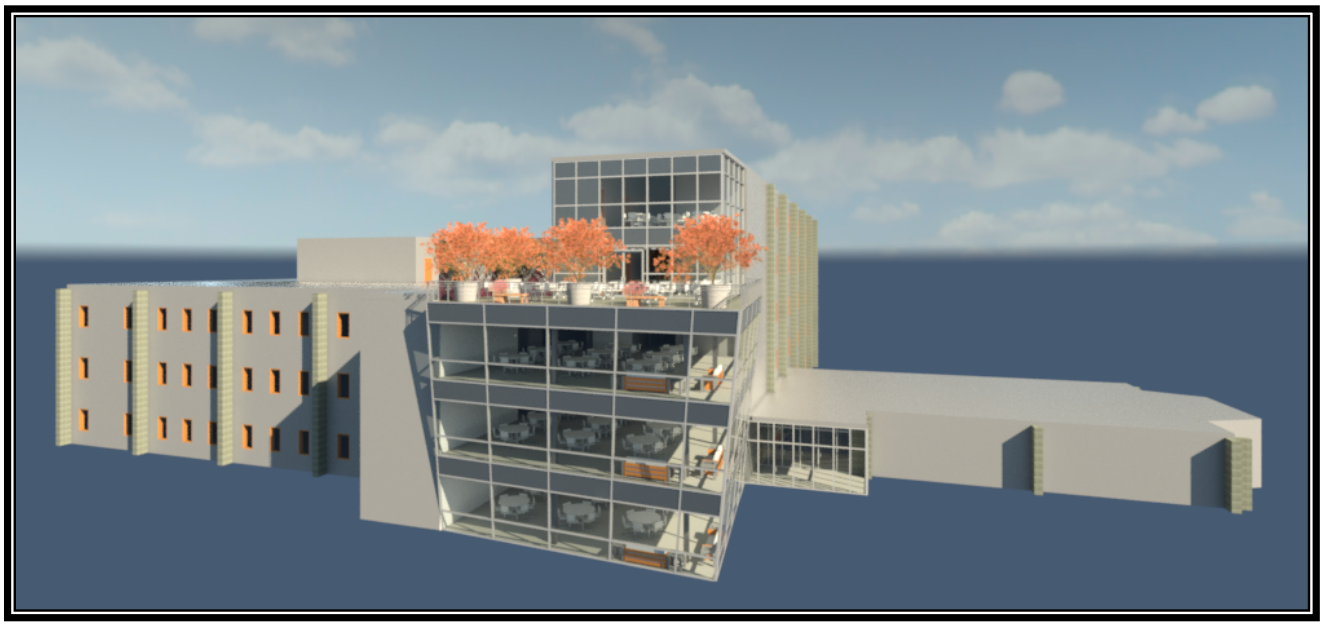
Final Design Report



University of Wisconsin-Whitewater

Winther Hall Renovation & Expansion

Whitewater, WI

December 19, 2013

ABC ENGINEERING

Winther Hall Renovation & Expansion

Addendum

December 19, 2013

ABC ENGINEERING

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Addendum – December 19, 2013

Executive Summary

The University of Wisconsin – Whitewater Facilities Planning and Management requested that ABCI Engineering, Inc. (ABCI) prepare design options for the renovation and possible expansion of Winther Hall. Originally built in 1969, this campus landmark serves both the education and psychology departments. Currently, Winther Hall is facing problems with ADA-compliance of its restrooms and vertical transportation. The building is in need of technology updates as it has seen minimal renovations since its original construction. The project goal was to achieve improved services and update life safety features of the building to allow the facility to continue to serve the Whitewater campus for the next generation of students. Four options were proposed in the preliminary report, and the Scenic Study View option was selected for further design consideration. The final design addendum report explains this final design presented by ABCI Engineering, Inc. for the renovation and expansion project of Winther Hall on the University of Wisconsin-Whitewater campus. This design encompasses the client's needs of accessibility, functionality, and sustainability for the occupants of today and provides room to grow. A 17,500 ft^2 addition will be added to the north face of the building and major renovations will be done throughout the interior to extend the life of Winther Hall. A list of this design's full amenities can be seen below.

Revised Scenic Study View

Scenic Study View will bring Winther Hall into its next phase of life.

Addition Features:
-Two-High Speed Elevators (New)
-ADA-Compliant North Stair (New)
-Multi-Functional Study Space
-Universal Design Restrooms
-Rooftop Patio on Floor 5

Repurposing of Existing Space:
-Expanded Lobby & Hallways
-Group Advising Space on Floor 2
-Converted Rat Lab to Computer Labs
-Additional Office on Floors 5 & 6
-Interior Finish & Technology Upgrades

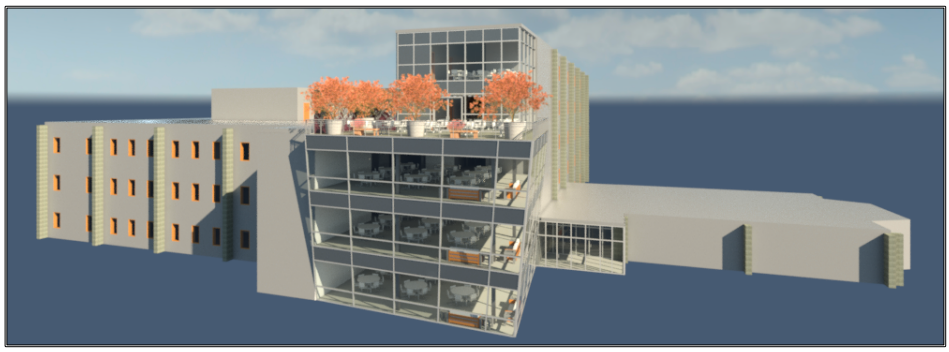


Figure 1. Scenic Study View 3D Model

ABCI revised the original design of the Scenic Study View option and a rendering from the north showing the exterior of the presented addition can be seen in *Figure 1*. The opinion of probable cost is $18,498,000 with a project length of approximately 14 months. Project cost and schedule information are based on industry rates and initial cost studies with labor rates in the South Central Wisconsin market. Further details, drawings, and specs can be found in the following final report.

Introduction and Background

ABCI Engineering, Inc. has submitted this final design report in contract with the University of Wisconsin-Whitewater Facilities Planning and Management for the renovation and expansion of Winther Hall. The following addendum explains the final design, including all changes made since selecting the Scenic Study View option from the preliminary design presentation.

Winther Hall is currently facing problems with circulation and accessibility of its restrooms and stairs. A majority of the classroom wing is in need of renovations, technology upgrades, and finishes. Current enrollment totals have already outgrown Winther Hall's original maximum capacity. It can be seen from Table 1, that campus enrollment totals are projected to continue increasing. By 2025, the student population is expected to reach 13,875 students, which is 15% more than enrolled today.

15% increase in student population by 2025.

Table 1. Campus Enrollment Projections

Year	Campus Enrollment	% Increase in Enrollment
2008	10962	
2009	11139	
2010	11376	
2011	11612	
2012	11848	
2013	**12084**	**0%**
2014	12320	2%
2015	12555	4%
2016	12673	5%
2017	12791	6%
2018	12909	7%
2019	13027	8%
2020	13145	9%
2025	**13875**	**15%**

The chosen final design, Scenic Study View, introduces a 17,500 ft^2 addition, adding approximately 22% GSF to Winther Hall to provide adequate space for both current and future use. It will also include renovations, and both technology and finishing upgrades to the existing building. Together, this project encompasses the needs of the UW-Whitewater Facilities and Planning Management while improving the following design constraints:

- ADA compliance and Universal Design Guidelines
- Constructability
- Economics
- Environment
- Sustainability

Existing Site Conditions & Addition Location

It is important to ABCI Engineering, Inc. to understand existing site conditions in order to best serve our client's needs. This was vital on this project when deciding the best locations to add onto the existing building. The following existing site conditions were considered:

- Surrounding buildings and parking lots
- Pedestrian Traffic
- Current Building Entrances
- Scenic Views

The final design was chosen to be located on the North end of the building (See the orange block in Figure 2). All other areas of the building were contemplated during the design phase but were eliminated due to traffic and drop-off area constraints on both the East and South ends of the building as well as existing mechanical systems on the South end as well. Since Winther Hall is in close proximity to surrounding educational buildings, the West end was also ruled out as a possible area for the expansion. The North end of the building allowed for the most flexibility in space for an addition, as well as a beautiful scenic view from this end of the building.

All possible locations for the addition were considered before selecting the North entrance.

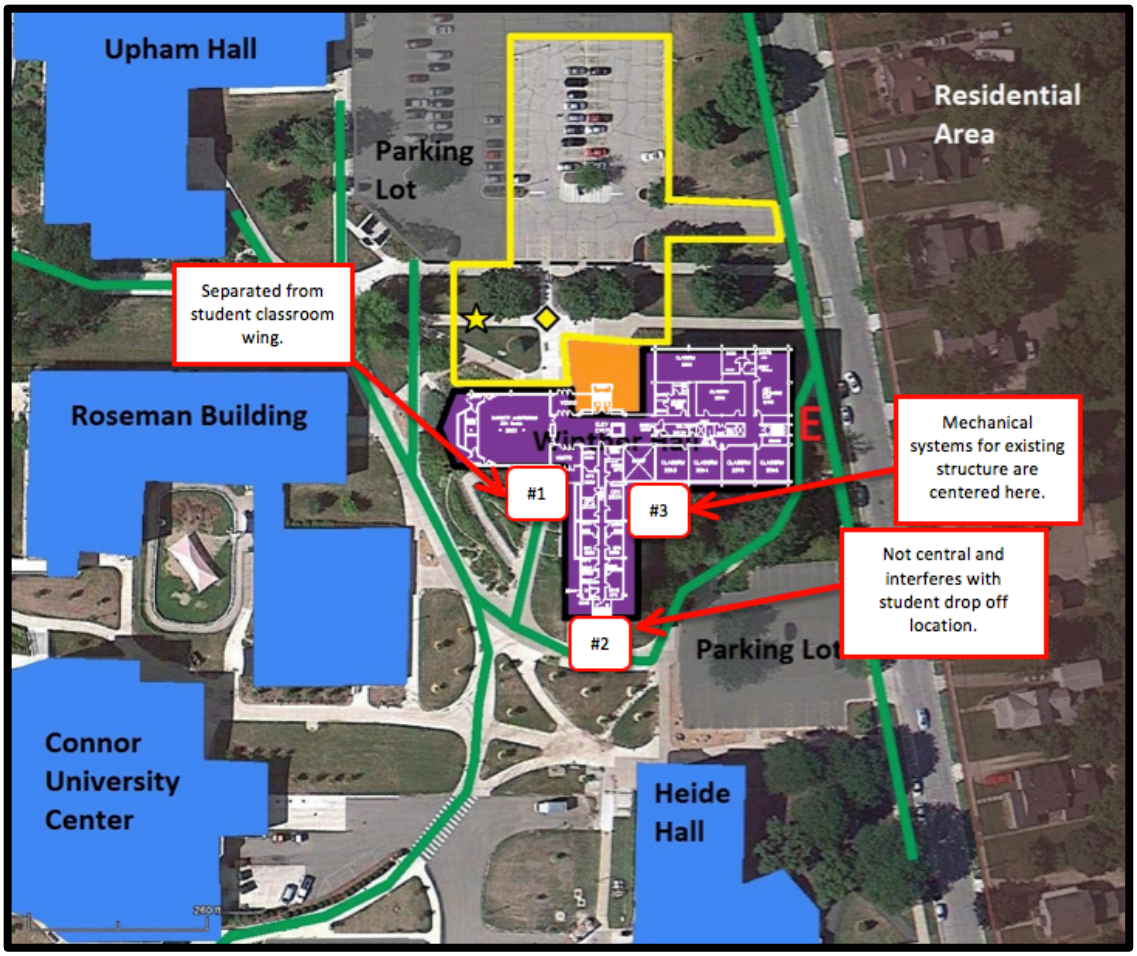


Figure 2. Other potential locations for addition

Construction Site Placement & Layout

Upon deciding on the north end of the building for the location of the addition, the next decision was where to place the construction site, which is described below and visible in *Figure 3*. Winther Hall's north parking lot was chosen to provide a central location with ample room for materials and equipment. It was understood, however, that the parking lot was heavily utilized for disabled students to either park or be dropped off at, so it was decided to keep the left half open to the public. The yellow diamond represents the crane location, the yellow star represents the location of the field office, and the rest of the space will be available for the remaining needs of the site. Only the west entrance of the parking lot will be restricted to construction personnel only.

The construction site layout allows for partial use of north parking lot.

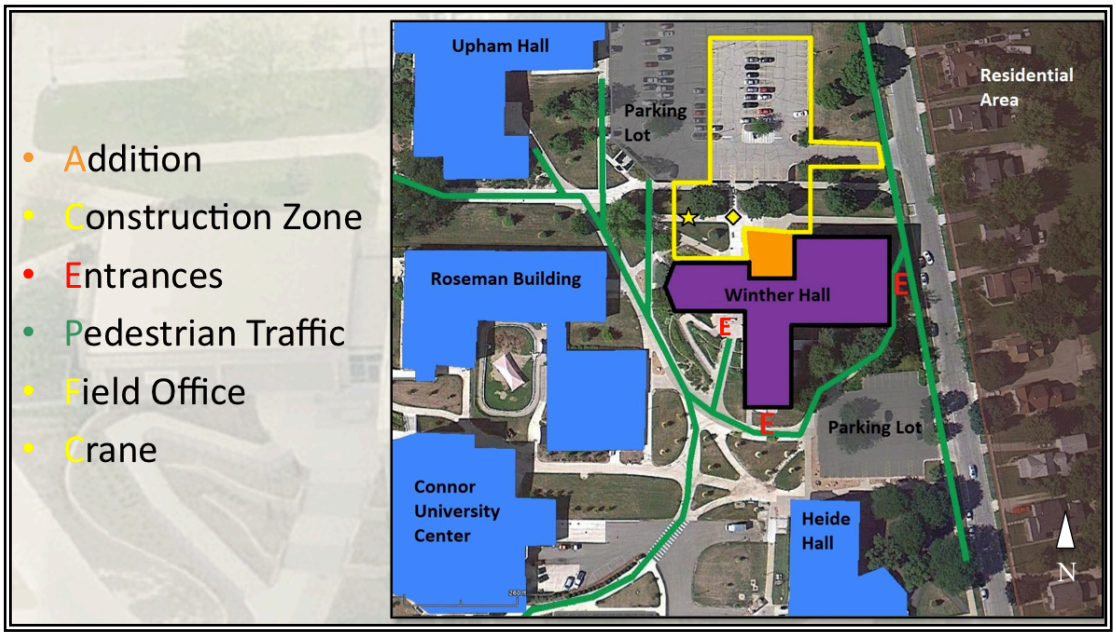


Figure 3. Revised site plan.

Structural Design

There were three basic structural or framing types that ABCI Engineering, Inc. considered for the project. After analysis of each system, it was evident that the best choice was to use a structural steel system. The following lists the structural options that were examined during the preliminary design phase:

- Wall-bearing
- Concrete column, beam, and slab
- Structural steel

For the final design, it was decided that the structural system would be built from steel. Steel was ideal for this design because it can be erected quickly, has high strength, and is less weather dependent than concrete. The system will be made up of steel columns and beams with a 6" composite steel deck. The columns are square HSS 8" x 8" x 3/8" and the beams are W - shapes that vary in size depending on the loads. Each of the four floors of the addition follow the same layout but sizes in beams vary. See Figure 4 below for the structural column and beam layout of the second floor and refer to the structural calculations at the end of the report for further details.

Structural steel system to be used for construction of addition.

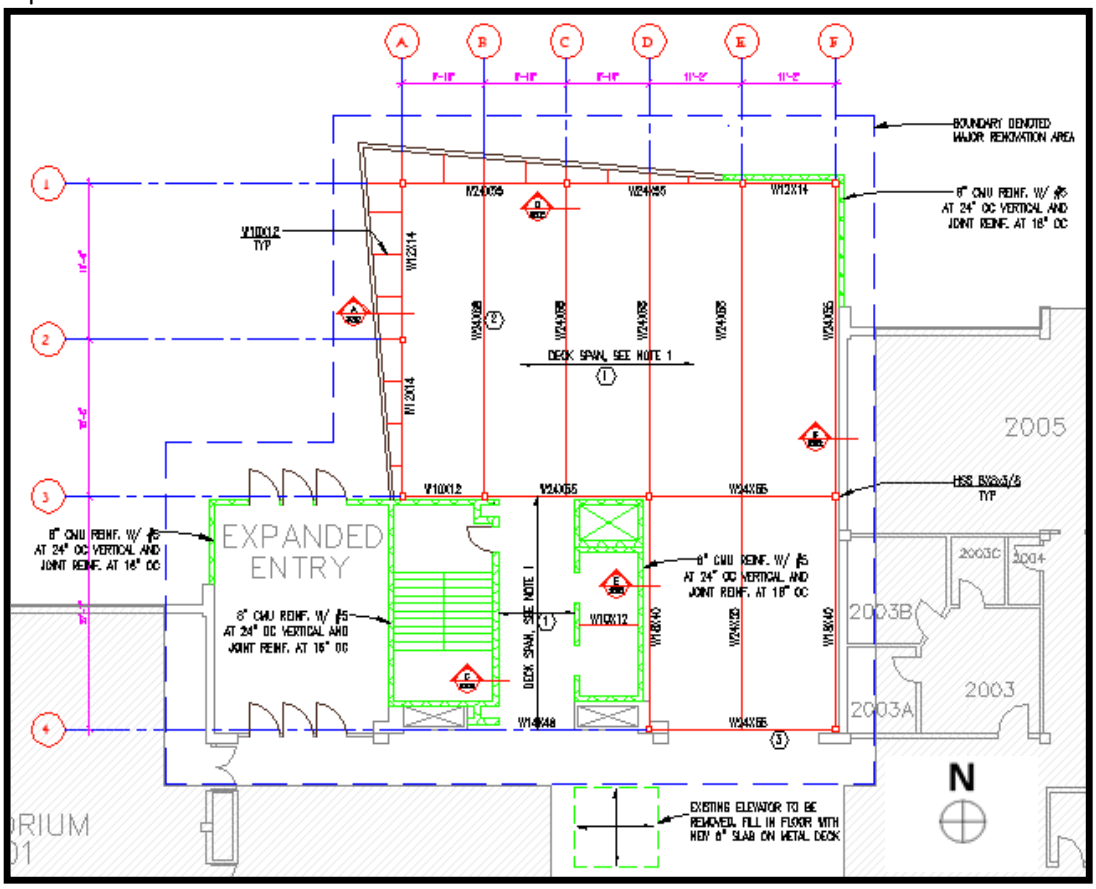


Figure 4. Steel column and beam framing layout

The curtain wall siding of the addition will consist of Type-1 Vision Glass and Type-2 Spandrel Glass complete with aluminum mullions. Around the restroom and stair portions of the addition, the exterior will consist of brick. The 5th floor rooftop patio will be surrounded by a 42-inch tall, steel and glass guardrail.

Final Design – Scenic Study View

After the preliminary design presentation and input from the UW – Whitewater Facilities Planning and Management, the final design, Scenic Study View, was selected for the Winther Hall renovation and expansion project. The following summary describes the final design, including alterations that have been added since the preliminary design report.

The area of addition will be located on the North face of the building (See Figure 5). This new space will include the following amenities on the first four floors:

- Added student study spaces on floors 2-4 (Figure 15 in Addendum Appendix)
- An adaptable learning space on floor 1 (Figure 9 in Addendum Appendix)
- New male and female restrooms
- Unisex restrooms
- ADA – compliant North stair
- 2 new – compliant elevators
- Expanded North entry vestibule on Floor 2
- Group advising area on Floor 2 (Figure 11 in Addendum Appendix)
- New computer labs on floor 4

Ample student study space will be provided via the new addition.

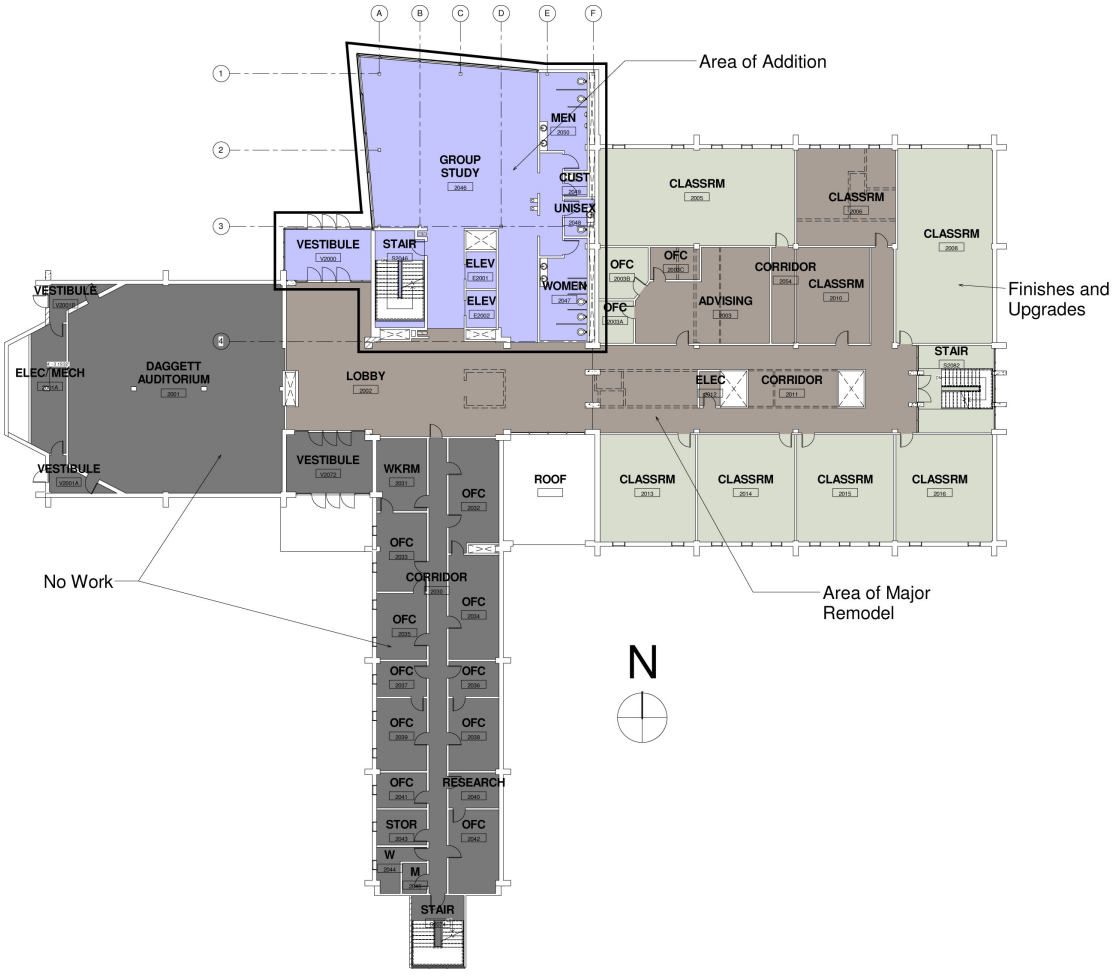


Figure 5. Floor 2 layout showing different areas of construction.

Accompanying the area of addition, remodeling of the main lobby and corridors of the first four floors of the existing building will take place as well. This will include the removal of the existing restrooms, elevator, and janitorial storage spaces to open up the tight hallways and also provide additional study or lounge space within the existing corridors.

These major areas of remodel will also include some relocations and repurposing of the existing layout. On the second floor, the advising office reception area will be expanded to include a group advising area for students and staff. On the third floor, two interior classroom walls will be removed and replaced with retractable walls for classroom flexibility. On the fourth floor, the test labs will be relocated into the room previously used as a rat lab, while the rest of the rat lab will be repurposed into a computer lab. The removal of the existing test lab locations will allow for expansion of two of the fourth floor classrooms. Then two observation rooms will be relocated to the center of the hallway to allow for continuous circulation throughout the floor.

On the fifth and sixth floors, a new vertical circulation area will be added which will include the new North stair, elevators, and the following additional amenities:

- 1,125 ft^2 outdoor roof patio on floor 5 (Figure 17 in Addendum Appendix)
- Single male and female restrooms
- Added janitorial storage space (with rooftop access on floor 5 only)
- A new office on floors 5 & 6

A new rooftop patio will enhance the learning atmosphere of Winther Hall.

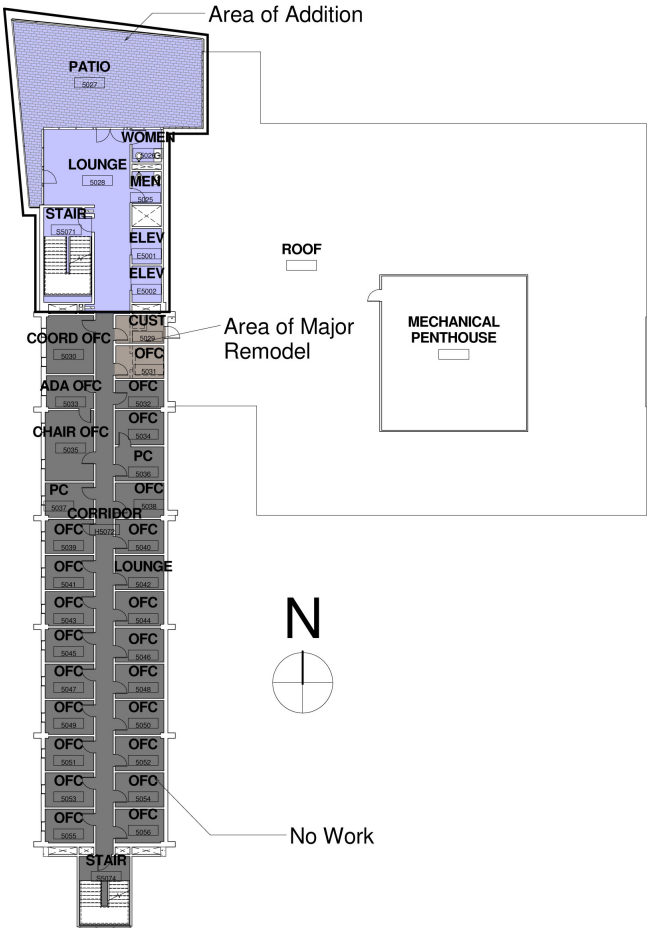


Figure 6. Floor 5 layout showing different areas of construction.

The area of remodel for the fifth and sixth floors will be on the north end of the existing office tower. It will involve the removal and demolition of the existing restrooms. The existing restroom will be converted into a new janitorial storage space that will include rooftop access. This location of the existing elevator shaft will then be replaced with two additional offices.

Technology upgrades and new finishes will also be provided to bring consistency to the level of classroom finishes throughout the building. And finally, new windows will be punched through the walls to not only provide natural light via the new glass curtain wall for studying, but in the classrooms as well, to provide a much more welcoming learning environment. Floor plans of each floor, as well as renderings unique to each floor can be found in the Addendum Appendix.

Opinion of Probable Cost and Construction Schedule

The final design, Scenic Study View, is estimated to take 14 months and consists of two phases. Phase one includes all exterior expansion work and is set to last from July 2014 – May 2015. After 10 months, and completion of the 17,500 square foot addition, the client's concerns of vertical circulation, ADA compliant restrooms, and improved study space for the students will be addressed. Phase two concludes the project, and is made up of demolition and interior renovations occurring from May 2015 to August 2015. By completing all interior work during the summer it will allow us not to interrupt educational use of the building during the school year. Our opinion of probable cost was estimated to be $18,498,000 and the cost by phases can be seen in the table below. A detailed Opinion of Probable Cost and schedule can be found in the Up Front Documents, Opinion of Probable Cost, & Schedule section of the report.

Table 2. Opinion of Probable Cost by Phases

Opinion of Probable Cost by Phases			
Activity	**Phase 1**	**Phase 2**	**Total Cost**
General Requirements	$1,137,000	$454,000	$1,591,000
Site Work	$1,297,000		$1,297,000
Demo	$189,000	$1,081,000	$1,270,000
Concrete Work/CMU	$661,000	$29,000	$690,000
Steel	$816,000		$816,000
Elevator	$1,400,000		$1,400,000
Exterior Wall	$743,000		$743,000
Restrooms	$167,000		$167,000
Interior Completion of Addition	$700,000		$700,000
New Windows		$560,000	$560,000
Doors & Partitions	$150,000	$22,000	$172,000
Roof Patio	$130,000		$130,000
Existing Classroom Upgrades (Architectural)		$3,063,000	$3,063,000
Technology Upgrades		$500,000	$500,000
MEP in Addition	$778,000		$778,000
New Rooftop AHU	$100,000		$100,000
MEP Upgrades in Existing		$1,038,000	$1,038,000
Subtotal	$8,268,000	$6,747,000	$15,015,000
Contingency (10%)	$827,000	$674,000	$1,501,000
A/E Fees (8%)	$728,000	$594,000	$1,321,000
DFD Management Fees (4%)	$364,000	$297,000	$661,000
TOTAL CONSTRUCTION COST	**$10,187,000**	**$8,312,000**	**$18,498,000**

Summary and Conclusion

ABCI Engineering, Inc. along with the UW-Whitewater Facilities Planning and Management have chosen Scenic Study View to be constructed in order to provide improved circulation, accessibility, and sustainability thus extending the life of Winther Hall. Secondly, it will provide students and staff with added study space, larger restrooms, and updated technology and finishes of classrooms. Lastly, it will provide an outdoor rooftop patio, added office space, and improved restrooms in the office tower. The structure of this 17,500 ft^2 addition will be constructed using a steel column and beam system with a 6" composite deck, as well as both type-2 vision and type-1 spandrel glazing on an aluminum curtain wall system. The 1,125 ft^2 rooftop patio will be surrounded by a 42" railing with glass paneling. Scenic Study View will provide 1,315 ft^2 of adaptable learning space throughout the existing building, as well as 6,500 ft^2 of student study space in the new addition that includes pleasant views of campus for students and faculty to enjoy for years to come. For additional rendering images, architectural elements, and full floor plans of the Winther Hall renovation and expansion project, please see the Addendum Appendix.

Figure 7. Rendering of final Scenic Study View design. An existing view of Winther Hall can be seen in the image in the top right.

