Hann & Tane Downey, 418 - BOH
A2400 Drime Daint Walls, 4-11, BOH	5d 5d 11/19/13 11/25/13		Drime Daint Walks 4.1 1. BOH
A2401 Instal Coolers / Eresters 4-11 - BOM	204 204 11/10/13 12/17/13	- 63 6 6 6 6 8 3 3	Install Conject / Ecology M. J. 1. WOW
A2411 Instal Ceramic Tie Walk, 4,11, BOH	8d 8d 11/26/13 12/06/13		Instal Cetamin Tie Walk- 4-1 - BCH
A2401 Celling Crink 4-I 1 - BOH	4d 4d 12/09/13 12/12/13		Chilling Cittle 4411 - ROH
A240F MED Finishes 4-11 - BOH	104 104 12/13/13 12/27/13		MED Finisher, 441, BOH
A241 Instal Quarty Tie, 411, BOH	10d 10d 12/18/13 01/02/14		Instal Quarry Tile, 4(1, BOH
A240: Instal Celling Tie- 4-L1 - BOH	5d 5d 12/30/13 01/06/14		Instal Ceting Te- 4-L1 - BOH
A2412 Epoxy Painting- 4-L1 - BOH	50 50 01/07/14 01/13/14		Eboxy Raintind- 4-L1 - BOH
A2412 Instal Cameline 4-1 - BOH	3d 3d 01/14/14 01/16/14		I thotal Cametino, 4.1 1, BOH
A2301 Instal Storage Shelving 4-1 - BOH	4d 4d 01/14/14 01/17/14		Instal Storage Shelling, All 1, ROH
1st Floor - Servery & Kitchen Area	ed edjormene 00/0/14		• good dorage area - dore
A23200 Instal Interior LGME & Door Frames- 4-L1	5d 5d 10/28/13 11/01/13		Install Interior LGMF & Door Bramet- 4-L1
A23220 In-wall Flectrical Routh-In- 4-1 1	84 84 11/04/13 11/14/13		Markan Fective Relation In 1
A23210 Instal Plumbing Rough-In- 4-L1	15d 15d 11/04/13 11/25/13		Instal Plumbing Rough-In- 4-L
A23170 Above HVAC Rough-In- 4-L1	20d 20d 11/04/13 12/03/13		Above HVAC Bough-In: 4-L1
A23230 Hang GWB- 4-L1	6d 6d 11/12/13 11/19/13		Hang GWB- 4-L1
A23180 Above Celling Fledrical Bounds 4-L1	154 154 11/12/13 12/03/13		Abree Celling Flertring Brants 4-11
A23240 Tape/Finish GWB- 4-L1	7d 7d 11/15/13 11/25/13		TapeFinish SWB 4-L1
A23190 Instal Sprinkler Rough- 4-L1	10d 10d 11/15/13 11/29/13		Install Sprinkler Rough- 4-L1
A23250 Prime Paint, 4-I 1	3d 3d 11/22/13 11/26/13		Prime Paints 4-1 1
A23300 Instal Servery Flooring, 4-11	74 74 12/02/13 12/10/13		Instal Servery Flooring, 611
A23450 Frame Soffts- 4-L1	5d 5d 12/04/13 12/10/13		Frame Soffs- 4-L1
A23320 Instal Kitchen Hoods- 4-L1	50 50 12/04/13 12/11/13		Instal Kitchen Hoods 4-L1
A23330 Install Kitchen Hood Ansul System- 4-L1	3d 3d 12/11/13 12/13/13		Install Kitchen Hood Ansul System 4-L1
A23450 Hang & Finish Soff GWB- 4-L1	50 50 12/11/13 12/17/13		Hann SiFinish SofficWBI 411
A23310 Install Kitchen Equipment- 4-L1	20d 20d 12/11/13 01/09/14		Inital Kichen Boutoment- 4L1
A23370 Instal Milwork- 4-L1	10d 10d 12/26/13 01/09/14		Inital Miwork 4-L1
A23270 Install Celling Grid- 4-L1	5d 5d 01/10/14 01/16/14		bstall Celling Grid-4-L1
A23260 Finish Paint- 4-L1	3d 3d 01/17/14 01/21/14		Finish Paint-I4-L1
A23280 Instal Lighting & Finish MEPs- 4-L1	5d 5d 01/17/14 01/23/14		Instal Lighting & Finish MEPs-4-L1
A23380 Instal Al Other Flooring- 4-L1	50 50 01/17/14 01/23/14		Instal Al Other Flopring- 4-L1
A23390 Instal Doors & Hardware- 4-L1	40 40 01/22/14 01/27/14		I Instal Doors & Hardwark- 4-L1
A23290 Drop Celling Tie- 4-L1	2d 2d 01/24/14 01/27/14		Drod Cellinb Tie- 4-L1
LEVATOR	as as share the thereit		
A24180 Install Freight Elevator / Mach Room CMU Shaft (2)	4d 4d 08/02/13 08/07/13	Install Freight (	Elevator / Madh Room CMU Shart (2)
A24170 Install Main Elevator CMU Shaft [2]	150 150 08/28/13 09/18/13	instal	Listain Elevator CMU Shaft [2]
A19920 Install Passenger Elevators # 1 & 2 [2]	35d 35d 10/03/13 11/22/13		Instal Passenger Elevators # 1 & 2 (2)
A19930 Elevator Cabs	2d 2d 10/18/13 10/21/13		Elevator Cable
A24160 Install Freight Elevator #3	10d 10d 11/25/13 12/09/13		install Fréight Slevator #3
TAIRS			
A24590 Install Stair #1 (1)	15d 15d 08/07/13 08/27/13	Instal Stal	r#1m
A24600 Install Stair #2 [2]	21d 21d 08/23/13 09/23/13	linsta	#IStair #2 [2]
A24610 Install Stair #3 (1)	3d 3d 08/28/13 08/30/13	Install Sta	
A24620 Install Stair #4 [3]	15d 15d 09/03/13 09/23/13	linsta	alstair#4 (3)
A24630 Install Stair #5 [3]	3d 3d 09/24/13 09/26/13	linst	al Stair #5 [3]
A24560 Finishes - Stair #1 [1]	30d 30d 09/24/13 11/05/13		Finishes - Stair #1 [1]
A24540 Instal Lounge Stair #1 [3]	3d 3d 09/27/13 10/01/13	and the second sec	tall Loutoe Stair #1 [3]
A24650 Instal Lounge Stair #2 [3]	3d 3d 10/02/13 10/04/13		stall Louhoe Stair #2 53
A24570 Finishes - Star #4 [3]	30d 30d 11/06/13 12/19/13		Enishek - Står #4 (2)
A24580 Finishes - Stair #3 [1]	20d 20d 12/20/13 01/20/14		Finishes - Stair #3 (1)
A24590 Finishes - Star #5 [3]	200 200 01/21/14 02/18/14		Finishes - Stair #5 (R)
A MARKET AND	200 200 0121114 02/10/14		I mande of the second s

avity ID	Activity Name	Orig	Rem Sta	art	Finish					2013									201	14						2015
		Dur	Dur			Jan	Feb N	lar Apr	May	Jun Ju	AUG	g Sep	Oct	Nov De	ac Jan	Feb	Mar	Apr Ma	y Jun	JU /	Aug s	Sep (	Dot No	ov Dec	Jan	Feb M
A24700	Finishes - Stair #2 [2]	40d	400 02	/19/14	04/15/14					1		18				1		Finisi	nes - Star	#2[2]	10		14			
Inspectio	ns, Start-Up & Commissioning						L L		Г Т	1	1	1		1		1			1 1	22			1	1		ΓT
A23470	Punchilst [4]	200	20d 01/	/28/14	02/25/14		6 K					1	8.3				Punchi	lst [4]	1 1	1						
A22550	Final inspections / C of O	21d	210 01	/28/14	02/26/14		6 6	3	1 1			18		1		-	Finalin	spection	s/C of Q	1			3			
A16550	Punchilist [3]	20d	200 02	/28/14	03/27/14													Punchist	[3]							
A16500	Punchlist [1]	200	200 03	/07/14	04/03/14		8		1							1		Punchik	at [ti]	1		13				
A16540	Punchilst [2]	20d	200 03	/20/14	04/16/14						- T				-	1		Runo	hilist [2]							T
A16460	Final Cleaning	20d	20d 04	/02/14	04/29/14							12	2.3			1	2.0	E Fi	nal Clearlin	ng		1.3	1	1		8.3
A16530	Prefunctional Testing	10d	100 04	/04/14	04/17/14				1 1							1		Pref	Inctional T	esting						
A16480	Test & Balance	25d	250 04	/04/14	05/08/14		ΕE		1 1	÷	1	12	1	1		Ł	2.31	-	Test & Bat	ance	- 13	14	4	4		13
A16520	Elevator Inspection	3d	3d 04	/18/14	04/22/14	S read	i an in	diam'	1	and free	en Cour	a Basa	12.0	a	100000	1	1. A.	E Ee	atpr Inspe	ction	1	1		1.00	s and	1.1
A16470	Systems Commissioning *	200	20d 05	/19/14	06/16/14	1		T	1	1	1	12		1	T	1	201	11	\$	stems	Comm	issiopin	9 1	1		1
A16490	IAQ Testing	10d	10d 06	/09/14	06/20/14		6		i i		i.	1		1		1	1		1 . 2	AQ Telst	ting i		2	1		
A16510	Inspections / TCO	10d	10d 05	/09/14	06/20/14		E E		1 1			18		1		1	8.6	1	i 🖬 🖗	nspectio	ms/m	00	1	1		
A16450	FFE / Owner Move In	34d	34d 06/	/23/14	08/08/14		Г II.	1 8	1 1	1	1	12	12	1		1	N 11	1	1 📫	-	FRE	/ Owne	er Mipve	In		1 1

#### **Appendix E: Consigli's As-Built Schedule**

This appendix contains the as-built schedule from Consigli for the construction of Sheehan Hall, updated on November 6<sup>th</sup>, 2013.



1124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	dule [for	rdist] TA	SK filter: All Acti	tivities									F	age 3 o	of 39
Activity ID	Adivity Name	Orig	Rem Start	Finish	2012						2013			2014			-	201	15
		Dur	Dur		dun di	I Aug 1	Sen Oct Nov D	Dec Jan	F Mar	Apr May Ju	n Jul Aug Sep Og	t Nov Dec J	an F Mar Anr Mar	dun dui	Aug Se	o Oct N	ov Dec	Jan Fi	eb lar
A25220	Resubmit Shop Drawings - Reinforcing - Section 1.8.3 [Bull #4]	15	0 19-Mar-13.4	20.Mar.13.A						Resilient Sh	or Drawings', Reinfor	Carlos Section	1.8.3 [Bull #4]			-	-	_	-
A25230	Approve Rev Shop Drawings - Reinforcing - Section 1.8.3 (Bull #4)	10	0 20-Mar-13 A	28-Mar-13 A		1 1				Androve Rev	v Shop Drawings i Re	inforcing - Se	ction 1.8.3 [Bull #4]		1 1		1		
A22650	Annrove Shop Drawings - Reinforcing - Section 4	10	0.20-Mar-13.4	27-Mar-13.A		1 1				Annone She	on Drawings - Reinfor	or Sector	4						
A25210	Annrove Rev Shon Drawings - Reinforcing - Section 2 (Bull #4)	10	0 20-Mar-13 A	01-407-134	1	· † · · †				Anhroud Re	aulShod Drakinosl. R	eletording - Se	otide 2 Bull #41	1 1	1-1-				
A14880	Eshricate & Deliver - Reinforming - Section 2	10	0 28-Mar-13A	28-Mar-13.4					17	Fabricate &	Delver - Reinforcing	Section 2							
A25050	Estricate & Deliver - Reinforcing - Section 3	12	0 28-Mar-13 A	11-Anr-13.4	1 1	1 1	1 1 1	1	11	Patriciate	& Deliver - Reinforcir	d Senting 3		1 1	1 1	1 1	1	1	i.
A22660	Entrinate & Deliver - Reinforcing - Section 6	10	0.01-Apr-12.4	14 May 12 A					11	Rab	richte & Deliter - Reir	denina - Card		1 1	1 1	1 1	1		
A25660	Resubmit Shon Drawings - Reinforcing - Section (Bull #7)	15	0.08-Apr-13A	22-Apr-13.4	11	11	111		1	Resibe	nit Short Drawings - Rel	elefording - G	ction (Bull #7)		11	1 1	1		1
A25740	Entriente & Deliver - Reinforcing - Section 2 (Rull #7)	10	0.22-Apr-12.A	22-Apr-12.4	++	··++	+++-			Eabricat	to's Doliver   Doidfor	the Contine	2 10-1 471	++	++	-++-		·····	+-
A25870	Assesses Rev Chan Deswiner, Reinfersing, Section 2 (Rull #7)	10	0 22 Apr 13 A	20 Apr 13 A	11	11			1	Antro	Rev Cherry Drawing	Paintoren	a Coston 2 (Dull #71	11	11	11	1		
02.250	Approver Key Shop Drawings * Kernording * Sector 5 [our wr]	3	0 22MpH13X	SUMPHISM		11					ve nev prop prawing	is realional	g - peccon s poneri						
A22040	Prenare Submittals - Concrete Elaborrk	15	0.04-Eeb-13.4	01-Mar-13.4	1 1	1 1	1 1 1	- L is	Pre	naral Sub-hitt	alt - Colocrada Elabora	al i l		1 1	i i	1 1	i	1	1
400050	Annua Cubrillata - Constata Flatmath	10	0.04 Mar 12 A	20 Mar 12 A		1 1				Antonio	And Ball Coloreda F			1 1	1 1	1 1	1		1
A22900	Entriente & Deliver, Constate Elstwork	20	0 04-Mar-13A	04 Apr 13 A	++	-++				Approve Su	Dollars Condeter	Lawyork		++	++	-++-	···· ŧ	i	+-
A22900	Pabricate & Deliver - Concrete Platwork	20	0 30-Mar-13 A	04-Apr-13A		1 1				Fabricate a	a Deiver - Concrete r	- Liewonk			1 1		1		
03-410 - P	Tecast	40	0.05 km 10.4	10 5-6 40.4	11	11		- I 🚣	- i					11	11	11	1		
400009	Daview Bide - Drappet	10	0 20-Jan-13A	12-Feb-13A	1 !	1 1		-   T	1010 - I	necapit				1	1 1	1 1	1		1
A14210	Award 8 NTD Decent	10	0 13-Feb-13A	22-Feb-13A	11	11			Rev	ew dus - Pre	Parameter			1	11	11	1		1
400049	Award & NTP - Precast	5	0 25-Feb-13A	27-Feb-13A	<u>∔∔</u>				AW	ard a NIM - F	recast							<u> </u>	
A14900	Prepare Shop Drawings - Precast - Floor 2	25	0 28-Feb-13A	25-Mar-13 A	1 1	1 1	1 1 1	11		Prepare Sho	op Drawings - Precas	Floor 2		1 1	i i	1 1	i	1	i
A14930	Prepare Shop Drawings - Precast - Floor 3	25	0 28-Feb-13A	04-Apr-13A		1 1				Prepare St	nop Drawings - Preca	ist - Floor 3		1 1	1 1	1 1	1		1
A14960	Prepare Shop Drawings - Precast - Floor 4	25	0 28-Feb-13A	16-Apr-13A	11	11	111			Prepare	Shop Grawings - Pre	cast - Floor	1111	1 1	1 1	1 1	i	1	1
A25680	Prepare Shop Drawings - Precast - Floor 5	25	0 28-Feb-13A	16-Apr-13A		1 1				Prepare	Shop Drawings - Pre	cast - Floor 5			1 1	1 1	1		
A25710	Prepare Shop Drawings - Precast - Floor 6	25	0 28-Feb-13 A	16-Apr-13A	ļ					Prepare	Shop Drawings - Pre	cast - Floor β				44.		ļ	
A14910	Approve Shop Drawings - Precast - Floor 2	15	0 25-Mar-13 A	09-Apr-13A						Approve S	Shop Drawings - Free	at - Floor 2							
A14940	Approve Shop Drawings - Precast - Floor 3	15	0 04-Apr-13A	16-Apr-13A		1 1				Approve	Shop Drawings - Pre	cast - Floorβ		1 1	11		1		1
A14920	Fabricate & Deliver - Precast - Floor 2	15	0 16-Apr-13A	24-May-13 A		11				Fa	abricate & Deliver - Pr	etast Floor :	2						
A14950	Fabricate & Deliver - Precast - Floor 3	15	0 16-Apr-13 A	29-May-13 A		1 1			11	F	abricate & Deliver - P	recast - Floor	3		1 1	1 1	1		
A14970	Approve Shop Drawings - Precast - Floor 4	9	0 17-Apr-13A	30-Apr-13 A	II					Approv	ve Shop Drawings - F	recast - Floor	<u>4   </u>	L		_LL.	l	l.	
A25690	Approve Shop Drawings - Precast - Floor 5	9	0 17-Apr-13A	07-May-13 A		1 1				Appro	ove Shop Drawings -	Precast - Floo	r 5	1 1	1 1	1 1			
A25720	Approve Shop Drawings - Precast - Floor 6	9	0 17-Apr-13A	08-May-13 A						Appro	ove Shop Drawings -	Precast - Floo	r 6		1 1	1 1			
A14980	Fabricate & Deliver - Precast - Floor 4	15	0 01-May-13 A	18-Jun-13A							Fabricate & Deliver	- Precast - Fi	bor 4	1 1	1 1	1 1			
A25700	Fabricate & Deliver - Precast - Floor 5	15	0 08-May-13 A	24-Jun-13A							Fabricate & Delive	r Precast - F	loor 5						
A25730	Fabricate & Deliver - Precast - Floor 6	15	0 09-May-13 A	09-Jul-13.A		1 1					Fabricate & Del	iver - Precast	- Fibor 6			1			
05-100 - S	tructural Steel				1.1	TT				TT		1		TT	1	TT			T
212010	Bid - Steel	10	0 25-Jan-13 A	12-Feb-13A		1 1			Bid - 🕯	Steel				1 1	1 1	1 1	1	1	1
A14200	Review Bids - Steel	5	0 13-Feb-13A	22-Feb-13A		1 1			Rev	ew Bids - Ste	e				1 1	1 1	1		
212020	Award & NTP - Steel	5	0 25-Feb-13A	28-Feb-13A	1 1	1 1			Aw	ard & NTP - S	Steel			1 1	i i .	1 1	1	1	1
A15710	Prepare Shop Drawings - Embeds & Anchor Bolts - Section 1	10	0 28-Feb-13A	11-Mar-13 A					🗖 🗖	repare Shop	Drawings - Embeds 8	Anchor Bolts	- Section 1			1 1			
A15740	Prepare Shop Drawings - Embeds & Anchor Bolts - Section 2	10	0 28-Feb-13A	11-Mar-13 A	1	111	1 1 1			repate Shop	Drawings - Embeds 8	Anchor Bolts	- Section 2	TT	1 1	TT	1		1
A15770	Prepare Shop Drawings - Embeds & Anchor Bolts - Section 3	10	0 28-Feb-13A	11-Mar-13 A					🗖 E	repare Shop	Drawings - Embeds 8	Anchor Bolts	- Section 3						
A22610	Prepare Shop Drawings - Embeds & Anchor Bolts - Section 4	10	0 28-Feb-13A	11-Mar-13 A	1 1	1 1			- E	repare Shipp	Drawings - Embeds &	Anchor Bolts	- Section 4		11				
A15680	Prepare Shop Drawings - Structural Steel - Bldg 1	25	0 28-Feb-13A	27-Mar-13 A						Prebare Sho	p Drawings Structu	ra Steel - Bidi	1						
A15800	Prepare Shop Drawings - Structural Steel - Bldg 3 (Seg 3 & 4)	40	0 28-Feb-13A	03-Apr-13A		11				Prepare Sh	hob Drawings - Struct	unal Steel - Ek	do 3 [Seb 3 8 4]						
A15720	Approve Shop Drawings - Embeds & Anchor Bolts - Section 1	10	0 12-Mar-13A	18-Mar-13 A	t+	-++				Approve Shop	o Drawings - Embeds	& Anchor Belt	s - Section 1	++	++	++-		·	
A15750	Approve Shop Drawings - Embeds & Anchor Bolts - Section 2	10	0 12-Mar-13A	18-Mar-13 A	1 1	1 1	1 1 1	- I i		Approve Shor	Drawings - Embeds	A Anchor Belt	s Section 2	1 1	1 1	1 1	1	1	1
A15780	Approve Shop Drawings - Embeds & Anchor Bolts - Section 3	10	0 12-Mar-13A	18-Mar-13 A		11				Approve Shore	Drawings - Embeds	& Anchor Belt	s - Section 3						
A22620	Approve Shop Drawings - Embeds & Anchor Bolts - Section 4	10	0 12-Mar-13A	19-Mar-13 A	11	1 1			- 121	Approve Shore	o Drawings - Emheds	& Anchor Rel	s - Section 4		11	1 1	1		1
A15730	Eshrinate & Deliver - Embeds & Anchor Bolts - Section 1	5	0.20-Mar-13.A	01-Apr-13A	1 1	1 1				Fabricate &	Deliver - Embeds &	hon Bots	Section 1						
A15760	Fabricate & Deliver - Embeds & Anchor Bolts - Section 7		0 20-Mar-13 A	01-Apr-13 4	t+					Fabricate #	Delver - Eniberid &	Anthon Botte	Section 2	†	+-+-	++-		l	
A15790	Eshripate & Deliver - Embeds & Anchor Rolts - Section 3	5	0 20-Mar-13A	01-Apr-13A		1 1			12	Fabricate &	Deliver - Freheds &	Anthon Bolts	Section 3		1 1	1			
A10780	Entriente & Deliver, Embodie & Ancher Belter, Cestion 4	5	0 20 Mar 12 A	01 Apr 13 A	11	11	111		- i 2	Enhricath 8	Doliver Enhods 8	und Bolt	Continent	1	11	1 1	1		
A22630	Assesse Shan Drawings - Structural Steel - Bids 1 (See 1 ° 2)	40	0 20-Mar-13A	17-Apr-12-A		1 1			1.7	financate a	Shop Drawings	unural Store	Bide 1 (See 1.8.22		1 1				
A15090	Approve Shop Drawings - Structural Steel - Bog 1 [Seq 1 & 2]	10	0 02 Apr 12 A	28 Apr 12 A	1 1	11	111		17	Approve	Cherd Drawings - Str	avent dt. Steel -	Dida 2(Cont 2 8 4)	1 1	1 1	1 1	1	11	i
A10810	Approve onop brawings - structural steel - blog s [seq 3 & 4]	10	0 03-Apr-13A	20-Apr-13A	+÷					Approv	re sonop urawingsi- S	u uuturai oteel	- oug a [beg a & #]	÷	÷÷	-++-		<u>⊦</u> ∔	+
A25780	Prepare Snop Drawings - Structural Steel - Bidg 3 (Seq 11 & 12)	10	U 10-Apr-13A	20-Apr-13A	11	1 1		1	1	Prepar	e prop Drawings - S	ructural Steel	- ыод з (Seo 11 & 12)		1 1	1 1	1	1	1
A15830	Prepare Shop Urawings - Structural Steel - Bidg 2 [Seq 13 & 14]	15	U 1/-Apr-13A	08-May-13 A		1 1			11	- Hep	are shop Drawings -	Structural Ste	ei - pidgi 2 [Seq 13]& 1	4	1 1	1 1			
A15/00	r apricate & Deriver - Structural Steel - Bidg 1 [Seq 1 & 2]	13	U 1/-Apr-13A	13-May-13 A	1 1				: :	: 👝 Habi	ricate & Deliver - Stru	ctural Steel - E	siog 1 (Seq 1 & 2) ;	1 I I I	1.1		- 1	1 1	

1124 - WSU - Ner	w Student Residence Hall and Dining Facility		* Project Sche	Jule (for dist) TASK filter. All Activities Page 4 of 39
Activity ID	Activity Name	Orig Rem Start	Finish	2012 2013 2014 2015
		Dur Dur		Jun Jul Aug Sep Oct Nov Des Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Des Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Des Jan Feb <sup>la</sup>
A15820	Fabricate & Deliver - Structural Steel - Bidg 3 [Seq 3 & 4]	15 0 29-Apr-13 A	21-May-13 A	Fabricate B. Delver   Structural Steel - Bidg 3 [Seq 3 & 4]
A15840	Approve Shop Drawings - Structural Steel - Bldg 2 [Seq 13 & 14]	15 0 08-May-13 A	17-May-13 A	Approve Shop Drawings - Structural Steel - Bidg 2 (Seg 13.8.14)
A25790	Approve Shop Drawings - Structural Steel - Bldg 3 (Seq 11& 12)	10 0 08-May-13 A	17-May-13 A	Approve Shop Drawings - Structural Steel - Bidg 3 (Seq 11& 12)
A22580	Prepare Shop Drawings - Structural Steel - Bldg 4 [Seq 19 & 20]	15 0 20-May-13 A	31-May-13 A	Prépare Shop Drawings- Structural Steel - Bldg 4 [Seq 19 & 20]
A25800	Fabricate & Deliver - Structural Steel - Bidg 3 ( Seq 11 & 12)	15 0 20-May-13 A	09-Jul-13A	Fabricate & Deliver - Structural Steel - Blog 3 (Seq 1) & 12)
A15850	Fabricate & Deliver - Structural Steel - Bldg 2 [Seq 13 & 14]	13 0 20-May-13 A	10-Jul-13A	Fabricate & Deliver - \$tructural Steel + Bidg 2 [Skeq 13 & 14]
A22590	Approve Shop Drawings - Structural Steel - Bidg 4 [Seq 19 & 20]	15 0 03-Jun-13 A	24-Jun-13A	Approve Shop Drawings1- Structural Steel - Blog 4(Seq.19.8:20)
A22600	Fabricate & Deliver - Structural Steel - Bidg 4 [Seq 19 & 20]	13 0 09-Jul-13 A	13-Aug-13 A	Habridate & Deliver - structural Steel- Blog 4 [3eq 19 & 20]
07-001 - F	oundation Waterproofing *			
A2443U	Bid - Foundation Waterproofing	10 U 11-Mar-13 A	01-Apr-13A	Big - Foundation Waterproofing
A20400	Re-Bid - Foundation Waterproofing	12 U U1-Apr-13A	20-Apr-13A	Re-Bio - Foundation Waterpropring
A24400	Prepare Submittais - Waterprooring	5 0 20-Apr-13A	23-Apr-13 A	rregare scontrals waterproting
A24410	Approve Submittais - waterproofing	5 U 23-Apr-13 A	20-Apr-13 A	<ul> <li>Approve submittais- waterproping</li> </ul>
A24380	Award - Poundation Waterprooring	3 0 25-Apr-13A	20-Apr-13A	Award - Poundation Waterproteing
08.002	urbinwall (Decign Arrist)	4 0 20-Apr-13A	op-may-13 A	convert without producing
06-002 - C	urtainwall (Design Assist)	0 0	09 Nev 12 A	
A23020	Last Date for Questions - Curtainwall	0 0	23-Nov-12A	second reference of the second s
A23040	Custome for Questions - Curtainwall	0 0	20 New 12 A	
A22050	Proposale Due - Curtainwall	0 0	11-Dec 12 A	Concerning and the concerni
A23060	Interviews - Curtainwall	1 0.12-Dec-12.4	13-Dec-12A	V Topopas que Tortainen
A22690	NTP - Curtainwall	0 0	07- Jan-13A	A MP. Cartineed
A22700	Work with A&E - Curtainwall	52 0.08-Jap-13.4	21-Mar-13.4	Work with ASE. Curtained at
A15550	Prepare Shop Drawing - Curtainwall	28 0 15-Apr-13 A	19. bil 13.4	Persite Shon Brawing , Cuttahwall
A15560	Approve Shop Drawing - Curtainwall	10 0.03-Jun-13A	31-Jul-13A	Antrove Shop Drawing - Curtainvial
A54460	Prepare Shop Drawing - Sofft Panels	0 0 14-km-13A	22-bil-13A	Prentyre Shop Traving, Soff Panels
A15570	Eabricate & Deliver - Curtainwall	70 0.01-Jul-13 A	03-Oct-13.A	Edition & Deliver - Curtainwal
A54470	Approve Shop Drawing - Soffit Panels	10 0 23-Jul-13 A	31-Jul-13A	Approvel Shoth Drawing   Soft Pahels
A54480	Fabricate & Deliver - Sofft Panels	5 1 01-Aug-13A	06-Nov-13	Fabricate & Delver - Soft Panels
A54490	Fabricate & Deliver - Curtainwall Glazing	0 8 17-Oct-13A	18-Nov-13	Fabricate & Deliver - Curtainwall Glazing
14-100 - E	levator *			
A24440	Bid - Elevator	15 0 30-Jan-13 A	05-Mar-13 A	Bill Bill Bill Bill Bill Bill Bill Bill
A25190	Re-Bid Non-Trade Elevator	5 0 06-Mar-13 A	22-Mar-13 A	Re-Bid Nán-Trade Blevatbr
A15630	Award - Elevator	5 0 25-Mar-13 A	17-May-13 A	Award - Elevator
A15640	Prepare Shop Drawings - Elevator	15 0 13-May-13 A	21-Jun-13A	Prepare Shop Drawings Elevator
A15650	Approve Shop Drawings - Traction Elevator	10 0 24-Jun-13A	19-Sep-13A	l l l l l l l l l l l l l l l l l l l
A54500	Approve Shop Drawings - Hydraulic Elevator	10 7 24-Jun-13 A	15-Nov-13	Approve Shop Drawings - Hydraulic Elevator
A15660	Fabricate & Deliver - Traction Elevator	60 32 20-Sep-13 A	23-Dec-13	Fabricate & Deliver - Traction Elevator
A54510	Fabricate & Deliver - Hydraulic Elevator	60 60 18-Nov-13	12-Feb-14	Fabriqate & Deliver - Hydrautic Elevator
31-100 - E	arthwork			
210010	Bid - Sitework	13 0 17-Dec-12A	04-Jan-13A	Bij - Stework
A14180	Review Bids - Sitework	15 0 07-Jan-13 A	31-Jan-13A	Review Bids 1 Siteboork
210020	Award & NTP - Sitework	5 0 01-Feb-13A	01-Feb-13A	Avlard & NTP - Stewoolk
A14780	Prepare Submittals - Sitework	5 0 04-Feb-13A	13-Feb-13A	Prepare Submitals - Stework
A14790	Approve Submittals - Sitework	5 0 14-Feb-13A	21-Feb-13A	Approve Submittals- Sitework
A14800	Fabricate & Deliver - Structures	13 0 21-Feb-13A	25-Mar-13 A	Fabricate & Deliver > Structures
A14810	Deliver Materials - Sitework	5 0 22-Feb-13A	20-Mar-13 A	Denver materials - 3 new drk
A54870	Design Team / WSU - Spec Light Poles / Bases	1 0 17-Oct-13A	21-Oct-13A	Design Tehm / WSU - Spice Light Poles //Basels
A54840	Prepare Submittais - Light Pole Bases	5 0 24-Oct-13A	25-Uct-13A	I Prepare Submittalis Light Pole Bases
A54850	Approve Submittias - Light Pole Bases	5 0 25-Od-13A	20-0d-13A	I: Approve Submittas - Light Pole Bases
A54860	Fabricate & Deliver - Light Mole Bases	10 7 25-Oct-13 A	10-INOV-13	+abritate & Deliver - Light PoleBases
Temp Pov	Pid Tama Dawa	15 0 17 Dec 12 0	00 Jan 12 4	
A14000	Du - Temp Power	10 U 17-Dec-12A	00-Jan-13A	Du - Istin Cower
A14610	Review bios - remp nower	10 U U9-Jan-13A	28-Jan-13A	Review plast temp rover
A14620	Awaro o NTE - Temp Fower	0 U U/-Feb-13A	IS-FED-13A	Average of the state of th
Balance o	I FIGUI STIST			

1124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	edule [for dist] TASK filter: All Activities	Page 5 of 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012	2013 2014 2015
		Dur	Dur		Jun Jul Aug Sep Oct Nov Dec Jan F Mar Apr May Ju	n Jul Aug Sep Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb <sup>lar</sup>
Trade Cor	tractor Pre-Qualification **					
230010	Publish Notice for RFQ	4	0 03-Oct-12 A	09-Oct-12 A	Publish Notice for RFQ	
230020	RFQ Advertised - Trade Scopes	1	0 10-Oct-12 A	10-Oct-12 A	I RFQ Advertised - Trade Scopes	
230030	Trade Contractor Qualifications Submitted	16	0 11-Oct-12 A	05-Nov-12A	Trade Contractor Qualifications Subr	mited
230040	Review Trade Contractor Qualifications	19	0 06-Nov-12 A	30-Nov-12 A	Review Trade Contractor Qualifi	cations
230060	Distribute Documents to Selected Trades	0	0	03-Dec-12A	Distribute Documents to Selecte	zd[Trades
230050	Notify Prequalified Trades	1	0 03-Dec-12 A	03-Dec-12A	Notify Prequalified Trades	
Trade Cor	stractor Procurement **					
240010	Trade Contractor Bidding	17	0 18-Apr-13 A	20-May-13 A	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ade Contractor Bilding
240100	Contract Awarded - Trade Contractors	0	0	03-Jun-13A		Zontract Awarded - Trate Opntractors
Non-Trad	Contractor Procurement					
250000	Non-Trade Contractor Bidding	17	0 18-Apr-13 A	24-May-13 A	No	n Trade Contractor Bidding
250100	Contract Awarded - Non-Trade Contractors	0	0	03-Jun-13 A	•	3dntract Awarded- Non-Trade Contractors
04-400 - N	lasonry *					
A15460	Award - Masonry	1	0 03-Jun-13 A	03-Jun-13A		Award - Masonry
A15470	Prepare Submittals - Masonry	15	0 20-Jun-13 A	01-Jul-13A	┟┈╅┈┟╾┟╍┟╍┟╍┟╍┟╍┟╍┟╍┟╸	Prepare Submittals - Masonry
A54530	Approve Submittals - Interstate	5	0 02-Jul-13 A	22-Aug-13A		Approve Submittals Interstate
A15480	Approve Submittals - Masonry	10	0 02-Jul-13 A	09-Sep-13A		Approve Submittals - Masohry
A54520	Fabricate & Deliver - Interstate	60	22 23-Aug-13 A	09-Dec-13		Fabricate & Deliver - Interstate
A15490	Fabricate & Deliver - Masonry	10	0 09-Sep-13 A	07-Oct-13 A		Fapricate & Deliver - Masonry
05-500 - N	lisc. Metals *					
A14990	Award - Misc. Metals	1	0 03-Jun-13 A	03-Jun-13 A		Awtard - Misc Metals
A15000	Prepare Shop Drawings - Embed Plates / Loose Lintels	15	0 03-Jun-13 A	09-Sep-13A		Ptepare Shop Drawings - Embed Plates / Loose Lintels
A54770	Prepare Submittals - Elevator Equipment	15	0 04-Jun-13 A	10-Sep-13A		Prepare Submittals - Elevator Equipment
A54540	Prepare Shop Drawings - Stair # 3 / # 5	15	0 04-Jun-13 A	08-Oct-13 A		Prepare Shop Drawings - Stair # 3 / # 5
A54570	Prepare Shop Drawings - Hand Rails	15	0 04-Jun-13 A	08-Oct-13 A		Preparle Shop Drawings - Hand Rails
A15010	Approve Shop Drawings - Embed Plates / Loose Lintels	10	0 10-Sep-13A	20-Sep-13A		Approve Shop Drawings - Embed Plates / Loose Littles
A54780	Approve Submittals - Elevator Equipment	10	0 11-Sep-13 A	18-Sep-13A		Approve Submittals - Elevator Equipment
A15020	Fabricate & Deliver - Embed Plates / Loose Lintels	10	0 23-Sep-13 A	30-Sep-13A		Fabricate & Delver - Embed Plates / Loose Lintels
A54550	Approve Shop Drawings - Stair C / E	10	16 08-Oct-13 A	29-Nov-13		Approve Shop Drawings - Steir Ci / E
A54580	Approve Shope Drawings - Hand Rais	10	16 09-Oct-13 A	29-Nov-13	· · · · · · · · · · · · · · · · · · ·	Approve Shope Drawings - Hand Rails
A54790	Fabricate & Deliver - Elevator Equipment	20	20 06-Nov-13	05-Dec-13		Fabricate & Delivér - Elevatór Equipmént
A54560	Fabricate & Deliver - Star C / E	15	15 02-Dec-13	20-Dec-13		Eabricatei& Deliver - Starr C / E
. A54590	Fabricate & Deliver - Hand Rails	15	15 U2-Deb-13	20-Dec-13		Fabricate-S Delver - Hand Rats
06-200 - F	inish Carpentry					
A15860	Award - Finish Carpentry	15	0 19-JUI-13 A	26-Jul-13A	+-	Award - Einst Carpentry
A158/U	Prepare Shop Drawings - Interior Finish Carpentry	10	U 29-JUF13 A	09-00-13A		Prepate Shop Drawings - Interior Finish Carpentry
A1588U	Approve Shop Drawings - Interior Finish Carpentry	10	0 09-08-13 A	16-0d-13A		Ppprove Stop LYawings - interior Finish Garpentry
A15690	Proprior & Deriver - Interior Prinsit Carpendy Proprior Shap Drawings - Exterior Wood Colling	16	22 17-00-13A	15 New 12		Paperte Shae Denvieer - Friend Prist Carpenty
A54810	Approve Shop Drawings - Exterior Wood Ceiling	10	10 19 Nov 12	02-Dec.12		Approved Shap Drawings * Exterior Wood Celling
454620	Exprise Shop Drawings - Exterior Wood Cellings	20	20, 02 Dec 13	21 Dec 12	┼┄┾╴┄┾╌╴┼╌╴┼╶╴┽╴╴┼╸╴╎╾╴╎╴╴┼╴╴┼╸	Entriente & Deliver, Externet Wood Collinge
07.001.1	Interpropfing Damproofing & Caulking t	20	20 03-060-13	3106013		Pablicate & Deliver * Exterios wood Cearigs
A15000	Award - Waterproofing, Damproofing & Caulking	1	0.31-Max-13.4	31-May 13.4		Watermoting Damandon & Caulting
A15940	Prepare Submittele - Air Barrier	15	0 17- km-12.4	12. bil 12.4		Branne Schmittler, Air Barrier
A15010	Prepare Submittals - Damonofing & Caulking	15	0 17- Jun-13 A	10. bil 13.4		Prepare Submittals - Damorrofina & Caution
A15950	Annrove Submittals - Air Barrier	10	0 19-10-13.4	23-bil-13.4	<u> </u>	Anntose Submittale, Air Barriet
A15920	Annrous Submittals - Damroofing & Caulking	10	0.23-10-13.4	28- Jul-13.4		Anotous Substitute, Damontino & Califina
A15980	Deliver - Air Barrier	.5	0 16-Aug-13.4	06-Sep-13.4		Déliveri Air Barrier
A15930	Delver - Damproofing & Caulking	4	0 08-Sep-13A	06-Sep-13A		Deliver Damproofing & Caulking
07-002 - F	oofing & Flashing *					
A15970	Award - Roofing & Flashing	1	0 03-Jun-13A	03-Jun-13A		Avtard - Rooting & Flasting
A15980	Prepare Shop Drawing - Roofing & Flashing	15	0 14-Jun-13A	06-Aug-13A		Prepare Shoe Drawing - Robfind & Flashing
A15990	Approve Shop Drawing - Roofing & Flashing	10	0 14-Aug-13A	02-Sep-13A	1	Approve Shop Drawing - Roofing & Flashing
A16000	Fabricate & Deliver - Roofing & Flashing	10	0 26-Aug-13 A	30-Sep-13A		Fabricate & Deliver - Reofind & Flashing
07-420 - N	letal Wall Panels					

1124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	dule (for	r dist] 1	TASK filte	er: All A	Activit	es						Page 6 of	139
Activity ID	Activity Name	Orig	Rem Start	Finish	2012									2	013	2014 2015	5
		Dur	Dur		Jun Ji	al Aug	g Sep O	let Nov	Dec	Jan	FN	/ar A	pr May	Jun	Jul Aug Sep Oc	t Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Fe	<sub>b</sub> la
A16050	Award - Metal Wall Panels	5	0 01-Aug-13A	02-Aug-13A											Award - Me	ita Wali Panels	Т
A16060	Prepare Shop Drawings - Metal Wall Panels	10	0 05-Aug-13 A	08-Oct-13 A			1 1	1	1		1	1	1			Prepare Shop Drawings - Metal Wall Panels	1
A16070	Approve Shop Drawings - Metal Wall Panels	11	0 09-Oct-13 A	01-Nov-13A												Approve Shop Drawings - Metal Wall Panels	
A16080	Fabricate & Deliver - Metal Wall Panels	40	37 04-Nov-13 A	31-Dec-13					1							Fabricate & Deliver - Metal Wall Panels	
07-810 - 4	pplied Fireproofing					. L	<u> </u>		1	L			. <u>.</u>	<u>.</u>			1
A16010	Award - Applied Fireproofing	5	0 20-Jun-13 A	20-Jun-13 A	I		TT	T				T	T	T	Award - Applied Fir	reproofing	T
A16020	Prepare Submittals - Applied Fireproofing	10	0 25-Jun-13 A	10-Jul-13A					1			- 1		1	Prepare Submit	das - Applied Fireproofing	
A16030	Approve Submittals - Applied Fireproofing	10	0 16-Jul-13 A	05-Aug-13A											Approve Su	ubinitials - Applied Fireproofing	
A16040	Deliver - Applied Fireproofing	15	0 06-Aug-13 A	12-Aug-13A											Delive - A	palied Fireproofing	
08-001 - #	luminum Windows *						1 1		1		- 1			1	1 1 1 1		
A15500	Award - Aluminum Windows	1	0 03-Jun-13 A	03-Jun-13 A					1					A	ward - Aluminum Wi	ndpws;	T
A15510	Prepare Shop Drawing - Aluminum Windows	15	0 04-Jun-13A	03-Jul-13A											Prepare Shop Dr	raiving - Aluminum Windows	
A15520	Approve Shop Drawing - Aluminum Windows	0	0 04-Jul-13 A	25-Jul-13A					1		- 1				Approve Sho	p Drawing - Alumhum Windows	
A15530	Fabricate & Deliver - Aluminum Windows	40	0 25-Jul-13 A	18-Oct-13 A												abricate & Deliver Aluminum Windows	
08-110 - D	oors Frames & Hardware						1		<u>.</u>	L							1.
A15580	Award - Doors, Frames & Hardware	5	0 08-Jul-13 A	12-Jul-13A	T	1	TT	T	1			T	T	1	Award - Doors,	Frames & Hardware	Т
A15590	Prepare Shop Drawings - Doors, Frames & Hardware	15	0 16-Jul-13 A	15-Aug-13A			1.1		1		- 1		1.		Prepare S	Shop Drawings - Doors, Frames& Hardware	
A54640	Approve Shop Drawings - Door Frames	5	0 16-Aug-13 A	30-Aug-13 A											Approv	/e Shop Drawings - Door Frames	
A15600	Approve Shop Drawings - Doors & Hardware	10	3 16-Aug-13A	08-Nov-13					1		1					Approve Ship Drawings - Qoors & Hardware	
A54890	Award Overhead Doors	1	0 29-Aug-13 A	29-Aug-13A											I Award	Overhead Doors	
A15610	Fabricate & Deliver - Doors Frames	20	0 02-Sep-13A	06-Sep-13A			1		1	1		1	1	· · · ·	Fabric	cale & Deliver - Dpors Frames	T
A54900	Prepare Shop Drawings - Overhead Doors	15	0 02-Sep-13A	25-Sep-13A											Pri	epare Shop Drawings - Overhead Doors	
A54910	Approve Shop Drawings - Overhead Doors	10	0 25-Sep-13A	24-Oct-13 A		÷	1 1		÷ .			- 1	÷		1 I I 📥	Approve \$hop Drawings- Overhead Doors	
A54920	Fabricate & Deliver - Overhead Doors	20	15 24-Oct-13A	27-Nov-13												Fabricate & Deliver - Overhead Doors	
A15620	Fabricate & Deliver - Doors & Hardware	40	40 12-Nov-13	09-Jan-14					1		- 1	- 1				Fabricate & Deliver - Doors & Hardware	
09-250 - 0	rywall				T		111	- <b>T</b>	1	1		1	T	7	1 1 1 1		T
A16090	Award - Drywall	5	0 19-Jun-13A	19-Jun-13A		÷ .	1 1		1		- 1	- 1	1	÷ 1	Award - Drywal		
A16100	Prepare Submittals - Drywall	20	0 25-Jun-13 A	02-Jul-13A										1	Prepare Submitta	alt - Dływali	
A16110	Approve Submittals - Drywall	10	0 03-Jul-13 A	12-Jul-13A					1						Approve Submi	ittalis - Drywall	
A16120	Fabricate & Deliver - Drywall	10	0 15-Jul-13 A	26-Jul-13A											Fabricate & D	Delver-Drwall	
09-300 - 0	eramic Tile *				1		1			11				·	1 1 1 1		Ť
A16130	Award - Ceramic Tile	1	0 15-Jul-13 A	16-Jul-13A											Award - Cerar	mla Tiel	
A16140	Prepare Submittals - Ceramic Tile	15	0 01-Aug-13A	03-Oct-13 A		1	1 1	1	1		1	- 1	1	1	i i i i i i i i i i i i i i i i i i i	Preparé Submittals - Ceramic Tile	1
A54680	Prepare Submittals - Wall Tile	15	0 01-Aug-13A	03-Oct-13 A			1 1				- 1					Prepare Submittals - Wall Tile	
A16150	Approve Submittals - Ceramic Tile	10	0 04-Oct-13A	30-Oct-13 A					1				1			Approve Submittals - Ceramic Tile:	1
A54690	Approve Submittals - Wall Tile	10	0 04-Oct-13 A	06-Nov-13A			1	-	1							Approve Submittals - Wall Tile	Ť
A16160	Deliver - Ceramic Tile	40	22 06-Nov-13 A	09-Dec-13					1		- 1					Delver - Ceramic Tile	
A54700	Fabricate & Deliver - Wall Tile	15	22 06-Nov-13A	09-Dec-13			1 1									Fabricate & Deliver - Wall Tile	
09-400 - F	coustical Ceilings *					1	1 1	1	1		1	1	1				1
A16170	Award - Acoustical Ceilings	1	0 03-Jun-13 A	03-Jun-13A										) A	ward - Acoustical Ce	ilings	
A16180	Prepare Submittals - Acoustical Ceilings	0	0 04-Jun-13 A	14-Oct-13A	Ť	1	1 1		1	11		1	T		(*************************************	Prepare Submittals - Acoustical Cellings	Ť
A16190	Approve Submittals - Acoustical Ceilings	10	0 01-Oct-13A	11-Oct-13 A												Approve Submittals - Acoustical Celinbs	
A16200	Deliver - Acoustical Cellings	1	1 02-Dec-13*	02-Dec-13	1	÷ .	1 1	1	1	1	1	- i	÷ .	1	1 1 1 1	Deliver - Acoustical Cellings	1
09-500 - F	tesilient Flooring *																
A16210	Award - Resilient Flooring	1	0 03-Jun-13 A	03-Jun-13A	11		11		1	1	1	1		1 A	ward - Resilient Floo	xing	1
A16220	Prepare Submittals - Resilient Flooring	15	0 04-Jun-13 A	15-Oct-13 A	1				1							Prepare Submittals - Resilient Flooring	Ť
A54740	Prepare Submittals - Wood Flooring	15	0 23-Aug-13 A	25-Sep-13A					1						Pr	epare Submittals   Wood Flooring	
A54710	Prepare Submittals - Carpet	15	0 23-Aug-13A	01-Oct-13A		1	1.1	1	1		1	1	1	1	P	repare Submittals - Carpet	
A54720	Approve Submittals - Carpet	10	0 21-Oct-13A	30-Oct-13 A		1	1 1	1	1	1	1	1	1	1		Approve Submittals - Carpet	1
A16230	Approve Submittals - Resilient Flooring	10	9 05-Nov-13 A	19-Nov-13		1		1	1				1			Approve Submittals Resilient Flooring	
A54750	Approve Submittlas - Wood Flooring	10	10 06-Nov-13	20-Nov-13	††	· † · · · ·	ŕ	†	1	11		···	·· † ·	Ť	1-1-1-1-	Approve Submittlas - Wood Flooring	Ť
A54730	Fabricate & Deliver - Carpet	20	20 06-Nov-13	05-Dec-13					1				1			Fabricate & Deliver - Carpet	
A16240	Delver - Resilient Flooring	20	20 20-Nov-13	18-Dec-13	1	1	1	1	1	1	1	1	1	1		Delver - Resilent Flooring	1
A54780	Fabricate & Deliver - Wood Flooring	25	25 21-Nov-13	27-Dec-13		1	1	1	1					1		Eabricate & Deliver - Wood Flooring	
09-900 - F	ainting *					1	1 1		1		1						
A15030	Award - Painting	1	0 03-Jun-13A	03-Jun-13A	tt			+	÷	tt-			··+-··	T A	ward Painting		+

1124 - WSU - Ne	v Student Residence Hall and Dining Facility			* Project Sche	dule (for	rdist] TA	SK filter	: All Activi	ities				Page 7 of 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012							2	2013 2014 2015
		Dur	Dur		Jun Ju	al Aug	Sep Oct	Nov De	ic Jan	FM	ar Apr M	ay Ju	un Jul Aug Sep Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb <sup>la</sup>
A15040	Prepare Submittals - Painting	15	0 10-Jun-13A	15-Jul-13A									Prepare Submittals - Painting
A15050	Approve Submittals - Painting	10	0 25-Jul-13 A	23-Aug-13 A	1 1	1 1		1 1		11	1 1	1	Apptove Submittals Painting
A15060	Deliver - Paint	10	10 06-Nov-13	20-Nov-13									Deliver - Raint
11-400 - F	ood Service Equipment					1 1							
A22890	Award - Food Service Equipment	5	0 10-Jun-13A	14-Jun-13A	1			1.1.		1			Award - Food Service Equipment
A22900	Prepare Submittals - Food Service Equipment	30	0 19-Jun-13A	22-Jul-13A		1 1						11	Prepare Submittals Food Service Equipment
A22910	Approve Submittals - Food Service Equipment	10	0 23-Jul-13 A	01-Nov-13A		1 1							Approve Submittals - Food Service Equipment
A22920	Fabricate & Deliver - Food Service Equipment	50	50 04-Nov-13 A	20-Jan-14	1 1	1 1							Fabricate & Deliver - Food Service Equipment
15-300 - F	ire Protection *												
A16250	Award - Fire Protection	1	0 03-Jun-13 A	03-Jun-13A		TT	1	TΤ	1	1	TT	) A	Award -Fire Protection
A16260	Prepare Shop Drawings - Fire Protection	7	0 19-Jul-13 A	06-Aug-13A		1 1							Prepare Shop Drawings - Fire Protection
A16270	Approve Shop Drawings - Fire Protection	10	0 07-Aug-13 A	30-Aug-13 A		1 1							Approvel Shop Drawings - Fite Protection
A16280	Fabricate & Deliver - Fire Protection	10	0 02-Sep-13 A	06-Sep-13A		1 1							Fábricate & Deliver - Fire Protection
15-400 - P	lumbing *							1		I			
A15070	Award - Plumbing	1	0 03-Jun-13A	03-Jun-13A								3 A	Award - Plumbing
A15080	Prepare Submittals - Plumbing Basic Mat	15	0 03-Jun-13 A	10-Jun-13A		1 1						1	Prepare Submittals - Pumbing Basic Mat
A15110	Prepare Submittals - Dom Water Heaters	15	0 10-Jun-13A	13-Jun-13A		1 1						- j I.	Prepare Submittals - Com Water Heaters:
A15140	Prepare Submittals - Plumbing Fixtures	15	0 10-Jun-13A	13-Jun-13A		1 1		1 1				- 1 <b>I</b>	Prepare Submittals - Pumbing Flutures
A15090	Approve Submittals - Plumbing Basic Mat	10	0 10-Jun-13A	20-Jun-13A	ļ			4		i			Approve Submittals Plumbing Basic Mat
A15120	Approve Submittals - Dom Water Heaters	10	0 13-Jun-13A	12-Jul-13A									Approve Submitters - Dom Water Heaters
A15150	Approve Submittals - Plumbing Fixtures	10	0 13-Jun-13A	05-Sep-13A		1 1		1 1		1	11	- i •	Approve Submittals - Plumbing Fatures
A15100	Fabricate & Deliver - Plumbing Basic Mat	5	0 21-Jun-13A	01-Jul-13A									Fabricate & Deliver - Plambing Basic Mat
A15160	Fabricate & Deliver - Plumbing Fixtures	30	30 06-Nov-13	19-Dec-13		1 1		1 1		1 1	1 1		Fabricate & Deliver - Plumbing Fixtures
A15130	Fabricate & Deliver - Dom Water Heaters	40	40 06-Nov-13	06-Jan-14	J		J	11		II			Fabricate & Deliver - Dom Water Heafers
15-500 - N	echanical *			_		11		1 1		11	11		
A15170	Award - Mechanical	1	0 03-Jun-13 A	03-Jun-13A		1 1						) A	Avtard - Mechanical
A15210	Prepare Submittals - HVAC Fan Coil Units / Exhaust Fans	15	0 10-Jun-13A	15-Jul-13A	1	1 1	1	i i		11	1 1	- i 🗖	Prepare Submittals - HVAO Fan Coil Units / Exbaust Fans
A15240	Prepare Submittals - Boilers	15	0 10-Jun-13A	18-Jul-13A									Prepare Submittals - Boilers
A15180	Prepare Submittals - Mechanical Basic Materials	0	0 10-Jun-13A	19-Jul-13A	ļ			÷		į			Prepare Submittals - Mechanical Basic Materials
A15270	Prepare Submittals - AHUs	15	0 10-Jun-13A	24-Jul-13A		1 1		1 1			1 1	15	Prepare Şubmitals - AHUs
A24200	Prepare Submittals - Chillers	15	0 10-Jun-13A	02-Aug-13A	1	1 1	1	i i		11	1 1	- i -	Prepare Submittais - Chillers
A15220	Approve Submittals - HVAC Exhaust Fans	10	0 16-Jul-13 A	06-Sep-13A		1 1							Approve Submittals - HVACIExhalust Rans
A15250	Approve Submittals - Boilers	10	0 18-Jul-13 A	24-Jul-13A	I I.	1 1	1	i i .		11	11	1	Approve Submittals- Boilers
A15190	Approve Submittais - Mechanical Basic Materials	10	0 19-Jul-13 A	02-Aug-13A	<u>↓</u>			÷		Į			Approve Submittais - Mechanical BasiceMaterials
A54430	Fabricate & Deliver - FCUs [Vertical]	30	0 24-Jul-13 A	05-Nov-13A		1 1		1 1		1 1	1 1		Fabricate & Deliver - FCUs [Vertical]
A15260	Fabricate & Deliver - Boilers	40	21 24-Jul-13 A	06-Dec-13									Fabricate & Delver - Holers
A15280	Approve Submittals - AHUs	10	0 29-Jul-13 A	06-Nov-13		1 1							Approve Submittalis - AHUs
A15200	Fabricate & Deliver - Mechanical Basic Materials	10	0 02-Aug-13 A	26-Aug-13A	11	1 1							Fabricaté & Déliver - Medhanical Básic Materials
A24210	Approve Submittals - Chillers	10	0 05-Aug-13A	06-Sep-13A	<b>↓↓</b>			÷		··	-++		Adprove Submittals - Chilers
A24220	Fabricate & Deliver - Uniters	80	48 UV-Sep-13A	10-Jan-14	1 1	1 1		1 1		11	1 1	1	apricate a DeliverChillers
A048UU	Fabricate & Deliver - FCUs [Horizontal]	30	19 11-Sep-13 A	04-Dec-13		1 1							Fabricate & Deliver - FDUS Horizontal
A15230	Fabricate & Deliver - HVAC Exhaust Fans	40	7 20-Sep-13 A	15-Nov-13		1 1							Fabritate & Delver - HVAC Extlaust 2 ans
A15290	Fabricate & Deliver - AHUS	52	52 UO-INOV-13	22-Jan-14		1 1							Fabricate & Deliver - AHUS
16-000 - E	ectrical *				<b>↓</b>	·++		÷i		ii		·	· · · · · · · · · · · · · · · · · · ·
A15300	Award - Electrical	1	0 03-Jun-13 A	U3-JUN-13A		1 1						_ L^	Award - Electrical
A15310	Prepare Submittais - Electrical Basic Materials	0	0 03-JUN-13 A	14-JUN-13A	11	1 1		11		11		- E.	Prepare Submittais - Becitical Basic Materials
A15400	Prepare Submittals - Egning	10	0 17-Jun-13A	10-JUE 13 A				1					Reserve Outmainte Generate
A153/0	Prepare Submittals - Generator	10	0 17-Jun-13A	10-JUI-13A	1 1	1 1		1 1		1 1	1	11	repare outnings - Agenerator
A15430	Prepare Submittals - Fire Alarm Dranans Submittals - Switcheaur	15	0 17-Jun-13A	23-Aug-13A	++	·++		++	-+	·	-++-		Prepare quomeats recovaria
A10340	Annual Coloritate Linking	10	o tr-Jun-13A	20-Aug-13A	1 1	1 1		1 1		1	1 1	11	riepare southtuas ownorigen
A15410	Approve Submittals - Lighting	10	0 10-JUF13 A	05-000-13 A	11	1 1							Approve Summary - cigning
A15320	Approve Submittais - Electrical Basic Materials	10	0 10-JUF13 A	12 Sop 12 A	11	1 1		11		11	1 1	1	Paper de Countrais - Cecorcar Dasio materials
A15330	Paperse Submittele Concentrationalefials	10	0 10 Aug-13 A	OR New 12		1 1		1 1			1 1		nabilitate a Denier - declaration dationals
A15380	Approve Submittals - Generator	10	0 18-AUg-13 A	04 Oct 12 A	++	-++		++			-++-		Approve Submittals - Genetator
A15350	Approve Submittals - Switchgean	11	0 20-Aug-13 A	22.0ct.12.4									Agrove Submittale - Ern Alarm
Alberto	http://wei.outilitatais.com/enailiti		o zo-Aug-15A	22-00-13A	<u> </u>				-	<u> </u>			. pppore dominant, i ne mar (ii

1124 - WSU - Ner	v Student Residence Hall and Dining Facility		* Project Sche	dule [for dist] TASK filter: A	Il Activities	Page 8 of 39
Activity ID	Activity Name	Orig Rem Start	Finish	2012	2013	2014 2015
		Dur Dur		Jun Jul Aug Sep Oct N	lov Dec Jan F Mar Apr May Jun J	ul Aug Sep Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb <sup>lar</sup>
A15360	Fabricate & Deliver - Switchgear	60 35 04-Oct-13 A	27-Dec-13			Fabricate & Deliver - Switchgear
A15420	Fabricate & Deliver - Lighting	20 20 08-Oct-13 A	05-Dec-13			Fabricate & Deliver - Lighting
A15450	Fabricate & Deliver - Fire Alarm	40 0 23-Oct-13 A	04-Nov-13 A			Fabricate & Deliver - Fire Alarm
A15390	Fabricate & Deliver - Generator	70 70 06-Nov-13	18-Feb-14			Fabricate & Deliver - Generato
MEP CO	ORDINATION					
A22820	Underground: MEP Modeling	10 0 20-Jun-13 A	24-Jun-13A		U	nderground: MEP Modeling
A26040	Underground: MEP Model Revisions	5 0 24-Jun-13 A	05-Jul-13A			Underground: MEP Model Revisions
A22780	Section 1: MEP Modeling	14 0 08-Jul-13 A	05-Aug-13 A			Section 1: MEP Modeling
A26050	Section 1: MEP Model Revisions	27 0 06-Aug-13 A	07-Oct-13 A			Section 1: MEP Model Revisions
A22790	Section 3: MEP Modeling	15 0 19-Aug-13 A	09-Sep-13A			Section 3: MEP Modeling
A22800	Section 2: MEP Modeling	15 0 27-Aug-13 A	06-Sep-13A			Section 2: MEP Modeling
A22810	Section 4: MEP Modeling	10 0 27-Aug-13 A	06-Sep-13A			Section 4: MEP Modeling
A26080	Section 4: MEP Model Revisions	13 7 09-Sep-13 A	15-Nov-13			Bection 4: MEP Model Revisions
A26070	Section 2: MEP Model Revisions	27 0 09-Sep-13A	04-Nov-13A			Sector 2: MEP Model Revisions
A20000	Section 3: MEP Model Revisions	5 U 10-Sep-13A	04-Nov-13 A			Section (3: MEP Model Revisions
SAFETY	& QUALITY PRE-OPS MEETINGS					
A21580	02/03 - Sitework / Foundations	0 0 28-Feb-13 A			<ul> <li>02/03 - \$itewprk / For</li> </ul>	undations
A21590	02 - Sitework / Utilities	0 0 28-Feb-13 A			<ul> <li>02 - Sitework/Utilitie</li> </ul>	si i i i i i i i i i i i i i i i i i i
A22970	03 - Flatwork	0 0 28-Feb-13 A			<ul> <li>03 - Flatwork</li> </ul>	
A21630	03 - Precast	0 0 22-Apr-13A			♦:03 - Precast	
A21710	05 - Steel	0 0 22-Apr-13A			◆105 - Steel	
A24450	07 - Foundation Waterproofing	0 0 30-Apr-13A			♦ 07 - Found	lation Waterproof ep
A21620	07 - Damprooting & Caulking	0 0 01-Jul-13A		<u>↓</u> ↓↓↓↓		0/ - Damproeting & Caulking
A21090	15 - Humbing	0 0 01-JUF13A			<b></b>	to Plumping
A21000	10 - Electrical	0 0 09-Sep-13A				• ID - Electrical
A21010	15 - Medianical	0 0 00-Sep-13A				
A21720	LEED Cykink off Meeting	0 0 24-Sep-13.4				◆ UFF Model V
A21660	DR - Curtainwall	0 0.02-04-124		· · · · · · · · · · · · · · · · · · ·		A Re Contained
A21700	08 - Aluminum Windows	0 0.02-0ct-13A				OB- Alutninum Wittlows
A21680	14 - Elevator	0 0 10-Dec-13				♦ 14 - Elévatór
A21670	09 - Painting	0 0 18-Dec-13				09 - Painting
A22980	11 - Food Service Equipment	0 0 15-Jan-14"				1 - Food Service Equipment
A21650	08 - Doors, Frames & Hardware	0 0 17-Jan-14				🔶 β8 - Doors, Frames & Hardwate
CONSTR	UCTION					
Eall 112						
A24480	Early Sitework	5 0.31-Oct-12A	15 Mar. 12 A		Early Structure	
Residence	Hall / Diping	5 6 51-002-12 A	To-Mar-To A		Carly Silenary	
Sitework				┟╌┿╌┼╌┝╌┝╌┼	╌╅╍╌╂╍╍╏╍╍┨╌╌╋╍╍╋╍╸┠╍╸	╾┽┄┿╌╄╾╢╾┽╍╂┄┽╌┾╌┾╌┼┈┽╴╅╴╅╴┼╾┼╌┽╴┼
A16290	Start Construction	0 0 04-Mar-13A			Start Construction	
A16370	Mobilize / Install Barriers	5 0.04-Mar-13.A	08-Mar-13 A		Mobilize / Initial Bar	riels
A16310	Instal Drainage	20 0 13-Mar-13 A	08-Apr-13A		Instal Brainage	
A26010	Demo Existing Site wall and Stairs North of Wasvlean Hall	5 0 20-May-13 A	24-Jun-13A			emo Existing Site wall and Stairs North of Wasvlean Hall
A26000	Install Temporary Walkway at Village	4 0 28-May-13 A	14-Jun-13A		linsi	tallTemporary Waleway at Village
A24540	Electric Ductbank to Chandler	35 0 24-Jun-13 A	08-Sep-13A			Electric Ductbank to Chandler
A39700	IT Ductbank to Building 1	5 0 16-Jul-13 A	22-Jul-13A			T Dýctbahk to Building 1
A39690	Pull Cables / Set Transformer - National Grid	10 0 14-Oct-13 A	06-Nov-13			Pull Cables /Set Transformer - National Grid
A54810	Site Lighting / Light Pole Bases	10 10 18-Nov-13	02-Dec-13			📫 Site Lighting / Light Pole Bases
A16350	Install Sewer	20 20 25-Nov-13*	23-Dec-13			Install Sewer
A54830	Pave Road - North (Binder)	5 5 03-Dec-13	09-Dec-13			Pave Road - North (Bindel)
A54820	Pave Road - East (Binder)	5 5 24-Dec-13	31-Dec-13			Pave Road - East (Binder)
A16360	Rough Grade Site	15 15 24-Dec-13	15-Jan-14			Rough Grade Ste
A16420	Set Generator	5 5 19-Feb-14	25-Feb-14	I		Seti Generator
A16440	FREP Courtyard Walls, Sidewalks, Stairs	30 30 27-Feb-14	09-Apr-14			FREP Courtyard Walks, Stairs
1						

1124 - WSU - Nev	v Student Residence Hall and Dining Facility			* Project Sche	dule (for	dist] T/	ASK filt	ter: All A	ctivitie:	15															Pag	je 9 o	# 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012								2013								2014					201	5
		Dur	Dur		Jun Ju	il Aug	Sep (	Oct Nov	Dec .	Jan F N	Aar Apr	May Ju	in Jul /	Aug Sep	Oct	Nov Dec	Jan	F Mar	Apr N	lay Ju	un Ju	Aug	Sep Og	t Nov	Dec J	an Fe	eb lar
A16430	Plantings	30	30 15-Apr-14	27-May-14																E F	lapting	15	_	-	_		T
A54880	Final Pave Site	5	5 28-May-14	03-Jun-14	1	1 1	11	1	i		11	i i	1 1	1	1 1	1	1 1	1	11	É.	Final F	Pave Sib	e	1 1		1	1
*** SECTIO	N 1 *** [East Bar]																										
Structure	/ Shell												1.1											1.1			
Foundat	ions											Г Г Г							T T								Т
A16300	Excavate for Footings & Foundations / Haul - Section 1	15	0 20-Mar-13 A	01-Apr-13A							Ex	cavate fo	or Footing	js & Fou	ndatio	is / Haul	Section	in 1						1 1			
A22500	Install Soil Nailing - Section 1	3	0 27-Mar-13 A	28-Mar-13 A							Inst	all Soil N	Valing -≾	Section 1													
A18520	FREP Footings - Section 1	5	0 02-Apr-13 A	08-Apr-13A		1 1					E F	REP Fo	othgs - S	iectipn 1				1				1 1		1 1			
A18530	Elec Ground Wiring to Footings 1	10	0 03-Apr-13 A	04-Apr-13A							I Ek	ec Grour	nd Wiring	to Foot	ngs 1				ļļ.			. Į		4			
A18550	FREP Foundations - Section 1	23	0 05-Apr-13A	22-Apr-13A							-	FREP	Foundatio	ons - Sec	tion 1		11							1 1			
A18560	FREP Interior Footings - Section 1	2	0 12-Apr-13A	23-Apr-13A								FREPI	Interior F	ootings -	Sectio	n 1						1 1					
A16390	Waterproof - Section 1	3	0 08-May-13 A	13-May-13 A								Wa	tetproof	Section	1							1 1					
A16410	Backfill Exterior - Section 1	5	0 07-May-13 A	13-May-13 A								Bac	*fil Exter	ior - Sec	tion 1							1 1		11			
Lower L	evel					· {			-			<b>↓</b>					+			·		·		++			-+-
A1d320	Backmi / Compack / Underslab MEP's - Section 1-LL	10	0 02-JUI-13 A	01-Oct-13A		1							-	1	ызо	mil/ Con	npaα/L	ndersla	p MEP	s - sei	-200n 1-	er.		1			
A18540	Prep / Place SUG - Section 1-LL	5	u 16-Oct-13A	23-Oct-13A											•	rep / Pl	ape SQC	- Secti	on 1-LL			1 1					
A18450	Install Spray Pireproofing - Section 1-LL	4	5 US-NOV-13A	08-Nov-13		1									1 1	Instal	apray:F	reproof	ng - Se	ection	1-61	1 1		11			
A22000	Frame Extendr Walls- 1-LL	0	5 12-NOV-13	18-INOV-13												∎ i+rai	ne Exter	nor wai	6- 1-LL			1 1		1 1			
Floors	-3 [Seq 1 & 2]		0.000	17.11.004		·i	·							<del>.</del>	t-d		+		÷+-	···-	···	•++					·-+-
A18180	Erect Steel - Section 1-L1-3 [Seq 1]	4	0 13-May-13 A	17-May-13 A								Ere	cq steel	- Seption	1-L1-	[Seq 1]											
A25240	Deck & Detail Steel - Section 1-L1-3 [Sec[1]	13	0 17-May-13 A	20-May-13 A							1		equila Lie	can pree	- Sec	2 (den 2	placed	9 j				1 1	1	11			
A160/0	Ered Steel - Seddin H-L1-5 (Sed 2)		0 20-May-13 A	24-may-13 A									eq olee	- 30000		o laed a	hint	-				1 1		1 1			
A25000	Eract Precast Planks - Section 1-L1-3 [Seq 2]	1	0 21-May-13 A	31-May-13 A	1	1 1			i		1		Ender Dela	etali oter		otion 1-L	1.2 1000	4	1	1	1	1 1	1	11		1	1
A18080	Erect Precast Planks, Section 111 2 (Sec 1)	2	0.02 km 12 A	04 km 12 A			{						Eringt Pie	case Pla		option 1		11	ŀ	··		· {}		+			-+-
A16100	Gravit Deservit Diselar - Section 1.1.2.2.10 as 11	4	0.03 km 13 A	12 km 12 A							1	6	dead			ecopii i		54 FJ				11	1	11		1	1
425820	Grout Precast Planks - Section 1-12-3 [Seq 1] Grout Precast Planks - Section 1-12-3 [Sen 2]	2	0.03-Jun-13A	13- Jun-13A		1.1			: I		11	- <b>C</b>	Grout	recast F	lanks -	Section	12.3	Son 21	1	1		1 1		1.1		11	
A18190	Place SOD - Section 1-1 1	2	0 18-Jun-13A	19-Jun-13A									Plane	SOD - S	ection	-1 1	1-1	~ 1						11			
A18880	Frame Exterior Walls, 1,11	2	0 20- bil-13 A	10-000-13.0										Fran	ne Evt	rinn Wa	1.1					1 1		1 1			
A18210	Instal Spray Eireproofing - Section 1-L1	4	0 13-Aug-13A	15-Aug-13A			+-		( <del> </del> -			tt	-+Ŧ	I Instal	Sora	Firento	ding -S	ection 1	111	+-		++		+			-+-
2nd Flo				ie i ing i e i i													T° [					1 1		11			
A18590	Install Topping Slab - Section 1-L2	4	0 18-Jun-13A	19-Jun-13A									Instal	Topping	Slab -	Section 1	12										
A19040	Frame Exterior Walls- 1-L2	10	0 28-Jul-13 A	16-Aug-13A		1					1			Fran	e Exte	rior Wall	5 1-12	1				1 1		1 1			
A18610	Install Spray Fireproofing - Section 1-L2	4	0 13-Aug-13 A	16-Aug-13A		1 1	1 1	1			1 1		1 1	Insta	Spra	Firepro	ofing -Is	ection 1	12			1 1	1	1 1			1
3rd Floo	r			-		1						1	1 1		1-1				1	1		1					Ť
A18110	Install Topping Slab - Section 1-L3	4	0 31-Jul-13 A	02-Aug-13A									1.	Install 1	opping	Slab - S	ection 1	-L3				1 1					
A19280	Frame Exterior Walls- 1-L3	10	0 07-Aug-13 A	13-Aug-13A	1	1 1	1	1	i		1	i i	i i	Pram	e Exte	ior Walt	= 1-L3	i	i i	1	1	1 1	1	1 1		1	1
A18130	Install Spray Fireproofing - Section 1-L3	4	0 13-Aug-13 A	20-Aug-13A										Insta	Spra	y Filepro	ofing 3	Section '	-L3					1 1			
Floor 4	\$ 5 [Seq 5 & 6]										1		11		1			1				11	1	11		1	1
A18370	Erect Steel - Section 1-L4-5 [Seq 5]	1	0 07-Jun-13A	10-Jun-13A				1					Erect \$t	eel Sec	tion 1	L4-5 [Se	d 5]	1	ΓT			1 1				1	T
A18460	Erect Steel - Section 1-L4-5 [Seq 6]	4	0 11-Jun-13 A	14-Jun-13A									Erect	teel - Se	ction 1	L4-5 [S	eq 6]							11			
A25080	Detail Steel - Section 1-L4-5 [Seq 5]	11	0 11-Jun-13 A	19-Jun-13A									Detail	Steel - S	ection	1-L4-5 [	Seq 5]					1 1		1 1			
A25090	Detail Steel - Section 1-L4-5 [Seq 6]	11	0 11-Jun-13 A	19-Jun-13A		1 1	1 1	1			1 1	1 1	Detai	Steel - S	ection	1-L4-5 [	Seq 6]	1				1 1	1	1 1			1
A18380	Erect Precast Planks - Section 1-L4-5 [Seq 5]	2	0 18-Jun-13A	20-Jun-13A								L	Erect	Predast I	lanks	Section	1-L4-5	[Seq 5]	L								
A18470	Erect Precast Planks - Section 1-L4-5 [Seq 6]	2	0 20-Jun-13 A	24-Jun-13A									Erect	Prepast	Planks	<ul> <li>Section</li> </ul>	n 1-L4 5	[Seq 6]									
A25830	Grout Precast Planks - Section 1-L4-5 [Seq 5]	1	0 09-Jul-13 A	10-Jul-13A									I Gr	out Prec	ast Pla	nks - Seo	#on 1년	4-6 [Sec	5]			1 1		1 1			
A25840	Grout Precast Planks - Section 1-L4-5 [Seq 6]	1	0 09-Jul-13 A	10-Jul-13 A							1 1		I G	out Prec	ast Pla	nks į Sec	≠on 1-L	4-6 [Sec	6]			1 1		1 1			
A18390	Install Topping Slab - Section 1-L4	4	0 11-Jul-13A	12-Jul-13A					: I				1 In	stall Topp	ing St	b - Sect	ian 1-L4			1		1 1		11			
A19440	Frame Exterior Walls- 1-L4	10	0 05-Aug-13 A	14-Aug-13A	<b> </b>	. <b>.</b>	L		-	·		<b>↓↓</b>		Fram	e Exte	ior Walt	41-14		↓			-++					+
A18410	Install Spray Fireproofing - Section 1-L4	4	0 16-Aug-13A	21-Aug-13A		1		1	:		1			Inst:	al Spre	y⊢repri	poting	Section	-14		1	1 1		1			1
5th Floo			0.45.1.140.1	40.1140.1		1					1				1.1			_				11		11			
A18480	Install ropping State - Section 1-Lb	4	u 15-Jul-13 A	19-Jul-13A		1		1			1			istall Top	ping S	ao - Seo	apn 1-L			1		1 1		1 1		1	1
A19670	Frame Exterior Walfs-1-L5	10	u US-Aug-13A	10-Aug-13A		1.1	1		.				1 1	- Fran	ie Exte	nor wall	1-15					1 1		1 1		1	
A18500	Install Spray Fireproofing - Section 1-L5	4	u 0/-Oct-13A	11-0d-13A		· ÷ ÷				·		÷	-++			stall Gpra	y ⊢ repr	ooting -	cection	1.1-45		·		- <b>i</b> i			-÷-
Roof [S	g s anuj Event Stanl. Casting 1 B (San 0)	2	0.04 he 10.1	25 has 12 f		1 1								<u></u>		1.00	1			1		11		11			
A25260	crea oreer - beauni 1-K (beg 8)	4	u 24-Jun-13A	20-JUN-13A						<u> </u>			: Ered	Steel -	niscolo l	1-M [Se	<b>q</b> 8] ;				<u> </u>	$\rightarrow$	<u> </u>		$\rightarrow$	÷	<u> </u>

124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	dule (fi	for dist	t] TASK	filter: All	Activitie	es																	_	Page	10 of 3	39
Activity ID	Activity Name	Orig	Rem Start	Finish	201	12							20	13								- 2	2014						2015	
	· ·	Dur	Dur		Jun .	Jul A	lug Sep	Oct No	w Dec	Jan F	Mar	Apr Ma	ay Jun	Jul A	ug Sep	Oct N	ov Dec	Jan	FI	Mar A	pr May	y Ju	n Jul	Aug	Sep	Oct N	lov De	ec Jar	n Feb	la
A18150	Erect Steel - Section 1-R [Seq 10]	2	0 24-Jun-13A	27-Jun-13A										Erect	Steel - S	ection	-R [Se	c 10]			-					- !	-	-	-	T
A25280	Deck & Detail Steel - Section 1-R [Seq 10]	9	0 25-Jun-13A	05-Jul-13A			1	11						Dec	k & Deta	I Steel	Sectio	n 1-R	(Seq 1	10]				1.7	1	1				i.
A25270	Deck & Detail Steel - Section 1-R [Seq 9]	10	0 26-Jun-13 A	05-Jul-13A	11			11.						Dec	k & Deta	I Stee	Sectio	n 1-R	Seq	a		1	<u> </u>		<u> </u>				1	1.
A25290	Erect Precast Planks - Section 1-R [Seq 9]	1	0 08-Jul-13 A	12-Jul-13A			1	1 1				1		I Ere	ct Preca	st Plank	s Se	ton 1-	R [Se	q 9]	1	1	1	1	1	1	1		1	T
A25850	Grout Precast Planks - Section 1-R [Seq 9]	4	0 28-Jul-13 A	26-Jul-13A										1	Brout Pre	cast 📲	anks - S	Section	1-R(	Seq 9										Į.
A18170	Parapet Framing & Sheathing - Section 1-R	6	0 26-Aug-13 A	06-Sep-13A											📮 Pa	rapet F	raming	& She	athing	g - \$e	tion 1-	R								L
Shell				-																					1 1					İ.
A18230	Exterior Envelope Mock-Up	20	0 26-Jul-13 A	11-Oct-13A	ļļ.			<b>↓↓</b>								Bate	erior Er	velope	Mob	k-Up		. <b>.</b>	. <b>.</b>	4	ļ					Ļ.
A18220	Roofing [1]	5	0 07-Oct-13 A	11-Oct-13 A												Rec	fing [1]							1.1						1
East E	levation																													L
East	canopy		0.00 1 40	00.01 40																1		1		1.1	1					ł.
A242	Complete Deoking (@ Canopy [1E]	U	U 22-INOV-13	22-NOV-13													1 00	npiete	Decki	ng 🤹	Capop	YITE		1.1						L
A242	LG Metai Framing & Blocking [1E]	2	2 22-Nov-13	25-Nov-13	<u>↓</u>	····		÷÷				····					LG	Netal	Fram	ng &	socking	g IIE	ų	4	÷+					÷.
A242	Install Rooting [16]	2	2 20-INOV-13	27-NOV-13				1 1			1 1			- 1	1 1		ins ins	ABI RO	oring		4	1		1.1	1 1	1				L
A242	Install Mean Devel Ceffs (40)	2	2 20-NOV-13	02-De0-13		- 1	1				1							a all M	etal P	anep	and a re-	d.	1	1.1	1	- 1				i.
A242	Instan wood Parlet John [16]	2	2 US-DE0-13	04-040-13			1											Istall W	0001	anels	sould [1	9	1	1.1						Į.
A2025	Frect Staging [Unit 21]	2	0 20-Aug-12-A	23-Aug-12-A		1	1	1 1			1	1			. Ered	Stale	a İleə	4.1		1	1	1	1	1 1		1	1		1	i.
A2025	Dat Dalaying Joint 211	4	0.08 Sep 13 A	12 Sep 12 A	++-			÷+								alt Eus	y long A		nit 11	÷		÷	·	÷						÷
A3034	Sharthing [Link 21]	4	0 18-Sep-13A	10-Sep-13A	11		1				1			1		Shorth	ing I In	a 211						1.1	1	1	1			İ.
A393/	Waterproofing [Unit 21]	4	0 20-Sep-13A	25-Sep-13A							1 1				1.1	Water	proofin	ofUnit	211				1	1.1	1 1					1
A3930	Masonry [Unit 21]	8	4 04-Nov-13A	12-Nov-13											1.1		Masc	onry IU	nit 211				1	1.1						L
A3943	Bemove Staping (Unit 21)	2	2 13-Nov-13	14-Nov-13													Rem	ove St	aging	Unit	m -			1.1	1					1
A3966	Curtainwall N/7 [Unit 21]	7	7 07-Mar-14	17-Mar-14	††			tt			++									b	rtainw	al N/	7IUni	ai211	tt	†-			-+	t
A3941	Caulking [Unit 21]	5	5 18-Mar-14	24-Mar-14				1 1			1 1			- 1	1 1						aulking	a lUni	t 211	1.1	1					1
Unit 1																							1.1							L
A2612	Erect Staging [Unit 1]	2	0 23-Aug-13 A	26-Aug-13A											I Erec	t Stati	ng Unit	di -						1.1	1					Ł
A2618	Set Relieving Angle [Unit 1]	4	0 02-Sep-13A	06-Sep-13A											S	t Relev	ing An	gle [Un	R 1]											
A2613	Bolt Relieving Angle [Unit 1]	4	0 03-Sep-13 A	06-Sep-13A	1			1							Be	it Rele	ving An	gle [Ur	iit 1]					1					1	Ť
A2614	Sheathing [Unit 1]	4	0 09-Sep-13A	12-Sep-13A											1 5	heathin	g Ünit	1						1.1						L
A2615	Waterproofing [Unit 1]	4	0 13-Sep-13A	17-Sep-13A			-								111	Natep	roofing	Ünit 1	1				1	1 1	1					Ł
A3945	Curtainwall P/7 [Unit 1]	18	0 07-Oct-13 A	16-Oct-13 A												🗖 🖥	rtainwa	I P/7	Unit 1	ŋ				1.1						Į.
A2619	Masonry [Unit 1]	8	3 21-Oct-13 A	08-Nov-13				1									Maso	ny (Ur	it 1]			1	.i	1	i 1					i.
A2623	Remove Staging [Unit 1]	2	2 12-Nov-13	13-Nov-13	11	1	1	TT			11	T		T	1		Rem	ove St	aging	[Unit 1	1	T	1	1.7		1			1	Γ
A2621	Caulking [Unit 1]	5	5 14-Nov-13	20-Nov-13	1	- i -	1	1 1	1		1 1	1	1 1	- i	1		Cau	Ilking (	Unit 🕅	11	1	1	1	1 1	i i	1	- i -		1	i.
Unit 2																								1.1						Į.
A2624	Erect Staging [Unit 2]	2	0 13-Aug-13 A	16-Aug-13A	11						1			- i	Erect	Staging	(Unit 2	1		1	1	1	1	11	11	i.	1			İ.
A2625	Bolt Relieving Angle [Unit 2]	4	0 27-Aug-13 A	03-Sep-13A	ļ			ĻĻ				<u>.</u>			Bo	t Relev	ing An	gle (Un	a 21		<u></u>	4	. <u>↓</u>	لسب	Ļ	l.	<u>ļ</u>			Ļ.
A2626	Sheathing [Unit 2]	4	0 04-Sep-13A	06-Sep-13A											S	eathing	(Unit :	2]			1	1	1	1.1						L
A2627	Waterproofing [Unit 2]	4	0 09-Sep-13A	16-Sep-13A											•	Vaterp	oofing	Unit 2						1.1						Ł
A2628	Windows [Unit 2]	4	U 21-Oct-13A	24-Oct-13A													Indow	slUnit	2				1							L
A2629	strip-in windows [Unit 2]	4	u 25-Oct-13A	25-Oct-13A												I S	trip-In	vindo	ws [U	nit 21			1	1.1	1					ł.
A2631	Masonry (Unit 2)	8	3 29-Oct-13A	U8-Nov-13	∔-			÷÷									Maso	ny (Ur	a 2]	nd.	-+	- <b>-</b>	·+	4	ļ				- <b>†</b>	Ļ.
A3947	Curtainwaii ro/ (oni 2)	4	+ 12-NOV-13	10-NOV-13			1	1 1			1 1				1		Curt	arnval	- 16	Unit 2		1	1	1 1	1				1	÷
A3940	Curtanwaii A// [Unit 2]	2	2 18-Nov-13	19-NOV-13													Cur	tanwa	Ng	Unit 2		1		1.1						L
A2032	window Panning junit 2j Remove Staring (List 2)	1	1 20-N09-13	20-NOV-13		1					1						I D-		anning	a nuka	41		1	1.1	11	- 1	1			i.
A2030	Coulding [Link 2]	4	4 25 Nov 12	22-140V-13				1 1			1						- Co	ove 3	nage) I Loi		-		1	1 1	11	- 1			1	L
A2630	cauxing (one 2)		+ 20-NOV-13	201100-13	+÷			tt			++	<del>+</del>	· + +	···-+·	·-++			in ing	tour.	<u>-</u>	-+	+	·+	÷÷	÷+		<del> </del>		- <del> </del>	÷
A266(	Fred Staging [Unit 3]	2	0 07-Aug-13 A	09-Aug-13A				1 1						- 4	Fred S	taging	Unit 31	1					1	1.7	1				1	ļ.
A2661	Rolt Relieving Angle [] Init 31	4	0.05-Sep-13.A	09-Sep-13A	1 1	1	1	11	1		1	1	1 1	- 1°	B	t Reis	vino Ar		12 20	1	1	1	1	1 1	i i	1	1		1	i.
A2662	Sheathing [Unit 3]	4	0 16-Sep-13A	19-Sep-13A	1 1		1				1 1					Sheath	na Un	31				1	1	1.1		1				Į.
A2661	Waterproofing [Unit 3]	4	0 20-Sep-13A	23-Sep-13A	1 i	1	1	11	1		1	İ		1		Water	ordofin	Unit	31	1	İ	1	1	1 1	ı i	- i	1		1	L
A2664	Windows [Unit 3]	4	0 25-Oct-13A	29-Oct-13 A	t†-			tt				<u>†</u>					Vindov	s [Uni	31			+	· <del>* · · ·</del>	÷			·			t
A2665	Strip-In Windows [Unit 3]	4	0 30-Oct-13 A	01-Nov-13A	11			1 1								1	Strip-In	Wind	ows R	Jnit \$1			1	1.1		1				L
A2667	Masonry [Unit 3]	8	5 04-Nov-13 A	13-Nov-13			1				1						Maso	ory [U	nit 3	1		1	1	1.1	1					1
	· · · · · · · · · · · · · · · · · · ·																_											_	_	_

1124 -	WSU - Net	w Student Residence Hall and Dining Facility			* Project Sche	dule [for	dist) TASK filte	er: All Activ	ities			Page 11 of 3	39
Activity	ID	Activity Name	Orig	Rem Start	Finish	2012					2013	2014 2015	
			Dur	Dur		Jun Ju	I Aug Sep O	ct Nov De	o Jan F	Mar Apr May Ju	un Jul Aug Sep Or	Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb	lar
	A2665	Window Panning [Unit 3]	1	1 14-Nov-13	14-Nov-13							I Window Panning [Unit 3]	C
	A2671	Remove Staging [Unit 3]	2	2 15-Nov-13	18-Nov-13	l. i.		ii	. L i			Remove Staging [Unit 3]	L.,
	A3946	Curtainwall B/7 [Unit 3]	8	8 09-Jan-14	20-Jan-14							Curtainwall B/7 [Unit 3]	£
	A2666	Caulking [Unit 3]	5	5 21-Jan-14	27-Jan-14		1 1 1	1 1				Califing [Unit 3]	1
	Unit 4												Ł
	A2672	Erect Staging [Unit 4]	2	0 15-Aug-13 A	16-Aug-13A						Erect Sta	Staging [Unit 4]	ł.
	A2673	Bolt Relieving Angle [Unit 4]	4	0 06-Sep-13A	09-Sep-13A	L					: Bolt	bit Réleving Angle [Uhit 4]	£
	A2674	Sheathing [Unit 4]	4	0 18-Sep-13A	20-Sep-13A		1 1 1	1 1			Sh	Sheathing [Unit 4]	ł.
	A2675	Waterproofing [Unit 4]	4	0 23-Sep-13 A	25-Sep-13A						I W	Waterproofing [Unit4]	ł.
	A2676	Windows [Unit 4]	4	0 30-Oct-13 A	30-Oct-13 A							Windows [Unit 4]	
	A2671	Strip-In Windows [Unit 4]	4	0 04-Nov-13 A	04-Nov-13A		1 1 1	1 1				Strip-In Windows [Unit 4]	1
	A2676	Masonry [Unit 4]	8	6 05-Nov-13 A	14-Nov-13	ļļ				LLL.		Masorry [Unit 4	Ļ
	A2680	Window Panning [Unit 4]	1	1 15-Nov-13	15-Nov-13			11				Window Panning [Unit 4]	6
	A268:	Remove Staging [Unit 4]	2	2 18-Nov-13	19-Nov-13		1 1 1	1 1				Remove Staging [Unit 4]	1
	A2081	Cauking [Unit 4]	5	5 2U-NOV-13	20-INOV-13		1 1 1	1.1				Cauking (Unit 4)	i.
	Unit 5	Front Charles 8 (a) 51	2	0.00 Ave 10 A	22 410 42 4								Ł
	A2828	Preci otaging junit oj Pali Paliarias Anala (Unit O)	2	u 22-Aug-13A	23-Aug-13A	++	++	-++	-+		:Eredt S	a olaging junit oj	÷
	A2825	Bott Releving Angle (Unit o)	4	0 00-Sep-13A	10-Sep-13A						60	Bott Heileving Angle (Unit 9)	Ł
	A283L	Snearing (Unit 5)		0 17-Sep-13A	20-Sep-13A			11			S n	Snearing [Unit]	i.
	A2031	Waterprooning [Unit 5]		0 23-Sep-13 A	20-Sep-13A							Waterpreding[Units]	1
	A2032	Strin-In Windows [] Init 5]	4	0.05-Nov-13A	05-Nov-13A							Strip In Windows [Unit 5]	1
	A2030	Maronev (Linit 5)	-	9 08 Nov-12	19-Nov-12	++	++	-++			-+-+-+-+-	Macron [[int 5]	<u></u>
	4283/	Window Panning [Linit 5]	1	1 10-Nov-13	10-Nov-13	11		11	1			Window Phonics [] Init 5]	1
	42830	Remove Staning [child]	2	2 20-Nov-13	21-Nov-13		1 1 1					Remove Stanian (Lint 5)	1
	43081	Curtainwall C/7 II lot 51	12	12 20-Dec-13	09-100-14		1 1 1	1 1	1			Curtainwall C/7 Line R	1
	A2837	Cauking [Unit 5]	5	5 09-Jan-14	15-Jan-14							Cauking [Unit 5]	ł.
	Unit 19	Contrary [Crite 0]		0 00 001 11	lo dan m	lt	+++	-++		<u>├</u> ++	-+-+-+-	description of the second s	<b>—</b>
	A3905	Erect Staging [Unit 19]	2	0 07-Oct-13A	09-Oct-13 A	1 1	1 1 1	1 1				Erect Staging [Unit 19]	£
	A3906	Bolt Relieving Angle [Unit 19]	4	0 09-Oct-13 A	16-Oct-13 A							Ept Releving Arigle [Unit 19]	1
	A3910	Sheathing [Unit 19]	4	0 16-Oct-13A	21-Oct-13 A	1						Sheathing [Unit:19]	1
	A3911	Waterproofing [Unit 19]	4	0 22-Oct-13 A	28-Oct-13 A		1 1 1	1 1				Waterpreofing [Unit 19]	i.
	A3912	Windows [Unit 19]	4	0 28-Oct-13 A	01-Nov-13A	1		11				Windows [Unit 19]	1
	A3913	Strip-In Windows [Unit 19]	4	4 06-Nov-13	12-Nov-13							Strip-In Windows [Unit 19]	1
	A3915	Masonry [Unit 19]	8	8 13-Nov-13	22-Nov-13	1 1	1 1 1	11	1		1 1 1 1	Masonry (Unit 19)	i.
	A3967	Curtainwall M/7 [Unit 19]	2	2 25-Nov-13	26-Nov-13							I Curtainwall M/7 [Unit 19	1
	A3916	Window Panning [Unit 19]	1	1 27-Nov-13	27-Nov-13	L. L.				iii		Window Panning [Unit 19]	L.,
	A3916	Remove Staging [Unit 19]	2	2 29-Nov-13	02-Dec-13			1.1				Remove Staging [Unit 19]	1
	A3917	Caulking [Unit 19]	5	5 03-Dec-13	09-Dec-13			1				Caulking [Unit 19]	ł.
	Unit 20			0.05.0.12									i.
	A3920	Erect Staging [Unit 20]	2	0 25-Sep-13A	01-Oct-13 A		1 1 1	1 1				Eret Staging [Unit20]	ł.
	A3921	Bolt Relieving Angle [Unit 20]	4	0 09-Oct-13 A	16-Oct-13 A	ļ				····		Bot Relieving Arigle [Unit 20]	÷
	A3922	Sheathing [Unit 20]	4	0 16-Oct-13A	30-Oct-13 A							Sheathing [Unit 20]	1
	A392:	waterproofing [Unit 20]	4	U 31-00-13A	04-INOV-13 A		1 1 1	1 1	1			Waterprooning [Unit 20]	1
	A3924	Windows [Unit 20]	1	U U5-Nov-13 A	05-Nov-13A		1 1 1	1 1				Windows [Unit 20]	ł.
	A3925	Strip-in Windows [Unit 20]	4	4 U0-IN0V-13	12-IN0V-13			11				Stip-in Windows [Unit 20]	i.
	A2021	Window Ranning [Lint 20]	0	1 25 Nov 12	25 Nov 12	++	+++	-++	-++	+++	-++++	Winter Control Unit 201	÷
	A3021	Persona Staning (Ulti 20)	2	2 28-Nov-13	23-1909-13 27-Nov-12		1 1 1	1.1				Remove Among [Ont 20]     Remove Studies [Unit 20]	i.
	43020	Caulking [Linit 20]		5 20-Nov-13	05-Dec-13							Caultine (Line 20	1
	Interior	Committy form and	-	0 20-100-13	00-000-13							Original Toda Toda	i.
	Lowerl	evel			_								Ł
	A25480	Rough-In Overhead MEPs- 1-LL	10	10 12 Nov-13	25-Nov-13	<u><u></u>++</u>	+++	-++	•+		-+-+-+-+-	Rough-In Overhead MEPs- 1-LL	<u> </u>
	A18630	CMU Interior Walls- 1-LL	15	15 26-Nov-13	17-Dec-13	1		1				CMU Interior Walls- 1-LL	1
	A18640	Rough-In In-Wall MEPs- 1-LL	10	10 06-Dec-13	19-Dec-13	11		1 1				Rough-Infin-Wall MEPs- 1-LL	Ł
	A54930	Install Overhead coiling doors	10	10 18-Dec-13	02-Jan-14							Install Overhead colling:doors	1
		*											

1124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	edule (fo	r dist] T	ASK filb	er: All A	ctivitie	es																Pa	ige 12	of 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012	!	_	_	_		_	_	2	2013	_	_					_	2014	_				20	15
		Dur	Dur		Jun J	ul Aug	Sep O	lct Nov	Dec	Jan	F Mar	Apr I	May Ju	n Jul /	Aug Se	p Oct	Nov	Dec Jan	FN	lar Apr	May J	un Jul	Aug	Sep O	ct No	v Dec	Jan f	eb li
A18710	MEP Inspections- 1-LL	2	2 20-Dec-13	23-Dec-13				_				11						MEP	Inspe	tions-1	LL							
A18650	Install ACT Ceiling Grid- 1-LL	2	2 24-Dec-13	26-Dec-13	_		1 1	1 1			1 1	1 1	1	1 1				Inst	AQT	Ceiling	Brid- 1-	щ				1 1		1
A18660	Prime Paint Walls & Ceilings- 1-LL	5	5 03-Jan-14	09-Jan-14	-							1 1		11				P	ime P	aint Walk	s & Cei	lings-1-	μ.			11		
A18/00	Install FE / Cabinets- 1-LL	1	1 10-Jan-14	10-Jan-14	- 1									1 1				- 19	stall FI	-/ Cabr	ets- I-l		LL					
A186/0	I I'rm Out MEP's & Install Lighting- 1-LL	15	15 10-Jan-14	30-Jan-14	- 1		1 1					1 1		1 1					Inm	OUT ME	's & ins	stal Ligh	ting- 1	чц.,		1 1		
A18720	Instal Celling Tie- 1-LL		1 31-Jan-14	31-Jan-14	-++		÷+-					++		•+•••+	+				Insta	Ceing	0 Lian					·+!		+-
A18080	Finish Doors & Hardware- 1-LL		9 31-Jan-14	07 Ech 14	-	1	11					1 1		1 1						all Doors	A marc	ware- 1				1.1		1
Health	Services	-	2 00-1 60-14	01-1 60-14																an	1					11		
A2549	Rough-In MEPs Overhead - 1-LL	10	10 12-Nov-13	25-Nov-13	1 1	1	11					1 1	1	1 1		1		Rough-In	MEPs	Overhea	id - 1-L	Lİ -	1 1	1	1	1 1		1
A3963	Curtainwall Q/7	2	2 14-Nov-13	15-Nov-13								1 1		1 1			цċ	urtanwait	0/7				1 1			11		
A2185	Frame Interior Walls- 1-LL	15	15 26-Nov-13	17-Dec-13	T		TTT.		1			ΤŤ	- T	ΤT	T	1		Fram	e Interi	or Walls	1-LL		1 1		-T	· · · · ·	1	T
A2186	Rough-In MEPs In-Wall- 1-LL	10	10 18-Dec-13	02-Jan-14	1							1 1		1 1				Ro Ro	ugh-In	MEPs In	-Wal-	1-UL				1.1		
A2199	Rough-In Inspections - 1-LL	2	2 03-Jan-14	06-Jan-14										11				R	ugh Ir	Inspect	ons 1	-11						1
A2187	Board Walls & Ceilings- 1-LL	5	5 07-Jan-14	13-Jan-14		1	1 1		1		1.1	1 1		1 1				- I E	oard V	Vals & G	eiings-	1-LL	1 1	1		1.1		1
A2198	Tape Walls & Ceilings- 1-LL	5	5 14-Jan-14	20-Jan-14	1		L		l			11		44			L		Tape V	Valls & C	eilings-	1-11				4!	I	
A2188	Prime Paint Walls & Ceilings- 1-LL	5	5 21-Jan-14	27-Jan-14	_							1 1		1 1				-   •	Prime	Paint W	alls & C	Ceilings-	1-LL			1.1		
A2195	Grid Acoustical Cellings- 1-LL	2	2 28-Jan-14	29-Jan-14	_									1 1					Grid	Accustic	I Cețin	gs 1-LL	1			1.1		
A2190	Trim Out MEPs & Install Lighting- 1-LL	15	15 30-Jan-14	20-Feb-14	-		11					11		11					Т	rim Out	MEP\$ 8	Install L	ighting	r 14L		11		1
A2197	Install FE / Cabinets- 1-LL	1	1 21-Feb-14	21-Feb-14	- !							1 1		1 1					19	istall FE	/ Calijin	iets- 1-L	<b>⊦</b>			1		
A2190	ACT IN- 1-LL	2	2 21-Feb-14	24-Feb-14	+		÷÷-	+				÷÷		·+···+		···				ACT THE	1-14	- dire-	<u></u> ∔			. <b>.</b> !		·+
A219	Instal Pitoring- 1-LL		9 24-Feb-14	00-Mar-14	- 1							1 1		1 1					1.	Install	looring	- 1466				1.1		
A2192	Einish Paint, 1.11	-	2 12-Mar-14	12-Mar-14	11	1	i i	1		1	1	i i	1	11	1	i i			- 17	Finish	Doors o	1.0	dere- (	·	1	11	1	1
Act Flor	Prior Party Pos	4	2 10-10181-114	14-1041-114								1 1		1 1					- 11	C III G II	- anie	-uc				11		
Reside	ntial Life Offices											1 1		1 1												1.1		
A2550	Rough-In MEPs Overhead - 1-L1	10	10 08-Nov-13	20-Nov-13	1		++-					<u>++</u>		++				Rough-In I	MEPS	Overhead	1-111	<u></u>	+			·•···	h	·+
A1873	Frame Interior Walls- 1-L1	10	10 21-Nov-13	05-Dec-13	-									1 1				Frame	nterior	Wals-1	-L1							
A1874	Rough-In MEPs In-Wall- 1-L1	10	10 08-Dec-13	19-Dec-13	1		1					1 1		1 1			T	Roug	h-In M	EPs In V	Vall-	L1	1 1			11		
A1887	Rough-In Inspections - 1-L1	2	2 20-Dec-13	23-Dec-13														Rou	ph-ln lr	spection	s - 1 L	1						
A1875	Board Walls & Ceilings- 1-L1	5	5 24-Dec-13	31-Dec-13			ii.		į			1 1		11				Boz	rd Wa	lls & Cei	ings-1-	-L1;	i i			.i!		. i.
A1886	Tape Walls & Cellings- 1-L1	5	5 02-Jan-14	08-Jan-14		1	ΠT					ΤT		T	T			T I	pe Wa	ils & Cel	ings-1	-L1			1	1		T
A1876	Prime Paint Walls & Ceilings- 1-L1	5	5 09-Jan-14	15-Jan-14	- i -	1	11	1 1	1	1	1 1	i i	1	1 1	1	1	1		rime F	aint Wa	ls & Çe	ilinģs- 1	L1	1	1	1.1		i
A1883	Grid Acoustical Cellings in Corridors- 1-L1	2	2 16-Jan-14	17-Jan-14	_							1 1		1 1				11	Brid Ac	oustical	Celings	inCorri	dors-1	i-L1		11		
A1878	Trim Out MEPs & Install Lighting- 1-L1	15	15 20-Jan-14	07-Feb-14	- 1	1	11		1			11		11	1	1			Tri	n Out Mi	Ps&Ir	nstall Lig	hting	1-L1		1		1
A188	Install FE / Cabinets- 1-L1	1	1 10-Feb-14	10-Feb-14			L		L	!		<u>↓</u> ↓			<u>+</u>				I Ins	tall FE / (	Cabinet	s- 1-L1	44			!	ļ	+
A1884	ACI lile-1-L1	2	2 10-Feb-14	11-Feb-14	-														AC	I tile-1	-							
A18/5	Install Flooring- 1-L1	9	9 12-Feb-14	25-Feb-14							-	1 1		1 1					-11	install Fig	ioring-	1-61				1.1		
A1880	Instal Doors & Haroware- 1-L1	4	4 20-Feb-14	05-Mar-14	- 1														- N	Enich D	pors 6	Hardwa	re- 1-	a		1.1		
2nd Elo		- 4	2 04461414	0048414			11					11		11					1	- Main	anne r	1	1			11		1
Colum	n H to D				+		++-	+				++		++							···-+-		++			·+	+·	+
A3976	Fireproofing - 1-L2 - Col H to D	1	0 13-Aug-13A	19-Aug-13A	1	1	1							1 1	I Fr	edroofi	. 1	L2 - Col H	to D	11	1					11	11	1
A3975	Install Top Track - 1-L2 - Col H to D	2	0 19-Aug-13A	02-Sep-13A	1 !	1	11		!			1 1		1 1	1	nstall T	Бті	ck - 1-L2	ColH	toD	- 1		1	1	1	1.1		1
A3970	Core for MEP - 1-L2 - Col H to D	1	0 03-Sep-13 A	05-Sep-13A	11	1	1	1	i l	1	1	11	- i	11	j,	Core fo	ME	-1-2-0	olHit	D	1	1	1	i	i i	11	11	1
A3977	Frame Toilet Wall + Demising Wall - 1-L2 - Col H to D	2	0 08-Sep-13A	09-Sep-13A		1	1 1		1			1 1		1 1	- 6	Frame	Toilet	Wall + De	mising	Wall - 1	L2 - C	ol H to D	1	1		3 I	1	
A3992	Install Duct Branches @ Rooms - 1-L2 - Col H to D	2	0 09-Sep-13A	13-Sep-13A	TT	T	ΓT	TT	1			ТΤ	- T	ТТ		Install	Duct	Branches	@ Rpo	ms - 1-L	2 - Qol	H to D	111	·	T	T.,		T
A3996	Install Electric Riser Conduit - 1-L2 - Col H to D	2	0 09-Sep-13A	13-Sep-13A		1			1			1 1		1 1	- i•	linstall	Electr	ic Riser C	ndulit	1-12-0	Col H to	D				1.1		
A3978	Frame Walls in Corridor - 1-L2 - Col H to D	2	0 09-Sep-13A	11-Sep-13 A		1	11		1			11		11	1	Frame	Walt	in Corrid	x - 1-1	2 - Col	H to ₿		11	1		1.1	11	
A3980	Fire Protection Risers & Floor Control Stations - 1-L2 - Col H to D	2	0 16-Sep-13A	17-Sep-13A								1 1		1 1	- 11	Fire	otec	ion Risers	& Flo	or Contro	ol Statio	ns-1-L	2 - Co	(H to D	)	1.1		
A3990	Duct Mains @ Rooms - 1-L2 - Col H to D	2	0 16-Sep-13A	17-Sep-13A	++-		↓		l			↓↓		44		Duct	Mains	@ Foom	- 1-12	2 - Col H	to D		L			. <u></u> !		
A3983	Install Plumbing Riserss - 1-L2 - Col H to D	2	0 16-Sep-13A	18-Sep-13A	4 1	1	1 1	1	1			1 1		1 1	- 11	Insta	Plum	bing Rise	ss - 1-	L2: Col	H to D		1 1	1		11		1
A3986	Horizontal Plumbing Mains - 1-L2 - Col H to D	3	0 16-Sep-13A	18-Sep-13A	- !									11		Horiz	ontal	lumbing	Aains -	1-12-0	ol Hito	D				1.1		
A3987	Install Horizontal EMT - 1-L2 - Col H to D	1	0 16-Sep-13A	18-Sep-13A	-  i	1	11					1 1	1	11	- 11	Insta	Hors	ontal EM	-18	2 - Col H	to D	1	11	i.	1	11	1	
A3984	Vertical Duct Risers - 1-L2 - Col H to D	3	u 19-Sep-13A	20-Sep-13A		1	11		1			1		1 1		Verb	cal Dø	Risers	1-12	COLLE		. L	11	1		1.1		
A3991	Install Fire Protection Mains - 1-L2 - Col H to D	2	u 23-Sep-13 A	20-Sep-13A	L :-	:	: :		:			: :				1; Inst	si Fire	Protection	1 Main	s - 1-L2	COLH	10 P	: :				1	

1124 - WSU - Ne	v Student Residence Hall and Dining Facility		* Project Sch	edule [for dist] TASK filter: All Activities	Page 13 of 39
Activity ID	Activity Name	Orig Rem Start	Finish	2012	2013 2014 2015
		Dur Dur		Jun Jul Aug Sep Oct Nov Dec Jan F Mar Apr May J	un Jul Aug Sep Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb <sup>la</sup>
A3994	Install Fire Protection Branch Lines - 1-L2 - Col H to D	2 0 01-Oct-	3A 03-Oct-13A		Install Fire Protection Branch Lines - 1-L2 - Col H to D
A4002	Install Electric Panels - 1-L2 - Col H to D	2 0 03-Oct-	3 A 04-Oct-13 A		Install Electric Panels - 1-L2 Col H to D
A4000	Install Elec Boxes @ Rooms - 1-L2 - Col H to D	2 0 07-Oct-	3A 08-Oct-13A		Install Elec Boxes @ Rooms - 1-L2 - Col H to D
A3993	Install EMT in Units - 1-L2 - Col H to D	0 0 08-Oct-	3 A 09-Oct-13 A		I Install EMT in Units - 1-L2 - Col H to D
A3988	GWB T.O.W 1-L2 - Col H to D	2 0 11-Oct-	3A 14-Oct-13A		GWB T.O.W 1-L2 Col H to D
A3982	HVAC Pipe Risers - 1-L2 - Col H to D	2 0 14-Oct-	3A 15-Oct-13A		I HVAC Pipe Risers - 1-L2 - ColH to D
A3989	HVAC Piping Mains - Isolated Locations - 1-L2 - Col H to D	1 0 14-Oct-	3A 15-Oct-13A		I NAC Piping Matins - Isolated Locations - 1-L2 - Col H to D
A4004	install Firestopping - 1-L2 - Col H to D	2 0 25-Oct-	3A 28-Oct-13A		install Firestopping - 1-L2 - Coll H to D
A4006	Test Plumbing - 1-L2 - Col H to D	1 0 01-Nov	13A 04-Nov-13A		Test Plumbing - 1-L2 - Col H to D
A3996	Pull Control Wiring to T-Stats - 1-L2 - Col H to D	1 0 05-Nov	I3A 08-Nov-13		Pull Control Wining to T-Stats - 1 L2 - Col H to D
A3998	Pull Elec Wiring in EMT - 1-L2 - Col H to D	2 1 05-Nov	I3A 08-Nov-13		Pull Elec Wining in EMT - 1-L2 - Col H to D
A4003	Pull Elec Wiring @ Rooms - 1-L2 - Col H to D	2 1 05-Nov	13 A 08-Nov-13		Pull Elec Wining @ Rooms 1-L2 - Coll H to D
A4005	Set & Tie-In FCUs - 1-L2 - Col H to D	2 2 06-Nov	I3A 13-Nov-13		Set & Tie-Ini FCUs - 1-L2 - Col H to D
A3997	Partition Framing w/ Door Frames / Close Shafts - 1-L2 - Col H to D	2 2 06-Nov	13 07-Nov-13		Partition Framing w/ Door Frames / Close \$hafts - 1-L2 - Col Hito D
A3995	Control Wiring to Valves / Dampers / Equip - 1-L2 - Col H to D	2 2 12-Nov	13 13-Nov-13		Control Wiring to Valves / Dampers / Equip - 1-L2 - Col H to D
A4007	Rough-In Inspections - 1-L2 - Col H to D	2 2 14-Nov	13 15-Nov-13		I Rough-In Inspections - 1-L2 - Col H to D
Colum	a D to A				
A4011	Fireproofing - 1-L2 - Col D to A	1 0 13-Aug	I3A 14-Aug-13A		Fireproofing - 1-L2 - Col Dito A
A4010	Install Top Track - 1-L2 - Col D to A	2 0 22-Aug	I3A 26-Aug-13A		Install Top Track - 1 L2 - Col D to A
A4014	Core for MEP - 1-L2 - Col D to A	1 0 02-Sep	13A 04-Sep-13A		Core for MEP - 1-L2 - Col D to A
A4013	Frame Walls in Corridor - 1-L2 - Col D to A	2 0 05-Sep	I3A 01-Oct-13A		Frame Walls n Corridor - 1-L2 - Col D to A
A4012	Frame Toilet Wall + Demising Wall - 1-L2 - Col D to A	2 0 06-Sep	13A 04-Oct-13A		Frame Toilet Wall - Demising Wall - 1-L2 - Col Dito A
A4031	Install Electric Riser Conduit - 1-L2 - Col D to A	2 0 09-Sep	13A 12-Sep-13A		Install Electric Riser Conduit - 1-L2 - Col D to A
A4035	Install Elec Boxes @ Rooms - 1-L2 - Col D to A	2 0 16-Sep	13A 19-Sep-13A		Instal Elec Boxes @ Rooms - 1-L2 - Col D to A
A4015	Fire Protection Risers & Floor Control Stations - 1-L2 - Col D to A	2 0 23-Sep	13A 25-Sep-13A		Fire Protection Risers & Floor Control Stations - 1-12 - Col D to A
A4018	Install Plumbing Riserss - 1-L2 - Col D to A	2 0 23-Sep	13A 25-Sep-13A		I Instal Plumbing Riserss - 1-L2 - Col D to A
A4025	Duct Mains @ Rooms - 1-L2 - Col D to A	2 0 24-Sep	13A 25-Sep-13A		I Duc Mains @ Roorts - 1-L2 - Col D to A
A4021	Horizontal Plumbing Mains - 1-L2 - Col D to A	3 0 03-Oct-	3 A 08-Oct-13 A		Horizontal Plumbing Mains 1-L2 - Coll D to A
A4026	Install Fire Protection Mains - 1-L2 - Col D to A	2 0 04-Oct-	3A 07-Oct-13A		Install Fire Protection Mains - 1-L2 - Col D to A
A4016	Vertical Duct Risers - 1-L2 - Col D to A	3 0 07-Oct-	3 A 08-Oct-13 A		Vertical Duct Risers - I-L2 - Col D to A
A4028	Install EMT in Units - 1-L2 - Col D to A	1 0 07-Oct-	3A 08-Oct-13A		I Install EMT in Units - 1-L2 - Col D to A
A4039	install Firestopping - 1-L2 - Col D to A	2 0 07-Oct-	3A 08-Oct-13A		I install Firestopping - 14L2 - Col D to A
A4022	Install Horizontal EMT - 1-L2 - Col D to A	1 0 09-Oct-	3A 10-Oct-13A		I Install Horizontal EMT - 1-L2 - Col D to A
A4017	HVAC Pipe Risers - 1-L2 - Col D to A	2 0 14-Oct-	3A 15-Oct-13A		I IVAG Pipe Risers - 1-L2 - ColD to A
A4023	GWB T.O.W 1-L2 - Col D to A	2 0 14-Oct-	3A 15-Oct-13A		WBT.O.W 1-L2- Col/D to A
A4026	Install Fire Protection Branch Lines - 1-L2 - Col D to A	2 0 21-Oct-	3A 25-Oct-13A		Install Fire Protection Branch Lines- 1-L2 - Col D to A
A4027	Install Duct Branches @ Rooms - 1-L2 - Col D to A	2 0 25-Oct-	3 A 31-Oct-13 A		Install Duct Branches @ Rooms - 1-L2   Col D to A
A4041	Test Plumbing - 1-L2 - Col D to A	1 0 28-Oct-	3A 29-Oct-13A		Test Plumbing - 1-L2 - Col D to A
A4037	Install Electric Panels - 1-L2 - Col D to A	2 0 31-Oct-	3A 04-Nov-13A		Install Electric Panels - 11-L2 - ColiD to A
A4024	HVAC Piping Mains - Isolated Locations - 1-L2 - Col D to A	1 0 01-Nov	13A 04-Nov-13A	<u>┥╴┽╴┽╾</u> ┊╾┊╶┽╶┽╴┟╴┊╾┊╺┽╵┿╴┾╴	HVAC Riping Maits - Isolated Logations - 1-L2 - Col D to A
A4034	Pull Control Wiring to T-Stats - 1-L2 - Col D to A	1 1 05-Nov	13 A 08-Nov-13		Pull Control Wining to T-Stats - 1-L2 - Col D to A
A4038	Pull Elec Wiring @ Rooms - 1-L2 - Col D to A	2 2 05-Nov	I3A 12-Nov-13		Pul Elec Wiring @ Rooms - 1-L2 - Cbi D to A
A4033	Pull Elec Wiring in EMT - 1-L2 - Col D to A	2 2 06-Nov	I3A 12-Nov-13		Pull Elec Wiring in EMT - 1-L2 - Col D to A
A4032	Partition Framing w/ Door Frames / Close Shafts - 1-L2 - Col D to A	2 2 06-Nov	13 07-Nov-13		Partition Fraining w/ Door Frames / Close Shafts - 1-L2 - Gol D to A
A4030	Control Wiring to Valves / Dampers / Equip - 1-L2 - Col D to A	2 2 13-Nov	13 14-Nov-13		Control Wring to Valves / Dampers / Equip - 1/L2 - Col D to A
A4040	Set & Tie-In FCUs - 1-L2 - Col D to A	2 2 13-Nov	13 14-Nov-13		Set & The-In FCUs - 1-L2 - Col D to A
A4042	Hough-In Inspections - 1-L2 - Col D to A	2 2 15-Nov	13 18-Nov-13		Hough-In Inspections - 1-L2 - Col Dito A
Bedroo	ms / Common Areas				
A1891	Board Walls & Celings- 1-L2	5 5 19-Nov	13 25-Nov-13		Board Walls & Cellings- 1-L2
A1781	Complete Bearoom Unit Mock-Up- 1-L2	10 10 19-Nov	13 03-Dec-13	<u></u> <u></u> <u></u> ↓ · · · · · · · · · · · · · · · ·	Cdmplete Bedroom Unit Mock-Ug- 1-L2
A1903	Tape Walls & Gelings- 1-L2	5 5 28-Nov	13 03-Dec-13		Tabe While & Ceilings-1-L2
A1892	Prime Paint wais & Cellings- 1-L2	5 5 04-Dec	13 10-Dec-13		Phine Paint Walls & Ceilings-1-62
A1901	Install FE / Cabinets- 1-L2	1 1 11-Deo	3 11-Dec-13		Install FE / Cabriets- 1-L2
A1896	Grid Acoustical Ceilings in Corridors- 1-L2	2 2 11-Deo	3 12-Dec-13		Grid Acoustical Gellings in Corridors- 1-L2
A1894	Trim Out MEPs & Install Lighting- 1-L2	15 15 13-Dec	13 UB-Jan-14	······································	Inm Out Mers & Install Lighting 1-L2
A1900	ACT Tile- 1-L2	2 2 07-Jan-	4 08-Jan-14		ACT Ne-14L2

1124 - WS	SU - New	Student Residence Hall and Dining Facility			* Project Sche	dule (for	r dist] 1	TASK filter: /	All Activ	ities				1										Page	14 of	f 39
Activity ID		Activity Name	Orig	Rem Start	Finish	2012								2013						2014	4				201	5
			Dur	Dur		Jun Ji	ul Aug	g Sep Oct	Nov De	c Jan	F Ma	r Apr	May J	un Jul	Aug S	ep Oc	t Nov Dec J	an F Ma	Apr Ma	y Jun J	kil Aug	Sep Oc	Nov [	Dec Ja	an Fe	eb <sup>lar</sup>
	A1895	Install Flooring- 1-L2	9	9 09-Jan-14	21-Jan-14		1								1 1			Install Fi	obring- 1-	12					1	Т
	A2488	Install Motorized Shades - 1-L2	2	2 22-Jan-14	23-Jan-14			1				1 1						Instal M	atorized S	hades-	1-12		1 1		1	
	A1896	Instal Doors & Hardware- 1-L2	4	4 22-Jan-14	27-Jan-14							1	- 1		11			Instal C	oors & H	ardware-	1-12		11			
	A1895	Finish Paint- 1-L2	2	2 24-Jan-14	27-Jan-14	l	·					÷			<b>↓</b>			Finsh	aint- 1-L2	4		↓ <b>↓</b>	++			+-
	Bathroo	ms Hana Dawall @ Pathrooms, 112	5	5 10 Nov 12	25 Nov 12			1				1			11	1			in the second	112			1 1		1	
	A2475	Tana & Sand Dowal @ Bathrooms, 1-L2	5	5 19-Nov-13	23-INOV-13												Table	A Sand Dr	amrooms	athroom	. 11 2					
	A2221	Instal Ceramic / Waterproofing Membrane, 1,1 2	5	5 04-Dec-13	10-Dec-13			1 1 1	1	1		1	- 1			1		al Caramic	Waterne	odfing Me	mirane	1.15	1			
	A2225	Install Counters- 1-L2	2	2 11-Dec-13	12-Dec-13												105	all Counters	1-L2			11				
	A2220	Install Shower Units- 1-L2	4	4 11-Dec-13	16-Dec-13			1-1-1				Ť 1	î		†…†			tallShower	Units 1-I	2		(···-†···	1-1			
	A2222	Trim-Out Plumbing- 1-L2	5	5 17-Dec-13	23-Dec-13												. в т	im Out Plu	nbing 1-	2						
	A2223	Install Toilet Accessories- 1-L2	3	3 24-Dec-13	27-Dec-13			1 1 1				1 1	- 1					stall Toilet /	voessorie	IS 1-L2			1 1			
	Brd Floo	r											- 1		1 1											
	Column	H to D				I						1			L				LLL	1		I				1
	A4115	Install Top Track - 1-L3 - Col H to D	2	0 23-Aug-13 A	26-Aug-13A			111							1.10	nstall T	op Track - 1 L	3 - Col H to	0	TT					1	Т
	A4116	Fireproofing - 1-L3 - Col H to D	1	0 03-Sep-13 A	04-Sep-13A											Finepr	octing - 1-L3 -	CollHtpD								
	A4117	Frame Toilet Wall + Demising Wall - 1-L3 - Col H to D	2	0 03-Sep-13 A	06-Sep-13A										1	Fram	e oilet Wall +	Demising W	all - 1-L3	- Col H to	D					
	A4118	Frame Walls in Corridor - 1-L3 - Col H to D	2	0 04-Sep-13A	06-Sep-13A											Fram	e Walls in Con	iddr - 1FL3	Col H to							
	A4119	Core for MEP - 1-L3 - Col H to D	3	0 05-Sep-13A	06-Sep-13A	ļ						÷			÷‡	Core	for MEP - 1-L	- Col H to	1	+-+-		ļ	÷			÷
	A413t	Install Electric Riser Conduit - 1-L3 - Col H to D	2	0 12-Sep-13A	13-Sep-13A			1 1 1				1 1			1 1	I Insta	Il Electric Rise	Condut -	-L3 - Col	HtoD			1 1		1	
	A4122	Install Plumbing Riserss - 1-L3 - Col H to D	2	0 10-Sep-13A	18-Sep-13A		1	1 1 1		11		1	- 1			inst	at Plumbing R	serss - 1-La	Colline	30		11	11		1	1
	A4127	Install Horizontal EMT - 1-L3 - Col H to D	1	0 10-Sep-13A	18-Sep-13A											inst	at Honzontal E	M - 1+L3	Calline	2						
	A4131	Jost Mans @ Rooms - 1-L3 - Col H to D	2	0 10-Sep-13A	10-Sep-13A	1	1	1 1 1		1		1 1	- 1	1	i i		a marie (@ no	million Inclaim		in the second	1	i i	11		1	1
	44130	Install Purt Branches @ Rooms - 1,13, Col H to D	2	0 16-Sep-13A	18-Sep-13A	+	· +	·				÷			÷+	Inst	al Durt Brand	es @ Roor	1.1.3	ColHir	D.	<u> </u>	+ +			÷
	44120	Fire Protection Risers & Floor Control Stations - 1-13 - Col H to D	2	0 23-Sep-13.4	24-Sep-13.4	1	1	1 1 1	1	1		1 1	- 1			I Fr	Protection B	icate & Elon	Control	Stations.	1.3.	tol Hoto F	1 1		1	
	A4124	Vertical Duct Risers - 1-L3 - Col H to D	3	0 23-Sep-13A	24-Sep-13A							1	- 1		11	I Ve	rtical Duct Rise	rs - 1-L3 -	Col H to I	3						
	A414(	Install Elec Boxes @ Rooms - 1-L3 - Col H to D	2	0 25-Sep-13A	01-Oct-13A												stal Elec Boxe	s (b) Rooms	1-L8-(	Col H to F						
	A4133	Install EMT in Units - 1-L3 - Col H to D	1	0 02-Oct-13A	03-Oct-13 A							1				- i 🖬	stal EMT in U	nits - 1-L3 -	Col H to	D						
	A4126	Horizontal Plumbing Mains - 1-L3 - Col H to D	3	0 07-Oct-13 A	08-Oct-13 A	1	1	1 1 1				1	1		t t	1	Horizontal Plu	nbing Mains	-1-L3-0	Jol H to I	)	1 1	11			T
	A4134	Install Fire Protection Branch Lines - 1-L3 - Col H to D	2	0 07-Oct-13A	09-Oct-13 A			1 1 1			1	1 1	- 1	1	1 1	- (L.	Install Fire Fro	tection Brar	on Lines -	1-L3-C	ol (H to I	) i i	1 1			
	A4126	HVAC Piping Mains - Isolated Locations - 1-L3 - Col H to D	1	0 14-Oct-13A	15-Oct-13 A											1	HVAC Piping	Mains - Isol	ated Loca	áons - 1-I	L3 Col	H to D				
	A4122	HVAC Pipe Risers - 1-L3 - Col H to D	2	0 14-Oct-13A	16-Oct-13 A			1				1 1	- 1		11	1	HVAC Pipe R	isets - 1-L3	ColHt	۶P			1			
	A4142	Install Electric Panels - 1-L3 - Col H to D	2	0 21-Oct-13A	22-Oct-13 A	ļļ		<u>i i i i i i i i i i i i i i i i i i i </u>					ļ.		Ļļ.		nstall Electr	c Flanels - 1	L3 - Col	H to D		Įļ	44			
	A4128	GWB T.O.W 1-L3 - Col H to D	2	0 28-Oct-13 A	28-Oct-13 A			111		1	1	1	1		11	1	GWB T.O.	V. 1-L3 -	JOIN 10 D	1	1	1	11		1	1
	A4143	Pull Elec Wiring @ Rooms - 1-L3 - Col H to D	2	0 28-Oct-13 A	29-Oct-13 A							1 1	- 1		1 1		Put ElecW	iring @Roo	ms - 1-L3	Col H	toD		1 1			
	A4140	Test Plumping - 1-L3 - Col H to D	1	0 28-00t-13A	29-00-13 A												Test Plumb	ing- 1-L3-								
	A4144	Install Firestopping - 1-L3 - Col H to D Partition Examina w/ Deer Example / Class Shafts - 1 L3 - Col H to D	2	0 29-00-13A	29-00-13 A			1 1 1				1 1	- 1		1	1	Distal Fires	topping - 1-	3 - 0011	100			da uk		1	
	44130	Partition Framing W Door Frames / Close Sharts - 1-C3 - Cor H to D		1 08-Nov-13	08-Nov-13	++	-+	+++				+			÷+		Pull Cont	ol Wiring to	T.State	113.0	ol H to F		quina			÷
	A4135	Pull Elec Wiring in EMT - 1-13 - Col H to D	2	2 08-Nov-13	12-Nov-13	- i	1	1 1 1	i (	1	- i	1 1	- 1	1	11	i	PullFlee	Wiring in F	VT - 1-17	CollHi	o D	11	1 1		i	1
	A4135	Control Wiring to Valves / Dampers / Equip - 1-L3 - Col H to D	2	2 13-Nov-13	14-Nov-13												Control	Niting to Va	wes / Dar	nders /: E	auto - 1	13 - Col	H to D			
	A4145	Set & Tie-In FCUs - 1-L3 - Col H to D	2	2 13-Nov-13	14-Nov-13												Set & To	-In FCUs -	1-L3 C	HtoD	1					
	A4147	Rough-In Inspections - 1-L3 - Col H to D	2	2 15-Nov-13	18-Nov-13												Rough-	In Inspectio	8-1-L3	Col H to	D					
	Column	D to A				1	1	1 1 1				1	1		Î			111	Î	11		1 1	11			Ť
	A4151	Fireproofing - 1-L3 - Col D to A	1	0 26-Aug-13 A	27-Aug-13A										1.1	irepro	ofing - 1-L3 - (	ol D to A								
	A4150	Install Top Track - 1-L3 - Col D to A	2	0 28-Aug-13 A	29-Aug-13A							1				Install 1	iop Track - 1-L	3 - Col D to	<b>A</b>						1	
	A4154	Core for MEP - 1-L3 - Col D to A	1	0 30-Aug-13 A	02-Sep-13A		1					1	- 1		÷ •	Core f	or MEP - 1-13	- Col D to /		1 (	1		1		1	1
	A4152	Frame Toilet Wall + Demising Wall - 1-L3 - Col D to A	2	0 03-Sep-13A	06-Sep-13A	<b>↓↓</b>		+				+			ļ	Fram	e Toile Wall +	Demising W	all - 1-L3	- Col D to	A	ŀ	++			+
	A4153	Frame Walls in Corridor - 1-L3 - Col D to A	2	0 03-Sep-13A	06-Sep-13A		1					1		1	: 1	Fram	e Valls in Con	idor - 1-L3	Col D to	<u>A</u> . J	1				1	
	A4171	Install Electric Riser Conduit - 1-L3 - Col D to A	2	U 10-Sep-13A	20-Sep-13A		1									Inst	at Electric Ris	r conduit -	1-L3 - Ce	ID to A	1				1	
	A4160	Just Mains @ Rooms - 1-L3 - Col D to A	2	0 18-Sep-13A	20-Sep-13A	1 1				1		1	- 1		1	Du	x:mans @ Ro	oms - 14L3	LOID to	<u>.</u>					1	
	30195	Instan Framoing Risers - 1-L3 - Col D to A	2	0 19-Sep-13A	20-Sep-13A		1	1					- 1			1 anst	an Humong H	ant dia	Call	77 (L	1					
	A4102	Install For Jonal Coll - 1-L3 - Col D to A	1	0 19-Sep-13A	20-Sep-13A	++	·+	+++		-+		++		+	++-	. ins	Eira Proto	mg - 1-L3	112 0	in the	+	<u>+</u> +	++			+
	A4167	Install Duct Branches @ Rooms - 1-L3 - Col D to A	2	0 20-Sep-13A	23-Sep-13A		1									Ins	tal Duct Bran	hes @ Roo	ms - 1-L3	- Col D t	٥A				1	