Winther Hall Renovation & Expansion

Addendum Appendix

December 19, 2013

ABCT ENGINEERING

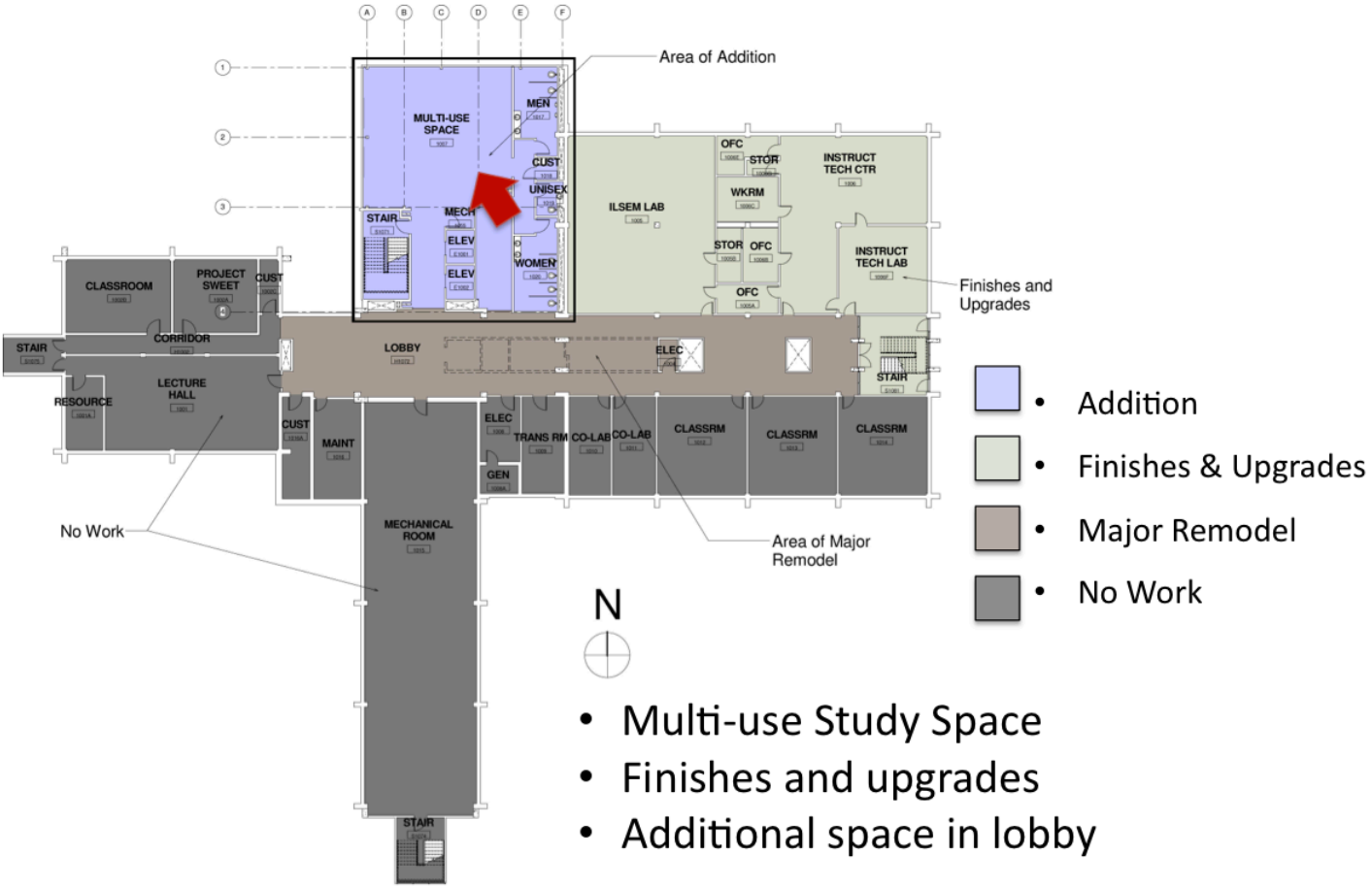


Figure 8. Level 1 Floor Plan, Features, & Rendering Location

Figure 9. Rendering: Computer Lab / Group Study / Classroom

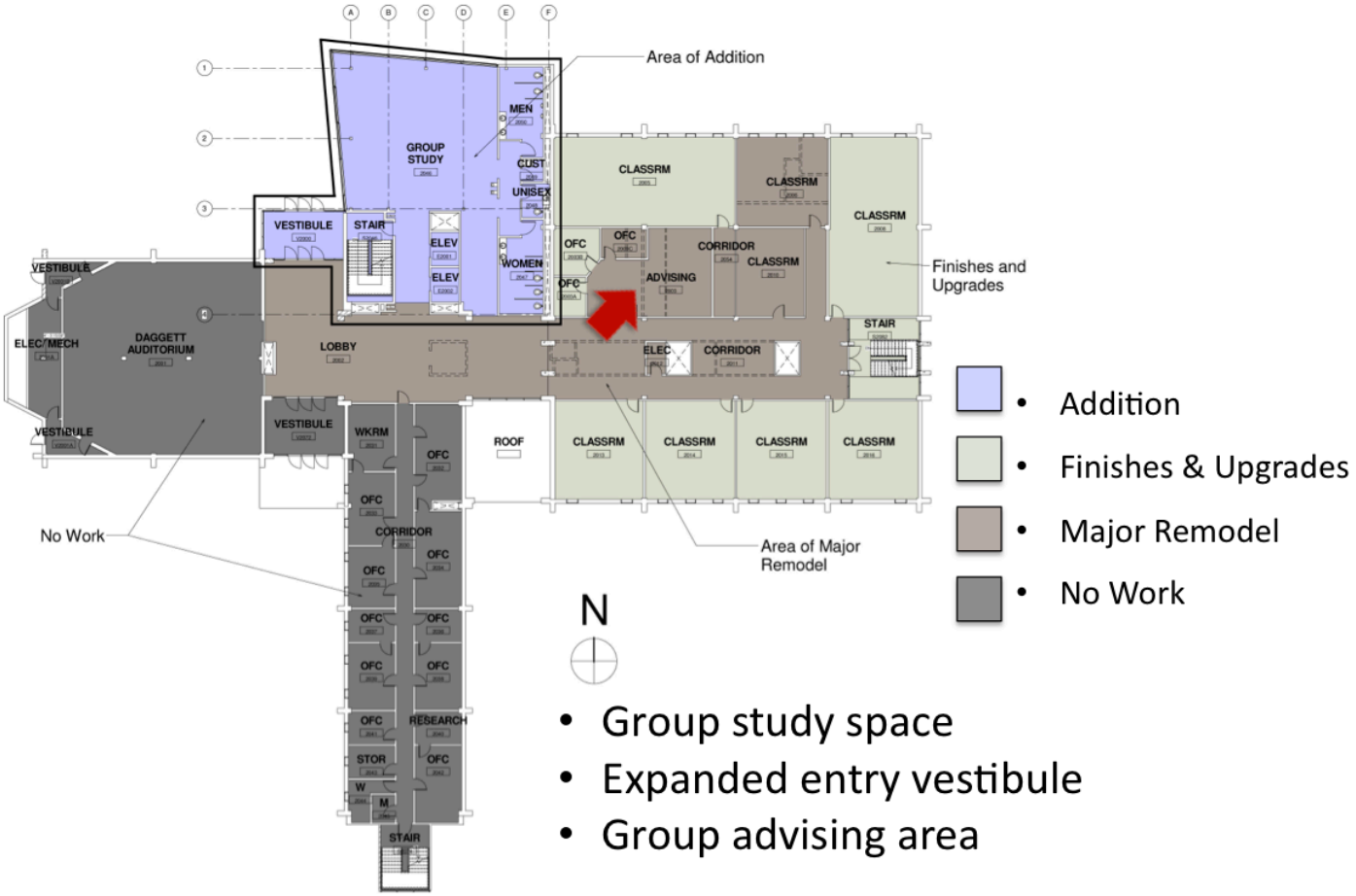


Figure 10. Level 2 Floor Plan, Features, & Rendering Location

Figure 11. Rendering: Group Advising Space

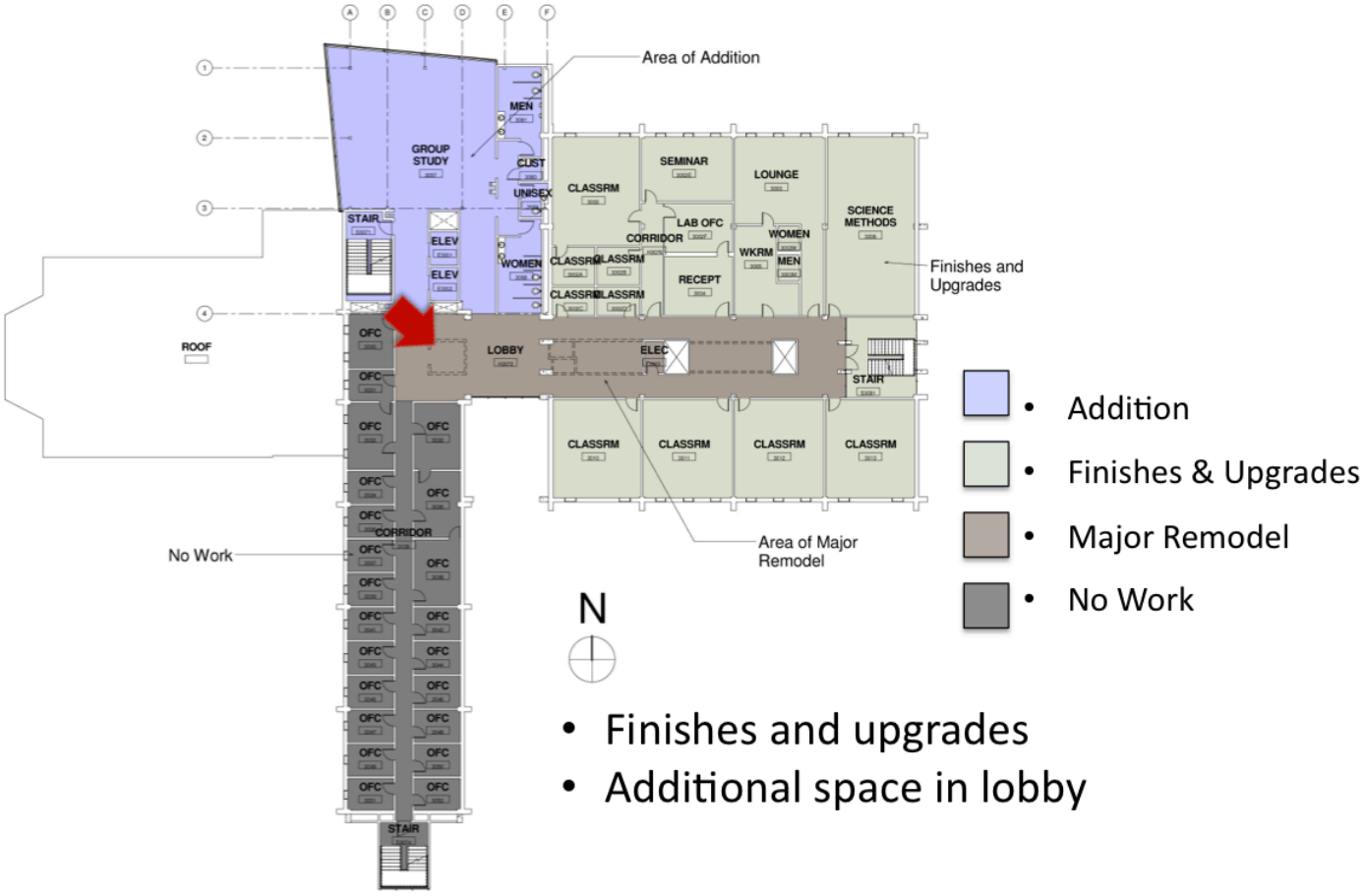


Figure 12. Level 3 Floor Plan, Features, & Rendering Location

Figure 13. Rendering: Expanded Lobby / Hallway

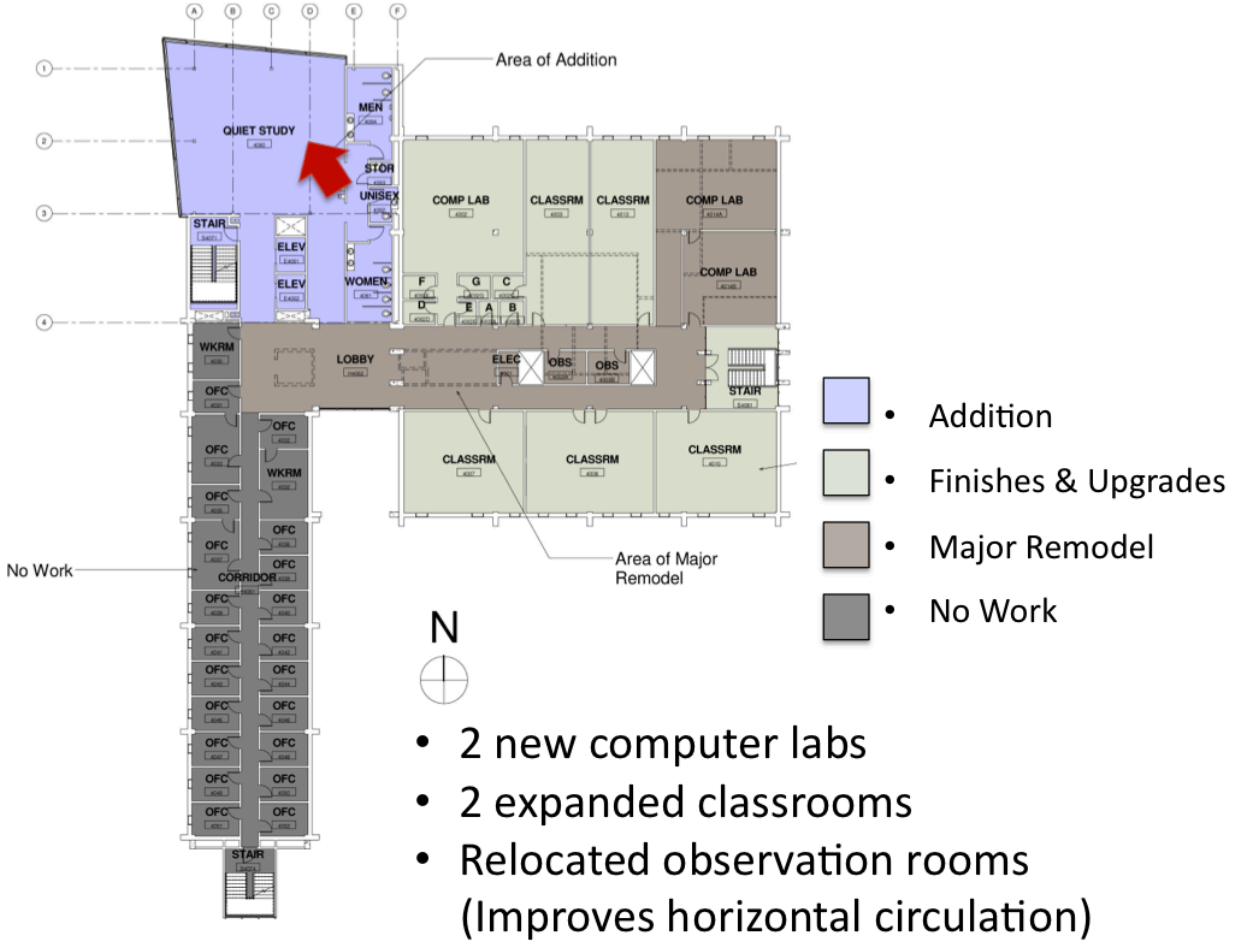


Figure 14. Level 4 Floor Plan, Features, & Rendering Location

Figure 15. Rendering: Group Study Area

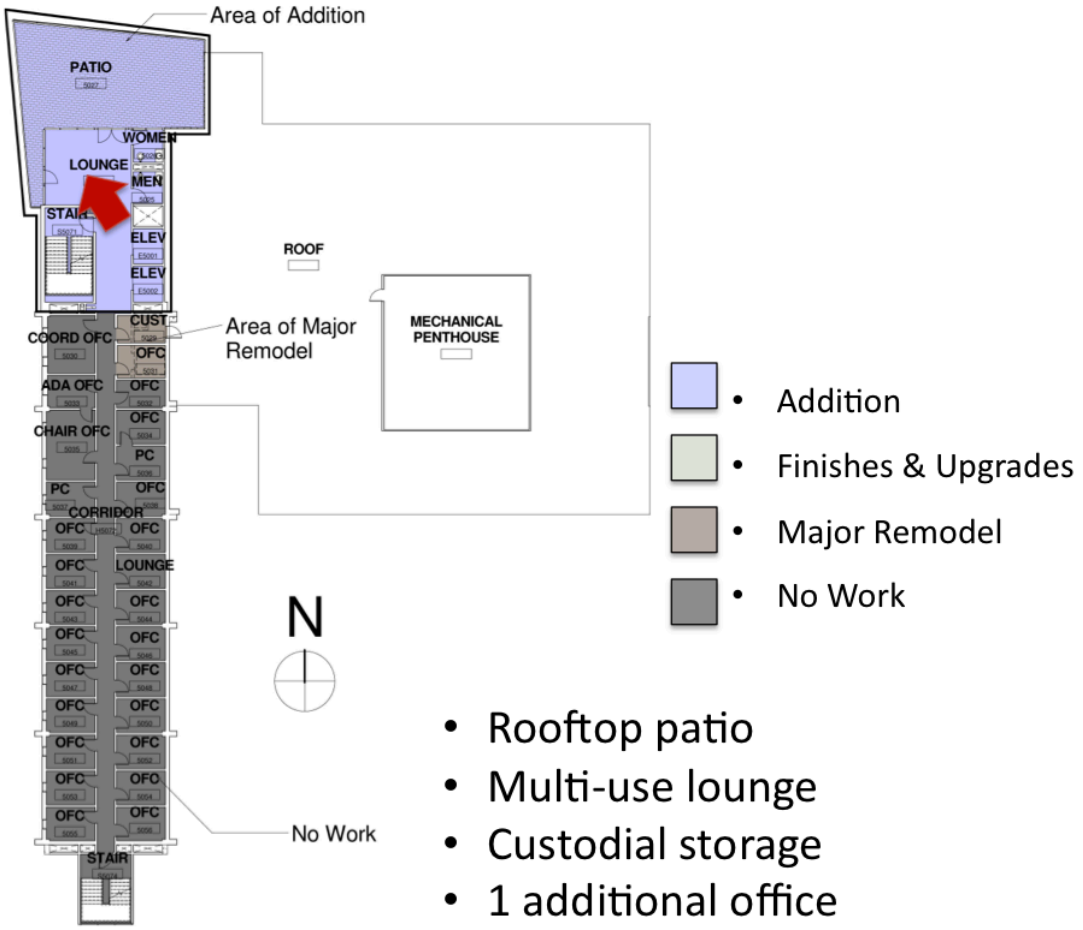


Figure 16. Level 5 Floor Plan, Features, & Rendering Location

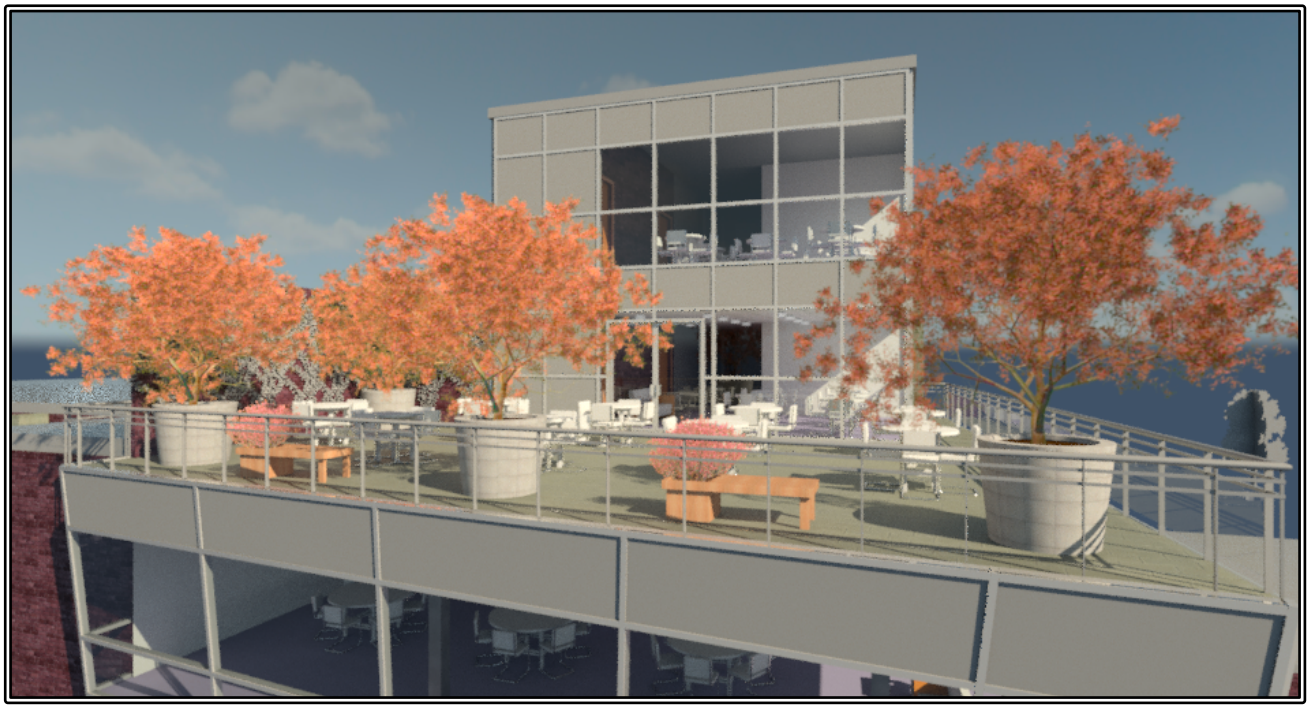


Figure 17. Rendering: Floor 5 Patio

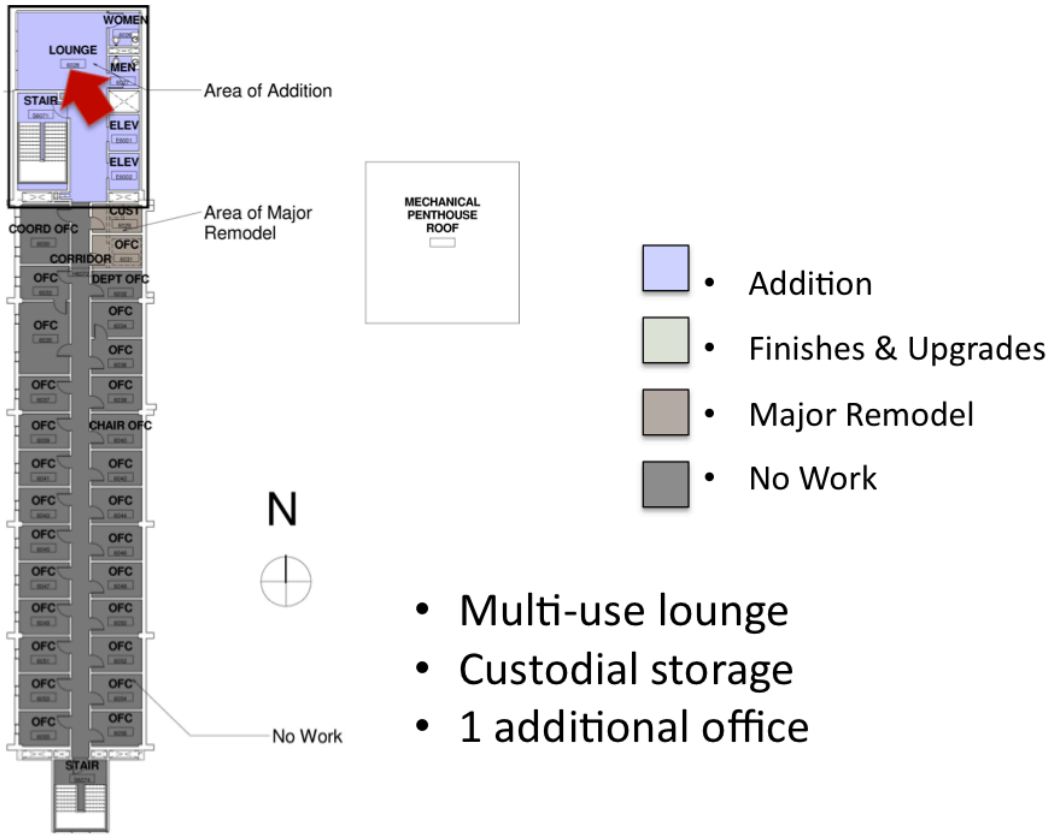


Figure 18. Level 6 Floor Plan, Features, & Rendering Location

Figure 19. Rendering: View from Lounge on Floors 5 & 6

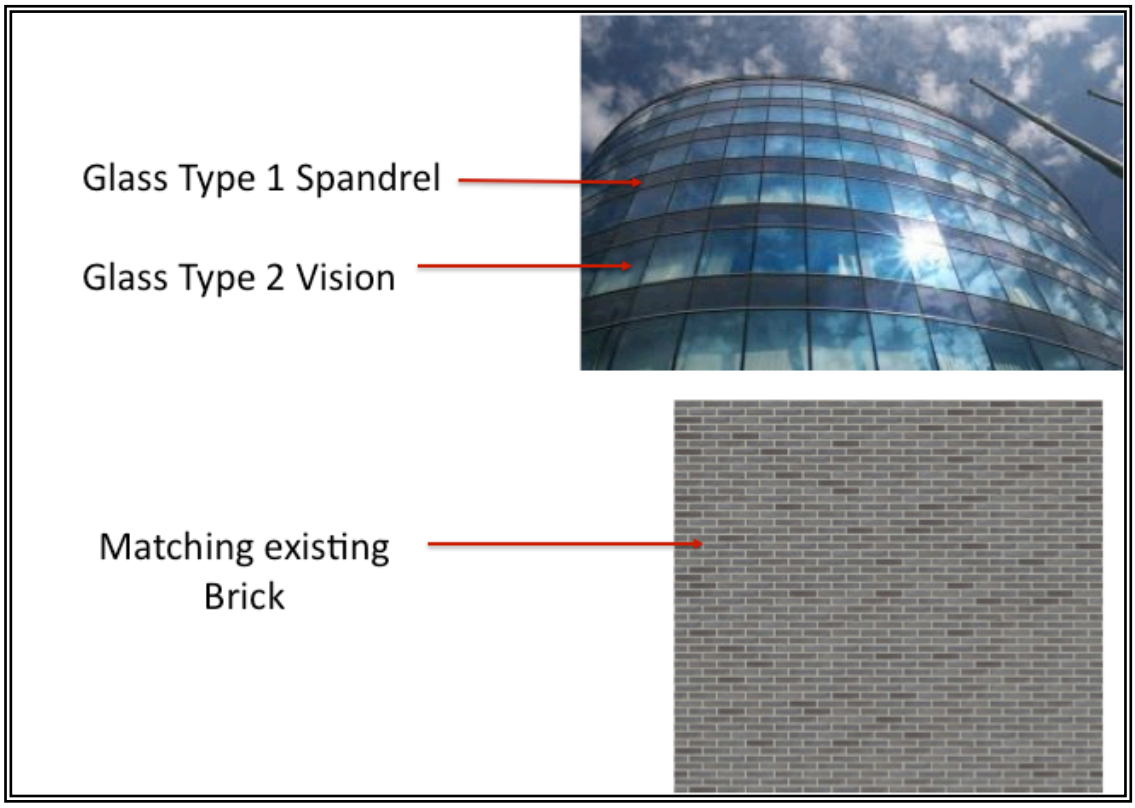


Figure 20. Exterior Architectural Elements

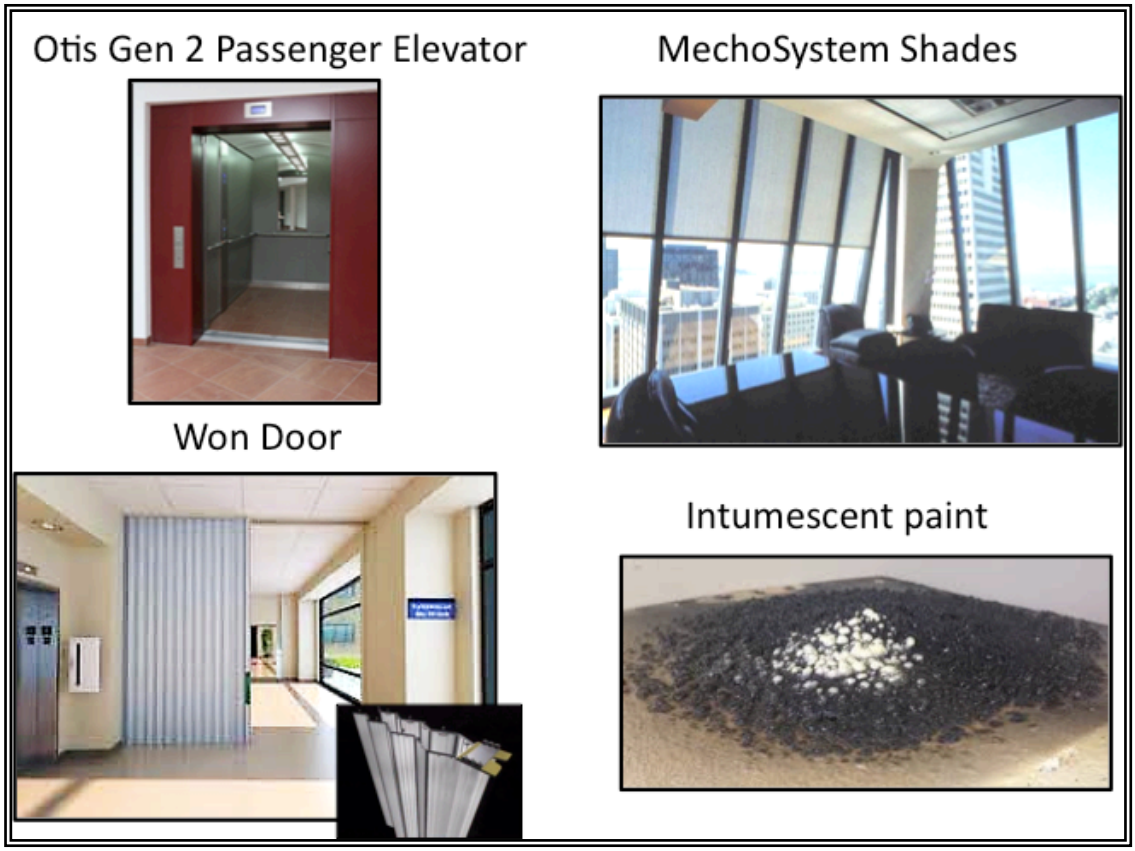


Figure 21. Interior Architectural Elements

Figure 22. Comparison of classroom without upgrades, to one that has had upgrades.

Figure 23. Rendering: Renovated classroom with new windows punched in exterior wall.

QUOTATION

Main Office (All correspondence): 1865 South 3480 West • Salt Lake City, UT 84104
Phone: (800) 453-8494 • Fax: (801) 977-9749 • www.wondoor.com

Karen S. Brown CSI, CDT – Northern US Region Manager
Phone:(614) 766-6481 - Fax:(614) 766-6491

Quotation Number: Budget	Bid Date: 11/18/13	Attention: Adam Cichanski, Senior @ University of Wisconsin
Project: Whitewater Building, Madison WI		Spec Section: None Addenda reviewed: NA

We are pleased to submit this BUDGET quotation for furnished and installed material.

Quantity	Model	Door/Room #	Width	Height	Description
8	FG 90 CC	Floors 2 - 9	9'-0"	11'-8"	Single Parting, Straight Track, Flat Lead Post

FEATURES: FireGuard CS 90 (UL 10B rating), Automatic Closing System (UL 864), Integrated Header, Integrated Pocket Cover Door, Fire Exit Hardware, 1-year Standard Manufacturer's Warranty, Standard Color (#55 Platinum), Pocket Depth = 2'-3".

CLARIFICATIONS:
***NOTE: This quote is based on a door assembly capable of resisting an air pressure differential less than .05 inches of water column. Air pressure resistance options for up to .15 inches of water column are available at additional cost.**

TOTAL FURNISHED AND INSTALLED	**$75,200***

UNITIZED TRACK SYSTEM
This quotation includes a unitized track system that eliminates the conventional plywood and drywall header: No additional cost; No separate delivery schedule; No costs associated with building the plywood and drywall header support. Unitized track installation is contingent on the structural support being less than five (5) feet above the door assembly. Materials included are the unitized track, threaded rods, and mechanical attachment hardware only. Drilling/placement of anchorage points into pre- or post-tensioned decks are excluded. Welding/punching/drilling of structural steel members is excluded.

ADD FOR OPTIONAL ITEMS	

- This quotation includes one (1) shipment of materials to project site.
- This quotation includes one (1) trip to the project site for installation.
- All electrical wire, wiring, conduit, electrical boxes and final electrical hookup of electrical connections to the closing system and key switch shall be furnished and installed by others.
- Items of work specifically excluded (unless otherwise noted) are: FIELD DIMENSIONS, OVERHEAD STRUCTURAL SUPPORT, WOOD OR METAL BLOCKING (INSIDE WALLS) REQUIRED FOR INSTALLATION, THREADED RODS, SEISMIC BRACING, STORAGE POCKETS, ACCESS DOORS, SMOKE DETECTORS, DRYWALL, PAINTING, PERMITS, UNLOADING AND STORAGE.
- Won-Door will commence fabrication of the materials purchased following receipt of approved shop drawings, signed contract, color selection and field dimensions. After which, Won-Door shall have a minimum of eleven (11) weeks to complete manufacture and installation of the products ordered per this agreement.
- Canceled projects will be subject to a charge of at least 15%.

The Purchaser hereby accepts this quotation, and the Terms and Conditions stated on Page 2 hereof, this _____ day of _____, 20 ____.

NAME OF COMPANY (PLEASE PRINT): _____

NAME OF PURCHASER _____ TITLE _____

SIGNATURE _____

WON-DOOR CORPORATION

Karen S. Brown

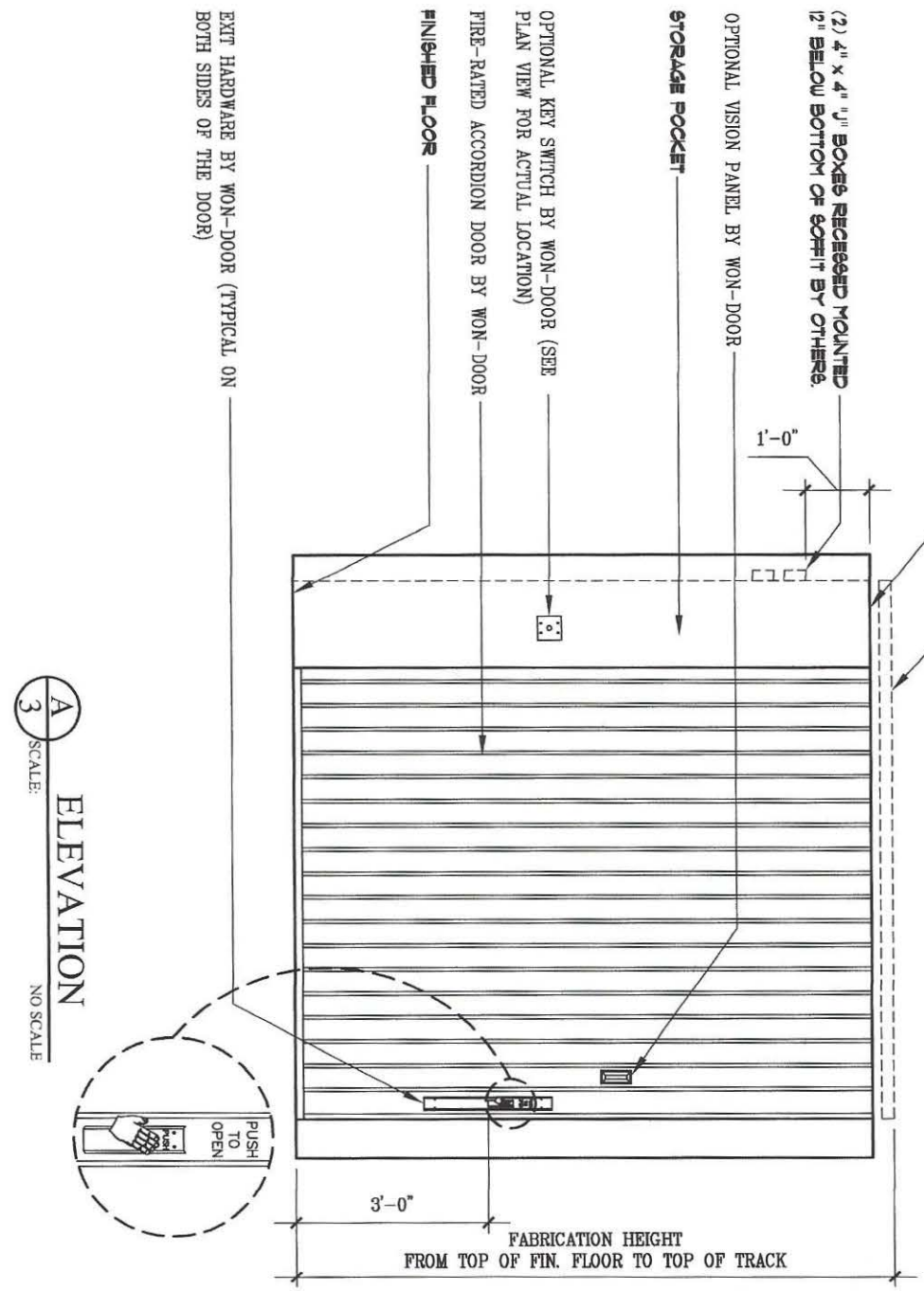
BY: KAREN S. BROWN

TITLE: REGION MANAGER

TERMS AND CONDITIONS:

Quotation is subject to the following terms and conditions:

1. Won-Door Corporation reserves the right to void this quote if not accepted in writing within 60 days.
2. All quotations and orders are in U.S. dollars.
3. Won-Door warrants that the products purchased pursuant hereto will be free from defects in workmanship and materials, under normal use, for one year from the date of installation. If this product does not operate as warranted during the applicable warranty period, Won-Door may, at its option and expense, replace the defective product or part with a comparable product or part or repair the defective product or part. Replacement products or parts may be new or reconditioned. Won-Door will warrant replaced or repaired parts for a period of (90) days from the date of installation or through the end of the original warranty, whichever is longer. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED.
4. Performance of this agreement may be excused or the time for performance extended in the event of any strikes, fires, accidents, emergencies, acts of God or any other intervening cause beyond Won-Door's control without liability to Won-Door.
5. All applicable taxes are included.
6. Unless otherwise agreed in advance Purchaser agrees to pay the value of materials delivered and/or services rendered within thirty days from the date of invoice. In the event payment is not made as herein described, Purchaser agrees to pay all costs of collection including costs of legal proceedings and reasonable attorney fees. Any sums past due shall bear interest at the rate of 18% per annum.
7. If proposal includes installation labor, Purchaser must notify Won-Door in writing at least thirty (30) days in advance of the date to commence installation work. In giving such notice to commence work, the Purchaser represents that the premises are or will be ready for Won-Door to proceed without delay. In the event Won-Door arrives at the job site as scheduled and cannot proceed immediately with its work, Purchaser then agrees to pay for any lost time, including travel expenses, subsistence and all other costs caused directly by said delay together with any and all costs associated with a return trip for installation.
8. On items quoted F.O.B. factory it is understood that Won-Door's liability terminates when the transportation company picks up shipment at the factory. Claims for freight damage should be made directly to the transportation company. Won-Door assumes no responsibility as to the manner in which the materials are unloaded and stored by the Purchaser.
9. On all furnished and installed proposals, Purchaser agrees to receive the material on the job site from the transportation company. Suitable storage for the materials before they are installed is the responsibility of the Purchaser. The Purchaser is responsible for inspection of materials received from the transportation company. Any damages or shortages are to be immediately reported to Won-Door.
10. The approved Won-Door shop drawings determine the manufacturing dimensions and associated responsibilities of Won-Door and wherever the same is inconsistent with the plans and specifications the approved drawings shall govern.
11. Unless otherwise agreed in advance, field dimensions will be the responsibility of the Purchaser.
12. Won-Door may elect to suspend fabrication, decline shipment of materials or stop in transit any such shipment, should there arise a doubt as to the Purchaser's financial responsibility. Should the Purchaser make an assignment for the benefit of creditors, become involved in any bankruptcy or arrangement or reorganization proceedings, or should any liens be filed against its property, or should a receiver, trustee, or other form of court officer be appointed for it, Won-Door may elect to cancel any unfilled portion of this contract and all costs and damages to Won-Door with any unpaid balances otherwise due, shall become immediately due and payable to Won-Door by the Purchaser.
13. The Purchaser will report immediately any errors in workmanship or defects in the material and no allowance or credit will be made or given for any labor, repairs, alterations or materials performed or furnished by the Purchaser without Won-Door's prior written consent.
14. It is expressly agreed that there are no promises, agreements or understandings that are not included in this instrument. Any claims of cancellation or modifications of this instrument must be mutually agreed to in writing by both parties.
15. Won-Door reserves the right to designate all means of transportation and routing.
16. Any and all payments, credits or charges to be made hereunder, are to be handled directly with Won-Door and no agent or representative has any authority to accept any payments or grant any credits, without the prior written consent of Won-Door.
17. This agreement shall be binding upon and inure to the benefit of the respective parties, their successors, representatives, executors, administrators and assigns.



A/3 ELEVATION

SCALE: NO SCALE

WON-DOOR CORPORATION
1865 SOUTH 3480 WEST
SALT LAKE CITY, UT 84104

FIREGUARD CS ELEVATION

12'-0" OPENING WIDTH OR LESS

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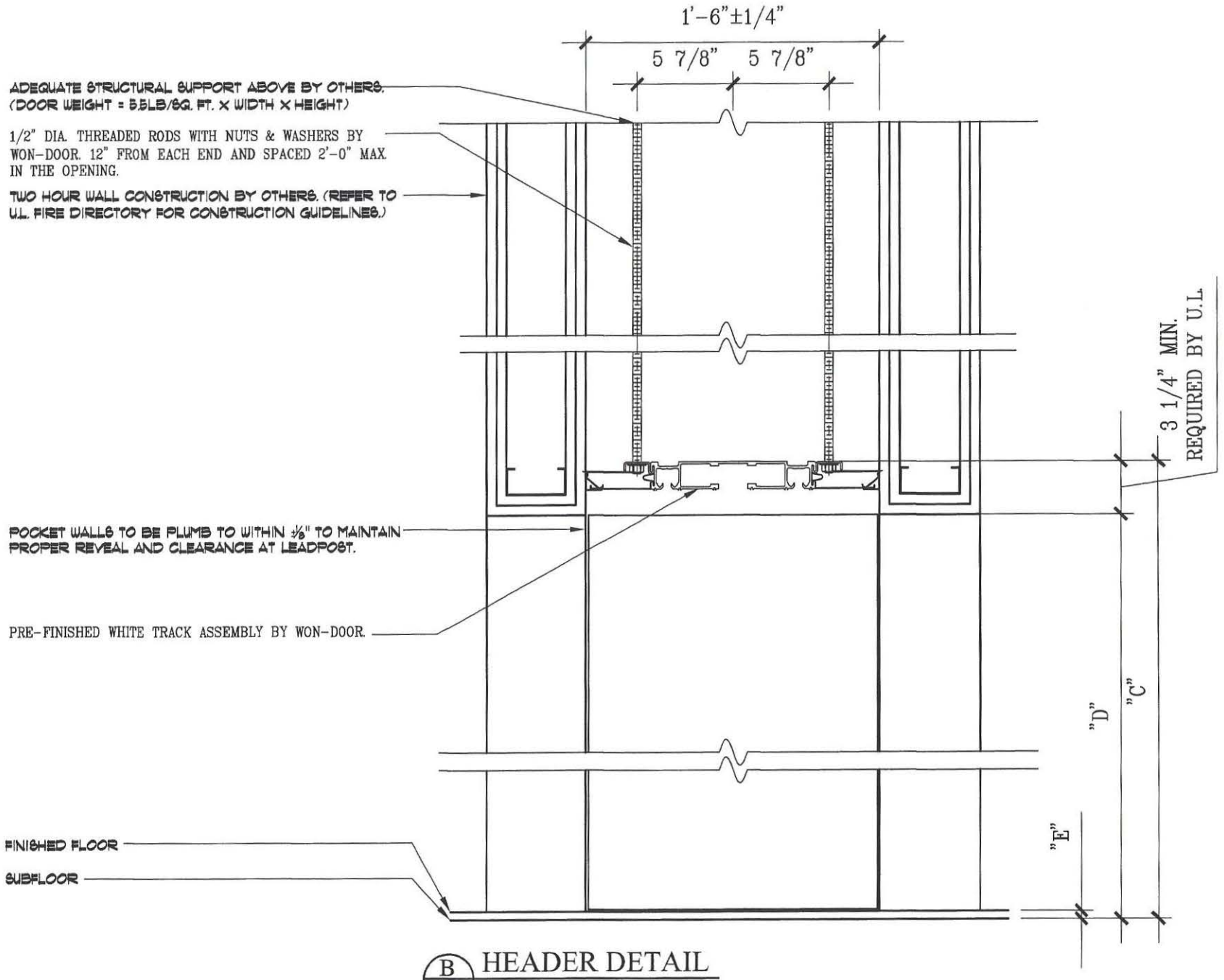

B/4 HEADER DETAIL

SCALE: NO SCALE

SHEET 4 OF 7

FIREGUARD CS HEAD DETAIL 90

12'-0" OPENING WIDTH OR LESS

WON-DOOR CORPORATION
1865 SOUTH 3480 WEST
SALT LAKE CITY, UT 84104

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FIREGUARD CS 90 DETAIL
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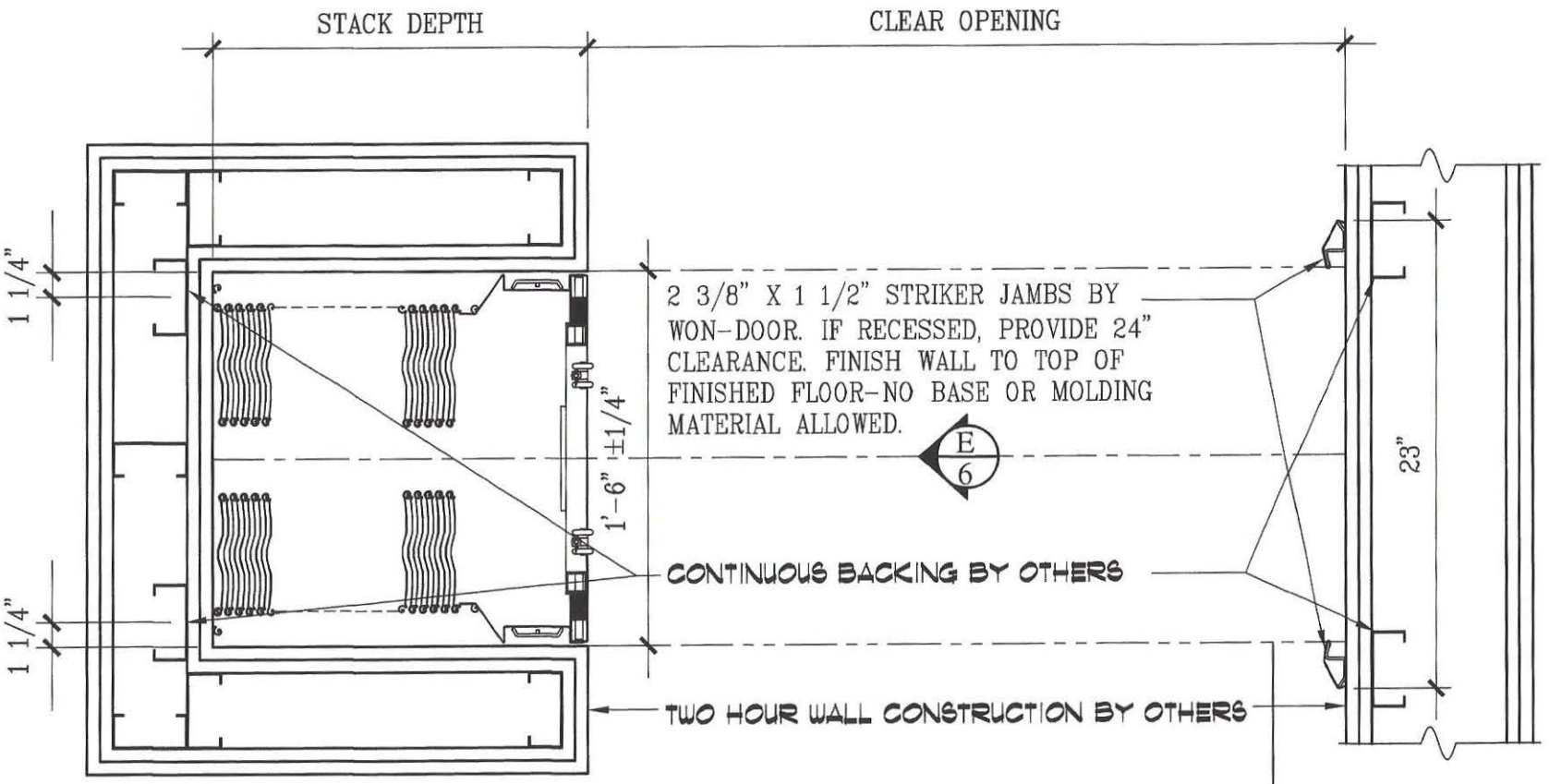

C/5 POCKET DETAIL
SCALE: NO SCALE

D/5 STRIKER DETAIL
SCALE: NO SCALE

WON-DOOR CORPORATION
1865 SOUTH 3480 WEST
SALT LAKE CITY, UT 84104

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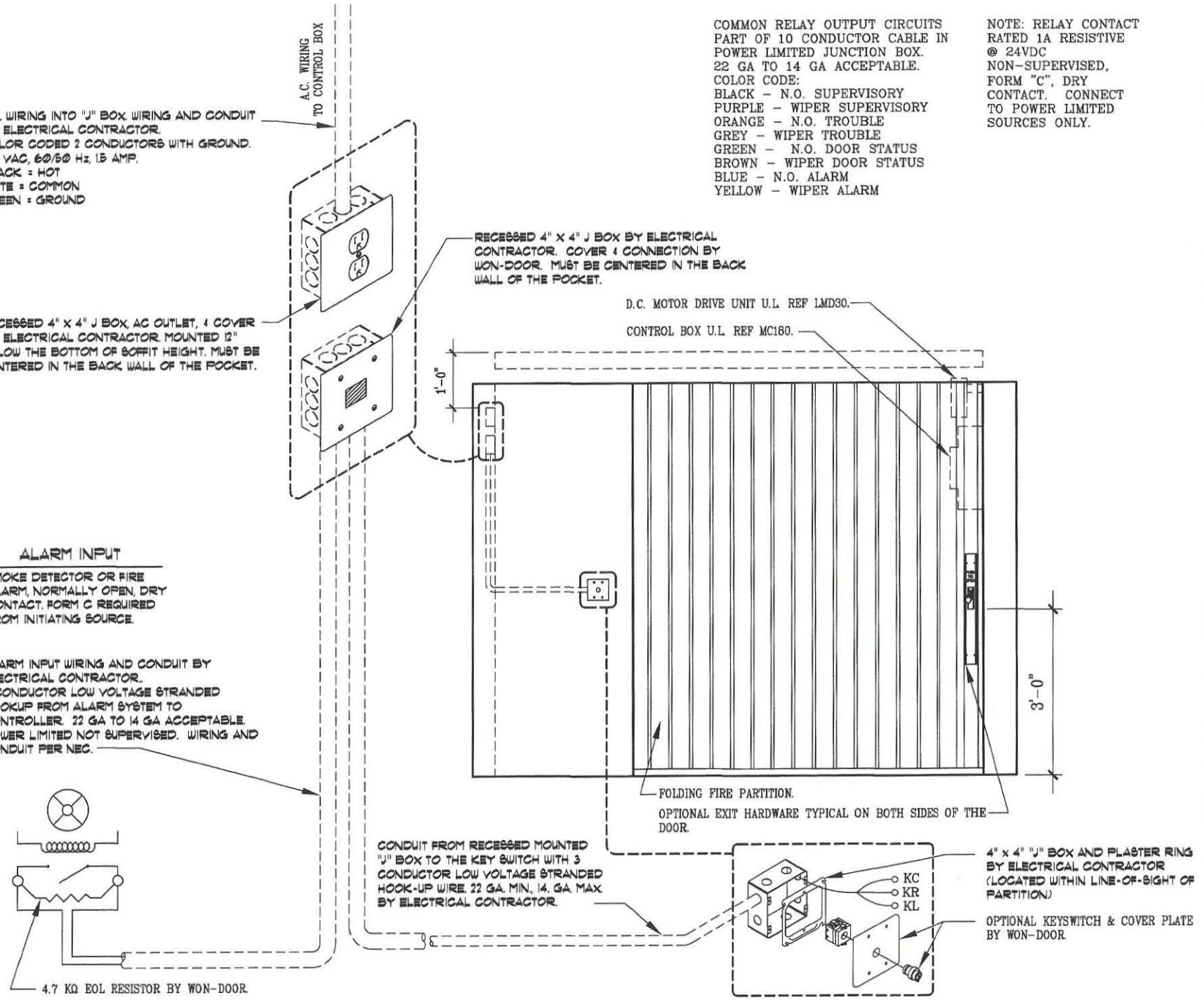

SHEET 7 OF 7

FIREGUARD ELECTRICAL DIAGRAM

SLIM DRIVE MOTOR CONTROLLER

WON-DOOR CORPORATION
1865 SOUTH 3480 WEST
SALT LAKE CITY, UT 84104

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Winther Hall Renovation & Expansion

Preliminary Design Report

December 19, 2013

ABC ENGINEERING

October 16, 2013

Ms. Tami McCullough
Facilities Planning and Management
University of Wisconsin-Whitewater
General Services Building, Room 100B
500 N. Fremont Street
Whitewater, WI 53190-1790

Re: University of Wisconsin – Whitewater, Winther Hall Project
Letter of Transmittal

Dear Ms. McCullough,

ABCI Engineering, Inc. has reviewed the design criteria provided by our client, the University of Wisconsin-Whitewater, and explored possible ideas. We have completed our preliminary design report and following input from the University of Wisconsin-Whitewater, we are ready to proceed with our final design.