124 - WSU - Ner	w Student Residence Hall and Dining Facility			* Project Sche	dule (for	r dist] TASI	K filter: All A	ctivitie	es				Page 15 of 3
ctivity ID	Activity Name	Orig F	Rem Start	Finish	2012					2	2013		2014 2015
		Dur	Dur		Jun Ju	ul Aug Se	ep Oct Nov	Dec	Jan F Mar Ap	r May Jur	n Jul Aug	Sep Oct	Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
A4155	Fire Protection Risers & Floor Control Stations - 1-L3 - Col D to A	2	0 23-Sep-13A	25-Sep-13A								1 Fire	Protection Risers & Floor Control Stations - 1-L3 - Col D to A
A4156	Vertical Duct Risers - 1-L3 - Col D to A	3	0 24-Sep-13A	25-Sep-13A		1 1	1 1	i		1 1	1 1 1	Vert	eal Duct Risers - 1-L3 - Col Dito A
A4157	HVAC Pipe Risers - 1-L3 - Col D to A	2	0 09-Oct-13 A	10-Oct-13 A								I H	VAC Pipe Risers - 1-L3 - Col D to A
A4175	Install Elec Boxes @ Rooms - 1-L3 - Col D to A	1	0 09-Oct-13 A	10-Oct-13 A	T	1 1	1 1	1		TT		I In	stall Elec Boxes @ Rooms - 1-L3 - Col D to A
A4161	Horizontal Plumbing Mains - 1-L3 - Col D to A	3	0 10-Oct-13 A	11-0d-13A				1				1.6	erizontal Flumbing Mains - 1-LB - Cel D to A
A4169	Install Fire Protection Branch Lines - 1-L3 - Col D to A	2	0 10-Oct-13 A	11-Oct-13A		1 1		1		1 1	1 1 1	I In	stall Fire Protection Branch Lines - 1-L3 Col D to A
A4168	Install EMT in Units - 1-L3 - Col D to A	1	0 11-Oct-13A	14-Oct-13A				1		1 1	1 1 1	i i 🖬 🖡	stalt EMT in Units - 1-L3 - Col:D to A
A4164	HVAC Piping Mains - Isolated Locations - 1-L3 - Col D to A	1	0 14-Oct-13A	15-Oct-13 A						1 1		11	VAC Piping Mains - Isolated Locations - 1-L3 - Col D to A
A4165	GWB T.O.W 1-L3 - Col D to A	2	0 28-Oct-13 A	29-Oct-13 A			1 1	1		1			GW B T W 1-L3 - Col D to A
A4181	Test Plumbing - 1-L3 - Col D to A	1	0 28-Oct-13 A	29-Oct-13 A				1					Test Plumbing - 1-L3 - Gol D to A
A4172	Partition Framing w/ Door Frames / Close Shafts - 1-L3 - Col D to A	2	2 06-Nov-13	07-Nov-13									Partition Framing w/ Door Frames / Close Shafts - 1-L3 - Col D to A
A4177	Install Electric Panels - 1-L3 - Col D to A	2	2 08-Nov-13	12-Nov-13	1 1	1 1	1 1	1		1 1	1 1 1	11	Install Electric Panels - 1-LB - Col D to A
A4174	Pull Control Wiring to T-Stats - 1-L3 - Col D to A	1	1 13-Nov-13	13-Nov-13		1.1		1			1 1 1		Pull Control Wiring to T-Stats - 1-L3 - Col D to A
A4173	Pull Elec Wiring in EMT - 1-L3 - Col D to A	2	2 13-Nov-13	14-Nov-13	1		-++	1		****	1		Pull Elec Wiring in EMT - 1-L3 - Col D to A
A4178	Pull Elec Wiring @ Rooms - 1-L3 - Col D to A	2	2 13-Nov-13	14-Nov-13									Pull Elec Wiring @ Rooms - 1-L3 - Col D to A
A4175	install Firestopping - 1-L3 - Col D to A	2	2 13-Nov-13	14-Nov-13	1	1 1		1		1 1	1 1 1	- 1 1	Install Firestopping - 1-13 + Col D to A
A417(	Control Wiring to Valves / Dampers / Equip - 1-L3 - Col D to A	2	2 15-Nov-13	18-Nov-13	1								Control Witing to Values (Dampers ) Entitie - 1-13 - Col D to A
A4180	Set & Tie-In ECUs - 1-L3 - Col D to A	2	2 15-Nov-13	18-Nov-13		1 1		1		1 1		11	Set & Te-In FCUs - 1-L3- ColD to A
A4181	Rough-In Inspections - 1-13 - Col D to A	2	2 10-Nov-13	20-Nov-13	++		++	<u>+</u>		-+	++		Boudt-In Inspections - 14 3 - Col Dito 4
Bedroc	ms/Common Areas	-	2 10-100-10	20-100-10		1 1		1			1 1 1	-	·
A1014	Board Walk & Ceilings, 1-1-3	5	5 22-Nov-13	29-Nov-13						1 1	1 1 1		Board Walls & Calibose 1-13
A1927	Tane Walk & Ceilings 1-12	5	5 02-Dec-13	06-Dec-13		1 1		1		1 1	1 1 1	-	Tane Walls & Ceitings / Lo
A1016	Prime Paint Walk & Colliner, 112	5	5 00 Dec 13	12 Dec 12		1 1		!		1 1	1 1 1	1 1	Prime Date Water & Collinder 112
A1025	Crid Accuration Collings 1-Co	2	3 18 Dec 13	17 Dec 13	++	··	++	÷+		-++	· <del>· · · · · · · · · · · · · · · · · · </del>		Deid ferruhited California Derektore (112)
A1923	Trim Out MER: 8 Install Johnson 112	15	15 19 Dec 12	00 log 14									Trim Out MER: 8 Install Johnson 112
Atenc	Install FE / Onlinets 4 10	10	13 10-060-13	40 Jan 44	-	1		1		11	111	11	I have been been been been been been been be
A1920	Install PE / Cabinets- 1-L3		1 10-Jan-14	10-Jan-14				1					1 Install FE / Cabrieds 1-C3
A1924	ACT THE- 1-L3	2	2 10-Jan-14	13-Jan-14	- i	1		1		11	111	11	ACI IIE- I-L3
Alais	Install Pilooring- 1-L3	8	9 22-Jan-14	03-Feb-14	++	·	++	ł		·++	·+···+···+		Install Hidding- 14L3
A2490	Install Motorized Shades - 1-L3	2	2 04-Feb-14	05-Feb-14	- i -	1 1	i i	i		1 1	1 1 1	i i	Install Motorized Shades - 1-L3
A1920	Install Doors & Hardware- 1-L3	4	4 04-Feb-14	07-Feb-14		1 1	1 1	1		1 1	1 1 1	- ! !	Instal Doors & Hardware- 1-L3
Aligza	Finish Paint- 1-L3	2	2 UO-Feb-14	U/-Feb-14		11	11	i		11	111	- i i	Finish Paint 1-L3
Bathro	oms				1			1					
A1910	Hang Drywall @ Bathrooms- 1-L3	6	5 22-Nov-13	29-Nov-13	+	·	++	į		·++	++		Hang Driwal @ Bathrooms-1-L3
A24/4	Tape & Sand Drywall @ Bathrooms- 1-L3	0	5 UZ-Dec-13	00-Dec-13				1		1 1	1 1 1		Tape & Sand Drywail (@ Bainrooms- 1-L3
A1907	Install Ceramic / Waterproofing Membrane- 1-L3	5	5 16-Dec-13	20-Dec-13		1 1	1 1	1		1 1	1 1 1	1 1	Instal Ceramic/ Waterproofing Membrane- 1-L3
A1911	Install Counters- 1-L3	2	2 23-Dec-13	24-Dec-13				1		1 1	1 1 1		I Install Counters- 1-L3
A1900	Install Shower Units- 1-L3	4	4 23-Dec-13	27-Dec-13									Install Shower Units- 1-03
A1906	Trim-Out Plumbing- 1-L3	5	5 07-Jan-14	13-Jan-14	ļ								Trim-Dut Rumbing- 1-L3
A1906	Install Toilet Accessories- 1-L3	3	3 14-Jan-14	16-Jan-14									Instal Tollet Accessories- 1-L3
4th Floo	۱۲ ۱					1 1		1		1 1	1 1 1	1 1	
Colum	n H to D				4	1 1		1			1 1 1		
A4256	Fireproofing - 1-L4 - Col H to D	1	0 02-Sep-13 A	04-Sep-13A				1			1 1 1	Fireprot	ding-1-L4 - CdiH tb D
A4258	Install Top Track - 1-L4 - Col H to D	2	0 05-Sep-13A	06-Sep-13A	I			1				Install T	ep Tfack - 1-L4I- Cdl H td D
A4256	Core for MEP - 1-L4 - Col H to D	1	0 05-Sep-13A	06-Sep-13A				1				Core fo	MBP - 1 L4 - Col H to D
A4257	Frame Toilet Wall + Demising Wall - 1-L4 - Col H to D	2	0 09-Sep-13 A	10-Sep-13A								I Frame	Tollet Wall + Demising Wall - 1-L4 - Col E to D
A4258	Frame Walls in Corridor - 1-L4 - Col H to D	2	0 09-Sep-13 A	10-Sep-13A		1 1	1	: 1		1	1	Frame	Walls in Clorridor - 1-L4 - Col H to D
A4271	Install Fire Protection Mains - 1-L4 - Col H to D	2	0 09-Sep-13 A	11-Sep-13 A								I Install	Fire Protection Mains - 1-L4 - Col H to D
A4276	Install Electric Riser Conduit - 1-L4 - Col H to D	2	0 16-Sep-13A	17-Sep-13A	J		<u></u>	1	lL	.1	11	Instal	Electric Riser Gonduit - 1-L4 - Col H to D
A4263	Install Plumbing Riserss - 1-L4 - Col H to D	2	0 16-Sep-13A	18-Sep-13A				1		1 1		Insta	Plumbing Riserss - 11-L4 - Col H to D
A4274	Install Fire Protection Branch Lines - 1-L4 - Col H to D	2	0 16-Sep-13A	30-Sep-13A								Inst	tall Fire Protection Branch Lines - 1-£4 - Gol H to D
A4267	Install Horizontal EMT - 1-L4 - Col H to D	1	0 18-Sep-13 A	19-Sep-13A								Insta	Horizontal EMT - 1+L4 - Col H to D
A4270	Duct Mains @ Rooms - 1-L4 - Col H to D	2	0 18-Sep-13 A	19-Sep-13A				1				I Duct	Maints @ Roomts - 1i-L4 - Col H to D
A4260	Fire Protection Risers & Floor Control Stations - 1-L4 - Col H to D	2	0 23-Sep-13 A	24-Sep-13A	1			11		.1	1	Fire	Protection Risers & Floor Control Stations - 1-L4 - Col H to D
A4280	Install Elec Boxes @ Rooms - 1-L4 - Col H to D	2	0 23-Sep-13A	24-Sep-13A		1	1 1	1		1 1		l Insta	al Elec Boxes @ Rooms - 1-L4 - Co[H to D
A4264	Vertical Duct Risers - 1-L4 - Col H to D	3	0 23-Sep-13A	30-Sep-13A		1 1		1		1 1	11	Ver	cal Duct Risers - 1 L4 - Col H to D
A4272	Install Duct Branches @ Rooms - 1-L4 - Col H to D	2	0 07-Oct-13 A	08-Oct-13 A	1 1	1.1		1		1 1	1 1 1	i le	stall Duct Branches @ Rooms + 1-L4 - Col H to D

124 - WSU - Nei	v Student Residence Hall and Dining Facility		* Project Sch	edule [for dis	t] TASK filter: All Activitie	5		Pag	e 16 of 39
ctivity ID	Activity Name	Orig Rem Start	Finish	2012			2013	2014	2015
		Dur Dur		Jun Jul A	Aug Sep Oct Nov Dec	Jan F Mar Apr May Ju	n Jul Aug Sep Oct Nov Dec	Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec J	lan Feb <sup>la</sup>
A4286	Horizontal Plumbing Mains - 1-L4 - Col H to D	3 0 07-Oct-13/	09-Oct-13 A				I Herizontal	umbing Mains 1-L+ - Col H to D	
A4273	Install EMT in Units - 1-L4 - Col H to D	1 0 09-Oct-13/	11-Oct-13 A	1.1.1			I Install EMT	n Units - 1-L4   Col H to D	
A4266	HVAC Piping Mains - Isolated Locations - 1-L4 - Col H to D	1 0 21-Oct-13/	22-Oct-13 A				HVAC Pi	ing Mains - Isolated Locations - 1-L4 - Col H to D	1.1
A4281	Install Electric Panels - 1-L4 - Col H to D	2 0 23-Oct-13/	4 24-Oct-13 A				I Install El	etric Panels - 1-L4 - Col H to D	
A4286	Test Plumbing - 1-L4 - Col H to D	1 0 28-Oct-13/	A 29-Oct-13 A				Test Plu	nbing - 1-L4 - Gol H to D	
A4261	HVAC Pipe Risers - 1-L4 - Col H to D	2 0 29-Oct-13/	30-Oct-13 A				HVAC F	be Risers - 1-14 - Col H to D	
A426E	GWB T.O.W 1-L4 - Col H to D	2 0 30-Oct-13/	A 31-Oct-13 A	L			GWBT	0.W 1-L4 - Col H to D	
A4284	install Firestopping - 1-L4 - Col H to D	2 0 31-Oct-13/	01-Nov-13A				install F	restopping - 1-04 - Col H to D	
A4271	Partition Framing w/ Door Frames / Close Shafts - 1-L4 - Col H to D	2 2 06-Nov-13	07-Nov-13				Partti	h Framing w/ Door Frames / Close Shafts - 1-L4 - Col H to D	- 1 - 1
A4276	Pull Control Wiring to T-Stats - 1-L4 - Col H to D	1 1 08-Nov-13	08-Nov-13				PullC	ntrol Wining to T-Stats - 1-L4 - Col H to D	
A4276	Pull Elec Wiring in EMT - 1-L4 - Col H to D	2 2 08-Nov-13	12-Nov-13	1 1 1			Pulle	ec Wiring in EMT - 1-L4 -: Col H to D	1 1
A4283	Pull Elec Wiring @ Rooms - 1-L4 - Col H to D	2 2 08-Nov-13	12-Nov-13	<u>↓</u>			Pulle	ec Wiring 1@ Roomst-1-LH - Cpl H to D	
A4275	Control Wiring to Valves / Dampers / Equip - 1-L4 - Col H to D	2 2 13-Nov-13	14-Nov-13	111			Cont	ol Wiring to Valves / Dampers / Equip - 1-L4 - Col H to D	11
A4288	Set & Tie-In FCUs - 1-L4 - Col H to D	2 2 13-Nov-13	14-Nov-13				Set 8	Tie-In FCUs - 1-L4 - Col H to D	
A4287	Rough-In Inspections - 1-L4 - Col H to D	2 2 15-Nov-13	18-Nov-13	1 1 1			Hou	ch-In inspections - 1-L4 - Gol H-to D	1 1
Colum	D to A								
A4291	Fireprooting - 1-L4 - Col D to A	1 0 02-Sep-13	A 04-Sep-13A	+++-			Fireproting - 1-L	- COLD ID A	
A4294	Core for MEP - 1-L4 - Col D to A	1 U U0-Sep-13	A 00-Sep-13A				Core for MEP - 1	L4-COLD TO A	
A4290	Install Top Track - 1-L4 - Col D to A	2 0 05-Sep-13	A 09-Sep-13A				Install Top Track	1-L4 - Col D to A	
A4292	Frame Tollet Wall + Demising Wall - 1-L4 - Col D to A	2 0 10-Sep-13	A 11-Sep-13A				Frame Tolet Wa	+ Demising Wall - 1-L4 - Col D to A	1.1
A429:	Frame Walls in Corridor - 1-L4 - Col D to A	2 U 12-Sep-13	A 13-Sep-13A				Frame Wats in	Corridor - 1-L4 + Cold to A	11
A4311	Install Electric Riser Conduit - 1-L4 - Col D to A	2 U 12-Sep-13	A 13-Sep-13A	+++-			Install Electric H	ser Upndut - 144 - Loi Li to A	
A4302	Install Horizontal EMT - 1-L4 - Col D to A	1 U 18-Sep-13	A 19-Sep-13A				Install Horizon	al EMT - 1-L4 - Col D to A	11
A4298	Install Plumbing Riserss - 1-L4 - Col D to A	2 0 19-Sep-13	A 20-Sep-13A				instal Plumon	Riserss -11-L4- Col D to A	1 1
AHOUC	Just Mains @ Rooms - 1-L4 - Col D to A	2 0 19-Sep-13	A 20-Sep-13A	111			ouα vans g	Nooms - HL4 - Cold IDA	11
A4300	Install Fire Protection Mains - 1-L4 - Col D to A	2 0 19-Sep-13	A 20-Sep-13A				Install Fire Pro	ector Mans - t-L4 (Col p to A	
A4206	Fire Desteation Disease & Fires Capital Stations 11.4 Cal D to A	3 0 23-Sep-13	A 30-Sep-13A	+++-			Vencal Duck	Direct & Electionarial Obstants 114 Cal Direct	++-
420	Instell Clas Reves @ Desma 114, Cal D to A	2 0 24-360-13	A 27 Cer 12 A	111			Pre-rouce	A Dame 116 Cal Date	1 1
A4301	Hastrantal Rumbing Major 114 Cal D to A	2 0 20-Sep-13	A 02 Oct 12 A	- i i			Historic De Co	tes (g Rooms - 1-L4 - Col D to A	- i i
A4205	Install EMT in Links - 1-14 - Col D to A	1 0.01-Oct-12	03-00-13 A	1 1 1			Install FMT	Linte, 114 - ColDite A	
A4201	Instal Carl II Onto - PET - Cord D to A	2 0.02 Oct 13	01 Oct 13 A	111			I I I I I I I I I I I I I I I I I I I	Annulus de Redens 114 Col D tals	1 1
A430/	Install Doc Branches (grootins * 1-24 * Col D to A	2 0 03-0d-13/	09-Oct-13 A	+++			Idetal Fire	rotection Branch Links - 114 - Col D to #	-++-
A4304	HVAC Pining Mains , Isolated Locations , 1-14 , Col D to A	1 0 23-00-13	24-Oct-13 A				HMAC PI	ing Mains, Isolated Locations, 1-14, Col D to A	
A4217	Install Electric Panels - 1-14 - Col D to A	2 0 23-0#-13	24-Oct-13.A				Instal El	tris Rande - 1/14 - Col Dita A	
A4207	HVAC Pine Risers - 1-1 4 - Col D to A	2 0 23-04-13	25-Oct-13 A				HVAC P	Riders 114. CALD tha	11
A4321	Test Plumbing - 1-1.4 - Col D to A	1 0 28-Oct-13	29-Oct-13 A				Test Ph	mbing 1-14 - Col Dito A	1 1
44305	GWB TO W + 1-14 - Col D to A	2 0.30-00-13	31-00-134	+++			GWBT	DW - 1-14 - Col Dio A	
A4316	install Firestopping - 1-L4 - Col D to A	2 0 30-Oct-13	31-Oct-13A	111			install F	restoriond - 1-L4 - Col D to A	
A4310	Partition Framing w/ Door Frames / Close Shafts - 1-L4 - Col D to A	2 2 08-Nov-13	07-Nov-13	1 ! !			Partiti	h Framing w/ Door Frames / Close Shafts - 1-L4 - Gol D to A	11
A4314	Pull Control Wiring to T-Stats - 1-L4 - Col D to A	1 1 08-Nov-13	08-Nov-13	111			Pull C	antrol Wiring to T-Stats - 1 L4 - Col D to A	11
A4312	Pull Elec Wiring in EMT - 1-L4 - Col D to A	2 2 08-Nov-13	12-Nov-13				B Pull	ec Wiring in EMT - 1-L4 - Col D to A	
A4318	Pull Elec Wiring @ Rooms - 1-L4 - Col D to A	2 2 08-Nov-13	12-Nov-13	1-1-1			I Pull	ec Wiring 100 Records - 1-LH - Cbi D to A	
A4310	Control Wiring to Valves / Dampers / Equip - 1-L4 - Col D to A	2 2 13-Nov-13	14-Nov-13				Cont	ol Wiring to Valles / Dampers / Egulo - 1-L4 - Col D to A	1.1
A4320	Set & Tie-In FCUs - 1-L4 - Col D to A	2 2 13-Nov-13	14-Nov-13	111			I Set 8	Tie-In FCUs - 1-L4 Col D to A	11
A4322	Rough-In Inspections - 1-L4 - Col D to A	2 2 15-Nov-13	18-Nov-13				Rou	ch-In Inspections - 1-14 - Col D to A	
Bedroo	ms / Common Areas							1   1       [ ]	
A1931	Board Walls & Ceilings- 1-L4	5 5 29-Nov-13	05-Dec-13	1 + +			B	dard Walls & Ceilings- 1-L4	
A1943	Tape Walls & Ceilings- 1-L4	5 5 06-Dec-13	12-Dec-13	1				ape Walls & Ceilings 1-L4	11
A1932	Prime Paint Walls & Ceilings- 1-L4	5 5 19-Dec-13	26-Dec-13	1				Prime Paint Walls & Ceilings- 1-L4	
A1936	Grid Acoustical Ceilings in Corridors- 1-L4	2 2 27-Dec-13	30-Dec-13	1				Grid Accustical Cellings in Corridors- 1-14	11
A1934	Trim Out MEPs & Install Lighting- 1-L4	15 15 31-Dec-13	21-Jan-14	1 : :				Trim Out MEPs & Install Lighting- 1-14	11
A1941	Install FE / Cabinets- 1-L4	1 1 22-Jan-14	22-Jan-14	1 1 1				Install FE/ Cabinets- 1-L#	
A1940	ACT Tile- 1-L4	2 2 22-Jan-14	23-Jan-14	1				ACT Tile 1-L4	
A1935	Install Flooring- 1-L4	9 9 04-Feb-14	14-Feb-14	1				Instal Flogring-1-L4	
A1936	Finish Paint- 1-L4	2 2 10-Feb-14	11-Feb-14					Enish Paint 1-L4	11

1124 - WSU -	New Student Residence Hall and Dining Facility			* Project Sche	dule [for	dist] 1	FASK filter: All A	ctivities											Page '	17 of 39
Activity ID	Activity Name	Oria	Rem Start	Finish	2012							2013				2014				2015
		Dur	Dur		Jun Ju	I Auc	Sen Oct Nov	Dec Ja	n F	Mar Apr	May Ju	n Jul Aug	Sep Oct	Nov Dec	Jan F Mar A	or May Jun Jul	Aug Sep Or	t Nov D	ec .ar	Feblar
A24	192 Install Motorized Shades - 1-L4	2	2 18-Feb-14	19-Feb-14											Instal	Motorized Shades	1-14			
A19	336 Install Doors & Hardware- 1-L4	4	4 18-Feb-14	21-Feb-14	1	· †	1-1-1-	·		††		- <u>†</u> †	†		Install	Doprs &Hardwar	+ 1-L4	+++		1 1
Batt	hrooms					1	1 1 1		1	1 1		1 1	1 1					1 1		1 1
A19	247 Install Ceramic / Waterproofing Membrane- 1-L4	5	5 27-Dec-13	03-Jan-14	1 1	1	111	i	1	i i	11	11	i i		Install Gerantic	/Waterproofing I	embrane-1-L	4		i i
A19	25C Install Counters- 1-L4	2	2 06-Jan-14	07-Jan-14	1 🗄										I Install Counter	rs- 1-L4				1 1
A19	24€ Install Shower Units- 1-L4	4	4 06-Jan-14	09-Jan-14	1	1	1 1 1			1 1		1 1	1 1		Install Shower	Units- 1-L4		1 1		1 1
A19	14E Trim-Out Plumbing- 1-L4	4	4 10-Jan-14	15-Jan-14	1		1		1						Trim Out Plu	mbing- 1-L4				1 1
A19	44 Install Toilet Accessories- 1-L4	1	1 17-Jan-14	17-Jan-14											I Install Toilet	Accessories- 1-L4				11
5th F	loor																			1 1
Cok	amn H to D					1	1 1 1			1 1	1 1	1 1	1 1					1 1		1 1
A43	395 Install Top Track - 1-L5 - Col H to D	2	0 02-Sep-13 A	06-Sep-13A		<u>.</u>	1 1 1						Install 1	op Track	1-L5 - Cal H ta D					1.1.
A43	396 Core for MEP - 1-L5 - Col H to D	1	0 04-Sep-13A	05-Sep-13A									Core fo	MEP - 1	L5 - Col H to D					
A44	40: Install Plumbing Riserss - 1-L5 - Col H to D	2	0 16-Sep-13A	17-Sep-13A		1	1 1 1		1	1 1		1 1	I Instal	Plurhbing	Riserss - 1-L5 - C	ColH to D	1 1 1	1 1		1 1
A44	407 Install Horizontal EMT - 1-L5 - Col H to D	1	0 19-Sep-13A	20-Sep-13 A									Insta	Horizon	EMT - 1 L5 - Co	ol H to D				
A44	416 Install Electric Riser Conduit - 1-L5 - Col H to D	2	0 19-Sep-13A	20-Sep-13 A									Insta	Electric	iser Conduit - 1-L	5 Col H to D				11
A44	404 Vertical Duct Risers - 1-L5 - Col H to D	3	0 23-Sep-13A	02-Oct-13 A	↓↓	·	<u>↓↓</u>	Ļ		ļļ	Ļļ	-44	Ve Ve	rical Duct	Risers - 1-L5 - C	ol 🛱 to 🖸				44.
A44	400 Fire Protection Risers & Floor Control Stations - 1-L5 - Col H to D	2	0 24-Sep-13A	25-Sep-13A		1	1 1 1			1 1		1 1	I Fire	Protectio	Risets & Floor:C	ontrol Stations - 1	L5 - Col Hito	Ð		11
A43	397 Frame Toilet Wall + Demising Wall - 1-L5 - Col H to D	2	0 11-Oct-13A	16-Oct-13 A										Frame To	et Wall + Demising	g Wall - 1-L5 - Co	HtoD			
A43	398 Frame Walls in Corridor - 1-L5 - Col H to D	2	0 11-Oct-13A	16-Oct-13 A										rame W	Is in Corridor - 1-	L5 ColH to D		11		11
A44	406 Horizontal Plumbing Mains - 1-L5 - Col H to D	3	0 14-Oct-13A	15-Oct-13 A										orizpntal	Plumbing Mains -	1-65 - Gol H to D				
A44	11 Duct Mains @ Rooms - 1-L5 - Col H to D	2	0 14-Oct-13A	15-Oct-13 A	ļ		÷÷÷	÷		÷÷	÷÷	-++	∔∔	uct Main	@ Rooms - 1-L5	- Col H to D				44
A44	411 Install Fire Protection Mains - 1-Lb - Col H to D	2	0 14-Oct-13A	15-Oct-13 A										istal Fire	Protection Mains	- 14L5 - Col H to L				
A44	102 HVAC Pipe Risers - 1-L5 - Col H to D	2	0 23-Oct-13 A	25-Oct-13 A									1 1 1	HVAC P	e Risers - 1-Lö -	COLHED		11		11
A44	422 Install Electric Panels - 1-Lb - Col H to D	2	0 24-Oct-13A	25-Oct-13 A										Install E	otric Panels - 1-L	5 - Col H to D				1 1
A44	420 Test Humbing - 1-Lo - Col H to D	1	0 28-08-13 A	29-00-13 A		1	1 1 1		1	1 1				Test Plu	nping - 1-1.5 - Gol	HOD	الم الم			1 1
A44	40 HVAC Piping Mains - Isolated Locations - 1-L5 - Col H to D	1	0 28-Oct-13 A	01-Nov-13A	++	·	++	+		·	<u>↓</u>	-++	<u>↓</u>	HWACT	ping Mains - Isola	ited Locations - 1-	LD - COLH to L	2		
A44	F12 Install Duct Branches @ Rooms - 1-L0 - Col H to D	2	0 30-08-13 A	01-Nov-13A						11				instal L	uct Branches (g H	cogms - 1-L5 - Co	нюр	11		11
	KOL GWYB T.O.W 1-LD - COLH to D	2	0 31-00-13A	04-INOV-13A		1			1			1 1		GWB	0.00 1165 - 66	HOU				1 1
	124 Install FireSupprig - 1-L3 - Col H to D	2	1 04 New 12 A	09 New 12	- i -	1	111	i	1	i i	11	11	i i	Install	Testopping - 1-Lo	- COLLED D		11		11
	11/ Install Elec Boxes @ Rooms - 1-0 - Col H to D	2	0.08 Nov 12 A	14 Nov 12										in pace	Eiro Protection B	march Lines - 1.1.5	Collition			1 1
- <u></u>	111 Partition Eraming w/ Deer Eramon / Clara Shafter 11.6 Cel H to D	2	2 08 New 12	07 New 13	++	- +	++	+		++	++	-++	++	Durtiti	Ecomind w/ Flor	Francis / Close	Chaffer 115	Calling		++-
	112 Install EMT in Linite - 1-1.5 - Col M to D		1 09-New-12	09-Nov-13										Idetal	MT is Liste - 1-1	5 Col Eto D	onaids - Inco -	Gormo		1 1
A44	415 Pull Control Wiring to T-Stats - 1-1.5 - Col H to D	1	1 12-Nov-13	12-Nov-13										I Pull C	entro Winna to T-	Stats 115 Col	H to D			
A44	115 Pull Elec Wiring in EMT - 1-15 - Col H to D	2	2 12 Nov 13	13-Nov-13	1 :					1 1		1 1	1	Pull	ec Wiringtin FMT	1.1.5 Col H to		1.1		1 1
A44	42: Pull Elec Wiring @ Rooms - 1-1.5 - Col H to D	2	2 12-Nov-13	13-Nov-13		1	1 1 1			11		1 1	11	Pull	ec Wring @ Boo	ms - 1-15 - Ool H	L D	1 1		1 1
A44	415 Control Wiring to Valves / Dampers / Equip - 1-L5 - Col H to D	2	2 14-Nov-13	15-Nov-13	t	· †	<u>†</u>	÷	···i	† <b>†</b>	++	- <del>††</del>	††	Cont	ol Witing to Value	s / Dampers / Equ	10 - 1+L5 - Col	H to D		++-
A44	42f Set & Tie-In ECUs - 1-L5 - Col H to D	2	2 14-Nov-13	15-Nov-13										1 Set 8	Tie-In FCUs - 1-I	5 Col H to D				
A44	127 Rough-In Inspections - 1-L5 - Col H to D	2	2 18-Nov-13	19-Nov-13		1	1 1 1	i	1	11	11	1 1	1 1	I Rou	h-In Inspections -	1-1.5 - Col H to D		1 1		11
Colu	umn D to A					1														1 1
A44	130 Install Top Track - 1-L5 - Col D to A	2	0 02-Sep-13 A	08-Sep-13A	1	1	1 1 1		1	11	11	11	Install 1	p Track	1-L5 - Col D to A		111	11		11
A44	434 Core for MEP - 1-L5 - Col D to A	1	0 05-Sep-13A	06-Sep-13A	1.1	1	TTTT		1	1 T T		1 T T	Core fo	MEP - 1	L5 - Col D to A		1 1 1			TT
A44	1451 Install Electric Riser Conduit - 1-L5 - Col D to A	2	0 16-Sep-13A	17-Sep-13A		1				11		1 1	Instal	Electric F	ser Conduit - 1-L	5 - Col D to A		11		11
A44	438 Install Plumbing Riserss - 1-L5 - Col D to A	2	0 18-Sep-13A	20-Sep-13A									Insta	Plumbin	Riserss - 1-L5 - (	Col D to A				
A44	142 Install Horizontal EMT - 1-L5 - Col D to A	1	0 19-Sep-13A	20-Sep-13A			1 1 1			1 1	11	1 1	I Insta	Horizont	EMT - 1415 - Co	ol [] to A		1 1		1 1
A44	435 Fire Protection Risers & Floor Control Stations - 1-L5 - Col D to A	2	0 23-Sep-13 A	24-Sep-13A									Fire	Protectio	Risers & Floor C	ontrol Stations - 1	L5 - Col D to	A		
A44	430 Vertical Duct Risers - 1-L5 - Col D to A	3	0 23-Sep-13A	30-Sep-13 A		1	ITT	1		1 T	1		Ver	cal Duct	lisers - 1+L5 - Co	ol D to A		TT T	1.1	IT
A44	141 Horizontal Plumbing Mains - 1-L5 - Col D to A	3	0 07-Oct-13 A	11-Oct-13 A		1	1 1 1	:		1		1 1	I	orizontal	lumbing Mains - 1	1-L5 - Col D to A		11		1
A44	432 Frame Toilet Wall + Demising Wall - 1-L5 - Col D to A	2	0 14-Oct-13A	15-Oct-13 A										rame To	et Wall + Demising	g Wall - 1-L5 - Co	D to A	1 1		1 1
A44	43: Frame Walls in Corridor - 1-L5 - Col D to A	2	0 14-Oct-13 A	15-Oct-13 A										rame W	Is in Corridor - 1-	L5- ColD to A		11		
A44	437 HVAC Pipe Risers - 1-L5 - Col D to A	2	0 25-Oct-13 A	28-Oct-13 A	↓↓	. <b>.</b>	<b>↓</b> ↓↓	Ļ		ļļ	Ļļ		ļļ	HVAC F	pe Risers - 1-L5	ColDtoA	LL			44.
A44	161 Test Plumbing - 1-L5 - Col D to A	1	0 28-Oct-13 A	29-Oct-13 A			1 1 1			1 1		1 1		Test Plu	nbing - 1-L5 - Col	Dzo A		11		11
A44	R5/ Install Electric Panels - 1-L5 - Col D to A	2	0 28-Oct-13 A	31-Oct-13 A										install E	ectric Panels - 1-L	b Col D to A				
A44	144 HVAC Piping Mains - Isolated Locations - 1-L5 - Col D to A	1	0 31-Oct-13A	04-Nov-13A		1								HVAC	iping Mains - Isol	ated Locations - 1	-L5 - Col D to /	Α		
A44	Het Install Fire Protection Mains - 1-Lb - Col D to A	2	U 31-Oct-13A	04-Nov-13A		1	111		1	11			1 1	Install	re Protection Mai	ns-1-Lp-CpID	IPA	11		1 1
A44	42 LOWELLOW - 1-LD - COLD TO A	2	U U1-Nov-13A	U9-NOV-13A	1 1									tetWB1	EU VV - 1-15 - Co	11210.61				

124 - WSU - Nev	V Student Residence Hall and Dining Facility			* Project Sche	dule (fo	or dist	TASK filter	: All Activ	vities										1	Page 1	8 of 39
ctivity ID	Activity Name	Orig	Rem Start	Finish	2013	2							20	13				2014		2	015
		Dur	Dur		Jun J	Jul A	ug Sep Oct	Nov De	ec Ja	in F	Mar /	Apr Mar	y Jun	Jul A	ug Sep	Oct N	ov Dec	Jan F Mar Apr May Jun Jul Aug Sep Oo	t Nov De	ec Jan	Feb <sup>la</sup>
A4447	Install Duct Branches @ Rooms - 1-L5 - Col D to A	2	0 01-Nov-13A	04-Nov-13A							1						Install (	uct Branches @ Rooms - 1-L5 - Col D to A			
A4445	Duct Mains @ Rooms - 1-L5 - Col D to A	2	0 01-Nov-13 A	05-Nov-13A	11	1	11	11		11	- i	1	1		1		Dect M	ains @ Roloms + 1-L5 - Col D to A	11		( i
A4456	install Firestopping - 1-L5 - Col D to A	2	0 04-Nov-13 A	05-Nov-13A						1 1							install F	restopping - 1-L5 - Col D to A			1
A4455	Install Elec Boxes @ Rooms - 1-L5 - Col D to A	2	2 06-Nov-13 A	12-Nov-13	11		11	11		11	1	1					Instal	Elec Boxes @ Rooms - 1 L5 - Col D to A	11		i i
A4452	Partition Framing w/ Door Frames / Close Shafts - 1-L5 - Col D to A	2	2 06-Nov-13	07-Nov-13				1.1.					1. J				Partitio	n Framing w/ Door Frames / Close \$hafts - 1-15	Col D to /	A	i 1.
A4448	Install EMT in Units - 1-L5 - Col D to A	1	1 08-Nov-13	08-Nov-13	IΠ		1.1	TT		1-1	T		m	- T	T		Install	EMT in Units - 1-L5 - Col D to A	TT		ſΤ
A4454	Pull Control Wiring to T-Stats - 1-L5 - Col D to A	1	1 13-Nov-13	13-Nov-13													i Pull C	ontrol Wiring to T-Stats - 1-L5 - Col D to A			1
A4453	Pull Elec Wiring in EMT - 1-L5 - Col D to A	2	2 13-Nov-13	14-Nov-13													Pulle	ec Wiring in EMT - 1-L5 - Col D to A			1
A445E	Pull Elec Wiring @ Rooms - 1-L5 - Col D to A	2	2 13-Nov-13	14-Nov-13													Pull E	ec Wring @ Rooms - 1-L5 - Col D to A			
A4446	Install Fire Protection Branch Lines - 1-L5 - Col D to A	2	2 15-Nov-13	18-Nov-13			1 1	1 1		1 1			1 1			1	Insta	Fire Protection Branch Lines 1-LS - Col D to A	1 1		1
A4450	Control Wiring to Valves / Dampers / Equip - 1-L5 - Col D to A	2	2 15-Nov-13	18-Nov-13	1			TT							1		Cont	ol Wiring to Valves / Dampers / Equip - 1-L5 - Co	ID to A		- T
A4460	Set & Tie-In FCUs - 1-L5 - Col D to A	2	2 15-Nov-13	18-Nov-13													Set 8	Tie-In FCUs - 1-L5- ColD to A			(
A4462	Rough-In Inspections - 1-L5 - Col D to A	2	2 19-Nov-13	20-Nov-13						11	- 1						Rou	ph-In Inspections - 1-L5 - Col D to A			6 1
Bedroo	ms / Common Areas																				(   I
A1954	Board Walls & Ceilings- 1-L5	5	5 03-Dec-13	09-Dec-13													E 8	bard Walls & Ceilings- 1-L5			
A1966	Tape Walls & Ceilings- 1-L5	5	5 10-Dec-13	16-Dec-13	111			ТΤ		- T	T	1	m	TT I	T		10	Tape Walls & Ceilings- 1-L5	TT		(TT)
A1955	Prime Paint Walls & Ceilings- 1-L5	5	5 23-Dec-13	30-Dec-13			1.1	1 1		1 1			1 1				- i - i	Prime Paint Walls & Cellings: 1-LB			6 1
A1962	Grid Acoustical Ceilings in Corridors- 1-L5	2	2 31-Dec-13	02-Jan-14														Grid Acoustical Cellings in Corridors- 1-1.5			11
A1957	Trim Out MEPs & Install Lighting- 1-L5	15	15 03-Jan-14	23-Jan-14														Trim Out MEPs & Install Lighting- 1-L5			( )
A1964	Install FE / Cabinets- 1-L5	1	1 24-Jan-14	24-Jan-14						1 1								Install FE / Cabinets- 1-U5			1
A1965	ACT Tile- 1-L5	2	2 24-Jan-14	27-Jan-14	1			1 1					1					ACT Tile- 1-LB			
A1956	Install Flooring- 1-L5	9	9 18-Feb-14	28-Feb-14														Install Flooring- 1-L5			(
A2494	Install Motorized Shades - 1-L5	2	2 03-Mar-14	04-Mar-14			1 1	1 1		1 1		1						Instal Motorized Shades - 1-L5	1 1		6 1
A1956	Install Doors & Hardware- 1-L5	4	4 03-Mar-14	06-Mar-14														Install Doors & Hardware- 1-L5			11
A1961	Finish Paint- 1-L5	2	2 05-Mar-14	06-Mar-14														Finish Paint-1-L5			
Bathroo	oms							1					1								(****
A1966	Install Shower Units- 1-L5	4	4 31-Dec-13	06-Jan-14														Install Shower Units- 1:L5			
A1974	Install Ceramid/Waterproofing Membrane- 1-L5	5	5 31-Dec-13	07-Jan-14			1 1	1 1		1 1		1	1 1			1 1	1	Install Ceramio/Waterproofing Membrane- II-L	5		í
A1972	Install Counters- 1-L5	2	2 08-Jan-14	09-Jan-14		- 1		11		1 1	- 1		1					Install Counters- 1-L5			1
A1970	Trim-Out Plumbing- 1-L5	5	5 10-Jan-14	16-Jan-14														Trim Out Humbing- 1-L5			(
A1971	Install Toilet Accessories- 1-L5	1	1 20-Jan-14	20-Jan-14	1			1 1										Instal Tolet Accessories- 1-L5			r t
*** SECTIO	N 3 *** [West Bar]									1 1											í
Structure	/ Shell					- 1	1 1	1 1		1 1	- 1	1	1 1		1				1 1		1
Foundat	ions																				
A22510	Excavate for Footing & Foundations / Haul - Section 3	14	0 01-Apr-13A	29-Apr-13A		1	11	11		1 1	_ i=	Б	gavate	for Fo	otina & I	oundat	ions / H	aul - Section 3	1 1		( I.
A16590	FREP Footings - Section 3	5	0 16-Apr-13A	26-Apr-13 A	1		111	1				FR	EP Fo	otings -	Section	3					( 1
A16610	FREP Foundations - Section 3	10	0 29-Apr-13 A	20-May-13 A	1	1	1 1	1 1		1 1	- i	<b>i</b>	FREE	PFound	lations -	Sector	3		1 1		i i
A16380	Waterproof - Section 3	5	0 13-May-13 A	24-May-13 A		- ÷ -	1.1	11		1 1	- 1	- 5	Wat	erorolof	- Sectio	h3 !			1 1		11
A26030	Backfil Exterior - Section 3	5	0 13-May-13A	28-May-13 A	11	1	1 1	11		11	1	10	Bad	kfil Ekt	ridr - S	ection 3	1		1 1		( I
A16620	FREP Interior Footings - Section 3	2	0 20-May-13 A	24-May-13 A	1 1								FRE	P Interi	or Footi	ngs - Se	ection 3				
A16340	Backfil / Compact / Underslab MEPs - Section 3	10	0 15-Jul-13 A	02-Sep-13A	††-	···†	·· ŕ ·· · ŕ ···	t…t-			····		† i i	- main	Ba	citrii / C	ompact	Underslab MEPs - Section 3	-tt		ŕ
A39710	Install Radiant Heat Tubing - Section 3	6	0 11-Sep-13A	16-Sep-13A											1.	nstal B	adiant H	eat Tubinb - Section 3			1
A16600	Place SOG - Section 3	2	0 18-Sep-13A	25-Sep-13A						1					1.	Plade	soig - s	action 3			1
Eleors 1	- 3 [Sep 3 & 4]						1.1	1 1		1 1	- 1		1 1		1.7						1
A16630	Erect Steel - Section 3-I 1-3 (Sen 3)	2	0 24-May-13.A	28-May-13.A	1	- 1	1 1	11		1 1	- i	1.	Erei	t Steel	- Sectio	3-14	3 IŠea 3		1 1		i i
A16660	Erect Steel - Section 3-L1-3 [Seg 4]	1	0 24-May-13A	28-May-13 A	t	···+		++-		+	····+·	···†i	Erec	t Steel	- Sectio	n 3-L	3 [Seg 4		++		(+-
A24950	Deck & Detail Steel - Section 3-L1-3 [Seg 3]	11	0 29-May-13A	06-Jun-13A			11	11		11		1.	D D	ck &D	etal Ste	el - Sec	tion 3-L	-3 [Seq 3]	1 1		(
A25100	Deck & Detail Steel - Section 3-L1-3 [Sec 4]	7	0 31-May-13.4	07-Jun-13A								1		eck & D	etal Ste	. s	tion 3-I	-3 [Seg 4]			1
A25250	Erect Precast Planks - Section 3-11-3 [Sen 4]	1	0 10-Jun-13A	10-Jun-13A	11		1 1				1		Ti ii	red Pre	cakt PL	inks 1	ection 3	L1-3 [Sed 4]	1 1		(
A16670	Erect Precast Planks - Section 3-L1-3 [Seg 3]	1	0 12-Jun-13A	12-Jun-13A			1.1	1 1		11	- 1	1	112	rect Pr	ecast Pl	inks -	ection 3	L1-3 [Sed 3]	1 1		11
A25880	Grout Prenast Planks - Section 3-11-3 (Sen 3)	4	0.08-10-13.4	09-14-134	t+-	···+	•••••••	†···†			····+·	···†	÷"	I Gro	it Preca	+ PI	- 1000	hn 3.1 1.3 [Sec] 3]	-++		r-+-
A25890	Grout Precast Planks - Section 3-1 1-3 [Sec 4]	4	0 08-Jul-13 A	09-Jul-13 4										Gro	ut Brees	st Plan	Ser	ton 3.1 1-3 (Sect 4)			( 1
A20080	Install SOF Section 3.1 1/1 2	2	0 18-Sen-12.4	25-Sen-12.4		1	1 1	1 1		11		1	1 1		-	Instal	son. s	action 3,11/1 2	1 1		( i
A16650	Install Seray Eirannonfing - Sertion 3-11/12	4	0.07-Oct-12.4	08-Oct-12 A								1			11		all Sorre	Fireproving - Section 3-51/1/2			1
2rd Eloo	maan opnayn reprofillig " deulon dic IIC2		5 DIFOURISA	SPORTS A		1	1	1		11	1	1	1		1	• "	- opra)	- seleconing - become are new	1 1		í Í
A16890	Install Tonning Slab - Section 3-13	4	0.10.0412.0	12. bib13.4	<u>+</u> +-	···+	··++	++			···-+·	···+	+	1	all Torr	-	- have		-++		•+-
Aloood	maan ropping one - occum o co		0 10-00F10 A	12-00F13A										1 1030	an yopp	1 N 1 N 1	- peun			- 1	

1124 - WSU - Ne	v Student Residence Hall and Dining Facility			* Project Sched	dule [for	dist] T	FASK fil	Iter: All J	Activit	es																F	age	19 of 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012									201	13							2014						2015
		Dur	Dur		Jun Ju	Aug	Sep (	Oct No	v Dec	Jan	F Ma	ar Aor	May J	Jun	Jul Aug Sep Og	ct Nov	Dec	Jan F	Ma	Apr N	lav J	un Ju	Aug S	Sep (	let No	v De	c Jar	Feb la
A17300	Frame Exterior Walls- 3-L3	10	0 19-Aug-13A	03-Sep-13A											Frame	e ote	nor W	als- 3-L	3		-	_						
A16700	Install Spray Fireproofing - Section 3-L3	4	0 22-Aug-13 A	23-Aug-13A		1	11		1		1	1 1			I Install S	iptay F	repri	ofing - S	Seption	3-L3			1 1					
Floors	& 5 [Seg 7 & 8]				1	1	1 1		1			1 1		- 1		10	1.1			1 1			1 1					1 1
A16720	Erect Steel - Section 3-L4-5 [Seg 7]	2	0 13-Jun-13A	14-Jun-13A		1	1 1	1	1		1	1 1	1	тĖ	rect Steel - Sector	n 8-L4	is (Se	171	1	1 1		1	1 1			1		1 1
A16840	Erect Steel - Section 3-L4-5 [Seq 8]	2	0 14-Jun-13A	20-Jun-13A			1								Erect Steel - Section	on B-L	4-5 [5	eq 8]		1							-1	1 1
A25110	Detail Steel - Section 3-L4-5 [Seg 7]	11	0 17-Jun-13A	01-Jul-13A			1 1					1 1			Detail Steel - Sec	ction 3	4-5	Seq 7		1 1			1 1					1 1
A25120	Detail Steel - Section 3-L4-5 [Seq 8]	11	0 18-Jun-13 A	02-Jul-13A		1	1 1		1			1 1	- 1	<b>_</b>	Detail Steel - Sec	ction 3	4.4-5	Seq 8]		1 1			1 1	- 1		1		1.1
A16730	Erect Precast Planks - Section 3-L4-5 [Seq 7]	2	0 27-Jun-13 A	28-Jun-13A			1 1					1 1		- 1	Erect Precast Pla	anks - S	Sectio	3-L4-5	(Seq)	7			1 1					1 1
A16850	Erect Precast Planks - Section 3-L4-5 [Seq 8]	1	0 28-Jun-13 A	28-Jun-13A			1 1							- é	Erect Precast Pla	anks - S	Sectio	3-L4-5	[Seq				1 1					1 1
A25900	Grout Precast Planks - Section 3-L4-5 [Seq 7]	1	0 15-Jul-13 A	16-Jul-13A	T	1	ΓT	1	1	T T		TT	1	T	Grout Predast	t Plank	s - Se	ction 3-L	4-5 [S	eq 7]	T	1	TT	1		1	1	TT
A25910	Grout Precast Planks - Section 3-L4-5 [Seq 8]	1	0 16-Jul-13 A	17-Jul-13A		1	11							- 1	Grout Precast	t Plank	s - Se	ction 3-L	4-5 [S	eq 8]			1 1	- 1				1.1
A16740	Install Topping Slab - Section 3-L4	4	0 18-Jul-13 A	19-Jul-13A			1 1					1 1		- 1	I Instal Topping	g Sab	Sec	on 3-14		1 1			1 1					1 1
A17820	Frame Exterior Walls- 3-L4	10	0 23-Aug-13 A	05-Sep-13A			1 1					1 1		- 1	🗖 Fram	ie Exte	rior V	lalls- 3-L	4	1 1			1 1					1 1
A16760	Install Spray Fireproofing - Section 3-L4	4	0 02-Sep-13 A	06-Sep-13A			1 1								Instal	II Sora	Fire	roofing	- \$ecti	on 3-64	,		1 1					
5th Floo	r				T		1 T						- T	- 7					- C	T. T.					1		·/···	1.1
A16860	Install Topping Slab - Section 3-L5	4	0 31-Jul-13 A	02-Aug-13A									ļ	- 1	Install Topp	oing St	ab - S	ection 3-	LS							1		
A17560	Frame Exterior Walls- 3-L5	10	0 22-Aug-13 A	05-Sep-13A								1			E Fram	ie Exte	rior V	lals- 3-L	5				1 1				1	1
A16880	Install Spray Fireproofing - Section 3-L5	4	0 05-Sep-13A	09-Sep-13A								1			Instal	ill Spra	ý Fire	proofing	- Sed	ign 3-15	1		1				1	
6th Floo	r & Roof [Seq 11 & 12]					. i	ii.	<u> </u>		L	i	.ii					i	L	i	ii.				i		.i	.l	11
A16780	Erect Steel - Section 3-L6-R [Seq 11]	1	0 01-Jul-13 A	02-Jul-13A	1	1	1 1	- 1	1			1 1		- 1	Erect Steel - Sec	ction 3	-6-R	Seq [1]		1 1			1 1			1		1 1
A16560	Erect Steel - Section 3-6-R [Seq 12]	2	0 02-Jul-13 A	03-Jul-13A		1	11	1	1			1 1	- 1	- 3	Erect Steel - Sec	ction 3	β-R∣	\$eq 12]		11			1 1					1 1
A25130	Deck & Detail Steel - Section 3-L6-R [Seq 11]	10	0 02-Jul-13 A	10-Jul-13A			1 1					1 1		- 8	Deck & Detail S	Steel -	Section	n 3-LO-F	R Seq	11]			1 1					
A16570	Deck & Detail Steel - Section 3-6-R [Seq 12]	11	0 05-Jul-13 A	10-Jul-13A	1	1	1 1					1 1		- 9	Deck & Detail S	Steel -	Sectio	a 3-6-R	[Seq 1	2]			1 1	- 1				1 1
A16790	Erect Precast Planks - Section 3-L6-R [Seq 11]	2	0 11-Jul-13 A	12-Jul-13A		.L	JJ.			L	l	l	l.	J.	Erect Precast F	Planks	Sec	ton 3-L6	-R [Se	11]			. JJ.			.1		11
A25300	Erect Precast Planks - Section 3-L6-R [Seq 12]	2	0 12-Jul-13 A	15-Jul-13A		1	11	1	1			1 1		- 1	Frect Precast F	Planks	Sei	tion 3-L6	3- <b>R</b> [S	eq 12]			1 1					1 1
A25920	Grout Precast Planks - Section 3-L6-R [Seq 11]	1	0 16-Jul-13 A	17-Jul-13A										- 1	Grout Precast	t Plank	s - Se	ction 3-L	.6-iR [S	ieq 11			1 1					1 1
A25930	Grout Precast Planks - Section 3-L6-R [Seq 12]	1	0 16-Jul-13 A	17-Jul-13A		1	1 1	- 1	1		1	1 1	- 1	1	Grout Precast	t Plank	s - Se	ction 3-L	6 R [5	ieq 12		1	1 1	- 1		1		1 1
A16800	Install Topping Slab - Levels 3-L6	4	0 31-Jul-13 A	02-Aug-13A	1	1	1 1	- 1	1			1 1		- 1	Install Topp	oint <mark>a</mark> Sla	aþ - L	evels 3-L	6	1 1			1 1			1		1 1
A17980	Frame Exterior Walls- 3-L6	10	0 22-Aug-13 A	06-Sep-13A			44			L		. <u>.</u>			🗖 Fram	ie Exte	rior V	als- 3-L	6	÷÷.							. <b>.</b>	44
A16820	Install Spray Fireproofing - Section 3-L6	0	0 15-Oct-13 A	18-Oct-13 A										- 1		l Insta	I Spr	ay Firepr	roofing	<ul> <li>Section</li> </ul>	on 3-L/	6	1 1					
Roof						1	11		1		1	1 1	- 1	- 1			1.		1	1.1		1	1 1	- 1		1		1 1
A16580	Parapet Framing & Sheathing - Section 3-R	10	0 19-Aug-13 A	05-Sep-13A		1	1 1		1			1 1		- 1	Parap	pet Fra	iming	& Sheat	hing -	Section	3-R	1	1 1			1		1 1
A16900	Roofing [3]	5	0 14-Oct-13A	18-Oct-13 A		1	11	1	1			1 1	- 1	1		8.00	fing (3		1	1 1			1 1					1 1
Shell							<i>↓</i>										÷			÷							·	44
Unit 10					1	1	1 1		1			1 1		- 1	1 1 1.	Э.	L .		1	1 1			1 1			1		1 1
A3560	Erect Staging [Unit 10]	3	0 07-Oct-13A	11-Oct-13A			1 1									Erect	Stag	glunt	101				1 1					1 1
A3001	Bolt Releving Angle [Unit 10]	4	U 14-08-13A	15-Oct-13 A			1 1					1 1				E DE	Reliev	ng Angie	- Inut	10]			1 1					1 1
A3562	Sneating [Unit TU]	4	u 15-Oct-13A	21-Oct-13A			11			1		11	- 1			She	athing	Unit 10	1				11				1	11
A3563	Waterprooning [Unit 10]	4	u 22-08-13A	30-Oct-13 A		-+	<b>↓</b> ↓-	+		<b>↓</b> ↓		-++					terp	poing [L	101	<b>₿</b> ∔.			·++			-+	·+···	+
A3504	Strip In Windows (Unit 10)	4	2 04-NOV-13A	14 Nov 12		1	11		1		1	1 1	- 1	1		- L'	Circle	as jone	190] 	a 101		1	1 1			1		11
A3560	Suprimerindows (one to)	-	- 00-1404-13	28 New 12		1										. I.	purp	L		101								
A3507	Mindow Papalag (Lait 10)	8	0 10-NOV-13	20-NOV-13		1	1		1			1					- Ma	don you	nii 10j	100 100		1	1 1			1		1
A3566	Person Storing (Unit 10)	2	2 20 Nov-12	02-Dec 12		1	11		1			1 1							- Indiana	n isa 10	4 L		1 1			1		
A357	Caulking [Linit 10]	2	5 02 Dec 12	00 Dec 13	··		÷+			+i-		÷…†						Dulking I	n line t	di la	X-+-		·+	·		-+	+	+
ASSO	Causing [onic to]	5	5 03-Deb-13	08-040-13		1			1					- 1					Localit I	4								
A3571	Fract Staning [Linit 11]	2	0.10-Sep-13.4	11-Sen-13.4	1	i .	11		i .		1	1	- 1	1	I Pres	+ ilan	i.	L 11	i i	1		i	11			1		11
A3571	Polit Politiking Apolo II lait 111	4	0.07.0et 12.0	11-0d-12.A		1	11		1			1 1					19 [0	Lanin	nine :	41			1 1			1		
A3574	Sheathing [Unit 11]	4	0 14-Oct-13 A	22-Oct-13 4	1			1				1		- 1		1.	athic	Unit	Lenne	71	1	1	1 1			1	1	11
A3574	Waterproofing [Unit 11]	4	0 29-Oct-13 4	01-Nov-134	··	· <del>†</del>	++	+	-+	+ <u>+</u> -		++			++	W	atern	pofine 1	9 Unit 11	<b>∤</b> ···+·	···+··		· <del>   </del>	·		-+	·+···	++-
A357/	Windows [Jint 11]	4	0.05-Nov-13.4	08-Nov-13	i	1	11	i	1	11	1	1	- j	1			Minda	IN THE	11	1	1	i	11	1	1	1	1	11
A3577	Strip-In Windows [Unit 11]	4	4 08-Nov-13	14-Nov-13		1	1		1			1 1				- <b>1</b> - 1	Strip	h Winde	ws IU	nit 111		- 1	1 1			1		1 1
A3576	Masonry [Unit 11]	8	8 15-Nov-13	26-Nov-13	1	1	11		1	11	1	1	1	1		1	Ma	onry U	nit 111	T 1	1	1	11	1	1	1		
A3580	Window Panning [Unit 11]	1	1 27-Nov-13	27-Nov-13		÷	1 1		1			1 1		- 1		1	w	dow Pa	nning	Wnit 111			1 1			1		1
A3583	Remove Staging [Unit 11]	2	2 29-Nov-13	02-Dec-13	+	- 1	tt	+		tt-		++		+			R	move St	taging	Unit 11	i t		++			- †	·†···	1
A3952	Curtainwall F/7 (Unit 11)	4	4 03-Dec-13	06-Dec-13		1	1		1		- 1	1						Intainiva	∎ E/T	Unit 11	í 1.	- 1	1 1	- 1	1	1	1	1 1

1124 - WSU - Nei	w Student Residence Hall and Dining Facility			* Project Sche	dule (fo	r dist] '	TASK fi	iter: All	Activit	ies																		Page	20 o	<i>i</i> f 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012								2	2013									2014						201	5
		Dur	Dur		Jun Ji	ul Aug	g Sep (	Oct No	v Dec	Jan F	F Ma	ar Apr I	May Jur	n Jul	Aug Se	p Oct	Nov	Dec J	an F	Mar	Apr M	ay Ju	un Ju	i Aug	Sep	Oct	Nov D	Jec Ja	an Fe	eb la
A3581	Caulking [Unit 11]	5	5 09-Dec-13	13-Dec-13														Ca	ulking (U	Init 1	1								-	T
Unit 12						1	11		i	1	1	11	1	1	i	1	1					1	1	1	1.7	i	1		i	- i
A3584	Erect Staging [Unit 12]	2	0 12-Sep-13A	16-Sep-13A					<u> </u>							Erec	t Stage	g (Un	12]											
A3585	Bolt Relieving Angle [Unit 12]	4	0 07-Oct-13 A	09-Oct-13 A			1 1		1		1	1 1				11	\$ <mark>it R</mark> ∳I	ieving	Anglie (L	nit 1:		1	1	1	1 1					
A3586	Sheathing [Unit 12]	4	0 10-Oct-13 A	14-Oct-13 A		÷	1 1		1		1	1 1		1 1		- i • •	\$heath	ing 🛛	nit [2]		1		1	÷	17	- 1			1	1
A3587	Waterproofing [Unit 12]	4	0 15-Oct-13A	16-Oct-13 A			1 1									1	Water	roofr	g [Unit 1	2]										
A3591	Masonry [Unit 12]	8	8 06-Nov-13	18-Nov-13			1 1					1 1						lason	y [Unit 1	[2]				1	11					
A3595	Remove Staging [Unit 12]	2	2 19-Nov-13	20-Nov-13													11	Rempy	e Stagir	g (Ur	it 12				1					
A3959	Curtainwall G/7 [Unit 12]	7	7 21-Nov-13	02-Dec-13			1 1	1	1		1	1 1	1				1	Curt	inwall (	G/7 (U	Jnit 12]	1		1						
A3593	Caulking [Unit 12]	5	5 03-Dec-13	09-Dec-13			1 1					1 1					1	Ca	ilking (U	nit 12										
Unit 13							1 1					11					11							1	11					
A3596	Erect Staging [Unit 13]	2	0 17-Sep-13A	18-Sep-13A			1 1									Erec	# Stagii	ng (Yin	t 13]						11					
A3597	Bolt Relieving Angle [Unit 13]	4	0 23-Sep-13A	24-Sep-13A					.i			1.1				I Bol	t Reliev	ing An	gle [Uni	13]				.i						
A3596	Sheathing [Unit 13]	4	0 24-Sep-13A	25-Sep-13A		1	TT	T	T		1	ΤT	1	1	1	1 She	ething	(Unit	3]		1	Т	1	1	17	1	1		T	T
A3596	Waterproofing [Unit 13]	4	0 14-Oct-13A	15-Oct-13 A			1 1									11	Water	roofr	g [Unit	3]					1.1					
A3603	Masonry [Unit 13]	8	8 06-Nov-13	18-Nov-13			1 1		1		1	1 1					<b>P</b> 1	lason	y (Ünit	3]			1	1	17				1	
A3607	Remove Staging [Unit 13]	2	2 19-Nov-13	20-Nov-13			1 1					11					11	Remps	e Stagin	g (Ur	it 13				11					
A3954	Curtainwall H/7 [Unit 13]	15	15 18-Mar-14	07-Apr-14	L				J			11									Curt	tairiwa	all jH/i	(Ünit 1	13]					
A3605	Caulking [Unit 13]	5	5 08-Apr-14	14-Apr-14			1 1	1	1			TT				1		· · · ·			🛛 Ca	ulking	[Unit	13]			1		1	1
Unit 14							1 1		1			1 1	1	1			1							1	1.1				1	
A360E	Erect Staging [Unit 14]	2	0 18-Sep-13A	19-Sep-13A			1 1					1 1				Ere	Stagi	1g (Vr	it 14]					1	1.1					
A3606	Bolt Relieving Angle [Unit 14]	4	0 25-Sep-13A	28-Oct-13 A			1 1									<u> </u>	Bolt	Reliev	ng Angli	[Uni	t 14]				11					
A3610	Sheathing [Unit 14]	4	0 01-Nov-13A	04-Nov-13A			.11										She	athing	[Uhit 1	1										
A3611	Waterproofing [Unit 14]	4	2 05-Nov-13A	07-Nov-13	T	1	TT	T	1	1	1	TT		1	1	1	W	terpri	ofing (L	nit 14	1	T	1	1	1	1	1		1	T
A3612	Windows [Unit 14]	4	4 08-Nov-13	14-Nov-13		1	1 1				-	1 1		1		1	1 🛛 🕅	indow	s [iýnit 1	4]		1	1	1	1.1	- 1				1
A3613	Strip-In Windows [Unit 14]	4	4 15-Nov-13	20-Nov-13													•	Strip Ir	Windo	vs [U	nit 14]				11					
A3615	Masonry [Unit 14]	8	8 21-Nov-13	03-Dec-13			1 1					11	-		1	1	i 📫	Mas	nry [Un	it 14]	1			1	11					
A3616	Window Panning [Unit 14]	1	1 04-Dec-13	04-Dec-13													1	Win	low Par	ning	Unit 14				1					
A3619	Remove Staging [Unit 14]	2	2 05-Dec-13	06-Dec-13	1	1	1 1	1	1		1	1 1	1	1	1	1	1 1	Ren	ove Sta	ging	Unit 14	1	1	1			1		1	1
A3965	Curtainwall J/7 [Unit 14]	12	12 09-Dec-13	24-Dec-13			1 1	- 1				1 1	1			1	1 1	- 0	urtainw	all J/7	[Unit 1	4]		1	1.1					
A3617	Caulking [Unit 14]	5	5 26-Dec-13	02-Jan-14			1 1		1			11	-		i i	1	1		Caulkin	g (Un	t 14]			1	11					
Unit 15							1 1		1.			1 1		1 1	1	1.	1 1				1		1	1	1 1	- 1			1	1
A3620	Erect Staging [Unit 15]	2	0 20-Sep-13 A	23-Sep-13A	i	į	.ii			·····	į	44		. į	į	Ere	d Stag	ng (þ	nit 15]		<b>i</b>	<b>į</b>	į	.i	į)	į	į		į	į
A3621	Bolt Relieving Angle [Unit 15]	4	0 21-Oct-13A	25-Oct-13 A			1 1										Bold	Relievi	ng Angle	[Unit	15]			1	11					
A3621	Sheathing [Unit 15]	4	0 28-Oct-13 A	01-Nov-13A			1 1		1		1	11				1	She	athing	Unit 15	1	i i	1	1		11					1
A3623	Waterproofing [Unit 15]	4	4 06-Nov-13	12-Nov-13		1	1 1				1	1 1		1 1			- W	aterp	oofing [	Unit 1	5]		1	1.	1.1	- 1				1
A3624	Windows [Unit 15]	4	4 15-Nov-13	20-Nov-13			1 1					1 1						Vindo	vs Unit	15]										
A3625	Strip-In Windows [Unit 15]	4	4 21-Nov-13	26-Nov-13	ļ		.i					÷÷		. <b>.</b>				Strip-	n Winde	ws (	Jnit 16]			. <b>.</b>	į					4
A3827	Masonry [Unit 15]	8	8 27-Nov-13	u9-Dec-13													11	Ма	ionty (U	nt 15		_		1	17					
A362E	Window Panning [Unit 15]	1	1 10-Dec-13	10-Dec-13			1		1		1	1 1		1		1	1	l Wi	dow Pa	nning	Unit 1	미	1	1	1				1	1
A3631	Kemove staging [Unit 15]	2	2 11-Dec-13	12-Dec-13			1										1	Fle	note St	aging	[Unit 1	미		1	1 1					
A362(	Caulking [Unit 15]	5	5 13-Dec-13	19-Dec-13														• p	aulking	Unit 1	D]			1	1 1					
Unit 16					ļ		+					-++					1		ايولى.	L					Ļ)					-+-
A3831	Erect Staging [Unit 16]	2	2 U/-Nov-13*	U8-Nov-13													E	ict Sta	ging (Ur	at 16				1	1.1					1
A3633	Bolt Relieving Angle [Unit 16]	4	4 12-Nov-13	15-Nov-13			1					11					1 P	olt Re	eving A	ngle (	Unit [6]			1	11					
A3634	Sheathing [Unit 16]	4	4 18-Nov-13	21-Nov-13		1	1		1		1	1 1		1		1	19	sheat	ing (Uni	t 16]			1	1	1				1	1
A3635	Waterproofing [Unit 16]	4	4 22-Nov-13	27-Nov-13								1 1					1 P.	Wate	proofing	) [Un	t 16]			1	1.1					
A363(	Windows [Unit 16]	4	4 29-Nov-13	04-Dec-13	·		44		. <b>.</b>			4+					<b>.</b>	Win	iows [U	hit 16	<u></u>	<u>_</u>		. <u>.</u>	ļļ					<u>+</u> .
A3637	Strip-In Windows [Unit 16]	4	4 Ub-Dec-13	10-Dec-13								1 1					1	S	p-In Win	dows	Unit 1	ol	1	1	11	1				1
A3636	Masonry [Unit 10]	8	8 11-Dec-13	20-Dec-13			1			1		1 1					4 i	• <u></u> •	asonry	Unit	0]			1	1 1					
A3642	Curtainwall K [Unit 16]	13	13 23-Dec-13	10-Jan-14			1		1		1	1 1				1	1	- 👎	Curtai	nwal	K [Unit	16		1	1.1					
A364(	window Panning [Unit 16]	1	1 13-Jan-14	13-Jan-14			1 1			1	1	1 1		1			1	- 1	Winde	ow Pa	inning (	Unit 1	0	1	1.1	- 1			1	1
A3643	Remove Staging [Unit 16]	2	2 14-Jan-14	15-Jan-14	ļ		<u>با</u>		. <b>.</b>	ļ		<u>+</u>		. <b>.</b>	<u>+</u>		<b></b>		Remo	we S	aging [	Unit 1	0]	. <b>.</b>	Ļ)	ļ	ļ			
A3641	Caulking [Unit 16]	5	5 16-Jan-14	22-Jan-14		1	1		1		1	1			1	1	11		Cau	lking	Unit 16	1	1	1	11	- 1				- É
Interior	0 0//21 0						1 1		1		1	1 1				1							1	1	1.7				1	1
1st Floo	r - Servery & Altonen Area						1 1		1	1 :		1 1		÷	÷		1 1				:	- 1			: /		- :		1	:

1124 - WSU - Ne	ew Student Residence Hall and Dining Facility			* Project Sche	dule [for	dist] T/	ASK filter	r: All Act	tivities							Page 21 of 30
Activity ID	Activity Name	Rem Start	Finish	2012							2	013			2014 2015	
		Dur	Dur		Jun Ju	I Aug	Sep Oc	t Nov E	Dec Ja	n F N	Aar Apr	May Jun	Jul A	ug Sep	Det Nov D	ec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
A1730	Install Interior LGMF & Door Frames- 3-L1	5	5 08-Nov-13	13-Nov-13											Inst	tal Interior LBMF & Door Frames- 3-L1
A1740	Install Plumbing Rough-In- 3-L1	8	8 14-Nov-13	25-Nov-13	ļ <b>ļ</b>			-++-			++		↓ <b>↓</b> .		l 🔳	nstall Plumbing Rough-In- 3-L1
A1750	In-wall Electrical Rough-In- 3-L1	8	8 14-Nov-13	25-Nov-13				1 1							🔳 Ir	1-wall Electridal Rough-In- 3-L1
A1700	Above HVAC Rough-in- 3-L1	15	15 14-Nov-13	05-Dec-13												Above HVAG Rough-in-3-L1
A1710	Above Ceiling Electrical Rough- 3-L1	15	15 21-Nov-13	12-Dec-13		1 1		1 1		11			11		1 1	Above Ceiling Electrical Rough-3-L1
A1/20	Install Sprinkler Rough- 3-L1	10	10 26-Nov-13	10-Dec-13											1 1	Install Sprinkler Hough- 3-U1
A1770	Tang GwB- 3-L1		7 10 Dec 13	12-Dec-13	···-			++			++		÷÷.	-++		Fang GwB- 3-Cl
A1760	Frame Soffte, 3,11	5	5 11-Dec-13	17-Dec-13												Frame Soffee, 211
41870	Install Servery Electron, 3-L1	7	7 13-Dec-13	23-Dec-13				11		11			11			Instal SenerviFlooting 3.11
A1790	Prime Paint- 3-I 1	3	3 17-Dec-13	19-Dec-13				1 1		1 1	1 1	1		1 1		Prime Paint- 3-1
A1890	Install Kitchen Hoods- 3-L1	5	5 17-Dec-13	24-Dec-13		1		11		11	11	1	11	11		Install Kitchen Hoods- 3-L1
A2600	Hang & Finish Soffit GWB- 3-L1	5	5 18-Dec-13	24-Dec-13	···+··			++					****	-++		Hang & Finish Soffit GWB- 3-L1
A1900	Install Kitchen Hood Ansul System- 3-L1	3	3 24-Dec-13	27-Dec-13												Install Kitchen Hood Ansul System-3-L1
A1880	Install Kitchen Equipment- 3-L1	20	20 24-Dec-13	22-Jan-14									11			Install Kitchen Equipment- 3-L1
A1940	Install Milwork- 3-L1	10	10 09-Jan-14	22-Jan-14				1 1		11	1 1			1 1		Install Milwork 3-L1
A1810	Install Ceiling Grid- 3-L1	5	5 23-Jan-14	29-Jan-14												Install Ceiling:Grid-3-L1
A1800	Finish Paint- 3-L1	3	3 30-Jan-14	03-Feb-14												Finish Paint-3-L1
A1820	Install Lighting & Finish MEPs- 3-L1	5	5 30-Jan-14	05-Feb-14		1 1		1 1		11			11			Install Lighting & Finish MEPs- 3-1
A1950	Install All Other Flooring- 3-L1	5	5 30-Jan-14	05-Feb-14												Install All Other Flooring- 3-It1
A1960	Install Doors & Hardware- 3-L1	4	4 04-Feb-14	07-Feb-14		1 1	1	1 1		11	- i - i	1	11	1 1	11	Install Doors & Hardware- 3-L1
A1830	Drop Celing He- 3-L1	2	2 06-Feb-14	07-Feb-14	·			-++-								Lirop Geling Tile-3-L1
Srd Flo	70i					1 1	1	1 1		11	11	1	11	11	1	
- Collon	E Exemple fina 212 Col 0 to 12	1	0.22 Aug 12 A	22 Aug 12 A										Erro		2 Col 9 to 12
4448	F Install Top Track - 2.1.3 - Col 9 to 12	2	0 22-Aug-13 A	18-Sep-13A		1		11		11		1	11	_	stall Top Tr	313-313-0091012
A448	Core for MEP - 3-13 - Col 8 to 12	1	0 23-Sep-13 A	24-Sep-13A				1 1						Td	Core for ME	FP - 3-1 3 - Cbl 9 to 12
A446	7 Frame Toilet Wall + Demising Wall - 3-L3 - Col 9 to 12	2	0 25-Sep-13A	27-Sep-13A	++	·	+	-++			++		tt.	-+18	Frame Tbik	et Wall + Demising Wall- 3-L3 - Cbl 9 to 12
A448	Erame Walls in Corridor - 3-L3 - Col 9 to 12	2	0.25-Sep-13A	30-Sep-13A		1 1		1.1		1.1	- 1 - 1		1 1	18	Frame Wa	Ils in Corridor - 3-F3 - Gol 9 to 12
A447	7 Install Horizontal EMT - 3-L3 - Col 9 to 12	1	0 14-Oct-13A	15-Oct-13 A										17	I Instal H	orizontal EMT - 3-L3 - Col 9 to 12
A447	Fire Protection Risers & Floor Control Stations - 3-L3 - Col 9 to 12	2	0 21-Oct-13A	31-Oct-13 A									11		Fire F	rolection Risers & Floor Control Stations - 3-L3 - Col 9 to 12
A448	Duct Mains @ Rooms - 3-L3 - Col 9 to 12	2	0 21-Oct-13A	31-Oct-13 A									<u>   </u>		Dubt I	Mains @ Rooms - 3-L3- Col 9 to 12
A448	1 Install Fire Protection Mains - 3-L3 - Col 9 to 12	2	0 28-Oct-13 A	04-Nov-13A			1	1 1			1 1	1			Insta	Il Fire Protection Mains - 3-L3 - Col 9 to 12
A447	E GWB T.O.W 3-L3 - Col 9 to 12	2	0 01-Nov-13A	04-Nov-13A		1 1		1 1		11		1	11	1 1	GIVE	3 T O.W 3 L3 - Col 9 to 12
A447	HVAC Pipe Risers - 3-L3 - Col 9 to 12	2	2 06-Nov-13	07-Nov-13	11	11	1	11		11	1	1	11	11	HVA	IC Pipe Risers - 3-L3 - Col 9 to 12
A447	Install Plumbing Riserss - 3-L3 - Col 9 to 12	2	2 08-Nov-13	07-Nov-13									11		Insta	all Plumbing Risers - 3(L3 - Col 9 to 12
A448	f Install Electric Riser Conduit - 3-L3 - Col 9 to 12	2	2 08-Nov-13	12-Nov-13	·			++			++		<u>↓</u> ↓.		l Ins	all Electric Riser Conduit - 3-L3 - Col 9 to 12
A447	Vertical Duct Risers - 3-L3 - Col 9 to 12	3	3 08-Nov-13	13-Nov-13											Ver	tical Duot Hisers +3-L3 - Col 9 to 12
A448	/ Farmon Framing W/ Door Frames / Close Sharts - 3-L3 - Col 9 to 12	2	2 14-NOV-13	10-INOV-13		1						1			Pa	avantal Rhumbing Major 212 Col 0 to 12
A447	HVAC Pining Mains - Isolated Lonations - 3-13 - Col 9 to 12		1 19-Nov-12	19-Nov-12				11		11			11		1 500	VAT Proing Mains - Isolated Jonations - 313- Col 9 to 12
4447	Install EMT in Links - 3,1 3, Col 0 to 12	1	1 19-Nov-13	10-Nov-13		1 1		11		11		1	11			stal EMT in Units 3-13- Col 9 to 12
A440	f Test Plumbing - 3-L3 - Col 9 to 12		1 19-Nov-13	19-Nov-13	···+··	++		+ +		· <del>· · · · ·</del>	··+··+		÷+-	·-++	1174	est Plumbing + 3-L3 - Cdi 9 to 12
A449	Install Elec Boxes (2) Rooms - 3-L3 - Col 9 to 12	2	2 19-Nov-13	20-Nov-13		1	1					1	11		In	stall Eled Boxes (@ Rooms - 2-L3 - Col 9 to 12
A449	Install Electric Panels - 3-L3 - Col 9 to 12	2	2 19-Nov-13	20-Nov-13		1 1		11		11	11	1	i i	11	lin	stall Electric Panels - 3-L3 - Gol 9 to 12
A448	Pull Control Wiring to T-Stats - 3-L3 - Col 9 to 12	1	1 21-Nov-13	21-Nov-13		1 1							1 1		I P	ull Control Wiring to T-Stats 3-L3 - Col 9 to 12
A448	Install Duct Branches @ Rooms - 3-L3 - Col 9 to 12	2	0 21-Nov-13A	22-Nov-13A				1.1					1		I In	istall Duct Branches @ Rooms - 3-L3 - Col 9 to 12
A448	E Pull Elec Wiring in EMT - 3-L3 - Col 9 to 12	2	2 21-Nov-13	22-Nov-13	I	1		TT			T		1	T	I P	ull Elec Wiring in BMT -3-L3 - Col 9 to 12
A449	Pull Elec Wiring @ Rooms - 3-L3 - Col 9 to 12	2	2 21-Nov-13	22-Nov-13		1		11		11	11	i i	I İ	11	I P	ull Elec Wiring @ Rooms - 3 L3 - Col 9 to 12
A449	4 install Firestopping - 3-L3 - Col 9 to 12	2	2 21-Nov-13	22-Nov-13				11		11			11		I in	stall Firestopping - 3-L3 - Col 9 to 12
A448	4 Install Fire Protection Branch Lines - 3-L3 - Col 9 to 12	2	2 25-Nov-13	26-Nov-13											- j - ij - ij	nstall Fire Protection Branch Lines - 3-13 - Col 9 to 12
A448	Control Wiring to Valves / Dampers / Equip - 3-L3 - Col 9 to 12	2	2 25-Nov-13	26-Nov-13	ļļ			44					Ļ		L C	Control Wiring to Valves!/ Dampers / Equip -: 3-L3- Col 9 to 12
A449	f Set & Tie-In FCUs - 3-L3 - Col 9 to 12	2	2 25-Nov-13	26-Nov-13											18	let B Tie-In FICUs - 3-L3 - Coli 9 to 12
A449	I Rough-In Inspections - 3-L3 - Col 9 to 12	2	2 27-Nov-13	29-Nov-13		1		11		11		1	11			Rough-In Inspections - 2-L3 - Col 9 to 12
Colun	nns 12 to 15		0.00.0 40.4			1 1		1 1		11	1 1	1	11			
A450	1 Fireprooting - 3-L3 - Gol 12 to 10	2	U SU-Aug-13 A	uz-Sep-13A	L :-									E Fine	prooring - 3	-La - Cal 12 to 10:

124 - WSU - Nev	w Student Residence Hall and Dining Facility			* Project Sche	dule [foi	r dist] T	TASK filter: All	Activitie:	s					Page 22 of 3
ctivity ID	Activity Name	Orig	Rem Start	Finish	2012	!						2013		2014 2015
		Dur	Dur		Jun Ji	ul Aug	g Sep Oct No	v Dec .	Jan i	F Mar Apr	May Ju	ın Jul A	ug Sep Oct Nov De	c Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
A4500	Install Top Track - 3-L3 - Col 12 to 15	2	0 03-Sep-13A	05-Sep-13A									Install Top Track	- 3-L3 - Col 12 to 15
A4504	Core for MEP - 3-L3 - Col 12 to 15	1	0 23-Sep-13 A	25-Sep-13A		1		1		T	T	1	Core for ME	- 3-L3 - Cpl 12 to 15
A4512	Install Horizontal EMT - 3-L3 - Col 12 to 15	1	0 07-Oct-13 A	08-Oct-13 A									I Install Hori	zontal EMT - 3-L3 - Col 12 to 15
A4502	Frame Toilet Wall + Demising Wall - 3-L3 - Col 12 to 15	2	0 09-Oct-13 A	10-Oct-13 A			1 1 1			1 1	1 1	1 1	Frame To	et Wall + Demising Wall - 3-L3 -Col 12 to 15
A4503	Frame Walls in Corridor - 3-L3 - Col 12 to 15	2	0 09-Oct-13 A	10-Oct-13 A			1 1 1					1.1	Frame Wa	Ils in Corridor - 3-L3 - Col 12 to 15
A4505	Fire Protection Risers & Floor Control Stations - 3-L3 - Col 12 to 15	2	0 11-Oct-13 A	16-Oct-13 A									Fre Prote	ction Risers & Floor Control Stations   3-L3 - Col 12 to 15
A4515	Duct Mains @ Rooms - 3-L3 - Col 12 to 15	2	0 22-Oct-13 A	28-Oct-13 A									Duct M	ans @:Rooms - 3-L3 - Col:12 to 15
A4517	Install Duct Branches @ Rooms - 3-L3 - Col 12 to 15	2	0 23-Oct-13 A	24-Oct-13 A									Install D	uct Branches @ Rooms - 3-L3 - Col 12 to 15
A4513	GWB T.O.W 3-L3 - Col 12 to 15	2	0 01-Nov-13A	05-Nov-13A						1 1	1 1	1 1	GWB	FIO.W 3-L3 - Col 12 to 15
A4507	HVAC Pipe Risers - 3-L3 - Col 12 to 15	2	2 06-Nov-13	07-Nov-13			1 1 1						I HMAG	Pipe Risers - 3L3 - Col 12 to 15
A450E	Install Plumbing Riserss - 3-L3 - Col 12 to 15	2	2 06-Nov-13	07-Nov-13			<u> </u>				L		Instal	Plumbing Risers - 3-L3 - Col 12 to 15
A4521	Install Electric Riser Conduit - 3-L3 - Col 12 to 15	2	2 08-Nov-13	12-Nov-13									Insta	I Electric Riser Conduit - 3-L3 - Col 12 to 15
A4506	Vertical Duct Risers - 3-L3 - Col 12 to 15	3	3 08-Nov-13	13-Nov-13		1	1 1 1			1 1	1 1	1.1	Vert	cal Dudt Risers - 3-L3 - Col 12 to 15
A4521	Partition Framing w/ Door Frames / Close Shafts - 3-L3 - Col 12 to 15	2	2 14-Nov-13	15-Nov-13									Part	tion Framing w/ Door Frances / Close Shafts - 3-L3 - Col 12 to 15
A4511	Horizontal Plumbing Mains - 3-L3 - Col 12 to 15	3	3 14-Nov-13	18-Nov-13									Hore	zontal Plumbing Mains - 3-1.3 - Col 12 to 15
A4514	HVAC Piping Mains - Isolated Locations - 3-L3 - Col 12 to 15	1	1 19-Nov-13	19-Nov-13	I						↓↓.		1 HM	C Piping Mains - Isolated Locations - 3-L3 - Col 12 to 15
A4518	Install EMT in Units - 3-L3 - Col 12 to 15	1	1 19-Nov-13	19-Nov-13			1 1 1			1 1	1 1	1.1	I inst	al EMT in Units 3-L3 - Cdl 12 to 15
A4531	Test Plumbing - 3-L3 - Col 12 to 15	1	1 19-Nov-13	19-Nov-13								1 1	1 Tes	Plumbing 3-L3 - Cdi 12 to 15
A4516	Install Fire Protection Mains - 3-L3 - Col 12 to 15	2	2 19-Nov-13	20-Nov-13			1 1 1			11	11	11	Ins	all Fire Protection Mains - 3-L3 - Col 12 to 15
A4525	Install Elec Boxes @ Rooms - 3-L3 - Col 12 to 15	2	2 19-Nov-13	20-Nov-13									l Ins	al Elec Boxies @ Rooms - 8-L3 - Col 12 to 15
A4527	Install Electric Panels - 3-L3 - Col 12 to 15	2	2 19-Nov-13	20-Nov-13	···-		· + + · + · ·	-i		-++	÷÷		Ins	al Electric Panels - 3-13 - Col 12 to 15
A4524	Pull Control Winng to 1-Stats - 3-L3 - Col 12 to 15	1	1 21-Nov-13	21-Nov-13									1 Pu	Control Wiring to 1-Stats - 3-L3 - Col 12 to 15
A4523	Pull Elec Wiring in EMT - 3-L3 - Col 12 to 15	2	2 21-Nov-13	22-Nov-13								11	Pu	Elec Wiring in BMT -3-L3- Col 12 to 15
A4528	Pull Elec Wiring @ Rooms - 3-L3 - Col 12 to 15	2	2 21-Nov-13	22-Nov-13									Pu	Elec Wiring @ Rooms - 3-L3 - Col 12 to 15
A4526	install Firestopping - 3-L3 - Col 12 to 15	2	2 21-Nov-13	22-Nov-13			1 1 1				1 1	1 1	ins	al Firestopping - 3-L3 - Col 12 to 15
A4516	Install Fire Protection Branch Lines - 3-L3 - Col 12 to 15	2	2 25-Nov-13	26-Nov-13			1				Ļ			tall Fire Protection Branch Linest - 3-U3 - Cpl 12tto 15
A452L	Control Wiring to Valves / Dampers / Equip - 3-L3 - Col 12 to 15	2	2 25-Nov-13	26-Nov-13	1	1	1 1 1		1	i i	11	11	G	rtrol Wiring to Valves/ Dampers / Edup - 3-L3 - Col 12 to 15
A453L	Set & Tie-In FCUS - 3-L3 - Col 12 to 15	2	2 25-Nov-13	20-Nov-13									3	t & Tre-In FCUS - 3-L8 - Col 12 to 15
A4532	Rough-In Inspections - 3-L3 - Col 12 to 15	2	2 27-Nov-13	29-Nov-13	1	1	1 1 1	1	i	i i	11	1 1		Augh-In Inspections - 3-L3 - Col 12 to 15
Bedroo	oms / Common Areas	-	6 05 0 10	44 Day 40						1 1		1.1		
A1/1/	Board Walls & Cellings- 3-L3	0	5 UD-Dec-13	11-Dec-13	·		÷÷÷-				÷÷	-++-		aparo wais & Geings- 3-63
A1/2t	Tape Walls & Cellings- 3-L3	0	5 12-Dec-13	18-Dec-13										Division Delivation of Continue Database
A1718	Prime Paint Wals & Gelings- 3-L3	0	0 19-Dec-13	20-Dec-13			1 1 1			1 1	1 1	1 1		Contact of Contract Contract 2 12
A1725	Grid Acoustical Cellings in Corridors- 3-L3	2	2 2/-Dec-13	30-Dec-13			1 1 1				1 1	1.1		Grid Adoustical Cerings in Comdons- 3-L3
A1/26	Finish Pant Celling - 3-L3	2	2 27-Dec-13	30-Dec-13			1 1 1							Finsh Paint Geing - 3-63
A1726	Initial EE / Cabinate 2.1.2	10	1 22 Jpc 14	21-Jan-14	· · · · · ·	· · •	÷÷÷-				++			Intertal EEU Cohinetet 210
A1720	Install PE / Cabinets- 3-L3	- 1	1 22-Jan-14	22-Jan-14										Finishi Petr Gapines- 3-Lp
A172:	ACT THE 2 LO	2	2 22-Jan-14	23-Jan-14		1	1 1 1			1 1	1 1	1.1		Finish Pant- 3-L3
A1725	Act tile-3-L3	2	2 22-Jan-14	23-Jan-14										Include State
A172	Instal Flooring- 3-L3	4	4 08 Eab 14	11.Ecb. 14							11	11		Install Cook & Hardware, B.1.2
Rather	inisial boots a nationales of Co	-	4 001 60-14	111160-14		··+	++	-++		-++	++-	-++-	· - + - · · + - · ·   +	a risarboop a ria onare pro
A1715	Hang Dowall @ Rathroome, 2-12	5	5.05-Dec.12	11-Dec-12		1	1 1 1			1 1	1 1	1.1	- i i i i i	Hann Downal @/Batthough 2.12
A247#	Tane & Sand Drwall @ Bathrooms- 3-13	5	5 12-Dec-13	18-Dec-13										Tane & Sand Dowal @ Bathrooms 3-13
A1706	Prima Paint Walk & Calinos, 2-13	5	5 19-Dec-13	28-Dec-13			1 1 1		1	11	11	11		Prine Paint Walk & Calings, R. J. 2
A1705	Install Ceramic / Waterpronfing Membrane, 3,13	7	7 27-Dec-13	07- Jan-14		1.				1 1		1.1.		Install Ceramic / Waterprofing Membranes 3-13
A1712	Instal Counters- 3-13	2	2 08-Jan-14	09-Jan-14	···-	··•••	++		j	-++	††	·· † · · · † ·	··+··i-·i	Instal Courters 3-13
A1711	Finish Paint- 3-L3	2	2 10-Jan-14	13-Jan-14										Binist Paint- 3-63
A1705	Trim-Out Plumbing- 3-L3	5	5 14-Jan-14	20-Jan-14		1	111	1		1	11	11		Trim-Out Plumbing-13-L3
A1710	Install Toilet Accessories- 3-L3	3	3 21-Jan-14	23-Jan-14								1.1		Install Totel Accessories-3-L3
4th Floo	r	-				1	111			1 1	11	11		
Colum	ns 9 to 12				···-		+-+++	++			††	-++-		*****
A4606	Fireproofing - 3-L4 - Col 9 to 12	1	0 30-Aug-13 A	02-Sep-13A					1				Fireproofing 3-	4-Cd 9to 12
A4605	Install Top Track - 3-L4 - Col 9 to 12	2	0 03-Sep-13.A	06-Sep-13A		1				1		1 1	Install Teo Track	-3-L4 - Col 9 to 12
A4605	Core for MEP - 3-L4 - Col 9 to 12	1	0 12-Sep-13A	13-Sep-13A						1 1		11	Gore for MEP	3-L4 - Col9 to 12
A4607	Frame Toilet Wall + Demising Wall - 3-L4 - Col 9 to 12	2	0 16-Sep-13A	18-Sep-13A		1							Frame Todet \	Vall + Demising Wall - 3-L4 - Co 9 to 12
					<u> </u>						<u> </u>			

1124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	dule (for o	list] TASK	filter: All A	Activitie	25					Page 23 of 3
Activity ID	Activity Name	Orig Rem	n Start	Finish	2012							2013		2014 2015
		Dur Du			Jun Jul	Aug Sep	Oct Nov	/ Dec	Jan F	Mar A	pr May	Jun Ju	ul Aug	Sep Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
A4608	Frame Walls in Corridor - 3-L4 - Col 9 to 12	2 0	16-Sep-13A	18-Sep-13A										Frame Walls in Corridor -3-L4- Col 9 to 12
A4617	Install Horizontal EMT - 3-L4 - Col 9 to 12	1 0	0 10-Oct-13 A	11-Oct-13A	- i -	i i	11	1		11	11	1	11	Idistal Horizontal EMT - 3-U4 - Col 9 to 12
A4610	Fire Protection Risers & Floor Control Stations - 3-L4 - Col 9 to 12	2 0	14-Oct-13 A	15-Oct-13 A				1						Fre Protection Risers & Floor Control Stations - 3-L4 - Col 9 to 12
A4621	Install Fire Protection Mains - 3-L4 - Col 9 to 12	2 0	21-Oct-13A	22-Oct-13 A	1		1 1	1		1 1	1 1			Install Fire Protection Mains - 3-L4 - Col 9 to 12
A4620	Duct Mains @ Rooms - 3-L4 - Col 9 to 12	2 0	24-Oct-13 A	25-Oct-13 A		<u> </u>	<u></u>							Duck Mains @ Rooms - 3-L4 - Col 9 to 12
A4622	Install Duct Branches @ Rooms - 3-L4 - Col 9 to 12	2 0	24-Oct-13 A	28-Oct-13 A										Install Duct Branches @Rooms - 3-L4 - Col 9 to 12
A4618	GWB T.O.W 3-L4 - Col 9 to 12	2 2	2 05-Nov-13 A	07-Nov-13				1						GWB 1.0.WL - 3-L4 - Col 9 to 12
A4612	HVAC Pipe Risers - 3-L4 - Col 9 to 12	2 2	2 06-Nov-13	07-Nov-13										HVAC Pipe Risers - 3-L4 - Col 9 to 12
A4613	Install Plumbing Riserss - 3-L4 - Col 9 to 12	2 2	2 06-Nov-13	07-Nov-13			1 1			1 1	1 1		1 1	Install Plumbing Riserss - 3-L4 - Col 9 to 12
A4626	Install Electric Riser Conduit - 3-L4 - Col 9 to 12	2 2	2 08-Nov-13	12-Nov-13		LL	1							Install Electric Riser Conduit - 3-L4 - Col 9 to 12
A4614	Vertical Duct Risers - 3-L4 - Col 9 to 12	3 3	3 08-Nov-13	13-Nov-13				1						Vertical Duct Rigers - 3-L4 - Col 9 to 12
A4627	Partition Framing w/ Door Frames / Close Shafts - 3-L4 - Col 9 to 12	2 2	2 14-Nov-13	15-Nov-13							1 1			Partition Friaming w/ Door Frances / Close Shafts - 3-L4 - Col 9 to 12
A4616	Horizontal Plumbing Mains - 3-L4 - Col 9 to 12	3 3	3 14-Nov-13	18-Nov-13		1 1	1 1	1		1 1	1 1	- 1	1 1	Horizontal Plumbing Mains - 3-L4 - Col 9 to 12
A4619	HVAC Piping Mains - Isolated Locations - 3-L4 - Col 9 to 12	1 1	19-Nov-13	19-Nov-13										HVAC Piping Mains Isolated Locations - 3-L4 - Col 9 to 12
A462:	Install EMT in Units - 3-L4 - Col 9 to 12	1 1	1 19-Nov-13	19-Nov-13			÷÷			++				I Instal EMT in Units - 3-L4 - Col 9 to 12
A4636	Test Plumbing - 3-L4 - Col 9 to 12	1 1	19-Nov-13	19-Nov-13							1 1			Test Plumbing 3-L4 - Cdl 9 to 12
A463(	Install Elec Boxes @ Rooms - 3-L4 - Col 9 to 12	2 2	2 19-Nov-13	20-Nov-13			1 1	1		1 1	1 1	- 1	1 1	: I :Install Elec Boxies @: Rootns - 3-L4 + Col 9 to 12
A4632	Install Electric Panels - 3-L4 - Col 9 to 12	2 2	2 19-Nov-13	20-Nov-13										Instal Electric Panels - 3-L4 - Col 9 to 12
A4629	Pull Control Wiring to T-Stats - 3-L4 - Col 9 to 12	1 1	1 21-Nov-13	21-Nov-13	1	11		1		1 1	11	- 1	1	Pull Control Wiring to T-Stats - 3-L4 - Col 9 to 12
A4628	Pull Elec Wiring in EMT - 3-L4 - Col 9 to 12	2 2	2 21-Nov-13	22-Nov-13		Ļļ	Įļ	4		++			-+	Pull Elec Wring in EMT - 3-L4 - Col 9 to 12
A463:	Pull Elec Wiring @ Rooms - 3-L4 - Col 9 to 12	2 2	2 21-Nov-13	22-Nov-13	1	i i	1 1	1	1	1 1	1 1	1	1 1	Pull Elec Wiring @ Rooms - 34L4 - Col Rto 12
A4634	install Firestopping - 3-L4 - Col 9 to 12	2 2	2 21-Nov-13	22-Nov-13										Install Firestopping 43-L4 - Cdl 9 tot 12
A4024	Install Fire Protection Branch Lines - 3-L4 - Col 9 to 12	2 2	2 25-INOV-13	20-NOV-13	1	i i	1 1	1	1	1 1	1 1	- 1	1 1	I Install Fire Protection Branch Lines - 3-64 - Coll 9 to 12
A462t	Control Wiring to Valves / Dampers / Equip - 3-L4 - Col 9 to 12	2 2	2 25-Nov-13	26-Nov-13	1		1 1	1		1 1	1 1		1 1	Control Wiring to Vaves/ Dampers / Equip - 3-L4- Col 9 to 12
A4030	Set & He-In FCUS - 3-L4 - Gol 9 to 12	2 2	2 25-INOV-13	20-NOV-13		÷	÷÷						-+	Set & Tie In FCUS- 3-L4 - Cel 9 to 12
A403/	Rough-In Inspections - 3-L4 - Col 9 to 12	2 4	27-INDV-13	28-NOV-13				1						t Rough-In Inspections - 2-L4 - Colp to 12
	Eireproofing - 3-1 4 - Col 12 to 15	1 1 0	02-Sec-13.4	03-Sep-13.4	1	11	1 1	1		1 1	1 1		1 1	Elence 600 3-14 - Cdl 12 to 15
AABAC	Install Ten Track - 214 - Cel 12 to 15	2 0	04 Sep 12 A	08 Sep 12 A										Initial Teo Track, 214, Col 12 to 15
4644	Core for MEP - 3-14 - Col 12 to 15	1 0	10-Sep-13.4	11-Sep-13.4		11		1		1 1	11		11	Core for MEP, 314, Coll 2 to 15
44841	Frame Toilet Wall + Demising Wall - 3-14 - Col 12 to 15	2 0	16-Sep-13.4	18-Sep-13.4	·+	+	÷+	+		++	·++		-++	Frame Tolet Wall + Bernising Wall + 2-14 - Col 12 to 15
A4841	Frame Walk in Corridor - 3-14 - Col 12 to 15	2 0	16-Sep-13.4	18-Sep-13.4							1 1			Franta Walls in Corritor 314, Col 12 to 15
A484F	Fire Protection Risers & Floor Control Stations - 3-14 - Col 12 to 15	2 0	14-Oct-13.4	16-Oct-13.4										Fire Protection Risert & Floor Control Stations - 3-14 - Cél 12 to 15
A4854	Duct Mains @ Rooms - 3-I 4 - Col 12 to 15	2 0	28-Oct-13A	28-Oct-13.A										Duit Mains @ Bodms - B-I 4- Col 12 to 15
44856	Install Fire Protection Mains - 3-14 - Col 12 to 15	2 0	29-Oct-13.4	30-Oct-13.4						1 1	1 1		1 1	Install Fire Protection Mains 43-14 - Col 12 to 15
A4657	Install Duct Branches @ Rooms - 3-L4 - Col 12 to 15	2 0	29-Oct-13 A	30-Oct-13 A		tt	tt	1		++-	++		-++	Install Duct Branches (dt Rooms - 8-L4 - Col/12 to 15
A4647	HVAC Pipe Risers - 3-L4 - Col 12 to 15	2 2	2 06-Nov-13	07-Nov-13	1	11		1		1 1	11	- 1	1	HVAC Pipe Risers - 3-L4 - Col 12 to 15
A4648	Install Plumbing Riserss - 3-L4 - Col 12 to 15	2 2	2 06-Nov-13	07-Nov-13	- 1					1 1			1 1	Install Plumbing Riserss - 3-L4 - Col 12 to 15
A465:	GWB T.O.W 3-L4 - Col 12 to 15	2 2	2 06-Nov-13	07-Nov-13	- i	11	11	1		11	1 1	1	11	GWB T.O.W 3-L4 - Col 12 to 15
A4661	Install Electric Riser Conduit - 3-L4 - Col 12 to 15	2 2	2 08-Nov-13	12-Nov-13							1 1			Install Electric Riser Conduit - 3-L4 - Col 12 to 18
A4649	Vertical Duct Risers - 3-L4 - Col 12 to 15	3 3	8 08-Nov-13	13-Nov-13	1	T T	T 1	1		TT	ΤŤ	1	TÌ	Vertical Duet Riders 3-L4 - Col 12 to 15
A4652	Install Horizontal EMT - 3-L4 - Col 12 to 15	1 1	14-Nov-13	14-Nov-13	1		1 1	1		1 1	1 1		1 1	I Install Horizontal EMT - 3-L4 - Col 12 to 15
A4662	Partition Framing w/ Door Frames / Close Shafts - 3-L4 - Col 12 to 15	2 2	2 14-Nov-13	15-Nov-13	1	11	1 1	i		11	1 1	1	1	Partition Framing w/ Door Frames / Close Shafts - 3-L4 - Col 12 to 15
A4651	Horizontal Plumbing Mains - 3-L4 - Col 12 to 15	3 3	3 14-Nov-13	18-Nov-13				1						Horizontal Plumbing Mains - 3-L4 - Col 12 to 15
A4654	HVAC Piping Mains - Isolated Locations - 3-L4 - Col 12 to 15	1 1	19-Nov-13	19-Nov-13	1		1 1	1		1 1	1 1		1 1	I HVAC Piping Mains Isolated Locations - 3-L4 - Col 12 to 15
A4658	Install EMT in Units - 3-L4 - Col 12 to 15	1 1	19-Nov-13	19-Nov-13			T			T	1			I Instal EMT in Units 3-L4 - Col 12 to 15
A4671	Test Plumbing - 3-L4 - Col 12 to 15	1 1	19-Nov-13	19-Nov-13										Test Plumbing 3-L4 - Col 12 to 15
A4665	Install Elec Boxes @ Rooms - 3-L4 - Col 12 to 15	2 2	2 19-Nov-13	20-Nov-13		1	1	1		1				I Instal Eleo Boxes @ Rooms - 2-L4 Col 12 to 15
A4667	Install Electric Panels - 3-L4 - Col 12 to 15	2 2	2 19-Nov-13	20-Nov-13	1	1 1	1 1	1		1 1	1			Instal Electric Panels - 3-L4 - Col 12 to 15
A4664	Pull Control Wiring to T-Stats - 3-L4 - Col 12 to 15	1 1	21-Nov-13	21-Nov-13		L	<u>i</u>			4				Pull Control Wiring to T-Stats - 3-L4 - Col 12 to 15
A466:	Pull Elec Wiring in EMT - 3-L4 - Col 12 to 15	2 2	21-Nov-13	22-Nov-13				1 1			11		T	Pull Elec Wiring in EMT - 3-L4 - Col 12 to 15
A4665	Pull Elec Wiring @ Rooms - 3-L4 - Col 12 to 15	2 2	2 21-Nov-13	22-Nov-13										I : Pull Elec Wiring @ Rooms - 3 L4 - Col 12 to 15
A4666	install Firestopping - 3-L4 - Col 12 to 15	2 2	2 21-Nov-13	22-Nov-13	1	11	1 1	1			1 1			instal Firestopping 3-L4 - Cd 12 to 15
A4656	Install Fire Protection Branch Lines - 3-L4 - Col 12 to 15	2 2	2 25-Nov-13	28-Nov-13	1	1 1					1 1	1		Install Fire Protection Branch Lines - 3-64 - Col 12 to 15
A4880	Control Wiring to Valves / Dampers / Equip - 3-L4 - Col 12 to 15	2 2	25-Nov-13	26-Nov-13		L	↓↓	4					44	I Control Wiring to Valvesi / Dampers / Equip - 3-L4 - Col 12 to 15
A4670	Set & Tie-In FCUs - 3-L4 - Col 12 to 15	2 2	2 25-Nov-13	26-Nov-13				:		1 1	1 1			Set & Tie+In FCUs + 3-L4 - Col 12 to 15

124 - WSU - New	v Student Residence Hall and Dining Facility			* Project Sch	edule (	for dist]	TASK	filter: A	I Activit	ies															F	Page 2	4 of 39
ctivity ID	Activity Name	Orig	Rem Start	Finish	201	12			_					2013	8	_	_					2014				1	015
		Dur	Dur		Jun	Jul Au	ug Sep	o Oct I	Nov Dec	: Jan	FM	lar Apr	May J	Jun J	ul Aug	g Sep (	Oct No	v Dec	Jan F Ma	r Apr M	lay Ju	n Jul /	Aug Sep	p Oct I	Nov De	ac Jan	Feb <sup>la</sup>
A4671	Rough-In Inspections - 3-L4 - Col 12 to 15	2	2 27-Nov-13	29-Nov-13				1 1					11			1 1		Ro	egh-In Inspec	tions - 3-l	L4 Ci	ol 12 to 1	15	1 1			
Bedroor	ms / Common Areas		6 10 0 10	10.0.10														١.,	L L.L.								
A176E	Board Walls & Celings- 3-L4	5	5 12-Dec-13	18-Dec-13	- 1			1 1								1 1		12	Board Walls	Ceilings	- 3 L4						
A1/80	Tape Walls & Celings- 3-L4	5	5 19-Dec-13	28-Dec-13	++					·			Ļ			++-			Tape Walls	<ul> <li>Cellings</li> </ul>	- 3 L4	++					∔∔.
A1/0	Prime Paint Walls & Cellings- 3-L4	5	5 27-Dec-13	03-Jan-14	- 1			1 1		1 1			1 1			1 1		1	Prime Pair	t yvalis a	Cenn	gs- 3-L4	1.1	1 1	- 1		1 1
A1776	Grid Acoustical Ceilings in Corridors- 3-L4	2	2 06-Jan-14	07-Jan-14	- 1			1 1	1				11			1 1		1	Grid Acou	stical Ceil	ings in	Gorrider	rs- 3-L4	1 1			11
A1771	Trim Out MEPs & Install Lighting- 3-L4	15	15 08-Jan-14	28-Jan-14	- 1											1 1			Trim C	ut MEPs	& Inst	alt Lightr	ng- 3-L4	1			
A1//8	Install FE / Gabinets- 3-L4	1	1 29-Jan-14	29-Jan-14	- 1			1 1								1 1			Install	FE/Cab	inets-	3-14					11
A177	Finish Paint- 3-L4	2	2 29-Jan-14	30-Jan-14	ļ					i			Ļ			4			Finish	Paint- 3-	L4						<u></u>
A1777	ACT Tile- 3-L4	2	2 29-Jan-14	30-Jan-14												1 1			AGT	1- 3-64				1 1			
A1772	Install Flooring- 3-L4	9	9 31-Jan-14	12-Feb-14	- 1		1	1 1					11	- 1		1 1		1	Inst	all Floorin	19- 8-L	4		1 1			11
A1//3	Instal Doors & Hardware- 3-L4	4	4 13-Feb-14	19-⊦eb-14												1 1				tal Door	s & Ha	rdware	3-L4				
Bathroo	Hans Dawal @ Rathename 214	-	5 05 Dec 12	11 Dec 12				1 1					11			1 1		i.,		او ال	1.			1 1			11
A1/0:	Tang Drywai @ Babrooms- 3-L4	6	5 10-Dec-13	10 Dec 13	++			++		++			÷}-			++			and pryman	Bauro	one -						++-
A24/C	Tape & Sand Drywaii @ Badirooms- 3-04	5	5 12-Dec-13	10-Dec-13	- 1		1	1 1					11			1 1		÷.	Tape & Sand	Drywai	g pau	rooms	3-14		- 1		11
A1/04	Install Ceramic / Waterprooring Memorane- 3-L4	0	0 27-Dec-13	03-Jan-14	- 1											1 1			instal Gera	andic / wa	sterpro	ioung Me	motane	- 3-L4			
A1/04	Install Counters- 3-L4	2	2 U0-Jan-14	07-Jan-14	-1 i			1 1	1				11			1 1			Install Cou	inters- 3-	L4			1			11
A1/08	Install Shower Units- 3-L4	4	4 U0-Jan-14	09-Jan-14	- 1			1 1	1							1 1			instal Shi	wer Unit	5-5-0			1 1			
A1/0L	Inm-Out Humbing- 3-L4	0	5 10-Jan-14	10-Jan-14	++		···	++		+i		·	÷÷-		+	÷÷		- <del>i</del>	rim-Ou	Humpin	0- <i>4</i> -1-	1					÷+
A1/01	Install Tollet Accessories- 3-L4	3	3 24-Jan-14	28-Jan-14	- 1											1 1			instal	Direct Acco	essori	es- 3-L9					
A1702	Prist Parts 3-04	2	2 28-Jan-14	SU-Jan-14			1	1	1			1	11			1 1		1	r rinsn	ram-p-	-	11			1		11
Sth Floor								1 1	1							1 1				1.1	1	1 1		1 1			11
Column A4744	Site 12	4	0.02.000.12.0	04 Sep 12.4	- i	1	1	1 1	1	1	1	i	i i	1	i i	1 54	- ie		L Charles	11	1	1 1	1	1 1	1		i i
A4745	Install Tax Taxab. 21.5. Col 0 to 12		0.05 Cre 12 A	08 Cap 13 A	+÷	···· .				+!			Ļ	{			prog			4		· + +-					44-
A474	One for MED, 015, 0-10 to 12	4	0 00-0ep-10 A	40 Cer 13 A	- i	1	1	1 1	1	1		1	1		1		T.	aux.			i i	11	1	1 1	1		11
A4745	Core for MEP - 3-LD - Col 9 to 12		0 11 Cen 13 A	10-Sep-13A													reitern	107	S-LO - ICOI 9 to	14	-						1 1
A4/4/	Frame Totet wait + Demising wait - 3-L5 - Colla to 12	2	0 11-Sep-13 A	12-Sep-13A	- 1	1		1 1	1	1 1		1	1 1			1.1	amero	Net we	+ Demsng			191012	÷	1 1	1		1 1
A4/40	Frame Waits in Comport-3-LD-Colig to 12	2	0 11-Sep-13 A	12-Sep-13A	- 1		1.	1 1	1		- 1	1	11	- 1		1	amerv	ais n	Corridor - a-L	COL	10 12	.1.1		1 1	- 1		11
A4/5/	Install Horizontal EMT - 3-L0 - Col 9 to 12	1	0 02-08-13A	04-00-13 A	++	····	··• 🛉	÷+		i		·	÷÷-		+	÷ ŀ	install	Horizo		Q - Colls	10 12	. i i-		dia di			÷+
A4700	Pire Protection Risers & Pidor Control Stations - 3-L5 - Col 9 to 12	2	0 14-08-13A	10-00-13 A	-1 -1											1 1	i ere	rote	cion reisers a	a le	ntroi 3	cations	3-13-10	201 8 00	12		
A4700	Lote Mans @ Rooms - 3-L5 - Col 9 to 12	2	0 30-00-13 A	31-00-13A	- 1			1	1			1	11			1 1			ans (greedins	10-10-	Corsi	5 0-10		1 1			11
A4701	Install Duct Branches (g Rooms - 3-L5 - Col 9 to 12	2	0 30-06-13 A	31-00-13 A			1	1 1	1		- 1		1 1	- 1		1 1	1.	stal D	uci Branches	g Room	5-0-L	SF COM	10 12	1 1			11
A4761	LIVAC Dise Direct: 21.6 Col 0 to 12	2	2 08 Nov 12	07 Nov 12	- 1											1 1	- U'		Pine Pinet	al a		10	12	1 1			
A4751	Install Diversion Disease 21.5 Col 0 to 12	2	2 00-1404-13	07-New 13	+÷			÷+		+		<u>+</u>	÷÷-			÷+		- AND	pe indeio	200		1					÷÷÷
A4/0:	CWD T O W 2 LE C-10 + 12	2	2 U0-IN0V-13	07-Nov-13	- 1											1 1		install	mumaing ikise	rgs - 34L	o - Loi	19 10 12					
A4706	GWB 1.0.W 3-L3 - Colle to 12	2	2 00-IN09-13	12 New 12	- 1			1 1					11			1 1		GWD	Closed a Disc	-icore e	212	C-104	- 12				11
A4764	Visital Deut Dinner 2016, Col 04: 10	2	2 00-IN09-13	12-NOV-13	- 1											1 1		Instal	Lieutic Riser	- Conduct	- 3-10	- 00190	14	1 1			
A4701	Partitian Examina w/ Deer Example (Class Chafter 2   5, Cal 0 to 12)	2	3 UD-INOV-13	15-Nov-13			1	1 1					11	- 1		1 1	10	Dentil	a Duct resers	- a-La-	Care	(D) 12	-	110			11
A4756	Larmonth Reaching Wildow Planes / Close Sharts - 3-L0 - Col 9 to 12	2	2 14-1909-13 2 14 Nov 12	10 Nov 13	++			++		++			÷}-		+	++		Hori	Protect Of Longibie	- Hour	216	Colluse	- 12		~ 10		++
A4750	HVAC Pining Mains - Isolated Locations - 3-15 - Col 9 to 12	1	1 19-Nov-12	19-Nov-13	11	1	1	1	1	11		1	i i	1		11		HIVA	C Pining Main	s A Isolate	ad line	ations 1	41560		2		11
A4751	Install EMT in Links 21.6 Col 0 to 12	1	1 10 New 13	10 Nov 12	- 1													Lecto	EMT in Link	218	Callo	12		- 10 I	<b>^</b>		
A470:	Tast Dumbing - 2.15 - Cal 9 to 12		1 10-Nov-13	19-Nov-13	1	-	1	1 1				1	1			1 1		Tort	Plumbing 1.2.	B. CAR	- W 12			1 1			1 1
A477(	Install Flac Boyas (# Rooms - 3-15 - Col 9 to 12	2	2 10-Nov-13	20-Nov-12	- 1			1					1			11		Inst	Elec Boyler	al Book	- 01/2 - 2/1	5. Cab	ito to	1			11
A477'	Install Electric Panels - 2-1 5 - Col 9 to 12	2	2 10-Nov-13	20-Nov-13	+		··	+		+i		·	֠-			+ +		Inst	Elastric Pro	1.2.1	- Ce	9 12	~~~~~	+ + +			++
647RC	Pull Control Wiring to T. Stats - 3-15 - Col 9 to 12	1	1 21-Nov-13	21-Nov-13			1	1 1	1			1	11		1	1 1		Put	Control Wiring	T.C.	100	10.00	9 10 12	1 1			
A476	Pull Flac Wiring in FMT - 3-15 - Col 9 to 12	2	2 21-Nov-13	22-Nov-13	11	1	1	1 1		1	1	1	i i	1	1	11		P <sub>1</sub> -	Elec Wirinh in	PMT J2	15.0	Col 9 to h	2 12	1 1	1		11
A4775	Pull Elea Wiring @ Reamy 215 Col 0 to 12	2	2 21 Nov 12	22 Nov 12	11		1	1 1	1			1	11		1	1 1			Elso Wirinh @	Tont	21.5	Call	- 11	1			11
A4774	install Exastensing . 3.1.5. Col.0 to 12	2	2 21-Nov-13	22-Nov-13	-1 - 1	- 1	1	1 1	1		1	1	11	1	1	1 1		Linet	Erestonhing	12.14	Callo	- COI 81	14	1 1	1		11
647P4	Install Fire Protection Branch Lines - 3-15 - Col 0 to 12	2	2 25-Nov-13	28-Nov-12	++			++		+		+	÷		+	++		100	all Fire Preto	tine Brow	chile	2.2	S. Core	10 12			++
64784	Control Wiring to Values / Dampars / Emilio - 3-15 - Col 9 to 12	2	2 25-Nov-13	28-Nov-13	11	1	1	1 İ	1	11	1	1	i i	1	1	1 i		1 0-	trol Wiring to	Value	Dance		uin da i	5 Cel	0 10 12		i i
A4776	Control winning to valves / partiples / Equip * 5*C0 * Contento 12 Cont 8 To In ECUIP 21.5 Col 9 to 12	2	2 25 Nov 13	26 Nov 12	1 1	1	1.	1 1			1	1	11	1	1	1 1			R Tio In DCI	215	Collo		-10-L		10112		1 1
A4771	Reuch-In Inspections - 2-15 - Col 9 to 12	2	2 23-Nov-13	20-Nov-13	-  i	1	1	1 1	1	1	1	1	11	1	1	1 1		, Sei	a nerifi PLCO	indene . b i	151.0		, 1	1 1	1		11
Column	r 12 to 15		2 27-700-13	20-1400-13			1	1 1				1	1 1			1 1			Sec. Hispec				1	1 1			1 1
64791	Eirapronfing - 3-15 - Col 12 to 15	1	0.02-Sec.12.4	08-Sep-12.4	<b>+</b> †		···	++		+i		·-+	÷÷-		+			4.31	S- Chi 12m	÷	·-+	·++		+			++
A470	Install Top Track - 2.1.5 - Col 12 to 15		0 10 Sep 13 A	11-Sep-13A													rpi doni	H- 3-0	216.014	240.15		1 1					
AH/OL	mistair rup mata - 3-63 - 00 m2 tu na	4	u iu-bep-to A	in-sep-to A	1 1					1 1						1035	xan (lup	LI d'Cit	porcor Opril	2 po 10;							· ·