Enclosed in the preliminary design report is as follows:

- Description of existing site conditions
- Design constraints that were considered
- Structural system possibilities
- Summaries and cost estimates of each design alternative
- Explanation of Mechanical systems
- Project construction schedule and phasing

ABCI Engineering, Inc. analyzed four different design alternatives based upon functionality, constructability, and cost-effectiveness and chose our recommendation from these results. We appreciate any feedback from the client in order to determine which option is the best design for this project.

Our recommended design yields an addition that extends through all six floors and adds two new elevators, a new staircase, two new bathrooms per floor, and creates study spaces on each floor. The addition will create an additional 12,700 SF and also include interior upgrades throughout Winther Hall.

ABCI Engineering, Inc. looks forward to working with the University of Wisconsin-Whitewater to create the final design. Please do not hesitate to contact our project manager, Adam, with any questions at (608) 555-1778.

Sincerely,

Adam Cichanski
Project Manager
ABCI Engineering, Inc.

Craig Sweney
Site Engineer
ABCI, Engineering, Inc.

Ben Bouche
Design Engineer
ABCI Engineering, Inc.

Irene Ripp
Lead Graphics Designer
ABCI Engineering, Inc.

cc: Dean Katy Heyning
Winther Hall Stakeholders

Address 1415 Engineering Drive, Madison, WI 53706
Phone 414-791-7161
Fax 608-555-1778
Web ABCIEngineering.com

Preliminary Design Report

University of Wisconsin-Whitewater

Winther Hall Renovation & Expansion

Whitewater, WI

October 17, 2013

ABC ENGINEERING

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Executive Summary

The University of Wisconsin – Whitewater Facilities Planning and Management has engaged ABCI Engineering, Inc. (ABCI) to prepare design options for the renovation and possible expansion of Winther Hall. The project goal is to achieve improved services and update life safety features of the building to allow the facility to continue to serve the Whitewater campus for the next generation of students. Originally built in 1969, this campus landmark serves both the education and psychology departments. The options listed in the program section of this report include updates that could affect both the interior and exterior of the building. This preliminary design report explains four structural design options proposed by ABCI Engineering, Inc. for the renovation and expansion project of Winther Hall on the University of Wisconsin-Whitewater campus. Currently, Winther Hall is facing problems with ADA-compliance of its restrooms and vertical transportation. The building is in need of updates as it has seen minimal renovations since its original construction. Each of the following designs work to encompass the needs of the UW-Whitewater Facilities and Planning Management while improving the accessibility, functionality, and sustainability of Winther Hall.

ABCI completed four design options for the renovation project at UW-Whitewater Winther Hall. After much consideration, ABCI recommends that the *Scenic Study View* option (See *Figure 1*) be implemented for construction due to its added student study areas.

Figure 1 : Scenic Study View 3D Model

1. *Limited Construction*

The first design option, *Limited Construction,* will take approximately four months to complete, and is the least costly with an estimate cost of $4,118,000. This option delivers:

- Minimal renovations to the existing restrooms
- New elevator
- Construction completed between academic years

2. *Expanded Restrooms*

Expanded Restrooms, the second design option, will take eight months to complete, and cost approximately $5,073,000. In addition to the solutions presented in the *Limited Construction* option, the *Expanded Restroom* option offers:

- New, relocated ADA-approved restrooms
- New windows in east wing classrooms and labs
- One new elevator
- Added study space in the corridors

3. Efficient Circulation

Building upon the previous options, the third design option, *Efficient Circulation*, has an estimated cost of $7,590,000, and will last approximately eleven months. Efficient Circulation proposes:

- New, relocated ADA-compliant restrooms
- Improved circulation
- Two new elevators
- New, ADA-compliant stairwell

Scenic Study View will bring Winther Hall into its next phase of life.

4. Scenic Study View

Scenic Study View, the fourth design option, encompasses the needs of the faculty and students of Winther Hall, estimated at $9,387,000 and taking approximately 14 months to complete. In addition to the previous options, Scenic Study View provides:

- New, relocated ADA-compliant restrooms
- New, ADA-compliant North stair
- Two new elevators
- Addition of new student study area that allows for better circulation

Each of the above designs provide feasible solutions to Winther Hall's concerns and aid in its sustainability by extending the life of the building. These design options along with their costs and construction schedules will be presented in further detail in the following report. Construction cost estimates are based on industry rates and initial cost studies with labor rates in the South Central Wisconsin market. After receiving a decision on a specific design option from the UW-Whitewater Facilities Planning and Management, ABCI Engineering, Inc. will move forward with specifications and drawings.

Project Background and Client Needs

Winther Hall is located on the campus of the University of Wisconsin-Whitewater and is used primarily by the College of Education and Professional Studies with a section dedicated to the College of Letters and Sciences - Psychology Department. The building is made up of a six-story academic office tower that is joined to a four-story classroom wing and contains 10 labs, 21 classrooms, and two lecture halls. Winther Hall is used year-round on a regular basis, making it one of the most heavily used buildings on campus. Since it was constructed in 1969, Winther Hall has seen minimal renovations. Because of this, the building is very outdated and in need of renovations in most areas.

Our client, The University of Wisconsin-Whitewater Facilities Planning and Management, has provided us with feedback on what their biggest concerns with the building are. They are as follows:

- Poor condition, quantity, and size of restrooms
- Poor vertical circulation
- Lack of study areas
- General renovations

Of special note is that UW-Whitewater strives to remain accessible to all students including those with disabilities, so it is important that ADA specifications be kept in mind at all times. As the building stands now, there is only one gender specific restroom per floor so occupants may need to travel to a different floor to find a suitable restroom. In addition to this, the restrooms are small and need additional fixtures to handle the number of building occupants. There are also very few study areas within Winther Hall, so students frequently have a difficult time finding a place to sit down and study, making the building unappealing. The vertical circulation is a major issue resulting from small stairwells and a single elevator; which is both small in size and outdated. To solve these problems, ABCI has incorporated the remodel of existing building features as well as the addition of new restrooms, stairwells, elevators, and study areas into the designs for this project.

ABCI Engineering, Inc. will provide Winther Hall with ADA-compliant features.

Existing Site Conditions

Winther Hall is located on the east border of campus, west of N. Prairie Street, and is surrounded by university buildings, parking lots, and residential areas. A map of the area can be seen in Figure J on page 9 of the Appendix with Winther Hall being represented in purple. To the east of Winther Hall is N. Prairie Street, which doesn't accumulate a significant amount of traffic. Further east is a residential area. Immediately west of Winther Hall is the Roseman Building, which contains admissions and other administrative offices and is used mostly by UW-Whitewater faculty. The building marked with the number four is the Connor University Center, and serves many functions such as providing offices for faculty and student organizations, food outlets, conference rooms, and recreation areas. Heide Hall is marked with the number six and is used by the College of Education & Professional Studies, similar to Winther Hall. The final building directly NW of Winther Hall is Upham Hall, which is used by the Department of Biological Sciences. There are also two parking lots that are adjacent to Winther Hall, a small south lot with metered parking and a large northern lot that is used by faculty and commuters. It is also worth noting that disabled students are frequently dropped off in the lot south of Winther Hall because it provides quicker access to other university buildings.

There is a heavy volume of pedestrian traffic around Winther Hall on a daily basis, especially between classes. This is due to Winther Hall being surrounded by buildings that host student classes and provide other vital functions to the campus. The paths most frequently used by pedestrians are marked with a green line. These areas are of importance when deciding where to place construction equipment because it is our goal to not disturb campus life. Winther Hall has three entrances, all shown in Figure J on page 9 of the Appendix as a blue pedestrian symbol. The north and south entrances are used more frequently than the east entrance. As mentioned previously, Winther Hall is composed of a classroom wing, office wing, and lecture halls. The classroom wing is located on the east side of building while the office wing is to the south and the lecture halls to the west. The predominant wind direction is out of the west/northwest, shown as a white arrow in the figure. The surrounding buildings provide protection from the wind to Winther Hall and its occupants. A scenic view is also shown on the figure as well, represented by a yellow arrow. This demonstrates a place students would prefer to study.

Design Constraints

Several constraints (detailed in the subsequent sections) were considered during the preliminary design process of the Winther Hall renovation and expansion project. These factors molded the four proposed designs that are illustrated later in the report. Fortunately, there was cross over between the client's goals and many of the constraints driving the design. The following sub sections describe the constraints considered in greater detail.

ADA compliance

New buildings and expansions have to comply with state or local building codes. Typically, building code officials review plans before construction and inspect the new facility during the construction process. However, there is no specific ADA inspector so it is the responsibility of the building owner, designers, and contractors for complying with the American with Disabilities Act (ADA).

Many local codes contain accessibility provisions, but they are separate from the ADA Standards. To be sure that the construction complies with the ADA as well as the building code, both sets of requirements need to be followed. Since many of the accessibility requirements are similar, the process can be simple. The ADA allows state and local governments to submit their accessibility provisions for a determination as to whether they are equivalent to the ADA requirements. When the provisions are certified as equivalent to the ADA, the building code inspection ensures compliance with the building code and ADA standards.

When a building is expanded, the new spaces that are constructed must meet the ADA Standards for new construction. The term "addition" refers to any expansion, extension, or increase in the gross floor area of an existing building or facility. In preparing the designs that included expansions, ABCI engineers planned for code compliant restrooms, routes, and vertical circulation to be included in the added areas (see pages 1 & 2 of Appendix for figures illustrating ADA required dimensions/standards for restrooms, routes, and vertical circulation).

In the designs where only alterations (no added gross square footage) are performed to the existing building, we had to consider how the changes affected the property's compliance with the ADA code. The Americans with Disabilities Act states that when making alterations, the path of travel must remain accessible to the primary function area and restrooms.

Constructability

Another important thing considered during the design process was constructability. While thinking about the construction process we catered our designs around the owner's need to keep the building operational throughout construction. The college cannot afford to have the building out of commission for any period of time. If the design calls for an elevator or bathroom to be removed, the new one must be built before demolition of the old one precedes. If this is impossible due to the construction of the new in the existing location, temporary modes of vertical circulation must be brought in. Ultimately, this requirement shaped our schedule and phasing of the project.

Economic

While creating each design alternative, ABCI engineering put together a cost estimate and analysis. The goal was to provide our client with options that varied in total cost so there was flexibility around the client's budget. Although some of the design options satisfy more of the project goals than others, they all attempt to correct the issues of code compliant restrooms and improved vertical transportation.

Environmental

Environmental considerations were looked at during the design process to meet the client's goal of LEED certification. To gain this certification, the designs were modeled so that the materials, construction process, and recycling plan could achieve the LEED certification the client desired. ABCI engineering is striving to use as many recycled materials as possible, construct the building in a sustainable matter, and set up a recycling plan to sort and track all material during demolition and construction.

Sustainability

Winther Hall, in its current state, is gradually losing its status as a useful campus building. To increase the life span of the building, the designs we developed address the issues that restrict the buildings functionality and add more years to its life. Each design improves on the current restroom and vertical transportation issues, which are the main factors limiting the buildings usage. By making these improvements, Winther Hall can avoid total demolition and become a fully serviceable building for more years to come.

Structural Design Possibilities

When expanding a building, the type of structural system used must be considered. Several factors that influence the choice of a structural system are: the height of the building, its durability, aesthetics, cost, constructability, etc. The three basic structure types that ABCI Engineering considered for Winther Hall were:

- Wall-bearing
- Concrete
- Structural steel

After analysis of each system, it is evident that the best choice is to use a steel system. Steel systems can be constructed in any climate, erected quickly, have a low labor cost, and support large curtain walls/numerous windows. Many of these features compliment the goals and constraints of the project. The following sections describe the analyzed systems in further detail.

Wall-bearing

Wall bearing refers to a building type that relies on masonry or concrete walls to support floor and roof structural members. These structures generally are only one or two stories in height, but can consist of more floors if lower level walls are made thicker or reinforced. Typical masonry walls are made up of a 4” layer of exterior facing brick with 8” interior CMUs (see *Figure 2* for typical cross section).

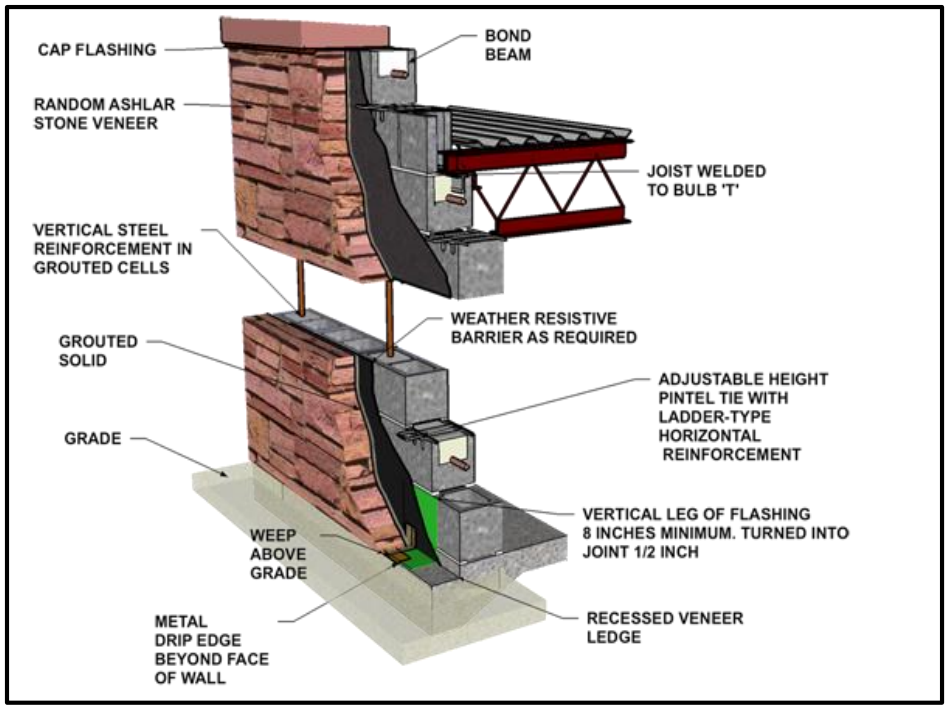


Figure 2 : Wall-bearing Cross Section [1]

The advantages of wall-bearing systems are the following:

- Fire resistant
- Low Maintenance
- Sound control
- Durability

Fire resistant – Unlike its counter parts, steel and wood, masonry and concrete hold up better during fires. This provides a degree of safety for the occupants and less damage to the structure in the case of a fire.

Low maintenance - Concrete and masonry is not susceptible to moisture damage or humidity changes over time. It doesn't rot or corrode during drastic climate changes throughout the year allowing for fewer maintenance requirements over time.

Sound Control – Wall bearing construction uses concrete and masonry block, which are better at blocking noise than alternative construction materials, resulting in a quieter study environment.

Durability – Concrete and masonry block are very durable and have a long life span compared to other materials.

There are also disadvantages of wall-bearing structural systems, which include the following:

- Labor intensive
- Heavy
- Lack of windows

Labor intensive – Wall bearing systems require excessive construction time and manpower with highly specialized skills. If masonry block is used, it takes a long time to lay brick and if concrete is used formwork must be assembled. Additionally, these processes must occur in a dry and warm climate otherwise the concrete and mortar does not cure properly.

Heavy – Wall bearing systems are very sturdy due to the thickness, hardness, and weight of the materials used to build them. While this is an advantage in some cases, the weight can lead to excessive settlement and sinking of the foundation.

Lack of windows – Since the walls are what is bearing the load from the floors and roof it is not possible to have large windows or curtain walls. Glass does not support any load and the more windows there are the less masonry block or concrete there is to support the loads.

Concrete Column, Beam, & Slab

Concrete structural systems consist entirely of freestanding columns braced by horizontal beams at each floor level. The beam and column frame carries the dead load of the building weight and the live load of contents, occupants, and wind. Reinforced concrete frames are formed at the job site and poured floor by floor as the structure rises. If beams are a problem, either functionally or aesthetically, a flat slab floor system can be designed that

eliminates beams by thickening the floor construction. Concrete column, beam, and slab systems are ideal for the following reasons:

- Fire resistant
- Low Maintenance
- Sound control
- Durability

Fire resistant – Unlike its counter parts, steel and wood, concrete holds up better during fires. This means there is a higher degree of safety for the occupants and less damage to the structure if a fire occurs.

Low maintenance - Concrete is not susceptible to moisture damage or humidity changes over time. It doesn't rot or corrode during drastic climate changes throughout the year allowing for fewer maintenance requirements over time.

Sound Control –Concrete is better at blocking noise than many alternative construction materials, resulting in a quieter study environment.

Durability – Concrete is very durable and has a long life span compared to other materials.

The disadvantages to concrete column, beam, and slab structural systems include:

- Labor intensive
- Heavy
- Difficult quality control

Labor intensive – Concrete systems require excessive construction time and manpower with highly specialized skills. Form work must be assembled before concrete is poured and is a time consuming task. Additionally, pouring must occur in a dry and warm climate otherwise the concrete does not cure properly.

Heavy – Concrete structures are very sturdy due to the thickness, hardness, and weight of the material. While this is an advantage in some cases, the weight can lead to excessing settlement and sinking of the foundation.

Difficult Quality Control – Since concrete is poured on site and not manufactured in a controlled environment, it is more susceptible to imperfections. Poor tradesmen, weather, batch, and formwork can all result in low quality material.

Structural Steel

Structural steel systems are very similar to concrete-framed systems in that they both are made of columns and beams. The frame is built up before any of the exterior facing or walls are attached and a steel decking is used for the flooring. Typically a thin concrete slab is poured on top of the steel decking to complete the floor (see *Figure 3* for typical steel frame layout). Steel structures are easier to erect than poured in place types and can be completed

in any weather condition. Components of steel frames (columns and beams) are fabricated off site and then shipped to the location of the project.

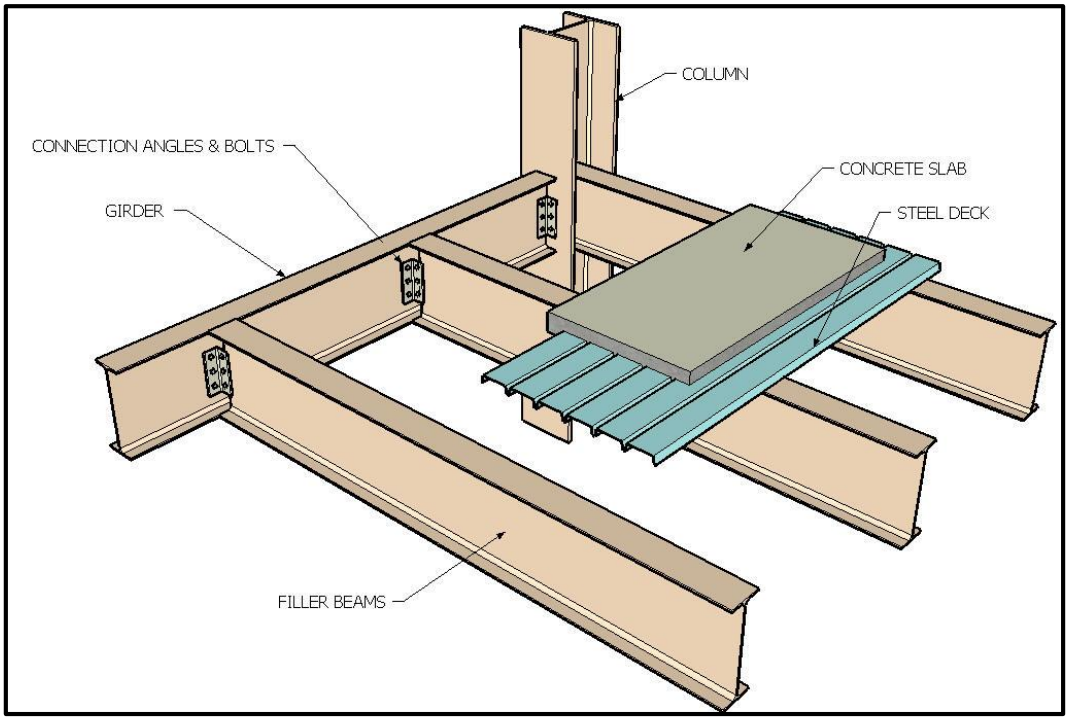


Figure 3 : Steel Beam System

The advantages of structural steel systems are the following:

- Strong and Design-Flexible
- Speed of Erection
- Quality of construction
- Environmentally Friendly

Strong and Design-Flexible - Steel offers architectural and design flexibility due to its inherent strength. This allows large span distances and curves to be easily incorporated into designs.

Speed of Erection - Steel structures can be erected quite rapidly resulting in quicker project turn around.

Quality of Construction – Since the components of structural steel systems are fabricated off site in a controlled environment the material is high quality. This allows for the structures to be built with high quality workmanship and narrow tolerances.

Environmentally Friendly - Steel delivers a number of environmental benefits such as product longevity, recyclability, and less raw material wastage.

Like all structural systems there are some disadvantages to structural steel systems such as:

- High Material Cost

- Requires Fireproofing

ABCI Engineering, Inc. will use steel frame and glass enclosure for Scenic Study View

High material Cost – Although is not as labor intensive Steel is more expensive than other types of construction materials.

Requires Fireproofing - The strength of steel is reduced substantially when heated at temperatures observed in fires. Also, steel conducts and transmits heat from a burning portion of the building quite fast. Consequently, steel frames in buildings must be fireproofed which requires additional labor and cost.

Summary of Design Alternates

Limited Construction

Of the four options, this is the only option that does not involve an addition onto Winther Hall. Instead, the space within the building is reconfigured to address two of the client's main concerns: vertical circulation & ADA compliant restrooms for both men and women on each floor (see *Figure 4* for floor plan of key elements & the Appendix for full floor plan). The unique layout of the building made working "inside the box," a challenge. It was decided that the existing elevator would be removed and replaced with a larger and faster elevator in its existing location. Because of the increase in size, however, the shaft must be reconstructed. In order to make space for men's and women's restrooms, the existing structures in the core of the hallways will be removed, leaving only the mechanical and electrical chases. Constructed between these chases will be the new restrooms that will be ADA compliant. The figures on page 1 in the Appendix were used when designing the restrooms, and require an extension of about a foot into the hallway on either side leaving approximately four feet of width for each corridor. This is satisfactory room for the clear width of an accessible route according to the ADA Standards for Accessible Design (See Appendix pg. 1, Figure 8). Also, because janitorial storage will have to be removed to make way for the restrooms, new storage space is to be added to the backside of the elevator shaft. Unfortunately this option leads to the decrease of study space, however the existing classrooms and labs will be updated to match the most recent renovations. This will make the current classrooms and laboratories much more inviting for students to utilize.

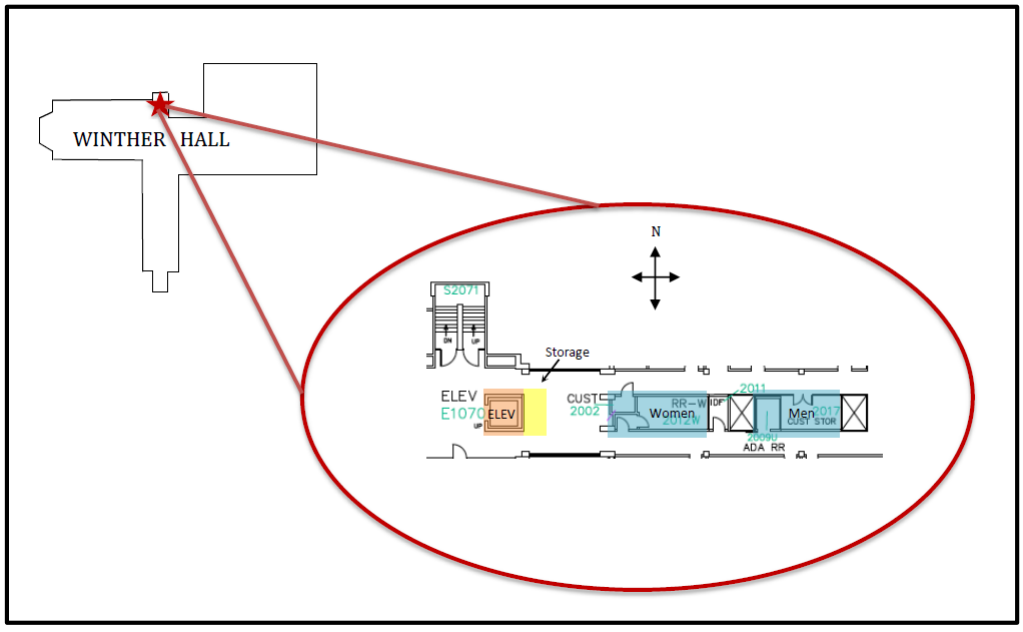


Figure 4 : Zoomed-in View of Limited Construction Floor Plan

Project Cost

The estimated total cost of construction for the Limited Construction option is $4,118,000. The breakdown of this cost can be seen in Table 1:

Limited Construction: $4,118,000

Table 1. Cost Breakdown of the Limited Construction Option

Description	Phase 1	Phase 2	Total
Demo	69,758.04	21,240.00	90,998.04
Temporary Elevator	300,000.00		300,000.00
Elevators	904,500.00		904,500.00
Bathrooms	110,900.00	110,900.00	221,800.00
Interiors	4,000.00	4,000.00	8,000.00
MEP Work	74,560.00	44,560.00	119,120.00
Classroom Up Grades	737,500.00	737,500.00	1,475,000.00
Contingency	220,121.80	91,820.00	311,941.80
A/E Fees	193,707.19	80,801.60	274,508.79
Overhead & Profit	290,560.78	121,202.40	411,763.18
TOTAL	2,905,607.81	1,212,024.00	**4,117,631.81**

Sustainability

By renovating Winther Hall, we are able to take it from its current state, and move it into its next phase of life. This hereby reduces the amount of waste in comparison to what would have been produced had the building been demolished and rebuilt. Also, the introduction of efficient toilet fixtures, light fixtures, and occupancy sensors help conserve water and energy. And lastly, renovating the existing is much less energy intensive and waste producing than a major addition to the building.

Constructability

A key element to Option A is phasing of the project because all of the construction is internal, and the building is heavily used year round. This project would be figured to begin at the start of summer because although still used, the capacity of Winther Hall is lower during the summer months. The importance of having a functioning elevator is key, so prior to decommissioning of the existing; a temporary elevator would have to be constructed on the north end of the building. It would attach to the existing north staircase. The existing elevator and the restrooms on floors two and four would undergo demo and remodel. Upon completion of the new elevator, the temporary would be removed. Also, the restrooms on floors one and three would begin as soon as two and four become operational. This is to ensure that restrooms are available at all times. Lastly, demolition and any other loud construction processes would have to be done in the afterhours, and the construction of the elevator would have to be accelerated to get it up and functioning as quickly as possible. Both of these induce higher labor rates, but are done so to provide a much more desirable atmosphere for the occupants. Throughout both phases, upgrades will be made to the existing, out dated classrooms and laboratories.

Expanded Restrooms

The Expanded Restroom option will meet all of the client's needs as it will improve vertical circulation, add new ADA-compliant restrooms, and increase study areas available to students. As mentioned by the client, the total number and accessibility of the restrooms was especially troublesome. It is for this reason that adding additional quality restrooms was the primary concern of this design option. Both male and female restrooms with four fixtures each will be added east of the existing north staircase on floors one through four, while the restrooms on floors five and six will be expanded and renovated. To improve the vertical circulation of the building, a new elevator will be added west of the existing north staircase. This new elevator, which will access all six floors, will have a larger carrying capacity and will be faster than the elevator in place now. By adding a new elevator and restrooms, it will allow for the removal of the existing restrooms and elevator creating more space in the center of the floor plan for further study space. Additional storage space in the form of a closet will be added between the new restrooms and existing north staircase to replace the existing storage closet that will be removed. The existing two mechanical chases will also be removed to make room for the expansion. Mechanical chases will be added behind both the storage closet and elevator. Currently, Winther Hall is lacking windows and natural light. In this design option, windows will be added to the exterior walls of the classroom wing. The style of the added windows and glass exterior will be chosen to match the existing features to incorporate the historical style of the building. Since the addition includes the bottom first floor, excavation will be required on either side of the north staircase where the new restrooms and elevator will be located (see *Figure 5* for floor plan of key elements & the Appendix page for full floor plan).

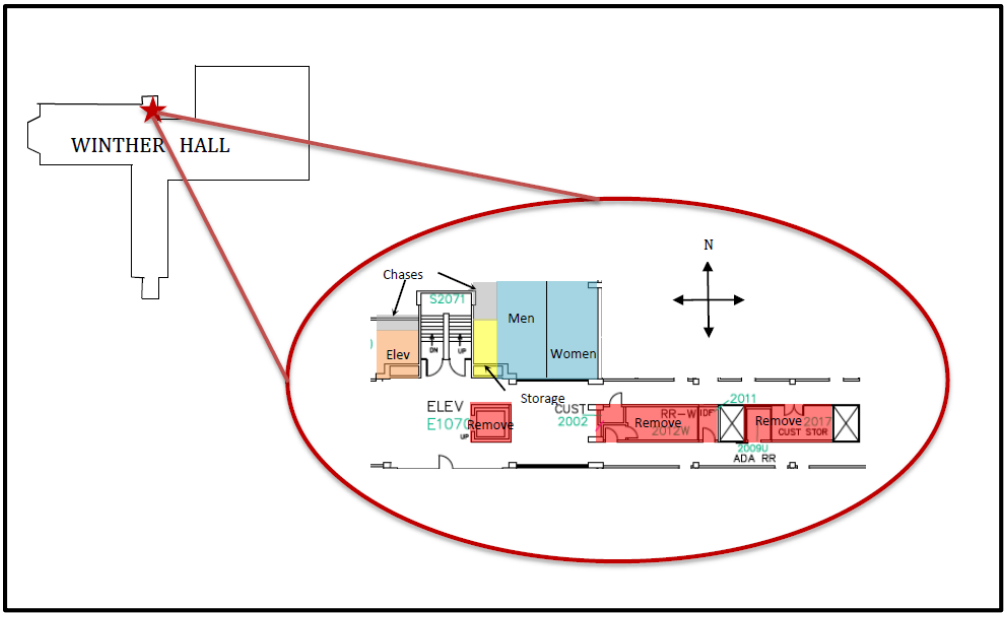


Figure 5 : Zoomed-in View of Expanded Restrooms Floor Plan

Project Cost

The estimated total cost of construction for the Expanded Restrooms option is $5,073,000. The full breakdown of this cost can be seen in Table 2.

Table 2. Cost Breakdown of the Expanded Restrooms Option

Description	Phase 1	Phase 2	Total
Demo	40,320.00	90,998.04	131,318.04
Excavation	36,245.15		36,245.15
Earth Retention & Dewatering	35,000.00		35,000.00
Backfill	1,172.63		1,172.63
Foundation Concrete	104,391.25		104,391.25
Structure (Steel Frame & Concrete Slabs)	103,293.08		103,293.08
Enclosure	112,695.00		112,695.00
Elevators	740,000.00		740,000.00
Bathrooms	168,187.50		168,187.50
Interiors	10,299.28	92,693.52	102,992.80
Windows		588,000.00	588,000.00
MEP Work	145,571.12	49,530.48	195,101.60
Classroom Up Grades		1,525,000.00	1,525,000.00
Contingency	149,717.50	234,622.20	384,339.70
A/E Fees	131,751.40	206,467.54	338,218.94
Overhead & Profit	197,627.10	309,701.31	507,328.41
TOTAL	1,976,271.00	3,097,013.09	**5,073,284.09**

The Expanded Restrooms option will cost $5,073,000

Sustainability

The Expanded Restroom design option aims to provide an upgrade to Winther Hall in outdated areas, improving the functionality of the building. By providing new bathrooms, a larger elevator, and clearing more space for study areas, the lifetime of the building will be extended. Sequentially, these renovations and expansions will provide UW-Whitewater with financial sustainability by delaying the need for the expense of an entirely new building. Similarly, the expanded restroom option promotes environmental sustainability because of the material it will save by maintaining the same restroom locations and tying into the existing plumbing system.

Constructability

ABCI Engineering understands the importance to UW-Whitewater that Winther Hall remains functional while under construction. The Expanded Restroom option will be effective at this goal as the estimated project length is 8 months. The addition that contains the new restrooms, elevator, mechanical chases, and storage will be completed first before starting any interior demolition and renovations. This will allow the building to maintain normal function during this first phase of construction. After the addition is completed, the new restrooms and elevator will immediately be opened for use. At this time, the interior work will begin with demolishing the existing bathroom and elevator, followed by the creation of new windows and upgrading interior finishes. By using this two-phase schedule, Winther Hall will have a functional elevator, restroom, and stair which will allow for continual use by UW-Whitewater faculty and students.

Efficient Circulation

Efficient Circulation (See *Figure 6*) satisfies several goals laid out in the Request for Proposal, such as:

- ADA compliant bathrooms
- ADA compliant stairs
- Improved vertical circulation
- Additional natural light through windows

One of the most important needs for Winther Hall was to get code compliant bathrooms, for both genders, on floors 1-4. This design satisfies the goal by expanding the existing restroom and adding an additional adjacent restroom on each of the first four floors. The additional bathroom replaces the existing study space on floors 1-3 and removes the small offices on floor 4. Additionally, the north stairwell is smaller than the current code permits. This design option proposes to demolish the existing stairwell and replace it with a new ADA code compliant stairwell. Two new ADA-approved elevators will also be added which will accommodate the large amount of traffic the building incurs throughout the school year. These elevators will be located directly across from the new stairwell in a small hallway addition at the north entrance (see *Figure 6* for floor plan of key elements & the Appendix page 12 for full floor plan). The existing elevator will be demolished after the new ones become operational. Finally, in the classroom wing, new windows will be installed around the exterior to provide further natural light.

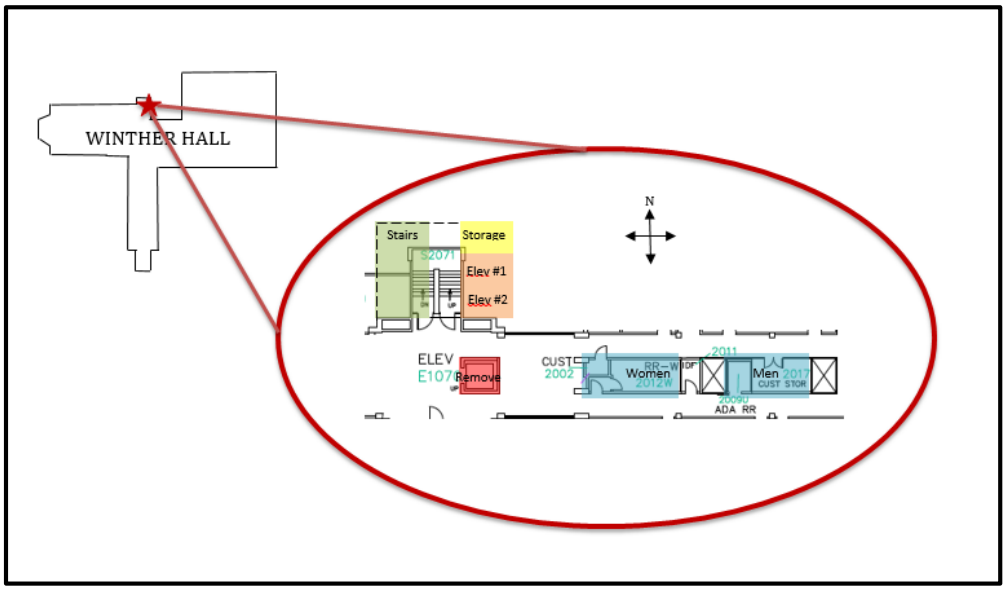


Figure 6 : Zoomed-in View of Efficient Circulation Floor Plan

Project Cost

The estimated total cost of construction for the Efficient Circulation option is $7,590,000. The full breakdown of this cost can be seen in Table 3.

The Efficient Circulation option will cost $7,590,000

Table 3. Cost Breakdown of the Efficient Circulation Option

Description	Phase 1	Phase 2	Total
Demo	208,559.88	82,601.04	291,160.92
Temporary Stairs	120,000.00		120,000.00
Excavation	38,525.00		38,525.00
Earth Retention & Dewatering	45,000.00		45,000.00
Backfill	1,240.00		1,240.00
Foundation Concrete	90,540.05		90,540.05
Structure (Steel Frame & Concrete Slabs)	88,560.00		88,560.00
Enclosure	539,640.00		539,640.00
Elevators	1,490,000.00		1,490,000.00
Stairs	272,160.00		272,160.00
Bathrooms	110,900.00	110,900.00	221,800.00
Interiors	72,480.60	24,160.20	96,640.80
Windows		588,000.00	588,000.00
MEP Work	257,008.00	84,432.00	341,440.00
Classroom Up Grades		1,525,000.00	1,525,000.00
Contingency	333,461.35	241,509.32	574,970.68
A/E Fees	293,445.99	212,528.21	505,974.20
Overhead & Profit	440,168.99	318,792.31	758,961.29
TOTAL	4,401,689.86	3,187,923.08	**7,589,612.94**

Sustainability

This option extends the lifespan of Winther Hall by improving poor vertical circulation and restrooms. Vertical transportation is improved with the new stairwell and elevators making it more efficient for its occupants. Also, the restrooms will be upgraded by creating a restroom for each gender on floors 1-4 of the classroom wing. However, in the process of upgrading the restrooms, study space is lost (see *Figure 6*). These two features are key for extending the life of the building and making it more useful and efficient for its students and staff.