Addity Law         Column         Mail         Mail         Status	1124 - WSU - N	lew Student Residence Hall and Dining Facility			* Project Sche	dule [for	r dist] Ta	ASK filter:	All Activit	ties		Page 25 c	f 39
Dec         Dec <thdec< th=""> <thdec< th=""> <thdec< th=""></thdec<></thdec<></thdec<>	Activity ID	ctivity ID Activity Name Orig Rem Stat										2013 2014 201	5
MPI         One Inder Math Long 1915         ID         <			Dur	Dur		Jun Ju	al Aug	Sep Oct	Nov Dec	c Jan F	Mar Apr Ma	ay Jun Jul Aug Sep Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Fe	<sub>b</sub> la
Mill:         Trace Terl Mit Consequence (14): 14.0         0: Dage 11.1         Disp 12.1         "><td>A47</td><td>34 Core for MEP - 3-L5 - Col 12 to 15</td><td>1</td><td>0 11-Sep-13A</td><td>12-Sep-13A</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Core or MEP - 3-L5 - Col 12 to 15</td><td>T</td></t<>	A47	34 Core for MEP - 3-L5 - Col 12 to 15	1	0 11-Sep-13A	12-Sep-13A							Core or MEP - 3-L5 - Col 12 to 15	T
Mark Prevention and Proceedings 34.0. of 12 to 15         2         0.158-10.1         1         Encode the state from the state control of 12 to 15         1         Encode the state from the state control of 12 to 15         1 <th1< td="" th<=""><td>A47</td><td>G Frame Toilet Wall + Demising Wall - 3-L5 - Col 12 to 15</td><td>2</td><td>0 12-Sep-13A</td><td>13-Sep-13A</td><td></td><td>1</td><td></td><td></td><td></td><td>1 1 1</td><td>Frame Tollet Wall + Demising Wall - 3-L5   Col (12 to 15</td><td>1</td></th1<>	A47	G Frame Toilet Wall + Demising Wall - 3-L5 - Col 12 to 15	2	0 12-Sep-13A	13-Sep-13A		1				1 1 1	Frame Tollet Wall + Demising Wall - 3-L5   Col (12 to 15	1
MPT         Pro-Products Res. 1.40 - Cot 12: 15         2         0         40.001         10         Products Res. 1.40 - Cot 12: 15         10         Products Res. 1.41 - Cot 12: 15         10         Prod	A47	35 Frame Walls in Corridor - 3-L5 - Col 12 to 15	2	0 12-Sep-13A	13-Sep-13A							Frame Walls in Corridor - 3-L5 - Col 12 to 15	
Mill:         Institute index 1:4:0:012 bit 1:5         2         0.300013A         0.100013A         Different 3:4:0:012 bit 1:5         Different 3:4:0:012 bit 1:5           Mill:         Description 1:5:0:012 bit 1:5         2         Different 3:4:0:012 bit 1:5         Different 3:4	A47	E Fire Protection Risers & Floor Control Stations - 3-L5 - Col 12 to 15	2	0 14-Oct-13A	16-Oct-13 A	T					TTT	Fire Protection Risers & Floor Control Stations 3-L\$ - Col 12 to 15	T
Math. Der Kann, Bitsenn, S-J. Col 12: 8 1         2         0         0.000110         0.	A47	Install Fire Protection Mains - 3-L5 - Col 12 to 15	2	0 30-Oct-13 A	01-Nov-13A		1 1					Install Fire Protection Mains 3-L5 - Col 12 to 15	1
Main         Instant of Sectors 3.45041 to 16         2         0         0.100-11.0         0.100-1	A47	E Duct Mains @ Rooms - 3-L5 - Col 12 to 15	2	0 31-Oct-13A	01-Nov-13A						1 1 1	Duct Mains @ Rooms - 3-L5 - Col 12 to 15	
MATE         Head Type Res 3.4 - Cot 21: 15         2         20 Non 13         Prove 13           MATE         Instance Prove Address         2         20 Non 13         Prove 13           MATE         Instance Prove Address         2         20 Non 13         Prove 13           MATE         Instance Prove Address         2         20 Non 13         Prove 13           MATE         Version Prove Address         2         20 Non 13         Prove 13           MATE         Version Prove Address         2         20 Non 13         Prove 13           MATE         Version Prove Address         2         20 Non 13         12 Non 13         Prove 13           MATE         Version Prove Address         2         20 Non 13         12 Non 13         Prove 13           MATE         Version Prove Prove Address         2         20 Non 13         12 Non 13         12 Non 13           MATE         Version Prove Prove Address         11 Prove 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         12 Non 13         <	A47	97 Install Duct Branches @ Rooms - 3-L5 - Col 12 to 15	2	0 31-Oct-13 A	01-Nov-13A							Install Duct Branches @ Rodms - 3-L5- Col:12 td 15	
Arr2       Intel Puebog Reser. 3.4 Coll 12: 16       2       2.00 North 3.1 Coll 12: 16       3       0.00 North 3.1 Coll 12: 16       0.00 North 3.1	A47	87 HVAC Pipe Risers - 3-L5 - Col 12 to 15	2	2 06-Nov-13	07-Nov-13							HVAC Pipe Risers - 3L5 - Col 12 to 15	
Add:         Delta Columbia         2         2 delta Columbia         0 delta Columbia         1         delta Columbia	A47	36 Install Plumbing Riserss - 3-L5 - Col 12 to 15	2	2 06-Nov-13	07-Nov-13							Install Plumbing Riserss - 3-L5 - Col 12 to 15	1
Addit         Instal Event Simp Ref Conduct 3.1 0.1 to 15         2         2 89-Nov 13         Conduct 3         Status 1         Instal Event Simp Ref Conduct 3.2 0.1 to 15         Instal Event Simp Ref Conduct 3.2 0.1 to 15           Addit         Instal Event Simp Ref Conduct 3.2 0.1 to 15         2         14-Nov 13         15-Nov 13	A47	35 GWB T.O.W 3-L5 - Col 12 to 15	2	2 06-Nov-13	07-Nov-13		1 1				1 1 1	GWBT.O.W 3-L5 - Col 12 to 15	
Artic         Number Durf Biers         3.3         0.8-Nov 13         1.4-Oct 12 to 15           Artic         Number Durf Biers         3.4-Oct 12 to 15         1.4-Oct 12 to 15           Artic         Instance Stand Biers         1.4-Oct 12 to 15         1.4-Oct 12 to 15           Artic         Instance Stand Biers         1.4-Oct 12 to 15         1.4-Oct 12 to 15           Artic         Instance Stand Biers         1.4-Oct 12 to 15         1.4-Oct 12 to 15         1.4-Oct 12 to 15           Artic         Instance Stand Biers         1.4-Oct 12 to 15	A48	11 Install Electric Riser Conduit - 3-L5 - Col 12 to 15	2	2 08-Nov-13	12-Nov-13							Install Electric Riser Qonduit - 3-L5 - Col 12 to 15	
ArX:         Instit House Under 3.4.5. Col 12 to 15         1         1         1.4.4.0er3         1.4.4.4.0er3         1.4.4.4.0er3         1.4.4.4.4.4.4.0er3         1.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4.4	A47	36 Vertical Duct Risers - 3-L5 - Col 12 to 15	3	3 08-Nov-13	13-Nov-13							Vertical Duct Risers 3-L5 - Col 12 to 15	
Addl:         Particle Transmy Over Finanz / Over States - 3.4 Cold Tip 16         2         2.44 / Nover-3         3         44 / Nover-3         Finanzia         zia< th=""> <thfinanzia< th="">         F</thfinanzia<></thfinanzia<>	A47	12 Install Horizontal EMT - 3-L5 - Col 12 to 15	1	1 14-Nov-13	14-Nov-13						1	I Install Horidontal EMT - 3-L5 - Gol 12 to 15	
Ar72         Instrumt Pentry Nam. 2.4.5. Col 12 to 15         3         4.44ex-13         114-ber 13	A48	02 Partition Framing w/ Door Frames / Close Shafts - 3-L5 - Col 12 to 15	2	2 14-Nov-13	15-Nov-13	1					TTT	Partition Framing w/ Door Frankes / Close Shafts - 3-L5 - Col 12 to 15	Т
Ar72         HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         11: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         11: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         11: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         11: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         11: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         1: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         1: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         1: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         1: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1         1: HMC Pape Mars. Hother Leators. 342- Coll 12: 15         1< Ital. Hother Pape Mars. Hother Leators. 342- Coll 12: 15	A47	Horizontal Plumbing Mains - 3-L5 - Col 12 to 15	3	3 14-Nov-13	18-Nov-13							Horizontal Plumbing Mains - 3-25 - Col 12 to 15	
ArXI:         Instal BUT = 0.06 - 5.42 - 6.01 2 = 15         1         1.10 Aver-13         1.10	A47	HVAC Piping Mains - Isolated Locations - 3-L5 - Col 12 to 15	1	1 19-Nov-13	19-Nov-13							I HVAC Piping Mains Isolated Locations - 3-L5 - Col 12 to 15	
Add11       Time Punching 3-34- Col 12 to 15       1       1       1 New-13       1 New-13         Add21       Time Punching 3-34- Col 12 to 15       2       1 New-13       2 New-13       1 New-15         Add21       Time Punching 3-34- Col 12 to 15       2       1 New-13       2 New-13       1 New-15         Add21       Time Punching 3-34- Col 12 to 15       2       1 New-13       2 New-13       1 New-15         Add21       Time Punching 3-34- Col 12 to 15       2       2 New-13       1 New-15       1 New-15         Add21       Time Punching 3-34- Col 12 to 15       2       2 New-13       1 New-15       1 New-15         Add21       Time Punching 3-34- Col 12 to 15       2       2 New-13       1 New-15       1 New-15         Add21       Time Punching 3-34- Col 12 to 15       2       2 New-13       1 New-15       1 New New 15         Add31       Time Punching 3-34- Col 12 to 15       2       2 New-13       1 New New 15       1 New New 15       1 New New 15         Add31       Time Punching 3-34- Col 12 to 15       2       2 New-13       1 New New 15       1 New New 15       1 New New 15       1 New New 15       1 New New 15       1 New New 15       1 New New 15       1 New New 15       1 New New 15       1 New New 15 <td< td=""><td>A47</td><td>Install EMT in Units - 3-L5 - Col 12 to 15</td><td>1</td><td>1 19-Nov-13</td><td>19-Nov-13</td><td></td><td></td><td></td><td></td><td></td><td></td><td>I Instal EMT in Units 3-L5 - Cdi 12 to 15</td><td></td></td<>	A47	Install EMT in Units - 3-L5 - Col 12 to 15	1	1 19-Nov-13	19-Nov-13							I Instal EMT in Units 3-L5 - Cdi 12 to 15	
MAX         Instal Exc Renue, 34.5 - Cot 12 to 15         2         1 Nove 15         2         1 Nove 15           MAX         Instal Exc Renue, 34.5         Cot 12 to 15         1         1 Nove 15         1         1 Nove 15           MAX         Instal Exc Renue, 34.5         Cot 12 to 15         1         1 Nove 15         1 Nove 15         1 Nove 15           MAX         Instal Exc Renue, 34.5         Cot 12 to 15         2         2 Nove 15         1 Nove 15         1 Nove 15         1 Nove 15           MAX         Instal Exc Renue, 15         2         2 Nove 15         2 Nove 15         1	A48	11 Test Plumbing - 3-L5 - Col 12 to 15	1	1 19-Nov-13	19-Nov-13	L			L			Test Plumbing - 3-L5 - Col 12 to 15	1
AddD         Instal Electric Transis - 3.4.5 - Gol 12 to 15         2         2         1 Find all Electric Transis         1         1 <td>A48</td> <td>Install Elec Boxes @ Rooms - 3-L5 - Col 12 to 15</td> <td>2</td> <td>2 19-Nov-13</td> <td>20-Nov-13</td> <td></td> <td>1 1</td> <td></td> <td></td> <td></td> <td>1 1 1</td> <td>Instal Eleo Boxes @ Rooms - 2-L5 Col 12 to 15</td> <td>1</td>	A48	Install Elec Boxes @ Rooms - 3-L5 - Col 12 to 15	2	2 19-Nov-13	20-Nov-13		1 1				1 1 1	Instal Eleo Boxes @ Rooms - 2-L5 Col 12 to 15	1
Addi:       Addi:       Addi:       1       <	A48	07 Install Electric Panels - 3-L5 - Col 12 to 15	2	2 19-Nov-13	20-Nov-13							I Instal Electric Panels - 3-L5 - ¢ol 12 to 15	
A460       Public Wing (Borns - 3.4.2 - Cd 12 to 15       2       2       2.4 May 13       2.2 May 13       2.2 May 13       1       Public Wing (Borns - 3.4.2 - Cd 12 to 15       2       2.1 May 13       2.2 May 13       2.1 May 13       2.2 May 13       2.1 May 13       2.2 May 14       2.2 May 13       2.2 May 14       2.2 May 14       2.2 May 14       2.2 May 14       2.2 May 14       2.2 May 14       2.2 May 14       2.2 May 14       2.2 May 14	A48	Pull Control Wiring to T-Stats - 3-L5 - Col 12 to 15	1	1 21-Nov-13	21-Nov-13							I Pull Control Wiring to T-Stats - 3-L5 - Col 12 to 15	
Addit         Public Numg @ Rooms -3.4.6         Coli 12 to 15         2 <th2< th="">         2         <th2< th=""> <th2< th=""></th2<></th2<></th2<>	A48	2: Pull Elec Wiring in EMT - 3-L5 - Col 12 to 15	2	2 21-Nov-13	22-Nov-13							Pull Elec Wiring in EMT -3-L5- Col 12 to 15	
Add0:       Initial Freetopolyng - 3.4 - Colf 20: 15       2       2       2: 2: Nave 13       2: 3: Nave 13         Add0:       Initial Freetopolyng - 3.4 - Colf 20: 15       2       2: 2: Nave 13       3: Nave 13         Add1:       Initial Freetopolyng - 3.4 - Colf 20: 15       2       2: 2: Nave 13       3: Nave 13         Add1:       State Totles - 3.4.5 - Colf 20: 15       2       2: 2: Nave 13       3: Nave 13         Add1:       State Totles - 3.4.5 - Colf 20: 15       2       2: 2: Nave 13       3: Nave 13         Add1:       State Totles - 3.4.5 - Colf 20: 15       2       2: 2: Nave 13       3: Nave 13         Add1:       State Totles - 3.4.5 - Colf 20: 15       2       2: 2: Nave 13       3: Nave 13         Add2:       State Totles - 3.4.5 - Colf 20: 15       1: 0: 1: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0: 0:	A48	DE Pull Elec Wiring @ Rooms - 3-L5 - Col 12 to 15	2	2 21-Nov-13	22-Nov-13				L		444	I Pull Elec Wiring @ Rooms - 3-L5 - Col 12 to 15	<u> </u>
Articl         Instal File Protection Branch Lines - 3.43 - Od 12 to 15         2         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.43 - Od 12 to 15         2         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.43 - Od 12 to 15         2         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.43 - Od 12 to 15         2         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.43 - Od 12 to 15         2         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.43 - Od 12 to 15         1         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.45         6         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.4 Nove 13         6         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.4 Nove 13         6         2.2 Move 13         2.4 Nove 13           Articl         Instal File Protection Branch Lines - 3.4 Nove 13         1         4.4 Nove 14         1           Articl         Instal File Protection Branch Lines - 3.4 Nove 14         1         1 <td< td=""><td>A48</td><td>16 install Firestopping - 3-L5 - Col 12 to 15</td><td>2</td><td>2 21-Nov-13</td><td>22-Nov-13</td><td></td><td>1 1</td><td></td><td></td><td></td><td>1 1 1</td><td>instal Firestopping 3-L\$ - Col 12 to 15</td><td></td></td<>	A48	16 install Firestopping - 3-L5 - Col 12 to 15	2	2 21-Nov-13	22-Nov-13		1 1				1 1 1	instal Firestopping 3-L\$ - Col 12 to 15	
MADIC         Control Winnig Number Dampert / Equity - 54.5 - Col 12 to 15         2         2.5 Nov-13         End of the Full - State - Col 12 to 15         Equity - 54.5 - Col 12 to 16         Equity - 54.5 - Col 12 to	A47	16 Install Fire Protection Branch Lines - 3-L5 - Col 12 to 15	2	2 25-Nov-13	26-Nov-13							Install Fire Protection Branch Lines - 3-US - Col 12 to 15	
A451       Get & The Fr Clus - 2.1 - Col 12 to 15       2       2.2 Protect 3       2.4 Protect 3       Protect 3	A48	Control Wiring to Valves / Dampers / Equip - 3-L5 - Col 12 to 15	2	2 25-Nov-13	26-Nov-13							Control Wining to Valves/ Dampers / Equip -13-L5- Col 12 to 15	
AHSI:         Rough-Interpretions - 5.4.5 Coll 2 tol 15         2         2 2 7 Alor-13         School 13           Bedroman         Bedroman         Reigh-Interpretions - 5.4.5 Coll 2 tol 15         Reigh-Interpretions - 5.4.5 Coll 2 tol 15           ATTR:         Board Walk & Cellings - 5.1.5         8         8 2 Tober 13         Board Walk & Cellings - 5.1.5         Image: School 10           ATTR:         Board Walk & Cellings - 5.1.5         8         2 Tober 14         Tober 14         Tober 14           ATTR:         The Walk & Cellings - 5.1.5         8         6 Doal Valks         Cellings Tober 14         Tober 14 <thtober 14<="" th="">         Tober</thtober>	A48	IC Set & Tie-In FCUs - 3-L5 - Col 12 to 15	2	2 25-Nov-13	26-Nov-13		1 1				1 1 1	Set & Tie-In FCUs - 3-L5 - Cql 12 to 15	1
Bondman Asse         Bond Wash & Cellings-3-L0         Bond Wash & Cellings-3-L5           AT72         They Wash & Cellings-3-L5         6         5         27-Dee-13         03-Jam-14           AT72         They Wash & Cellings-3-L5         6         5         27-Dee-13         03-Jam-14           AT72         They Wash & Cellings-3-L5         6         5         27-Dee-13         03-Jam-14           AT74         Time Dark Mash & Cellings-3-L5         6         5         27-Dee-13         03-Jam-14           AT74         Time Dark Mash & Cellings-3-L5         6         5         27-Dee-13         03-Jam-14           AT74         Time Dark Mash & Cellings-3-L5         6         10         5-Dee-14         04-Fei-14           AT75         Finich Mash Acade         2         05-Fei-14         04-Fei-14         04-Fei-14           AT75         Finich Part-3-L5         0         9         15-Fei-14         04-Fei-14           AT74         Intell Doors A Hardware-3-L5         6         60-Dee-13         15-Dee-13           AT74         Intell Porting -3-L5         6         60-Dee-13         15-Dee-13           AT74         Intell Porting -3-L5         6         60-Dee-13         15-Dee-13           AT74	A48	I2 Rough-In Inspections - 3-L5 - Col 12 to 15	2	2 27-Nov-13	29-Nov-13				Ļļ			Rough-In Inspections - 8-L5   Col 12 to 15	4
A174:       Board Walk Cellings-3-1.5       6       8 2 robest 3       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2 robest 4       3 2	Bedr	ooms / Common Areas									1 1 1		
A122:       Dip Valid A Unity 2-12:       0       2 / 2 / 048 / 3       0 - 2 / 048 / 3<	A1/-	R Board Walls & Cellings- 3-Lo	0	5 19-Dec-13	20-Dec-13		1 1				1 1 1	Board Walls & Celings- p-Lo	
A12:       Unit as A Lenge 2-63       0 <td>A1/3</td> <td>to Tape wais &amp; Ceings- 3-Lo</td> <td>0</td> <td>5 27-Dec-13</td> <td>03-Jan-14</td> <td></td> <td>1</td> <td></td> <td></td> <td>11</td> <td>1 1 1</td> <td>Tape wais &amp; Celings- 3-Lo</td> <td>1</td>	A1/3	to Tape wais & Ceings- 3-Lo	0	5 27-Dec-13	03-Jan-14		1			11	1 1 1	Tape wais & Celings- 3-Lo	1
Array     Gen.Accustory. Longing 5:2.5     1     2     1 </td <td>A1/-</td> <td>H Prime Paint Walls &amp; Cellings- 3-L5</td> <td>0</td> <td>5 U0-Jan-14</td> <td>10-Jan-14</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>PrimeiPans Walls &amp; Gelings- 3-E5</td> <td></td>	A1/-	H Prime Paint Walls & Cellings- 3-L5	0	5 U0-Jan-14	10-Jan-14							PrimeiPans Walls & Gelings- 3-E5	
A125:       Imit all Explore 3. Ibid Uptrog 9-20       0       10 <td< td=""><td>A1/3</td><td>Ghid Adoustical Cellings in Cornoors- 3-Lo</td><td>45</td><td>2 13-Jan-14</td><td>14-Jan-14</td><td>++</td><td>· · <del>·</del> · · · · · · · · · · · · · · · ·</td><td></td><td>÷+</td><td></td><td>+++</td><td>The Old MCD Provide Longer in Longer Provide Longer</td><td>-+-</td></td<>	A1/3	Ghid Adoustical Cellings in Cornoors- 3-Lo	45	2 13-Jan-14	14-Jan-14	++	· · <del>·</del> · · · · · · · · · · · · · · · ·		÷+		+++	The Old MCD Provide Longer in Longer Provide Longer	-+-
Arrist         Dimit Pail Arrist         Dimi	A1/-	K Thm Out MEP's & Install Lighting- 3-L5	10	10 10-Jan-14	04-Feb-14		1.1					Tim Out wars a instal cigrung-to-co	
A172       A172	A1/	C Install FE / Cabinets- 3-Lo	1	1 UD-Feb-14	00-Feb-14							Install FE / Gabines- a-Lo	
ATT2         Install Decret 2-15         0         0.574b-14         0	A1/3	C Prisi Parte 3-L3	2	2 00-Feb-14	00-Feb-14						1 1 1	ACT TA: 24.5	
Ariel     Mail     Descrit     Descrit     Descrit       Ariel     Mail     Descrit     Descrit     Descrit       Ariel     Mail     Descrit     Descrit     Descrit       Ariel     Mail     Descrit     Descrit     Descrit       Ariel     Mail     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit     Descrit     Descrit     Descrit       Ariel     Descrit <t< td=""><td>A17</td><td>C lastel Electric 215</td><td></td><td>2 00-Feb-14</td><td>28 Eab 14</td><td></td><td>1 1</td><td></td><td></td><td></td><td>       </td><td></td><td></td></t<>	A17	C lastel Electric 215		2 00-Feb-14	28 Eab 14		1 1						
APTX Image State Control         1         2.00-0-10         0.00-00-13           APTX Image State Control         5         0.00-00-13         0.00-00-13         0.00-00-13           APTX Image State Control         5         0.00-00-13         10-00-10         1	A17	1/ Install Proof 8 Hardware 216	8	4 27 Eeb 14	20-Feb-14	+			÷;		+++	Index Proving- 3-60	÷-
AT72         Hung Dynamig Buthrome-3-1.5         6         6         December 3-1.5         6         6         December 3-1.5         8         Hung Dynamig Buthrome-3-1.5         1         1         Hung Dynamig Buthrome-3-1.5         1 <td>Posts</td> <td>e instal boots a Hardware ofco</td> <td></td> <td>4 2/14 60-14</td> <td>Devivial * 14</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Install Doorse Halloware 363</td> <td></td>	Posts	e instal boots a Hardware ofco		4 2/14 60-14	Devivial * 14							Install Doorse Halloware 363	
AddT         Tape & Sand Dywaid (Bahrtomer > 4.5)         6         6 00-Deci 1         10-Deci 1         10-Deci 1           AddT         Tape & Sand Dywaid (Bahrtomer > 4.5)         5         6 00-Deci 1         10-Deci 1         10-Deci 1           AddT         Tape & Sand Dywaid (Bahrtomer > 4.5)         5         60-Deci 1         10-Deci 1         10-Deci 1           AddT         Instal Center > 1.5         5         61-Duer 1         17-Deci 1         10-Deci 1           AddT         Instal Center > 1.5         2         20-Duer 14         27-Duer 14         10-Deci 1           AddT         Instal Center > 1.5         6         51-Duer 14         27-Duer 14         10-Deci 1           AddT         Instal Center > 1.5         6         52-Duer 14         27-Duer 14         10-Deci 1           AddT         Instal Center > 1.5         6         52-Duer 14         27-Duer 14         10-Deci 1           AddT         Instal Tole Accessories 3.1.5         3         31-Duer 14         0-Deci 1         10-Deci 1           AddT         Instal Tole Accessories 3.1.5         2         0-Deci 1         0-Deci 1         10-Deci 1         10-Deci 1           AddT         Instal Tole Accessories 3.1.5         2         0-Deci 1         0-Deci 1	A17	V Hang Drwall @ Bathrooms- 3-15	5	5 02-Dec-13	08-Dec-13		1				1 1 1	Hann Drawall @ Rathmome-3-18	
AT72         Press Part Wals & Callage - 5.1         Image: Callage - 5.1         Image: Part Part Wals & Callage - 5.1           AT73         Press Part Wals & Callage - 5.1         Image: Part Part Part Part Part Part Part Part	A24	7 Tana & Sand Dowall @ Bathrooms, 2.1.5	5	5 09-Dec-13	12-Dec-12		1 1				1 1 1	Tana & Sahri Driavall (8) Bathrohme, 2,15	
A173//instal Ceremic / Waterpooling Membrane-3-L5         6         6         13-Jun-14         17-Jun-14           A173//instal Ceremic / Waterpooling Membrane-3-L5         6         6         13-Jun-14         11-Jun-14           A173//instal Ceremic / Waterpooling Membrane-3-L5         2         2 2-Jun-14         21-Jun-14         1           A173//instal Ceremic / Waterpooling Membrane-3-L5         4         2 2-Jun-14         21-Jun-14         1           A173//instal Ceremic / Waterpooling Membrane-3-L5         4         2 2-Jun-14         21-Jun-14         1           A173//instal Ceremic / Waterpooling Membrane-3-L5         3         5         2-Jun-14         31-Jun-14         1 </td <td>A17</td> <td>C Prime Paint Walk &amp; Calinne, 3-15</td> <td>5</td> <td>5 08-lan-14</td> <td>10- Jan-14</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>Prime/Paint/Walk &amp; Calinda, 3.15</td> <td></td>	A17	C Prime Paint Walk & Calinne, 3-15	5	5 08-lan-14	10- Jan-14							Prime/Paint/Walk & Calinda, 3.15	
AT73         Instal Contents-3-16         2         2.2         2.2         2.4         2.4         2.4         2.4         2.4         3.4         1         Instal Contents-3-16         1	A17	M Install Ceramin / Waterproofing Membrane: 3-15	5	5 13-Jan-14	17-Jan-14	++			++		+++	Install Ceramin / Waterprinting Meritrane, 345	+-
AT32         Instal Shower Units         4.4         4.25 Jan 14         Iteration         <	A17	K Instal Counters, 2,15	2	2 20- Jan-14	21- Jan-14							Lingtal Counters, 3,15	
AT72         Tim-Cute Pumbring-3-L6         5         5 ± 4-lar-14         30-lar-14         IIII Time-Cute Pumbring-3-L6         IIIII Time-Cute Pumbring-3-L6         IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	A17	V Install Shower Units 3-15	4	4 20-Jan-14	23-Jan-14		1 1				1 1 1	Install Shower Units, 3,15	
A128         Install Tolet Accessores 34.5         3         3         3.1.Jan 14         04-Feb-14         It install Tolet Accessores 34.5         It install Tolet Accessores 34.5           A127         Prink Park 34.5         2         2.0.Feb-14         0.4.Feb-14         It install Tolet Accessores 34.5         It install T	A17	E Trim-Out Plumbing- 3-L5	5	5 24-Jan-14	30-Jan-14	1 1	1				1 1 1	R Trim-Out Plumbine- 3-15	1
AT21         Finds Pairs 3-L6         P pairs Pairs 3-L6         P pairs Pairs 3-L6           GD1 priors         2         2.05 Feb-14         0.05 Feb-14         P pairs Pairs 3-L6           GD1 priors         1         0.05 Feb-14         0.05 Feb-14         P pairs Pairs 3-L6           GD1 priors         1         0.05 Sep-13A         1         D core of MEP - 3-L6 - Col 9 to 12           ABSE         Core of MEP - 3-L6         Col 9 to 12         0         0.15 Core 13A         1           ABSE         Franz Wate         Col 9 to 12         0         0.15 Core 13A         1         P pairs Pairs 3-L6           ABSE         Franz Wate         Col 9 to 12         0         0.15 Core 13A         1         P pairs Pairs 3-L6         Col 9 to 12           ABSE         Franz Wate         Col 9 to 12         0         0.2 Core 13A         1         P pairs Pairs 3-L6         Col 9 to 12           ABSE         Franz Wate         Col 9 to 12         0         0.2 Core 13A         1         P pairs Pairs 3-L6         Col 9 to 12           ABSE         Franz Wate         Col 9 to 12         0         0.2 Core 13A         1         P pairs Pairs 3-L6         Col 9 to 12         1	A17	8 Install Tollet Accessories- 3-L5	3	3 31-Jan-14	04-Feb-14	1					1	Instal Tolet Accessories- 3-L5	
Other Network         Other Ne	A17	7 Finish Paint- 3-L5	2	2 05-Feb-14	08-Feb-14	1			r - †		1-1-1-	I Finish Paint 3-L5	Ť
Collements 16 12         1         0 05-Sep-13A           Addition Core for MEP - 3L6 - Col 9 to 12         0         0 0-Sep-13A           Addition Core for MEP - 3L6 - Col 9 to 12         0         0 0-Sep-13A           Addition Core for MEP - 3L6 - Col 9 to 12         0         0 0-Sep-13A           Addition Core for MEP - 3L6 - Col 9 to 12         0         0 0-Sep-13A           Addition Core for -3-86 - Col 9 to 12         0         0 0-Sep-13A           Addition Core for -3-86 - Col 9 to 12         0         0 0-Sep-13A           Addition Core for -3-86 - Col 9 to 12         0         0 0-Sep-13A           Addition Core for -3-86 - Col 9 to 12         0         0-Sep-13A           Addition Core for -3-86 - Col 9 to 12         0         0-Sep-13A           Addition Core for -3-86 - Col 9 to 12         0         0-Sep-13A           Addition Core for -3-86 - Col 9 to 12         0         Sep - Core for 3A - Col 9 to 12         P-Sep - Core for 3A - Col 9 to 12         Core 15A - Col 9 to 12         Sep - Cor	6th FI	por	1 -								111		
Ad88         Core for MBP - 3,4,6 - Col 9 to 12         1         0 (26 sq-13.4)         0 (26 sq-1	Colu	mns 9 to 12					1 1			1 1	1 1 1		
AddB         Final Top Trade - 34.0. Col 0 to 12         0         0 19-0a-13.A         1 <th1< th="">         1         <th1< th=""> <th1< th=""> <th1< th="">         1<!--</td--><td>A48</td><td>Core for MEP - 3-L6 - Col 9 to 12</td><td>1</td><td>0 05-Sep-13A</td><td>09-Sep-13A</td><td>1</td><td></td><td></td><td></td><td></td><td></td><td>Core for MEP - 3-L6 - Col 9 to 12</td><td></td></th1<></th1<></th1<></th1<>	A48	Core for MEP - 3-L6 - Col 9 to 12	1	0 05-Sep-13A	09-Sep-13A	1						Core for MEP - 3-L6 - Col 9 to 12	
A4801         Frame Tolet Wal + Demising Wal - 34.6 - Col 9 to 12         0         0         21-Oct-13.A         22-Oct-13.A         1         Frame Tolet Wal + Demising Wal - 34.6 - Col 9 to 12         0         0         21-Oct-13.A         22-Oct-13.A         1         Frame Wal + Demising Wal - 34.6 - Col 9 to 12         0         0         21-Oct-13.A         22-Oct-13.A         1         Frame Wal + Demising Wal - 34.6 - Col 9 to 12         0         0         21-Oct-13.A         22-Oct-13.A         1         Frame Wal + Demising Wal - 34.6 - Col 9 to 12         0         22-Oct-13.A         23-Oct-13.A         1         Frame Wal + Demising Wal - 34.6 - Col 9 to 12         2         0         22-Oct-13.A         23-Oct-13.A         1         Frame Wal + Demising Wal - 34.6 - Col 9 to 12         2         0         22-Oct-13.A         23-Oct-13.A         1         Frame Wal + Demising Wal - 34.6 - Col 9 to 12         2         0         22-Oct-13.A         1         Frame Wal + Demising Wal - 34.6 - Col 9 to 12         3         2         2 <t< td=""><td>A48</td><td>E Install Top Track - 3-L6 - Col 9 to 12</td><td>0</td><td>0 18-Oct-13A</td><td>21-Oct-13A</td><td>1</td><td></td><td></td><td></td><td></td><td>111</td><td>Instal Top Track - 3-L6 - Col 9/to 12</td><td></td></t<>	A48	E Install Top Track - 3-L6 - Col 9 to 12	0	0 18-Oct-13A	21-Oct-13A	1					111	Instal Top Track - 3-L6 - Col 9/to 12	
ABSE Fram Walks in Combor - 5.45 - Col 9 b 12 2 0 22-02-13.A 22-00-13.A 23-03-13.A 44582 Fram Walks in Combor - 5.45 - Col 9 b 12 2 0 22-02-13.A 44582 Fram Walks in Combor - 5.45 - Col 9 b 12 2 0 20-02-13.A 44582 Fram Walks in Combor - 5.45 - Col 9	A48	Frame Toilet Wall + Demising Wall - 3-L6 - Col 9 to 12	0	0 21-Oct-13A	22-Oct-13 A	1					+++	Frame Tollet Wall + Demising Wall - 3-L6 - Col 9 to 12	÷
A488C Fire Protection Risers & Floor Control Stations - 3-L6 - Col 9 to 12 2 0 22-Oct-13 A 23-Oct-13 A	A48	E Frame Walls in Corridor - 3-L6 - Col 9 to 12	2	0 21-Oct-13A	22-Oct-13 A							Frame Walls in Corridor - 3-L8 - Cdl 9 to 12	
	A48	K Fire Protection Risers & Floor Control Stations - 3-L6 - Col 9 to 12	2	0 22-Oct-13 A	23-Oct-13 A							Fire Protection Risers & Floor Control Stations - 3-68 - Col 9 to 12	

24 - WSU - Nev	v Student Residence Hall and Dining Facility		* Project Sche	edule [for dist]	TASK filter: A	Activities	5			Page 26 of 3
tivity ID	Activity Name	Orig Rem Start	Finish	2012				2013		2014 2015
		Dur Dur		Jun Jul Au	ug Sep Oct N	ov Dec J	Jan F Mar Apr M	ay Jun Jul	Aug Sep C	Dct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb <sup>l</sup>
A4900	Duct Mains @ Rooms - 3-L6 - Col 9 to 12	2 2 04-Nov-13A	12-Nov-13							Duct Mains @ Rooms - 3-16 - Col 9 to 12
A4901	Install Fire Protection Mains - 3-L6 - Col 9 to 12	2 0 04-Nov-13 A	19-Nov-13	. i i		. i l.		. i . i		Instal Fire Protection Mains - 3-L6 - Col 9 to 12
A4892	HVAC Pipe Risers - 3-L6 - Col 9 to 12	2 2 08-Nov-13	07-Nov-13							HVAC Pipe Risers - 3 L6 - Col 9 to 12
A4893	Install Plumbing Riserss - 3-L6 - Col 9 to 12	2 2 08-Nov-13	07-Nov-13		111					Install Flumbing Risers - 3 L6 - Col 9 to 12
A4898	GWB T.O.W 3-L6 - Col 9 to 12	2 2 06-Nov-13	07-Nov-13							GWB TO.W 3-L6 - Col \$ to 12
A4906	Install Electric Riser Conduit - 3-L6 - Col 9 to 12	2 2 08-Nov-13	12-Nov-13					1 1		Install Electric Riser Conduit - 34L6 - Col 9 to 12
A4894	Vertical Duct Risers - 3-L6 - Col 9 to 12	3 3 08-Nov-13	13-Nov-13							Vertical Duct Risers - 3-L6 - Cd 9 to 12
A4897	Install Horizontal EMT - 3-L6 - Col 9 to 12	1 1 14-Nov-13	14-Nov-13							Install Horidontal EMT - 3-L6 - Col 9 to 12
A4907	Partition Framing w/ Door Frames / Close Shafts - 3-L6 - Col 9 to 12	2 2 14-Nov-13	15-Nov-13							Partition Framing w/ Door Frances / Close Sharks - 3-L6 - Col 9 to 12
A4896	Horizontal Plumbing Mains - 3-L6 - Col 9 to 12	3 3 14-Nov-13	18-Nov-13	1 1	1 1 1			1 1		Horizontal Plumbing Mains - 3-L6 - Col 9 to 12
A4899	HVAC Piping Mains - Isolated Locations - 3-L6 - Col 9 to 12	1 1 19-Nov-13	19-Nov-13							HVAC Piping Mains - Isolated Locations - 3-L6 - Cot 9 to 12
A4903	Install EMT in Units - 3-L6 - Col 9 to 12	1 1 19-Nov-13	19-Nov-13							Instal EMT in Units 3-L0 - Col 9 to 12
A4916	Test Plumbing - 3-L6 - Col 9 to 12	1 1 19-Nov-13	19-Nov-13							I Test Plumbing - 3-L6 - Cdl 9 to 12
A4910	Install Elec Boxes @ Rooms - 3-L6 - Col 9 to 12	2 2 19-Nov-13	20-Nov-13							Instal Elec Boxes @ Rooms - 2-L6 Col 9 to 12
A4912	Install Electric Panels - 3-L6 - Col 9 to 12	2 2 19-Nov-13	20-Nov-13					1 1		Instal Electric Panels - 36 - Çol 9 to 12
A4909	Pull Control Wiring to T-Stats - 3-L6 - Col 9 to 12	1 1 21-Nov-13	21-Nov-13							I Pull Control Wiring to T-Stats 3-L6 - Col 9 to 12
A4902	Install Duct Branches @ Rooms - 3-L6 - Col 9 to 12	2 2 21-Nov-13	22-Nov-13							I : Install Duct Branches @ Rooms - 3-L6 - Col 9 to 12
A4908	Pull Elec Wiring in EMT - 3-L6 - Col 9 to 12	2 2 21-Nov-13	22-Nov-13							Pull Elec Wiring in BMT -3-L6 - Col 9 to 12
A4913	Pull Elec Wiring @ Rooms - 3-L6 - Col 9 to 12	2 2 21-Nov-13	22-Nov-13							Pull Elec Wiring @ Rooms - 3-L6 - Col 9 to 12
A4914	install Firestopping - 3-L6 - Col 9 to 12	2 2 21-Nov-13	22-Nov-13					1 1		I instal Firestopping 3-L6 - Col 9 to 12
A4904	Install Fire Protection Branch Lines - 3-L6 - Col 9 to 12	2 2 25-Nov-13	26-Nov-13	1 1				1 1		I Install Fire Protection Branch Lines - 3-L6 - Col 9 to 12
A4905	Control Wiring to Valves / Dampers / Equip - 3-L6 - Col 9 to 12	2 2 25-Nov-13	26-Nov-13							Control Wiring to Valves/ Dampers / Equip - 3-L6 - Col 9 to 12
A4915	Set & Tie-In FCUs - 3-L6 - Col 9 to 12	2 2 25-Nov-13	26-Nov-13							I Set & Tie-In FCUs - 3-L6 - Col 9 to 12
A4917	Rough-In Inspections - 3-L6 - Col 9 to 12	2 2 27-Nov-13	29-Nov-13		1 1 1					Rough-In Inspections - 2-L6 Col 9 to 12
Column	is 12 to 15							1 1		
A4924	Core for MEP - 3-L6 - Col 12 to 15	1 0 05-Sep-13A	09-Sep-13A						Cor	re for MEP - 3-L6 - Col 12 to 15
A4921	Fireproofing - 3-L6 - Col 12 to 15	1 0 15-Oct-13A	16-Oct-13 A	1						Fireptoofing - 3-1.6 - Col 12 to 15
A4920	Install Top Track - 3-L6 - Col 12 to 15	2 0 18-Oct-13A	21-Oct-13 A							Install Top Track - 3-L6 - Col 12 to 15
A4921	Frame Toilet Wall + Demising Wall - 3-L6 - Col 12 to 15	2 0 22-Oct-13A	23-Oct-13 A		1 1 1			1 1		Frame Tollet Wall + Demising Wall 3-L6 - Col 12 to 15
A4923	Frame Walls in Corridor - 3-L6 - Col 12 to 15	2 0 23-Oct-13 A	24-Oct-13 A	1 1	1 1 1			1 1		I Frame Walls in Conridor - 3-LB - Cel 12 to 15
A4925	Fire Protection Risers & Floor Control Stations - 3-L6 - Col 12 to 15	2 0 28-Oct-13 A	29-Oct-13 A					1 1		Fire Protection Risers & Floor Control Stations - 3-L6 - Col 12 to 15
A4927	HVAC Pipe Risers - 3-L6 - Col 12 to 15	2 2 08-Nov-13	07-Nov-13							HVAC Pipe Risers - 34L6 - Col 12 to 15
A4928	Install Plumbing Riserss - 3-L6 - Col 12 to 15	2 2 06-Nov-13	07-Nov-13	. i i	1 1 1	- i	1 1 1 1	1 1	111	Install Flumbing Riserss - 3-L6 - Col 12 to 15
A4933	GWB T.O.W 3-L6 - Col 12 to 15	2 2 08-Nov-13	07-Nov-13							GWB T.O.W 3-L6 - Col 12 to 15
A4935	Duct Mains @ Rooms - 3-L6 - Col 12 to 15	2 2 08-Nov-13	12-Nov-13		111	1		11		Buct Mainsi@ Rooms - 3-66 - Gol 12 to 15
A4941	Install Electric Riser Conduit - 3-L6 - Col 12 to 15	2 2 08-Nov-13	12-Nov-13							Install Electric Riser Conduit - 3-1.6 - Col 12 to 15
A4926	Vertical Duct Risers - 3-L6 - Col 12 to 15	3 3 08-Nov-13	13-Nov-13	I						Vertical Dugt Risers 43-L6 - Cgl 12 to 15
A4932	Install Horizontal EMT - 3-L6 - Col 12 to 15	1 1 14-Nov-13	14-Nov-13					1 1		I Install Horidontal EMT - 3-L6 - Col 12 to 15
A4942	Partition Framing w/ Door Frames / Close Shafts - 3-L6 - Col 12 to 15	2 2 14-Nov-13	15-Nov-13							I Partition Friaming w/ Door Frantes / Close Shafts - 3-L6 - Col 12 to 15
A4931	Horizontal Plumbing Mains - 3-L6 - Col 12 to 15	3 3 14-Nov-13	18-Nov-13							Horizontal Plumbing Mains - 3-1.6 - Col 12 to 15
A4934	HVAC Piping Mains - Isolated Locations - 3-L6 - Col 12 to 15	1 1 19-Nov-13	19-Nov-13							HVAC Piping Mains - Isolated Locations - 3-L6 - Col 12 to 15
A4938	Install EMT in Units - 3-L6 - Col 12 to 15	1 1 19-Nov-13	19-Nov-13	1					LL	I Instal EMT in Units 3-L6 - Cdl 12 to 15
A4951	Test Plumbing - 3-L6 - Col 12 to 15	1 1 19-Nov-13	19-Nov-13		1 1 1			1 1		Test Plumbing - 3-L6 - Cdi 12 to 15
A4936	Install Fire Protection Mains - 3-L6 - Col 12 to 15	2 2 19-Nov-13	20-Nov-13							Install Fire Protection Mains - 3-L6 - Col 12 to 15
A4948	Install Elec Boxes @ Rooms - 3-L6 - Col 12 to 15	2 2 19-Nov-13	20-Nov-13							I Install Elect Boxes @ Rooms - 8-L6 - Col 12 to 15
A4947	Install Electric Panels - 3-L6 - Col 12 to 15	2 2 19-Nov-13	20-Nov-13			- E				I Install Electric Panels - 3-L6 - Col 12 to 15
A4944	Pull Control Wining to 1-Stats - 3-L6 - Col 12 to 15	1 1 21-Nov-13	21-Nov-13	++						Pull Control Wiring to T-Stats   3-L6 - Col 12 to 15
A4937	Install Duct Branches @ Rooms - 3-L6 - Col 12 to 15	2 2 21-Nov-13	22-Nov-13	-						I Install Duét Branches @ Roonis - 3-L6 - Col 12 to 15
A4943	Pull Elec Wiring in EMT - 3-L6 - Col 12 to 15	2 2 21-Nov-13	22-Nov-13	-						Pull Elec Wiring in EMT -3-L6- Col 12 to 15
A4948	Pull Elec Wiring @ Rooms - 3-L6 - Col 12 to 15	2 2 21-Nov-13	22-Nov-13	-						Pull Elec Wiring @ Rooms - 3-L6 - Col 12 to 15
A4949	install Firestopping - 3-L6 - Col 12 to 15	2 2 21-Nov-13	22-Nov-13		1	11		1 1		I install Firestopping   3-L8 - Cd 12 to 15
A4938	Install Fire Protection Branch Lines - 3-L6 - Col 12 to 15	2 2 25-Nov-13	26-Nov-13	1						E Install Fire Protection Branch Lines - 3-U6 - Col 12:to 15
A494(	Control Wiring to Valves / Dampers / Equip - 3-L6 - Col 12 to 15	2 2 25-Nov-13	26-Nov-13	_						Control Wiring to Valves/ Dampers / Equip - 3-L6 - Col 12 to 15
A4950	Set & Tie-In FCUs - 3-L6 - Col 12 to 15	2 2 25-Nov-13	26-Nov-13							F Set & Tie-In FCUs - 3-L8 - Cái 12 to 15
A4952	Rough-In Inspections - 3-L6 - Col 12 to 15	2 2 27-Nov-13	29-Nov-13							Rough-In Inspections - 8-L6 - Col 12 to 15
Bedroo	ms / Common Areas					- E - E		1.1		

1124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	edule (for dist) TASK filter: All Activities Page 21	7 of 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012 2013 2014 20	015
		Dur	Dur		Juni Juli Aun Sen Oct Nov Des Jan F Mar Ann May Juni Juli Aun Sen Oct Nov Des Jan F Mar Ann May Juni Juli Aun Sen Oct Nov Des Jan	Feb la
A1785	Board Walls & Ceilings, 3-I 6	5	5 02-Jan-14	08- Jan-14	Bard Walk & Chinese 31/8	
A1707	Tane Walk & Cellings - 3-1 6	5	5 09- Jan-14	15- Jan-14	Tana Wald & Chlings 318	÷÷
A1796	Prima Paint Wale & Calings - 2-1 6	5	5 18 Jan 14	22. Jan. 14	Print Polity S California 218	
A1705	Grid Amustical Calings in Corridors, 3-1 8	2	2 23- Jan-14	24- Jan- 14	Grid Amsterial Califors in Contribute 3-18	
A1790	Trim Out MERs & Install Liphting, 2,18	15	15, 27, Jan. 14	14-Eab-14		
A1705	Install EE / Cabinate 218	10	1 10 Eab 14	10 Eab 14		
A176	Einich Paint, 2.1.8	2	2 19-Eeb-14	10-Feb-14	1 I think Dates 248	tt-
A1704	ACT Tia. 3.1.8	2	2 18-Feb-14	10-Feb-14	I ACTITUDE A CONTRACTOR AND A	11
A1700	Instal Election 2.1.6	-	0.27-Eeb-14	11-Mar-14		
A1700	Install Planer & Hardware 218	4	4 12 Mar 14	17 Mar 14	- In hereit Darkers Burgham (218)	1
Rather	instal boots a Hardware o co	-	4 12-mai-14	17-14-04	· instancious a national eror to	
A1804	Hang Dowall @ Bathrooms, 3-L6	5	5 02-Dec-13	08-Dec-13	Hann Drawill @ Bathbound, 3.1 B	i+-
A2475	Tane & Sand Drawal @ Bathrooms, 3-1 6	5	5 09-Dec-13	13-Dec-13	Tane & Sald Drive 1/2 Batterohme, 3,1 6	1
A1800	Prima Paint Walk & Calinos, 3-1 6	5	5 18-Jan-14	22- Jan-14	Prine Part White Call or 314	( I
A1800	Install Ceramic / Waterpronfing Membrane, 3-1 6	5	5 23-Jan-14	20- Jan- 14	B Indeal Coramic / Waterprovide Mathematica	
A1802	Install Counters- 3-1.6	2	2 30-Jan-14	31-Jan-14	I Install Chambers State	11
A1801	Install Shower Units, 3,1 8	4	4 30-Jan-14	04-Feb-14	Install Shower Lifes 21.6	tt-
A1805	Trim-Out Plumbing- 3-1 ft	5	5 05-Eeb-14	11-Feb-14	1 III Trimbu Planka	11
A1904	Install Talet Assertation, 2.1.8	2	2 12 Eab 14	14.Eob.14	- International Control Table 2018	
A1804	Finish Paint, 2.1.8	2	2 18-Feb-14	10-Feb-14	I liste base 210	11
## SECTION	N 2 *** [Center Bar]	-	2 101 00114	101 00-14		1 1
Structure	/ Shall				┛╌╪╴┾╾┾╼┾╌┾╌┾╌┾╴┾╍┼╍┾╶┾╴┾╸┾╍┾┈┾╴┾╸┼╸┼╸┼╸┼╴┼	tt-
Founda	tions			-		1 1
A22520	Expande for Epotings & Epundations / Hauk-Section 2	10	0 16-Apr-13A	01-May-13.A	Evaluate for Footbos & Foundations / Hauk Section 2	11
A19750	EREP Elevator Pts - Section 2	10	0 01-May-13A	13-May-13.A	FREPPlevator Pts - Section 2	1 1
A19770	EREP Footings - Section 2	4	0.03-May-13.A	17-May-13.A	EREP Excellent	1 1
A19790	EREP Foundations - Section 2	15	0 17-May-13A	29-May-13.A	EREP Foundations - Section 2	
A16400	Waterproof - Section 2	10	0 20-May-13 A	31-Jul-13A	Waterproof - Section 2	
A10800	EREP Interior Enotion - Section 2	1	0.20-May-13.4	20-May-13.4	EREP Interior Engine - Sector 2	1 1
A26020	Backfil Exterior - Section 2	0	0.24-Jun-13A	31-Jul-13A	Basiefil Futurier - Section 2	1 1
A16330	Backfil / Compact / Underslab MEPs - Section 2	5	7 15-Oct-13A	15-Nov-13	Backel/ Compact / Undershab MEPs. Section 2	1 1
A19760	Waterproof Elevator Pits - Section 2	10	10 18-Nov-13	02-Dec-13	Waterotoof Elevator Pts - Section 2	tt-
Floors	-3 [Seg 13 & 14]					11
A19810	Erect Steel - Section 2-L1-3 [Seg 13]	3	0 15-Jul-13 A	16-Jul-13A	Erect Steel-Section 2-L1-8 [Seb 13]	11
A22270	Erect Steel - Section 2-L1-3 [Seg 14]	3	0 16-Jul-13 A	22-Jul-13A	Erect Steel - Section 2-L1-3 [Sep 14]	
A24980	Deck & Detail Steel - Section 2-L1-3 [Seg 13]	13	0 16-Jul-13 A	02-Aug-13A	Desk & Detail Steel - Section 2-L 7-3 [Seq 13]	
A22280	Deck & Detail Steel - Section 2-L1-3 [Seq 14]	7	0 23-Jul-13 A	06-Aug-13A	Deck & Detail Stepl - Section 2-LF-3 [Sec 14]	i T
A19860	Erect Precast Planks - Section 2-L1-3 [Seg 13]	1	0 24-Jul-13 A	25-Jul-13A	I Ereck Precast Planks - Section 2-L +-3 (Skg 13)	1
A25310	Erect Precast Planks - Section 2-L1-3 [Seg 14]	1	0 25-Jul-13 A	28-Jul-13A	I Erett Precast Flanks - Section 2-L1-3 [Seg 14]	11
A25940	Grout Precast Planks - Section 2-L1-3 [Seg 13]	4	0 07-Aug-13 A	13-Aug-13A	Grout Precept Panks Section 2-L1-2 (Seg 13)	
A25950	Grout Precast Planks - Section 2-L1-3 [Seq 14]	4	0 07-Aug-13 A	14-Aug-13A	I GroutPrecept Planks Section 2-L1-8 [Seg 14]	
A19820	Place SOD - Section 2-L1	5	0 05-Sep-13 A	08-Sep-13A	1 Place 300 Section 24.1	r t
A19840	Install Spray Fireproofing - Section 2-L1	3	0 23-Oct-13 A	28-Oct-13 A	Install Spray Fireprior fing - Section 2-L1	
A21330	Frame Exterior Walls- 2-L1	10	10 06-Nov-13	20-Nov-13	Frame Exterior Walls-2-L1	
2nd Flo	bor					11
A22290	Install Topping Slab - Section 2-L2	6	0 15-Aug-13A	19-Aug-13A	Install Topping State Section 2-L2	1 1
A22310	Install Spray Fireproofing - Section 2-L2	4	0 16-Sep-13A	18-Sep-13A	Install Spray Fireprodfing - Section 2-L2	ſΤ
3rd Floo	pr				机	
A19870	Install Topping Slab - Section 2-L3	4	0 15-Aug-13 A	16-Aug-13 A	I Install Topping \$lab - Section 2-L3	11
A19890	Install Spray Fireproofing - Section 2-L3	4	0 03-Sep-13 A	06-Sep-13A	🔰 Injstall Spray Firegroofing - Section 2-43	11
A20640	Frame Exterior Walls- 2-L3	10	0 05-Sep-13A	27-Sep-13A	Frame Education Walts-21.3	<u>                                      </u>
Floors	& 5 [Seq 15 & 16]			_		
A20190	Erect Steel - Section 2-L4-5 [Seq 15]	1	0 02-Aug-13 A	02-Aug-13 A	) Enéct Steel Ste	
A20030	Erect Steel - Section 2-L4-5 [Seq 16]	1	0 02-Aug-13 A	05-Aug-13A	I Erect Steel - Section 2-4-5 [Sec 16]	
A25150	Detail Steel - Section 2-L4-5 [Seq 15]	10	0 02-Aug-13 A	09-Aug-13 A	Distail Steel Section 2-L4-5 [Seig 15]	
A25160	Detail Steel - Section 2-L4-5 [Seq 16]	10	0 02-Aug-13 A	09-Aug-13A	Distail Steels Section 2-L4-5 (Seq 16)	6 8

1124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Scher	dule (fo	r dist] Ti	ASK filter:	All Activi	ties			1						Pag	ge 28 of	39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012	_	_	_		_	_	2013			2014	_	_		2015	C,
		Dur	Dur		Jun J	ul Aug	Sep Oct	Nov De	c Jan F	Mar A	pr May Ju	un Jul /	ug Sep C	Oct Nov Dec Jan F Mar	Apr May Jun Ju	I Aug Sep	Oct Nov	Dec .	Jan Fel	6 6
A20200	Erect Precast Planks - Section 2-L4-5 [Seq 15]	2	0 05-Aug-13 A	06-Aug-13A								1 0	Erect Pre	ecas Planks - Section 2-14-5	Seq [15]					Т
A20040	Erect Precast Planks - Section 2-L4-5 [Seq 16]	1	0 07-Aug-13 A	12-Aug-13 A		1				11	11	1.1	Brect Pr	recast Planks - Section 2-L4-5	[Sed 16]	1 1				i.
A25960	Grout Precast Planks - Section 2-L4-5 [Seq 15]	4	0 13-Aug-13 A	14-Aug-13A									GroutPi	recast Planks Section 2-L4-5	[Seq 15]					1
A25970	Grout Precast Planks - Section 2-L4-5 [Seq 16]	4	0 13-Aug-13 A	14-Aug-13A		1 1				1 1	1 1	1 1	GroutP	recest Planks Section 2-L4-	[Seg 16]	1 1			1	÷
A20210	Install Topping Slab - Section 2-L4	4	0 15-Aug-13 A	16-Aug-13A						<u> </u>			Instal T	opping Slab - Section 2-L4						1
A20230	Install Spray Fireproofing - Section 2-L4	4	0 05-Sep-13 A	13-Sep-13A									🗖 ihs	stall Spray Fireproofing Sect	n 21L4					
A20410	Frame Exterior Walls- 2-L4	5	0 13-Sep-13A	30-Sep-13 A						1 1				Frane Exterior Walls- 2-L4						÷
5th Flo	pr																			
A20050	Install Topping Slab - Section 2-L5	4	0 05-Sep-13 A	09-Sep-13A		1 1				1.1	1.1	1.1	Inst	tall Topping Slab - Section 2-L		1 1				1
A20870	Frame Exterior Walls- 2-L5	5	0 16-Sep-13A	07-Oct-13 A	11.		L			11.				Frame Exterior Walls- 2-L5						1
A20070	Install Spray Fireproofing - Section 2-L5	4	0 23-Sep-13 A	25-Sep-13A									10	instal Spray Fireproofing - Se	tion 2-L5					1
Floors	6, Roof, PH [Seq 17 &18]																			
A20130	Erect Steel - Section 2-L6-PH [Seq 17]	1	0 19-Aug-13A	19-Aug-13A		1 1				1.1	1 1	1 1	Ered S	Steel - Section 2-L6-PH [Seq ]	7]	1 1				÷
A20090	Erect Steel - Section 2-6-PH [Seq 18]	1	0 20-Aug-13 A	20-Aug-13 A									Ered S	Steel - Section 2-6-PH [Seq 12						
A25170	Detail Steel - Section 2-L6-PH [Seq 17]	10	0 20-Aug-13 A	30-Aug-13 A									📕 Detai	il Steel - Gection 2-U8-PH [Sec	17]	. j				÷
A25180	Detail Steel - Section 2-6-PH [Seq 18]	10	0 21-Aug-13 A	02-Sep-13A									📕 Deta	al Steel - Section 2-8-PH [Sec	18]					1
A20100	Erect Precast Planks - Section 2-6-PH [Seq 17]	2	0 26-Aug-13 A	26-Aug-13 A		1 1				1 1	1 1	1 1	I: Erect	Precast Planks - Section 2-6-5	H [Seq 17]	1 1		.		÷
A20140	Erect Precast Planks - Section 2-L6-PH [Seq 18]	1	0 26-Aug-13 A	02-Sep-13A		1 1				1 1	1 1	1 1	Erec	t Piecast Planks - Section 2-U	8-PH [Sed 18]	1 1				ł
A25980	Grout Precast Planks - Section 2-6-PH [Seq 17]	4	0 03-Sep-13 A	04-Sep-13A		1				11	11	11	Grou	ut Precast Planks - Section 2-	-PH[Seq 17]	1 1				÷
A25990	Grout Precast Planks - Section 2-L6-PH [Seq 18]	4	0 03-Sep-13 A	04-Sep-13A	ļļ.					4			) Grpu	ut Precast Planks - Section 2-	6-PH [Seg 18]					4
A20150	Install Topping Slab - Section 2-L6	4	0 05-Sep-13 A	09-Sep-13A		1				11	11	11	l Inst	tall Topping Slab - Section 2-L		1 1			1	i.
A21100	Frame Exterior Walls- 2-L6	5	2 18-Sep-13 A	07-Nov-13						11	1 1	1 1	- 1 🖷	Frame Exterior Walls	2-L6	1 1				÷
A20170	Install Spray Fireproofing - Section 2-L6	1	0 07-Oct-13 A	11-Oct-13 A						1 1	1 1	11		Install Spray Fireproofing - 3	ection 2-L6	1 1				÷
Roof																				1
A20110	Parapet Framing & Sheathing - Section 2-R	10	0 16-Sep-13A	11-0ct-13 A	ļ				· · · · · · · ·	÷				Parapet Framing & Steathi	ig - Section 2-R			·		÷
A54440	Misc Metal Support @ Parapet	5	0 23-Sep-13 A	25-Sep-13A						1 1	1 1	1 1	1.11	Mise Metal Support @ Parapet	1 1 1	1 1				1
A19910	Roofing [2]	10	10 06-Nov-13	20-Nov-13	11	1 1			1	11	1 1	11	11	Roofing [2]	1 1 1	1 1		i	1	÷
A24190	3 Set Chilers	5	5 17-Jan-14	23-Jan-14										SetiChild	5					L
A2012	Set ERUs 1, 2 & 3	5	5 23-Jan-14	29-Jan-14							11	11	11	Set ERU	1,283					i.
A24230	Connect ERUs / Chillers	50	50 30-Jan-14	10-Apr-14	ļ		ļ	<b>.</b>		44					Gonnect ERUs	/ Chilers	<b>.</b>			4
Shell										11	11	11	11		1 1 1	1 1				i
South	Elevation Curtainwall / Lobby		40.05.0. 40.4	17.1.11																1
A1998	Install Curtanwall - Lobby Vestibule [C,D,E,F,M,A,G,H,N]	00	49 US-NOV-13 A	17-Jan-14		1 1				1 1	1 1	1 1	1 1	Install Cur	inwaii - Looby ve	stibule (C,D)	E, F, MLA, G	HINI		÷
A3908	Install Curtinwal - Interior Lobby Vestibule (B,P)	8	8 20-Jan-14	29-Jan-14		1 1				1.1				instal Ct	rtinwaii - interior L	obby vestio	ile (B(P)			1
ALLSI	Install Wood Sloing - Main Entry [25]	0	5 U0-Mar-14	12-Mar-14						++		-++			stail wood Siding	Main Entry	25			÷
main A242	East Structural Steel Examine & Dealling (201	2	2 20 Jan 14	21 las 14										Court Cha	and Sheet Fernie		1201			÷
A240	Erect Structural Steel Franking & Decking [25]	4	2 20-3am-14	21-341-14 27, Jan 14						11	1 1			Ered Sud	Aural Steel Frame	gia Deuting	[20]			ł.
A243	Instal Lo metal Franing & blocking [25]	4	4 22-Jan-14	27-Jan-14 02 Eab 14		1				1 1	1 1	1 1	1.1	Install LG	metai Framing & I sofida (201	DIDUCKING (25)			1	÷
A243	Instal Noting [25]	10	10.04-Eeb-14	19-Eab-14										install re	Motol Papale [29]					ł
A243	Install Wood Panel Soff [29]	11	11 10-Feb-14	05-Mar-14	+÷-	· · • · · · ·			-+	++	·· + · +-				al WoodiPanel S	H 129		·		÷
Lint 6	Instant record and come [20]		11 10 7 60-14	oo aadrig						11	1 1	11	11			1.4			1	ł
A2840	Freet Staging [] Init 6]	2	0.29-Oct-13.4	31-Oct-13.4		1 1				1 1	1 1	11	11	Fred Staging Unit 61	1 1 1	1 1				÷
A2841	Bolt Relieving Angle [Unit 6]	4	0.31-Oct-13A	05-Nov-13 4						1 1				Bolt Relieving Andle (Lie	161	1 1				l
A2843	Sheathing I Init Al	4	0.05-Nov-13.4	05-Nov-13 A	11					1	1	11	11	Sheathing [] Init 6]	· · ·	1			1	i
A2042	Waterproofing B bit 61	2	2 06-Nov-12	07-Nov-12	++-	··++		+ +	+	++	··+-··+-	-++	·-++-	Waterproofing likes 63	+++	·++·			·+···-	÷
A7844	Windows [Unit 6]	1	1 08-Nov-13	08-Nov-13		1			1.1	1 1	11	11	11	Windows [Uhit 6		1 1				i
A305/	Tamp In Window Opanings [] Init 61	1	1 08-Nov-13	08-Nov-13										Temp In Window Open	In the local lines					
43800	Strip.in Windows [Linit 6]	4	4 12-Nov-12	15-Nov-12						11		11	11	Strip in Window Open	61	1 1			- 1	i
A2840	Masonry [Unit 6]	8	8 10-Dec-13	19-Dec-13						1.1				Masonry 9 Init 6	~	1 1				ļ
A2849	Window Papping (Linit 6)	1	1 20-Dec-13	20-Dec-13	t	··+-··i	<u> </u>	· · · · · · · · · · · · · · · · · · ·	· + · · · i · · ·	++-	·· + - · + -	-++	·-++	Window Pannie	nuise en	· ;;	····+···	·	·+···	Ť
42040	Curtainwall D/7 II Init 61	12	12 20-Dec-13	08- Jan-14					1 1	1.1				Curtainual	D/7 Linit 61	1.1				ł
A395	Remove Staning [Init 6]	2	2 09- Jan-14	10-Jan-14		1				11	1 1	11	11	Remoles Sta	ning (Linit 61	1 1			1	i
A2840	Caulting I lait 61	5	5 12 Jan 14	17- Jan-14										Caulking I	ang [01					1
Linit 7	Lounsel four et		0 10-080-14	11-54815-19										- Carrieng (					1	ł.
A2850	Fred Staging [Unit 7]	2	0 14-Oct-13 A	18-Oct-13 4	···-÷-	··++	h	+ • • • • • • •		++	··+-··+-	-++	·-++-	Frect Staging [Unit 74	+++	·++	<b> </b>		·ŧ	÷
-2002			2 11-04-13A	10-000 IOA					1					· · · · · · · · · · · · · · · · · · ·						

124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	dule (fo	r dist]	TASK filter:	All Activ	ities														F	Page 2	29 of 39	9
Activity ID	Activity Name	Orig	Rem Start	Finish	2012	2						2	013							2014				1	2015	
		Dur	Dur		Jun J	ul Au	a Seo Oct	Nov De	e Jan	F Ma	r Anr M	lav Jun	Jul A	ua Seo	Oct 1	ov De	c Jan F	Mar Apr	May Ju	n Jul	Aug Se	Oct N	lov De	e Jan	Feb	a
A2853	Bolt Relieving Angle (Unit 7)	4	0 21-Oct-13A	25-Oct-13A												lolt Re	leving Angle	(Unit 71								1
A2854	Sheathing [Unit 7]	4	0 28-Oct-13 A	01-Nov-13A			1 1 1			11	11		11			Sheat	hing [Unit 7]		11			1 1	1		11	
A2855	Waterproofing [Unit 7]	4	4 06-Nov-13	12-Nov-13		1.	1 1 1			1 1	1.1.		1.1		1 1	l Wat	erorootina (	Unit 7		1.1		1 1			1.1	
A3957	Temp In Window Openings [Unit 7]	1	1 13-Nov-13	13-Nov-13		1	1 1 1	1		11	1 1	1	1 1	1	1	I Terr	p In Window	Opening	1 [Unk 7]	11	11	1 1	1		11	
A2856	Windows [Unit 7]	4	4 13-Nov-13	18-Nov-13							++-		· · · · ·		1	Wi	ndows [Unit	71	÷						++	Ĩ
A2857	Strip-In Windows [Unit 7]	4	4 19-Nov-13	22-Nov-13			1 1 1				1 1		1 1		1 1	I St	rip-In Windo	ws [Unit ]		1		1 1			1 1	
A2856	Masonry [Unit 7]	8	8 10-Dec-13	19-Dec-13									1 1				Masonry	Unit 7	1							
A2860	Window Panning [Unit 7]	1	1 20-Dec-13	20-Dec-13			1 1 1	1		1 1	1 1		1 1		1 1		Window R	anning (L	Jhit 7]	1.1	11	1 1			11	
A2863	Remove Staging [Unit 7]	2	2 23-Dec-13	24-Dec-13									1.1				Remove	Staging [	Init 7]							
A2861	Caulking [Unit 7]	5	5 26-Dec-13	02-Jan-14	1		1 1 1			1	T T	1	1.1	1	1	1	Caulkin	[Unit 7]	1	1	1 1	1.1			1 1	
Unit 8										1 1	1 1		1 1									1 1			1 1	
A2864	Erect Staging [Unit 8]	2	0 07-Oct-13 A	11-Oct-13 A			1 1 1				1 1		1 1		i e	ct \$taj	ging [Unit 8]		1 1	1 1		1 1			11	
A2865	Bolt Relieving Angle [Unit 8]	4	0 28-Oct-13 A	01-Nov-13A									1.1		1	Bot R	elieving Angl	e [Unit 8]							11	
A2866	Sheathing [Unit 8]	4	0 04-Nov-13A	05-Nov-13A									11			Sheat	thing [Unit 8]									
A2867	Waterproofing [Unit 8]	4	4 06-Nov-13	12-Nov-13	1					1	111					Wat	erproofing [	Unit 8	T. T.			1.1			1.1	
A3956	Temp In Windows Openings [Unit 8]	1	1 14-Nov-13	14-Nov-13			111			1 1	11	1	11		1	l ten	p In Window	vs Openir	ığs (Uşit 8	aj 🛛	1 1	11	1	1	11	
A2865	Windows [Unit 8]	4	4 19-Nov-13	22-Nov-13		1	1 1 1			1 1	1 1		1 1		1	W	indows (Unit	8]		1		1 1		1	1 1	
A2866	Strip-In Windows [Unit 8]	4	4 25-Nov-13	29-Nov-13									1 1			I S	trip-In Wind	ws (Unit	8]							
A2871	Masonry [Unit 8]	8	8 10-Dec-13	19-Dec-13		1				11	11		11			- i 🗖	Masonry	Unit 8]				1 1			11	
A2871	Window Panning [Unit 8]	1	1 20-Dec-13	20-Dec-13	1	1		- T			ΤT	1	1.1	1		1	Window F	anning (L	Init 8]	1	T T	TT			TΤ	
A2875	Remove Staging [Unit 8]	2	2 23-Dec-13	24-Dec-13			1 1 1			1 1	1 1	1	1 1		1 1	1	Remove	Staging [	(nit 8)	1.1	1 1	1 1	1		1 1	
A2873	Caulking [Unit 8]	5	5 26-Dec-13	02-Jan-14									1 1				Caulkin	g [Unit 8]							11	
Unit 9											11		11												11	
A354E	Erect Staging [Unit 9]	2	2 06-Nov-13	07-Nov-13						I	11.		11			Ered	Staging [U	iit 9]	11			_			1.1	
A3546	Bolt Relieving Angle [Unit 9]	4	4 08-Nov-13	14-Nov-13		1		1			ΤT	1	1.1			Bolt	Relieving Ar	igle [Unit	9	1	111	TT	1		11	
A3550	Sheathing [Unit 9]	- 4	4 15-Nov-13	20-Nov-13									11			Sh	eathing [Uni	9]								
A3551	Waterproofing [Unit 9]	4	4 21-Nov-13	26-Nov-13			1 1 1			11	11		11			. W	aterproofing	[Unit 9]	11			1 1			11	
A3555	Masonry [Unit 9]	8	8 10-Dec-13	19-Dec-13			1				1 1		1 1				Masonry	Unit 9]				1 1			11	
A355E	Curtainwall E/7 [Unit 9]	6	6 20-Dec-13	30-Dec-13						l	4				i		Curtaine	vall E[7 [U	linit 9]		L				44	
A3556	Remove Staging [Unit 9]	2	2 31-Dec-13	02-Jan-14						11	1 1		1 1		1 1		Remove	Staging	(Unit 🗐			1 1	1		1 1	
A3557	Caulking [Unit 9]	5	5 03-Jan-14	09-Jan-14			1 1 1			11	11		11			1	Caulki	ng [Unit 9				1 1	1		11	
Unit 17							1 1 1			1 1	1 1		1.1		1 1				11			1 1			1.1	
A3884	Erect Staging [Unit 17]	2	2 04-Nov-13 A	07-Nov-13		1	1 1 1	1		11	1 1	1	1 1		1	Ered	Staging [U	it 17	11	1		1 1	1		11	
A3885	Bolt Relieving Angle [Unit 17]	4	4 08-Nov-13	14-Nov-13	ļ						44.				Ļ	Bolt	Relieving Ar	igle [Unit	17]		Į				44	
A388(	Sheathing [Unit 17]	4	4 15-Nov-13	20-Nov-13			1				11		1 1			Sh	eathing [Uni	17]		1					11	
A3887	Waterproofing [Unit 17]	4	4 21-Nov-13	26-Nov-13		1	1 1 1			1 1	1 1		1.1		1 1	• W	aterproofing	[Unit 17]		1.1	1 1	1 1			1 1	
A3888	Windows [Unit 17]	4	4 27-Nov-13	03-Dec-13									1 1				Windows [U	nit 17							11	
A3960	Temp In Window Openings [Unit 1/]	4	4 2/-Nov-13	U3-Dec-13									1 1				emp in Win	dow Ope	nings [Un	4 J (					11	
A3886	Strip-in windows junit 1/j	4	4 U4-Dec-13	U8-Dec-13	<u>↓</u>		· + +			ł	++-		·		÷		Strip-In Win	aows (Ur	¶!/]		h	-++-			4	
A3891	Masonry [Unit 17]	8	8 10-Dec-13	19-Dec-13			1 1 1			1 1	1		11			- i •	Masonry	ont 1/]	4.1		1			1	1	
A3964	Guranwai D7 [Ont 17] Wiedew Deseise (Unit 17]		7 20-Dec-13	31-Dec-13									11				Curtain		mit 1/	. 1				1	11	
A3892	Window Panning [Unit 17] Remove Sharing (Unit 17]	1	1 U2-Jan-14	u2-Jan-14						1	1 1		11				Window	ranning	Unit a7]					1	11	
A3890	Remove Staging [Unit 17]	4	2 U3-Jan-14	00-Jan-14			1				1 1		1 1				Remov	e staging	junt 1/j	1		1 1			11	
A389:	causing (one rr)	3	J U/-Jan-14	10-Jan-14	l	··•	·+		·+	ii	++-		· • · · • •	···	÷i			og tour	₩ <del>.</del>	i	<u> </u>	++	<del> </del>		÷÷	
Unit 18 A2005	Erect Staging    Init 191	2	0.20.0+12.4	04 Nov 12 5								1	11		1	E .	Shine P.	+ 101							11	
A3890	Ereu Siagng (unit to) Reit Delevine Anale (Leit 19)	2	4 09 New 12	14 New 12		1	1			1	1 1	1	1 1	1		Ellect	Delouing (UII	n ioj: olo li loit	101			1	1		11	
A3897	Our releving Ange (Unit To) Cheathine 0 (a) 101		4 15 New 12	20 New 12							1 1		1 1			000	relieving A	une (Unit	19]			1 1			11	
A3896	Webereroofing (Unit 10)	4	4 10-NOV-13	20-INOV-13		1	1 1 1			1 1	1 1		1 1		1	Sn M	eauing (Uni	101			11	1 1			1 1	
A3000	Windows [Link 19]	4	4 04-Dec-13	20-100-13 09-Dec-13	++		· + + ·		-+		++-		· <del>•</del> · · · • •	···+···	÷		Windows II	10111 10	4 <del>.</del>		<u> </u>	-++-			++	
A390L	Tomp in Window Oppning II init 191		4 04 Dec 13	00 Dec 12			1			1	1 1		11			12	Tomo lo W	ndoul C-	hinada	101				1	11	
A3901	Strin. In Windows II lait 191	4	4 10-Dec-13	13-Dec-13			1			1 1	1 1		11		1	15,	Strip-In W	ndowe Op	enings (UI			1		1	11	
A3901	Macona [] [nit 19]	~	9 18 Dec 12	26 Dec 12		1	1 1 1	1		1 1	1 1	1	1 1	1	1	-15	Marbook	1 Inal 101	10	1	11	1 1	1	1	11	
A3900	Window Papeing [Leit 10]	- 0	1 27 Dec 12	20-Dec-13									1 1			11	Window	Paneline	Cloit 121			1 1			1 1	
A3904	Pamous Staring [Jint To]	2	2 20-Dec-13	21-Dec-13	++-	·· †	· + + +		· +	i	++-		· † · · · † ·	···+···			Remo	Statie	101 miles	·	·	++	<del> </del>		+ + +	
A3907	Caulking [Linit 18]		5 02- Jan-14	08- Jan-14		1					1 1	1	1 1			1	Caulki	o Il Init 1	a 101	1		1 1	1		11	

1124 - WSU - Nev	w Student Residence Hall and Dining Facility			* Project Sche	dule (for	dist] TA	SK filter: A	II Activ	ities										Pag	je 30 c	of 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012					2013					20	014				201	5
		Dur	Dur		Jun Ju	I Aug S	Sep Oct N	lov De	sc Jan F Mar Apr Ma	Jun Jul Aug	J Sep Oc	Nov De	Jan F	Mar Apr M	Aay Jun	Jul Aug	Sep Oc	ct Nov	Dec .	dan Fé	eb <sup>lar</sup>
Interior																					-
1st Floo	r					1 1	11				11			1 1 1						1	1
Multi-P	urpose / Game Room / Lobby																				
A2120	Board Walls & Ceilings- 2-L1	5	5 10-Dec-13	16-Dec-13		1 1	1 1	1		1 1 1	T		Board W	alls & Çeilings	5-2-L1		1 1	1		1	T
A2131	Tape Walls & Ceilings- 2-L1	5	5 17-Dec-13	23-Dec-13		1 1	1 1				1 1	8 8 4	Tape W	als & Ceilings	s 2-L1		1 1				1
A2121	Prime Paint Walls & Ceilings- 2-L1	5	5 24-Dec-13	31-Dec-13									Prime	Paint Walls &	Celings	2-L1					
A2128	Grid Acoustical Ceilings - 2-L1	2	2 02-Jan-14	03-Jan-14		1.1							Grid/	coustical Ceil	ings - 2-L	1					
A2285	Interior Storefront - 2-L1	5	5 02-Jan-14	08-Jan-14	IL	.LL				L	1	JI	Inter	or Stonefront	- 2-1	L	11		L		
A2123	Trim Out MEPs & Install Lighting- 2-L1	15	15 06-Jan-14	24-Jan-14		11							<b>•</b>	in Out MEPs	& Install	Lighting- 1	2 L1				
A2306	Install Wood Ceilings - 2-L1	5	5 13-Jan-14	17-Jan-14									Inst	al Wood Cel	ings - 2-l	£1					
A2130	Install FE / Cabinets- 2-L1	1	1 27-Jan-14	27-Jan-14		1 1	1 1				1 1		l; In	stall FE / Cab	inets- 2-	1	1 1	1 1			1
A2127	Finish Paint- 2-L1	2	2 27-Jan-14	28-Jan-14									E F	rish Paint- 2-							
A2126	ACT Tile- 2-L1	2	2 27-Jan-14	28-Jan-14	ļ						÷	ļ	L A	CT THE 2-UI		L	÷		·		
A228/	Install Projection Screen - 2-L1	2	2 29-Jan-14	30-Jan-14									1 1	istali Projectio	on Spreen	1-2-11					
A2124	Install Flooring- 2-L1	8	9 29-Jan-14	10-Feb-14		1.1	1 1				1 1		1 2	Install - loonr	19- 2-L1		1 1				1
A2414	Install Milwork - 2-L1	6	6 03-Feb-14	10-Feb-14										Install Milwbi	rk - 2-L1						
A212:	Install Doors & Haroware- 2-L1		4 00-Feb-14	10-Feb-14	1	1 1	11	1			1 1	i i -	1 6	Install Doors	a Haruw	lare- 2-L1	1 1	1 1	i	1	1
Rether	Install Motor Zed Shades - 2-CT		4 00-14	10-1-60-14	+÷	·++	++		·+	++·+···	++	<b>¦</b> ∤		inistan motori	aeu ionau	103 · 2.C	÷+	·	·	·	·-+-·
A2126	Install Coramia / Waterproofing Membrane, 2   1	10	10,02, Jan 14	15 Jan 14	1	11	11	1			11	11	- bet	Cordminds	N-	-		2 1 4		1	1
A2415	ACT Calinat - 2-11	5	5 18 Jan 14	22- Jan-14										T Colinge in	naterpro 2.1.1	onignier	indiane 2	-			
A2135	Instal Counters, 2,11	2	2 23- Jan-14	24- Jan-14		1 1	1 1				1 1		156	the Counters	2 1	11	1 1	1 1			
A213/	Trim-Out Plumbing- 2-I 1	4	4 27-Jan-14	30-Jan-14										rim-Out Plum	bing- 2-I						
A2137	Install Toilet Partitions / Accessories- 2-L1	3	3 31-Jan-14	04-Feb-14	++	· <del>†</del> † -	-+-+			+++	++			nstall Toilet P	artitions	Accessor	1 - 2 L1		·		·-+-·
2nd Flo	or					1 1	1 1				1 1		1 1				ТТ				1
Laundr	y / Fitness / Kitchen / Offices																				
A2560	Rough-In MEPs Overhead- 2-L2	5	5 06-Nov-13	13-Nov-13		1.1						Rou	h-In NEF	S Overhead-	2-12						
A2140	Frame Interior Walls- 2-L2	5	5 14-Nov-13	20-Nov-13								Fra	me Interio	Wals- 2-L2							
A2141	Rough-In MEPs In-Wall- 2-L2	10	10 21-Nov-13	05-Dec-13	1		1 1				1		lough-in I	EPs In-Wall	2-62		1				1
A2154	Inspect MEP- 2-L2	2	2 06-Dec-13	09-Dec-13									Inspect M	P-2-22							
A2142	Board Walls & Ceilings- 2-L2	5	5 10-Dec-13	16-Dec-13		1 1	1 1				1 1	i i 🗉	Board W	als & Ceilings	- 2-L2	11	1 1				1
A2158	Tape Walls & Ceiings- 2-L2	5	5 17-Dec-13	23-Dec-13									Tape W	alls & Ceilings	s- 2-L2						
A2143	Prime Paint Walls & Ceilings- 2-L2	5	5 24-Dec-13	31-Dec-13							1		Prime	Paint Walls &	Celings	2-L2	J		i		
A2150	Grid Acoustical Ceilings - 2-L2	2	2 02-Jan-14	03-Jan-14		1.1	1.1				1 1		Grid /	obustidal Celi	ings - 2-L	2	1 1	1 1			
A2285	Install Cabinets- 2-L2	3	3 02-Jan-14	06-Jan-14		1 1	11				11		Instal	Cabinets- 2-	L2		11			1	1
A2286	Install Interior Storefront- 2-L2	5	5 02-Jan-14	08-Jan-14									Insta	Interior Stor	efrant-2	L2					
A2145	Trim Out MEPs & Install Lighting- 2-L2	15	15 08-Jan-14	24-Jan-14		1 1					1 1		1	n Out MEPs	& Install	Lighting- 1	212				
A2284	Install Counters- 2-L2	2	2 07-Jan-14	08-Jan-14	ļ					·	<u> </u>	<u> </u>	Insta	Counters-2	-L2		<u></u>		÷		
A214€	Install Flooring- 2-L2	9	9 09-Jan-14	21-Jan-14									Ins	all Flopring	2-12			1	1		
A2147	Install Doors & Haroware- 2-L2	4	4 22-Jan-14	27-Jan-14		1 1	11				1 1		in in	stat Ligors &	Hardwar	e-2-12			;		1
A2281	Install Appliances / Laundry Equipment - 2-L2	4	4 22-Jan-14	27-Jan-14		1 1							in in	stall Appliance	es / Laun	pry Equip	ment - 2-I	12			
A2154	Install FE / Cabinets- 2-L2	1	1 27-Jan-14	27-Jan-14										stall FE / Cab	inets- 2-	2					
A2151	Eniste Delet, 21.2	2	0 20-Jan-14	05-Feb-14	++	.++	++		-+++	+++	++	<b> </b> −−− <b> </b> −−−		Initial Host of	nce poxe	b- 2-42	++	!			+
742141	Entist Failly 202	4	2 04-FE0-14	00-Feb-14		1 1	11				1 1		11	man raine a							
Colum	n ne 3 to 6																				
A4054	Install Top Track - 2-L3 - Col 3 to 6	2	0 21-Oct-13.4	22-Oct-13 A		11	11	1			11.	nstall Tr	Track -	4L3 - Col 24	6	11	1 1		1	1	1
A4957	Frame Toilet Wall + Demising Wall - 2-I 3 - Col 3 to 6	2	0 21-Oct-13A	22-Oct-13 A								Frame 1	olet Wall	Demising W	(all - 2-1.3	- Col 3 tr	8				
A4956	Frame Walls in Corridor - 2-L3 - Col 3 to 6	2	0 21-Oct-13A	22-Oct-13 A	1	- <del>1</del>			1-1-1-1-1-	111	111	Frame V	alls in Co	rtidor 12-L1	- Coll 3 to	6	1.1		r-t-		1
A4956	Core for MEP - 2-L3 - Col 3 to 6	1	0 28-Oct-13 A	29-Oct-13 A	1 !	11					11	Core fo	MEP-2	43 - Col 3 to	6		1		: 1	1	1
A4980	Fire Protection Risers & Floor Control Stations - 2-L3 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13	11						11	Fre	rotection	Risers & Fido	r Control	Stations	2-L3-C	ol 3 to	8 I	1	1
A4962	HVAC Pipe Risers - 2-L3 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13								HVAC	Pipe Ris	rs - 2 L3 - 0	ol 3 to 6						1
A4963	Install Plumbing Riserss - 2-L3 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13		1 1					1 1	Instal	Plumbing	Riserss - 24L	.3 - bol 3	to 6		1	1		
A4965	GWB T.O.W 2-L3 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13	I	11					TT	GWB	T.O.W	2-L3 - Col 3	to 6		1	1			T
A4970	Duct Mains @ Rooms - 2-L3 - Col 3 to 6	2	2 08-Nov-13	12-Nov-13		1						Duct	Mains @	Rooms - 2-13	3 - ¢ol 3 :	0 6					1
A4976	Install Electric Riser Conduit - 2-L3 - Col 3 to 6	2	2 08-Nov-13	12-Nov-13		1.1	1.1				1.1	🛯 Insta	Electric	Riser Conduit	-213-	Col 3 to 6	1 1		: [		1

124 - WSU - Ne	w Student Residence Hall and Dining Facility		* Project Sc	chedule (f	for dist] TA	SK filter: All A	ctivities			Page 31 of 39
Activity ID	Activity Name	Orig Rem Start	Finish	201	12				2013	2014 2015
		Dur Dur		Jun	Jul Aug S	Sep Oct Nov	Dec Ja	n F Mar Apr May	Jun Jul Aug Seg	Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb <sup>la</sup>
A4964	Vertical Duct Risers - 2-L3 - Col 3 to 6	3 3 08-No	-13 13-Nov-13							Vertical Duct Risers 2-L3 - Cd 3 to 6
A4967	Install Horizontal EMT - 2-L3 - Col 3 to 6	1 1 14-No	-13 14-Nov-13	3 1	11	1 1	i		1 1 1	Install Horizontal EMT - 2-L3 - Col 3 to 6
A4977	Partition Framing w/ Door Frames / Close Shafts - 2-L3 - Col 3 to 6	2 2 14-No	-13 15-Nov-13	1 1						Partition Framing w/ Door Frankes / Close Sharts - 2-L3 - Col 3 to 6
A4966	Horizontal Plumbing Mains - 2-L3 - Col 3 to 6	3 3 14-No	-13 18-Nov-13	3	11					Horizontal Plumbing Mains - 2-L3 - Col 3 to 6
A4969	HVAC Piping Mains - Isolated Locations - 2-L3 - Col 3 to 6	1 1 19-No	-13 19-Nov-13							HVAC Piping Mains - Isolated Locations - 2-L3 - Col 3 to 8
A4973	Install EMT in Units - 2-L3 - Col 3 to 6	1 1 19-No	-13 19-Nov-13		11					I Instal EMT in Units 2-L3 - Col 3 tot 6
A4971	Install Fire Protection Mains - 2-L3 - Col 3 to 6	2 2 19-No	-13 20-Nov-13							I Instal Fire Protection Mains - 2-L3 - Col 3 to 6:
A4980	Install Elec Boxes @ Rooms - 2-L3 - Col 3 to 6	2 2 19-No	-13 20-Nov-13	1+						I Instal Eled Boxles (8) Rooms - 2-L3 + Col 3 to 6
A4980	Install Flectric Panels - 2-I 3 - Col 3 to 6	2 2 19-No	-13 20-Nov-13							Instal Fledric Panels - 2-13 - Col 3 to 6
A4970	Pull Control Wiring to T-Stats - 2-I 3 - Col 3 to 6	1 1 21-No	-13 21-Nov-13	- i	- i i	1 1	i		1 1 1	1 Pull Control Wiring In T-State 2-1 3 - Col 3 tol8
44075	Install Duct Branches @ Rooms - 2-13 - Col 3 to 6	2 2 21.No	413 22-Nov-13			1 1				I Install Dust Branches @ Rooms , 24 3 , Col 3 to 6
44075	Pull Flac Wiring in EMT - 2-13 - Col 3 to 6	2 2 21-No	+13 22-Nov-13	- 1	11	1 1	1		1 1 1	Pull Flee Wirinh in PMT J2-13, Col 3 to 8
44085	Pull Elec Writing // Deceme - 2-12 - Cel 2 to 6	2 2 21-No	12 22-Nov-12	++	++	++			-+-+-+	1. Dul Elec Write @ Poorte - 21 2 - Col 2 to 6
A409/	instal Exectonoing 212 Col2 to 8	2 2 21 No	12 22 Nov 12		11				1 1 1	I instal Exception 212 Cd 2 to 8
44984	Test Plumbing - 2-13 - Col 3 to 6	2 2 21-NO	-13 25-Nov-13				1			Tast Plumbing, 213, Cel 3 to 6
A407/	Install Eine Protection Branch Lines - 2-12 - Col 2 to 8	2 2 25 M	12 28-Nev 12							Install Eith Distortion Report Lined - 2.12 - Chi 2 th 8
A49/4	Central Miring to Volume / Damager / Equip. 21.2. Cel 3 to 8	2 2 20-NO	+13 20-IN0V-13							Control Wines to Wheel Dataset / Eduis (213, Col3 to C
A4975	Control writing to valves / Dampers / Equip - 2-E3 - Col 3 to 0	2 2 20-INO	-13 20-INOV-13	++	++	++	i		+++	<ul> <li>Control winning to valves/ Daugets / Edup - 2-C3- C03 (0.0)</li> <li>Calle Talle Dollar 1018 - Callo Mile</li> </ul>
A4980	Set & Tie-In PCUS- 2-L3 - C013 to 0	2 2 20-110	-13 20-INOV-13							Set & Tevin PLOS 2-La - Cal 3 to 0
A4987	rougn-minispecialis - 2-L3 - C0I 3 to 0	2 2 27-No	HIS 28-INOV-13	<b>_</b> i	11	i i	i	1 1 1 1 1	1 1 1	rrouge-in Inspections - 2-L3 - Corp to 0
Colum	Install Ten Tends 212 Col 8 to 8	2 2 08 No	12 07 New 12	-						Induiting Tanda 212 October 0
A4004	Constant top Track - 2-L3 - Collo to 6	2 2 00-No	-13 07-INOV-13		11					Install op reacks 2-L3 - Coro id a
A4004	Core for MEP - 2-L3 - Coll to 8	1 1 00-IN0	+13 UB-INOV-13	<u></u>	++	++				Core for MEP - 2-L3-COID to 6
A400.	Frame Totlet wall + Demsing wall - 2-L3 - Col 6 to 8	2 2 08-110	F13 12-NOV-13		1 1	1 1			1 1 1	Frame Tollet wall + Demising wall - 2-L3 - Colle to 8
A4993	Frame Walls in Comoor - 2-L3 - Col 0 to 8	2 2 08-N0	F13 12-IN0V-13							Frame wais in Corrigor - 2-L3 - Colo to 8
A4995	Fire Protection Risers & Ploor Control Stations - 2-L3 - Collo to 8	2 2 13-190	-13 14-INDV-13	_		1 1			1 1 1	Fire Protection Risers & Ploor Control Stations - 2-L3 - Colid to 8
A4997	HVAC Pipe Risers - 2-L3 - Col 8 to 8	2 2 13-No	-13 14-Nov-13							HVAC Pipe Risers - 2-L3   Colb to 8
A4998	Install Plumbing Riserss - 2-L3 - Col 6 to 8	2 2 13-No	-13 14-Nov-13	· · · · ·						Install Plumbing Risetss - 2-L3 - Col 6 to 8
A500:	GWB 1.0.W 2-L3 - Col 6 to 8	2 2 13-No	-13 14-Nov-13							GWB I.O.W 2-L3 - Collo to 8
A5008	Duct Mains @ Rooms - 2-L3 - Gol 6 to 8	2 2 15-No	-13 18-Nov-13		1 1	1 1	i		1 1 1	Duct Mans @ Rooms - 2-L3 - Col 6 to 8
A5011	Install Electric Riser Conduit - 2-L3 - Col 6 to 8	2 2 15-No	-13 18-Nov-13			1 1				Instal Electric Riser Conduit - 2-L3 - Col 6 to 8
A4995	Vertical Duct Risers - 2-L3 - Col 6 to 8	3 3 15-No	-13 19-Nov-13		1 1	1 1	1		1 1 1	Vertical Duct Risers - 2-L3 - Cpl 6 to 8
A5002	Install Horizontal EMT - 2-L3 - Col 6 to 8	1 1 20-No	-13 20-Nov-13	<u>نا</u>			L			I Instal Hortzontal EMT - 2-L3 - Col 6 to 8
A5012	Partition Framing w/ Door Frames / Close Shafts - 2-L3 - Col 6 to 8	2 2 20-No	-13 21-Nov-13	,	11					I Partition Framing will Door Fraimes i Close Shafts - 2-L3 - Col/8 to 8
A5001	Horizontal Plumbing Mains - 2-L3 - Col 6 to 8	3 3 20-No	-13 22-Nov-13	\$						Horizontal Pluthbing Maits - 2 L3 - Col 6 to 8
A5004	HVAC Piping Mains - Isolated Locations - 2-L3 - Col 6 to 8	1 1 25-No	-13 25-Nov-13	\$	1 1				1 1 1	HVAC Piping Mains - Isolated Locations - 2-L3 - Col 6 to 8
A5008	Install EMT in Units - 2-L3 - Col 6 to 8	1 1 25-No	-13 25-Nov-13	\$						I Install EMT in Units - 2-L3 - Cpl 6 tp 8
A5021	Test Plumbing - 2-L3 - Col 6 to 8	1 1 25-No	-13 25-Nov-13	\$						Test Plumbing - 2-L3 - Col 6 to 8
A5006	Install Fire Protection Mains - 2-L3 - Col 6 to 8	2 2 25-No	r-13 26-Nov-13	5			1			Install Fire Protection Mains - 2-L3 - Col 6 to 8
A5015	Install Elec Boxes @ Rooms - 2-L3 - Col 6 to 8	2 2 25-No	-13 26-Nov-13	\$						Install Elec Boxes @ Rooms - 2-L3 - Co 6 to 8
A5017	Install Electric Panels - 2-L3 - Col 6 to 8	2 2 25-No	-13 26-Nov-13	\$						Install Electric Panels - 2-L3 - Col 6 to 8
A5014	Pull Control Wiring to T-Stats - 2-L3 - Col 6 to 8	1 1 27-No	-13 27-Nov-13	\$						Pull Control Wiring to T-Stats - 2-U3 - Cpl 6 to 8
A5007	Install Duct Branches @ Rooms - 2-L3 - Col 6 to 8	2 2 27-No	r-13 29-Nov-13	۶ <u>ا</u>						Instal Duct Blanches @ Rooths - 2-L3 + Col B to 8
A5013	Pull Elec Wiring in EMT - 2-L3 - Col 6 to 8	2 2 27-No	r-13 29-Nov-13	3 T	11	1 1				Pull ElectWining in EMT - 2-L8 - Chil 6 to 8
A5018	Pull Elec Wiring @ Rooms - 2-L3 - Col 6 to 8	2 2 27-No	-13 29-Nov-13	\$						Pull Elec Wining @ Rooms - 2-L3 Col 6 to 6
A5019	install Firestopping - 2-L3 - Col 6 to 8	2 2 27-No	-13 29-Nov-13	\$			1			install Finestopping-2-L3 - Cpl 6 tp 8
A5006	Install Fire Protection Branch Lines - 2-L3 - Col 6 to 8	2 2 02-De	>13 03-Dec-13	\$						Install Fire Protection Branch Lines - 2-L3 - Col 6 to 8
A5010	Control Wiring to Valves / Dampers / Equip - 2-L3 - Col 6 to 8	2 2 02-De	>13 03-Dec-13	\$			L			Control Wining to Valves / Dampers / Equip - 2-LB - Col 6 to 8
A5020	Set & Tie-In FCUs - 2-L3 - Col 6 to 8	2 2 02-De	>13 03-Dec-13	5	1	1	1		1 I T	Set & Tie-In FCUs - 2-13 - Col 6 to 8
A5022	Rough-In Inspections - 2-L3 - Col 6 to 8	2 2 04-De	>13 05-Dec-13	5	11					Rough-In Inspections -2-L3 - Col 6 to 8
Bedroo	oms / Common Areas									
A2051	Board Walls & Ceilings- 2-L3	5 5 17-De	>13 23-Dec-13	3						Board Walls & Ceilings- 2-L3
A2063	Tape Walls & Ceiings- 2-L3	5 5 24-De	>13 31-Dec-13	\$			i			Tape Walls 8: Ceilings- 2-L3
A2052	Prime Paint Walls & Ceilings- 2-L3	5 5 02-Ja	-14 08-Jan-14	- T	TT					Ptime PaintWalls & Clelings- 2-L3
A2056	Grid Acoustical Cellings in Corridors- 2-L3	2 2 09-Ja	-14 10-Jan-14							Grid Acoustical Cellings in Corridors- 2-L3
A2054	Trim Out MEPs & Install Lighting- 2-L3	15 15 13-Ja	-14 31-Jan-14				1	+ $+$ $+$ $+$ $+$ $+$ $+$ $+$ $+$ $+$		Trim Out MEPs & Instal Lighting- 2-L3
42055	Install Election 212	0 0 22 1	14 02 Eab 14				5 I.			Instal Election 2:12

124 - WSU - Nev	v Student Residence Hall and Dining Facility		* Project Sch	edule (for	dist] T	ASK filter: A	All Activit	ties							F	Page 3	2 of 39
Activity ID	Activity Name	Orig Rem Start	Finish	2012						2013		2015					
		Dur Dur		Jun Ju	il Aug	Sep Oct I	Nov Dec	cJan F Ma	r Apr May .	un Jul Aug	Sep Oct	Nov Dec	an F Mar Apr May Jun	Jul Aug Sep 6	Oct Nov De	ec Jan	Feb <sup>la</sup>
A2061	Install FE / Cabinets- 2-L3	1 1 03-Feb-14	03-Feb-14										Install PE / Cabinets- 2	-L3			
A2060	ACT Tile- 2-L3	2 2 03-Feb-14	04-Feb-14	- 1									ACT Tile- 2-L3				
A2056	Install Doors & Hardware- 2-L3	4 4 04-Feb-14	07-Feb-14						1 1 1				Instal Doors & Hardw	are- 2-L3			
A2058	Finish Paint- 2-L3	2 2 10-Feb-14	11-Feb-14			$ $ $ $	1		1 1 1		- 1 - 1		FinishiPaint- 2-L8				
Bathroo A2470	Hang Dewall @ Bathrooms, 212	6 6 08 Dec 12	12 Dec 12	• i	1		1		1 1 1		- 1 1				11		11
A2490	Tang Drywai @ Batricoms 212	5 5 12 Dec 12	10 Dec 12	++	· <del>† · · · · †</del>	++			+++	+++			Tage 8 Sand Drawal @ Bathr	212			tt-
A2067	Install Ceramic / Waterproofing Membrane- 2-L3	5 5 09-Jan-14	15-Jan-14	-1 i -	1		1		1 1 1	11	11	11	Install Ceramic / Waterpro	ofino Membrane	- 2-13		11
A2070	Instal Counters- 2-L3	2 2 18-Jan-14	17-Jan-14										I Instal Counters- 2-L3		- T		
A2066	Trim-Out Plumbing- 2-L3	5 5 20-Jan-14	24-Jan-14	11	1		1		1 1 1	1 1 1	11		Trim-Out Plumbing 2-L3		1 1		11
A2069	Install Toilet Accessories- 2-L3	1 1 27-Jan-14	27-Jan-14										I Install Tollet Appensories	2-13			
4th Floo	r			T	7	гтт		1 1 1 1	ттт	- T - T - T			T T T T T T	(*****	TTT		I'T
Colum	is 3 to 6																
A5095	Install Top Track - 2-L4 - Col 3 to 6	2 0 07-Oct-13 A	08-Oct-13 A								l In	tal Top 1	rack - 2-L4 - Col 3 to 6				
A5096	Core for MEP - 2-L4 - Col 3 to 6	1 0 14-Oct-13 A	18-Oct-13 A								11	ore for I	EP - 2-L4 - Co 3 to 8				
A5097	Frame Toilet Wall + Demising Wall - 2-L4 - Col 3 to 6	2 2 06-Nov-13	07-Nov-13	1					444			Frame	e Toile: Wall + Demising Wall - 2	L4 - Col 3 to 6			↓↓.
A5098	Frame Walls in Corridor - 2-L4 - Col 3 to 6	2 2 08-Nov-13	07-Nov-13									Frame	Walls in Corridor - 2-L4 - Col 3	s to 6:			
A5100	Fire Protection Risers & Floor Control Stations - 2-L4 - Col 3 to 6	2 2 08-Nov-13	12-Nov-13	- 1								Firef	totection Risers & Fibor Contro	Stations 2-L4	- Col 3 to 6		
A5102	HVAC Pipe Risers - 2-L4 - Col 3 to 6	2 2 08-Nov-13	12-Nov-13	- 1							- 1 - 1	E FIVAC	Pipe Risers - 2-L4 - Col 8 to 6				
A510:	Install Plumbing Riserss - 2-L4 - Col 3 to 6	2 2 08-Nov-13	12-Nov-13		1 1				1 1 1			Insta	Plumbing Risenss - 2-L4 - Col 2	3 to 0			1 1
ASTUE	GWB 1.0.W 2-L4 - C013 to 6	2 2 US-NOV-13	12-Nov-13	++		∔			+++			GWE	1.0.W 2-L4 - Col 3 to 6	<u></u>		· · · · · · ·	÷÷-
ASTIL	Lottell Floatels Direc Constant, 2114, Col 2 to 6	2 2 13-NOV-13	14-NOV-13									Dua	mains @ Rooms - 2-L4 - Gol 3	00			
ASTIC	Install Electric Riser Conduit - 2-L4 - Col 3 to 0	2 2 13-NOV-13	14-Nov-13	1 1	1 1	i i i	1	1 1 1	111	111	- 1 - 1	I KISLA	Electric Riser Gonduit - 2-L4 -	013100	i i		i i
45107	Install Horizontal EMT - 2-14 - Col 3 to 6	1 1 18-Now-13	18-Nov-13	11								dest	Horizontal FMT - 2-14 - Col 3	toß			
A5117	Partition Eramina w/ Door Frames / Close Shafts - 2-14 - Col 3 to 6	2 2 19-New 13	10-Nov-13	1 1	1		1		1 1 1		1 1	Part	ion Framing will poor Frames	Close Shales	a dealers		1 1
A5106	Horizontal Plumbing Mains - 2-14 - Col 3 to 6	3 3 18-Nov-13	20-Nov-13	++		++		++	+ + +	-+++		Hor	aontal Plurbbing Mains - 2-14 - 1	Col 3 to 6		1	tt-
A5106	HVAC Piping Mains - Isolated Locations - 2-L4 - Col 3 to 6	1 1 21-Nov-13	21-Nov-13	11								HW	C Piping Mains - Isolated Locat	ons 2-L4 - Co	3 to 8		
A5113	Install EMT in Units - 2-L4 - Col 3 to 6	1 1 21-Nov-13	21-Nov-13	1 1	1				1 1 1			Inst	all EMT in Units - 2-L4 - Col 3 to	6			11
A5111	Install Fire Protection Mains - 2-L4 - Col 3 to 6	2 2 21-Nov-13	22-Nov-13	1 1								I Inst	all Fire Protection Mains - 2-L4	Col B to 6			
A5120	Install Elec Boxes @ Rooms - 2-L4 - Col 3 to 6	2 2 21-Nov-13	22-Nov-13	1 :	1		1		1 1 1		- 1 - 1	I Inst	all Elec Borres @ Rooms - 2-L4	Col 3 to 6	1 1		1 1
A5122	Install Electric Panels - 2-L4 - Col 3 to 6	2 2 21-Nov-13	22-Nov-13									I Inst	all Electric Panels - 2-L4 - Col 3	lto 6			
A5119	Pull Control Wiring to T-Stats - 2-L4 - Col 3 to 6	1 1 25-Nov-13	25-Nov-13	11			1		1 1 1		- 1 1	l Pu	Control Wiring to T-Stats - 2-L	4 - Col 3 to 6			
A5126	Test Plumbing - 2-L4 - Col 3 to 6	1 1 25-Nov-13	25-Nov-13									Tes	Plumbing - 2-L4 - Col 3 to 6				1 1
A5112	Install Duct Branches @ Rooms - 2-L4 - Col 3 to 6	2 2 25-Nov-13	28-Nov-13	- 1			1		1 1 1		- 1 1	li ins	tall Duct Branches @ Rooms - 2	-L4 - Col 3 to 6			11
A5118	Pull Elec Wiring in EMT - 2-L4 - Col 3 to 6	2 2 25-Nov-13	26-Nov-13	ļ		<u></u>			<u> </u>			I; Pu	Elec Wiring in EMT + 2-L4 - Co	sl3 tot6			44.
A5123	Pull Elec Wiring @ Rooms - 2-L4 - Col 3 to 6	2 2 25-Nov-13	26-Nov-13	- 1								Pu	Elec Wiring @ Rooms - 2-L4 -	Col 3 to 6			
A5124	install Firestopping - 2-L4 - Col 3 to 6	2 2 25-Nov-13	26-Nov-13	- 1					1 1 1		- 1 1	lins	tall Firestopping - 2-L4 - Col 3 to	16			11
A5114	Install Fire Protection Branch Lines - 2-L4 - Col 3 to 6	2 2 27-Nov-13	29-Nov-13	- 1	1 1		1		1 1 1		11	ins	all Fire Protection Branch Line	- 2-04 - 001310	00		
A0110	Control wining to valves / Dampers / Equip - 2-24 - Col 3 to 0	2 2 27-Nov-13	28-INOV-13	- i -			1		1 1 1		- 1 - 1		te Train BOLIS 214 Col 24	57 Egup - 2-04-	003100		11
A5120	Bough-In Instructions - 2-14 - Col 3 to 6	2 2 27400413	02-Dec-12	++	·++	┝╍┝╍┿			++	+++	+		cush-in inforstiture - 2-14- Coll 3 a	2 10 8			<u>+</u> +-
Colum	s 6 to 8	2 2 02-060-10	03-060-13										Contraction of the Contraction o				11
A5130	Install Top Track - 2-L4 - Col 6 to 8	2 0 14-Oct-13A	15-Oct-13A								11	stal Top	Track - 2-14 - Col 6 to 8				
A5134	Core for MEP - 2-14 - Col 8 to 8	1 0 14-Oct-13A	18-Oct-13A	1 1	1 1		- i -		1 1 1		- 111	tore for I	FP - 0-14 - Col 6 to 8	í I I I	1 1		1 1
A5132	Frame Toilet Wall + Demising Wall - 2-L4 - Col 6 to 8	2 2 08-Nov-13	12-Nov-13									Fram	Toilet Wall + Demising Wall - 3	2-L4 Col 8 to 8			
A5133	Frame Walls in Corridor - 2-L4 - Col 6 to 8	2 2 08-Nov-13	12-Nov-13	1.1		T T			TTT	- T - T - T		Fram	e Walls in Corridor - 2-L4 - Col	6 to 8			T T
A5135	Fire Protection Risers & Floor Control Stations - 2-L4 - Col 8 to 8	2 2 13-Nov-13	14-Nov-13	1								I Fre	Protection Risers & Floor Contro	I Stations 2-L4	- Col 6 to 8		
A5137	HVAC Pipe Risers - 2-L4 - Col 6 to 8	2 2 13-Nov-13	14-Nov-13	1 1	1		1		1 1 1		- 1 1	I HVA	Pipe Risers - 2-L4 - Col 8 to 8		11		11
A5138	Install Plumbing Riserss - 2-L4 - Col 6 to 8	2 2 13-Nov-13	14-Nov-13						1 1 1			I Insta	Plumbing Riserss - 2-L4 - Col	ð to S			
A5143	GWB T.O.W 2-L4 - Col 6 to 8	2 2 13-Nov-13	14-Nov-13	11								I GWE	T.O.W 2-L4   Coli6 to 8	(			1.1.
A5145	Duct Mains @ Rooms - 2-L4 - Col 6 to 8	2 2 15-Nov-13	18-Nov-13	-								Duc	Mains @ Roonts - 2-L4 - Col 6	to 8			ΙT
A5151	Install Electric Riser Conduit - 2-L4 - Col 6 to 8	2 2 15-Nov-13	18-Nov-13	11					1 1 1			I inst	Electric Riser Conduit - 2-L4	Col 6 to 8			11
A5136	Vertical Duct Risers - 2-L4 - Col 8 to 8	3 3 15-Nov-13	19-Nov-13									Vert	dal Duct Risers - 2-L4 - Col 6 ti	9 <b>8</b>			11
A5142	Install Horizontal EMT - 2-L4 - Col 6 to 8	1 1 20-Nov-13	20-Nov-13									linst	al Horizontal EMT - 2-L4 - Col 6	to 8		1	
A5152	Partition Framing w/ Door Frames / Close Shafts - 2-L4 - Col 6 to 8	2 2 20-Nov-13	21-Nov-13	1 1	1.1	: : :		1 1 1	1 1 1			I : Par	tition Framing w/ Door Frames /	Close Shafts - 2	-L4 - Col.6 to	38 -	: :

1124 - W	SU - Nev	v Student Residence Hall and Dining Facility	* Project Sch	* Project Schedule [for dist] TASK filter: All Activities										Page 33 of 39														
Activity ID	1	Activity Name	Orig	Rem Start	Finish	2012	2								2	013							2014				2	015
			Dur Dur Jun Jul Aug Seo Oct Nov Dec Jan F Mar Age							Apr M	ay Ju	ı Jul	Aug	Sep (	Dat Ne	w D	o Jan F Mar Apr	May J	un Jul /	Aug Sep	Oct No	v Dec	Jan	Feb <sup>lar</sup>				
	A5141	Horizontal Plumbing Mains - 2-L4 - Col 6 to 8	3	3 20-Nov-13	22-Nov-13															ĿН	prizontal Plumbing Ma	ns - 2 L/	4 - Col 0 t	to 8				
	A5144	HVAC Piping Mains - Isolated Locations - 2-L4 - Col 6 to 8	1	1 25-Nov-13	25-Nov-13		1	1	11	1		1	11	1	1	1	1 1	- 1	1	ШH	V/C Piping Mains - Is	dated Lr	cations -	2-L4 - C	ol6 to 8	1	i	i 1.
	A5148	Install EMT in Units - 2-L4 - Col 6 to 8	1	1 25-Nov-13	25-Nov-13															1) Ir	stall EMT in Units - 2-	4 - Col	6 to 8					
	A5161	Test Plumbing - 2-L4 - Col 6 to 8	1	1 25-Nov-13	25-Nov-13	1	1		11							1	1	- 1		ųτ	est Plumbing - 2-L4 - (	Jol 6 to F	3	1	11			11
	A5146	Install Fire Protection Mains - 2-L4 - Col 6 to 8	2	2 25-Nov-13	26-Nov-13				11											±É №	stall Fire Protection M	ains - 2-	L4 - Colf	5 to 8				11
	A5155	Install Elec Boxes @ Rooms - 2-L4 - Col 6 to 8	2	2 25-Nov-13	26-Nov-13	1		1	тт				[ T	Τ			Τ···Τ	T		li k	stall Elec Boxes @ Ro	oms - 2	-L4 - Colf	6 to 8	1 1	· · · · ·		CTT.
	A5157	Install Electric Panels - 2-L4 - Col 6 to 8	2	2 25-Nov-13	26-Nov-13	1 1	1.	÷ .	1 1			1.1	1 1		1	4	1 1	- 1		tÉ 🖌	stall Electric Panels - 1	2 L4 - C/	ol 6 to 8	1	1 1	1	1	6 E.
	A5154	Pull Control Wiring to T-Stats - 2-L4 - Col 6 to 8	1	1 27-Nov-13	27-Nov-13				11											ίF	ul Control Wiring to T	-Stats - ?	2-14 - Cb	16 to 8				11
	A5147	Install Duct Branches @ Rooms - 2-L4 - Col 6 to 8	2	2 27-Nov-13	29-Nov-13															ΞĒΤ	nstall Duct Branches @	Room	s - 2-L4 - 1	Col 6 to	s			11
	A5153	Pull Elec Wiring in EMT - 2-L4 - Col 6 to 8	2	2 27-Nov-13	29-Nov-13	1			11							1	1	- 1		έF	ul Elec Wiring in EMT	2.14	Col 6 to	8	11			11
	A5158	Pull Elec Wiring @ Rooms - 2-L4 - Col 6 to 8	2	2 27-Nov-13	29-Nov-13	1			11				1	+-			t			11	ul Elec Wiring @ Roo	ms - 2-l	4 - Col 6	to 8	11	· • •		(** <b>†</b>
	A5156	install Firestopping - 2-L4 - Col 6 to 8	2	2 27-Nov-13	29-Nov-13				1 1							1	1 1			11	stall Finestopping - 2-	4 - Col	6 to 8	1	1 1	1		11
	A5146	Install Fire Protection Branch Lines - 2-L4 - Col 6 to 8	2	2 02-Dec-13	03-Dec-13	1 1										1	1			à.	Install Fire Protection I	Franch L	ines - 2-L	4 - Col 6	to 8			4 8
	A5150	Control Wiring to Valves / Dampers / Equip - 2-L4 - Col 6 to 8	2	2 02-Dec-13	03-Dec-13															- ja -	Control Wiring to Valv	is / Dam	pers/ Ec	uip - 2-L	4 - Col 6	to 8		
	A5160	Set & Tie-In FCUs - 2-L4 - Col 6 to 8	2	2 02-Dec-13	03-Dec-13															÷.	Set & Tip-In FCUs - 2-	4 - Gol	6 to 8					11
	A5162	Rough-In Inspections - 2-L4 - Col 6 to 8	2	2 04-Dec-13	05-Dec-13	1		1	îΤ	· · · ·			i	Ť	1	1	ŤΫ	1	- I	1	Rough-In Inspections	2-L4-	Col 6 to 8	-	11	1		(TT)
	Bedroo	ms / Common Areas					1		11			1	11			1	1 1	- 1				1 1	1 1		1 1			6 E.
	A2028	Board Walls & Ceiings- 2-L4	5	5 24-Dec-13	31-Dec-13				11							1					Board Walls & Ce	ings 2	-L4	1				11
	A2040	Tape Walls & Ceilings- 2-L4	5	5 02-Jan-14	08-Jan-14	1			11												Tape Walls & Ce	lings 2	-14					
	A2026	Prime Paint Walls & Ceilings- 2-L4	5	5 09-Jan-14	15-Jan-14				11							1					Prime Paint Wa	als & Ce	ings-24	4				11
	A2036	Grid Acoustical Ceilings in Corridors- 2-L4	2	2 16-Jan-14	17-Jan-14	1		1	111							1					Grid Acoustical	Ceilings	in Corrid	ors-2-L4				( T
	A2031	Trim Out MEPs & Install Lighting- 2-L4	15	15 20-Jan-14	07-Feb-14				11												Trim Out M	EPs & Ir	istal Light	ting 2-L	4 1			11
	A2032	Install Flooring- 2-L4	8	9 04-Feb-14	14-Feb-14				11								1	- 1			Install Flo	oring- 2-	L4					
	A2038	Install FE / Cabinets- 2-L4	1	1 10-Feb-14	10-Feb-14				11												Install FE /	Cabinet	s-2-L4	1				11
	A2037	ACT Tile- 2-L4	2	2 10-Feb-14	11-Feb-14				11												I ACT Tile-	2-L4						
	A2033	Install Doors & Hardware- 2-L4	4	4 18-Feb-14	21-Feb-14			1	177				1	T-	1	1	11				Install Do	ors &H	ardware-	2-L4				( T
	A2035	Finish Paint- 2-L4	2	2 24-Feb-14	25-Feb-14		1	1	1 1			1	1		1	1	: :	- 1	1	1	Finish P	aint-2-L	4		1 1	1	1	11
	Bathroe	oms																										11
	A2481	Hang Drywall @ Bathrooms- 2-L4	5	5 06-Dec-13	12-Dec-13				11				1				1			- i •	Hang Drywall @ Bat	nrooms-	2-14	1	1			( I.
	A2482	Tape & Sand Drywall @ Bathrooms- 2-L4	5	5 13-Dec-13	19-Dec-13				L							J	11			11	Tape & Sand Drywa	🛦 🕲 Bar	hrooms	2-L4	I	1		iL.
	A2044	Install Ceramic / Waterproofing Membrane- 2-L4	5	5 16-Jan-14	22-Jan-14	1		1	ΤT				T	T	1	1	Π	1			Install Cerami	o/Wate	rproofing	Membra	ne- 2-L4			Π
	A2047	Install Counters- 2-L4	2	2 23-Jan-14	24-Jan-14				11							1					I Install Counte	15-2-L4		1				11
	A2045	Trim-Out Plumbing- 2-L4	5	5 27-Jan-14	31-Jan-14				11							1	1	- 1			Trim-Out Plu	imbing-3	2-14		1			11
	A2046	Install Toilet Accessories- 2-L4	1	1 03-Feb-14	03-Feb-14				11							1					Install Tolet	Accesso	ries- 2-L4	•				11
	5th Floo	r .			_		į	į	įį				jj.	į	j	. į	ii			į		<u> </u>				.i		j
	Colum	ns 3 to 6							11							1												
	A5235	Install Top Track - 2-L5 - Col 3 to 6	2	0 07-Oct-13 A	08-Oct-13 A				11				1	1	i.	1	1	- 11	Insta	il Ťop	Track - 2-L5 - Col 3 t	36		1				11
	A5236	Core for MEP - 2-L5 - Col 3 to 6	1	0 08-Oct-13 A	08-Oct-13 A		1	1	11							1	: :	- 9	Core	e filpr I	ИЕР - 2 L5 - Col 3 to 6	4	1 1		1 1	1	1	6 E.
	A5237	Frame Toilet Wall + Demising Wall - 2-L5 - Col 3 to 6	2	0 09-Oct-13 A	11-Oct-13 A				1 1							1	1 1	- 11	Fra	ne To	vilet Wall + Demising W	/all - 2-L	5 - Col 3 1	to 6		1		
	A5238	Frame Walls in Corridor - 2-L5 - Col 3 to 6	2	0 09-Oct-13 A	11-Oct-13 A	<u>↓</u>			į				ļ				Ļ	ļ.	Fra	ne W	alls in Corridor - 2-L5	Col 3 t	o 6			. <u>.</u>		j
	A5240	Fire Protection Risers & Floor Control Stations - 2-L5 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13				11				1			1	1	1		Fire	Protection Resers & FI	pr Cont	rol Station	ns - 12-L5	- Coli3 to	PP		11
	A5242	HVAC Pipe Risers - 2-L5 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13		1		1 1							1		- 1	- 1	HVA	C Pipe Risers - 21L5	Col 3 to	16	- 1	1 1			4 E
	A5243	Install Plumbing Riserss - 2-L5 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13				11											Insta	il Plumbing Riserss - 2	4L5 - Co	J 3 to 6					11
	A5248	GWB T.O.W 2-L5 - Col 3 to 6	2	2 06-Nov-13	07-Nov-13		1		11									- 1	- 1	GW	3 T.O.W 2 L5 - Col	3 to 6	11		1			1 E
	A5250	Duct Mains @ Rooms - 2-L5 - Col 3 to 6	2	2 08-Nov-13	12-Nov-13	ļ			↓↓				↓∔.				Ļļ			Bug	t Mains @ Rooms - 2-	15 - Gol	3 to 6		L			<i>↓↓</i>
	A5256	Install Electric Riser Conduit - 2-L5 - Col 3 to 6	2	2 08-Nov-13	12-Nov-13		1		1 1			1	1		1	1	1 1	1	- I	Inst	all Electric Riser Cond	st - 2-L5	) - Col 3 to	06	1 1	1	1	6 1
	A5244	Vertical Duct Risers - 2-L5 - Col 3 to 6	3	3 08-Nov-13	13-Nov-13				1 1							1			- iP	Ver	tical Duct Risers 12-L	9 - Cd 3	to 6	1				11
	A5247	Install Horizontal EMT - 2-L5 - Col 3 to 6	1	1 14-Nov-13	14-Nov-13				11							1				Ins	all Horidontal EMT - 2	L5 - Col	3 to 6			1		4 E.
	A5257	Partition Framing w/ Door Frames / Close Shafts - 2-L5 - Col 3 to 6	2	2 14-Nov-13	15-Nov-13		1		11							1				, Pa	ttpn Framing w/ Doo	Frame	s/ Close S	Sharts - 2	-Lo - Col	3 to 6		11
	A5246	Horizontal Humbing Mains - 2-L5 - Col 3 to 6	3	3 14-Nov-13	18-Nov-13	+			÷			·	↓				÷		; <mark> </mark>	He	rizontal Plumbing Mair	6-2-15	- Col 3 to	00	<u></u>	. <b>.</b>		į
	A5246	HVAC Mping Mains - Isolated Locations - 2-L5 - Col 3 to 6	1	1 19-Nov-13	19-Nov-13				11							1				1 HV	AC Mping Mains I Iso	ated Loc	ations - 2	-LD - Co	3 to 6			
	A5253	Install EMT In Units - 2-Lb - Col 3 to 6	1	1 19-Nov-13	19-Nov-13	1 1	1	1	11			1	1	1	1	í.	1	- 1		i lins	tai EMI in Units 2-L	- Cal 3	1010		11	1		( I.
	A0201	Install Fire Protection Mains - 2-L5 - Gol 3 to 0	2	2 18-NOV-13	20-NOV-13	1			1							1	1	- 1		1	saur reprotection Ma	ans - 2-L	5-0018	10 0		1		4 E
	A5260	Install Elec boxes @ Rooms - 2-L5 - Col 3 to 5	2	2 19-Nov-13	20-Nov-13	1 1	1	1	11	1		1	11	1	1	1	1 1	- 1	1	1	Ran Elleq Boxes @ Roo	15-2-L	.0 Col 3	10 0	1 1	1		i 1.
	A0262	Install Electric Panels - 2-L0 - Uol 3 to 0	2	2 18-Nov-13	20-INOV-13	++			÷+				<b> </b>			·	++				stall Elegric Panels - 2	10-00	3106	24-8		· • • • • •		j

124 - WSU - Nev	w Student Residence Hall and Dining Facility		* Project Schedule [for dist] TASK filter: All Activities												Page 34 of 39												
ctivity ID	Activity Name	Orig	Rem Start	Finish	2012									2	013						20	314				201	5
		Dur	Dur		Jun Ji	ul Aug	Sep	Oct N	lov De	c Jan	FN	Mar A	pr Ma	y Jun	Jul A	lug Se	p Oct	Nov D	)ec .	lan F MarAprN	lay Jun	Jul Aug	Sep Oc	t Nov	Dec .	Jan F	eb la
A5252	Instal Duct Branches @ Rooms - 2-L5 - Col 3 to 6	2	2 21-Nov-13	22-Nov-13														111	nstall	Duct Branches @ R	oonts - 2	L5 - Col	to 6				_
A5258	Pull Elec Wiring in EMT - 2-L5 - Col 3 to 6	2	2 21-Nov-13	22-Nov-13	- i -	1	1 1	1 1	i		1	1	1	1	1 1	- i	i i	i Lif	NI E	ec Wiring in BMT -12	Lti-Ce	3 to B	11	-i -i		1	1
A5263	Pull Elec Wiring @ Rooms - 2-L5 - Col 3 to 6	2	2 21-Nov-13	22-Nov-13			1 1	1 1						1	1 1			l ite	ыÈ	ec Wiring @ Rooms	- 2 L5 -	Col 3 to 6	1 1	1 1		- 1	
A5264	install Firestopping - 2-L5 - Col 3 to 6	2	2 21-Nov-13	22-Nov-13			1	11	1			1	1	1	1 1	1	1	11	nstall	Firestopping 2-L5	Col 3 to	6	11	1 1		1	
A5254	Install Fire Protection Branch Lines - 2-L5 - Col 3 to 6	2	2 25-Nov-13	26-Nov-13	1		1	1							1				Instal	Fire Protection Bra	tch Liner	- 2-65 - 0	ol 3 to 6				
A5255	Control Wiring to Valves / Dampers / Equip - 2-L5 - Col 3 to 6	2	2 25-Nov-13	26-Nov-13			1	1 1							1 1			10	Cont	ol Wiring to Valves/	Damper	s/ Equip	2-L5 - C	ol 3 to t	3		
A5265	Set & Tie-In FCUs - 2-L5 - Col 3 to 6	2	2 25-Nov-13	28-Nov-13			1 1	1 1				-			1 1			i i :	Set 8	Tie-In FCUs + 2-L5	- Col 3 tr	8	1 1	1 1		-	
A5266	Test Plumbing - 2-L5 - Col 3 to 6	1	1 04-Dec-13	04-Dec-13			1 1								11			i ii	Test	Plumbing - 2 L5 - C	ol 3 to 6			1 1			
A5267	Rough-In Inspections - 2-L5 - Col 3 to 6	2	2 05-Dec-13	06-Dec-13											1.1.				Ret	igh-In Inspections - 1	1-L5 - Co	3 to 8					
Colum	ns 6 to 8					1	1	TΤ	1	1		1	1	1	TT	1	1				T	1 1	1 1	11		1	1
A5270	Install Top Track - 2-L5 - Col 6 to 8	2	0 07-Oct-13 A	08-Oct-13 A			1 1	1 1					1.	1.	11	- 1	- i I Ir	etall To	p Tra	ck - 2-L5 - Col 6 to 8	1			1 1		- 1	- 81
A5274	Core for MEP - 2-L5 - Col 6 to 8	1	0 08-Oct-13 A	08-Oct-13 A													10	ore for	MEP	- 2-L5 - Col 6 to 8				1 1			
A5271	Frame Toilet Wall + Demising Wall - 2-L5 - Col 6 to 8	2	0 08-Oct-13 A	11-Oct-13 A											11		1.	rame T	oile	Wall + Demising Wa	1 - 2-L5 -	Col 6 to 8		1 1			
A5273	Frame Walls in Corridor - 2-L5 - Col 6 to 8	2	0 09-Oct-13 A	11-Oct-13 A				1							1		1.6	rame V	Vals	in Corridor - 2-L5	Col € to 8						
A5275	Fire Protection Risers & Floor Control Stations - 2-L5 - Col 6 to 8	2	2 08-Nov-13	12-Nov-13			1 1	11							1.1			🖬 🖬	e Pro	tection Risers & Flo	or Contro	ol Stations	- 2-L5 - 0	Col 6 to	8		
A5271	HVAC Pipe Risers - 2-L5 - Col 6 to 8	2	2 08-Nov-13	12-Nov-13			1 1								11			∎ HV	/AC F	ipe Risers - 2-L5 - 0	Col 🖥 to P			1 1			
A5278	Install Plumbing Riserss - 2-L5 - Col 6 to 8	2	2 08-Nov-13	12-Nov-13			1	11							11			🖬 Ins	stall P	lumbing Riserss - 2-	L5 - Col	6 to 8		1 1			
A5283	GWB T.O.W 2-L5 - Col 6 to 8	2	2 08-Nov-13	12-Nov-13				1 1							1 1			I GV	٧В	O.W 2-L5 Col 8	to 8			1 1			
A5285	Duct Mains @ Rooms - 2-L5 - Col 6 to 8	2	2 13-Nov-13	14-Nov-13			i	ii.				<b>.</b>			ii.		. i	I Du	uct M	ains @ Flooms - 2-1	5 - <b>Çol</b> 6	to 8	l				
A5291	Install Electric Riser Conduit - 2-L5 - Col 6 to 8	2	2 13-Nov-13	14-Nov-13														I Ins	stall E	lectric Riser Conduit	- 2 L5 -	Col 6 to 8					
A5276	Vertical Duct Risers - 2-L5 - Col 8 to 8	3	3 13-Nov-13	15-Nov-13	- 1		1	11						1	11			I Ve	rtical	Duct Risers 2-L5	- Col 6 to	8	11	1 1			
A5282	Install Horizontal EMT - 2-L5 - Col 6 to 8	1	1 18-Nov-13	18-Nov-13			1 1	1 1							1 1			i i in	istal	Horizontal EMT - 21L	.5 - Col 6	to 8	1 1	1 1		-	
A5292	Partition Framing w/ Door Frames / Close Shafts - 2-L5 - Col 6 to 8	2	2 18-Nov-13	19-Nov-13		1	1 1	1 1	-					1	1 1		1	I P	artitic	n Framing w/ Door I	rames /	Close Sh	ats - 2-Lt	5 - Col e	to 8		1
A5281	Horizontal Plumbing Mains - 2-L5 - Col 6 to 8	3	3 18-Nov-13	20-Nov-13			l	LL.							L			L H	lorizo	ntal Plumbing Mains	-24L5-	Col 6 to 8	Įļ				
A5284	HVAC Piping Mains - Isolated Locations - 2-L5 - Col 6 to 8	1	1 21-Nov-13	21-Nov-13	_		1 1	11						1	11			1.1	IVAC	Piping Mains - Isolat	ed Local	tons - 2-L	5 - Col 6 t	to 8		- 1	1
A5288	Install EMT in Units - 2-L5 - Col 6 to 8	1	1 21-Nov-13	21-Nov-13											1 1			l l lr	nstall	EMT in Units - 2-L5	Col 6 to	8		1 1			
A5286	Install Fire Protection Mains - 2-L5 - Col 6 to 8	2	2 21-Nov-13	22-Nov-13	- i i	1	1 1	11	1		1	1	1	1	11	1	1	111	nstall	Fire Protection Main	s - 2-L5	Colßto	9	1 1		- 1	1
A5295	Install Elec Boxes @ Rooms - 2-L5 - Col 6 to 8	2	2 21-Nov-13	22-Nov-13															nstal	Elec Botes @ Rodn	is - 2-L5	- Coli6 to	8				
A5297	Install Electric Panels - 2-L5 - Col 6 to 8	2	2 21-Nov-13	22-Nov-13			į	÷÷.							÷÷.		·		nstal	Electric Panels - 2-	5 - Col 6	to 8	h				
A5294	Pull Control Wiring to T-Stats - 2-L5 - Col 6 to 8	1	1 25-Nov-13	25-Nov-13			1 1	1 1						1	1 1	1		1 11	Pull C	ontrol Wiring to T-Fi	ats - 2-L	5 - Cel 6 t	8	1 1		- 1	
A5287	Install Duct Branches @ Rooms - 2-L5 - Col 6 to 8	2	2 25-Nov-13	26-Nov-13	- 1		1	11	1			1	1	1	11	1	1		instal	Duct Branches @:H	ooms -	2-L5 - Col	6 to 8	1 1		1	1
A5293	Pull Elec Wiring in EMT - 2-L5 - Col 6 to 8	2	2 25-Nov-13	26-Nov-13			1												Pulle	lec Winng in EMT +	2-L9 - Ci	616 to 8		1 1			
Abzee	Pull Elec Wiring @ Rooms - 2-L5 - Col 6 to 8	2	2 25-Nov-13	20-Nov-13	- 1			1 1							1 1				Pulle	sec winng @ koom	- 2-L5 -	010 10 2		1 1			
AD296	Install Firestopping - 2-Lo - Col o to 8	2	2 20-INOV-13	20-INOV-13		··	÷	÷÷.							÷÷.		·		nstal	Frestopping - 2-Lo			l al a	+		·	
AD285	Install Fire Protection Branch Lines - 2-L0 - Col 0 to 8	2	2 27-Nov-13	29-NOV-13	- 1		1 1								11				insta	File Protection Bita	noniLine	5-2-0-1	010108				
A5200	Control wiring to valves / Dampers / Equip - 2-L0 - Collo to 8	2	2 27-INOV-13	20-IN09-13			1	11							11				Cont	To wring to valves/	Damper	s/ Equip	-2-00-0	-00 0 10	8		
A030L	Tex Durables 215 Cold to 5	2	2 27-INOV-13	28-1909-13	- 1										1 1				Seu o	menning of a h	- Coro i	° I		1 1			
A5301	Percent la lassastinas 215. Cal 8 to 9	2	2 05 Dec 12	09-Dec-13		1	1 1	1 1						1	1 1	- 1		1 8	les	Plumbing - 2-L5 - C			1 1	1 1			1
Redroc	ms / Common Areas	- 4	2 00-Dec-13	00-Dec-13	++	··•	łł	÷+-				··		·	÷+-		-+			grifin inspections -		101010	÷			·	+-
A2074	Board Walls & Ceilings, 2-15	5	5 27-Dec-13	03-Jan-14			1	11				1	1	1	11			1		Board Walls& Cell	nos 2-1		11	11			1
A2086	Tane Walls & Ceilings, 2,15	5	5 07-Jan-14	13- Jan- 14			1 1							1	11				- Te	Tane Walk & Cel	inge 2.1	L I		1 1			
A207/	Prime Paint Walk & Calinos, 2-1 5	5	5 14- Jan-14	20- Jan- 14			1 1	1 1						1	1 1				- I'	Prime Paiht Wal	ings- 2-c is & Caili	ne 215	11	1 1		- 1	- 1
A2080	Grid Acoustical Ceilings in Corridors- 2-L5	2	2 21-Jan-14	22-Jan-14	11									1						Grid Acoustical	eilings i	Confiden	- 2-L5				
A2077	Trim Out MEPs & Install Lighting- 2-15	15	15 23-Jan-14	12-Feb-14	1		f=== i	tt-				··	··••	÷÷	t-t-t-	···		1-1-	• • • •	Trim Dat ME	Ps & Inc	tall Lightin	2.16	1		-+-	÷
A2084	Install FE / Cabinets- 2-L5	1	1 13-Feb-14	13-Feb-14										1						I Install FF AC	abinets	2-1.5	1-1	11			
A2083	ACT Tile- 2-L5	2	2 13-Feb-14	14-Feb-14	11	1	1	11	1			1		1	11		1	i i		ACT TRe- 1	L5	-	11	1 1		1	1
A2076	Install Flooring- 2-L5	9	9 18-Feb-14	28-Feb-14	1 ! .	1	1		1				1	1	11		1			Install Flo	orina- 2-'	5		1 1			
A2076	Install Doors & Hardware- 2-L5	4	4 03-Mar-14	06-Mar-14	11	1	1 1	11	1		1	1	1	1	11	1	1	i i		Install De	ors & H	ardware- 2	L5	1 1		1	1
A2081	Finish Paint- 2-L5	2	2 07-Mar-14	10-Mar-14	1			<u>† † †</u>						· · · · ·	<u>†</u> †-		-			Finish P	aint 2-L	5	††	+			竹
Bathro	oms							11	1			1		1				1			1		11			1	
A2483	Hang Drywall @ Bathrooms- 2-L5	5	5 09-Dec-13	13-Dec-13			: 1	: 1						1	11			1 h	I Ha	ing Drywall @ Bathr	oonts- 2-	15	1				
A2484	Tape & Sand Drywall @ Bathrooms- 2-L5	5	5 16-Dec-13	20-Dec-13			1							1	11			11	•	ape & Sand Drywall	@ Bathr	oms 2-L	6	11			
A2090	Install Ceramic / Waterproofing Membrane- 2-L5	5	5 21-Jan-14	27-Jan-14																Install Ceramic	/ Waterr	roofing M	embrane	2-L5			
A2093	Install Counters- 2-L5	2	2 28-Jan-14	29-Jan-14	1 1	1	1	t t	1	- 1				1	1	···†··	1	1		Install Counter	s 2 L5			11		-	Ť
A2091	Trim-Out Plumbing- 2-L5	5	5 30-Jan-14	05-Feb-14		1	1	1				1		1	11		1			Trim-Out Plan	nbing- 2-	15	1 1	1 1		- 1	