Constructability

During the construction phase, Winther Hall will remain fully functional. Although the existing north stairwell will be under construction, occupants will still be able to use the east and south stairwells. The current elevator is also being removed but is scheduled in the final phase of the project following the completion of the two new elevators. The restrooms are approached in a similar manner where there will always be at least one functional restroom for each gender during construction.

Scenic Study View

ABCI Engineering, Inc. recommends that the Scenic Study View option be implemented for construction. Scenic Study View encompasses the needs of the University of Wisconsin-Whitewater Facilities Planning and Management by providing ADA – compliant amenities, improved circulation, and adding study space on each of the first four floors. The expansion will include both male and female ADA - compliant restrooms on each floor. Vertical circulation of the building will be improved by the addition of two spacious Otis Gen 2 elevators (see Figure I on page 2 of the Appendix), and an ADA-approved stairwell that will be located near the current stairwell location. Study spaces encased in a glass façade will be included in the expansion, providing additional areas for students to focus on their education outside of the classroom. The restrooms and storage areas that are currently in place in the corridors will be removed to further improve circulation throughout the lobby and classroom wing, and offering additional student study space (see *Figure 4* for floor plan of key elements & the Appendix for full floor plan).

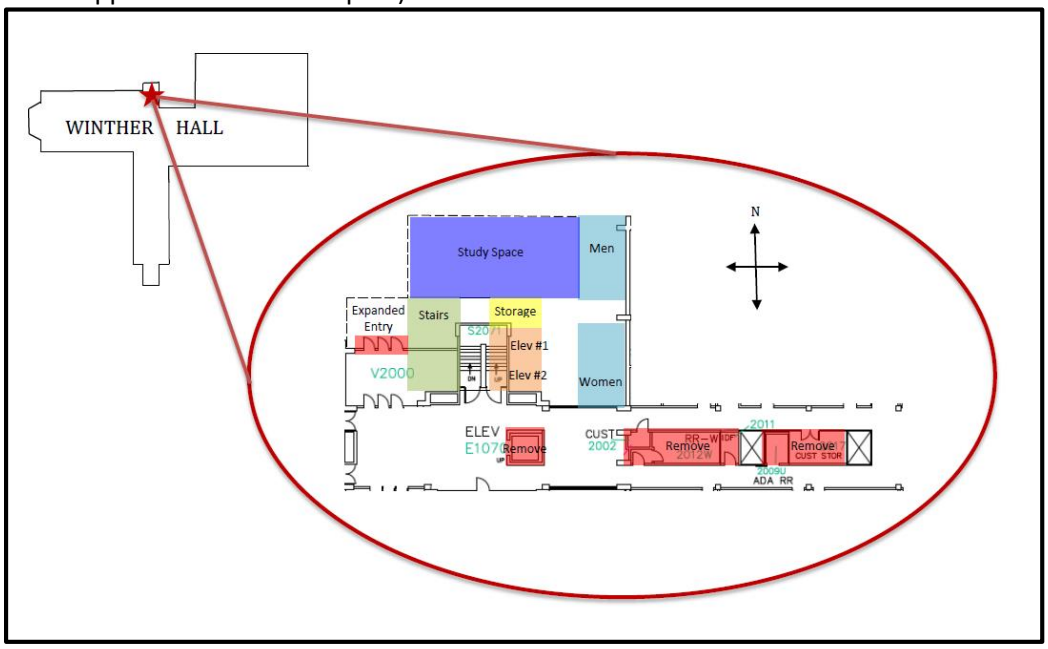


Figure 7 : Zoomed-in View of Scenic Study View Floor Plan

Project Cost

The estimated total cost of construction for the Scenic Study View is $9,387,000. The breakdown of this cost can be seen in Table 4.

Table 4. Cost Breakdown of the Scenic Study View Option

Description	Phase 1	Phase 2	Total
Demo	196,812.88	90,998.04	287,810.92
Temporary Stairs	120,000.00		120,000.00
Excavation	136,515.59		136,515.59
Earth Retention & Dewatering	95,000.00		95,000.00
Backfill	4,790.52		4,790.52
Foundation Concrete	193,363.82		193,363.82
Structure (Steel Frame & Concrete Slabs)	409,835.07		409,835.07
Enclosure	690,030.00		690,030.00
Elevators	1,490,000.00		1,490,000.00
Stairs	272,160.00		272,160.00
Bathrooms	206,250.00		206,250.00
Interiors	273,079.68	182,053.12	455,132.80
Windows		588,000.00	588,000.00
MEP Work	493,246.43	144,415.48	637,661.90
Classroom Up Grades		1,525,000.00	1,525,000.00
Contingency	458,108.40	253,046.66	711,155.06
A/E Fees	403,135.39	222,681.06	625,816.45
Overhead & Profit	604,703.09	334,021.60	938,724.68
TOTAL	6,047,030.86	3,340,215.96	**9,387,246.82**

Scenic Study View option will cost $9,387,000

Sustainability

Much like the first three options, Scenic Study View aids in the sustainability of the building by adding to the overall life of Winther Hall. The expansion and renovations that this design offers will extend the life of the building by updating its accessible and functional needs, and alter the use of the building by adding areas for students to excel on their studies.

Constructability

Because the expansion will be located around the North entrance and lobby area alone, construction will not interfere with the functionality of the building. For ease of the faculty and students of Winther Hall, the expansion will be erected first, leaving the original restrooms in place for use during construction. These restrooms and the current storage areas, located in the center of the main hallways in the classroom wing, will be removed

after the completion of the expanded area. Additionally, the demolition of the restrooms and storage spaces will not inhibit any activity throughout the building, as the three other entrances will be available for use. Scenic Study View will be completed in two main phases. The first phase will be the excavation and construction of the expansion, followed by the second phase, which will involve the interior demolition of the existing restrooms and elevator shaft. For a 2D model image of this option, see *Figure 8*. The full construction schedule of the Scenic Study View alternate can be seen in Figure 11 on page 26 of the report.

Figure 8 : Scenic Study View 3D Model

Mechanical Systems

The UW-Whitewater campus is serviced by a central utility plant that provides steam and chilled water to the campus buildings. The steam and chilled water is used to maintain the appropriate temperatures in offices, classrooms, and laboratories. Steam is produced in coal and gas-fired boilers while electric-driven chillers provide the cold water. ABCI is subcontracting out all HVAC work, preferably to a company that has done work with the UW previously.

In all four options, excluding the large study area expansion, the heating and cooling loads are not substantially affected. For the new study area expansion, a mechanical systems consulting firm will be asked to calculate the additional load. This calculation will drive the decision on whether a supplementary air-handling unit is necessary or if the existing system can accommodate the extra load. If the added load can be supported by the existing system, a mechanical system subcontractor will install the new ductwork to tie into the existing main shafts. If the load cannot be supported, a new air-handling unit will be placed on the roof to create a variable air volume (VAV) system. A VAV system allows the different floors and sections of space to have its own thermostat, allowing for more control over temperature. The plumbing and HVAC mains for the addition will be located in the new mechanical chase located between the men's and women's restrooms, and stretch from floors 1-4. The layout of the new ductwork is going to be provided by the consulting firm once the final design option is decided.

Interior Upgrades

All four of the options described in the previous sections include upgrades on interior finishes such as:

- Paint
- New ceiling grids/tile
- New flooring
- Miscellaneous owner requests

Some portions of the building have already underwent interior renovation, however, there is inconsistency of renovations between rooms. The goal of this part of the project is to bring consistency to the rooms in terms of interior finishes. Matching products and colors will be used wherever possible so the rooms that have recently underwent improvements match the proposed upgrades. The pictures below show the variability from room to room:

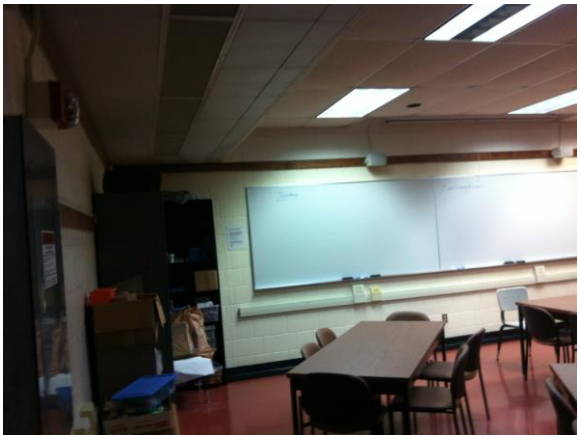


Figure 9 : Photograph Image of a Classroom of Winther Hall in Need of Renovations

Figure 10 : Photograph Image of a Recently Renovated Classroom in Winther Hall

The vast majority of construction will take place by the North entrance. Therefore, the area north of Winther Hall will be used for construction equipment. By doing this, the construction zone will be confined to one area and only the North entrance to Winther Hall will be closed during construction. The remaining open entrances are located on the east and south sides of Winther Hall and can be seen in *Figure K* in page 10 of the Appendix. Part of the parking lot north of Winther Hall will also be included in the construction zone and will be closed to the public. The parking lot will be used for construction vehicle traffic, equipment storage, and the field office which is represented by a yellow star in *Figure K* in the Appendix. The East entrance of the parking lot will be used only by construction traffic. However, the North entrance will remain open for public use. A large construction zone will be used to keep members of the public away from any work being completed, providing safety to the public and peace of mind to the workers.

Additionally, using this area will not affect pedestrian traffic in an adverse way because few people travel directly through this area regularly and walking around the zone is possible. The expected pedestrian traffic patterns during construction can be seen in *Figure K* in the

Appendix. A crane will be necessary for this project and its location can also be seen in *Figure K*. This location was chosen because the crane will be able to easily reach the parking lot where construction deliveries will occur and the area next to Winther Hall where the addition will be built. Furthermore, this location allows the crane to operate without disturbing any existing trees or other landscaping features surrounding Winther Hall.

Project Cost

The recommended design, Scenic Study View, includes a 12,700 ft^2 addition as well as renovations and upgrades to introduce natural light, more expansive hallways, and upgrades to the existing classrooms and laboratories. In the addition, two new elevators and a new staircase will be added to address the client's concerns of poor vertical circulation. It was also apparent that the building lacked sufficient study space for its occupants. With this option, an additional 5,620 ft^2 of study space is introduced into the building. To provide inviting and desirable working spaces, it was decided to enclose the addition with glass, which results in 2,700 ft^2 of space where students are able to enjoy scenic views. For a full summary of the Scenic Study View option, see pages 19-20 in this report. The cost of this design was calculated to be $9,387,000 and the full cost breakdown can be seen in Table 4. This design was chosen because it is believed to bring the most value to the client and effectively takes Winther Hall into its next phase of life. For a comparative cost table, see Table 5.

Table 5 : Comparative Cost Summary for Design Alternates

Summary of Options				
	A	**B**	**C**	**D**
	Limited Construction	**Expanded Restrooms**	**Efficient Circulation**	**Scenic Study View**
Addition to Building?	No	Yes	Yes	Yes
ADA Restrooms for M & W on Each Floor?	Yes	Yes	Yes	Yes
New Elevator(s)?	Yes, 1	Yes, 1	Yes, 2	Yes, 2
New N. Staircase?	No	No	Yes	Yes
Net +/- Study Space	-182.5 SF	+1,850 SF	+390 SF	+5,620 SF
Construction Time	4 months	8 months	11 months	14 months
Cost	$4,117,700	$5,073,300	$7,589,700	$9,387,300

Project Construction Schedule and Phasing

Construction of the recommended option is most efficiently accomplished through two phases. Phase 1 begins in July of 2014 and concludes the following spring in 2015. This phase consists of building the new addition, including the stairs, elevators, new study space, and bathrooms. All of the work in this phase is done on the exterior of the building and only requires the decommissioning of the north entrance and staircase. This allows the building to stay fully functional during the academic year. Phase 2 starts in May of 2015 and includes all interior demolition and upgrades. Although Winther Hall is used throughout the year, the usage is lower during the summer and portions of the building can be temporally closed off for the upgrades. Also, the new stairs, elevators, and bathrooms are finished at this point so demolition can begin on the outdated portions.

The entire project is estimated to take 14 months, with Phase 1 lasting 10 months and phase 2 lasting 4 months. A breakdown of the milestones of each phase are illustrated in Figure 11 and display the estimated duration of each construction phase.

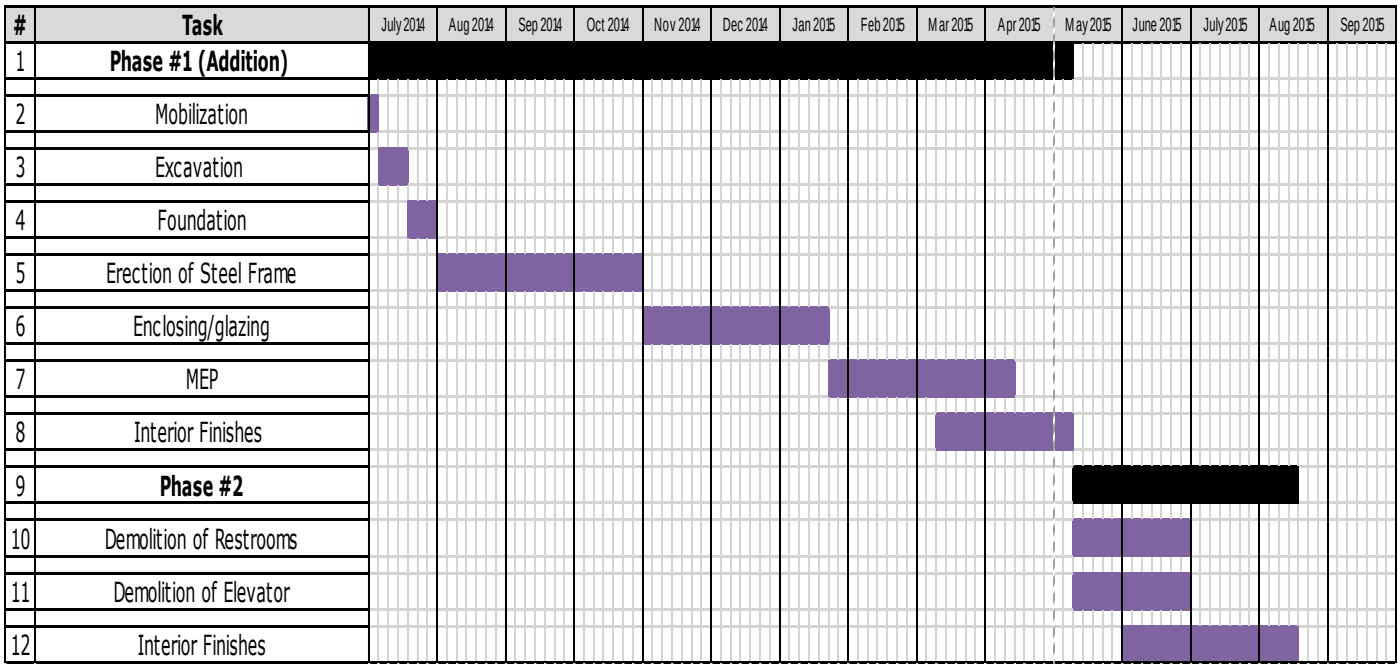


Figure 11 : Construction Schedule and Phasing

Recommendation and Conclusion

Much consideration was given to each of the four design alternates for the renovation project at UW- Whitewater Winther Hall. The first design option, Limited Construction, is the least costly alternate delivering minimal renovations to the existing restrooms and elevator, and including new windows around the exterior faces of the classroom wing. In addition to these minimal renovations, the second design option, Efficient Circulation offers a new location of the restrooms, storage space, and elevator, providing improved circulation and added study space in the corridors. Building upon the previous alternates, the third design option proposes new, relocated ADA approved restrooms and adds circulation by adding two new elevators and a new, ADA-compliant stair. Finally, the fourth design option encompasses the needs of the faculty and students of Winther Hall by providing ADA-compliant restrooms, a new North stair, and two large elevators, and additional student study areas. With all of these alternates having been considered, ABCI Engineering, Inc. recommends that Scenic Study View be constructed. In addition to meeting the needs of the UW- Whitewater Facilities Planning and Management, Scenic Study View improves the accessibility and functionality of Winther Hall, and provides a long-term solution to the problems this building is facing. ABCI Engineering, Inc. is excited to move forward with the Scenic Study View design option after receiving a final decision from the UW-Whitewater Facilities Planning and Management.

Figure 12 : Existing Aerial View of Winther Hall

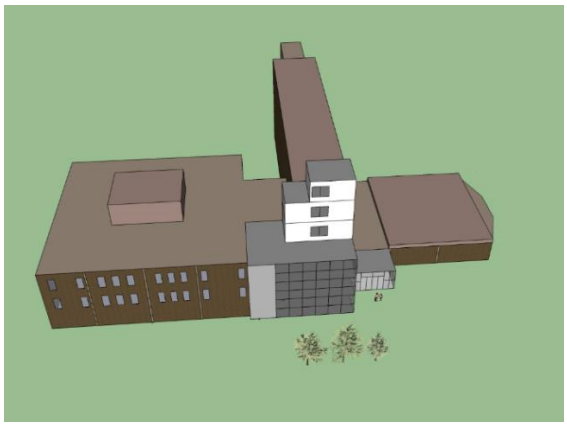


Figure 13 : Scenic Study View Expansion of Winther Hall

ADA Standards for Accessible Design

http://www.ada.gov/regs2010/2010ADAStandards/2010ADAstandards.htm

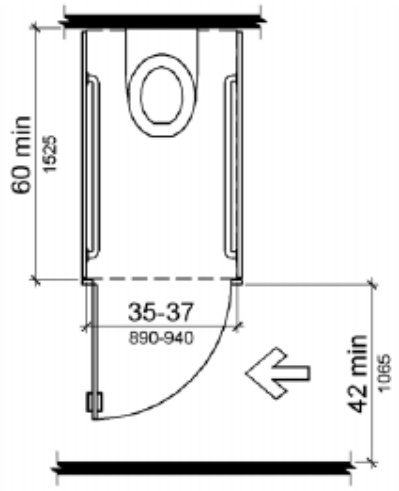


Figure A. Dimensions and clearance for water closet

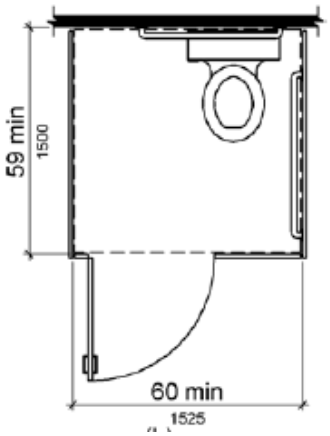


Figure B. Dimensions for floor mounted handicap water closet

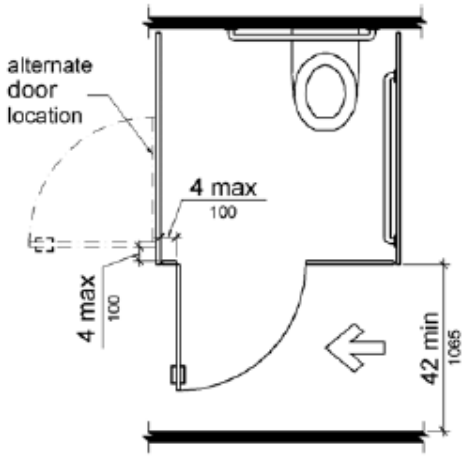


Figure C. Clearance for handicap water closet

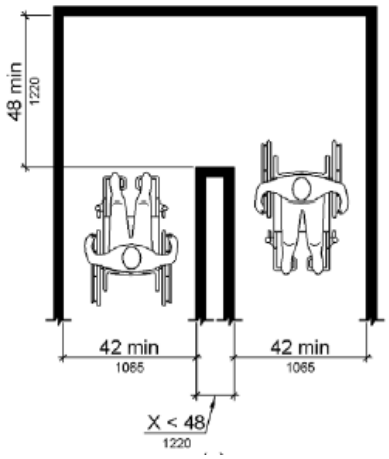


Figure D. Clear Width at Turn

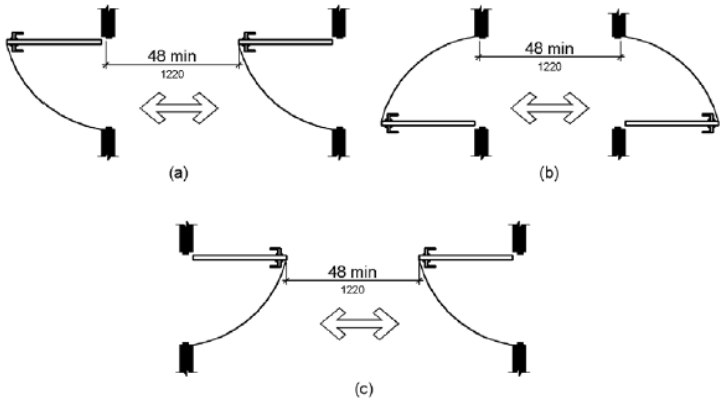


Figure E. Doors in Series

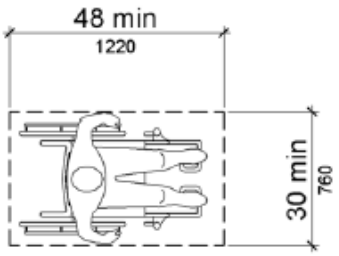


Figure F. Clear Floor or Ground Space

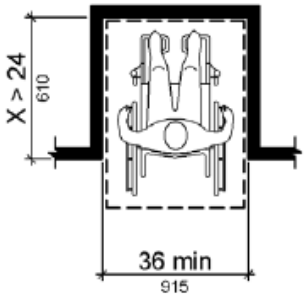


Figure G. Maneuvering Clearance in an Alcove, Forward Approach

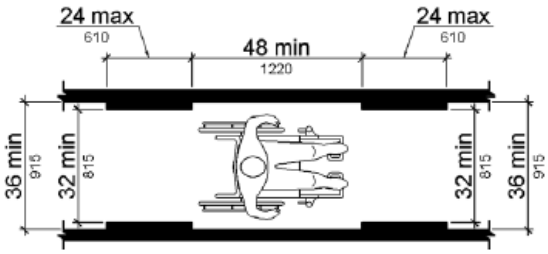


Figure H. Clear Width of an Accessible Route

Stretcher Accessible Elevator Figure

http://www.otis.com/site/nz/OT_DL_Documents/OT_DL_DocumentLibrary/GeN2Premier%20Catalogue%20Layouts/GEN2Premier_PLANS-WithoutCWTSafety.pdf

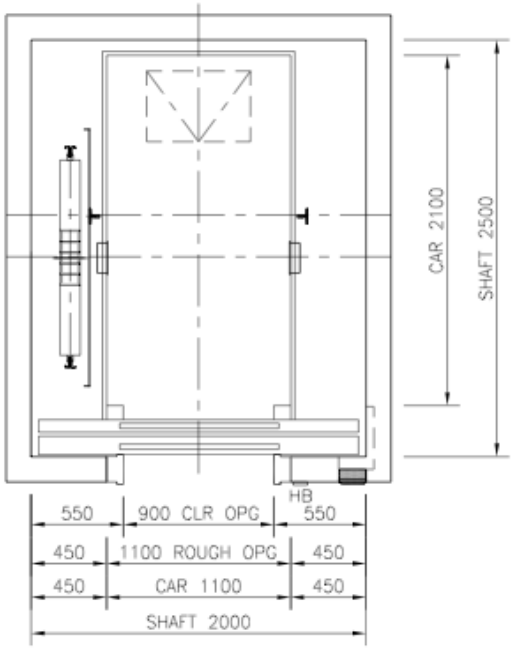


Figure I. Otis Gen 2, "Machineroomless" (MRL), 13 Capacity Deep Car (1000 kg load)

Table A: Summary of Limited Construction Costs

Preliminary Design Estimate

Option A Limited Construction

Activity	Amount	UOM	Description of Quantity	Unit Price	UOM	Cost
DEMO						
Demo Exterior Wall	0	SF	SF of wall, not flooring.	$20.00	$/SF	$0.00
Demo of North Staircase	0	SF	SF of wall, not flooring. Added value to account for removal of steps as well.	$30.00	$/SF	$0.00
Demo Elevator Shaft	3068.052	SF	SF of wall, not flooring.	$20.00	$/SF	$61,361.04
Demo of existing restrooms	1180	SF	Removal of walls, flooring, ceiling, utilities, fixtures, & the labor.	$18.00	$/SF	$21,240.00
Demo of Existing Janitorial Storage	559.8	SF	Removal of walls, flooring, ceiling, utilities, & the labor.	$15.00	$/SF	$8,397.00
Temporary Elevator	6	stops	Put up prior to decomissioning of existing elevator.	$50,000.00	$/flight	$300,000.00
CONSTRUCTION						
Excavation	0	CY	Removal of soil for addition. Assumed to be dug down 15' and 18' for elevator.	$30.00	$/CY	$0.00
Earth Retention	0	SF	Prevent soil runoff.	$25.00	$/SF	$0.00
Dewatering	0	lsum	Lump some to cover any water removal needed.	$10,000.00	$/lsum	$0.00
Elevator Pits	1	lsum	Extra Support	$10,000.00	$/lsum	$10,000.00
8-10" Stone Backfill Under Basement Slab	0	CY	Drainage & support for additon.	$20.00	$/CY	$0.00
Footings/Foundations	0	SF	Strip footings & others, but priced by SF of footprint.	$20.00	$/SF	$0.00
Concrete Slabs	0	SF	For each floor.	$15.00	$/SF	$0.00
Basement Walls	0	SF	Includes formwork. SF of wall, not flooring. 12' tall.	$35.00	$/SF	$0.00
Elevators	6	stops	Shafts, cars, & equipment	$125,000.00	$/stop	$750,000.00
Elevator Car & Equipment	1	cars	$50k for each elevator & $90k($15k for each stop) to account for the cars & equipment needed.	$90,000.00	$50,000.00	$140,000.00
Staircase	0	SF	SF of wall, not flooring. Includes rails & stairs.	$45.00	$/SF	$0.00
Floor Construction	0	SF	Steel & concrete deck.	$30.00	$/SF	$0.00
Roof Construction	100	SF	Steel Framing.	$25.00	$/SF	$2,500.00
Roof Covering	100	SF	Enclosure of building.	$20.00	$/SF	$2,000.00
Exterior Curtain Wall Enclosing (GLASS)	0	SF	SF of wall, not flooring. Also includes interior framing.	$125.00	$/SF	$0.00
Exterior Curtain Wall Enclosing (BRICK)	0	SF	SF of wall, not flooring. Also includes interior framing.	$55.00	$/SF	$0.00
Internal Restroom Remodel	2068	SF	More expensive due to confined space and location in building. Fixtures, flooring, walls, ceiling, MEP etc.	$100.00	$/SF	$206,800.00
Restrooms in Addition	0	SF	Cheaper due to free construction. Fixtures, flooring, walls, ceiling, MEP, etc.	$75.00	$/SF	$0.00
Rerouting of Sanitary for Services/Sanitary Tie-Ins	1	lsum	Lump sum to cover connection of new plumbing to existing sanitary pipes	$15,000.00	$/lsum	$15,000.00
Interior Completion	200	SF	Flooring, ceiling, lights, paint, etc.	$40.00	$/SF	$8,000.00
New Windows	0	Each	Cutting through wall, supporting, new window, & patching to match.	$7,000.00	$/Each	$0.00
MEP WORK						
Electrical for Elevators	1	Each	Equipment & set up for each new elevator.	$30,000.00	$/elevator	$30,000.00
Electrical Work	2228	SF	Cost to set up electrical work.	$20.00	$/SF	$44,560.00
Fire Protection	2228	SF	Sprinklers, alarms, etc.	$4.00	$/SF	$8,912.00
Mechanical Work	2228	SF	Plumbing & ductwork.	$16.00	$/SF	$35,648.00
OTHER						
Existing Classroom Renovations & Up Grades	23500	SF	Demo of flooring, ceiling, & lights. Replace with new. Paint.	$50.00	$/SF	$1,175,000.00
Technology Up Grades	1	lsum	Lump sum to upgrade the technology capabilities of building.	$300,000.00	$/lsum	$300,000.00
Subtotal						$3,119,418.04
Contingency					10%	$311,941.80
A/E Fees					8%	$274,508.79
Overhead & Profit					12%	$411,763.18
TOTAL CONSTRUCTION COST						**$4,117,631.81**

Other Project Costs Not Included						
Furniture, Fixtures, Equipment (chairs, tables, monitors, AV Equipment)						
Window Treatments						
Security Surveilance						
Abatement of Aesbestos						

Table B: Summary of Expanded Restroom Costs

Preliminary Design Estimate

Option B Expanded Restrooms

Activity	Amount	UOM	Description of Quantity	Unit Price	UOM	Cost
DEMO						
Demo Exterior Wall	2016	SF	SF of wall, not flooring.	$20.00	$/SF	$40,320.00
Demo of North Staircase	0	SF	SF of wall, not flooring. Added value to account for removal of steps as well.	$30.00	$/SF	$0.00
Demo Elevator Shaft	3068.052	SF	SF of wall, not flooring.	$20.00	$/SF	$61,361.04
Demo of existing restrooms	1180	SF	Removal of walls, flooring, ceiling, utilities, fixtures, & the labor.	$18.00	$/SF	$21,240.00
Demo of Existing Janitorial Storage	559.8	SF	Removal of walls, flooring, ceiling, utilities, & the labor.	$15.00	$/SF	$8,397.00
Temporary Staircase	0	# of Flights	Put up after existing is removed.	$20,000.00	$/flight	$0.00
CONSTRUCTION						
Excavation	1208.17167	CY	Removal of soil for addition. Assumed to be dug down 15' and 18' for elevator.	$30.00	$/CY	$36,245.15
Earth Retention	1000	SF	Prevent soil runoff.	$25.00	$/SF	$25,000.00
Dewatering	1	lsum	Lump some to cover any water removal needed.	$10,000.00	$/lsum	$10,000.00
Elevator Pits	1	lsum	Extra Support	$10,000.00	$/lsum	$10,000.00
8-10" Stone Backfill Under Basement Slab	58.63125	CY	Drainage & support for additon.	$20.00	$/CY	$1,172.63
Footings/Foundations	703.575	SF	Strip footings & others, but priced by SF of footprint.	$20.00	$/SF	$14,071.50
Concrete Slabs	3074.4	SF	For each floor.	$15.00	$/SF	$46,116.00
Basement Walls	977.25	SF	Includes formwork. SF of wall, not flooring. 12' tall.	$35.00	$/SF	$34,203.75
Elevators	6	stops	Shafts, cars, & equipment	$100,000.00	$/stop	$600,000.00
Elevator Car & Equipment	1	cars	$50k for each elevator & $90k($15k for each stop) to account for the cars & equipment needed.	$90,000.00	$50,000.00	$140,000.00
Staircase	0	SF	SF of wall, not flooring. Includes rails & stairs.	$45.00	$/SF	$0.00
Floor Construction	2387.74	SF	Steel & concrete deck.	$30.00	$/SF	$71,632.20
Roof Construction	703.575	SF	Steel Framing.	$25.00	$/SF	$17,589.38
Roof Covering	703.575	SF	Enclosure of building.	$20.00	$/SF	$14,071.50
Exterior Curtain Wall Enclosing (GLASS)	0	SF	SF of wall, not flooring. Also includes interior framing.	$125.00	$/SF	$0.00
Exterior Curtain Wall Enclosing (BRICK)	2049	SF	SF of wall, not flooring. Also includes interior framing.	$55.00	$/SF	$112,695.00
Internal Restroom Remodel	0	SF	More expensive due to confined space and location in building. Fixtures, flooring, walls, ceiling, MEP etc.	$100.00	$/SF	$0.00
Restrooms in Addition	2042.5	SF	Cheaper due to free construction. Fixtures, flooring, walls, ceiling, MEP, etc.	$75.00	$/SF	$153,187.50
Rerouting of Sanitary for Services/Sanitary Tie-Ins	1	lsum	Lump sum to cover connection of new plumbing to existing sanitary pipes	$15,000.00	$/lsum	$15,000.00
Interior Completion	2574.82	SF	Flooring, ceiling, lights, paint, etc.	$40.00	$/SF	$102,992.80
New Windows	84	Each	Cutting through wall, supporting, new window, & patching to match.	$7,000.00	$/Each	$588,000.00
MEP WORK						
Electrical for Elevators	1	Each	Equipment & set up for each new elevator.	$30,000.00	$/elevator	$30,000.00
Electrical Work	4127.54	SF	Cost to set up electrical work.	$20.00	$/SF	$82,550.80
Fire Protection	4127.54	SF	Sprinklers, alarms, etc.	$4.00	$/SF	$16,510.16
Mechanical Work	4127.54	SF	Plumbing & ductwork.	$16.00	$/SF	$66,040.64
OTHER						
Existing Classroom Renovations & Up Grades	24500	SF	Demo of flooring, ceiling, & lights. Replace with new. Paint.	$50.00	$/SF	$1,225,000.00
Technology Up Grades	1	lsum	Lump sum to upgrade the technology capabilities of building.	$300,000.00	$/lsum	$300,000.00
Subtotal						$3,843,397.04
Contingency					10%	$384,339.70
A/E Fees					8%	$338,218.94
Overhead & Profit					12%	$507,328.41
TOTAL CONSTRUCTION COST						**$5,073,284.09**

Other Project Costs Not Included						
Furniture, Fixtures, Equipment (chairs, tables, monitors, AV Equipment)						
Window Treatments						
Security Surveilance						
Abatement of Aesbestos						
Unsuitable Soil Allowances						

Table C: Summary of Efficient Circulation Costs

Preliminary Design Estimate

Option C Efficient Circulation

Activity	Amount	UOM	Description of Quantity	Unit Price	UOM	Cost
DEMO						
Demo Exterior Wall	2160	SF	SF of wall, not flooring.	$20.00	$/SF	$43,200.00
Demo of North Staircase	5232.096	SF	SF of wall, not flooring. Added value to account for removal of steps as well.	$30.00	$/SF	$156,962.88
Demo Elevator Shaft	3068.052	SF	SF of wall, not flooring.	$20.00	$/SF	$61,361.04
Demo of existing restrooms	1180	SF	Removal of walls, flooring, ceiling, utilities, fixtures, & the labor.	$18.00	$/SF	$21,240.00
Demo of Existing Janitorial Storage	559.8	SF	Removal of walls, flooring, ceiling, utilities, & the labor.	$15.00	$/SF	$8,397.00
Temporary Staircase	6	# of Flights	Put up after existing is removed.	$20,000.00	$/flight	$120,000.00
CONSTRUCTION						
Excavation	1284.16667	CY	Removal of soil for addition. Assumed to be dug down 15' and 18' for elevator.	$30.00	$/CY	$38,525.00
Earth Retention	1000	SF	Prevent soil runoff.	$25.00	$/SF	$25,000.00
Dewatering	1	lsum	Lump some to cover any water removal needed.	$20,000.00	$/lsum	$20,000.00
Elevator Pits	1	lsum	Extra Support	$20,000.00	$/lsum	$20,000.00
8-10" Stone Backfill Under Basement Slab	62	CY	Drainage & support for additon.	$20.00	$/CY	$1,240.00
Footings/Foundations	744	SF	Strip footings & others, but priced by SF of footprint.	$20.00	$/SF	$14,880.00
Concrete Slabs	840.67	SF	For each floor.	$15.00	$/SF	$12,610.05
Basement Walls	1230	SF	Includes formwork. SF of wall, not flooring. 12' tall.	$35.00	$/SF	$43,050.00
Elevators	12	stops	Shafts, cars, & equipment	$100,000.00	$/stop	$1,200,000.00
Elevator Car & Equipment	2	cars	$50k for each elevator & $90k($15k for each stop) to account for the cars & equipment needed.	$90,000.00	$100,000.00	$290,000.00
Staircase	6048	SF	SF of wall, not flooring. Includes rails & stairs.	$45.00	$/SF	$272,160.00
Floor Construction	1836	SF	Steel & concrete deck.	$30.00	$/SF	$55,080.00
Roof Construction	744	SF	Steel Framing.	$25.00	$/SF	$18,600.00
Roof Covering	744	SF	Enclosure of building.	$20.00	$/SF	$14,880.00
Exterior Curtain Wall Enclosing (GLASS)	3240	SF	SF of wall, not flooring. Also includes interior framing.	$125.00	$/SF	$405,000.00
Exterior Curtain Wall Enclosing (BRICK)	2448	SF	SF of wall, not flooring. Also includes interior framing.	$55.00	$/SF	$134,640.00
Internal Restroom Remodel	2068	SF	More expensive due to confined space and location in building. Fixtures, flooring, walls, ceiling, MEP etc.	$100.00	$/SF	$206,800.00
Restrooms in Addition	0	SF	Cheaper due to free construction. Fixtures, flooring, walls, ceiling, MEP, etc.	$75.00	$/SF	$0.00
Rerouting of Sanitary for Services/Sanitary Tie-Ins	1	lsum	Lump sum to cover connection of new plumbing to existing sanitary pipes	$15,000.00	$/lsum	$15,000.00
Interior Completion	2416.02	SF	Flooring, ceiling, lights, paint, etc.	$40.00	$/SF	$96,640.80
New Windows	84	Each	Cutting through wall, supporting, new window, & patching to match.	$7,000.00	$/Each	$588,000.00
MEP WORK						
Electrical for Elevators	2	Each	Equipment & set up for each new elevator.	$30,000.00	$/elevator	$60,000.00
Electrical Work	7036	SF	Cost to set up electrical work.	$20.00	$/SF	$140,720.00
Fire Protection	7036	SF	Sprinklers, alarms, etc.	$4.00	$/SF	$28,144.00
Mechanical Work	7036	SF	Plumbing & ductwork.	$16.00	$/SF	$112,576.00
OTHER						
Existing Classroom Renovations & Up Grades	24500	SF	Demo of flooring, ceiling, & lights. Replace with new. Paint.	$50.00	$/SF	$1,225,000.00
Technology Up Grades	1	lsum	Lump sum to upgrade the technology capabilities of building.	$300,000.00	$/lsum	$300,000.00
Subtotal						$5,749,706.77
Contingency					10%	$574,970.68
A/E Fees					8%	$505,974.20
Overhead & Profit					12%	$758,961.29
TOTAL CONSTRUCTION COST						**$7,589,612.94**

Other Project Costs Not Included						
Furniture, Fixtures, Equipment (chairs, tables, monitors, AV Equipment)						
Window Treatments						
Security Surveilance						
Abatement of Aesbestos						
Unsuitable Soil Allowances						