1124 - WSU - Ne	* Project Sche	Project Schedule [for dist] TASK filter: All Activities									Page 35 of 39																					
Activity ID	Activity Name	Rem Start	Finish	2012									201	3								(	3	014						201	5	
		Dur	Dur		Jun J	ul Aug	Sep C	Oct Nov	Dec	Jan	F M	lar Apr	May	Jun 🛛	ul Au	g Sep	Oct	Nov	Dec	Jan	F N	lar Ap	r May	y Jur	n Jul	Aug	Sep (	Oct N	ov De	ec Ja	n Fe	eb <sup>la</sup>
A2090	Install Toilet Accessories- 2-L5	2	2 06-Feb-14	07-Feb-14																1	lins	tall Toil	et Acce	essor	ies 2	1.5				T	T	T
6th Floo	pr					1	11	1	1	11	1	1	11			1				1	1	1	1	1		11	ı İ	1	1			1
Colum	ns 3 to 6						1						<u> </u>		<u>_</u>		ļ							4		Ļ						<u>∔</u>
A5379	Core for MEP - 2-L6 - Col 3 to 6	1	0 25-Sep-13A	30-Sep-13A			11						1 1				Co	e for	MEP	- 2-48	/- Go	13108	1			1 1	1					
A5375	Install Top Track - 2-L6 - Col 3 to 6	2	0 01-Oct-13 A	04-Oct-13 A			1 1						1				In	al T	p Tr	ick - 2	-L6-	Co 31	06	1			1					
A5371	Frame Tollet Wall + Demising Wall - 2-L6 - Col 3 to 6	2	0 07-Oct-13A	10-Oct-13 A									1 1					ame	Tole	Wal	+ Der	nising	Mall - 1	2-L6	Col	to 6	1					
A5378	Frame Walls In Combor - 2-L0 - Col 3 to 0	2	0 07-00t-13A	10-000-13 A			11						1					ame	war	in Go	mao	7 - 2-LO		13 10	g	i		a da	- L			
A538L	HVAC Pine Protection Risers & Floor Control Stations - 2-Lo - Col 3 to 0	2	2 21-Nov-13	22-Nov-13	++-	··+	÷+-	+	+			+	++	+-	+	-+	łł		LIVA	Dino	DON P	cisers a	A C	1000		ations	- 2-10	- 40	300	!. <b>.</b>		-+-
45381	Install Plumbing Riserce - 2-18 - Col 3 to 8	2	2 21-Nov-13	22-Nov-13			11	1	1	11			11			1			Insta	Plum	hinn	Ricers	2.1	d. C	al 3 to		i i					
A5385	GWB T.O.W 2-L6 - Col 3 to 6	2	2 21-Nov-13	22-Nov-13			1 1						1 1						GW	TON	N	2-1.6 -	Col 3 t	to 6	100	ĩ I	1					
A5390	Duct Mains @ Rooms - 2-L6 - Col 3 to 6	2	2 25-Nov-13	26-Nov-13		1	11	1	1	11			11			1		i i	Duc	Mains	s (0) F	Rooms	- 2-L6	s Ce	3 to	<b>i</b> i	I İ	1	1			1
A5396	Install Electric Riser Conduit - 2-L6 - Col 3 to 6	2	2 25-Nov-13	26-Nov-13		1	1 1		1				1 1	- 1			: :		Inst	II Elec	tricR	iser C	onduit	-2-0	6 - Co	3 to F	8		1			
A5384	Vertical Duct Risers - 2-L6 - Col 3 to 6	3	3 25-Nov-13	27-Nov-13	1		1-1-1-	1	1				tt		+	+	11		Ver	cal Du	uct Ri	sers -	2-1.6 -	Col	3 to 6	11	r=t				-1-	Ť
A5387	Install Horizontal EMT - 2-L6 - Col 3 to 6	1	1 29-Nov-13	29-Nov-13														6	Inst	all Hor	izont	al EMT	- 2-L0	6 - Cr	ol 3 to	6						
A5397	Partition Framing w/ Door Frames / Close Shafts - 2-L6 - Col 3 to 6	2	2 29-Nov-13	02-Dec-13			1 1						1 1			1		1	Pa	tition F	Fram	ing w/ (	Door F	Fram	es / Cl	ose S	hafts -	2-LB -	сы з	1 10 6		
A5386	Horizontal Plumbing Mains - 2-L6 - Col 3 to 6	3	3 29-Nov-13	03-Dec-13			11						11						Ho	rizonta	al Plur	mbing	Mains -	- 2-U	6 - Co	13 to f	8					1
A5386	HVAC Piping Mains - Isolated Locations - 2-L6 - Col 3 to 6	1	1 04-Dec-13	04-Dec-13	1		L				l		11			.L	L		H/	AC Fig	aing M	Aairis -	Isolate	ed Lo	dation	5 - 2-	16 - Cc	ol 3 to	6			
A5393	Install EMT in Units - 2-L6 - Col 3 to 6	1	1 04-Dec-13	04-Dec-13		1	1 1	1	1		1	1	1 1	- 1	1	1	1		Ins	tall EM	Πiệl	Units-	2-L6 -	Col	3 to 6	1 1	i i	1	1			1
A5408	Test Plumbing - 2-L6 - Col 3 to 6	1	1 04-Dec-13	04-Dec-13									1 1						Te	t Plun	.ibing	- 2 L6	- Col 3	3 to 6	5		1					
A5391	Install Fire Protection Mains - 2-L6 - Col 3 to 6	2	2 04-Dec-13	05-Dec-13	1	1	1 1	1	1	11	- i -	1	1 1	1	1	1	1 1		Ins	tall Fin	e Pro	Aection	Mains	s- 2-I	Lβ - C	pl 3 to	16	1	1		1	i
A5400	Install Elec Boxes @ Rooms - 2-L6 - Col 3 to 6	2	2 04-Dec-13	05-Dec-13															Ins	tall Ele	CHO	xes gg	Rooms	6-2-	uo c	pi 3 te	0					
A5402	Install Electric Panels - 2-L6 - Col 3 to 6	2	2 04-Dec-13	05-Dec-13	ļ		÷÷-			-			÷÷			- <del>-</del>			Ins	tall Ele	ctric	Pariels	- 2-L0	3- Ce	of 3 to	5	i de la comb					
A5394	Pull Control Winnig to 1-Stats - 2-L0 - Col 3 to 0	1	1 00-Dec-13	00-Dec-13		1	1 1	1	1		1		1 1		1	1				Cont	TO N	ining to	1-30	AB - 2	200	1013	10 0	. !				1
A5392	Dull Elea Wising in EMT 21.8 Cal 2 to 8	2	2 00-Dec-13	00-Dec-13	11	1	11	1	i	I I	1	1	11	1	1	1	1			di Elaa		andie	MT 1	20.0	6413		13101	° (	1			i
45401	Pull Elec Wring in Electric 2-26 - Col 3 to 6	2	2 08-Dec-13	09-Dec-13		1.	1 1		1		1.		1 1	- 1	1	1.	: :		P	ill Flac	Wiri	ng in E	Rooms	2.1	6.0	013 10		- 11	1			
A5404	instal Firestopping - 2-1 6 - Col 3 to 6	2	2 08-Dec-13	09-Dec-13															i in	stall His	resto	noida	216	Col	3 to 6	<b>1</b>	Ĭ					
A5394	Install Fire Protection Branch Lines - 2-L6 - Col 3 to 6	2	2 10-Dec-13	11-Dec-13	1		<u>+</u> +-		÷				÷+		-+	+	†i		1	stall Fi	ire Pr	otectic	n Bran	och L	nes -	2-1.6	Col 3	to 6				-+-
A5395	Control Wiring to Valves / Dampers / Equip - 2-L6 - Col 3 to 6	2	2 10-Dec-13	11-Dec-13			1 1						1 1						ic	ontrol	With	a to V	alves / I	Dam	pers /	Equir	- 2-1	6 - Co	13 10 1	8		
A5405	Set & Tie-In FCUs - 2-L6 - Col 3 to 6	2	2 10-Dec-13	11-Dec-13			11		1				1 1						i s	t & Ti	e-In F	CUs-	2.18	- Col	3 to 6		1 T					
A5407	Rough-In Inspections - 2-L6 - Col 3 to 6	2	2 12-Dec-13	13-Dec-13			1 1						1 1						I F	ough-	In the	spedito	ns - 2-I	-18 - (	Ciol 3 1	66	1					
Colum	ns 6 to 8						11.						1.1												i	1 1	i 1.					1
A5414	Core for MEP - 2-L6 - Col 6 to 8	2	0 01-Oct-13 A	04-Oct-13 A	11	1	TT	1	1			T	ΤT	1	T	T		e foi	ME	- 2-1	8-D	ol 6 to	8	T	1		ΓT	- T			1	Т
A5410	Install Top Track - 2-L6 - Col 6 to 8	2	0 03-Oct-13 A	04-Oct-13 A		1	1 1	1	1		1	1	1 1		1	1	l In	all T	p T r	ick - 2	-L6-	Co 61	to B	1		1 1	11	1	1			1
A5412	Frame Toilet Wall + Demising Wall - 2-L6 - Col 6 to 8	2	0 07-Oct-13 A	11-Oct-13 A									1 1				• F	ame	Toile	Wal	+ Der	nising \	Wall - 1	2-L6	Col	to 8	1					
A5413	Frame Walls in Corridor - 2-L6 - Col 6 to 8	2	0 07-Oct-13 A	11-0ct-13A			1 1						1 1			1	1 P	ame	Wal	s in Go	rrido	r - 2-Lf	3 - Col	16 to :	a,	1 1	11					
A5418	Fire Protection Risers & Floor Control Stations - 2-L6 - Col 6 to 8	2	2 21-Nov-13	22-Nov-13			Ļ						÷						Fire	rotec	tion F	lisers /	Floor	r Con	trol S	ations	- 2-1.6	J - Col	6 to 8	!		
A5417	HVAC Pipe Risers - 2-L6 - Col 6 to 8	2	2 21-Nov-13	22-Nov-13			1 1						1 1						HVA	3 Pipe	Rise	rs - 2-	L6 - C	901	108		1					
A0418	Install Plumbing Riserss - 2-L0 - Col 0 to 8	2	2 21-INOV-13	22-NOV-13			1 1						1 1						CIM	TON	long	r isersi	0.10	3-0	900	*	1					
A0423	GWB 1.0.W 2-L0 - C01010 8	2	2 21-INOV-13	22-INOV-13			11						1 1						Due	1.01			0100				1					
A5431	Install Electric Riser Conduit - 2-18 - Col 8 to 8	2	2 25-Nov-13	20-Nov-13			1 1						1 1				1		Inst	II Flan	n ing P trickF	lised C	onduit.	21	8. Co	100			1			
A5410	Vertical Duct Risers + 2-1 8 - Col 8 to 8	- 3	3 25-Nov-13	27-Nov-13	++-	··+-··	++-	+	+			+	++	+-	+	+			Ver	cal Du	uct Ri	sere .	246.	Col	Bito 8		F+-					-+-
A5420	Install Horizontal EMT - 2-1 6 - Col 6 to 8	1	1 29-Nov-13	29-Nov-13	1	1	1 1	1	1	1	1	1	1 1	- i	1	1	1 1	17	Inst	al Hor	izost	aLEMT	6-16	8- Cr	of 6 to	i i	11	1	1		1	1
A5432	Partition Framing w/ Door Frames / Close Shafts - 2-L6 - Col 6 to 8	2	2 29-Nov-13	02-Dec-13					1				1 1						Pa	tition F	Fram	ing w/	Door F	Fram	es / Cl	ose S	hafts -	2-18	Cole	8 40 5		
A5421	Horizontal Plumbing Mains - 2-L6 - Col 6 to 8	3	3 29-Nov-13	03-Dec-13	11	1		1	1	11		1	1 1			1			He	rizonta	al Plu	mbing	Mains	- 2-1	6 - Co	6 to	в	T		1		1
A5424	HVAC Piping Mains - Isolated Locations - 2-L6 - Col 6 to 8	1	1 04-Dec-13	04-Dec-13									1.1						H	AC Fir	aind F	Aairis -	Isolate	ed Lo	dation	- 2-1	6 - Cr	of B lc	8			
A5428	Install EMT in Units - 2-L6 - Col 6 to 8	1	1 04-Dec-13	04-Dec-13		T	TT	1	1	1	1	T	TT	T	T	T	1		Ins	tall EM	iT in /	Units -	2-L6 -	- Col/	6 to 8	1	ΠT	T	1		Т	T
A5441	Test Plumbing - 2-L6 - Col 6 to 8	1	1 04-Dec-13	04-Dec-13															Te	t Plun	nbing	- 2 L6	- Col 6	6 to 8	8		1					
A5426	Install Fire Protection Mains - 2-L6 - Col 6 to 8	2	2 04-Dec-13	05-Dec-13									1 1						Ins	tall Fin	e Pro	stection	ı Mains	s - 2-	цв - С	ol 6 to	8					
A5435	Install Elec Boxes @ Rooms - 2-L6 - Col 6 to 8	2	2 04-Dec-13	05-Dec-13		1	1	1	1			1	1		1	1			Ins	tal Ele	e Bo	xes @	Rooms	is-2-	L6 - C	pl 6 to	8		1			
A5437	Install Electric Panels - 2-L6 - Col 6 to 8	2	2 04-Dec-13	05-Dec-13	<u>↓</u> ↓.		Ļļ			Ļ			1ļ		<u> </u>	. <b>.</b>	Ļ!		Ins	tall Ele	ctric	Pariels	-12-L6	3- Ce	ol 6 to	8	<b>L</b>		ļ		<u></u>	<u>∔</u> .
A5434	Pull Control Wiring to T-Stats - 2-L6 - Col 6 to 8	1	1 06-Dec-13	06-Dec-13		1	11	1		11	1	1	1 1	- 1	1	1			I Pu	Cont	rolW	/iring to	o T-Sta	afs - 2	2 L6 -	Col 6	to 8	.	1			1
A5427	Install Duct Branches @ Rooms - 2-L6 - Col 6 to 8	2	2 06-Dec-13	U9-Dec-13									11							stall Di	JCLB	ranche	s@R	Jooms	5- 2-L	0 - Ce	# 6 to 8	5				
A6430	Full Elec writing in EMT - 2-L0 - C0I 0 to 8	2	2 UD-Dec-13	u#-Dec-13	L.÷				-							+	-	-	• •	III Elec	2 WILL	ng in E	m(1 - 2	24L0 -	- 000	108	<u> </u>	<u> </u>	÷	+	÷	<u> </u>

1124 - WSU - Nev	v Student Residence Hall and Dining Facility		* Project Sche	dule [for dist] TASK filter: /	All Activities	Page 38 of 39												
Activity ID	Activity Name	Orig Rem Start	Finish	2012		2013 2014 2015												
		Dur Dur		Jun Jul Aug Sep Oct	Nov Dec Jan F Mar Apr May J	un Jul Aug Sep Oct Nov Dec Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb <sup>lar</sup>												
A5438	Pull Elec Wiring @ Rooms - 2-L6 - Col 6 to 8	2 2 06-Dec-13	09-Dec-13			Pull Elec Wiring @ Rooms 2-L6 - Col 6 to 8												
A5436	install Firestopping - 2-L6 - Col 6 to 8	2 2 06-Dec-13	09-Dec-13	1		I install Firestopping - 2kL6 - Col 6 to 8												
A5429	Install Fire Protection Branch Lines - 2-L6 - Col 6 to 8	2 2 10-Dec-13	11-Dec-13			Install Fire Protection Branch Lines - 2-L6 - Col 8 to 8												
A543(	Control Wiring to Valves / Dampers / Equip - 2-L6 - Col 6 to 8	2 2 10-Dec-13	11-Dec-13	1		I Control Willing to Valves / Dampers / Equip - 2-L6 - Col 6 to 8												
A544(	Set & Tie-In FCUs - 2-L6 - Col 6 to 8	2 2 10-Dec-13	11-Dec-13	1		Set & Tie-In FCUs - 2-L6 - Col 6 to 8												
A5442	Rough-In Inspections - 2-L6 - Col 6 to 8	2 2 12-Dec-13	13-Dec-13			I Rough-In Inspections - 2-Li8 - Col 6 to 8												
Bedroo	ms / Common Areas																	
A2097	Board Walls & Ceilings- 2-L6	5 5 06-Jan-14	10-Jan-14			Bbard Walls & Cleiings- 2-16												
A2106	Tape Walls & Ceiings- 2-L6	5 5 13-Jan-14	17-Jan-14			🔹 Tape Walls & Cleiingl= 2-16												
A2096	Prime Paint Walls & Ceilings- 2-L6	5 5 20-Jan-14	24-Jan-14			Prime Paint Walls & Ceilings- 2-L6												
A2105	Grid Acoustical Ceilings in Corridors- 2-L6	2 2 27-Jan-14	28-Jan-14			Grid Accustical Ceilings in Corridors- 2-L6												
A2100	Trim Out MEPs & Install Lighting- 2-L6	15 15 29-Jan-14	19-Feb-14			Trim Out MEPs & Install Lighting- 2-1.6												
A2107	Install FE / Cabinets- 2-L6	1 1 20-Feb-14	20-Feb-14			I Install FEV Cabinets- 2-L6												
A2108	ACT Tile- 2-L6	2 2 20-Feb-14	21-Feb-14			I ACT Tile 2-L6												
A2101	Install Flooring- 2-L6	9 9 03-Mar-14	13-Mar-14			Install Flooring- 2-L6												
A2104	Finish Paint- 2-L6	2 2 11-Mar-14	12-Mar-14			I Pinish Paint- 2-LB												
A2102	Install Doors & Hardware- 2-L6	4 4 14-Mar-14	19-Mar-14			I Install Dodrs & Hardware-2-L0												
Bathroo	pms																	
A2485	Hang Drywall @ Bathrooms- 2-L6	5 5 16-Dec-13	20-Dec-13			Hang Dryvall @ Bathrooms- 2-L6												
A2488	Tape & Sand Drywall @ Bathrooms- 2-L6	5 5 23-Dec-13	30-Dec-13			Tape & Band Drywiall @ Bathrooms- 2-£6												
A2113	Install Ceramic / Waterproofing Membrane- 2-L6	5 5 27-Jan-14	31-Jan-14			Install Ceramic / Waterproofing Membrane- 2-L6												
A2116	Install Counters- 2-L6	2 2 03-Feb-14	04-Feb-14			Install Counters- 2-L6												
A2114	Trim-Out Plumbing- 2-L6	5 5 05-Feb-14	11-Feb-14			Trim-Out Plumbing- 2-L6												
A2116	Install Tollet Accessories- 2-L6	1 1 12-Feb-14	12-Feb-14			Install Toilet Accessories- 2 L6												
	N 4 ***																	
Structure	/ Shell																	
Foundat	tions	0 47 1- 404	01.1-0.40.4	4														
A22050	FREP Footings - Section 4	3 U 17-JUN-13A	21-JUN-13 A			PREP Fogengs - Section #												
A22070	FREP Foundations - Section 4	14 U 24-JUN-13A	02-JUF13A			FREP Foundations- Section 4												
A25420	EPEP Interior Foundations - Section 4	1 0 20-JUN-13 A	20-JUN-13 A			EEED Interior Evaluations - Section 4												
A22000	Prezi Interior Footing - Sector 4	1 0.00 bit 13 A	00 bil 13 A			Photo Contine A												
A20430	Badrin - Sector 4	1 0 00-30F13 A	UB-JUP TO A	d		IT Datamir Sector 1												
A22080	Place SOG - Section 4	0 0 18-Nov-13	18-Nov-13	4 1 1 1 1 1		L Place SOG - Section 4												
A22110	Install Corray Expension	4 4 19 Nov 12	21 Nov 12			Linetal Comu Excerning Contine d 11												
1st Eloo	r ISea 191	1 1010010	21110110															
A22090	Fred Steel - Section 4-I 1 (Sen 19)	3 0.02-Sep-13A	16-Sep-13A			Fred:Steel - Section 4-1 1(Sen 19)												
A25030	Deck & Detail Steel - Section 4-11 [Sen 19]	13 0 20-Sep-13.4	04-Oct-13.4			Dets & Detail Stedie Sector 4-1 1 (Sed 19)												
A39730	Install Radiant Heat Tubing - Section 4-I 1	5 0.04-Oct-13A	08-Oct-13A			I Instal Radiant Heat Tubing - Section 4-11												
A22340	SOD - Section 4-L1	5 0 09-Oct-13A	11-Oct-13A	1		S0D - Section 4-L1												
A22360	Install Spray Fireproofing - Section 4-L1	4 4 22-Nov-13	27-Nov-13			Install Spray Fireproofing - Section 4-L1												
Roof [Se	eg 20]																	
A22120	Erect Steel - Section 4-R [Seq 20]	2 0 02-Sep-13 A	30-Sep-13 A	1 1 1 1 1 1		Erect Steel - Section 4-R [Seb 20]												
A25040	Deck & Detail Steel - Section 4-R [Seq 20]	13 0 16-Sep-13A	30-Sep-13A			Deck & Detail Steel - Section 4-R [Seq 20]												
A22130	Parapet Framing & Sheathing - Section 4-R	10 10 06-Nov-13	20-Nov-13	1		Parabet Framing & Sheathing Section 4-R												
A22730	Roofing [4]	10 10 21-Nov-13	05-Dec-13			Reofing [4]												
A22140	Set Kitchen Exhaust Fans - Section 4-R	5 5 23-Jan-14	29-Jan-14	1		Set Kitchen Exhaust Fahs - Section 4-R												
A24240	Connect Kitchen Exhaust - 4R	50 50 30-Jan-14	10-Apr-14			Connect Kitchen Exhalust - #R												
Shell																		
North E	levation																	
A2370	Frame Exterior Walls - [4N]	5 5 22-Nov-13	29-Nov-13			Frame Exterior Walls - [4N]												
A2541	Waterproofing - [4N]	1 1 02-Dec-13	02-Dec-13			I Waterproofing - [4N]												
A2216	Install Windows - [4N]	1 1 03-Dec-13	03-Dec-13			I Install Windows - [4N]												
A2540	Strip in Window Flange - [4N]	1 1 04-Dec-13	04-Dec-13			I Strip in (Vindow Flange - [419]												
A2215	Cast Stone - [4N]	9 9 05-Dec-13	17-Dec-13			Cast Stone - [4N]												
A2386	Install OHD @ Loading Dock - [4N]	5 5 18-Dec-13	24-Dec-13			Install OHD @ Loading Book [4N]												
1124 - WSU - N	New Student Residence Hall and Dining Facility			* Project Sch	edule (	for dist]	TASK	filter: All A	ctivities	s								Page 37 of 39
----------------	---	------	---------------	---------------	---------	-----------------------	--------------------------	---------------	-----------	-------	-------	------------	-----	--------	--------	-------	----------	---
Activity ID	Activity Name	Orig	Rem Start	Finish	20	12							201	3				2014 2015
		Dur	Dur		Jun	Jul Au	a Sep	Oct Nov	Dec J	Jan F	Mar A	or Mav	Jun	Jul Au	ua Sep	Oct N	w Dec	Jan F Mar Apr May Jun Jul Aug Sep Oct Nov Dec Jan Feb
A22	17 Install Curtainwall - L/J	35	35 20-Jan-14	10-Mar-14		-												Instal Curtanwal - L/J
A54	95 Install Metal Panels - [4N]	10	10 11-Mar-14	24-Mar-14	1	····		1 1			1 1	Ť	it	Ť	÷			Install Metal Panels   [4N]
Interio	r																	
Lowe	r Level									1	1		1					
RD A	partment						1.1			- 1	1 1	1	1 1	- 1	1.1			
A25	65 Rough-In MEPs Overhead - 4-RD	5	5 08-Dec-13	12-Dec-13								1						Rough-In MEPsiOverhead- 4-RD
A23	4E Frame Interior Walls- 4-RD	5	5 13-Dec-13	19-Dec-13								1						Frante Interior Walls- 4-RD
A23	63 Install Shower Unit- 4-RD	1	1 20-Dec-13	20-Dec-13													1	Instal Shower Unit- H-RE
A23	48 Rough-In MEPs In-Wall- 4-RD	5	5 23-Dec-13	30-Dec-13													1.1	Rough-In MEPs In-Wall 4-RD
A23	5( Inspect MEP- 4-RD	2	2 31-Dec-13	02-Jan-14														Inspect MEP- 4-RD
A23	65 Rough-In Bathroom & Shower- 4-RD	5	5 31-Dec-13	07-Jan-14	1							. <u>i</u>						Rough In Bathroom & Shower- 4-RD
A23	52 Hang & Tape Walls & Ceilings- 4-RD	5	5 08-Jan-14	14-Jan-14	. 1		1 1				1 1		11					Hang & Tape Walls & Cellings- #-RD
A23	52 Prime Paint Walls & Ceilings- 4-RD	2	2 15-Jan-14	16-Jan-14							1 1		11					Prime Paint Walls & Ceilings- 4-RD
A23	66 Install Ceramic / Waterproofing Membrane- 4-RD	2	2 17-Jan-14	20-Jan-14														Install Ceramic/ Waterproofing Membrane- 4-RD
A23	56 Trim Out MEPs & Install Lighting- 4-RD	5	5 17-Jan-14	23-Jan-14	-													Trim Out MEPs & Install Lighting- 4-RD
A23	67 Install Cabinets & Counters- 4-RD	2	2 21-Jan-14	22-Jan-14	++		·	<b>↓↓</b>			-++	-+	∔					I Install Cabinets & Counters- 4IRD
A23	DE Instal Hooring- 4-RD	2	2 23-Jan-14	24-Jan-14	- 1													I install Flooring- 4-RD
A23	ot Trim-Out Humbing- 4-RD	2	2 23-Jan-14	24-Jan-14	- 1													Tinm-OusPlumong 4-RD
A23	01 Instal Doors & Hardware- 4-KD	1	1 27-Jan-14	27-Jan-14	- 1	1.1	1 1	11		- 1	1 1	1	i i	1	1 1		÷ .	I Install Doors & Hardware- 4-HD
A23	01 Install Tollet Accessories- 4-RU	1	1 27-Jan-14	27-Jan-14	- 1													Finistal Idlet Appesspries 4-RU
723	oz Prinsi Pant- 4-RD	2	2 28-Jan-14	30-Jan-14	÷			····+···			-++-	·+	+	·÷··	·-+			Fillen Paris-9-rul
A22	Anneal Rooms 00 Jestal Jat CML/ Set Deers Frames Mech/Eleo Res (4)	10	10, 22 New 12	06 Dec 12							1 1						<u> </u>	attal Mt CMUL/ Sat Dhare Framer, Mash/Fina Page M
A12	26 Sat Eminment - Mach Rm [4]	5	5 09-Dec-13	12-Dec-13	11		1			1	11		i i	1			Τ	Bat Eduinment - March Pro141
A12	30 HVAC Rough-In - Mech Rm [4]	20	20 16-Dec-13	14- Jan-14	1 1												1.1	HVAC Rough In . Mach Rin [4]
A12	21 Electrical Rough - Mech Pm [4]	15	15 31-Dec-13	21- Jan-14	1 1		1				1 1				1		1.7	Electrical Routh - March Roy (4)
A23	82 Controls Rough - Mech Rm [4]	10	10 08-Jan-14	21-Jan-14	++						++-	-+	+	+	+			Controls Rough - Mech Rm [4]
A12	22 Plumbing Rough - Mech Rm [4]	15	15 08-Jan-14	28-Jan-14	1													Plumbing Rough - Medt Rm [4]
A12	25 Fire Protection Rough - Mech Rm [4]	5	5 29-Jan-14	04-Feb-14	1 1		1 1			- 1	1 1	1	1 1	- 1	1.1			Fire Protection Ringch - Meth Rm (4)
Elect	tric Room																	
A12	31 Set Elect Equip - Elec Rm [4]	2	2 30-Dec-13	31-Dec-13							11							Set Elect Equip - Elec Rm [4]
A12	36 Electrical Rough-In - Elec Rm [4]	11	11 02-Jan-14	16-Jan-14	111		1	1 1			1 1	1	r-r	· • •	1		1	Electrical Rough-In - Elec Rm [4]
A12	31 HVAC Rough-In - Eleo Rm [4]	20	20 02-Jan-14	29-Jan-14	1 1		1 1			- 1	1 1		11	- 1				HVAC Rough-In - Elec Rm [4]
A12	36 Electric Finish - Elec Rm [4]	20	20 17-Jan-14	13-Feb-14	1 1													Electric Finish - Elec Rm [4]
A12	34 Fire Protection Rough-In - Elec Rm [4]	3	3 29-Jan-14	31-Jan-14	1	1	1 1	11		1	1 1	1	i i	1	1 1		1	Fine Protection Rough-In - Elec Rm [4]
A23	8: Controls Rough-In - Elec Rm [4]	3	3 29-Jan-14	31-Jan-14							1 1							Controls Rough-Int - Elec Rnt [4]
A12	37 Fire Protection Finish - Elec Rm [4]	1	1 14-Feb-14	14-Feb-14							T	1		T			1	Fire Protection Finish - Elec Rm [4]
A12	38 Fire Alarm Finish - Elec Rm [4]	1	1 18-Feb-14	18-Feb-14														I Fire Alarm Finish - Elec Rm [4]
Fire I	Pump Room																	
A10	17 Place Housekeeping Pads - Fire Pump Room [4]	2	2 09-Dec-13	10-Dec-13	11					- 1							11	ace Housekeeping Pads - Fire Pump Room [4]
A98	00 Install Fire Pump & Equipment [4]	2	2 11-Dec-13	12-Dec-13	++			↓↓					L					install Fire Pump & Equipment [#]
A10	18 Install Sprinkler Piping - Fire Pump Room [4]	15	15 11-Dec-13	02-Jan-14			1 1				1 1	1	11					Install Sprinkler Pibing - Fire Pump Room [4]
A10	26 Control / Fire Alarm Wiring - Fire Pump [4]	5	5 03-Jan-14	09-Jan-14	- 1													Control / Fire Alarm Wiringl- Fire Puntp [4]
A10	92 Electrical Connections - Fire Pump [4]	5	5 03-Jan-14	09-Jan-14	- 1						11							Electrical Connections - Fire Purp [4]
A10	1t MEP Rough-In - Fire Pump Room [4]	10	10 03-Jan-14	16-Jan-14							1 1	1						MEP:Rough-In - Fire Pump Ropm [4]
A10	11 Test Sprinkler Equipment - Fire Pump Room [4]	3	3 10-Jan-14	14-Jan-14	++		·	<u>↓</u> ↓			-++	·÷	+					test Sprinkler Equipment ( Fire Pump Hoom (4)
A10.	20 Paint Walls - Fire Pump Room	2	2 17-Jan-14	20-Jan-14														Paint Wals - Fre Pump Hoom
Load	Ing Dock 95 Develop In Mantee & Linking MI LD		8 00 Dec 12	18 Dec 12			1				1 1	1					1	
A23	01 Prime 8 Paint Walk (4) D	0	3 16-Dec 12	18-Dec-13	- 1												15.	Prime & Paint Walk (4) 0
A23	Pi Instal Doors & Hardware (4) I D		2 10-Dec 13	22-Dec.13	-1 -1						1 1		11				14	Install Debra Rikiardward (41.8D
A23	85 Install Dock Leveler / Rumars (4)	5	5 26-Dec 12	23-Dec-13	++	···· <del>{</del> -··	· <del>•</del> • • • • •	++			-++	-+	++	·+-	·-+		÷	Instal Dock Leveler / Brinners [4]
A23	an Back of Nours	5	0 20-De0-13	02-080-14		1	1 1	1		- 1	1 1	1	1	- 1	1		1	a maai door cevere / compete (1)
A22	0 Rough In Ourshand Rumbing 411 ROH	6	5 22 Nov 12	20 Nov 12														web to Outboard Riverbing 4 51 (2014
A23	Of New Masonry Walks 4-11 - ROH	10	10 22-Nov-13	06-Dec-13	-1 i	1		I I		1	11	1	1 I	1				Aw Masonry Walls, 4.11-BOH
A23	9E Rough-In Overhead Ductwork- 4-L1 - BOH	10	10 22-Nov-13	06-Dec-13						- 1		1		- 1			Π. B	auch-In Overhead Ductwork- 4-L1 - BOH

124 - WSU - Ne	w Student Residence Hall and Dining Facility			* Project Sche	dule (for	dist	t] TASK filter: A	I Activit	ties											Pa	ge 38 of	/ 39
Activity ID	Activity Name	Orig	Rem Start	Finish	2012							20	13					2014	<u> </u>		2015	1
		Dur	Dur		Jun Ju	I A	lug Sep Oct N	lov Dec	c Jan	F Mar	Apr M	ay Jun	Jul Aug	Sep Or	t No	v Dec	Jan F Mar Apr May .	lun Jul Aug Se	ep Oct No	w Dec	Jan Fe	b la
A2397	Rough-In Overhead Mech Piping- 4-L1 - BOH	10	10 02-Dec-13	13-Dec-13													Rough-In Overhead Mech F	iping-4-11-BOF				Т
A2395	Rough-In Overhead Sprinkler- 4-L1 - BOH	10	10 02-Dec-13	13-Dec-13	11	1	111	1	1		1 1						Rough-In Overhead Sprinkle	r- 4-L1 - BOH				1
A2393	Rough-In Overhead Electric- 4-L1 - BOH	10	10 09-Dec-13	20-Dec-13		1					1 1					÷ 🗖	Rough-In Overhead Electri	5-4-L1-80H		1		
A2394	Metal Stud Framing- 4-L1 - BOH	5	5 16-Dec-13	20-Dec-13							1 1						Meta Stud Framing 4-L1	BOH				
A2392	Rough-In Plumbing - In-Wall- 4-L1 - BOH	5	5 18-Dec-13	24-Dec-13	ļ	.i					1						Rough In Plumbing - In W	all-4-L1 - BOH				4
A2407	MEP Inspection [Overhead]- 4-L1 - BOH	1	1 23-Dec-13	23-Dec-13												1	MEP Inspection (Overhead	]- 4-L1 - BOH				
A2401	Instal Blocking- 4-L1 - BOH	3	3 23-Dec-13	26-Dec-13					1 :		1	1 1				1	Install Blocking- 4-L1 - BO	н	1 1	÷ 1		
A2400	Rough-In Electric - In-Wall- 4-L1 - BOH	5	5 23-Dec-13	30-Dec-13													Rough-In Electric - In-Wa	I- 4-L1 - BOH				
A2406	MEP Inspection [In-Wal]- 4-L1 - BOH	1	1 31-Dec-13	31-Dec-13		1			1 1		1					1	MEP Inspection [In-Wal]	4-L1 - BOH		1		
A5445	Install Trash Chute	10	10 02-Jan-14"	15-Jan-14	ļ						∔∔.			L		4	Instal Trash Chute					
A2404	Hang & Tape Drywall- 4-L1 - BOH	10	10 16-Jan-14	29-Jan-14		1		1	1 :	-	1 1	1 1				1	Hang & Tape Drywa	I- 4-L1 - BOH	1 1	. 1		
A2406	Prime Paint Walls- 4-L1 - BOH	5	5 30-Jan-14	05-Feb-14							1 1						Prime Paint Walls-	4-L1 - BOH				
A2402	Install Coolers / Freezers- 4-L1 - BOH	20	20 30-Jan-14	27-Feb-14				1	1 1		11						Install Coolers	Freezers- 4-L1	BOH	1		
A2411	Instal Ceramic Tile Walls- 4-L1 - BOH	8	8 06-Feb-14	18-Feb-14													Instal Certamic 1	le Wals 4-L1 - E	ЮН			
A2403	Leting Gro- 4-L1 - BOH	4	+ 19-Feb-14	24-Heb-14	+	- <del> </del>			·		+∔-			<u>↓</u> ↓		÷	Ceang Grid- 4-	1 BOH				-+-
A2406	MEP Finishes- 4-L1 - BOH	10	10 25-Feb-14	10-Mar-14	-						1 1						MEP Pinishes	- 41L1 - BOH	.			
A2410	Install Quarry Tile- 4-L1 - BOH	10	10 28-Feb-14	13-Mar-14							1						Install Quarty	Tile- 4-L1 - BOH				
A240:	Install Ceiling Tile- 4-L1 - BOH	5	5 11-Mar-14	17-Mar-14													Instal Celin	g life- 4-L1 - BOF	1			
A2412	Epoxy Painting- 4-L1 - BOH	5	5 18-Mar-14	24-Mar-14							1						Epoky Pain	ting- 4-L1 - BOH				
A2413	Install Carpeting- 4-L1 - BOH	3	3 25-Mar-14	27-Mar-14		. <b>.</b>			· · · · · · ·		Ļ		<b> </b>	Ļ			I Install Car	peting- 4+L1 - BO	HL L			-÷-
A2391	Install Storage Shelving- 4-L1 - BOH	4	4 25-Mar-14	28-Mar-14		1				1	1	1					install Sto	age Snewing-4-I	1-BOH			
1st Floo	r - Servery & Kitchen Area		5 00 N 40	05.0 40												Δ.,						
A23200	Install Interior LGMF & Door Frames- 4-L1	5	5 29-Nov-13	05-Dec-13	11	1		1			1 1						stal Interior LGMF & Door I	rames- 4-L1	11			1
A23220	In-wall Electrical Rough-In- 4-L1	8	8 06-Dec-13	17-Dec-13							1 1						In-wall Electrical Rough-In-	4-11				
A23170	Above HVAC Rough-In- 4-L1	15	15 U0-Dec-13	27-Dec-13	÷÷	- i		···-i	·	····•	÷÷-			÷	<b>j</b>	-i	Above HVAC Rough-In- 4	· .		··••	·	-+-
A23210	Install Plumbing Rough-In- 4-L1	15	15 06-Dec-13	27-Dec-13				1			1 1						Install Plumbing Rough-in	441		1		
A23180	Above Ceiling Electrical Rough- 4-L1	15	15 13-Dec-13	06-Jan-14	- i -	1		1	11	1	i i	1		1		1 -	Above Celling Electrical	Rough- 4-L1	11	1		i.
A23190	Install Sprinker Rough- 4-L1	10	10 18-Dec-13	02-Jan-14												1 -	Install Sprinkler Rough	HL1				
A39/20	Temp In Exterior Openings	5	5 02-Jan-14	08-Jan-14	- i -	1	1 1 1	- i -	1 1	1	i i	1 1		i i	1	1	Temp in Exterior Openi	igs	i i	- i	. 1	i.
A23450	Frame Soffits- 4-L1	5	5 U3-Jan-14	09-Jan-14	<b>↓</b>	·			·		↓↓-			↓↓			Frame Somes- 4-L1				·	-+-
A25/70	Instal Cloud Celing	15	15 U3-Jan-14	23-Jan-14	- i -	1		1	11	1	i i	11				i -	Install Cidud Celling		11	1		1
A23230	Hang GWB- 4-L1	0	0 U9-Jan-14	10-Jan-14							1					1	Hang GWB- 4-E1					
A23460	Hang & Finish Soffit GWB- 4-L1	5	5 10-Jan-14	16-Jan-14	- 1			1			1 1					1	Hang & Fielsh Soffit G	WB- 4-L1				
A23240	TaperFinish GWB- 4-L1	1	/ 1/-Jan-14	27-Jan-14		1			1 1		1 1	1.1				1	Tape/Finsh GWB-4	-	1 1			
A23320	Install Kitchen Hoods- 4-L1	5	5 21-Jan-14	27-Jan-14	++				·		++-			<u> </u>		÷	Install Kitchen Hood	-4L1				-+-
A23250	Prime Paint- 4-L1	3	3 24-Jan-14	28-Jan-14		1					1					1	Prime Paint- 4-L1					
A23330	Instal Ritchen Hood Ansul System- 4-L1	3	3 28-Jan-14	30-Jan-14													install Rachen Hodo	Ansul System 4	4			
A23300	Install Servery Flooring- 4-L1	5	5 29-Jan-14	04-⊢eb-14	1	1		1		1	1					1	Install Servery Floo	ring- 4-1-1		. 1		
A23310	Instal Mitchen Equipment- 4-L1	20	20 00-Feb-14	UD-Mar-14							1 1					1	Install Kitchen	Equipment- 4-L1		1 1		
A23370	Install Millwork- 4-L1	10	5 08 Mar 14	12 Mar 14	+	- <del>i</del>		····	·		÷÷-			÷		÷	Install Milwork	Grid A 11		·	····•	-÷-
A23270	Instanceing one work	5	5 00-Mar-14	10 Mar 11												1	instal Celling	California and		1 1		
A23280	Install Lighting & FirlSh MEPS- 4-L1	12	0 13-Mar-14	18-Mar-14					11		11					1	anstal Light	ng a Finish MEPs ng Window Cited		1		
A04940	Drop Caling Tile, 4.1.1	12	4 20-Mar-14	20-Mar-14							1 [						Drob Cott	ng Window Shad	-			
A22200	Instal Al Other Election 411		= 20-mar-14	01 Apr 14	1			1			11					1	Drop Cell	When Element 4				
A23380	Einich Paint, 4.1 1	3	3 20-Mar-14 3 02-Apr-14	04-Apr-14	++	-+	+++-		+		++-		+	<b>⊦</b>		÷	Circles Co.	interferigering 4	4	-+}		-+-
A23200	Enter Faille Providence 4 1 1	3	4 07 Apr-14	10 Apr 14												1	I Poisn Pa	nort & Ubrinder				
FL EXISTON	Initial Doors of Haroware" The F	4	4 0/-Apr-14	insepte te							1					1	I IDSIAII D	ourp or renoware	T			
A24190	Install Essight Elevator, / Mash Room CMI   Shatt (2)	4	4 19 Nov 12	21 Nov 12		1					1				а.	Inet	Ernhet Elmenter (Marchie	and chiu she	en l			
A24180	Install Main Elevator / Math Room Onto Shart [2]	15	+ 10-INUV-13	13-Dec-12	1											inst	Instal Main Elevator / Machine	count one of an	191			
A10020	Install Passanaar Elevators # 1.8,2 (2)	50	50 24-Dec-12	08-Mar-14	+	· +			+		┿╍┿╸		·+	÷		1	lottal Crevelor Shart		812121	··+}		+
A19920	Install Fassenger Devalues # 1 or 2 [2]	10	10 07 Mar 14	20 Mar 14				1							1	1	Install Hassen	per crevators # 1	α <sub>12</sub> [2]	1		
942410U	Instant regin clevator #3	10	10/07-mar-14	20-Mar-14		1			11		11					1	amstall Freig	is thevator #3:	1	11		
A24500	Install State #1 [1]	15	0.26 Aug 12 4	06 Sep 12.4		1		1						l loct-	1	4.00				11		
A24090	Instal State #4 [2]	10	0 20-Aug-13A	20-Sep-13A	1 i -	i.		1	11	1	11	1		instal	3 4	1.0			1 1	11		i.
A24620	Instal out #1 [0]	6	0.22 Sep 12 A	20-Sep-13A	++	-+			+		++-			ins	49.50	4	12 123					+-
A24000	instan otari #2 [2]	5	u 20-360-13 A	n-od-13A							1 1			:	insta	par	*4 [4]					- 1

Activity ID	Activity Name	Orig Rem Start F	Finish	2012	2013	2014 20
		Dur Dur		Jun Jul Aug Sep Oct Nov Dec Jan F Mar Apr May Ju	n Jul Aug Sep Oct Nov Dec	Jan F MarAprMayJun Jul AugSepOctNovDecJan
A24610	Install Stair C [1]	3 3 23-Dec-13 2	26-Dec-13			Install Stair C [1]
A24630	Install Stair E [3]	3 3 27-Dec-13 3	31-Dec-13			Install Stair E[3]
A24640	Install Lounge Stair #1 [3]	3 3 02-Jan-14 0	06-Jan-14			Install Lounge Stair #1[3]
A24650	Install Lounge Stair #2 [3]	3 3 07-Jan-14 0	09-Jan-14			Install Lounge Stair #2 [3]
A24660	Finishes - Stair #1 [1]	5 5 03-Mar-14 0	07-Mar-14			Finishes - Stair #1 [1]
A24670	Finishes - Stair #4 [3]	5 5 10-Mar-14 1	14-Mar-14			Finishes - Stair #4 [3]
A24680	Finishes - Stair #3 [1]	5 5 17-Mar-14 2	21-Mar-14			Finishes -:Stair:#3 [1]
A24690	Finishes - Stair #5 [3]	5 5 24-Mar-14 2	28-Mar-14			Finishes- Star #5 [3]
A24700	Finishes - Stair #2 [2]	5 5 31-Mar-14 0	04-Apr-14			Finishes - Stair #2 [2]
Inspectio	ns, Start-Up & Commissioning					
A16460	Final Cleaning	20 20 18-Mar-14 1	14-Apr-14			📩 💼 Éinal Èleaning
A16550	Punchlist [3]	20 20 18-Mar-14 1	14-Apr-14			Punchlist [3]
A16500	Punchlist [1]	20 20 25-Mar-14 2	21-Apr-14			Pundhist [1]
A22550	Final Inspections / C of O	21 21 26-Mar-14 2	23-Apr-14			Final Inspections / C of C
A16540	Punchlist [2]	20 20 01-Apr-14 2	28-Apr-14			Punchlist [2]
A16530	Prefunctional Testing	10 10 11-Apr-14 2	24-Apr-14			Prefunctional Testing
A23470	Punchlist [4]	20 20 11-Apr-14 0	08-May-14			Punchist [4]
A16480	Test & Balance	30 30 11-Apr-14 2	22-May-14			Test & Balance
A16520	Elevator Inspection	3 3 25-Apr-14 2	29-Apr-14			Elevator Inspection
A16470	Systems Commissioning	20 20 09-May-14 0	08-Jun-14			Systems Commissioning
A16490	IAQ Testing	10 10 05-Jun-14 1	18-Jun-14	1		IAQ Testing
A16510	Inspections / TCO	5 5 09-Jun-14 1	13-Jun-14*	_		Inspections/ TCD
A16450	FFE / Owner Move In	34 34 19-Jun-14 0	06-Aug-14			FFE / Qwnet Move In
CLOSE	DUT					
A21570	Closeout	65 65 16-km-14 1	16-Sep-14	•••••		Character in the second s

# **Appendix F: Existing Design Material Take-off**

# This appendix contains the schedules for quantity take-off, for different categories of building components.

#### Wall Material Take-off

Wall Material Takeoff			
Family and Type	Material: Volume	Material: Area	Structural Material
Basic Wall: 20 RC WALL	4267.92 CF	2562 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 20 RC WALL	149.96 CF	91 SF	Concrete - Cast-in-Place Concrete
Basic Wall: D - Exterior Wall	90.21 CF	54 SF	Concrete 02
Basic Wall: D - Exterior Wall	13.53 CF	54 SF	Concrete 02
Basic Wall: 17.5" RC WALL	470.34 CF	323 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	101.13 CF	70 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	57.79 CF	40 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	1448.28 CF	994 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	135.86 CF	94 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	404.62 CF	279 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	71.95 CF	51 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	420.63 CF	297 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	185.63 CF	127 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	326.74 CF	224 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	219.48 CF	154 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	85.22 CF	58 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	110.30 CF	76 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	748.06 CF	513 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	46.67 CF	23 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	46.66 CF	23 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	46.66 CF	23 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	46.67 CF	23 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	47.29 CF	24 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	47.29 CF	24 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	38.14 CF	20 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	10.14 CF	6 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	112.00 CF	112 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	112.00 CF	112 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	60.50 CF	61 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	48.39 CF	39 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	34.33 CF	34 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	42.67 CF	43 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	38.67 CF	39 SF	Concrete - Cast-in-Place Concrete

Basic Wall: 12" CONC	38.33 CF	38 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	48.50 CF	49 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	193.78 CF	133 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	107.25 CF	75 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	187.22 CF	130 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	391.02 CF	268 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	120.31 CF	83 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	45.94 CF	32 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	741.65 CF	510 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	75.83 CF	52 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	64.17 CF	44 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	52.50 CF	36 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	129.70 CF	89 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	690.36 CF	473 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 16 RC WALL	977.03 CF	734 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 24 RC WALL	2.02 CF	1 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 24 RC WALL	1.50 CF	1 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 24 RC WALL	10.32 CF	5 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 24 RC WALL	6.84 CF	3 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 24 RC WALL	61.75 CF	31 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	54.53 CF	28 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	59.24 CF	44 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	116.31 CF	80 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	23.47 CF	16 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 24 RC WALL	44.69 CF	22 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	75.43 CF	75 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	104.65 CF	105 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	224.55 CF	154 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	368.67 CF	253 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	236.47 CF	162 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	152.36 CF	104 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	84.80 CF	58 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	9.80 CF	7 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	922.84 CF	647 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	2778.23 CF	1920 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	105.75 CF	73 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	106.65 CF	73 SF	Concrete - Cast-in-Place Concrete
Basic Wall: Concrete - 24"	28.00 CF	14 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	3.00 CF	3 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	4.00 CF	4 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	3.00 CF	3 SF	Concrete - Cast-in-Place Concrete

Basic Wall: 12" CONC	2.00 CF	2 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	4.79 CF	6 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	3.00 CF	3 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	3.00 CF	3 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 12" CONC	2.27 CF	4 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 24 RC WALL	231.80 CF	116 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	350.03 CF	241 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	139.49 CF	96 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	28.48 CF	20 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	34.76 CF	24 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 8" CONC	26.83 CF	40 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 8" CONC	68.94 CF	103 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 8" CONC	9.51 CF	14 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 8" CONC	39.98 CF	60 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	10.27 CF	7 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	13.22 CF	9 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	48.59 CF	33 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	12.61 CF	9 SF	Concrete - Cast-in-Place Concrete
Basic Wall: 17.5" RC WALL	73.24 CF	50 SF	Concrete - Cast-in-Place Concrete
Grand total: 93	20641.03 CF	14139 SF	

#### **Structural Foundation Material Takeoff**

	Material:	Material:	
Family and Type	Area	Volume	Structural Material
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F11	352 SF	302.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F11	352 SF	302.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F7	140 SF	73.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F11	352 SF	302.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F7	140 SF	73.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete

Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F7	140 SF	73.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F12	420 SF	396.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F12	420 SF	396.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F13	450 SF	429.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F13	450 SF	429.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F12	420 SF	396.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F4	52 SF	20.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F4	52 SF	20.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F4	52 SF	20.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F6	102 SF	45.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F6	102 SF	45.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F6	102 SF	45.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F6	102 SF	45.00 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	1815 SF	1400.76 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	351 SF	257.64 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 5'x2'	333 SF	223.83 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 7'x2' loading dock	934 SF	687.49 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	400 SF	275.42 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	695 SF	536.56 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	196 SF	112.50 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	178 SF	103.63 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	671 SF	518.87 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	196 SF	122.75 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F7	140 SF	73.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F4	52 SF	20.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F8	184 SF	112.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F8 (2' Thick)	192 SF	128.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	118 SF	45.22 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 12" Foundation Slab	117 SF	116.89 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	803 SF	627.19 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 12" Foundation Slab	173 SF	173.36 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 5'-9"'x2'	440 SF	299.86 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 5'-9"'x2'	53 SF	8.78 CF	Concrete - Cast-in-Place Concrete

Wall Foundation: 5'x2'	318 SF	203.38 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 5'-9"'x2'	159 SF	77.77 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 5'-9"'x2'	708 SF	497.61 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	811 SF	553.24 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-9 1/2" FNDN WALL)	569 SF	410.90 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	370 SF	233.97 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 6.5'x2'	143 SF	56.22 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 6.5'x2'	571 SF	371.46 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-9 1/2" FNDN WALL)	727 SF	461.86 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 5'x2'	184 SF	107.45 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F7	140 SF	73.50 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 1: Structural Foundations 11	304 SF	206.68 CF	
Structural Foundations 7: Structural Foundations 11	230 SF	157.89 CF	
Structural Foundations 8: Structural Foundations 11	206 SF	133.46 CF	
Structural Foundations 10: Structural Foundations 11	165 SF	97.30 CF	
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	91 SF	46.02 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	188 SF	124.55 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 12: Structural Foundations 11	297 SF	206.57 CF	
Structural Foundations 13: Structural Foundations 11	266 SF	206.19 CF	
Wall Foundation: 9'x2' (2'-9 1/2" FNDN WALL)	599 SF	456.81 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	526 SF	385.57 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-9 1/2" FNDN WALL)	324 SF	223.22 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-9 1/2" FNDN WALL)	190 SF	119.23 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 14: Structural Foundations 11	372 SF	294.30 CF	
Structural Foundations 6: Structural Foundations 11	185 SF	135.16 CF	
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	3139 SF	2345.39 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 5'x2'	310 SF	206.08 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 23: Structural Foundations 11	152 SF	99.78 CF	
Wall Foundation: 9'x2' (2'-9 1/2" FNDN WALL)	135 SF	81.04 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 4: Structural Foundations 11	557 SF	524.38 CF	
Structural Foundations 21: Structural Foundations 11	235 SF	171.90 CF	
Structural Foundations 5: Structural Foundations 11	179 SF	122.85 CF	
Wall Foundation: 5'x2'	208 SF	108.12 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 9: Structural Foundations 11	193 SF	124.61 CF	
Structural Foundations 26: Structural Foundations 11	131 SF	80.94 CF	
Foundation Slab: 12" Foundation Slab	25 SF	25.00 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 25: Structural Foundations 11	46 SF	15.00 CF	
Foundation Slab: 12" Foundation Slab	25 SF	25.00 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 28: Structural Foundations 11	46 SF	15.00 CF	
Wall Foundation: 2'-8"x1'	40 SF	12.44 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 2'-8"x1'	35 SF	10.78 CF	Concrete - Cast-in-Place Concrete

Wall Foundation: 2'-8"x1'	126 SF	42.34 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F3	33 SF	11.25 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 3'x2'	172 SF	103.67 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 3'x2'	113 SF	64.50 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F9	234 SF	162.00 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	36 SF	72.00 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	36 SF	72.00 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	36 SF	72.00 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	36 SF	72.00 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 1'-4"x1'	77 SF	21.33 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 1'-4"x1'	101 SF	28.00 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 1'-4"x1'	34 SF	9.06 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 1'-4"x1'	20 SF	4.40 CF	Concrete - Cast-in-Place Concrete
Footing-Rectangular: F3	33 SF	11.25 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	108 SF	215.18 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	140 SF	280.16 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	48 SF	9.75 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	170 SF	332.84 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	81 SF	28.87 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-9 1/2" FNDN WALL)	688 SF	474.78 CF	Concrete - Cast-in-Place Concrete
Structural Foundations 3: Structural Foundations 11	190 SF	105.21 CF	
Footing-Rectangular: F10	290 SF	225.00 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	112 SF	62.25 CF	Concrete - Cast-in-Place Concrete
Wall Foundation: 9'x2' (2'-0 1/2" FND WALL)	119 SF	68.16 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	146 SF	292.83 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	18 SF	36.00 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2' Foundation Slab	46 SF	91.00 CF	Concrete - Cast-in-Place Concrete
Foundation Slab: 2'3" Foundation Slab	306 SF	687.38 CF	Concrete - Cast-in-Place Concrete
Grand total: 131	36173 SF	27366.07 CF	

## Floor Material Takeoff

Family and Type	Material: Volume	Material: Area	Structural Material
Floor: 2" Conc Topping Slab	3624.70 CF	21748 SF	Concrete - Cast-in-Place Concrete
Floor: 2" Conc Topping Slab	3582.26 CF	21494 SF	Concrete - Cast-in-Place Concrete
Floor: 2" Conc Topping Slab	1103.91 CF	6623 SF	Concrete - Cast-in-Place Concrete
Floor: 2" Conc Topping Slab	2476.07 CF	14856 SF	Concrete - Cast-in-Place Concrete
Floor: 2" Conc Topping Slab	3643.32 CF	21860 SF	Concrete - Cast-in-Place Concrete
Floor: 2" Conc Topping Slab	519.78 CF	3119 SF	Concrete - Cast-in-Place Concrete
Floor: 5 1/4" Composite Deck_8880	2449.83 CF	5600 SF	Concrete - Cast-in-Place Concrete
Floor: 5" Concrete Slab	7898.39 CF	18956 SF	Concrete - Cast-in-Place Concrete
Floor: 5" Concrete Slab	1579.68 CF	18956 SF	Concrete - Cast-in-Place Concrete
Floor: 5" RC SOG	564.88 CF	1356 SF	Concrete - Cast-in-Place Concrete
Floor: 5" RC SOG	105.32 CF	253 SF	Concrete - Cast-in-Place Concrete
Floor: 5" RC SOG	1912.71 CF	4591 SF	Concrete - Cast-in-Place Concrete
Floor: 5" RC SOG	28.97 CF	70 SF	Concrete - Cast-in-Place Concrete
Floor: 5" RC SOG	11.02 CF	26 SF	Concrete - Cast-in-Place Concrete
Floor: 5" RC SOG	400.84 CF	962 SF	Concrete - Cast-in-Place Concrete
Floor: 5-1/4" Slab on Deck	2597.59 CF	5937 SF	Concrete - Cast-in-Place Concrete
Floor: 5-1/4" Slab on Deck	0.00 CF	5937 SF	Concrete - Cast-in-Place Concrete
Floor: 5-1/4" Slab on Deck	11168.46 CF	25528 SF	Concrete - Cast-in-Place Concrete
Floor: 5-1/4" Slab on Deck	0.00 CF	25528 SF	Concrete - Cast-in-Place Concrete
Floor: 5-1/4" Slab on Deck	38.25 CF	87 SF	Concrete - Cast-in-Place Concrete
Floor: 5-1/4" Slab on Deck	0.00 CF	87 SF	Concrete - Cast-in-Place Concrete
Floor: 8" Concrete Slab_8880	108.37 CF	163 SF	Concrete - Cast-in-Place Concrete
Floor: 11" RC SOG	4133.56 CF	4509 SF	Concrete - Cast-in-Place Concrete
Grand total: 28	47947.88	223135 SF	

#### **Structural Framing Material Takeoff**

Family and Type	Structural Material	Material: Volume (CF)	
C-Channel: C6X10.5	Metal - Steel - ASTM A36		0.37
C-Channel: C10x15.3	Metal - Steel - ASTM A36		2.96
C-Channel: C15x33.9	Metal - Steel - ASTM A36		4.43
DBeamRevit: DB9x46	Metal - Steel - ASTM A992		108.69
HSS-Hollow Structural Section: HSS8x8x1/2	Metal - Steel - ASTM A500 - Grade B - Rectangular and Square		0.35
HSS-Hollow Structural Section: HSS10x4x1/2	Metal - Steel - ASTM A500 - Grade B - Rectangular and Square		1.92
HSS-Hollow Structural Section: HSS10x4x3/8	Metal - Steel - ASTM A500 - Grade B - Rectangular and Square		10.62

	Metal - Steel - ASTM A500 - Grade B -	
HSS-Hollow Structural Section: HSS10x5x3/8	Rectangular and Square	77.19
HSS-Hollow Structural Section: HSS10x6x1/2	Rectangular and Square	77.82
	Metal - Steel - ASTM A500 - Grade B -	
HSS-Hollow Structural Section: HSS10x10x3/8	Rectangular and Square	8.17
HSS-Hollow Structural Section: HSS12x6x1/2	Metal - Steel - ASTM A500 - Grade B - Rectangular and Square	23 12
	Metal - Steel - ASTM A500 - Grade B -	23.12
HSS-Hollow Structural Section: HSS14x6x1/2	Rectangular and Square	4.91
	Metal - Steel - ASTM A500 - Grade B -	14.07
	Metal - Steel - ASTM A500 - Grade B -	14.07
HSS-Hollow Structural Section: HSS16x8x1/2	Rectangular and Square	32.12
	Metal - Steel - ASTM A500 - Grade B -	40.00
HSS-Hollow Structural Section: HSS16x16x1/2	Rectangular and Square Metal - Steel - ASTM A500 - Grade B -	10.23
HSS-Hollow Structural Section: HSS20x4x1/2	Rectangular and Square	6.17
	Metal - Steel - ASTM A500 - Grade B -	
HSS-Hollow Structural Section: HSS20x4x3/8	Rectangular and Square	2.26
HSS-Hollow Structural Section: HSS20x4x5/16	Rectangular and Square	3.93
W-Wide Flange: W8x10	Metal - Steel - ASTM A992	3.5
W-Wide Flange: W8x15	Metal - Steel - ASTM A992	77
W Wide Flange: W0X19	Matal Staal ASTM A002	0.9
w-wide Flange: w8x18	Metal - Steel - ASTM A992	0.8
W-Wide Flange: W8X24	Metal - Steel - ASTM A992	0.85
W-Wide Flange: W10x26	Metal - Steel - ASTM A992	2.19
W-Wide Flange: W10x30	Metal - Steel - ASTM A992	0.71
W-Wide Flange: W12x16	Metal - Steel - ASTM A992	74.85
W-Wide Flange: W12x19	Metal - Steel - ASTM A992	43.06
W-Wide Flange: W12x22	Metal - Steel - ASTM A992	5.27
W-Wide Flange: W12x26	Metal - Steel - ASTM A992	2.9
W-Wide Flange: W12x30	Metal - Steel - ASTM A992	4.21
W-Wide Flange: W12x35	Metal - Steel - ASTM A992	1.71
W-Wide Flange: W12x65	Metal - Steel - ASTM A992	3.61
W-Wide Flange: W14x22	Metal - Steel - ASTM A992	104.1
		104.1
W-Wide Flange: W14x26	Metal - Steel - ASTM A992	44
W-Wide Flange: W14x30	Metal - Steel - ASTM A992	23.99
W-Wide Flange: W14x34	Metal - Steel - ASTM A992	2.1
W-Wide Flange: W14x38	Metal - Steel - ASTM A992	9.91
W-Wide Flange: W14x43	Metal - Steel - ASTM A992	2.55
W-Wide Flange: W14x48	Metal - Steel - ASTM A992	2.82
W-Wide Flange: W14x53	Metal - Steel - ASTM A992	3.05
W-Wide Flange: W14x61	Metal - Steel - ASTM A992	1.66
W-Wide Flange: W14x74	Metal - Steel - ASTM A992	4.41
W-Wide Flange: W14x99	Metal - Steel - ASTM A992	6 98
W-Wide Elange: W14v109	Metal - Steel - ASTM A992	6.68
W Wide Flange: W14v122	Motol Stool ASTM A002	22.40
		23.46
W-Wide Flange: W14x145	Metal - Steel - ASTM A992	108.69
W-Wide Flange: W14x159	Metal - Steel - ASTM A992	33.41
W-Wide Flange: W14x176	Metal - Steel - ASTM A992	38.29

W-Wide Flange: W16x26	Metal - Steel - ASTM A992	130.86
W-Wide Flange: W16x31	Metal - Steel - ASTM A992	65.7
W-Wide Flange: W16x36	Metal - Steel - ASTM A992	24.11
W-Wide Flange: W16x40	Metal - Steel - ASTM A992	90.53
W-Wide Flange: W16x45	Metal - Steel - ASTM A992	12.63
W-Wide Flange: W16x50	Metal - Steel - ASTM A992	92.41
W-Wide Flange: W16x57	Metal - Steel - ASTM A992	20.88
W-Wide Flange: W16x67	Metal - Steel - ASTM A992	107.52
W-Wide Flange: W16x77	Metal - Steel - ASTM A992	25.79
W-Wide Flange: W16x89	Metal - Steel - ASTM A992	34.72
W-Wide Flange: W16x100	Metal - Steel - ASTM A992	1.25
W-Wide Flange: W18x35	Metal - Steel - ASTM A992	42.19
W-Wide Flange: W18x40	Metal - Steel - ASTM A992	21.66
W-Wide Flange: W18x50	Metal - Steel - ASTM A992	8.93
W-Wide Flange: W18x55	Metal - Steel - ASTM A992	2.77
W-Wide Flange: W18x65	Metal - Steel - ASTM A992	42.78
W-Wide Flange: W18x71	Metal - Steel - ASTM A992	4.06
W-Wide Flange: W18x86	Metal - Steel - ASTM A992	41.74
W-Wide Flange: W18x143	Metal - Steel - ASTM A992	8.44
W-Wide Flange: W21x44	Metal - Steel - ASTM A992	15.91
W-Wide Flange: W21x48	Metal - Steel - ASTM A992	11.19
W-Wide Flange: W21x50	Metal - Steel - ASTM A992	26.9
W-Wide Flange: W24x55	Metal - Steel - ASTM A992	35.85
W-Wide Flange: W24x62	Metal - Steel - ASTM A992	27.55
W-Wide Flange: W24x68	Metal - Steel - ASTM A992	24.24
W-Wide Flange: W24x76	Metal - Steel - ASTM A992	7.25
W-Wide Flange: W24x84	Metal - Steel - ASTM A992	4.96
W-Wide Flange: W24x117	Metal - Steel - ASTM A992	16.27
W-Wide Flange: W27x84	Metal - Steel - ASTM A992	39.9
W-Wide Flange: W30x90	Metal - Steel - ASTM A992	5.86
W-Wide Flange: W30x124	Metal - Steel - ASTM A992	8.79
W-Wide Flange: W36x150	Metal - Steel - ASTM A992	11.82
W-Wide Flange: W36x160	Metal - Steel - ASTM A992	10.8
W-Wide Flange: W40x199	Metal - Steel - ASTM A992	14.7
Grand total: 1297		1997.75

#### Structural Column Material Takeoff

Family and Type	Structural Material	Material: Volume (CF)
HSS-Hollow Structural Section-Column: HSS4X4X5/16	Metal - Steel - ASTM A992	1.48
HSS-Hollow Structural Section-Column: HSS5X5X3/8	Metal - Steel - ASTM A992	4.03
HSS-Hollow Structural Section-Column: HSS6x6x1/2	Metal - Steel - ASTM A992	7.57

HSS-Hollow Structural Section-Column: HSS6X6X3/8	Metal - Steel - ASTM A992	4.09
HSS-Hollow Structural Section-Column: HSS10X5X3/8	Metal - Steel - ASTM A992	1.6
HSS-Round Hollow Structural Section-Column:	Motal Staal ASTMAS	4 20
HSS-Round Hollow Structural Section-Column:	Metal - Steel - ASTIM ASS	4.29
HSS10X0.312	Metal - Steel - ASTM A53	2.1
HSS-Round Hollow Structural Section-Column: HSS10X0.500	Metal - Steel - ASTM A53	2.48
W-Wide Flange-Column: W8X35	Metal - Steel - ASTM A992	1.89
W-Wide Flange-Column: W10X33	Metal - Steel - ASTM A992	38.96
W-Wide Flange-Column: W10X39	Metal - Steel - ASTM A992	32.86
W-Wide Flange-Column: W10X45	Metal - Steel - ASTM A992	17.23
W-Wide Flange-Column: W10X49	Metal - Steel - ASTM A992	32.89
W-Wide Flange-Column: W10X54	Metal - Steel - ASTM A992	19.24
W-Wide Flange-Column: W10X60	Metal - Steel - ASTM A992	13.11
W-Wide Flange-Column: W10X68	Metal - Steel - ASTM A992	20.01
W-Wide Flange-Column: W10X77	Metal - Steel - ASTM A992	55.99
W-Wide Flange-Column: W10X88	Metal - Steel - ASTM A992	6.84
W-Wide Flange-Column: W10X100	Metal - Steel - ASTM A992	52.8
W-Wide Flange-Column: W12X40	Metal - Steel - ASTM A992	1.1
W-Wide Flange-Column: W12X72	Metal - Steel - ASTM A992	5.07
W-Wide Flange-Column: W12X87	Metal - Steel - ASTM A992	6.77
W-Wide Flange-Column: W14X43	Metal - Steel - ASTM A992	78.54
W-Wide Flange-Column: W14X48	Metal - Steel - ASTM A992	3.59
W-Wide Flange-Column: W14X53	Metal - Steel - ASTM A992	16.28
W-Wide Flange-Column: W14X61	Metal - Steel - ASTM A992	98.49
W-Wide Flange-Column: W14X68	Metal - Steel - ASTM A992	19.71
W-Wide Flange-Column: W14X74	Metal - Steel - ASTM A992	11.59
W-Wide Flange-Column: W14X82	Metal - Steel - ASTM A992	31.09
W-Wide Flange-Column: W14X90	Metal - Steel - ASTM A992	92.01
W-Wide Flange-Column: W14X109	Metal - Steel - ASTM A992	5.65
W-Wide Flange-Column: W14X145	Metal - Steel - ASTM A992	5.49
W-Wide Flange-Column: W14x193	Metal - Steel - ASTM A992	27.35
Grand total: 351		722.19

# **Appendix G: Alternative Design Phase Costs**

This appendix contains the cost packages for each phase of the construction process for the alternative floor system design.