Table D: Summary of Scenic Study View Costs

Preliminary Design Estimate

Option D Scenic Study View

Activity	Amount	UOM	Description of Quantity	Unit Price	UOM	Cost
DEMO						
Demo Exterior Wall	1992.5	SF	SF of wall, not flooring.	$20.00	$/SF	$39,850.00
Demo of North Staircase	5232.096	SF	SF of wall, not flooring. Added value to account for removal of steps as well.	$30.00	$/SF	$156,962.88
Demo Elevator Shaft	3068.052	SF	SF of wall, not flooring.	$20.00	$/SF	$61,361.04
Demo of existing restrooms	1180	SF	Removal of walls, flooring, ceiling, utilities, fixtures, & the labor.	$18.00	$/SF	$21,240.00
Demo of Existing Janitorial Storage	559.8	SF	Removal of walls, flooring, ceiling, utilities, & the labor.	$15.00	$/SF	$8,397.00
Temporary Staircase	6	# of Flights	Put up after existing is removed.	$20,000.00	$/flight	$120,000.00
CONSTRUCTION						
Excavation	4550.51982	CY	Removal of soil for addition. Assumed to be dug down 15' and 18' for elevator.	$30.00	$/CY	$136,515.59
Earth Retention	3000	SF	Prevent soil runoff.	$25.00	$/SF	$75,000.00
Dewatering	1	lsum	Lump some to cover any water removal needed.	$20,000.00	$/lsum	$20,000.00
Elevator Pits	1	lsum	Extra Support	$20,000.00	$/lsum	$20,000.00
8-10" Stone Backfill Under Basement Slab	239.525991	CY	Drainage & support for additon.	$20.00	$/CY	$4,790.52
Footings/Foundations	2874.31189	SF	Strip footings & others, but priced by SF of footprint.	$20.00	$/SF	$57,486.24
Concrete Slabs	2970.98189	SF	For each floor.	$15.00	$/SF	$44,564.73
Basement Walls	2037.51	SF	Includes formwork. SF of wall, not flooring. 12' tall.	$35.00	$/SF	$71,312.85
Elevators	12	stops	Shafts, cars, & equipment	$100,000.00	$/stop	$1,200,000.00
Elevator Car & Equipment	2	cars	$50k for each elevator & $90k($15k for each stop) to account for the cars & equipment needed.	$90,000.00	$100,000.00	$290,000.00
Staircase	6048	SF	SF of wall, not flooring. Includes rails & stairs.	$45.00	$/SF	$272,160.00
Floor Construction	9204.696	SF	Steel & concrete deck.	$30.00	$/SF	$276,140.88
Roof Construction	2970.98189	SF	Steel Framing.	$25.00	$/SF	$74,274.55
Roof Covering	2970.98189	SF	Enclosure of building.	$20.00	$/SF	$59,419.64
Exterior Curtain Wall Enclosing (GLASS)	4389	SF	SF of wall, not flooring. Also includes interior framing.	$125.00	$/SF	$548,625.00
Exterior Curtain Wall Enclosing (BRICK)	2571	SF	SF of wall, not flooring. Also includes interior framing.	$55.00	$/SF	$141,405.00
Internal Restroom Remodel	0	SF	More expensive due to confined space and location in building. Fixtures, flooring, walls, ceiling, MEP etc.	$100.00	$/SF	$0.00
Restrooms in Addition	2550	SF	Cheaper due to free construction. Fixtures, flooring, walls, ceiling, MEP, etc.	$75.00	$/SF	$191,250.00
Rerouting of Sanitary for Services/Sanitary Tie-Ins	1	lsum	Lump sum to cover connection of new plumbing to existing sanitary pipes	$15,000.00	$/lsum	$15,000.00
Interior Completion	11378.32	SF	Flooring, ceiling, lights, paint, etc.	$40.00	$/SF	$455,132.80
New Windows	84	Each	Cutting through wall, supporting, new window, & patching to match.	$7,000.00	$/Each	$588,000.00
MEP WORK						
Electrical for Elevators	2	Each	Equipment & set up for each new elevator.	$30,000.00	$/elevator	$60,000.00
Electrical Work	14441.5476	SF	Cost to set up electrical work.	$20.00	$/SF	$288,830.95
Fire Protection	14441.5476	SF	Sprinklers, alarms, etc.	$4.00	$/SF	$57,766.19
Mechanical Work	14441.5476	SF	Plumbing & ductwork.	$16.00	$/SF	$231,064.76
OTHER						
Existing Classroom Renovations & Up Grades	24500	SF	Demo of flooring, ceiling, & lights. Replace with new. Paint.	$50.00	$/SF	$1,225,000.00
Technology Up Grades	1	lsum	Lump sum to upgrade the technology capabilities of building.	$300,000.00	$/lsum	$300,000.00
Subtotal						$7,111,550.62
Contingency					10%	$711,155.06
A/E Fees					8%	$625,816.45
Overhead & Profit					12%	$938,724.68
TOTAL CONSTRUCTION COST						**$9,387,246.82**

Other Project Costs Not Included						
Furniture, Fixtures, Equipment (chairs, tables, monitors, AV Equipment)						
Window Treatments						
Security Surveilance						
Abatement of Aesbestos						
Unsuitable Soil Allowances						

Construction Breakdowns by Square Footage

Option A – Limited Construction *(*Example Calculations Shown*)*

1. Excavation: **N/A**
2. Demolition: **2,320 SF**
    - [9.33'*15'*4 stories + (25'*9.33'+6.5'*9.5')*4 stories + 10'*9.667'*6 stories] → removal of elevator, bathrooms, & janitor closets
3. Build Out/New Construction: **N/A**
4. Renovations (Non-classroom): **2,710 SF**
    - [(11.75'*22'+11.75'*22')*4 stories + 5'*8'*4 stories + 10'*8'*6 stories] →New bathrooms, storage, & elevator
5. Classroom Up Grades: **23,500 SF**
    - Analyzed existing classrooms and summed up the square footage of all rooms per floor that needed up grades
6. Useable Study Space: **-182.5 SF**
7. New Elevator(s): **Yes, 1** (in existing location for all 6 stories)
8. New Staircase: **N/A**

Option B – Expanded Restrooms

1. Excavation: **705 SF**
2. Demolition: **2,320 SF**
3. Build Out/New Construction: **3,030 SF**
4. Renovations (Non-classroom): **2,710 SF**
5. Classroom Up Grades: **24,500 SF**
6. Useable Study Space: **+1,850 SF**
7. New Elevator(s): **Yes, 1** (in addition)
8. New Staircase: **N/A**

Option C – Efficient Circulation

1. Excavation: **750 SF**
2. Demolition: **4,050 SF**

3. Build Out/New Construction: **4,970 SF**
4. Renovations (Non-classroom): **2,710 SF**
5. Classroom Up Grades: **24,500 SF**
6. Net +/- Study Space: **+390 SF**
7. New Elevator(s): **Yes, 2** (in addition)
8. New Staircase: **Yes** (in addition)

Option D – Scenic Study View

1. Excavation: **2,875 SF**
2. Demolition: **4,050 SF**
3. Build Out/New Construction: **12,700 SF**
4. Renovations (Non-classroom): **2,710 SF**
5. Classroom Up Grades: **24,500 SF**
6. Useable Study Space: **+5,620 SF (3,600 SF of this in new addition)**
7. New Elevator(s): **Yes, 2** (in addition)
8. New Staircase: **Yes** (in addition)

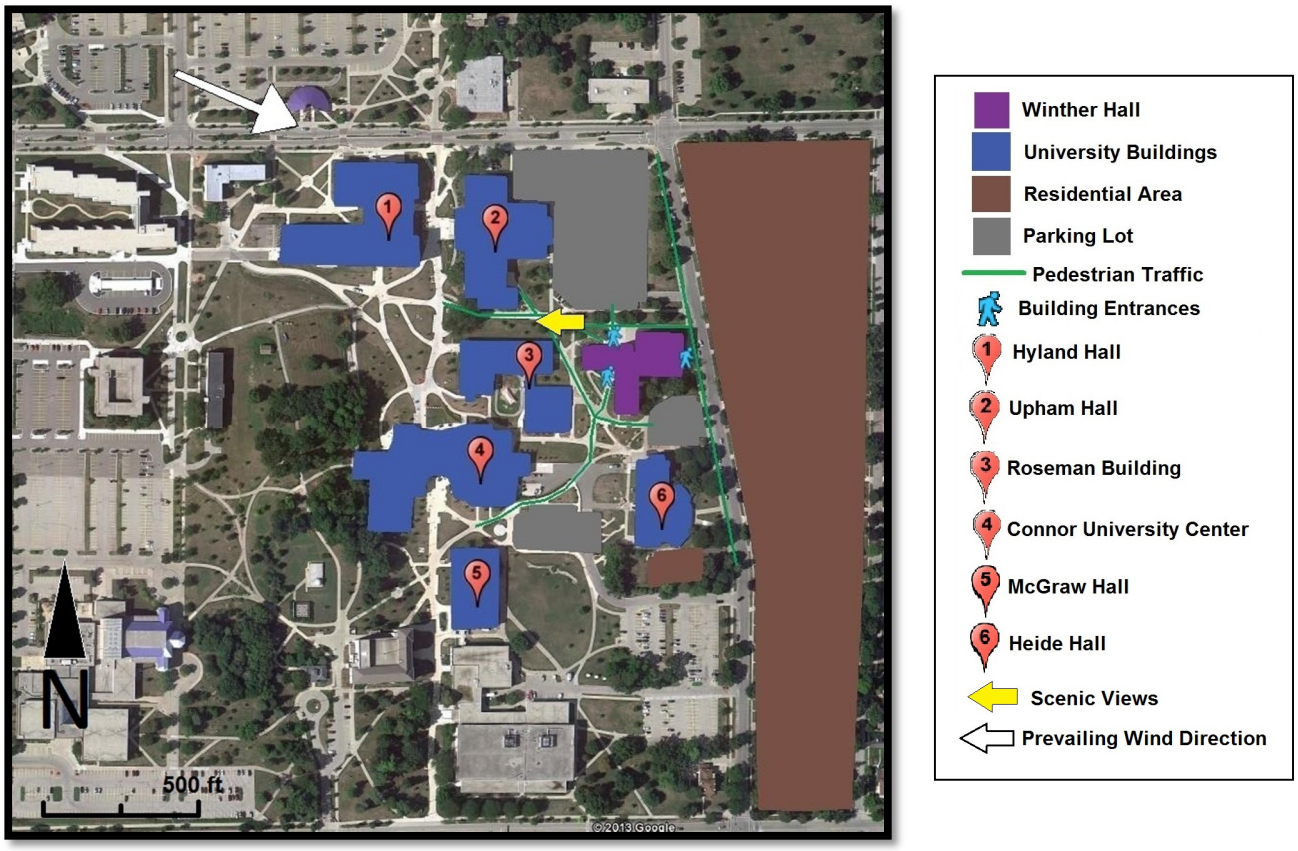


Figure J: Aerial View of the existing site conditions

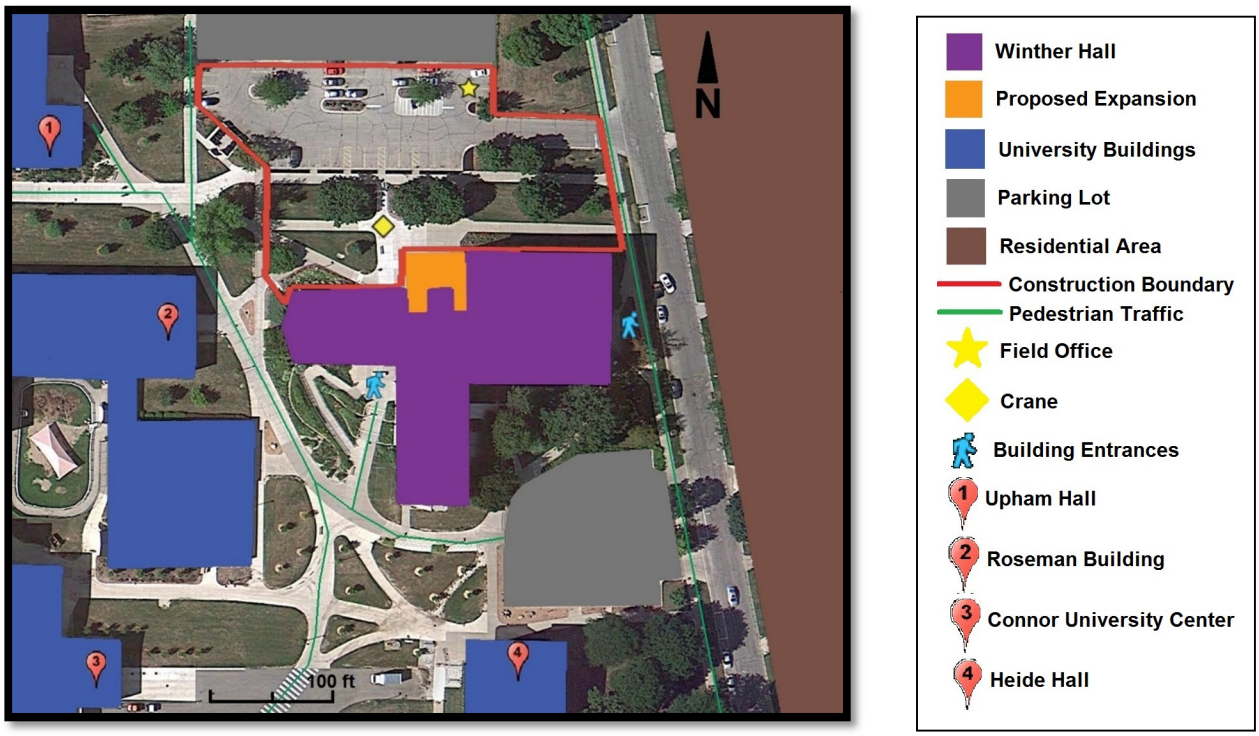
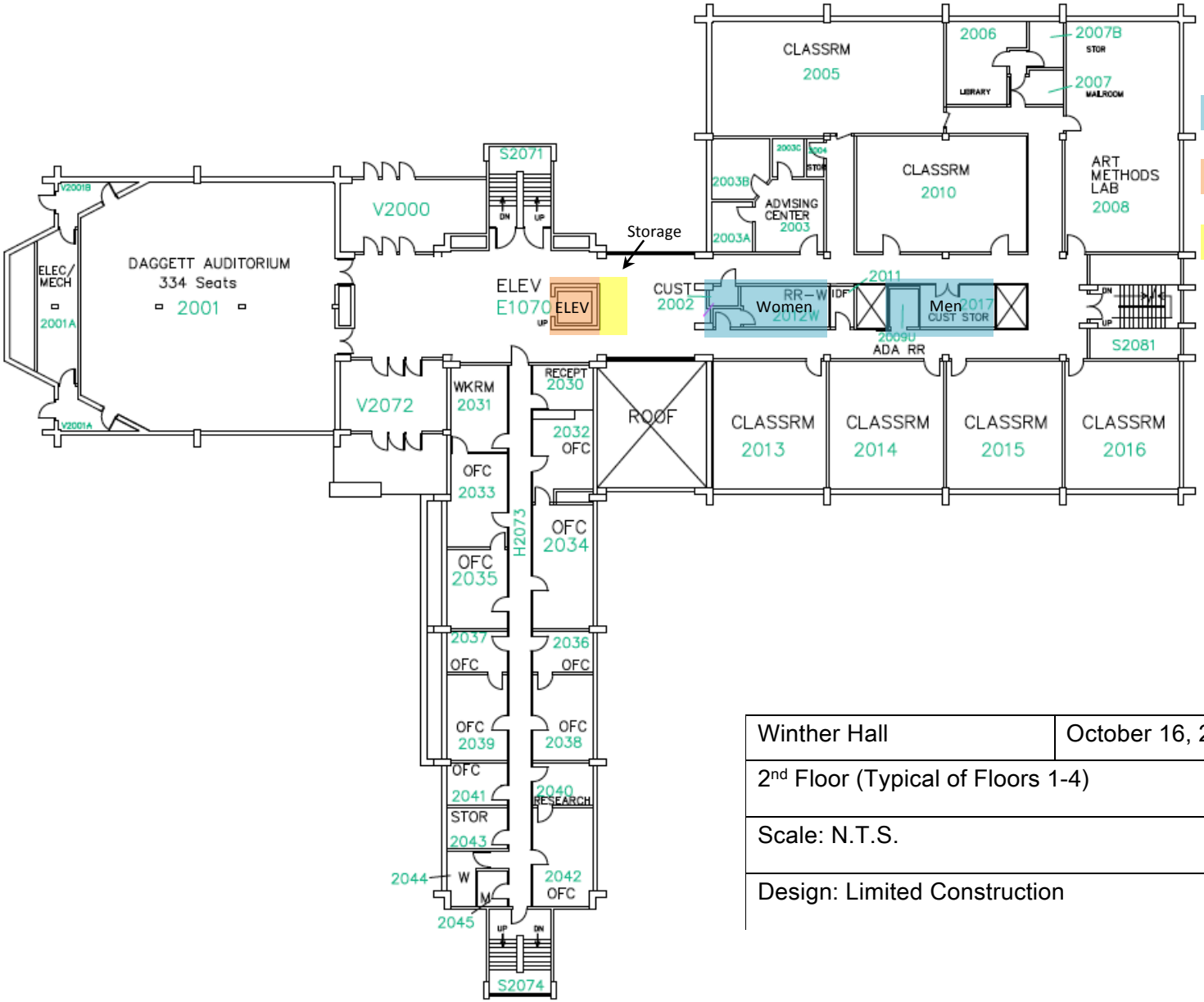


Figure K: Aerial View showing site planning layout

Limited Construction

- ✓ Expansion of existing restroom
- ✓ Addition of 2nd restroom
- ✓ Larger elevator in existing location



Key

= New bathrooms

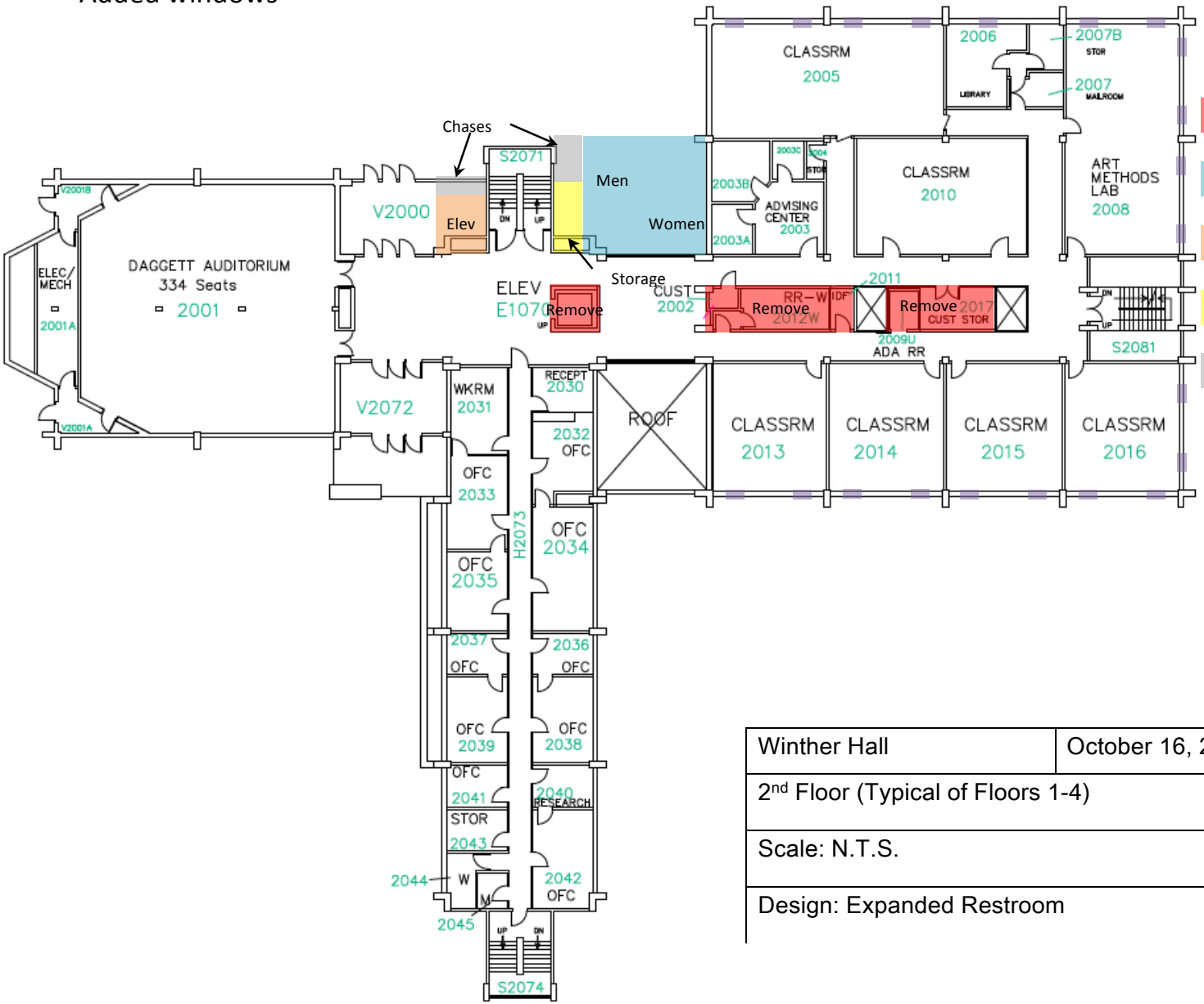
= New elevator

= New storage

Winther Hall	October 16, 2013
2nd Floor (Typical of Floors 1-4)	
Scale: N.T.S.	
Design: Limited Construction	

Expanded Restroom

- ✓ New restrooms (men & women)
- ✓ Relocation / upgrade of elevator
- ✓ Increased hallway study space
- ✓ Added windows



Key

= Demolition

= New bathrooms

= New elevator

= New storage

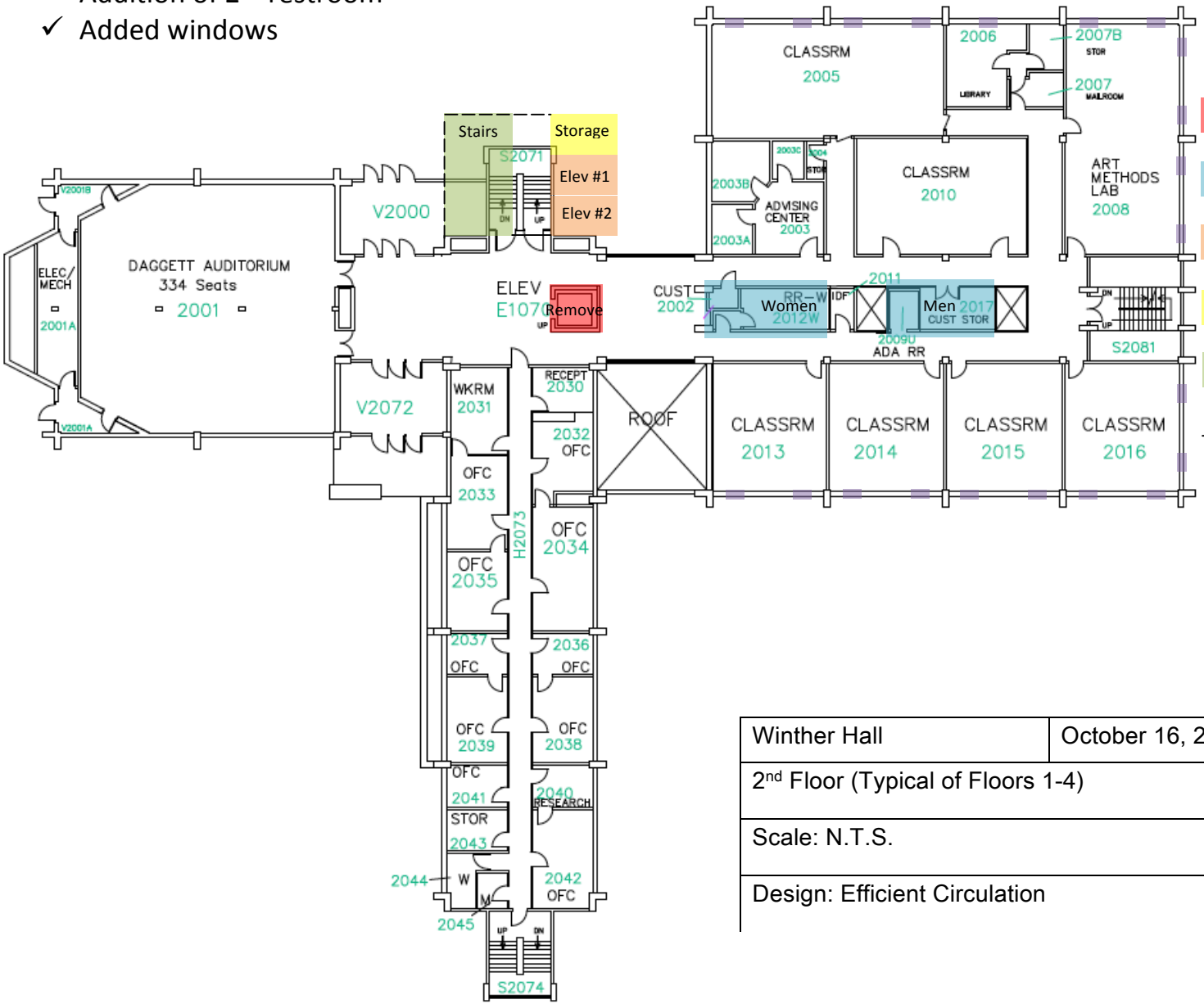
= Relocated Chase

= New windows

Winther Hall	October 16, 2013
2nd Floor (Typical of Floors 1-4)	
Scale: N.T.S.	
Design: Expanded Restroom	

Efficient Circulation

- ✓ New staircase
- ✓ 2 new elevators
- ✓ Expansion of existing restroom
- ✓ Addition of 2nd restroom
- ✓ Added windows



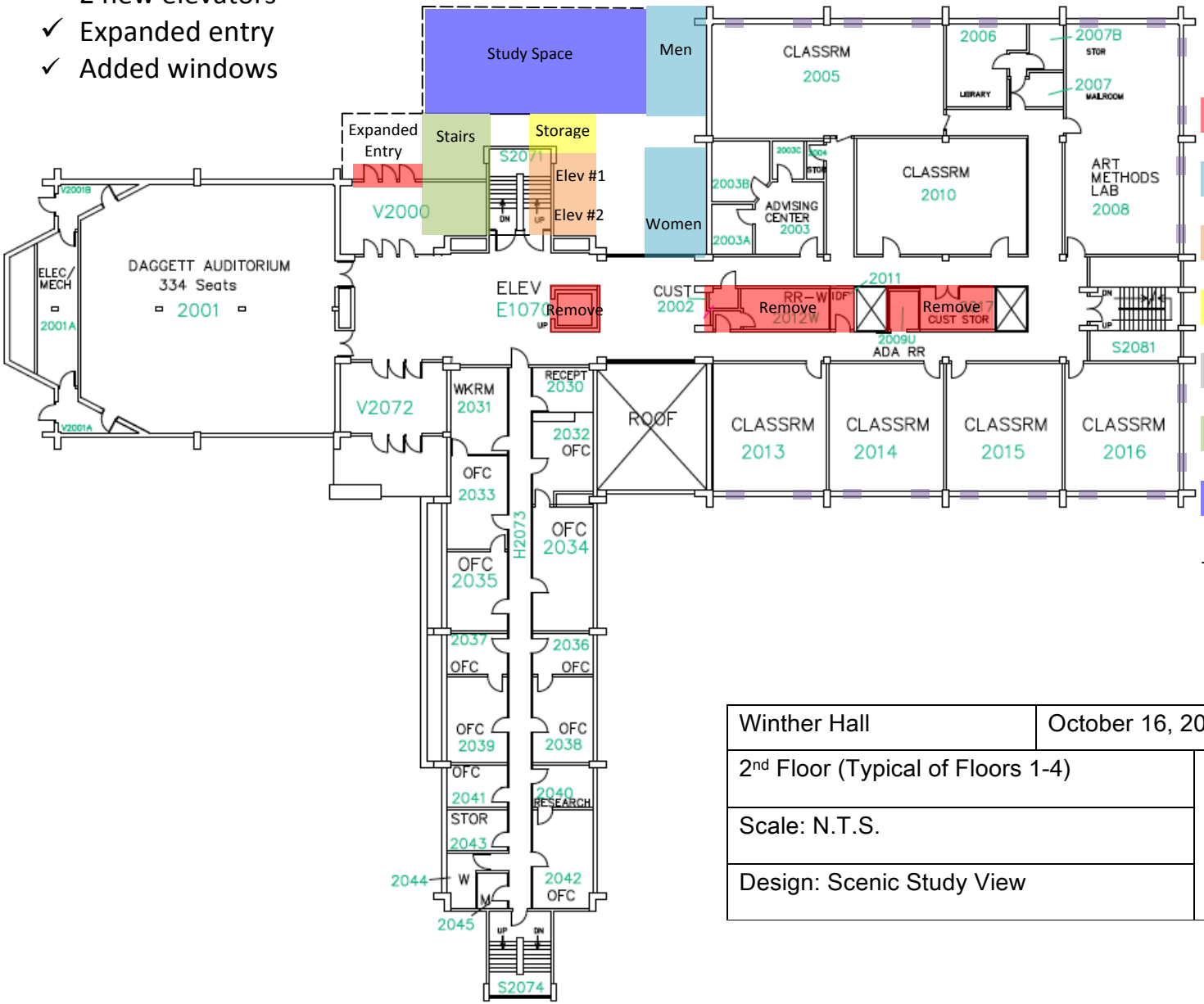
Key

- = Demolition
- = New bathrooms
- = New elevator
- = New storage
- = New staircase
- ------ = Glass
- = New windows

Winther Hall	October 16, 2013
2nd Floor (Typical of Floors 1-4)	
Scale: N.T.S.	
Design: Efficient Circulation	

Scenic Study View

- ✓ New staircase (existing north stairs to be removed)
- ✓ Increased study space (addition & hallway)
- ✓ New restrooms (men & women)
- ✓ 2 new elevators
- ✓ Expanded entry
- ✓ Added windows



Key

- = Demolition
- = New bathrooms
- = New elevator
- = New storage
- = New chase
- = New staircase
- = New Study Space
- ------ = Glass
- = New window

Winther Hall	October 16, 2013
2nd Floor (Typical of Floors 1-4)	
Scale: N.T.S.	
Design: Scenic Study View	

Winther Hall Renovation & Expansion

Project Manual & Construction Drawings

December 19, 2013

ABCT ENGINEERING

T A B L E O F C O N T E N T S

07 27 00 - Fluid-Applied Vapor Impermeable Air Barrier
07 41 10 - Metal Roof Panels
07 41 20 - Metal Wall Panels
07 53 10 - EPDM Membrane Roofing
07 60 00 - Flashing and Sheet Metal
07 81 00 - Applied Fireproofing
07 90 10 - Joint Sealants

DIVISION 8 - DOORS AND WINDOWS

Section **08 11 10** - Standard Steel Doors and Frames
08 21 10 - Flush Wood Doors
08 21 20 - Stile and Rail Wood Doors
08 31 10 - Access Doors and Frames
08 41 00 - Aluminum Entrances and Frames
08 71 00 - Finish Hardware
08 80 00 - Glass and Glazing
08 44 23 - Glazed Steel Curtain Wall

DIVISION 9 - FINISHES

Section **09 25 00** - Gypsum Drywall
09 30 00 - Tile
09 40 00 - Terrazzo
09 40 30 - Terrazzo Tile
09 51 10 - Acoustical Panel Ceilings
09 64 00 - Wood Flooring
09 66 00 - Resilient Tile Flooring
09 68 00 - Carpeting
09 90 00 - Painting

DIVISION 10 - SPECIALTIES

Section **10 21 13** - Toilet Compartments
10 28 00 - Toilet, Bath, and Laundry Accessories
10 52 20 - Portable Fire Extinguishers
10 65 10 - Operable Panel Partitions
10 90 00 - Miscellaneous Specialties
10 90 10 - Exterior Cross

DIVISION 12 – FURNISHINGS

Section **12 36 40** - Stone Countertops
12 93 00 - Site Furnishings

DIVISION 14 – CONVEYING SYSTEMS

Section **14 20 20** - Limited Use Limited Application Elevator
14 24 00 - Hydraulic Elevators

DIVISION 21 – FIRE SUPPRESSION

Section
21 05 00 - Basic Fire Protection Requirements
21 05 10 - Excavating and Backfill
21 05 11 - Aggregate Materials
21 05 12 - Soil Materials
21 05 29 - Supports and Anchors
21 05 53 - Identification
21 10 00 - Piping Fittings and Specialties
21 13 00 - Automatic Sprinkler Systems

DIVISION 22 – PLUMBING

Section
22 05 00 - Basic Plumbing Requirements
22 05 10 - Excavating and Backfill
22 05 11 - Aggregate Materials
22 05 14 - Plumbing Specialties
22 05 29 - Supports, Anchors and Penetrations
22 05 53 - Identification
22 07 00 - Insulation
22 10 13 - Natural Gas Systems
22 11 00 - Water Supply System
22 13 00 - Drain, Waste, Vent, and Conductor Piping
22 14 00 - Subsoil Drainage Systems
22 30 00 - Plumbing Equipment
22 42 00 - Plumbing Fixtures

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING

Section
23 05 00 - Basic HVAC Requirements
23 05 12 - Hangers, Supports and Anchors
23 05 13 - Motors and Starters
23 05 15 - Vibration Isolators
23 05 16 - V-Belt Drives
23 05 93 - Testing and Balancing
23 07 00 - HVAC Insulation
23 09 93 - Control Sequences
23 20 01 - Pipe and Pipe Fittings
23 20 02 - HVAC Valves
23 20 04 - Piping Specialties
23 20 05 - Water Specialties
23 20 07 - Refrigerant Specialties
23 31 00 - Ductwork
23 33 07 - Ductwork Accessories
23 34 00 - Fans
23 37 00 - Diffusers, Grilles and Registers
23 74 10 - Rooftop Air Conditioning Units

23 82 01 - Heating and Cooling Terminal Units
23 82 05 - Electric Heating Terminal Units

DIVISION 26 – ELECTRICAL

Section **26 05 00** - General Electrical Requirements
26 05 11 - Basic Materials and Methods
26 09 33 - Central Dimming Control
26 27 36 - Occupancy Sensors Lighting Control System
26 43 00 - Transient Voltage Surge Suppression
26 51 13 - Lighting
27 10 00 - Telecommunications Distribution System
28 13 00 - Access Control
28 13 01 - Security System
28 23 00 - Video Surveillance System
28 31 00 - Fire Detection and Alarm System

DIVISION 31 – EARTHWORK

Section **31 12 16** - Tree Protection

DIVISION 32 – EXTERIOR IMPROVEMENTS

Section **32 14 00** - Unit Paving
32 32 20 - Stonework
32 91 13 - Soil Preparation
32 92 00 - Turf and Grasses
32 93 00 - Exterior Plant

SECTION 03 30 00
CAST IN-PLACE CONCRETE

P A R T 1 - G E N E R A L

SCOPE

The work under this section consists of providing all work, materials, labor equipment and supervision necessary to provide cast in-place concrete as required in these specifications and the drawings. Requirements of this section do not apply to structural concrete for buildings, bridges or retaining structures. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Referenced Documents
- Submittals
- Quality Assurance

PART 2 - MATERIALS
- Aggregates
- Cement
- Water
- Admixtures – General
- Air Entraining Admixtures
- Fly-Ash
- Plasticizers
- Water Reducing Admixture
- Accelerating Admixtures
- Bonding Agent
- Mortar
- Finishing Grout/Plaster
- Curing Compound
- Plastic Film Moisture Barrier

PART 3 - EXECUTION
- General
- Mix Proportion
- Mixing and Delivery
- Forms
- Preparation of Form Surfaces
- Placing Concrete
- Jointing
- Finishing
- Curing Concrete
- Concrete Surface Repairs
- Cold Weather Concreting
- Hot Weather Concreting
- Functional Performance Testing

RELATED SECTIONS

Section 04 20 00 – Unit Masonry
Section 05 12 00 – Structural Steel
Section 05 31 00 – Steel Deck

REFERENCED DOCUMENTS

Applicable provisions of Division 1 shall govern all work under this section.

American Concrete Institute

ACI 117	Specifications for Tolerances for Concrete Construction and Materials
ACI 302	Guide for Concrete Floor and Slab Construction
ACI 304	Guide to Measuring, Mixing, Transporting and Placing Concrete
ACI 305	Hot Weather Concreting
ACI 306	Cold Weather Concreting
ACI 308	Guide to Curing Concrete

American Society for Testing and Materials (ASTM)

C31M-08b	Standard Practice for Making and Curing Concrete Test Specimens in the Field
C33M-08	Standard Specifications for Concrete Aggregates
C39M-05e2	Standard Test Methods for Compressive Strength of Cylindrical Concrete Specimens
C143M-08	Standard Test Methods for Slump of Hydraulic Cement Concrete
C150-07	Standard Specifications for Portland Cement
C171-07	Standard Specifications for Sheet Materials for Curing Concrete
C172-08	Standard Practice for Sampling Freshly Mixed Concrete
C231-08c	Standard Test Methods for Air Content of Freshly Mixed Concrete by the Pressure Method
C260-06	Standard Specifications for Air-Entraining Admixtures for Concrete
C309-07	Standard Specifications for Liquid Membrane Forming Compound for Curing Concrete
C494M-08a	Standard Specifications for Chemical Admixtures for Concrete
C618-08a	Standard Specifications for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
C1017M-07	Standard Specifications for Chemical Admixtures for Use in Producing Flowing Concrete

Concrete Reinforcing Steel Institute (CRSI)

MSP-1-97	Manual of Standard Practice

SUBMITTALS

Provide manufacturers product information (cut sheets) for materials used during concrete construction including:

- Concrete Admixtures
- Curing Compound
- Moisture Barrier

Provide mixture proportion data for each type of concrete used. Mixture proportion data submitted shall include:

- Aggregate source and grain size analysis
- Cement supplier name and cement physical/chemical test results
- Water source and physical/chemical test results
- Material content, including admixtures, per cubic yard of concrete

Provide compressive strength testing results for each mixture proportion sample.

Provide copies of all concrete delivery tickets. Delivery tickets shall indicate the following information:

- Date and time of loading and unloading
- Type of cement and admixtures, and mixture proportion
- Cement content
- Load size
- Gallons of water added at job and slump after water was added
- Temperature of concrete at delivery time.

Provide samples of broomed finish, stamped patterns, and dye colors.

Provide copies of all quality assurance testing reports.

QUALITY ASSURANCE

The Contractor shall retain the services of an independent materials testing consulting A/E to conduct sampling, testing and analysis as required by this section and elsewhere in the Contract Documents. The materials testing consulting A/E shall meet the requirements of ASTM E329-08, and shall be subject to approval by the DSF Construction Representative.

Collection of concrete test specimens shall be complete in accordance with ASTM C172-08. Standard Practice for Sampling Freshly Mixed Concrete, and ASTM C31M-08b. Standard Practice for Making and Curing Concrete Test Specimens in the Field.

When collecting cylinders for compressive strength testing, collect and cure one set of cylinders, consisting of three (3) cylinders and one (1) extra cylinder, for each required test. Extra cylinders may be used in the event that one of the primary cylinders is damaged.

The Contractor's materials testing consulting A/E shall complete material testing as outlined in Table 03 30 00-1:

Material	Test Required	Test/Sample Frequency
Type AA Concrete	ASTM C143M-08 - Standard Test Method for Slump of Hydraulic-Cement Concrete	1 test/50 cy placed
Type AA Concrete	ASTM C873M-04e1 - Standard Test Method for Compressive Strength of Concrete Cylinders Cast in Place in Cylindrical Molds	1 set cylinders /50 cy placed
Type AA Concrete	ASTM C231-08c – Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method	1 test/50 cy placed

Table 03 30 00-1

P A R T 2 - M A T E R I A L S

AGGREGATES

Durable aggregate material meeting the requirements of ASTM C33M-08. Aggregates used in concrete shall be from the same source and of same gradation as those used to prepare mixture proportion samples for compressive strength testing.

CEMENT

Portland cement meeting the requirements of ASTM C150-07, Type I.

WATER

Potable water.

ADMIXTURES - GENERAL
Unless otherwise approved, admixtures shall be free of chloride ions.

Admixtures used in concrete shall be the same as those used in the approved mixture proportion sample.

AIR ENTRAINING ADMIXTURES
Air entraining admixtures shall meet the requirements of ASTM C260, certified by manufacturer to be compatible with other required admixtures.

FLY ASH
Fly ash and raw or calcined natural pozzolan shall meet the requirements of ASTM C618-08a, Type C.

PLASTICIZERS
Plasticizers shall meet the requirements of ASTME C1017M-07.

WATER REDUCING, ACCELERATED, AND COMBINED ADMIXTURES
Water reducing, accelerated, and combined admixtures shall meet the requirements of ASTM C494M-08a.

- Type A – Water Reducing
- Type B – Accelerating
- Type C – Water reducing and retarding
- Type E – Water reducing and accelerating
- Type F – Water reducing high range
- Type G – Water reducing high range and retarding

BONDING AGENT
Acrylic latex emulsion bonding agent suitable for bonding new concrete to existing concrete or new concrete.

MORTAR
Cement based mortar.

FINISHING GROUT/PLASTER
Cement based, aggregate type finishing grout. Finish color shall be grey.

CURING COMPOUND
Liquid membrane forming compound consisting of waxes, resins or other materials.

Curing compounds shall meet the requirements of ASTM C309-07.

Curing compounds shall be compatible with all other proposed concrete finishes.

PLASTIC FILM MOISTURE BARRIER
Polyethylene film having a minimum thickness of 4-mils, and meeting the requirements of ASTM C171-07.

Plastic film moisture barrier used in summer months shall be clear or opaque white.

P A R T 3 - E X E C U T I O N

GENERAL

Prepare subgrade as required by the Drawings and other applicable specification sections.

Where new concrete meets existing pavement provide full depth sawcut, unless otherwise shown on the Drawings.

MIX PROPORTION

Prepare mix proportion for each type of concrete listed on Table 03300-2, as necessary to complete the work.

Type	Use	Min. Compressive Strength (psi)	Slump (in)	Min. Cement Content (Bags/CY)	Max. Water Content (Gal/CY)	Air Content (%Vol.)
AA A	High Early	3000 psi (3-day)	1-3	7	33	5-8
AA	Slab, curbs, walks, walls, foundations	4000 psi (28-day)	1-3	6	30	5-8

Table 03300-2

MIXING AND DELIVERY

Use ready mixed concrete of type required for given application, and prepared in accordance with approved mix design.

Deliver and discharge concrete within 1 ½ hours of initial mixing, or before 300 drum or blade revolutions.

Do not add water on-site unless slump and water/cement ratio will be below the maximum after the addition of water. If water is added onsite, mix concrete an additional 30 revolutions.

Temperature of concrete shall be maintained between 50 F and 90 F.

If admixtures are added onsite, follow manufacturer's recommendations with regards to additional mixing.

FORMS

Design, erect, support, brace and maintain formwork to support vertical, lateral, static and dynamic loads that might be applied until concrete structure can support such loads.

Construct formwork so that concrete members and structures are of correct size, shape, alignment, elevation and position. Maintain formwork construction tolerances complying with ACI 347.

For slabs, set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and contours in finished surfaces. Provide and secure units to support screed strips using strike-off templates or compacting-type screeds.

PREPARATION OF FORM SURFACES

Clean re-used forms of concrete matrix residue, repair and patch as required returning forms to acceptable surface condition.

Coat contact surfaces of forms with a non-residual, low VOC, form-coating compound before reinforcement is placed.

Thin form-coating compounds only with thinning agent of type, and in amount, and under conditions of form-coating compound manufacturer's directions.

Do not allow excess form-coating material to accumulate in forms or to come into contact with in-place concrete surfaces against which fresh concrete will be placed. Apply in compliance with manufacturer's instructions.

Coat steel forms with a non-staining, rust-preventative form oil or otherwise protect against rusting. Rust-stained steel formwork is not acceptable.

PLACING CONCRETE

Place concrete in accordance with the most stringent of either ACI 304 or this section.

Before placing concrete, remove debris, ice, snow, and other foreign materials from the subgrade or formwork.

Remove standing water from subgrade. Dry and compact subgrade in accordance with the requirements of Division 2. Do not place concrete on soft or frozen subgrade.

Place and secure steel reinforcement prior to placing concrete.

Position and secure expansion joint material, sleeves, waterstops and other imbedded items prior to placing concrete. Place imbedded items in accordance with the most stringent of either drawings or manufacturer recommendations.

Apply bonding agent to existing concrete surfaces requiring a bond with new concrete.

Convey concrete from truck to final position by method that will prevent separation.
Unless otherwise approved, limit free fall of concrete to 4' maximum height to avoid separation.

Place concrete continuously so that concrete is deposited on or adjacent to concrete that is still plastic. When placing of concrete is temporarily halted or delayed, provide construction joints.

Place concrete in lifts not exceeding 18".

Consolidate concrete by mechanical vibration. Allow vibrator to penetrate the full depth of the slab or lift. Overlap previously vibrated areas by 25%.

JOINTING

Provide joints as shown on the drawings.

Unless otherwise approved, minimize construction joints by terminating placement at expansion joint locations indicated on drawings.

Construction joints on walls shall be constructed in accordance with the drawings. Provide rustication strips for joints on exposed concrete surfaces.

When construction joints are necessary for flatwork, provide bonded joint using dowel or keyway. Roughen the surface of the joint prior to second placement of concrete. Remove laitance, loosened aggregate and damaged concrete. Dampen concrete surface prior to second placement of concrete.

Unless otherwise approved, joints on flatwork shall be hand tooled – not sawn. When allowed, sawcut joints shall be completed after initial cure to avoid displacing aggregate.

FINISHING

<u>Flatwork/Slabs</u>

Screed or strike off the surface of the slab using straightedge or vibratory screed.

After screeding, bullfloat or darby the concrete surface to provide uniform surface, free of ridges or voids. Complete prior to bleed water collection.

Once bleed water has evaporated and the concrete can sustain foot pressure, complete edging/jointing and floating.

Complete initial edging and hand tool jointing prior to floating. Re-edge or re-tool joints as necessary to receive uniform finish and specified Architectural features as finishing progresses.

Float surface with hand or power floats. Do not add water or dry cement on surface to modify conditions.

Unless otherwise indicated, flatwork/slabs for sitework shall be provided with a broomed finish. Broom slabs transverse to the main direction of traffic. Use approved broom finish texture.

Apply diamond pattern finish to all curb ramps and elsewhere as required by the drawings.

CURING

Cure concrete in accordance with ACI 308.

Start curing operations immediately after finishing is completed. Cure concrete for a minimum of 7 days or until compressive tests completed on two separate field-cured cylinders indicate that 70% of the specified compressive strength has been obtained.

For flatwork/slabs, unless otherwise approved or necessary, cure using curing compound, plastic film moisture barrier. Do not use curing compounds that are incompatible with proposed concrete finishes, sealers, etc..

Apply curing compound in accordance with manufacturers recommendations.

Provide plastic film moisture barrier if precipitation is expected within 3 hours of finishing.

Modify curing methods for cold or hot weather concreting as necessary.

CONCRETE SURFACE REPAIRS

Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.

Dry-Pack Mortar: Mix shall consisting of one part portland cement to 2-1/2 parts fine aggregate passing a No. 16 mesh sieve, using only enough water as required for handling and placing.

COLD WEATHER CONCRETING

Complete cold weather (temperatures below 40 deg. F for 3 successive days) concreting in accordance with ACI 306.

HOT WEATHER CONCRETING

Complete hot weather concreting in accordance with ACI 305.

FUNCTIONAL PERFORMANCE TESTING

Contractor shall employ a testing laboratory to perform tests and to submit test reports. Quality control during placement of concrete shall include the following:

- Slump: ASTM C 143; one test at point of discharge for each day's pour of each type and class of concrete; additional tests when concrete consistency seems to have changed.
- Air Content: ASTM C 173, volumetric method for lightweight or normal weight concrete; ASTM C 231, pressure method for normal weight concrete; one for each day's pour of each type of air-entrained concrete.
- Concrete Temperature: ASTM C 1064; one test hourly when air temperature is 40 degrees F (4 degrees C) and below, and when 80 degrees F (27 degrees C) and above; and each time a set of compression test specimens are made.

Submit reports in writing to Architect and Contractor within 24 hours after tests are made. Reports of compressive strength tests shall contain the project identification name and number, date of concrete placement, name of concrete testing service, concrete type and class, location of concrete batch in structure, design compressive strength at 28 days, concrete mix proportions and materials, compressive breaking strength and type of break for both 7- day tests and 28-day tests.

END OF SECTION

SECTION 04 20 00
UNIT MASONRY
BASED ON DFD MASTER UNIT MASONRY SPECIFICATION DATED 10/1/12

PART 1 - GENERAL

SCOPE

This section describes the products and execution requirements relating to furnishing and installation of Unit Masonry and related items for this project. Included are the following topics:

PART 1 - GENERAL
- Scope
- Related Work
- Reference Standards
- Related Material Furnished and Installed By Other Sections
- Submittals
- Coordination
- Quality Assurance
- Delivery, Storage and Handling
- Extra Stock
- Project/Site Conditions

PART 2 - PRODUCTS
- Masonry Units, General
- Face Brick
- Concrete Masonry Units
- Mortar and Grout Materials
- Continuous Masonry Joint Reinforcement
- Individual Ties and Anchors
- Shelf Angles and Lintels
- Flashing Materials and Fabrication
- Air and Vapor Barriers
- Mortar Mixes

PART 3 - EXECUTION
- Examination
- Preparation
- Installation, General
- Tolerances
- Laying Masonry Wythes
- Mortar Bedding and Jointing
- Rain Screen Walls
- Masonry Joint Reinforcement
- Anchoring Masonry Veneers
- Movement Joints
- Shelf Angles and Lintels
- Flashing
- Closure Strips
- Spray Applied Air and Vapor Barrier and Rigid Insulation
- Repairing and Pointing
- Laying, Protection and Cleaning
- Adjustment
- Masonry Waste Disposal

RELATED WORK

Applicable provisions of Division 1 govern work under this Section.
Section 05 12 00 – Structural Steel
Section 07 27 00 – Fluid-Applied Membrane Air and Vapor Barriers
Section 07 60 00 – Flashing and Sheet Metal
Section 07 90 10 – Joint Sealants
Section 08 11.00 – Standard Steel Doors and Frames

REFERENCE STANDARDS

Abbreviations of standards organizations referenced are as follows:
ACI American Concrete Institute
ASCE American Society of Civil Engineers

ASTM American Society for Testing and Materials
TMS The Masonry Society

RELATED MATERIAL FURNISHED AND INSTALLED BY OTHER SECTIONS
Air and vapor barrier along with rigid insulation by Section 07 27 26 contractor.

SUBMITTALS

Product Data: Submit manufacturer's product data for each type of masonry unit, accessory and other manufactured products.

Samples for Final Approval of Appearance: Face brick.

Samples for Verification: Horizontal joint reinforcement and masonry anchors and ties.

As-Built Operations and Maintenance Masonry Manual: A binder with the listing of all materials utilized in the masonry work including source, brands, type, and/or manufacturer's literature as appropriate for potential future maintenance, shall be turned over to the Owner upon Substantial Completion of the masonry work.

COORDINATION
Examine all parts of the supporting structure and the conditions under which the masonry work is to be installed, and notify the Lead Contractor in writing of any conditions detrimental to the proper and timely completion of the work. Do not proceed with the installation of masonry work until unsatisfactory conditions have been corrected in a manner acceptable to this Section contractor.

Review installation procedures of other work by the Lead Contractor and other Prime Contractors and Subcontractors whose work must be coordinated with the masonry work.

Advise Section 03 31 13 contractor on placement of inserts which will be used by the mason for supporting and anchoring masonry work.

Lead Contractor shall coordinate all work.

Consult with all other Prime Contractors, Subcontractors and material suppliers whose involvement will be affected by the work of this Section.

In the event that the exterior facing cannot be laid up within 45 days after the exterior wall insulation is installed, the Contractor causing the delay shall be responsible for providing protection such as a coat of latex paint over the exposed insulation to protect it from ultraviolet deterioration.

QUALITY ASSURANCE
Source Limitations for Masonry Units and Mortar Materials: One source from a single manufacturer for each product utilized.

Sample Panel Required:
As soon as possible after the face brick for this project has been check tested and physical properties found proper, a sample panel shall be laid up at the project site, which includes all elements of the masonry construction. An actual wall sample shall be constructed including: face brick, mortar, back-up, continuous ties, air barrier, insulation, through-wall flashing, clean outs, and a non-coincident vertical movement joint in each wythe; all to ensure compliance with design intent and evaluate quality of materials, techniques, and workmanship.

Face brick shall be from the actual firing for this project and shall reasonably match the appearance of the mounted panel which was used for initial approval of brick appearance. (At the Lead Contractor's option, to avoid potential delays, face brick from previous firings may be used for a preliminary sample. No further sample panel will be required if brick from the actual firing for this project are subsequently checked and comply with both the physical property requirements as well as the appearance requirements, and the preliminary sample panel satisfies all other requirements of the Contract Documents.)

Face bricking shall match existing.

Mortar in sample panel shall comply with specification requirements for exterior masonry. Cleaning of sample wall shall comply with specification requirements for exterior masonry. Sample panel shall be at least four feet high and at least five feet long.

Start no brick work until a dry, minimum seven-day old, sample panel of brick work has been viewed and approved for overall appearance by the Owner and A/E. More than one sample panel may thus be required. The approved sample panel shall serve as the standard for wall appearance comparison and shall remain on the job site until all brick work is completed and accepted by Owner and A/E. Remove sample panel and all evidence thereof from site upon acceptance of masonry work, unless directed otherwise by Owner or A/E.

Approval of sample panels does not constitute approval of deviations from the Contract Documents contained in sample panels unless such deviations are specifically approved by the Owner and A/E in writing.

Preinstallation Conference: Conduct conference at Project before commencing masonry work.

DELIVERY, STORAGE AND HANDLING

Store masonry units on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied. If units become wet, do not install until they are dry.

Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp or contaminated.

Store aggregates where grading and other required characteristics can be maintained and contamination avoided.

Deliver preblended, dry mortar mix in moisture-resistant containers designed for lifting and emptying into dispensing silo. Store preblended, dry mortar mix in delivery containers on elevated platforms, under cover, and in a dry location or in a metal dispensing silo with weatherproof cover.

Store masonry accessories, including metal items, to prevent corrosion and accumulation of dirt and oil.

EXTRA STOCK

Furnish and deliver 1/4 of a percent of the amount of each type of brick installed to the Owner's designated local storage area.

PROJECT/SITE CONDITIONS

Protection of Masonry: During construction, cover tops of walls, projections, and sills with waterproof sheeting at end of each day's work. Cover partially completed masonry when construction is not in progress. Extend cover a minimum of 24 inches down both sides and hold cover securely in place. Since the concrete masonry back-up wythe is required to be completed in advance of the face brick wythe, secure cover a minimum of 24 inches down face next to unconstructed wythe and hold cover in place.

Stain Prevention: Prevent grout, mortar, and soil from staining the face of masonry to be left exposed. Immediately remove grout, mortar, and soil that come in contact with such masonry. Protect base of walls from rain-splashed mud and from mortar splatter by spreading coverings on ground and over wall surface. Protect sills, ledges, and projections from mortar droppings. Protect surfaces of window and door frames, including similar products with painted and integral finishes, from mortar droppings. Use cant strips or similar devices on the scaffold boards against the wall to prevent mortar spattering off of the scaffold braces or directly on the wall below. Turn scaffold boards near the wall on edge at the end of each day to prevent rain from splashing mortar and dirt onto completed masonry.

Cold-Weather Requirements: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen substrates. Remove and replace unit masonry damaged by frost or by freezing conditions. Comply with cold-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

Hot-Weather Requirements: Comply with hot-weather construction requirements contained in TMS 602/ACI 530.1/ASCE 6.

PART 2 - PRODUCTS

MASONRY UNITS, GENERAL

Provide special shapes or sizes as indicated on the Drawings or where cutting of units would expose the cut in the completed work.

Referenced masonry unit standards allow a certain percentage of units to exceed tolerances and to contain chips, cracks or other imperfections exceeding limits stated in the standard. Do not use units where such

imperfections, including tolerances that vary more than the amount stated in the standard, will be exposed in the completed Work.

FACE BRICK

Materials: Face brick shall be made from materials, fired, and manufactured in one batch to comply with all applicable requirements of ASTM C216, Grade SW, Type FBS, typically cored; except where superseded by more stringent requirements mentioned herein. ASTM C652 Class H40V brick meeting all other requirements of this specification except for the void area may also be used. Brick which have been significantly surface-coated prior to firing or siliconed, or similarly surface-treated after firing are not permitted.

Physical Properties: All face brick shall have physical properties that conform to the following specific requirements in Table 1:

Test	Units	Average of 5 Bricks	Individual
Compressive Strength	psi	8,500 min.	7,500 min.
Modulus of Rupture (net area)	psi	1,200 min.	800 min.
Water Absorption (24 hr. cold)	%	--	8 max.
Initial Rate of Absorption	grams per min. per 30 sq. in.	5 min.	3 min.
Initial Rate of Absorption	grams per min. per 30 sq. in.	20 max.	25 max
Efflorescence			None
Autoclave Expansion (age of 1 month)	%	0.10 max.	0.20 max.
Must meet one of the following requirements:			
C/B Ratio	--	0.76 max.	0.78 max.
* Water Absorption (24 hr. cold)			
Fire Clay	%	--	2 max.
Shale	%	--	5 max.
** Frost Resistance Durability Factor	--	--	70 min.

* For mixtures of fire clay and shale, prorate values listed as requirements

** DF = 3.2/PV + 2.4 P3

DF = Frost-Resistance Durability Factor

PV = Total Intruded Pore Volume (cm^3/g)

P3 = Pore Volume with Diameters Greater than 3µm (%)

TABLE 1: ADDITIONAL FACE BRICK PHYSICAL PROPERTY REQUIREMENTS

Testing Standards: Sampling and testing of face brick shall be done in accordance with ASTM C67, except as follows. Brick may be heated in a ventilated oven to 900F and, upon retesting, shall still comply with all the specific physical property requirements and with results similar to that obtained prior to heating in the oven. Testing of brick for moisture expansion by autoclaving shall be conducted in accordance with the time, temperature, pressure, and moisture conditions required by ASTM C151. Pore size distribution of brick shall be determined by mercury intrusion porosimetry using applicable procedures of ASTM D4284. Pore volumes shall be measured between pore diameters of 100µm and 0.01µm using a porosimeter. Pressure readings shall be converted to pore diameters with the angle of contact of the mercury assumed at 130 degrees.

The Lead Contractor shall make necessary brick available when requested, for physical tests conducted by a testing laboratory selected and employed by the Owner to check for compliance of brick with the specifications. In the event the test results show the brick to be in noncompliance with the specifications, the Lead Contractor shall reimburse the Owner for the testing costs.

Size: Except where drawings required otherwise, face brick shall be of Utility size and shall have dimensions of 3-5/8" x 3-5/8" x 11-5/8". Size differences between brick shall not exceed three percent in any dimension.

Quantity: Provide face brick required to complete brickwork as indicated on the Drawings and as herein specified. Where face brick are used in a wall with both faces exposed to the weather, the wall shall be built of the same face brick throughout. Provide special brick as indicated on the Drawings or otherwise required for a complete installation, with same size, surface texture and color range on all exposed surfaces to match adjacent brick. Lead Contractor to note ASTM C216 allows up to five percent broken brick, unless otherwise stipulated.

Furnish and deliver 1/4 of a percent of the amount of each type of brick installed to the Owner's designated local storage area upon completion of the work.

Storage: All brick shall be stored at the site of manufacture and/or the project site for a minimum time period of 4 weeks after completion of manufacture and before being incorporated into the structure.

Approved Appearance: The face brick is to match the face brick used on the existing structure.

Ordering: As soon as possible after award of contract, the Lead Contractor shall place the order for any one of the previously listed face brick, so that the brick can be delivered in sufficient time to avoid construction delays. The Lead Contractor shall be satisfied and be able to show that the proposed brick fully complies with the requirements of the Contract Documents in all respects. The Lead Contractor shall also make the face brick manufacturer, vendor and/or supplier responsible to the Lead Contractor for meeting these specifications. Transportation shall include shrink-wrap weather protection or other protection as required by the Lead Contractor.

Sampling and Testing: Upon completion of firing of all face brick for this Project and notification by the Lead Contractor, the Owner will have made an impartial sampling and check testing of such face brick. No face brick shall leave the site of manufacture for use in this Project until after this sampling and check testing is completed and indicates that the face brick comply with the physical property requirements of the Contract Documents. The Lead Contractor will be notified immediately of the results of the sampling and check testing. Brick approved and needed for use on this Project shall not be sold to others, and only brick from the same run shall be shipped to the project site. In the event the tests indicate noncompliance, the face brick are automatically rejected.

Delivery, Unloading and Storage: Upon delivery of brick to the job site, the Lead Contractor shall immediately have each load sampled and compared with the approved sample, and shall report any deviations immediately. All units used in the work shall conform to requirements specified herein. Any improper brick shall be culled out and immediately removed from the site. Brick shall be resorted or culled as necessary, especially when plant palletized, to avoid spotty or irregular ranges of color or texture in the finished walls. The responsibility for meeting these specifications and the approved sample rests with the Lead Contractor. Brick shall be carefully unloaded and neatly stacked on or near the project site, undamaged, and adequately protected at all times.

CONCRETE MASONRY UNITS

Materials and Physical Properties: Concrete block units shall be made from materials and manufactured to comply with all applicable requirements of ASTM C90, Solid Units of Normal Weight, typically cored. No integral water repellent is permitted.

Concrete brick units shall be made from materials and manufactured to comply with all applicable requirements of ASTM C55, Normal Weight, cored or uncored to be used with concrete block units as infill.

Source: All units shall be from one source and of uniform color and texture.

Size: Concrete block units shall be 7-5/8" x 15-5/8" x thickness indicated on Drawings. Concrete brick may be of size as appropriate to facilitate the work.

Special Shapes: Provide where required for lintels, corners, jambs, sash, movement joints, headers, bond beams, and other special conditions specifically indicated including applications which cannot be produced by cutting of standard size units.

Protection: Concrete masonry units shall be protected from the elements for a minimum time of seven days immediately prior to being incorporated into the work.

MORTAR AND GROUT MATERIALS

Portland Cement: Shall conform to ASTM C150, Type I. Only one brand and kind of Portland cement from one source shall be used for the work unless prior written approval is obtained from the A/E. Brands are

subject to approval of the A/E based upon the mortar color desired and obtainable by use of the various brands readily available. No white cement or nonstaining cement will be required.

Lime: Shall be pressure-hydrated, non air-entrained and conform to ASTM C207, Type S.

Masonry Sand: Shall be clean, sharp, free from loam, silt, vegetable matter, salts, and other injurious substances, and shall conform to ASTM C144. Sand is further subject to approval of the A/E, based on mortar color desired and obtainable by use of local sands readily available, and shall be from one source.

Aggregate for Grout: ASTM C404.

Water: Shall be potable, fresh, clean, clear, and free of injurious amounts of oil, acid, alkali, salts, organic matter or other detrimental substances, and handled in clean containers.

Plasticizer: Not permitted.

Water Repellent: Not permitted.

Coloring Pigments: Not permitted.

Other Admixtures: Shall not be used at any time and will not be knowingly approved. Use of special air-entraining admixtures, chlorides or nitrates, with or without approval, will be sufficient cause to require removal and replacement of all masonry work containing or treated with same.

The autoclave expansion of the cementitious portion of the mortar materials, when mixed in proportions required under "mortar mixes," shall not exceed one-half percent when tested according to ASTM C151. The air content of any mortar required under "mortar mixes" shall not exceed six percent when tested according to ASTM C231 and/or ASTM C173 and/or ASTM C457.

Fully or partial premixed mortar materials will be considered for approval when each requirement of the individual materials is complied with and is so stated on the container, or certified, along with proportions and quantities.

CONTINUOUS MASONRY JOINT REINFORCEMENT

Materials and Coatings: Use prefabricated electrically flush or butt welded wire units, truss type, not less than 10-feet long, with matching corner units, fabricated from cold drawn steel wire complying with ASTM A82. Provide galvanized (zinc coated) units conforming to Class B requirements of ASTM A153 in all exterior walls and in interior corridors or partitions enclosing wet or high moisture areas. For other interior walls, coating of wire units may conform to Class 3 requirements of ASTM A641.

Masonry Rain Screen Wall Construction: Use truss type reinforcing with one side rod for each face shell of concrete masonry units and one rod for brick wythe without moisture drip. All wire shall be 3/16"diameter. Units shall be equivalent to Hohmann & Barnard, Inc. #130. Continuous wire in brick wythe shall engage brick wythe a minimum of 3/4" and held back from the face of the wall a minimum of 3/4".

Single Wythe Interior Concrete Masonry Corridors and Partitions: Use one side rod for each face shell of concrete masonry units. All wire shall be 9 gauge. Units shall be equivalent to Hohmann & Barnard, Inc. # 120.

INDIVIDUAL TIES AND ANCHORS:

Materials and Coatings: Provide galvanized (zinc coated) steel units conforming to Class B requirements of ASTM A153, unless otherwise specified.

Around Openings in the Exterior Wall: Where no other fastening occurs between concrete masonry back-up wythe and face brick wythe within 2 feet of an opening, provide corrugated wall tie 16 gauge thick, 7/8" wide by 7" long; equivalent to Hohmann & Barnard, Inc. CWT Corrugated Wall Tie hot galvanized.

SHELF ANGLES AND LINTELS

Coordinate with Section 05 12 00 contractor for metal materials and fabrication and drawing schedules and details for size and locations.

Concrete masonry lintels may be prefabricated or built-in-place masonry lintels made from bond beam concrete masonry units. Provide reinforcing bars of material specified in the Concrete Reinforcing Section in accordance with drawing schedules and details. Fill lintel with ASTM C 476 Coarse Grout or concrete as

specified in the Section 03 31 13. Cure precast lintels before handling and installing. Temporarily support built-in-place lintels until cured.

FLASHING MATERIALS AND CLOSURE STRIPS

Coordinate with Section 07 60 00 contractor for metal materials and fabrication and drawing schedules and details for size and locations.

AIR AND VAPOR BARRIERS

Furnished and installed by Section 07 27 26 contractor.

MORTAR MIXES

Conventional Job Mixed Mortar: Measure materials for mortars by volume, in a manner whereby proportions can be controlled within two percent. Mix materials dry and then water to bring to proper consistency for use. Mix materials in the approved type machine mixer of adequate capacity for 3 to 5 minutes after all materials have been introduced, until materials are evenly distributed throughout the batch and the mixture is uniform in color with a workable consistency.

Use maximum water consistent with good workability and freedom from smearing the face of masonry work. Use no mortar that has stood more than one hour after initial mixing. Mortar less than one hour old shall be reasonably retempered as necessary to maintain its workability, but used before it is one hour old or otherwise discarded. No anti-freeze ingredient or contaminate of any type will be permitted.

Mortar for Brick and Concrete Block: Shall be ASTM C270, Type N, Cement-Lime Mortar conforming to the proportion specification requirements. (1:1:6).

The proportions listed above are Portland cement, lime, damp loose sand, respectively by volume. The proportions are listed only as samples for the required type mortars and shall be modified as necessary, within tolerances, to suit the particular masonry sand being used.

PART 3 - EXECUTION

EXAMINATION

Examine Work of other Section Contractors on which or to which unit masonry is to be built, supported or attached, to determine completeness and proper alignment to receive unit masonry. Do not commence masonry work until all related noncompliant work has been corrected.

Before installation of masonry, examine rough-in and built-in construction for piping systems to verify actual locations of piping connections.

PREPARATION

Verify that items provided by other Section Contractors are properly sized and located.

Verify that anchorages embedded in concrete are properly placed.

Establish lines, levels, and coursing. Protect from disturbance.

Provide temporary bracing during erection of masonry work. Maintain in place until building structure provides permanent bracing.

INSTALLATION, GENERAL

Build cavity and veneered walls to full thickness indicated on the drawings. Build interior concrete masonry walls to actual width of masonry units using units of widths indicated.

Leave openings for equipment to be installed before completing masonry. After equipment is installed, complete masonry to match the construction immediately adjacent to opening.

Use full size units without cutting where possible. If cutting is required to provide a continuous pattern or to fit adjacent construction, cut units with motor-driven saws to provide cuts that are straight and true, resulting in clean, sharp unchipped edges of the units. Allow typical cut units to surface dry before laying. Install cut units with cut surfaces and, where possible, cut edges concealed.

Select and arrange units for exposed masonry to produce a uniform blend of colors and textures.

TOLERANCES

Dimensions and Locations of Elements: For dimensions in cross section or elevation do not vary by more than minus 1/4 inch or plus 1/2.

For location of elements in plan do not vary from that indicated by more than minus ± 1/2 inch in 20 feet or ± 3/4 inch total.

For location of elements in elevation do not vary from that indicated by more than ± 1/4 inch in a story height or ± 3/4 inch total.

Lines and Levels: For bed joints, do not vary from level by more than ± 1/4 inch in 10 feet, or ± 1/2 inch maximum.

For horizontal lines, do not vary from level by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

For vertical lines and surfaces, do not vary from plumb by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum. Total vertical alignment of exposed head joints may have double these tolerances.

For lines and surfaces, do not vary from straight or plane by more than 1/4 inch in 10 feet, 3/8 inch in 20 feet, or 1/2 inch maximum.

For faces of adjacent exposed masonry units, do not vary from flush alignment by more than ± 1/8 inch.

Joints: For bed joints, do not vary from thickness indicated by more than ± 1/8 inch.

For head and collar joints, do not vary from thickness indicated by more than minus 1/4 inch or plus 3/8 inch.

If the above tolerances cannot be met due to previous construction, notify the A/E.

LAYING MASONRY WYTHES

Lay out walls in advance for alignment of head joints with uniform joint thicknesses and for accurate location of openings, movement joints, returns, and offsets. Maintain horizontal joint plane through all wythes of masonry. Fully bond intersections, and external and internal corners. Avoid using less-than-half-size units, particularly at corners, jambs, and, where possible, at other locations.

Bond Pattern for All Masonry: Lay masonry in 1/2 running bond. Bond and interlock each course of each wythe at corners. Do not use units with less than nominal 4 inch horizontal face dimensions at corners or jambs.

Adjusting Units: Adjust the final position of each masonry unit while the mortar is still plastic. To replace or reposition a unit after mortar has begun to set, remove the unit, replace the mortar with plastic mortar, and replace the unit.

Tooling: Tool all mortar joints exposed in the finished work, including the bed joint directly above flashing.

Tool exposed joints when "thumb-print" hard with a round jointer, slightly larger than width of joint and of sufficient length to obtain a straight and true mortar joint. Tooling shall be performed so that the mortar is compressed and the joint surface is sealed and in intimate contact with the edge of the masonry unit. This may require some craft persons to complete work after normal working hours. All crafts persons involved in the project shall utilize new hardened steel jointers of the same size when beginning to lay masonry on the project.

Where air and vapor barrier is to be applied to concrete masonry units, strike joint once, brush and leave joint full, flush and free of voids.

Stopping and Resuming Work: Stop off horizontal run of masonry by racking back 1/2 length of unit in each course from those in course below. Do not tooth except where necessary around openings. When resuming work, clean masonry surfaces that are to receive mortar, remove loose masonry units and mortar.

Built-in Work: As construction progresses, build in items specified in this and other Sections. Include built-in metal frames, anchor bolts, reglets, and other items to be built into the work supplied by other Section Contractors. Bed anchors of hollow metal frames in mortar joints. Build in items plumb and level. Fill in solidly with masonry around built-in items. Use ASTM C 476 grout or job mortar with high flow to slush full voids between masonry and hollow metal door frames.

Cutting and Fitting: Cut and fit masonry units for chases, pipes, conduit, sleeves, ductwork, door and window openings. Cooperate fully with other Contractors to ensure correct size, shape and location.

Where built-in items are to be embedded in cores of hollow masonry units, place a layer of metal lath, wire mesh, or plastic mesh in the joint below and rod mortar or grout into the core.

Fill cores in concrete masonry units directly under lintels with mortar or grout.

Fill cores in concrete masonry units with mortar or grout above and below where portions of anchors are to be installed.

Build non-load-bearing interior partitions full height of story to underside of solid floor or roof structure above, with mortar joint at juncture.

MORTAR BEDDING AND JOINTING

For Face Brick: Lay units with filled bed and head joints. Butter ends with sufficient mortar to fill head joints and set into place. Do not deeply furrow bed joints or slush head joints. Head and bed joints will be considered full when the average joint solidity is 90 percent or greater, with no voids in that half of the joint nearest the exterior face of the masonry.

For Concrete Masonry Units: Lay units with face shells fully bedded in mortar and with head joints of depth equal to bed joints. For starting courses on concrete, lay units fully bedded in mortar, including areas under cells.

Set architectural precast concrete units in full bed of mortar over flashing with full vertical joints.

Bed and head joints in masonry shall be of a nominal 3/8 inch thickness.

RAIN SCREEN WALLS

All exterior walls shall be of a rain screen wall type. Build walls with materials of nominal thicknesses and at locations, as indicated on the Drawings.

All interior wythes shall be constructed first, followed by application of the spray applied air and vapor barrier along with the rigid insulation required, before the face brick are laid.

Shelf angles shall be installed before the air and vapor barrier is applied.

Install flashing at the base of all cavities, at all window and door heads and sills, and under coping. (Only a bond break will be required where face brick bear on brick ledges in concrete.) Set all flashing on a beveled bed of mortar to turn out any water. Installation of flashing shall be completed before the air and vapor barrier is applied.

Stainless steel sheet metal closure strips shall be installed at the location of vertical movement joints in brick masonry (those joints near corners and joints 20 to 25 feet on center) to prevent lateral movement of air in the wall cavity. Installation of closure strips shall be completed before the air and vapor barrier is applied.

The inner and outer masonry wythes of rain screen walls shall be separated by a continuous space that is a nominal 4 inches wide, except for masonry returns indicated at the jambs of openings. Bond the two wythes together with continuous joint wall reinforcing as specified.

The first course of masonry at supports shall receive a beveled bed to plumb the brick over the slightly sloped flashing below.

The concrete masonry inner wythe of the exterior wall shall be anchored to the columns, and laterally supported by a wall-top anchor fastened to the underside of the spandrels. Wires of the continuous ties in the concrete masonry wythe shall be interrupted at junctures with the concrete columns, but the wire in the face brick wythe shall be continuous or spliced where the face brick wythe passes over the face of the concrete column.

Coordinate with the Section 07 27 26 contractor for the timely application of their materials including rigid insulation. Care must be taken to achieve smooth faces on the face of the concrete masonry back-up wythe in the cavity.

Provide open head joints in mortar joints on the exterior facing wythe on 24 inch centers at the base of all cavities, immediately above shelf angles, and wherever flashing is built into exterior masonry walls or other water stops occur. Provide the same venting immediately below shelf angles and one course below the tops of wall panels and the roof edge. Remove bed joint mortar beneath open head joints.

The wall cavity shall be closed off with vertical closure strips at vertical movement joints in the brick wythe to prevent horizontal air movement.

The following special precautions shall be taken to achieve smooth faces on the inside of the cavity space and to ensure that the bottom of the cavity is clean and relatively free of mortar droppings:

Lay a full mortar bed for the exterior wythe. A very shallow furrowing of the mortar bed will be permitted, so long as bed joints are at least 90 percent full and can be so observed when face brick are lifted out of their fresh mortar bed to verify bond with mortar. Back bevel mortar bed away from the cavity to minimize mortar protrusions and mortar dropping into the cavity as masonry facing units are placed and aligned.

Provide sufficient cleanouts in the cavity to permit visual inspection and all necessary cleaning out of mortar droppings at the base and intermediate support of all cavity walls. As a minimum, every third face brick at each masonry weight support shall be left out at the bottom. The wall cavity shall be inspected and cleaned out at least twice-a-day during construction of the wall. The inspection and clean-out openings shall be sealed immediately after the wall cavity is covered above by other construction and the A/E or a delegated representative has subsequently had the opportunity to inspect the cavity. Make final cleaning of bottom of cavity just before brick are placed in clean-out openings. Hold off tooling of mortar joints for inspection hole brick until mortar is “thumb-print’ hard to avoid color mismatch.

MASONRY JOINT REINFORCEMENT

Install entire length of longitudinal wire in mortar bed joints with a minimum cover of 3/4 inch on exterior side of walls.

Do not bend typical continuous masonry joint reinforcement in the construction process.

Lap continuous masonry joint reinforcement ends a minimum of 6 inches.

Space continuous masonry joint reinforcement a minimum of 16 inches on center vertically.

Provide reinforcement no more than 8 inches above and below wall openings and extending 12 inches beyond openings. Such reinforcement is in addition to continuous reinforcement when not coincident.

Interrupt joint reinforcement in a wythe wherever a movement joint occurs.

Provide continuity at concrete masonry wall intersections by using prefabricated T-shaped units or wire mesh with cores filled.

Provide continuity at corners by using prefabricated L-shaped units.

ANCHORING MASONRY VENEERS

Anchors for brick veneer shall be spaced 16" on center vertically and 24" on center vertically into dovetail slots provided by Section 03 31 13 contractor.

Continuous wire in brick wythe shall be sized and placed to engage brick wythe a minimum of 3/4" and held back from the face of the wall a minimum of 3/4".

MOVEMENT JOINTS

General: Install movement joints in unit masonry as work progresses. Note that the movement joints in the two wythes of the rain screen walls do not typically coincide.

Vertical Movement Joints in Face Brick Wythe: Form movement joints free of mortar the full depth of face brick wythe and of 3/8 inch to 1/2 inch width for installation of backing and sealant by Section 07 92 00 contractor. Stainless steel sheet metal closure strips are also required in all major movement joints in the face brick wythe, to prevent lateral movement of air in the wall cavity. See Drawings for movement joint locations, not to exceed 4 feet from one side of a corner and 25 feet on center. Interrupt masonry joint reinforcing at movement joints. Movement joints shall be made free of all mortar as work progresses and maintained free of mortar.

Horizontal Movement Joints in Face Brick Wythe: Provide horizontal pressure-relieving joints free of mortar the full depth of face brick wythe and of size indicated, but not less than 1/4 inch for installation of backer rod and sealant by Section 07 92 00 contractor. Movement joints shall be made free of all mortar as work progresses and maintained free of mortar. No filler materials permitted.

Vertical Movement Joints in Concrete Masonry Wythes: Form movement joints with bond broken the full depth of concrete masonry wythe and of width indicated, but not less than 3/8 inch for installation of backer rod and sealant by Section 07 92 00 contractor. Use sash units and preformed gaskets, a continuous bond break and grout or mortar, or special shaped units. Movement joints in the back-up concrete masonry wythe typically occur at corners and at the juncture with concrete columns. See Drawings for location of movement joints in interior concrete masonry corridors and partitions, typically above end of lintel at the door jambs furthest away from the nearest vertical movement joint and at a maximum spacing of 25 feet. Interrupt masonry joint reinforcing at movement joints. Mortar and bond breaker shall be raked back from the wall surfaces sufficient to properly install backing and sealant.

SHELF ANGLES AND LINTELS

Install continuous shelf angles where indicated on the Drawings with angles and bolted connection hardware supplied by Section 05 12 00 contractor into inserts in concrete spandrel beams or slab edges installed by Section 03 31 13 contractor. Adjust angles as needed to keep the masonry level and at the proper elevation. Where shims are required at attachment, they shall extend to the heel of the shelf angle to prevent rotation of the angle. Shelf angles shall be mitered for building corners, typically prefabricated with each angle not shorter than 4 feet, unless limited by wall configuration. Leave 1/8" to 1/4" space between ends of angles when installing. In lieu of bolted connections, the Lead Contractor may elect to use welded connections, except joints in shelf angles shall then coincide with vertical movement joints in the face brick and a certified welder shall be used.

Install loose steel lintels where indicated on the Drawings with angles supplied by Section 05 12 00 contractor. Provide minimum bearing of 4inches at each jamb with lintel centered over opening. Provide polyethylene bond breaker at the underside angle/top of masonry bearing surface.

Install concrete masonry lintels over doors, windows, and other substantial openings that occur in the concrete masonry back-up wythe. Lintels may be precast or cast-in-place bond beams.

FLASHING

Install continuous through-wall, two-piece flashing at all shelf angles and lintels, and one-piece flashing below sills and coping. (Only a bond break is required at the concrete foundation brick ledge). Provide end dams at ends of flashing runs, in flashing below sills, and at man-door and window heads, when not coincident with shelf angles. End dams will not be allowed at typical movement joints in brick masonry. Install special flashing with reglet for Section 07 50 00 contractor to connect counterflashing.

The stainless steel flashing required beneath sills and coping shall be placed so that the drip extends out beyond the face of the brick 1-1/4" to 1-1/2" turned down 45° with a drip.

The top edge of the flashing at shelf angles shall be secured in a continuous horizontal reglet in the concrete frame. Reglet shall be continuous at the columns.

The top of the flashing at window and door heads not coincident with a shelf angle shall have a bent lip inserted into the mortar joint at the top of the concrete masonry bond beam lintel over the opening. Install concealed end dams at longitudinal ends of flashing up into head joints of brick masonry.

Joints in flashing shall overlap at ends for each piece a minimum of 4 inches. All field joints and penetrations shall be treated with silicone sealant to prevent capillary suction. Use ultra low modulus silicone sealant. Install prefabricated inside and outside corners without mechanical field adjustment.

Place wall flashing on bed of mortar so that all flashing slopes slightly down and out to ensure that the flashing will not pond water. (Flashing is required to be pre-bent with slightly greater than a 90° angle between horizontal and vertical portions to facilitate the installation.) Any temporary shims used to facilitate the work shall be removed before the mortar has stiffened, and the remaining voids shall be pointed.

Flashing shall be installed prior to the air barrier application.

Flashing shall be sized and installed with or without shims such that the break for the drip portion is near flush (within 1/8") of the face of the new face brick facade. Use impact-resistant, rigid polyvinyl chloride or approved equal shims behind flashing at fastening locations where needed to bring drip portion of flashing out to future face of masonry.

Flashing drips shall be installed with hems where the public may come in contact with the flashing. Other areas shall not be hemmed. This Section contractor shall provide protective covering over sharp edges of drip as needed.