#### **Building 1 Phase 1 Cost**

	Concrete Volume (CF)	Concrete Volume (CY)	Cost Per CY	Total
Wall Total	536.16	19.86	\$476.13	\$9,455.94
Foundation Total	5976.14	221.34	\$476.13	\$105,386.59
			Concrete Total Cost	\$114,842.53
			Total Phase Cost	\$114,842.53

#### **Building 1 Phase 2 Cost**

	Concrete Volume	Concrete Volume		
	(CF)	(CY)	Concrete Cost per CY	Total Concrete
Floor Total	8244.06	305.34	\$476.13	\$145,381.50
Column Total	575.87	21.349	\$476.13	\$10,164.90
Framing Total				
Wall Total	4600.49	170.39	\$476.13	\$81,127.77
			Total Concrete Cost	\$236,674.17
	Steel Volume (CF)	Steel Tonnage	Steel Cost per Ton	Total Steel
Floor Total				
Column Total	196.36	48.5991	\$4,899.57	\$238,114.69
Framing Total	263.55	65.228625	\$4,899.57	\$319,592.21
Wall Total				
			Total Steel Cost	\$557,706.91
			Total Phase Cost	\$794,381.07

## **Building 1 Phase 3 Cost**

	Concrete Volume (CF)	Concrete Volume (CY)	Cost per CY	Total Concrete
Floor Total	10081.4	373.39	\$476.13	\$177,782.14
Column Total				
Framing Total				
			Total Concrete Cost	\$177,782.14
	Steel Volume (CF)	Steel Tonage	Cost per Ton	Total Steel
Floor Total				
Column Total	167.34	41.41665	\$4,899.57	\$202,923.78
Framing Total	524.48	129.8088	\$4,899.57	\$636,007.30
			Total Steel Cost	\$838,931.08
			Total Phase Cost	\$1,016,713.22

## **Building 2 Phase 2 Cost**

	Concrete Volume (CF)	Concrete Volume (CY)	Cost per CY	Total Concrete
Floor Total	13064.06	483.85	\$476.13	\$230,375.45
Column Total				
Framing Total				
Wall Total	4565.63	169.1	\$476.13	\$80,513.56
			Total Cost Concrete	\$310,889.01
	Steel Volume (CF)	Steel Tonage	Cost per Ton	Total Steel
Floor Total				
Column Total	187.74	45.9963	\$4,899.57	\$225,361.99
Framing Total	329.96	80.8402	\$4,899.57	\$396,082.05
Wall Total				
			Total Cost Steel	\$621,444.04
			Total Phase Cost	\$932,333.05

## **Building 2 Phase 3 Cost**

	Concrete Volume (CF)	Concrete Volume (CY)	Cost per CY	Total Cost
Total Floor	9500.31	351.86	\$476.13	\$167,531.06
Total Column				
Total Framing				
			Total Cost Concrete	\$167,531.06
	Steel Volume (CF)	Steel Tonnage	Cost per Ton	Total Steel
Total Floor				
Total Column	233.24	57.1438	\$4,899.57	\$279,979.93
Total Framing	687.07	168.33215	\$4,899.57	\$824,754.79
			Total Cost Steel	\$1,104,734.72
			Total Phase Cost	\$1,272,265.78

## **Building 3 Phase 1 Cost**

	Concrete Volume	Concrete Volume	Cost per CY	Total Cost
	(01)	140.00	¢ 47 € 10	¢71.000 70
Floor Total	4045.1	149.82	\$476.13	\$/1,333./8
Column Total	247.39	9.16	\$476.13	\$4,361.35
Foundation				
Total	9104.53	337.2	\$476.13	\$160,551.00
Wall Total	1459.8	54.07	\$476.13	\$25,744.34
			Concrete Total Cost	\$261,990.47
			Total Phase Cost	\$261,990.47

# **Building 3 Phase 2 Cost**

	Concrete Volume (CF)	Concrete Volume (CY)	Cost per CY	Total Concrete
Floor Total	10328.38	382.53	\$476.13	\$182,133.97
Column Total	285.18	10.56	\$476.13	\$5,027.93
Framing Total				
Wall Total	3464.36	128.31	\$476.13	\$61,092.23

			Total Cost Concrete	\$248,254.12
	Steel Volume	Steel Tonnage	Cost per Ton	Total Steel
Floor Total				
Column Total	197.8	48.461	\$4,899.57	\$237,437.96
Framing Total	489.57	119.94465	\$4,899.57	\$587,676.95
Wall Total				
			Total Cost Steel	\$825,114.91
			Total Phase Cost	\$1,073,369.03

## **Building 3 Phase 3 Cost**

Column1	Concrete Volume (CF)	Concrete Volume (CY)	Cost per CY	Concrete Total
Floor Total	6958.08	257.71	\$476.13	\$122,703.43
Column Total				
Framing Total				
			Concrete Total Cost	\$122,703.43
	Steel Volume (CF)	Steel Tonnage	Cost per Ton	Steel Total
Floor Total				
Column Total	114.6	28.077	\$4,899.57	\$137,565.17
Framing Total	450.27	110.31615	\$4,899.57	\$540,501.46
			Steel Total Cost	\$678,066.63
			Total Phase Cost	\$800,770.06

# **Building 4 Phase 1 Cost**

	Concrete Volume	Concrete Volume		
	(CF)	$(\mathbf{C}\mathbf{Y})$	Cost per CY	Total Concrete
Floor Total	7665.37	283.9	\$476.13	\$135,173.27
Column Total	139.63	5.17	\$476.13	\$2,461.59
Foundation				
Total	12444.19	460.9	\$476.13	\$219,448.26
Floor Total	5577.75	206.58	\$476.13	\$98,358.91

	Total Cost Concrete	\$455,442.04
	Total Phase Cost	\$455,442.04

## **Building 4 Phase 2 Cost**

	Steel Volume (CF)	Steel Tonnage	Cost per Ton	Steel Total
Column Total	75.21	18.42645	\$4,899.57	\$90,281.64
Framing Total	184.44	45.1878	\$4,899.57	\$221,400.69
			Steel Total Cost	\$311,682.33
			Total Phase Cost	\$311,682.33

## **Appendix H: Proposed Site Development Plans**

This appendix contains Consigli's proposed site development plans: Landscape Improvement plan (L1.0), Landscape Grading plan (L2.0), Landscape Layout plan (L3.0), Landscape Planting plan (L4.0), Landscape Planting Details (L5.0), Landscape Site Details (L5.1), Landscape Site Details (L5.2).



























# **Appendix I: Structural Design Loads & Beam Selection Hand-Calculations**

Deepo Loads 1 of 14 Loads Provided by Goody Eclancy (50.00) Dead Load: (Vulcraft (atelog (g. 54)) - Normel WT. Concrete = 150 Pcf]. (Simult) - Total Sing Joth = 5:1/4 - Decking (DL) = 55 Fish (Simult Asian Martin P for all (20 gave steel \$ 2.5 MW concrete) P for all (20 gave steel \$ 2.5 MW concrete) Roof Dead Load ... 1/2" 20 gage salve steel (Type: #) = 2.14Psf or 1-1/2" 18 gage " " 2.84 Psf 30 1 2.84 Psf With Live Loads A Note Loud Come. concelled to Excell file - Residences - 40 - FIRST Floor - 100 Prf. - Sticord Floor - 100 Psl Snow Lood (real teal Jahl) Toke Snow Lond = 109.56858 + 42 => 151.56 ASF. 19 = 55 Psf P. = 42 1st or 552.7/2001-1 Wind Load : JEC 1604.2 Part = 60 Hz Cher 2 = 0.007570 V2 = 25.6+52 (Ker=10)(1=1.15) LICOMP. LIDDAPP. MWFRS Resign Load = 3285f Siesmic Looding (she does it)  $V = C_{5} W = So_{5} - W / (R_{2})$  ;  $C_{5} = 6.032; R = 3$ \*  $E_{5} = 1.19$ 55/5= 0.24/0.067 => 5m3= 285 S D3/50. = 0.19/6.076 Design Bose shear => V= 502 k ) > given in Drawing (50 as)

Hor: 1 2000 Con setestan  
Flor: 1 2000 Con w G String  
W = 1050 + 
$$(2000)$$
 = 1085 H2 = 1.095 K.A. (With Barner)  
=) Anne =  $1.055 \frac{10}{20}$  =  $122.14$  the Tayet  
(beach WIZ 255 cabert)  
Annow =  $\frac{1.025}{100}$  =  $\frac{1000}{100}$ 

6 of 14  
Flow: 1.2 (20' 20') Mounts Connection  
. Try W27 X Ru (
$$Z_{x} = 244$$
,  $I_{x} = 2550$ )  
(Indians) W\_{x} = 2250 + ( $Z_{x} = 240$ ) + 1800 pr = 4218 Pr = 4.218 pr/m  
= 2126 + W20 + 1700  
Muor =  $(H, 22)(25^{-3}) = 42H, 5H + 4$  Maintonable.  
Almontable =  $\frac{24H}{1.67} \times 50.5 \text{ M}_{x} = 6025 \text{ M}_{x} \times 4416 \text{ Maintonable}.$   
Almontable =  $\frac{24H}{1.67} \times 50.5 \text{ M}_{x} = 6025 \text{ M}_{x} \times 4416 \text{ Maintonable}.$   
(Mono)  $= (2418 + 900)(25^{-3}) = -14 \leq 12 \text{ (lose 1)}$   
 $= (2418 + 900)(25^{-3}) = -14 \leq 12 \text{ (lose 1)}$   
 $= (2418 + 900)(250) = -14 \leq 12 \text{ (lose 1)}$   
 $= (2418 + 900)(250) = -14 \leq 12 \text{ (lose 1)}$   
 $= (2418 + 900)(250) = -142 \leq 12 \text{ (lose 1)}$   
 $= (2418 + 900)(250) = -142 \leq 12 \text{ (lose 1)}$   
 $= (2418 + 900)(250) = -142 \leq 12 \text{ (lose 1)}$   
 $= (2418 + 900)(250) = 1700 = 4248 \text{ Ref = } 4.205 \text{ M/f}.$   
 $M_{100} = (22504 + 1700) = 4248 \text{ Ref = } 4.205 \text{ M/f}.$   
 $M_{100} = (22504 + 1700) = 4248 \text{ Ref = } 4.205 \text{ M/f}.$   
 $M_{100} = (22504 + 1700) = 1256 \leq Maintonable$   
 $= (2504 + 100)(25^{-3}) = -124 \leq 13 \times (2503 + 1700).$   
 $= (2418000)(1400) = -124 \leq 13 \times (2503 + 1700).$
**F of 19**  
Try W Str X 150 (2,058, 3,040)  
Wu = 7250 + (150 + 100) = 2500 + 1000 + 9350 Hz = 0.350 Kz  
Musy = (1150)(20) = 419,22 K-AT 
$$\leq$$
 Mulaunuc  
Mubanuc =  $521 \times 50 \times Mc$  = 1449,60 AAT Z 449,22 K-AT  
Usilection  
**S**(2200 + 90)(20) = ...H  $\leq$ .12 X closer !  
Try WHO XWA ( $\geq_{7} = 540$ ,  $1_{7} = 940$ )  
Wu = 7250 + ( $\frac{100}{200}$ ) = ...H  $\leq$ .12 X closer !  
Try WHO XWA ( $\geq_{7} = 540$ ,  $1_{7} = 9400$ )  
Wu = 7250 + ( $\frac{100}{200}$ ) + 1800 = 7504 × 1800 = 4500 FLE = 4.342 Hz  
Many =  $\frac{4.545 \times (20^{3})}{2}$  = 487.15 K-AT  $\leq$  Mallow  
Malounalle =  $\frac{50 \times 200 \times M_{2}}{2}$  = 1449.6 KHZ H87.15 K-AT  
**S**(100100  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2009 + 900)(20)  
**S**(2

$$\frac{29 \text{ of } 14}{\text{Flow i.2}} = \frac{29 \text{ of } 14}{\text{Flow i.2}} = \frac{100 \text{ or } 20}{100 \text{ or } 20} + \frac{100 \text{ or } 100}{100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100 \text{ or } 100} + \frac{100 \text{ or } 100}{100 \text{ or } 100 \text{ or } 100} + \frac{100 \text{ or } 100$$

$$Floor: 2 (20' 20') (apart 8 = surg)$$

$$W_{n} = (25 - 80) (apart 8 = surg)$$

$$W_{n} = (25 - 80) (apart 8 = surg)$$

$$W_{n} = (25 - 80) (apart 8 = surg)$$

$$W_{n} = (25 - 80) (apart 8 = surg)$$

$$W_{n} = (25 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apart 8 = surg)$$

$$W_{n} = (1 - 80) (apa$$

**J2 of M**  
Since: 
$$Z_{y} \ge 177 + I_{y} \ge 1750m^{4}$$
  
 $I = Try W 24, y 76 + (Z_{y} = 200, J_{y} = 21001/s^{4})$   
When We = H26 RE + 76 Mr + 500 RE =  $J = 1001.00 \text{ RE } = 1.001 \text{ m/s}^{4}$   
 $M_{max} = \frac{(1.001)(20^{3})}{y} = 112.61 \text{ m/s} = Mallowakie$   
 $M_{minumatic} = \frac{7000000 \text{ m/s}}{1.67} = H99, 00002 112.61 \text{ m/s}$   
 $Check Leff (2.4100)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1.5)$   
 $(J = 1.12 \le 1$ 









9 of 11  
1 Soirt brick 
$$y_{i}$$
 or  $y_{i}$  o











# **Appendix K: Electronic Files Directory**

The following is a list of the contents of Appendix K:

- 1. Consigli's Baseline Schedule (PDF)
- 2. Consigli's Updated As-Built Schedule (PDF)
- 3. Consigli's 3D Model (RVT)
- 4. Consigli's BIM Model (NWD)
- 5. Baseline Schedule (XER)
- 6. As-Built Schedule (XER)
- 7. Alternative Design Schedule (XER)
- 8. Baseline vs. As-Built Schedule Comparison (XLS)
- 9. Alternative Design 3D (RVT)
- 10. Planned vs. As-Built 5D (NWF)
- 11. Alternative Design 5D (NWF)
- 12. Planned vs. As-Built 5D Animation (AVI)
- 13. Alternative Design 5D Animation (AVI)
- 14. WSU Site Photos (ZIP)
- 15. Structural Load Calculation, Frame and Joist Design Level 1-Roof (XLS)
- 16. Structural Column Capacity & Footing Dimension Calculations (XLS)

# **Appendix L: MQP Proposal**

Project ID: GFS-1401



# Worcester State University Sheehan Hall MQP: Project Management and Alternative Design

# A Major Qualifying Project Proposal

Submitted to the faculty of WORCESTER POLYTECHNIC INSTITUTE In partial fulfillment of the requirements for the Degree of Bachelor of Science

**Submitted on:** 12/19/2013

Submitted by: Matthew C. Blakeman Myo H. Latt Thomas C. Lacroix

Submitted to: Project Advisor: Guillermo F. Salazar

# Abstract

This project proposes an alternative design for Worcester State University's Sheehan Hall residence dormitory and compares it to the existing design in terms of scheduling and costs. It also reviews project management services including scheduling, cost and lean construction. Building Information Modeling will be used to visualize the impacts of the alternative design and create a 5D model, which will be used to compare the planned cost and schedule to the actual cost and schedule of the project.

# **Capstone Design Statement**

## **1.0 Introduction**

Educational institutions all over the world are drawing in more and more students each year, partly owing to the fact that an increasing number of people are realizing the value and importance of higher education nowadays (*Admission Statistics*, 2013). This may be beneficial for universities and colleges in the sense that they are educating an increasing number of the population while generating greater revenue and growing in size, but an increasing student population also demands more on-campus facilities such as dormitories, cafeterias, etc. Many universities and colleges have very limited on-campus accommodation, meaning that a large number of students must live elsewhere and commute to campus, which is not ideal. Due to this increasing demand for construction within the education sector, the construction industry is witnessing a growing number of projects for educational buildings (*Construction Market Research*, 2013).

Such is the case of Worcester State University (WSU). Located in a residential neighborhood on the west of Worcester, MA, WSU is a commuter-heavy university that is currently facing the same problem of not being able to provide enough housing for its current student population. In an effort to address this problem and keep more students on campus, WSU is currently constructing a new facility, namely Sheehan Hall (Kotsopoulos, 2012). It is imperative that this new facility is completed on time and within budget because it needs to be ready for move-in by fall 2014. When completed, Sheehan Hall will rise six stories beside the football field and house 400 beds. In addition, the facility will also feature amenities such as a cafeteria capable of seating 575 people, a large community room, and offices for the residential

and health services. The total budget for the design and construction of the project is \$60 million.

The goal of this study is focused on exploring the impacts of an alternative floor system design on the total project duration and cost. It will also include a thorough analysis and evaluation of the construction management services, in which the planned schedule and costs will be compared with the actual construction schedule and costs.

The current structural design of the facility is comprised of a steel frame, with cast-inplace concrete slabs for the first floor, and pre-cast concrete slabs for floors two through six. This study will propose an alternative floor system design, in which the pre-cast slabs on floors two through six will be entirely replaced with cast-in-place slabs. Although pre-cast slabs could potentially speed up the construction process, they are slightly more costly due to the fact that they have to be transported to the site, and the installation process requires the use of cranes. Also, any deviations in measurement from the design specifications are relatively harder to fix due to the fact that the slabs have already been cast (Consigli, 2013). By changing them to castin-place, the study will examine the effects on the cost and schedule, and determine which method will be more beneficial for the project. The alternative design will first be visualized through a 3D model which will be created in Autodesk Revit. Next, the model will be imported into Autodesk Robot where it will undergo structural analysis to ensure that the structure is sound. The impacts that this new design will have on the project will then be analyzed in terms of cost and time by preparing a cost estimate and a schedule of activities, using Primavera. This schedule and cost data will then be incorporated with the 3D structural model using Autodesk *Navisworks* to create a 5D Building Information Model (BIM). The BIM will serve as a complete visual overview of the project and aid in better understanding the alternative design, including its time and cost implications on the project.

The study will also consist of an analysis of the overall project management for the actual construction of the project, which will entail evaluations of the relationships between different parties involved in the project, cost and schedule, safety practices, and the use of lean construction. A visual comparison of the baseline cost and schedule to the as-built cost and schedule will be presented in the form of a 5D BIM model. The 5D model will be created through the integration of the *Primavera* schedules with the *Revit* model in *Navisworks*. Lastly, the study will involve a geotechnical review section which will provide a description of the existing site work and layout.

## 2.0 Background

This chapter discusses the planning and need of a new dormitory on the campus of Worcester State. The section will start with an overview of the project as well as some information about Worcester State. Construction project management practices such as cost, schedule, and Building Information Modeling (BIM) will be overviewed for the construction of Sheehan Hall. Structural and Geotechnical analyses will also be discussed.

## 2.1 Worcester State's Plan

More students are attending colleges now more than ever. From 2000 to 2010 there has been an increase in enrollment in degree-granting institutions by 37%. Worcester State University (WSU) has been planning on adding more on-campus housing for their students to address this increase in students and students who live on campus. Sheehan Hall, the new dormitory on the campus will help this cause for the college. In the Worcester State University Master Plan from 2007 it was estimated that 700 new beds would be needed by 2014 (Sieniewicz, C. K, 2007). Sheehan Hall helps the university meet the needs of a growing student population. The college has many commuter students and the addition of this residence hall will help the process to have more students that stay and live on campus. Worcester State's President Maloney stated that "When Sheehan Hall is completed in August 2014, two out of every five of our students will be housed here on campus-and we know that residential students will both add vitality to our campus community and positively affect our retention and completion rates" (Reis, J, 2012). In the "Phase 3: beyond the framework horizon" section of the Campus Framework Plan it was described that a new residence hall would be implemented on the hillside of the sports field and six years later that plan was put into place. With this new residence hall the opportunity presented itself to enhance the "main street" of the campus (Sieniewicz, C. K, 2007). The college campus lacks a clean pedestrian path or circulation pattern but this new building will add to the circulation pattern. The reason that the college wants a more prominent pedestrian path is to try to connect all campus buildings in one path, and this hall will fit into that path. Figure 1 displays where the new residence hall will be located on the campus.



Figure 1: Campus Map of Worcester State University

## 2.2 Sheehan Hall

Worcester State University's new residence hall construction officially began in spring 2013, and has an expected completion date slated for fall 2014. The new facility is designed to accommodate 400 students and also includes the following features such as a large community

room, a dining hall with two-story windows capable of seating 575 students, faculty and staff, as well as additional outdoor seating overlooking the John F. Coughlin Field. This new residence hall will add approximately 10 percent to the University's on-campus housing capacity. Sheehan Hall will be named after Lt. Col. James F. Sheehan USMC (ret.) who graduated from the college in 1955. Over the years Lt. Sheehan has provided \$3.6 million in support for the college. Lt. Sheehan's support has gone towards scholarships, academic excellence and international study support. Massachusetts Higher Education Commissioner Dr. Richard M. Freeland stated that the support from Sheehan and the naming of the building was "truly a magnificent achievement for Worcester State and ... as a testament to his loyalty and gratitude towards the college" (Herrin, C). Sheehan Hall will now become the fourth residential complex among those currently part of campus such as Wasylean and Dowden Halls, and the Chandler Village. Positioned on the hillside above the Coughlin Athletic Field, the new residential facility will serve as a clear anchor to the residential area of the campus, offering a panoramic view of the university grounds as well as creating a pedestrian core that integrates all residential life on campus.

Sheehan Hall received an allocation of a budget of \$60 million for design and construction, the bulk of which is financed through the Massachusetts State College Building Authority (MSCBA). The MSCBA is responsible for the financing, designing, constructing and also the management of all revenue-funded projects including housing, dining, athletics, parking and other student recreational facilities with the goal to support the academic mission of the nine Massachusetts state universities. The Authority receives no appropriation from the Commonwealth. All revenues to support facility design, construction and operation are derived from the rents and fees paid by students for the use of these facilities and services (MSCBA, 2013).

## 2.3 Construction Project Management (CPM) Overview

Construction project management is the planning and execution of a project. There are many different components that are critical to completing the project on time and within budget. The CPM overview section explains the main components of the CPM methods that were used for this project. This section includes the contract type that was used for this project, the organization breakdown structure of the people and companies that are working on this project, the CPM practices that were used for cost estimating and scheduling, how Building Information Modeling (BIM) is used in project management and the concept of Lean Construction and how it was used in this project.

#### 2.3.1 Organizational Breakdown Structure (OBS)

Construction Management at Risk is the contract type for this project. For this contract type the Owner chooses an architectural firm along with an engineering firm to design the project for the owner. Firms that offer construction management practices then bid on the project and owner then chooses the best contractor to complete the project based on variables such as bid cost, projected schedule, contractor qualifications and familiarity with the contractor. The work is being done for Worcester State University, which is a state school so the owner is the Massachusetts State College Building Authority (MSCBA, 2013). The MSCBA finances, helps design and oversees the residence halls and student activity facilities on the nine State University campuses in Massachusetts (MSCBA, 2013). The Authority uses all revenues to support facility design, construction, and operation are derived from the rents and fees paid by students for the use of these facilities and services (MSCBA, 2013). The MSCBA chose Goody Clancy and Associates from Boston, MA as the architectural firm for this project. The general contractor that was chosen for this project is Consigli Construction Co. based out of Milford, MA. Consigli is a Construction Manager and General Contractor that also has offices in Williamstown, MA,

Portland, ME and Hartford, CT and Boston, MA as well as having affiliates in NY. Once Consigli was awarded the project they began hiring the subcontractors for the job. There are also many engineering design consultants hired by the MSCBA who are involved with many different trades on the project. A list of all of these consultants can be seen in Appendix C. Figure 2 displays the organization breakdown for this project.



Figure 2: Organizational Breakdown Structure of Sheehan Hall

### 2.3.2 CPM Contract

The contract type for this project is Construction Management (CM) at risk with a Guaranteed Maximum Price (GMP). Construction management at risk is the financial agreement between the CM and the owner with the contract total being the GMP. The GMP is the summation of the cost for general conditions construction, the CM's fee, the CM's contingency, the subcontractor's work and an estimate for any work not yet approved. The general conditions construction includes the cost for any site work that has to be done to the site before construction. The CM's fee is the cost that the owner pays the CM for the construction project management services they are providing. The main difference between a GMP and a Lump Sum contract type (Lump Sum is the other typical contract type) is the CM's contingency. The contingency is a portion of money in the contract that is used for unforeseen changes that occur to the project due to lack of scope, incomplete drawings or specifications or to cover unforeseen costs to a project. If a change has to be made to the project that is not specified through the scope of work than money from the contingency can be used for this change and it will not change the overall cost of the project. It is called a Guaranteed Max Price because of the contingency aspect so the max price does not change. However the GMP can be subjected to change if the owner or the Architect/Engineer makes a change to the scope of work. The CM is at risk in this contract because after the money from the contingency is used the CM has to pay for unexpected costs that come up on a project, other than owner approved scope changes. One of the main reasons that a GMP contract was chosen for this project is because the MSCBA likes using this contract type because they receive the remaining amount of contingency back once the project is done (Consigli, 2013). The initial GMP bid for this project was \$50,262,375 (Consigli, 2013). This cost to complete bid will change through the project based on changes and unforeseen expenditures.

#### 2.3.3 Scheduling

Scheduling is one of the most important tasks involved in construction project management. A carefully planned and well-defined schedule, endorsed by all parties involved, is a necessary component of any project in order to ensure that the project gets completed within the specified time and budget. Construction projects involve a myriad of activities that need to be completed by many different subcontractors and professional teams in order to properly finish the project. A well-coordinated schedule not only helps in identifying all the activities in the project as well as the sequence in which the activities are to be performed, but it is also necessary

for determining the critical activities of the project, determining the overall project duration, and the order and timing in which each subcontractor is expected to complete the tasks. A schedule can also be used to gauge the progress of the entire project by comparing the activities planned on the schedule with the activities that have been completed. If an activity falls behind schedule and could potentially delay the completion of the project, it is the job of the project management team to manipulate the schedule and reallocate resources in order to finish on time. In the case of Sheehan Hall, finishing on time is essential because WSU needs to have the building ready for move-in by fall 2014.

The Sheehan Hall project was started in November of 2012 and is expected for completion in July of 2014, with a total project duration of 20 months (Consigli). The project is on a fast-track schedule, meaning that the design and construction phases are overlapped in order to compress the total duration of the project. For example, the construction can begin as soon as the structural design is complete, while the rest of the details and designs can be finalized as the project moves along. This enables the project management to significantly expedite the construction process since they don't have to wait for the all designs to be established to commence construction, but it demands greater coordination and communication between the designers and the project management team.

In any schedule, it is important to identify the critical activities whose completion is absolutely necessary in order for the project to move along. The Critical Path Method (CPM) is commonly used in construction schedules to identify the tasks that are critical to the project, and based off these tasks, the total project duration. In the CPM, all activities that have a total float of zero are considered critical while activities whose total floats are greater than zero are considered non-critical. The path with the longest total duration along these critical activities is known as the

critical path and the duration of the critical path determines the duration of the entire project. Total float is the leeway between the earliest date at which an activity can start and the latest date it can start without resulting in a delay for the entire project (Halpin & Senior, 2011). Therefore, delaying a critical activity (zero total float) will result in the total duration being extended as well. On the other hand, non-critical activities (total float greater than zero) can be delayed by up to a number of days equal to its total float without impacting the total duration of the project. The CPM is a very useful tool for the project management team in planning and controlling a project from start to finish: critical activities indicate which tasks require immediate attention and resources, and shortening the duration of the critical path can shorten the total duration of the entire project.

The larger the project, the greater the number of activities involved in the schedule of the project. Large construction projects involve tens of thousands of individual activities and scheduling all these activities can be very complex and time-consuming. For this reason, various computer software exist that make scheduling a project fast, simple, and manageable. Programs such as *Primavera Project Manager* are very capable of organizing and performing calculations on many information, and can handle various tasks, from planning and generating a simple timeline for all the activities of a project, to evaluating entire projects and portfolios (Primavera Works, 2013). *Primavera* is widely used by many construction and contracting firms to create schedules for projects because the program is also capable of tracking many important aspects of a project such as costs, duration of individual activities, and the relationship between activities. It can even be used to manage risks, keep track of all the contracts, documents, and change orders pertaining to the project, and monitor Requests for Information? (RFIs) and unresolved issues (Oracle, 2013). A part of the *Primavera* baseline schedule developed by Consigli for the Sheehan

Hall project can be seen in **Figure 2**, with the list of activities on the left and a bar chart showing the relationships between the activities and the schedule on the right (please refer to **Appendix E** for a complete display of the baseline schedule).

and the second second second second				and anyour to													_			-2-1 - W 11	
Addwity ID	Activity Name	Orig	Rem Start Dur	Finish	-	1 mm	2013 2014 Fan Mar Arr Mar Jan Jat Ave San Ord Nov Dar Ian Mar Arr Mar Jan Jat							2014	201						
wau - I	NEW STUDENT RESIDENCE HALL AND DININ	B FACILITY	5536		- Call	rea		Apr 1657 301 3	- <i>nog</i> -	ep uu	Nov Des	- The	CU NC		may su	. 34	nag ok	p cu	HOW DE	o com	
CONST	RUCTION						21		1 1					1 1							
CONTRACTOR OF						1 1	. I		1 1	1 1		1	1	4 1	1.51	1 1	8.1	1			10 11
10,4400	Freit Gerrart		04 40/24/40 4	03/06/03 4	<u> </u>	1	_ i	السلمسا	3 1	1 1		1	1	1 1		1 1	8.16	1			1 I.
Allentou	Early Stewark	00	08 10/31/12 A	US/10/13/A	-		- 1	any operations	S 1					1.1	1.3		8.1				1.1
- Residenc	e nat/Uning																				++
Sitework	And Annaly day		0.0		4	1 1	1		1 1	1 1	1	1	1	1 1	1	1 1	1	1	1 1	1000	1 1
A16290	ctari Construction	08	08 03/04/13 A		-			Conteruction	3 1					1 1		1 1		1			
A163/0	Nobilze / Install Barners	00	08 03/04/13 A	03/08/13 A	- 2	a 1	NQ	conze e instancearriers	1	1 1				1 1		1 1	8 B.	1	1		E 1.
A16310	instal Uramage	200	00 03/13/13 A	04/06/13/4		3 3		ingai uranage						3 8		1	3.4				12 12
A16350	Install Selver	200	90 03/13/13 A	05/10/13	-		-	Instal Sevie												-	+
A24540	Eedic Duddark to Chardler	350	350 06/21/13	06/09/13	- 1				E CHO	ne quatan	s to unand	۳ I		1 1		1. 3	8				12 12
A16360	Hough Grade ste	150	150 08/05/13	08/23/13	- 1	4 1				ouge Grad	Contestor			1 1							
416420	EBED Courte and Male. Distancely. Citater	124	124 021471441	DECLARA	1.2	4 4			1	00	Generator				-	1	-	al and	Claim		8.8
A10440	Proprocessing and visite, ordeniane, oranis	400	430 03/1//14	05/14/14	1	il			3.4	1 1				1 1	PAC	Gouliya	U VValle, S	Dewate	51818		E. E.
A1643U	Parings	300	308 05/05/14	06/16/14												Paning	· · · · · ·				++
accit	UN 1 *** [Cast Bar]				4	8 i	ő li		S 1	1 1	1		111	1 1	1	1 1	9 👬	1	1		10.14
Sudenn	e / acteu					1 1			1 1	1 1		1 1	1	1 1		1 1	8	1	1		
Founda	icione		A-1			4 8			1.1			1 1	181	1 1		1 3	8.8				
A1630	Excavate for Pottings & Poundations / Haul - Section 1	158	08 03/20/13 A	04/01/13/A	4.3	0 F	<u>г</u>	Excavate for Poteng	s a rounda	ions/ Haus	- Section 1	1		1 1	8	1. 1	8.1				10.11
A2250	I install soll Naling - Section 1	30	00 03/27/13 A	U3/20/13 A				metal sol maing - s	ecopri 1			+		-ll-							
A1852	3 FREP Footings - Dection 1	58	08 04/02/13 A	04/08/13 A		1 1		FREP Foodings - D	ection 1	.			1	1 1		1 1	1	1			1.1
A1853	Elec Ground Winng to Pootings 1	108	08 04/03/13 A	04/04/13 A	- 1	1 1	1	Elec Ground Wiging	to rootings	1 1	1	1	1	1 1	10	1 1	1	1	1		1 1
A1856	FREP Interor Pootings - Section 1	28	28 04/04/13	04/05/13	47	4 3	. B	FREP Interior Ppot	ngs - Secto	111 1			- E - I	4 8	- 14 -	1	8.1	1	1 1		1 1
A10504	3 PREP Foundations - Section 1	230	230 U4/U5/13 A	05/06/13		3 B		FREPPOLING	abone - Spo	ton p				4 1	1.01	1.1	8.4				10.10
A1639	3 Waterproof - Section 1	100	108 05/10/13	05/23/13	-			i waterpro	of - Section	1.1				4							
A1641	Baotfil Exterior - Section 1	56	56 05/24/13	05/31/13	1	11		Bacifi	Exterior - Ge	ction 1				1 1			3 1	1			
41632	Example / Compart / Induction MEDs - Section 1-11	16.4	154 070503	08/02/13	٩	8 8		10 10	and and	Change	Lindersta	AFFOR	factor 1	4 1	1.8	1.1	8.8	-			
ATOCH	2 Date III Compact Orderado NEPO - Securit (-EE	14	14 09/05/13	00/02/13		1 1	2	1 B B 1	it Date	con on	for till	-	Jeupon	TI							
410.44	Contract LIFE Internation - Contract 1-11	74	74 0505/13	OBULARIA		3 3			in the	a step us	sperel next			1 1		1 3	8.4	1			
41844	1 Instal Such Franzviller - Sector 1.1	44	44 08/30/13	02/05/13						Instal Sw	Financos		tion 2-11								+
Eloom	1.3 (See 1.8.7)	45	40 00100110	Dardot ro		1 1			1 1	1	1	19 01		1 1	1.21	1 1	3 1				13 11
41818	Brart Steel, Cartino tol 1-3 Mars 11	44	44 05/33/13	05/05/03	1	1 1		a draw then	- dame	11. Trees		1		1 1		1 1	S 1	1			1
A1010	Desk & Detail Check, Contine 1   1 2/Con 11	124	124 05/13/13	05/10/13	- 2	1		Clear area	Datas Charl	Cristopd 1	1 2 000			1 1		1.0	8.1				
AL1007	2 Deak Street Steele Steeler (11, 2 Deak 2)	130	04 05/14/13	05/01/10	1.3	1.1	3. I	I Dent Die	Deal order	La Different	at long	1 1	1.1	1.1	. St	1.1	S. 1.	1			E. E.
A100/0	2 Date 5 Dates, Sector 1-1 1	20	54 05/17/13	05/20/13	+			B Deck b D	atub - Cade	- 13 Deg	s			+					+		++
42506	Deck & Detail - Section 1-1 1-3 (Sec 2)	11.5	114 05/00/13	06/04/13	1.2			Detta	Dates Chas	- Christen	11. Times	4 1		1 1	1.5	12.23	8.18				12 11
A1000	Street & Creat Descart Dasks -Darlins 1-1 1-2 (Des 1)	54	C4 05/20/13	06/03/13	1.1	1 1		Di Drant 2	Creat Drag	ant Blanke	Carting 1.1	12000		1 1		1					
A1810	3 Brant & Crout Dracast Diana - Section 1-11-3 Plan 21	54	64 05/20/13	06.05.03	- 1	3 8	8		Crout Day	and Branks	Darting L.	1.100		1 1		1 1	8 B -	1			1.1
A1877	Linethil Decimptor Product Linet 4, 1 1	104	104 05/05/13	05/19/12	- 2	3 F	2 1	in lort	ni Barimaka	Rationt		1	1-1	3 8		16 (3)	8 <b>R</b> -				E 8.
A1210	Date 200 - Sector 5.11	04	24 05100113	05/00/13					a boo ba	ation 4.1.4	and the state	++									
A1919	1 Instal LEED Manager - Carling 1.11	20	34 07/05/13	OT CALLS 3	- 7	a e			1 installe	ED HIMPORT	- Dates -			1 1	1.2		8.8				
A1820	1 Instal Syray Firenendins - Serline 1,1 1	30	44 08/02/13	08/07/13	1.1	a i			Ingal W	Shray Fin	omenna .	Long L		1 B		18 8	8	1			E 1
201 El	Commentation of the operation of the ope	40		Junerried	1	3 1			1 1	- Hart		1	1	4 1		1	8 H	1			10 1
A1860	1 Instal MED Honners - Section 1-12	5.0	54 07/25/13	02/01/13	-	1 1	S		inclut	UED Hann	re later	1.2	1.1	1		1	S., K.,	1			1.1
A1000	Install Teacher Disk. Dealine 1.1.0	00	44 09/04/13	02/05/03	+		-		digital in the	Territoria	ab Costier	1.10									++
A1009	1 Install Course Elementation - Caption 5.1.0	40	44 00/07/13	02/12/12	11	1 1	6		In Idea	a chrw El	arroding.	Cartha	1.12	1 1	1.5		8	1	1.81		13 16
Set Flor	and the short of the state of t	40		der ter tel	1.1	9 F	8			- deal is	- monda	[ mainter	-	3 B	10	10	8		1 9		
140.00	Linetel HED Hanney, Contine 4 1 2		C4 0000443	01/07/43		4 8	5		he set		-	1		1 1	1.2	1. 1	S 1	1			13
A1812	2 Install MCH Landers - Section 1-13	50	5a) 00/01/13	ueru//13	1	<u>i i</u>	<u> </u>		insa	NOP Hara	lete - Secto	不下した	: i:	<b>3 1</b>	- 13 <b>-</b>	1 1	S (8)	1	12 12	_	15 1

Figure 3: Consigli's Baseline Schedule

## 2.3.4 Building Information Modeling in Project Management

Building Information Modeling (BIM) is an emerging tool in the construction industry that is being adopted by an increasing number of construction firms. BIM enables firms to virtually construct a structure or facility before the actual construction occurs, thus minimizing the chances for error and clashes that would likely occur during construction (Consigli, 2013). BIM is mainly based on a 3D model, to which large amounts of information and other models can be added as desired. The BIM of a construction project usually incorporates into a single model all the information from different aspects of the project such as the architectural details, the structural design, the HVAC and MEP designs, as well as geotechnical information. Different parts of this complete model can then be exported into special application software, such as *Autodesk Robot*, to be analyzed. This means that the relationships between the different aspects can be determined and any potential clashes identified and addressed, thus enabling the project management team to reduce the duration and cost of the project. Consigli's main uses of BIM in the Sheehan Hall project are to ensure proper sequencing of the steel and concrete, and to identify potential problems before they can actually occur on-site (Consigli, 2013).

In addition to being capable of providing a complete 3D model of a facility, BIM can also incorporate other information such as the schedule of the project and the costs associated with the construction of the building into the same model. A BIM model with incorporated cost and schedule data is known as a 5D model. BIM models are great tools for project management because they enable the project management team to simulate the actual construction process and prepare cost estimates along different project phases (Autodesk, 2013).

BIM is a great way of communicating various aspects and objectives of a project with everyone involved, from the owner to the field workers, because it provides a visual model with integrated time and cost data. The complexity of these models enables information from all the different trades of the project to be stored in a single file, from which data can be pulled as necessary and each individual component of the project can be analyzed. BIM has dramatically enhanced the construction industry with its versatility, and is becoming increasingly popular.

This study will incorporate the use of BIM for two purposes; to compare the baseline schedule for the actual construction of the structure to the as-built schedule, and to help with the visualization of the alternative floor system design and its impacts on the schedule and cost. Thus, the 3D model, which will be drawn in *Autodesk Revit*, will be focused on and limited to

the structural design only. This 3D model will then be imported into *Autodesk Navisworks*, where it will be incorporated with the baseline and as-built *Primavera* schedules that contain cost information to create a visual 5D comparison. The structural model will then be updated in *Revit* with the proposed alternative design, and analyzed for structural soundness in *Autodesk Robot*. The alternative model will then be integrated with an updated schedule in *Navisworks* to provide a visual representation of the effects of the alternative design on the project.

#### 2.3.5 Lean Construction

Lean Construction is an increasingly popular method of managing construction that is being employed by many construction firms nowadays (Consigli, 2013). In lean construction, a production management-based approach is used to help streamline the process of designing and building new facilities, in order to minimize the waste of materials, time and effort, and maximize value (Lean Construction Institute, 2013). Lean construction is especially useful for projects that are complex, uncertain and quick because the techniques used in lean construction call for enhanced collaboration among the different parties involved, reduced waste and redundancy, and improved efficiency and project outcome (Turner Construction, 2013).

Consigli also decided to adopt lean construction practices in the WSU New Dormitory and Cafeteria project in order to make the construction process more efficient and to tighten up the schedule (Consigli, 2013). In order to implement lean construction practices in a project, each work area is sub-divided into smaller sections, in which a single trade focuses on the work they need to complete before the next trade takes over the section. This method of dividing up the work areas into sections and having trades work in these smaller sections over a certain period of time creates a production-line type of effect and increases efficiency, as opposed to giving the work area to just a single trade at a time. This is true due to the fact that each trade is

under the responsibility of completing their work properly and on time so that the next trade can move in and begin their work as scheduled. The added benefit of having multiple trades working simultaneously on different sections of a work area is that there is increased communication among the trades.

The practice of lean construction can also be applied to equipment and resources in order to ensure a better flow of work among the trades and to reduce costs; this is achieved through careful scheduling and allocation of the equipment and resources among the various trades involved in the project. It allows the project management to reduce the planning, coordination, and clutter that would otherwise be involved with moving the equipment frequently from place to place on site among different trades. There are many benefits to incorporating the principles of lean construction in a project. Lean construction achieves better efficiency in the use of materials, time, and effort by streamlining the traditional construction process and making it more like an assembly-line of a manufacturing plant.

### **2.4 Structural Components Overview**

This project as it pertains to the structural components of WSU's new dormitory building, Sheehan Hall, is based on proposing an alternative design for the current concrete floor system. With our alternative design, we will be looking to impact the overall construction period as well as the building's total cost of construction. To achieve this, we will be changing the current floor system's concrete method from a girder-slab system utilizing Hollow Core Precast Planks with Dissymmetric open-web steel beams to a cast-in-place concrete slab on metal deck system. In our new system the primary elements will be the addition of a composite-acting slab on deck as well as the use of floor joists for additional support on the girders. The goal for this
MQP is to compare both methods (precast planks versus composite slab) and determine the advantages and limitations for each system in terms of the project's constructability and cost.

#### 2.4.1 Precast Concrete vs. Cast in Place

Precast Concrete is a type of construction material that is typically used for both architectural and structural applications on a variety of buildings (PCI, 2013). This material is commonly used as the primary structural system for many high rise or multi story buildings because of its ability to transfer roof, floor, and lateral loads while also reducing the overall weight of the entire system (PCI, 2013). The use of Precasted Hollow Core Planks allows for designers to integrate both the architectural and structural systems while reducing the total amount of materials, detailing, costs and also construction complexity (PCI, 2013). Precast is also valued for its high versatility, because it can serve many needs for the structure of a building and most importantly, in terms of it growing popularity, Precast is more than just a very good building material because it can take almost any form and shape. Other beneficial traits for precast concrete is that there are different types of precast materials such as prestressed concretewhich is a type of structural member that is known for its exceptional load-carrying capacity. Due to having such high load-carrying capacity, this typically results in the use of smaller sections, longer spans, or even both when compared to other structural systems (ACP Co., 2013).

What makes this building material so advantageous to use during construction is its ability to be transported to a construction site where it can then be lifted and set into place all in the same day. During the production of precast concrete, the controlled environment it is mixed in is typically referred to as a precast plant. At this plant, the production process is done on ground level, which has been proven to help with production safety (ACP Co., 2013). Also this provides a greater ability to control the quality of materials being added to the mixture while also affecting the workmanship in a precast plant versus being on a congested construction site (ACP

Co., 2013). After the mixture has been poured and shaped, it begins the curing process where it is closely monitored to reduce the possibility of deformities from being created within the structure that would typically be caused by unnecessary exposure to inclement weather or other disturbances found on any construction site.

This type of concrete is widely being used for construction projects today because it offers numerous positive advantages during construction scheduling and also requires less coordinating by CPM's during its installation process. This can be seen in the construction of WSU's new residence hall as the use of precast planks contributed to an accelerated and simplified installation process for all six stories. While spectating the installation of the first level, the use of these hollow-cored planks allowed for them to just lift the material to its desired location and set them in place on the D-beams all in the same day. An important installation technique that was used in this project was the way in which each of the floors were turned into a composite system. To establish composite action between the planks and D-beams a process called grouting was used. Grouting ("Grout" also known as super-strength concrete) is the process of filling the hollow cores with this high-strength concrete, and it was done by passing the grout through the open web of the D-beams and into the cores. As it cures, this will essentially connect the two materials together making it possible for the floor system to successfully transfer loads throughout each of the precast planks, to their supporting steel members, down through the system's columns and into the buildings foundation and soil. This Grouting technique uses similar steps to the use of ordinary site-casted concrete but for this project specifically, the system's design using open-web D-beams and hollow core planks allowed the grouting process to done quickly and efficiently; alternatively with the use of site-

casted concrete, additional time is needed before pouring to lay down steel decking where as in this project the amount of CIP was very limited due to very strict schedule deadlines.

Lastly, from more of a financial standpoint, the prep work needed for the use of precast concrete members is very small and consists of the following: the excavation (if needed and is typically done for foundations and footings) of soil for pre determinedly sized members to be placed in, and the use of a boom lift or crane to lift the members off the delivery truck and lowered into place, like what was seen for WSU's Sheehan Hall and their use of prefabricated HC Planks. Precast concrete can be used to expedite a significant portion of the construction process and listed below is a summarization of all the main points previously mentioned in this section (ACP Co., 2013):

- Precast concrete structures are made easily available by a variety of precast suppliers.
- Can be manufactured to accommodate almost ever construction project need.
- Because of the controlled environment it is made in, inclement weather is not a factor in the planning process, which will help to avoid any unnecessary delays due to unworkable conditions.

Cast-in-Place concrete is brought onsite in its un-hardened liquid state where upon arrival it is poured into site-specific forms (typically "molds") and cured on site. This material is typically manufactured in a factory or batching plant (according to a set recipe), and is then delivered to a site by a truck mounted in-transit mixers. The result from a precise batch provides the ability to create special concrete mixtures and with the convenience of making other alterations to the mix and implemented on a construction site. Cast-in-place (also known as ready mix concrete) is the material of choice for slab-onground and foundations as well as on steel or metal decking because of the material's long-term durability as well as its structural support.

CIP concrete can serve many needs for a variety of different types of buildings, some of the common many applications of CIP consist of beams, columns, floors, walls and roofs. Additionally, widely used building material has been shown to have environmental attributes during construction and have also been known for being present during the structure's life span. These environmental benefits during construction are as follows:

- There is very little wasting of material due to the specific state that the material is in during construction applications, it can really only be used and placed on an asneeded basis. This material can't be left around on-site as it will begin to harden unless continuously stirred or mixed.
- Additionally, this material is very easily recycled and used for the creation of other structures like jersey barriers or retaining wall blocks (Mineral Industry, 2011).

Some projects actually prefer the use of cast-in-place over the use of precast members because of the precision of the mixture and also due to its reduced work site confusion. The use of a predetermined concrete mixture (typically associated with concrete suppliers) helps to reduce any inconsistencies as well as the flexibility of both the supply chain and the actual concrete components. Ready mix concrete (Cast-In-Place) is known for its customizability in the type of concrete product being produced for commercial as well as private purposes. Also, ready mix concrete companies typically offer different variations of concrete according to the user's mix design or industrial standard. Each of the variations of RMC can be manufactured to meet

the demand specified for each new delivery or project. Some disadvantages from using RMC are (Mineral Industry):

- The materials are batched at a central plant where the concrete is mixed before being shipped to the site. This poses a critical time period beginning from when supply truck leaves the plant and ending once the supply truck reaches its destination. This critical time period becomes increasingly difficult to manage over longer distances. This is the reason for supply trucks to be built not only to ensure a quick and safe delivery but also to prevent the concrete from losing its ideal pouring state through means of installing a continuously rotating holding tank.
- The travel route taken by the supplier, as high levels of road traffic can become an issue for not only the supplier but can also add delays to construction where deadlines are not met due to late arrivals. Additionally Site access for supply trucks is an unavoidable issue for construction projects, Amongst being a contributing factor in a projects site development plan, access roads must be provided and able to support workers, emergency vehicles as well as large and heavy supply trucks; However this not usually an issue and can be avoided by utilizing what's called a "mini-mix company"- a company that deals with using smaller 4m<sup>3</sup> capacity mixers that have the ability to reach more-restricted construction sites.

#### Cast-In-Place Slab on Steel Deck versus Precast (HC Planks) Girder-Slab Floor Systems

A Precast Girder-Slab floor systems consists of interior girders (also known as an openweb-dissymmetric beam or D-beam) and prestressed hollow-core slabs that are connected using cementitious grout. The use of a Girder-Slab system allows for the concrete slabs, being supported by the steel frame, to resist all gravity and lateral loads. Once the hollow core slabs are place on the D-beams, the process of creating composite action is done by grouting through the web openings and into the hollow slab cores and is completed once the grout has been cured properly. Similar to the floor system chosen for WSU's new Sheehan Hall, a Girder-Slab system is typically used for mid to high-rise residential structures such as hotels, apartments and condominiums. There are two basic D-beam girder sections available for use with an 8" thick precast slab (generally spanning as long as 28 ft.) and they are a DB-8 and DB-9. The DB-8 provides an 8" thick slab assembly, while the DB-9 is designed to be installed with a 2" concrete topping layer resulting in a 10" total slab thickness. A Girder-Slab system is constructed in accordance with the "Underwriters Laboratories Inc. Floor-Ceiling Design K912". The reason why this system is so highly valued is because it has been shown to greatly improve a projects construction operations as well as a project's ability to stay on schedule and meet critical deadlines. An example of the Floor System used for WSU's new dormitory building can see below in Figure 4.



Figure 4: Typical Girder-Slab Section Detail- Reinforced Core with 2-inch Concrete Topping

The use of a pre-topped system allows for faster construction at a slightly more reduced cost than with field-topped systems (Cudney, 1998). However, field topped systems offer less floor vibration, positive drainage (easier to achieve), and also a lower maintenance cost for joint sealants.

A cast-in-place, post-tensioned concrete system is typically constructed by pouring concrete into temporary forms (typically either plywood or steel) that are made on site. This system utilizes a one-way, post-tensioned slab that is supported by long spanned, post-tensioned beams (Cudney, 1998). These beams are typically located at the column line and are about 14 to 18 inches wide by about 32 to 36 inches deep (Cudney, 1998). The advantages and disadvantages for the use of each type of system are listed below in table-3. When properly designed, detailed, constructed and maintained, the durability of the CIP, post-tensioned and precast systems are very similar. Both systems include elements such as expansion joints, joint sealants, and exposed painted metal connections as well as railings that will require preventative maintenance, and even reparations; however, because of the increased number of sealant joints, the precast system would require more maintenance than would a CIP system. Both structural concrete systems are cost effective and durable, but the decision on which structural system to select comes down to the following points (Cudney, 1998):

- The Owner's preference
- Requirements of the structural component's-lateral load system, foundation, flexibility of the framing, ramping, expansion joints, site dimensions, etc.
- Maintenance considerations
- Aesthetics, facade treatment
- Openness, visibility and lighting
- Economics, including first cost and life cycle maintenance costs.
- Construction schedule
- Ability to utilize local labor
- Availability of competitive contractors

### Cast-In-Place

Advantages	Disadvantages	Advantages	Disadvantages
<ul> <li>Slightly shorter on-site construction period.</li> <li>Potential for a slightly lower initial cost, especially for the pre-topped system (if standard sizes and repetition of structural and architectural components are used).</li> <li>Long-span construction with typical column spacing of 30 ft.</li> <li>More adaptable to winter construction.</li> <li>Potentially better concrete quality control in plant conditions.</li> </ul>	<ul> <li>Higher Maintenance costs; precast systems require a caulk/sealant joint between double tees to prevent water leakage. These joints (typically located at 10' to 12' o.c.) create a greater potential for leakage and are usually replaced every 8 to 10 years.</li> <li>Perceived lower headroom, less desirable distribution of lighting and signage visibility due to the depth and spacing of the double tee stem.</li> <li>Wind and seismic loads are resisted by shear walls or shear frames. The shear walls/frames are typically located on the exterior faces (affecting architectural appearance), or at the interior (reducing visibility and openness).</li> <li>Drainage profiles for non-ramping floors are typically flatter than those found in a CIP structure, due to limits on the amount of warping of he precast without excessive cracking of the tee flanges.</li> <li>Longer shop drawing review and fabrication schedule.</li> <li>Many cities don't have local precast concrete subcontractors.</li> </ul>	<ul> <li>Monolithic construction, resulting in fewer joints.</li> <li>Easier to achieve positive drainage.</li> <li>Post-tensioning compressive force reduces cracking in slabs.</li> <li>Flexible framing layout to it the site with typical column spacing of about 20 to 24ft.</li> <li>Wind and Seismic lateral loads are resisted by frame action and distributed into the foundations through the columns, eliminating the need for shear walls.</li> <li>The perception of higher ceiling and more openness.</li> <li>Better lighting distribution and visibility of signage due to fewer beam soffit members.</li> <li>Lower maintenance cost.</li> <li>The construction is typically performed by local subcontractors using other local laborers and material suppliers.</li> </ul>	<ul> <li>Slightly longer on-site construction period.</li> <li>Less adaptable to winter construction in northern regions.</li> <li>Construction quality is typically more difficult to achieve.</li> </ul>

### Table 1: Advantages/Disadvantages for Precast or Cast-In-Place Concrete Floor Systems

### **Cost advantages**

Among the many differences found in each type of concrete construction (production and

distribution methods for example) the most important difference is the cost of the material. For

many contractors and project managers there is a big difference between Price and Cost. Price

only happens to be one element of cost; it is the initial and the easier of the two to understand

along with being the most visible. Focusing on price is not a preferred strategy in any business,

especially when it comes to a material's quality, and the reliability of manufactured goods. Instead, the prime focus should be set on the "Total Cost of Ownership". TCO is equal to the sum of the four cost components: quality, service, delivery, and price (NPCA, 2010). In terms of cost elements, a clear advantage of using precast concrete over cast-in-place (CIP) is the speed of its delivery and also its ease of installation, or service (NPCA, 2010). These collectively contribute to a lower TCO. Precast concrete, especially when produced in controlled plants, boasts the additional benefit of higher quality. The controlled batch proportions placed under uniform conditions consistently creates a better product than can be cast in place (NPCA, 2010).

On any construction site, scheduling is an important but unpredictable and expensive risk. Nature stacks the cost odds against CIP concrete because it is much easier to order precast concrete structures (assembled ahead of time) and have them delivered and installed the same day than it is to have to excavate, form, pour, and strip, the CIP concrete which is then followed by having to cure it, damp proof and backfill each structure. Depending on the type of project and the different constraints present, research shows that on average "the use of precast concrete structures over cast-in place structures can save roughly 5-6 days in construction scheduling" (NPCA, 2010). CIP requires three separate days to pour the base, walls and top of each structure; additionally, curing and stripping adds one day to the CIP process, totaling seven working days of open-hole time. The TCO of precast is a fixed cost; however the TCO of CIP just begins at an initial cost of the product itself (does not include its delivery and installation costs, etc.) which makes the choice of using precast actually cheaper even though its fixed cost can be higher than CIP's initial cost. It is this concept of TCO that our group plans to implement in our alternative floor system design of Sheehan Hall.

## **3.0 Methodology**

The methodology section presents the proposed activities to be performed in this MQP and describes how the activities will be executed. This section will discuss how the project management of the Sheehan Hall Project will be evaluated with regards to criteria such as relationships between different parties involved, schedule, cost, and safety, and how an alternative floor system design will be proposed and analyzed in terms of structural soundness and impacts on the cost and schedule. It will also include a description of how a BIM model will be developed and utilized to aid with the visualization of the alternative design and its effects, as well as how a geotechnical analysis of the site will be conducted. The execution of some of the activities mentioned in this section will require the use of software such as *Primavera, Autodesk Revit, Autodesk Robot,* and *Autodesk Navisworks.* For a breakdown of how and when the group will be performing the above-mentioned activities, please refer to **Appendix C**.

### **3.1 Project Management Evaluation**

- Evaluate the relationship between Owner and GC
  - Attend Owner Meetings
  - o Observe Communication and Relationship
- Evaluate the relationship between Architect and GC
  - Record RFI response time
  - o Attend Owner Meetings
  - o Observe Communication and Relationship
- Evaluate Schedule
  - Analyze and compare actual schedule to baseline schedule
  - Analyze problems in scheduling and their impact on the schedule

- Examine the changes made and determine their impact on the schedule
- Analyze the impacts of using lean construction and a fast track schedule
- Evaluate Cost
  - Analyze the current cost of the project
  - Compare the planned costs of construction to the actual costs of construction
- Analyzing Safety
  - Record and track the safety scores received by this site

## **3.2 Structural Analysis**

- Propose alternative design
  - Identify and analyze critical bays
  - o Change precast floor system to cast-in place floor system
  - Implement changes in Revit model
- Analyze the alternative design for structural soundness
  - Perform hand calculations
  - o Perform structural analysis in Robot
- Analyze the impacts on the schedule of using precast concrete versus cast in place

concrete

- o Analyze the amount of time required for each method
- Determine and compare how the critical path is affected
- Analyze the scheduling effects on equipment and labor
- Compare cost of existing vs. alternative design
  - Calculate the cost of alternative design using

- Calculate the cost of labor for alternative design
- o Calculate the cost of materials for alternative design
- Calculate the cost of equipment needed for installation of alternative design
- Compare the total cost of current design vs. total cost of alternative design

# 3.3 BIM

- Analyze the use of BIM and its impact on the entire project
- Create a 5D model of the structural components in *Autodesk Navisworks* by integrating a 3D *Revit* structure model with a *Primavera* time and cost schedule
- Provide a visual comparison of the planned and actual schedules using animation in *Navisworks*
- Perform structural analysis on the alternative model using *Autodesk Robot* as the primary software
- Provide a visual representation of the impacts of the alternative design on the cost and schedule of the project

# **3.4 Geotechnical Review**

• Provide a description of the existing site-work, layout, and conditions