If flashing is disrupted or damaged by scaffold supports, repair flashing as necessary to retain its integrity without visual impairment. Soldering may be required.

Flashing under architectural precast concrete coping shall also have a mortar bed above and below the flashing.

The top portion of the exposed drip shall be covered with a water resistant tape to protect the metal from mortar droppings during construction. For protection of workers, the tape should also extend over any sharp drip edges. Remove tape as part of final cleaning or as scaffolds are taken down.

CLOSURE STRIPS

Install continuous “L” shaped closure piece extending continuous in vertical movement joints in rain screen walls (near corners and approximately 20 t0 25 feet on center) from top of brick ledge or shelf angle flashing to underside of shelf angle above. Wherever two piece closures become necessary, use stainless steel screws to fasten pieces together. Provide the same device in brick faced veneer walls with concrete backing, using similar installation.

Short leg of “L” shall be 2" minimum and mechanically fastened to concrete masonry back-up wythe with a maximum spacing of 24" on center vertically. Seal closure piece to concrete masonry back-up wythe with

butyl self-adhered flashing, minimum 4" wide, to be later covered by air and vapor barrier.

Long leg of "L" shall be located in the center of the vertical movement joint and of a length to penetrate to approximately 1/2" to 3/4" behind the face of brick, depending upon width of joint. Shim if required at fasteners into concrete masonry back-up wythe when installing closure piece.

Set closure strip in bed of sealant on foundation or flashing on shelf angles and extend up to within 1/8"of the shelf angle above, top and bottom sealed with fast-cure polyurethane sealant.

Installation of closure strips shall be such that joint subcaulking will be in continuous contact with the outstanding leg of a closure piece, from top to bottom, when movement joint is sealed.

The new closure pieces shall be installed after the shelf angle flashing, but prior to the air barrier application.

SPRAY APPLIED AIR AND VAPOR BARRIER AND RIGID INSULATION

Work closely with Section 07 27 26 contractor to assure proper conditions, sequence, and timing of work. It is anticipated that there will be multiple down times for this work as different elements of the project are made ready.

Ensure work of this Section is without openings of a nature such that the Section 07 27 26 contractor cannot readily bridge air leakage pathways around window and door openings, piping, and other penetrations in the wall assembly.

Window and door frames shall be installed before the air barrier and insulation are applied and before installation of the face brick and architectural precast concrete elements.

This contractor to install facing within 45 days after insulation is installed or be responsible for providing protection from ultraviolet deterioration, such as a coat of latex paint over the insulation.

REPAIRING AND POINTING

Remove and replace to A/E's satisfaction masonry units that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units as intended. Install new units to match adjoining units and install in fresh mortar, pointed to eliminate evidence of replacement.

Pointing: During the tooling of joints, enlarge voids and holes, except weep holes, and completely fill with mortar. Point up joints, including corners, openings, and adjacent work, to provide a neat, uniform appearance. Prepare joints for sealant application, where indicated.

LAYING, PROTECTION AND CLEANING

All masonry shall be in final acceptance condition within 24 hours after laying and shall be maintained in that condition, by meeting or exceeding the degree of cleanliness required, demonstrated on the approved sample panel.

Lay masonry utilizing all necessary care to achieve cleanliness. Remove excess mortar from exposed exterior and interior masonry surfaces as the work progresses and before it tenaciously adheres to the faces of the masonry. Remove mortar protrusions and smears as masonry units are laid and tooled, as scaffolds are raised, and at the start of the next day's work, leaving the surface of the masonry clean and finished. Use calcimine brushes, stiff fiber brushes, other similar masonry units, burlap, rags, carpet remnants, rubber floats, or other approved means. (Cleaning of masonry the morning after laying by the same masons who laid the masonry the previous day, using stiff fiber brushes with or without water and sand, and concentrating on cleaning the field of the masonry units has also been successfully used to achieve an appearance matching or exceeding the cleanliness of the approved sample panel.) **Use of chemical cleaning or harsh physical cleaning will not be permitted**. Included as chemical cleaners and prohibited are most manufactured masonry cleaning solutions or compounds. Equipment or methods and techniques utilized, reduced productivity, as well as weather conditions experienced will not relieve this Section contractor of required compliance.

Protection shall be provided to prevent mortar spattering and maintain masonry in a clean condition so that the masonry is satisfactory for acceptance when masonry work is completed. This may require covering portions of finished masonry which is below new work in progress with polyethylene, canvas, or other approved means. Cover tops of unfinished walls and new work during inclement weather and at the end of each day's work to prevent moisture entry. Extend covering a minimum of 24 inches down both sides of wall, and hold covering securely in place. Hair-pin type devices frequently spaced have been successfully used in the past. When practical, lay masonry from the top floor down.

No final washdown is required unless removal of earthy construction dirt or dust is necessitated by extremely unusual site conditions.

If any masonry is not cleaned as required by these specifications, or if walls have an unsatisfactory appearance upon completion of work, such violations will require additional work by this Section contractor for producing acceptable masonry at no extra cost to the Owner. This is not to be construed as a Contractor's option. Procedures must be submitted by this Section contractor and samples approved by all other parties to the contract prior to proceeding with such work.

Upon completion of masonry work on exterior walls, inform Lead Contractor so that covers on top of walls installed by this Section contractor can be maintained until roofing and roof edge work has been completed.

ADJUSTMENT

Should any Contractor use or attempt to use chemical cleaning utilizing acid or strong alkali based materials, or should any Contractor use or attempt to use harsh physical cleaning such as sand blasting or pressure water jetting; such actions will be construed as nonperformance causing the Owner damages which shall be liquidated by reducing payment to the Lead Contractor in the amount of $2.50 per square foot of masonry involved.

MASONRY WASTE DISPOSAL

Except for the extra stock of face brick required to be turned over to the Owner, excess masonry materials are this Section contractor’s property and shall be removed from the Project site upon completion of unit masonry work.

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COORDINATION ITEMS FOR CONCRETE SPECIFICATION

Twelve gauge dovetail anchors and reglets supplied and cast into concrete by Section 03 31 13 contractor. Reglets shall be continuous at columns.

Cast-in devices for fastening shelf angles cast into concrete furnished by Section 05 12 00 contractor and cast into concrete by Section 03 31 13 contractor.

Coordinate with Section 04 20 00 contractor so that masonry related anchorages to be embedded in concrete are properly located and placed.

COORDINATION ITEMS FOR METAL SPECIFICATION

Steel weight supports and cast-in attachments for unit masonry, furnished by Section 05 21 00 contractor.

Require vertically slotted holes in shelf angles to allow for adjustment and full depth metal shims where needed at fastenings, so completed installation will prevent rotation and vertical movement of the shelf angle.

COORDINATION ITEMS FOR INSULATION SPECIFICATION

Supply and installation of all rigid insulation in exterior walls are the responsibility of Section 07 27 26 contractor.

COORDINATION ITEMS FOR AIR AND VAPOR BARRIER SPECIFICATION

Examine all parts of the masonry and the conditions under which the air and vapor barrier work is to be installed, and notify the Lead Contractor in writing of any conditions detrimental to the proper and timely completion of the work.

Advise that installation of the air and vapor barrier as well as the insulation is an important part of an all-inclusive system to provide adequate rain, air, vapor and thermal control layers.

Need to require air barrier over cast-in-place concrete (thickness of applied material can be reduced) where faced with brick to act as adhesive to help hold insulation in place tight against the concrete.

Require consultation with Section 04 20 00 contractor on timing and frequency of work needed to be done during construction of the exterior walls.

Materials and installation methods to transition between concrete masonry back-up wythe, all built in items, metal flashing and metal closure strips.

Advise that Section 07 27 26 contractor will utilize Section 04 20 00 contractor's scaffold for all air barrier work needed in exterior walls.

Require a pre-installation conference prior to commencement of field operations to establish procedures to maintain optimum working conditions and to coordinate this work with related and adjacent work.

Walls shall have 16 inch high horizontal strips of specified rigid insulation applied between protruding continuous ties to the freshly installed air and vapor barrier on the cavity face of the inner wythe. Press insulation tightly into the freshly installed air and vapor barrier. All insulation shall tenaciously adhere to the air and vapor barrier material or a compatible, continuous spray adhesive shall be applied before installing the insulation.

Closures utilizing rigid insulation, closed cell compressible fillers, and/or sealant shall also be provided at the perimeter (horizontally and vertically) around all openings in the wall, where not tightly closed with a lintel or masonry.

The wall & roof junctures shall be closed off (sealed) as required to eliminate air leakage on a long term basis.

Use strips of like-kind thinner insulation over flashing at shelf angles.

In the event any areas of insulation become unbonded from the concrete wall, mechanically refasten insulation to concrete. For 2 inch board insulation, use 1/4" x 3" Tapit nylon anchors with 1/4" x 1-1/2" nylon washers inserted into predrilled holes in the concrete, with one anchor for every 2 square feet of insulation.

COORDINATION ITEMS FOR FLASHING & SHEET METAL SPECIFICATION

Advise that all sheet metal installation for masonry work will be handled by Section 04 20 00 contractor.

FLASHING MATERIALS AND FABRICATION FOR MASONRY

Elements Involved: Provide flashing at shelf angles and lintels and closure strips in vertical movement joints of brick masonry. At low roof areas with walls above, provide 24 or 26 gauge material with reglet for Section 07 50 00 contractor to install counterflashing.

Materials: All flashing and closure strips shall be corrosion-resistant stainless steel, ASTM A167, AISI Type 304 with 2B or 2D finish, 26 or 28 gage thickness unless otherwise specified. Closure strips may be of other finish. No flexible flashing permitted.

Solder: FS QQ-S-571 or ASTM B32. Use 50/50 for all applicable work unless otherwise specified.

Soldering Flux: FS O-F-506, type best suited for specific material.

Quality Assurance: Shop fabricate in accordance with the Sheet Metal and Air Conditioning Contractors National Association (SMACNA).

Fabrication of Wall Flashing at Shelf Angles and Steel Lintels: Provide two-piece flashing to accommodate construction tolerances, with top portion overlapping bottom portion by a minimum of 2".

The top piece at shelf angles shall come out of an angled-down 1" deep continuous reglet cast into the concrete frame and come out to the plane of the shelf angle face and turn vertically down. The top of the flashing shall be fabricated with an open hem "V" shaped to hold the flashing in the reglet. Form wall flashing at shelf angles in 8 or 10 foot lengths.

The top piece at steel lintels shall come out of the first mortar joint in the concrete masonry back-up and turn vertically down on the face of the concrete masonry back-up. The top of the flashing shall be fabricated so as to engage the full depth of the face shell with a 1/8" upturn at the end. Wall flashing at steel lintels shall be one piece in horizontal length, including prefabricated end dams at ends of lintel.

The upturned leg on the lower part of the flashing shall be fastened to the concrete or concrete masonry back-up 24" on center. An alternate to the fastening is a juncture of the two pieces in a lock seam, or the lower piece slipped into a bend in the upper piece, allowing adjustment.

Provide an outward slope of the flashing by breaking the metal at an angle slightly greater than 90° (3 to 5 %) to ensure positive outflow of any water.

The exposed exterior edge of flashings shall uniformly extend out 1-1/4" to 1-1/2" and be turned downward with approximately a 45 degree bend. Notch hem and taper-cut drip for the underlying piece at joints. Provide a 3/8" hem on the drip, but only where flashing is accessible to the public.

Flashing at corners shall be continuous around the corners. One piece, prefabricated in the shop, interior and exterior corner pieces are required. Prefabricated flashing elements shall be soldered in the shop. They shall not be less than 18" in length both ways from the mitered corner with final fastening of the corner. Perform field measurements as required to ensure proper fit. Mechanical field adjustment of prefabricated elements will not be tolerated.

Closure Strips at all Vertical Movement Joints in Brick Masonry: Provide "L" shaped closure piece extending continuously in all vertical movement joints in brick masonry from top of flashing to underside of shelf angle.

Long leg of "L" shall be of a length to penetrate approximately 1/2" to 3/4" behind face of brick in the center of the movement joint. Short leg of "L" shall be a minimum of 2" or may be slightly shorter or longer than long leg of "L".

COORDINATION ITEMS FOR SEALANT SPECIFICATION

Advise that all required sealant in contact with exposed masonry will be done by Section 07 92 00 contractor.

Require application of sealant bead beneath the flashing drips.

Do not allow any sealant work to proceed on masonry movement joints in the face brick wythe until after the joints have been cleaned out and approved by the A/E.

Closure strips in face brick vertical movement joints shall extend close enough to the surface to stop lateral movement of air when backing and sealant is installed. Request A/E direction on how to proceed if such construction is not proper.

Should sealant occur above any water stop, the sealant shall be periodically broken to form weep holes.

Sealant in movement joints shall approximately match color of adjacent facing material.

COORDINATION ITEMS FOR DOOR SPECIFICATION

Door frames will be installed before the air and vapor barrier.
Ensure masonry openings are proper.

COORDINATION ITEMS FOR WINDOW SPECIFICATION

Window frames will be installed before the air and vapor barrier.
Ensure masonry openings are proper.

COORDINATION ITEMS FOR MECHANICAL, PLUMBING AND ELECTRICAL

To be determined for each project.

SECTION 05 31 00 - STEEL DECKING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Roof deck.
2. Composite floor deck.
3. Accessories

B. Related Requirements:

1. Section 033000 "Cast-in-Place Concrete" for normal-weight and lightweight structural concrete fill over steel deck.
2. Section 05 12 00 "Structural Steel" for shop- and field-welded shear connectors.
3. Section 05 50 00 "Metal Fabrications" for framing deck openings with miscellaneous steel shapes.
4. Section 09 90 00 "Painting" for repair painting of primed deck and finish painting of deck.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of deck, accessory, and product indicated.

B. LEED Submittals:

1. Product Data for Credit MR 4: For products having recycled content, documentation indicating percentages by weight of postconsumer and preconsumer recycled content. Include statement indicating cost for each product having recycled content.
2. Laboratory Test Reports for Credit EQ 4: For primers, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Shop Drawings:

1. Include layout and types of deck panels, anchorage details, reinforcing channels, pans, cut deck openings, special jointing, accessories, and attachments to other construction.

1.4 INFORMATIONAL SUBMITTALS

A. Welding certificates.

B. Product Certificates: For each type of steel deck.

C. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that each of the following complies with requirements:

1. Power-actuated mechanical fasteners.
2. Acoustical roof deck.

D. Evaluation Reports: For steel deck.

E. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Welding Qualifications: Qualify procedures and personnel according to AWS D1.3, "Structural Welding Code - Sheet Steel."

C. Electrical Raceway Units: Provide UL-labeled cellular floor-deck units complying with UL 209 and listed in UL's "Electrical Construction Equipment Directory" for use with standard header ducts and outlets for electrical distribution systems.

D. FM Global Listing: Provide steel roof deck evaluated by FM Global and listed in its "Approval Guide, Building Materials" for Class 1 fire rating and Class 1-90 windstorm ratings.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect steel deck from corrosion, deformation, and other damage during delivery, storage, and handling.

B. Stack steel deck on platforms or pallets and slope to provide drainage. Protect with a waterproof covering and ventilate to avoid condensation.

1. Protect and ventilate acoustical cellular roof deck with factory-installed insulation to maintain insulation free of moisture.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. AISI Specifications: Comply with calculated structural characteristics of steel deck according to AISI's "North American Specification for the Design of Cold-Formed Steel Structural Members."

B. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL's "Fire Resistance Directory" or from the listings of another qualified testing agency.

C. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

D. Low-Emitting Materials: Paints and coatings shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 ROOF DECK

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. ASC Profiles, Inc.; a Blue Scope Steel company.
2. Canam United States; Canam Group Inc.
3. CMC Joist & Deck.
4. Consolidated Systems, Inc.; Metal Dek Group.
5. Cordeck.
6. DACS, Inc.
7. Epic Metals Corporation.
8. Marlyn Steel Decks, Inc.
9. New Millennium Building Systems, LLC.
10. Nucor Corp.; Vulcraft Group.
11. Roof Deck, Inc.
12. Valley Joist; Subsidiary of EBSCO Industries, Inc.
13. Verco Manufacturing Co.
14. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.

B. Roof Deck: Fabricate panels, without top-flange stiffening grooves, to comply with "SDI Specifications and Commentary for Steel Roof Deck," in SDI Publication No. 31, and with the following:

1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 40 (275) minimum, shop primed with manufacturer's standard baked-on, rust-inhibitive primer.

   a. Color: Manufacturer's standard

2. Galvanized-Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 40 (275) zinc coating.
3. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 40 (275) zinc coating; cleaned, pretreated, and primed with manufacturer's standard baked-on, rust-inhibitive primer.

   a. Color: [Manufacturer's standard] [Gray] [White] [Gray top surface with white underside].

4. Aluminum-Zinc-Alloy-Coated Steel Sheet: ASTM A 792/A 792M, Structural Steel (SS), Grade 33 (230) minimum, AZ50 (AZ150) aluminum-zinc-alloy coating.
5. Deck Profile: Type NR, narrow rib
6. Cellular Deck Profile: Type WR, wide rib
7. Profile Depth: 3 inches (76 mm)
8. Design Uncoated-Steel Thickness: 0.0295 inch (0.75 mm)
9. Design Uncoated-Steel Thicknesses; Deck Unit/Bottom Plate: 0.0358/0.0358 inch (0.91/0.91 mm)
10. Span Condition: Double span
11. Side Laps: Overlapped or interlocking seam at Contractor's option

2.3 COMPOSITE FLOOR DECK

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Canam United States; Canam Group Inc.
2. CMC Joist & Deck.
3. Consolidated Systems, Inc.; Metal Dek Group.
4. Cordeck.
5. DACS, Inc.
6. Epic Metals Corporation.
7. Marlyn Steel Decks, Inc.
8. New Millennium Building Systems, LLC.
9. Nucor Corp.; Vulcraft Group.
10. Roof Deck, Inc.
11. Verco Manufacturing Co.
12. Wheeling Corrugating Company; Div. of Wheeling-Pittsburgh Steel Corporation.

B. Composite Floor Deck: Fabricate panels, with integrally embossed or raised pattern ribs and interlocking side laps, to comply with "SDI Specifications and Commentary for Composite Steel Floor Deck," in SDI Publication No. 31, with the minimum section properties indicated, and with the following:

1. Prime-Painted Steel Sheet: ASTM A 1008/A 1008M, Structural Steel (SS), Grade 40 (275) minimum, with top surface phosphatized and unpainted and underside surface shop primed with manufacturers' standard gray baked-on, rust-inhibitive primer.
2. Galvanized-Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 (230), G30 (Z90) zinc coating.
3. Galvanized and Shop-Primed Steel Sheet: ASTM A 653/A 653M, Structural Steel (SS), Grade 33 (230), G30 (Z90) zinc coating; with unpainted top surface and cleaned and pretreated bottom surface primed with manufacturer's standard [gray] [white] baked-on, rust-inhibitive primer.
4. Profile Depth: 3 inches (76 mm)
5. Design Uncoated-Steel Thickness: 0.0295 inch (0.75 mm)
6. Span Condition: Double span

2.4 ACCESSORIES

A. General: Provide manufacturer's standard accessory materials for deck that comply with requirements indicated.

B. Mechanical Fasteners: Corrosion-resistant, low-velocity, power-actuated or pneumatically driven carbon-steel fasteners; or self-drilling, self-threading screws.

C. Side-Lap Fasteners: Corrosion-resistant, hexagonal washer head; self-drilling, carbon-steel screws, No. 10 (4.8-mm) minimum diameter.

D. Flexible Closure Strips: Vulcanized, closed-cell, synthetic rubber.

E. Miscellaneous Sheet Metal Deck Accessories: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), not less than 0.0359-inch (0.91-mm) design uncoated thickness, of same material and finish as deck; of profile indicated or required for application.

F. Pour Stops and Girder Fillers: Steel sheet, minimum yield strength of 33,000 psi (230 MPa), of same material and finish as deck, and of thickness and profile [indicated] [recommended by SDI Publication No. 31 for overhang and slab depth].

G. Column Closures, End Closures, Z-Closures, and Cover Plates: Steel sheet, of same material, finish, and thickness as deck unless otherwise indicated.

H. Piercing Hanger Tabs: Piercing steel sheet hanger attachment devices for use with floor deck.

I. Weld Washers: Uncoated steel sheet, shaped to fit deck rib, 0.0598 inch (1.52 mm) thick, with factory-punched hole of 3/8-inch (9.5-mm) minimum diameter.

J. Flat Sump Plates: Single-piece steel sheet, 0.0747 inch (1.90 mm) thick, of same material and finish as deck. For drains, cut holes in the field.

K. Recessed Sump Pans: Single-piece steel sheet, 0.0747 inch (1.90 mm) thick, of same material and finish as deck, with 3-inch- (76-mm-) wide flanges and [level] [sloped] recessed pans of 1-1/2-inch (38-mm) minimum depth. For drains, cut holes in the field.

L. Galvanizing Repair Paint: ASTM A 780

M. Repair Paint: Manufacturer's standard rust-inhibitive primer of same color as primer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting frame and field conditions for compliance with requirements for installation tolerances and other conditions affecting performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. Install deck panels and accessories according to applicable specifications and commentary in SDI Publication No. 31, manufacturer's written instructions, and requirements in this Section.

B. Install temporary shoring before placing deck panels if required to meet deflection limitations.

C. Locate deck bundles to prevent overloading of supporting members.

D. Place deck panels on supporting frame and adjust to final position with ends accurately aligned and bearing on supporting frame before being permanently fastened. Do not stretch or contract side-lap interlocks.

1. Align cellular deck panels over full length of cell runs and align cells at ends of abutting panels.

E. Place deck panels flat and square and fasten to supporting frame without warp or deflection.

F. Cut and neatly fit deck panels and accessories around openings and other work projecting through or adjacent to deck.

G. Provide additional reinforcement and closure pieces at openings as required for strength, continuity of deck, and support of other work.

H. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used for correcting welding work.

I. Mechanical fasteners may be used in lieu of welding to fasten deck. Locate mechanical fasteners and install according to deck manufacturer's written instructions.

3.3 ROOF-DECK INSTALLATION

A. Fasten roof-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated or arc seam welds with an equal perimeter that is not less than 1-1/2 inches (38 mm) long, and as follows:

1. Weld Diameter: 5/8 inch (16 mm) nominal.
2. Weld Spacing: Weld edge and interior ribs of deck units with a minimum of two welds per deck unit at each support. Space welds 18 inches (457 mm) apart, maximum
3. Weld Washers: Install weld washers at each weld location.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of 1/2 of the span or 18 inches (457 mm)and as follows:

1. Mechanically fasten with self-drilling, No. 10 (4.8-mm-) diameter or larger, carbon-steel screws.
2. Mechanically clinch or button punch.
3. Fasten with a minimum of 1-1/2-inch- (38-mm-) long welds.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm), with end joints as follows:

1. End Joints: Lapped 2 inches (51 mm) minimum

D. Roof Sump Pans and Sump Plates: Install over openings provided in roof deck and weld flanges to top of deck. Space mechanical fasteners not more than 12 inches (305 mm) apart with at least one fastener at each corner.

1. Install reinforcing channels or zees in ribs to span between supports and weld or mechanically fasten.

E. Miscellaneous Roof-Deck Accessories: Install ridge and valley plates, finish strips, end closures, and reinforcing channels according to deck manufacturer's written instructions. Weld or mechanically fasten to substrate to provide a complete deck installation.

1. Weld cover plates at changes in direction of roof-deck panels unless otherwise indicated.

F. Flexible Closure Strips: Install flexible closure strips over partitions, walls, and where indicated. Install with adhesive according to manufacturer's written instructions to ensure complete closure.

G. Sound-Absorbing Insulation: Installation into topside ribs of deck as specified in Section 07 21 00 - Insulation

3.4 FLOOR-DECK INSTALLATION

A. Fasten floor-deck panels to steel supporting members by arc spot (puddle) welds of the surface diameter indicated and as follows:

1. Weld Diameter: [5/8 inch (16 mm)] [3/4 inch (19 mm)], nominal.
2. Weld Spacing: Weld edge ribs of panels at each support. Space additional welds an average of 12 inches (305 mm) apart, but not more than 18 inches (457 mm) apart.
3. Weld Spacing: Space and locate welds as indicated.
4. Weld Washers: Install weld washers at each weld location.

B. Side-Lap and Perimeter Edge Fastening: Fasten side laps and perimeter edges of panels between supports, at intervals not exceeding the lesser of half of the span or 36 inches (914 mm), and as follows:

1. Mechanically fasten with self-drilling, No. 10 (4.8-mm-) diameter or larger, carbon-steel screws.
2. Mechanically clinch or button punch.
3. Fasten with a minimum of 1-1/2-inch- (38-mm-) long welds.

C. End Bearing: Install deck ends over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm) with end joints as follows:

1. End Joints: Lapped or butted at Contractor's option.

D. Pour Stops and Girder Fillers: Weld steel sheet pour stops and girder fillers to supporting structure according to SDI recommendations unless otherwise indicated.

E. Floor-Deck Closures: Weld steel sheet column closures, cell closures, and Z-closures to deck, according to SDI recommendations, to provide tight-fitting closures at open ends of ribs and sides of deck.

F. Install piercing hanger tabs at 14 inches (355 mm) apart in both directions, within 9 inches (228 mm) of walls at ends, and not more than 12 inches (305 mm) from walls at sides unless otherwise indicated.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Field welds will be subject to inspection.

C. Testing agency will report inspection results promptly and in writing to Contractor and Architect.

D. Remove and replace work that does not comply with specified requirements.

E. Additional inspecting, at Contractor's expense, will be performed to determine compliance of corrected work with specified requirements.

3.6 PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on both surfaces of deck with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Repair Painting: Wire brush and clean rust spots, welds, and abraded areas on top surface of prime-painted deck immediately after installation, and apply repair paint.

1. Apply repair paint, of same color as adjacent shop-primed deck, to bottom surfaces of deck exposed to view.
2. Wire brushing, cleaning, and repair painting of bottom deck surfaces are included in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."

C. Repair Painting: Wire brushing, cleaning, and repair painting of rust spots, welds, and abraded areas of both deck surfaces are included in Section 099113 "Exterior Painting" and Section 099123 "Interior Painting."

D. Provide final protection and maintain conditions to ensure that steel deck is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 31 00

SECTION 10 21 13 - TOILET COMPARTMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Stainless-steel toilet compartments configured as toilet enclosures, entrance screens, and urinal screens.

B. Related Sections:

   1. Section 055000 "Metal Fabrications" for supports that attach ceiling-hung compartments, floor-and-ceiling-anchored compartments, and post-to-ceiling screens to overhead structural system.
   2. Section 061000 "Rough Carpentry"
   3. Section 102800 "Toilet, Bath, and Laundry Accessories" for toilet tissue dispensers, grab bars, purse shelves, and similar accessories.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes.

B. LEED Submittals:

   1. Product Data for Credit IEQ 4.4: For particleboard, documentation indicating that product contains no urea formaldehyde.
   2. Laboratory Test Reports for Credit IEQ 4: For adhesives and composite wood products, documentation indicating that products comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

C. Shop Drawings: For toilet compartments. Include plans, elevations, sections, details, and attachments to other work.

   1. Show locations of cutouts for compartment-mounted toilet accessories.
   2. Show locations of reinforcements for compartment-mounted grab bars.
   3. Show locations of centerlines of toilet fixtures.
   4. Show ceiling grid and overhead support or bracing locations.

D. Samples for Initial Selection: For each type of unit indicated. Include Samples of hardware and accessories involving material and color selection.

E. Samples for Verification: For the following products, in manufacturer's standard sizes unless otherwise indicated:

1. Each type of material, color, and finish required for units, prepared on 6-inch- (152-mm-) square Samples of same thickness and material indicated for Work.
2. Each type of hardware and accessory.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of toilet compartment, from manufacturer.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For toilet compartments to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Comply with requirements in GSA's CID-A-A-60003, "Partitions, Toilets, Complete."

B. Surface-Burning Characteristics: As determined by testing identical products according to ASTM E 84, or another standard acceptable to authorities having jurisdiction, by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: [25] [75] [200] or less.
2. Smoke-Developed Index: 450 or less.

C. Regulatory Requirements: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's "Americans with Disabilities Act (ADA) and Architectural Barriers Act (ABA) Accessibility Guidelines for Buildings and Facilities" and ICC/ANSI A117.1 for toilet compartments designated as accessible.

1.7 PROJECT CONDITIONS

A. Field Measurements: Verify actual locations of toilet fixtures, walls, columns, ceilings, and other construction contiguous with toilet compartments by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Stainless-Steel Sheet: ASTM A 666, Type 304, stretcher-leveled standard of flatness.

B. Stainless-Steel Castings: ASTM A 743/A 743M.

C. Zamac: ASTM B 86, commercial zinc-alloy die castings.

D. Adhesives: Manufacturer's standard product that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

2.2 STAINLESS-STEEL UNITS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

B. Basis-of-Design Product: Subject to compliance with requirements, provide product indicated on Drawings or comparable product by one of the following:

1. Accurate Partitions Corporation.
2. All American Metal Corp.
3. American Sanitary Partition Corporation.
4. Ampco, Inc.
5. Bradley Corporation; Mills Partitions.
6. Flush Metal Partition Corp.
7. General Partitions Mfg. Corp.
8. Global Steel Products Corp.
9. Hadrian Manufacturing Inc.
10. Knickerbocker Partition Corporation.
11. Metpar Corp.
12. Rockville Partitions Incorporated.
13. Sanymetal; a Crane Plumbing company.
14. Shanahan's Limited.
15. Weis-Robart Partitions, Inc.

C. Toilet-Enclosure Style: Floor and ceiling anchored

D. Entrance-Screen Style: Floor and ceiling anchored

E. Urinal-Screen Style: Wall hung with integral flanges

F. Door, Panel, and Pilaster Construction: Seamless, metal facing sheets pressure laminated to core material; with continuous, interlocking molding strip or lapped-and-formed edge closures; corners secured by welding or clips and exposed welds ground smooth. Provide with no-sightline system. Exposed surfaces shall be free of pitting, seam marks, roller marks, stains, discolorations, telegraphing of core material, or other imperfections.

1. Core Material: Manufacturer's standard sound-deadening honeycomb of resin-impregnated kraft paper in thickness required to provide finished thickness of 1 inch (25 mm) for doors and panels and 1-1/4 inches (32 mm) for pilasters.
2. Grab-Bar Reinforcement: Provide concealed internal reinforcement for grab bars mounted on units.
3. Tapping Reinforcement: Provide concealed reinforcement for tapping (threading) at locations where machine screws are used for attaching items to units.

G. Urinal-Screen Construction:

1. Integral-Flange, Wall-Hung Urinal Screen: Similar to panel construction, with integral full-height flanges for wall attachment, and maximum 1-1/4 inches (32 mm) thick.

H. Facing Sheets and Closures: Stainless-steel sheet of nominal thicknesses as follows:

1. Pilasters, Braced at Both Ends: Manufacturer's standard thickness, but not less than 0.038 inch (0.95 mm).
2. Pilasters, Unbraced at One End: Manufacturer's standard thickness, but not less than 0.050 inch (1.27 mm).
3. Panels: Manufacturer's standard thickness, but not less than 0.031 inch (0.79 mm).
4. Doors: Manufacturer's standard thickness, but not less than 0.031 inch (0.79 mm).
5. Flat-Panel Urinal Screens: Thickness matching the panels.
6. Integral-Flange, Wall-Hung Urinal Screens: Manufacturer's standard thickness, but not less than 0.031 inch (0.79 mm).
7. Wedge-Shaped, Wall-Hung Urinal Screens: Manufacturer's standard thickness, but not less than 0.038 inch (0.95 mm).

I. Pilaster Shoes and Sleeves (Caps): Stainless-steel sheet, not less than 0.031-inch (0.79-mm) nominal thickness and 3 inches (76 mm) high, finished to match hardware.

J. Urinal-Screen Post: Manufacturer's standard post design of material matching the thickness and construction of pilasters matching that on the pilaster.

K. Brackets (Fittings):

1. Stirrup Type: Ear or U-brackets; chrome-plated zamac.
2. Full-Height (Continuous) Type: Manufacturer's standard design; stainless steel.

L. Stainless-Steel Finish: Manufacturer's standard textured finish on exposed faces. Protect exposed surfaces from damage by application of strippable, temporary protective covering before shipment.

2.3 FABRICATION

A. Floor-and-Ceiling-Anchored Units: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at tops and bottoms of pilasters. Provide shoes and sleeves (caps) at pilasters to conceal anchorage.

B. Urinal-Screen Posts: Provide manufacturer's standard corrosion-resistant anchoring assemblies with leveling adjustment at[tops and] bottoms of posts. Provide shoes and sleeves (caps) at posts to conceal anchorage.

C. Door Size and Swings: Unless otherwise indicated, provide 24-inch- (610-mm-) wide, in-swinging doors for standard toilet compartments and 36-inch- (914-mm-) wide, out-swinging doors with a minimum 32-inch- (813-mm-) wide, clear opening for compartments designated as accessible.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Comply with manufacturer's written installation instructions. Install units rigid, straight, level, and plumb. Secure units in position with manufacturer's recommended anchoring devices.

1. Maximum Clearances:

a. Pilasters and Panels: 1/2 inch (13 mm).
b. Panels and Walls: 1 inch (25 mm).

2. Stirrup Brackets: Secure panels to walls and to pilasters with no fewer than three brackets attached at midpoint and near top and bottom of panel.

a. Locate wall brackets so holes for wall anchors occur in masonry or tile joints.
b. Align brackets at pilasters with brackets at walls.

B. Floor-and-Ceiling-Anchored Units: Secure pilasters to supporting construction and level, plumb, and tighten. Hang doors and adjust so doors are level and aligned with panels when doors are in closed position.

C. Urinal Screens: Attach with anchoring devices to suit supporting structure. Set units level and plumb, rigid, and secured to resist lateral impact.

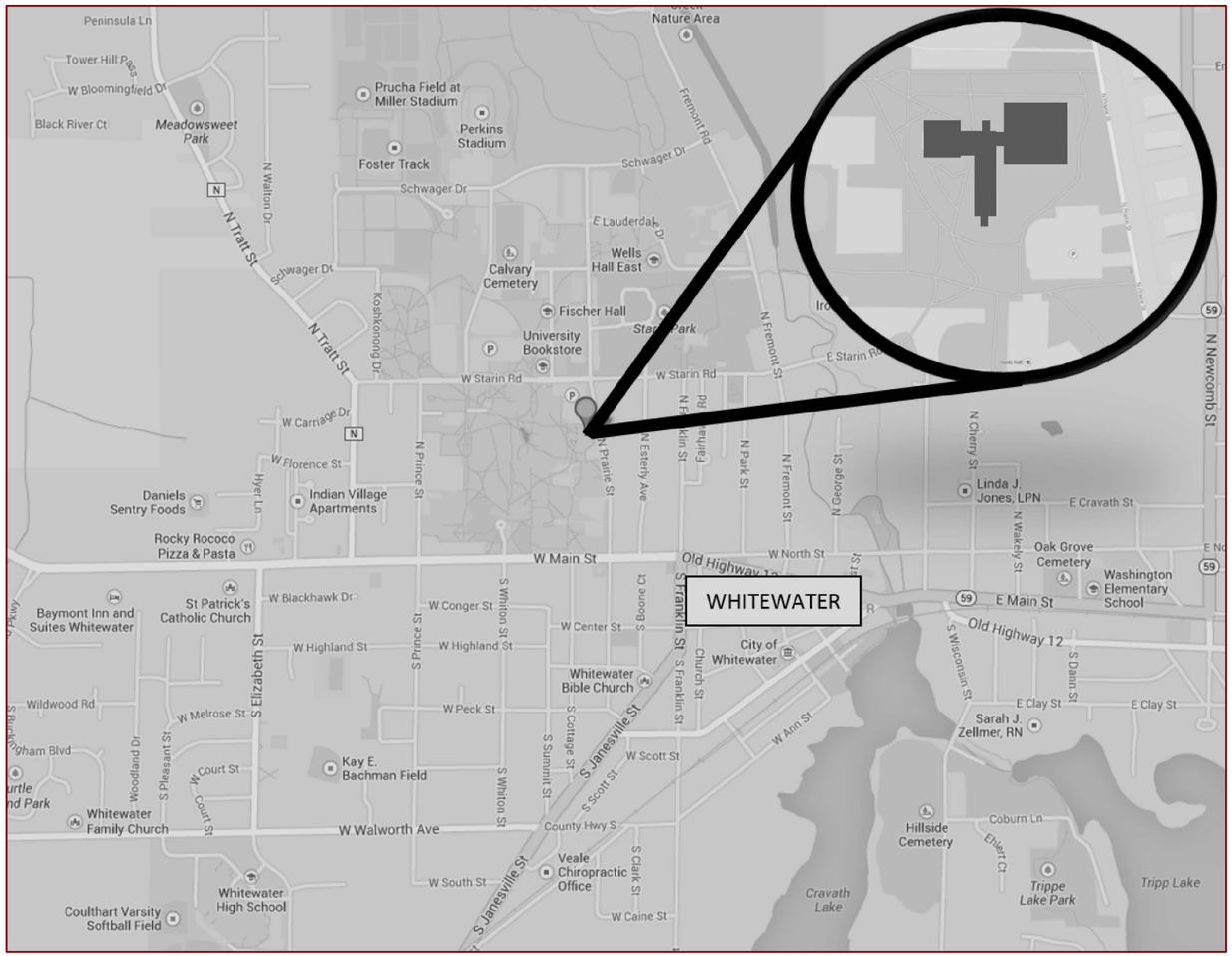
3.2 ADJUSTING

A. Hardware Adjustment: Adjust and lubricate hardware according to hardware manufacturer's written instructions for proper operation. Set hinges on in-swinging doors to hold doors open approximately 30 degrees from closed position when unlatched. Set hinges on out-swinging doors and doors in entrance screens to return doors to fully closed position.

END OF SECTION 10 21 13

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

WINTHER HALL RENOVATION AND EXPANSION



OWNER

UW WHITEWATER FACILITIES
PLANNING AND MANAGEMENT
230 NORTH PRAIRIE STREET
WHITEWATER, WI 53190

STRUCTURAL ENGINEER

ABCI ENGINEERING, INC.
1415 ENGINEERING DRIVE
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ABCI ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

COVER SHEET AND PROJECT INFORMATION

Project Number	1
Date	12/19/2013
Drawn By	AC
Checked By	BB

T100

Scale

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ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

SHEET INDEX

Project Number	1
Date	12/19/2013
Drawn By	AC
Checked By	BB

T200

Scale

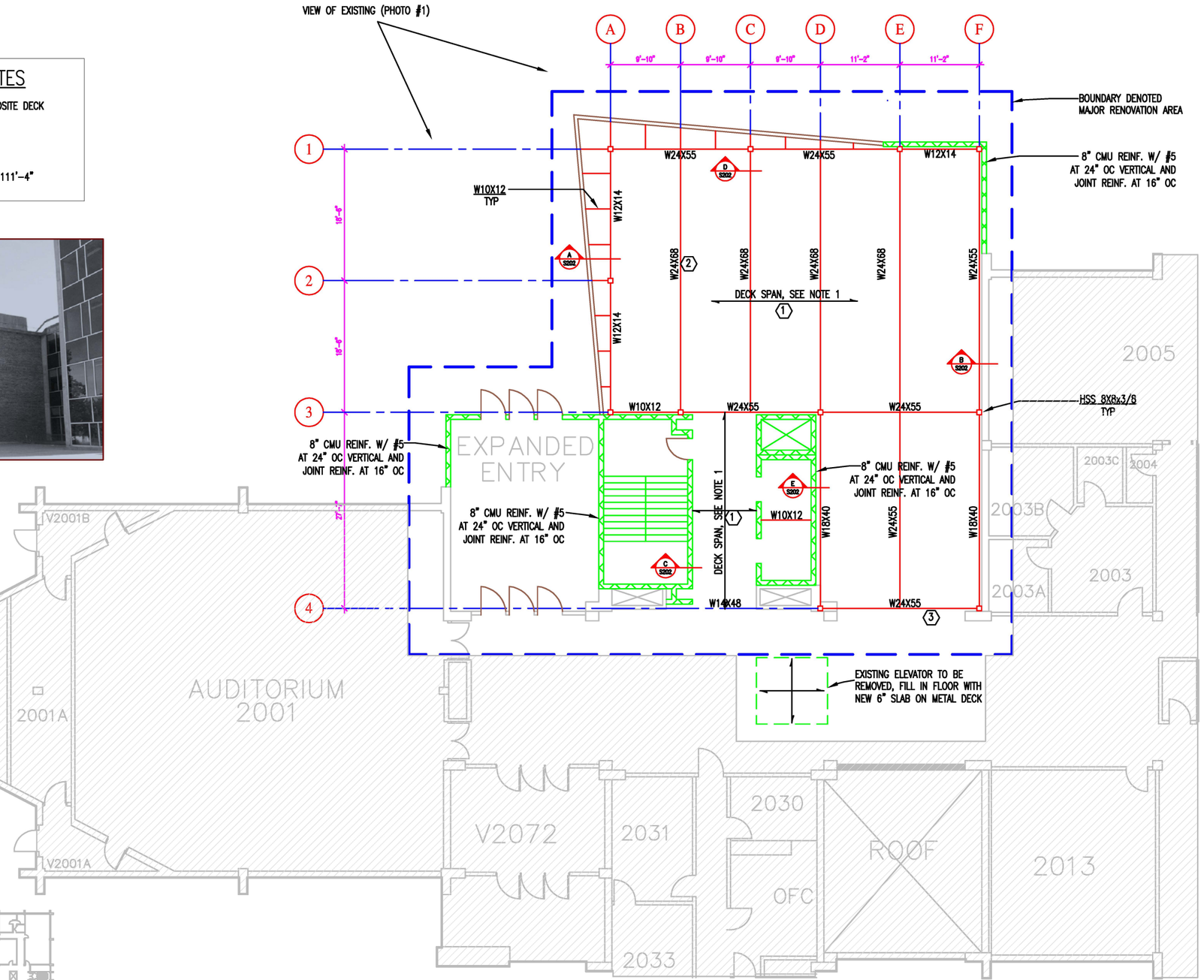
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

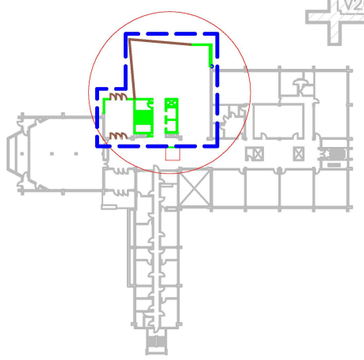
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

GENERAL NOTES

1. 3" CONC SLAB ON 3" COMPOSITE DECK (TOTAL DEPTH = 6")
2. STEEL TYPE: Fy = 60 KSI
3. TOP OF STEEL ELEVATION = 111'-4"

PHOTO #1: VIEW OF EXISTING





1 S104 2ND FLOOR FRAMING PLAN

SCALE: 1/16"=1'-0"

ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

2ND FLOOR FRAMING PLAN

Project Number	1
Date	12/19/2013
Drawn By	AC
Checked By	BB

S104

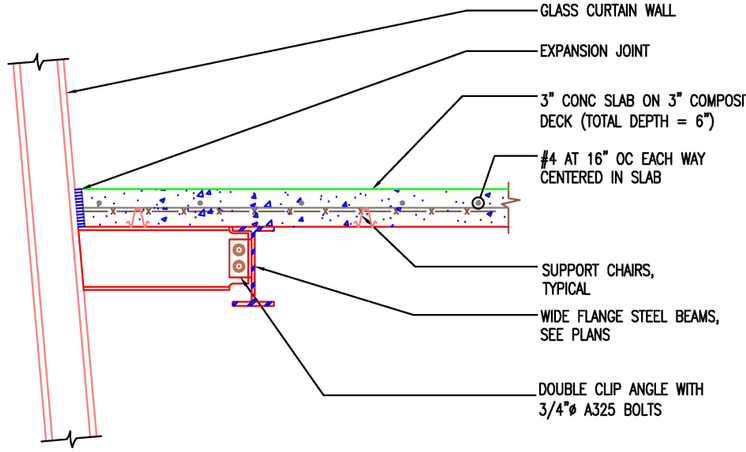
Scale 1/16" = 1'-0"

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

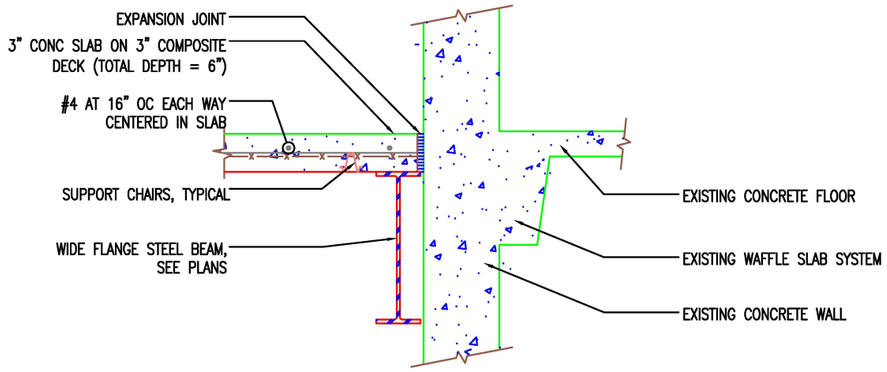
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT

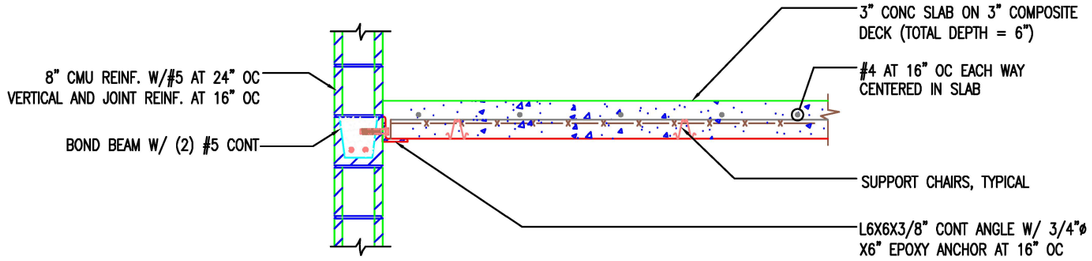
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



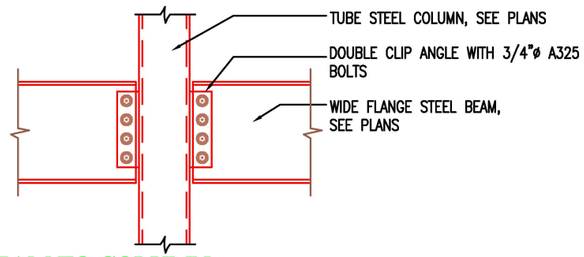
A S104 FRAMING AT EXTERIOR WALL
SCALE: 1/2"=1'-0"



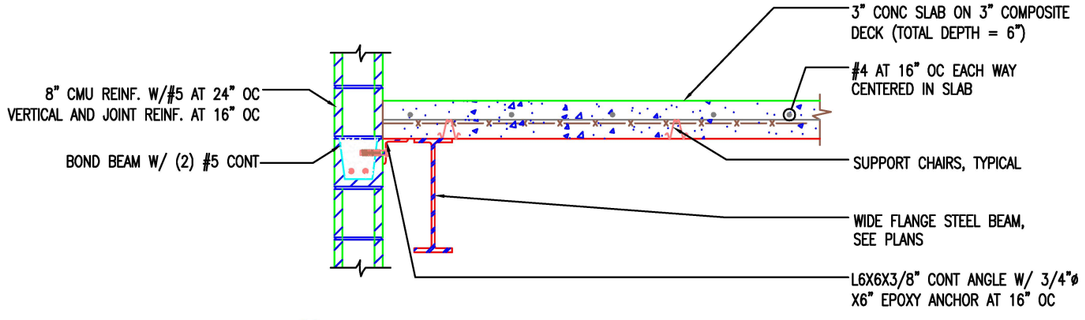
B S104 ADDITION TO EXISTING BUILDING
SCALE: 1/2"=1'-0"



C S104 CORRIDOR FLOOR AND CMU WALL
SCALE: 1/2"=1'-0"



D S104 BEAM TO COLUMN
SCALE: NOT TO SCALE



E S104 FLOOR TO CMU WALL
SCALE: 1/2"=1'-0"

ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

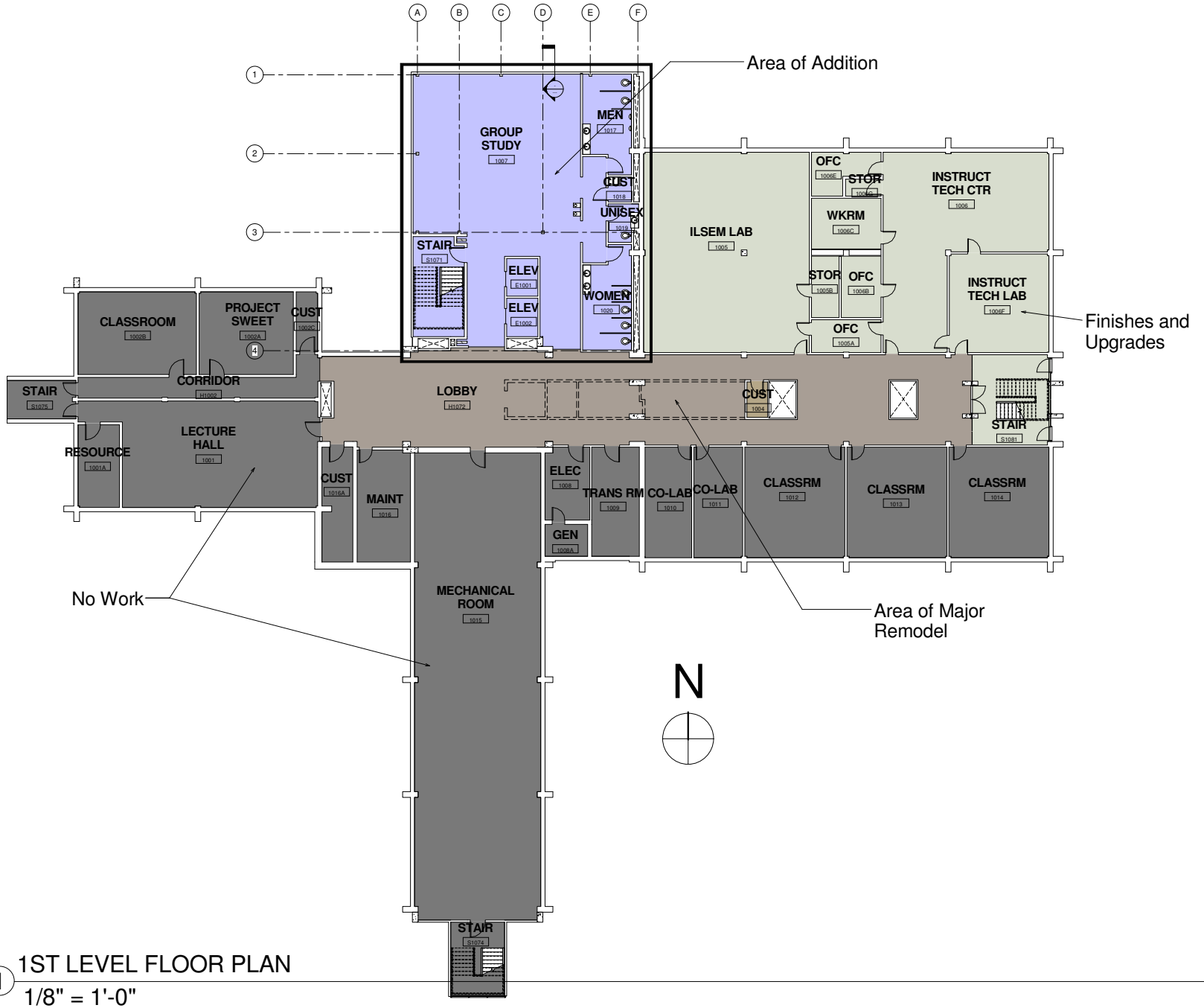
FRAMING DETAILS

Project Number	1
Date	12/19/2013
Drawn By	AC
Checked By	BB

S202

Scale 1/2" = 1'-0"

PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT
PRODUCED BY AN AUTODESK EDUCATIONAL PRODUCT



1 1ST LEVEL FLOOR PLAN

1/8" = 1'-0"

ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

1ST LEVEL FLOOR PLAN

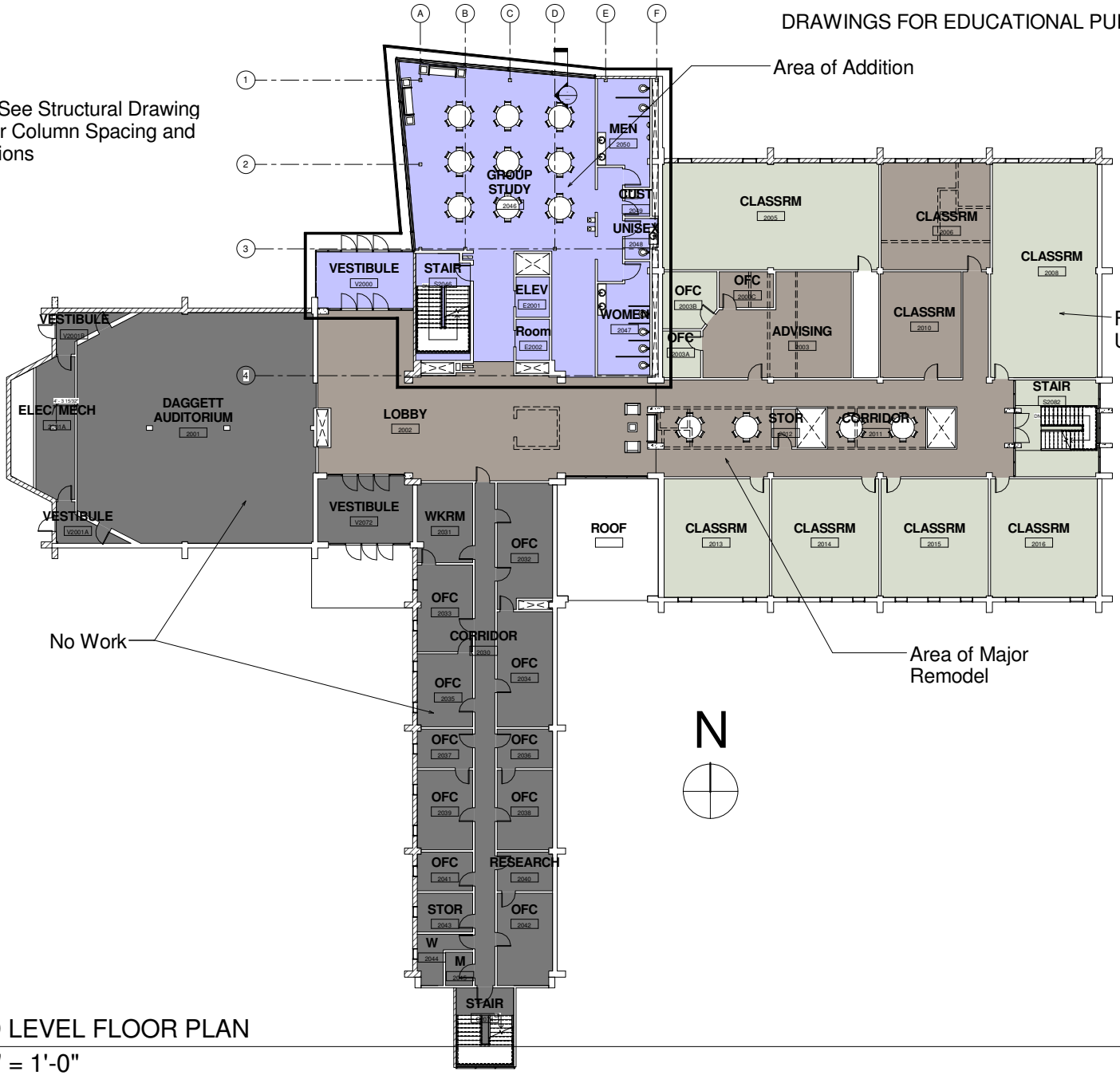
Project Number	1
Date	12/19/2013
Drawn By	IJR
Checked By	CTS

A101

Scale 1/8" = 1'-0"

DRAWINGS FOR EDUCATIONAL PURPOSES ONLY

NOTE: See Structural Drawing S104 for Column Spacing and Dimensions



1 2ND LEVEL FLOOR PLAN
1/8" = 1'-0"

ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

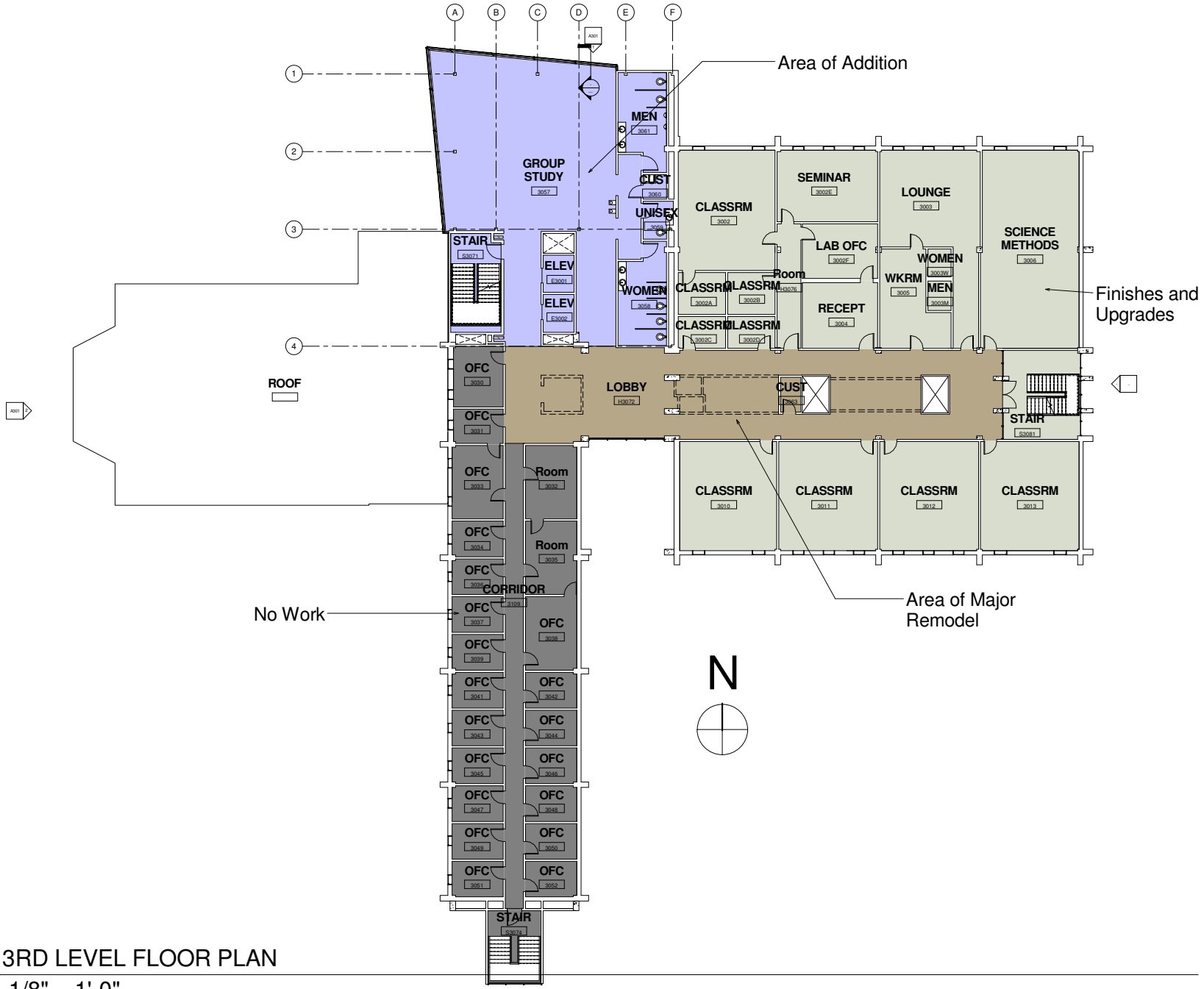
UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

2ND LEVEL FLOOR PLAN

Project Number	1
Date	12/19/2013
Drawn By	CTS
Checked By	IJR

A102

Scale 1/8" = 1'-0"



1 3RD LEVEL FLOOR PLAN

1/8" = 1'-0"

ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

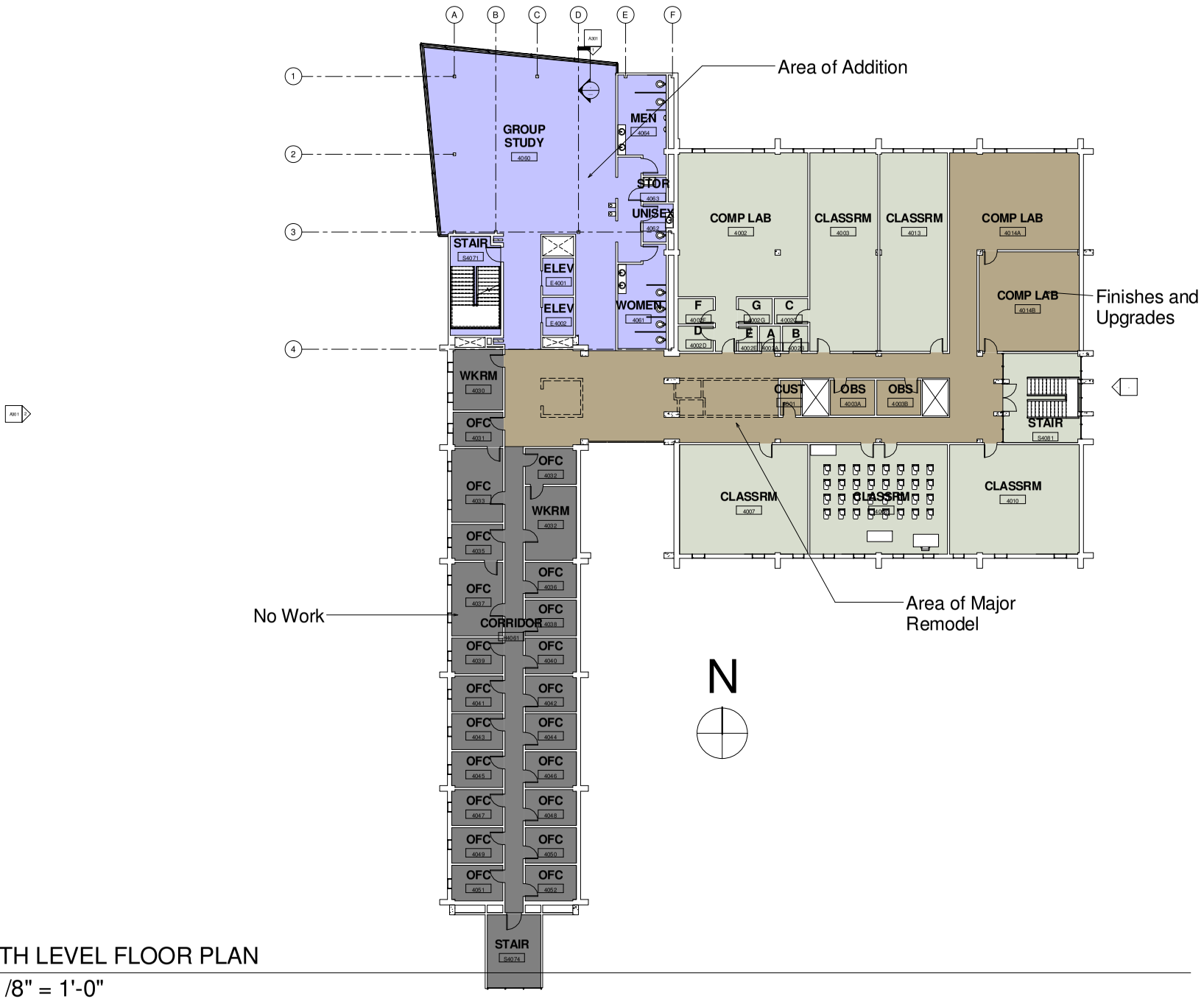
UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

3RD LEVEL FLOOR PLAN

Project Number	1
Date	12/19/2013
Drawn By	Author
Checked By	Checker

A103

Scale 1/8" = 1'-0"



1 4TH LEVEL FLOOR PLAN

1/8" = 1'-0"

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WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

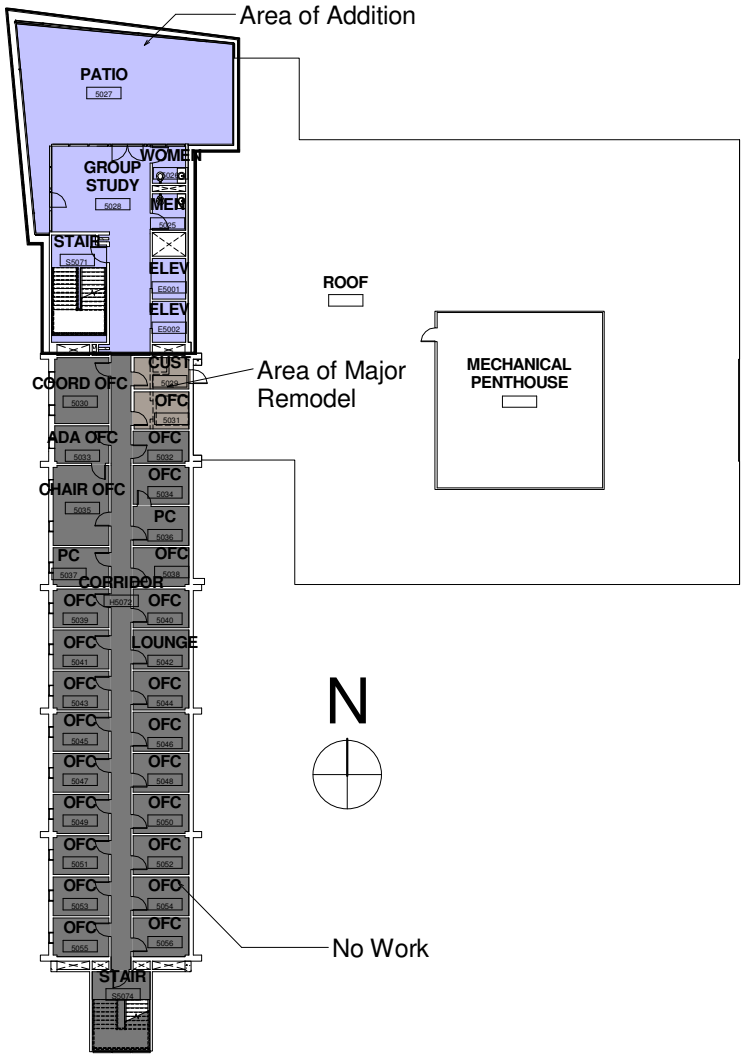
UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

4TH LEVEL FLOOR PLAN

Project Number	1
Date	12/19/2013
Drawn By	IJR
Checked By	CTS

A104

Scale 1/8" = 1'-0"



1 5TH LEVEL FLOOR PLAN

1" = 10'-0"

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WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

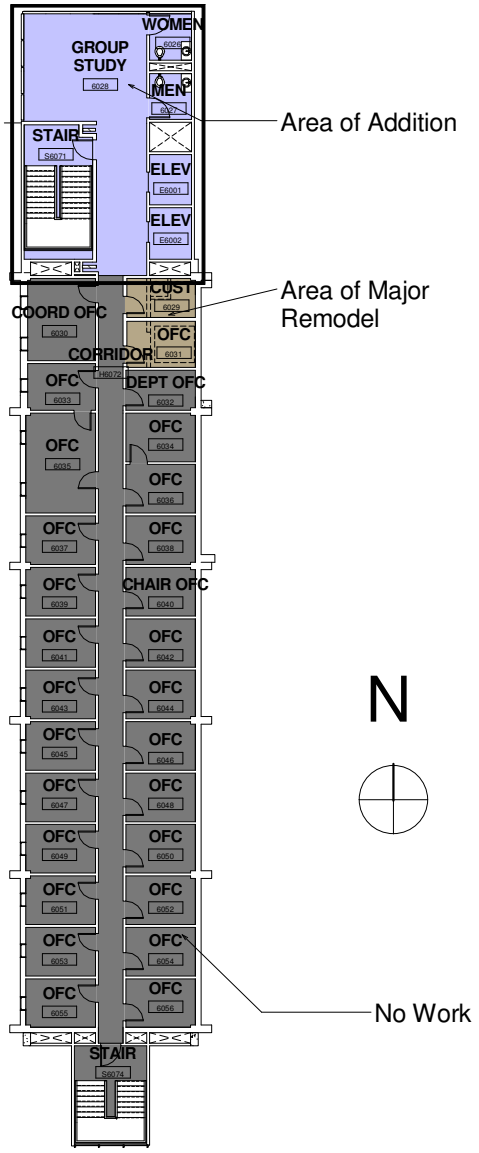
UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

5TH FLOOR PLAN

Project Number	1
Date	12/19/2013
Drawn By	IJR
Checked By	CTS

A105

Scale 1" = 10'-0"



1 6TH LEVEL FLOOR PLAN

1/8" = 1'-0"

ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

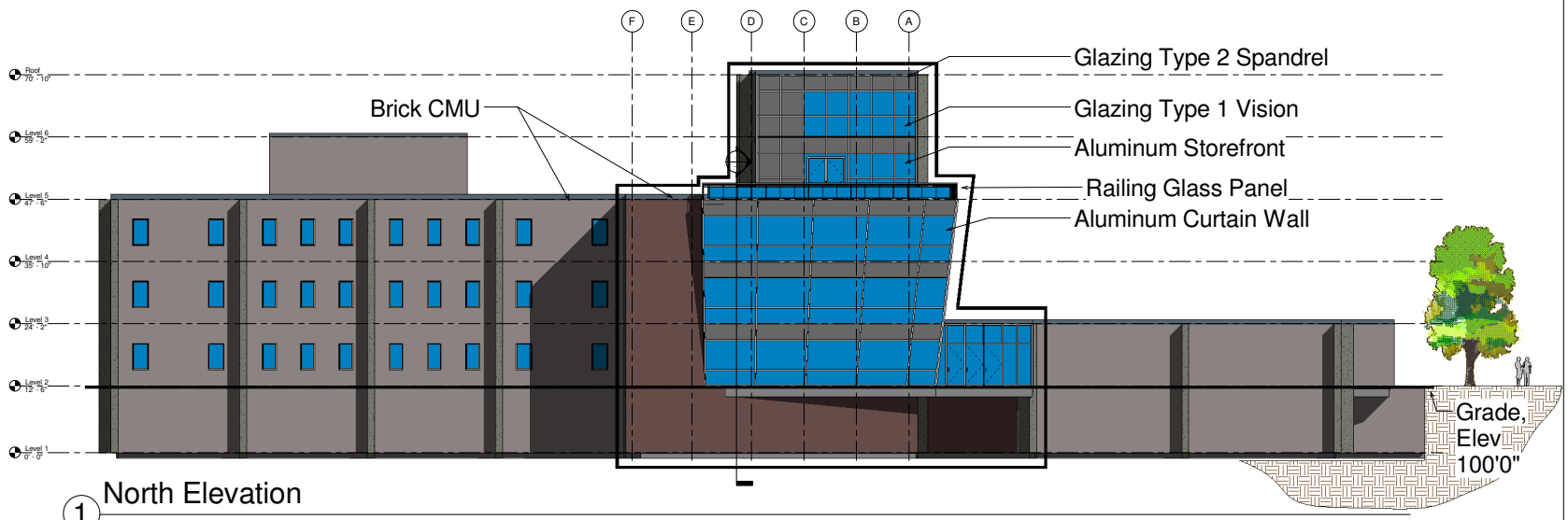
6TH LEVEL FLOOR PLAN

Project Number	1
Date	12/19/2013
Drawn By	IJR
Checked By	CTS

A106

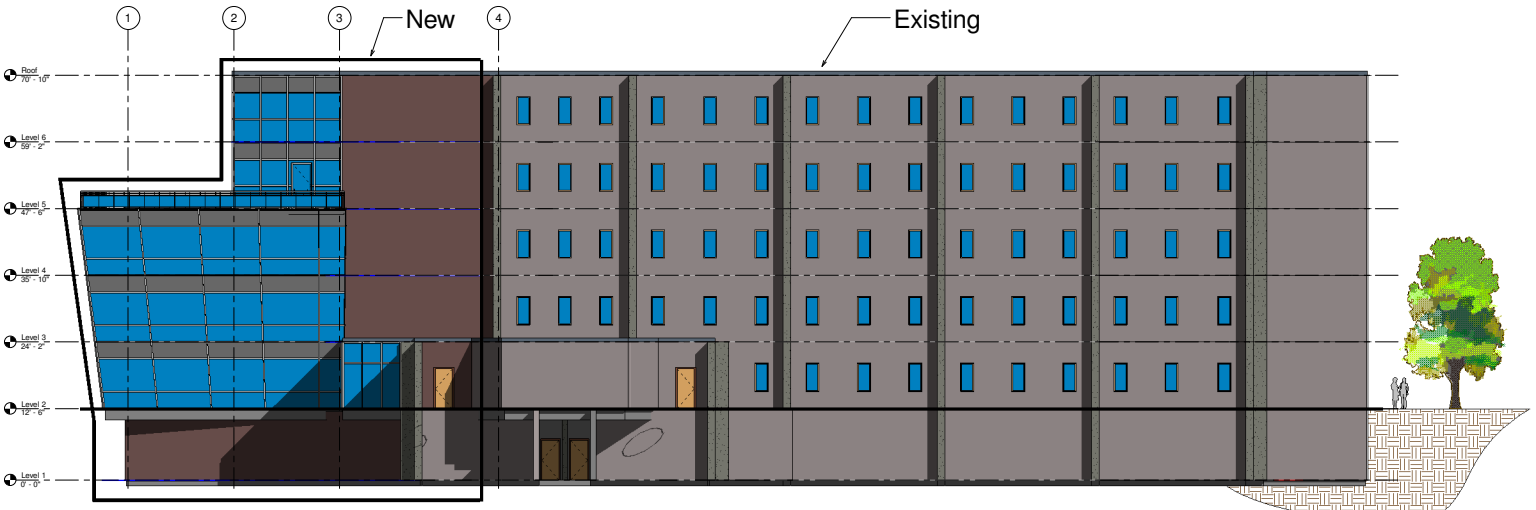
Scale 1/8" = 1'-0"

DRAWINGS FOR EDUCATIONAL PURPOSES ONLY



1 North Elevation

1/8" = 1'-0"



2 West Elevation

1/8" = 1'-0"

ABCT ENGINEERING

WINTHER HALL RENOVATION AND EXPANSION

800 W. MAIN STREET
WHITEWATER, WI 53190

UW WHITEWATER FACILITIES PLANNING AND MANAGEMENT

NORTH & WEST ELEVATIONS

Project Number	1
Date	12/19/2013
Drawn By	CTS
Checked By	IJR

A301

Scale 1/8" = 1'-0"

December 5, 2013

Mr. Michael Doran
Facilities Planning and Management
University of Wisconsin-Whitewater
General Services Building, Room 100B
500 N. Fremont Street
Whitewater, WI 53190-1790

Re: University of Wisconsin – Whitewater, Winther Hall Project
Owner-Engineer Agreement
Opinion of Probable Cost
Schedule

Dear Mr. Doran,

ABCI Engineering, Inc., in coordination with the University of Wisconsin-Whitewater, has developed the owner-engineer agreement for the Renovation and Expansion of Winther Hall. We have also included our opinion of probable cost and project schedule for your review. Our final design presentation will be on Wednesday December 11th, 2013 at 3:30pm, so we ask that any questions or concerns you may have be inquired about by Monday December 9, 2013 at 5:00pm.

ABCI Engineering, Inc. looks forward to working with the University of Wisconsin-Whitewater as we move forward with this project. Please do not hesitate to contact our project manager, Adam, with any questions.

Sincerely,

Adam Cichanski
Project Manager
ABCI Engineering, Inc.

Craig Sweney
Site Engineer
ABCI, Engineering, Inc.

Ben Bouche
Design Engineer
ABCI Engineering, Inc.

Irene Ripp
Lead Graphics Designer
ABCI Engineering, Inc.

cc: Dean Katy Heyning
Winther Hall Stakeholders

Owner – Engineer Agreement, Owner – Contractor Documents, Schedule, & Opinion of Cost

Winther Hall Renovation & Expansion
University of Wisconsin - Whitewater
Whitewater, Wisconsin

Project No. 10-11

December 5, 2013

For
Facilities Planning and Management
University of Wisconsin-Whitewater
General Services Building, Room 100B
500 N. Fremont Street
Whitewater, WI 53190-1790

(PE Seal & Signature)

By

ABCI Engineering, Inc.
1415 Engineering Drive, Madison WI 53706

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Owner – Project Schedule & Opinion of Probable Cost

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EJCDC

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

AGREEMENT BETWEEN OWNER AND ENGINEER FOR PROFESSIONAL SERVICES

THIS IS AN AGREEMENT effective as of Mar. 20th, 2014 ("Effective Date") between

UW-Whitewater Facilities Planning & Management ("Owner") and

ABCI Engineering Inc. ("Engineer").

Owner's Project, of which Engineer's services under this Agreement are a part, is generally identified as follows:

Renovation & Expansion of Winther Hall ("Project").

Engineer's services under this Agreement are generally identified as follows:

Preliminary and final design documents, preparation of bidding documents, assistance with bidding, assistance with construction administration, and site inspection

Owner and Engineer further agree as follows:

ARTICLE 1 – SERVICES OF ENGINEER

1.01 *Scope*

A. Engineer shall provide, or cause to be provided, the services set forth herein and in Exhibit A.

ARTICLE 2 – OWNER'S RESPONSIBILITIES

2.01 *General*

A. Owner shall have the responsibilities set forth herein and in Exhibit B.

B. Owner shall pay Engineer as set forth in Exhibit C.

C. Owner shall be responsible for, and Engineer may rely upon, the accuracy and completeness of all requirements, programs, instructions, reports, data, and other information furnished by Owner to Engineer pursuant to this Agreement. Engineer may use such requirements, programs,

SAMPLE

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instructions, reports, data, and information in performing or furnishing services under this Agreement.

ARTICLE 3 – SCHEDULE FOR RENDERING SERVICES

3.01 *Commencement*

A. Engineer is authorized to begin rendering services as of the Effective Date.

3.02 *Time for Completion*

A. Engineer shall complete its obligations within a reasonable time. Specific periods of time for rendering services are set forth or specific dates by which services are to be completed are provided in Exhibit A, and are hereby agreed to be reasonable.

B. If, through no fault of Engineer, such periods of time or dates are changed, or the orderly and continuous progress of Engineer's services is impaired, or Engineer's services are delayed or suspended, then the time for completion of Engineer's services, and the rates and amounts of Engineer's compensation, shall be adjusted equitably.

C. If Owner authorizes changes in the scope, extent, or character of the Project, then the time for completion of Engineer's services, and the rates and amounts of Engineer's compensation, shall be adjusted equitably.

D. Owner shall make decisions and carry out its other responsibilities in a timely manner so as not to delay the Engineer's performance of its services.

E. If Engineer fails, through its own fault, to complete the performance required in this Agreement within the time set forth, as duly adjusted, then Owner shall be entitled, as its sole remedy, to the recovery of direct damages, if any, resulting from such failure.

ARTICLE 4 – INVOICES AND PAYMENTS

4.01 *Invoices*

A. *Preparation and Submittal of Invoices*: Engineer shall prepare invoices in accordance with its standard invoicing practices and the terms of Exhibit C. Engineer shall submit its invoices to Owner on a monthly basis. Invoices are due and payable within 30 days of receipt.

4.02 *Payments*

A. *Application to Interest and Principal*: Payment will be credited first to any interest owed to Engineer and then to principal.

B. *Failure to Pay*: If Owner fails to make any payment due Engineer for services and expenses within 30 days after receipt of Engineer's invoice, then:

1. amounts due Engineer will be increased at the rate of 1.0% per month (or the maximum rate of interest permitted by law, if less) from said thirtieth day; and

SAMPLE

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2. Engineer may, after giving seven days written notice to Owner, suspend services under this Agreement until Owner has paid in full all amounts due for services, expenses, and other related charges. Owner waives any and all claims against Engineer for any such suspension.

C. *Disputed Invoices:* If Owner contests an invoice, Owner shall promptly advise Engineer of the specific basis for doing so, may withhold only that portion so contested, and must pay the undisputed portion.

D. *Legislative Actions:* If after the Effective Date any governmental entity takes a legislative action that imposes taxes, fees, or charges on Engineer's services or compensation under this Agreement, then the Engineer may invoice such new taxes, fees, or charges as a Reimbursable Expense to which a factor of 1.0 shall be applied. Owner shall reimburse Engineer for the cost of such invoiced new taxes, fees, and charges; such reimbursement shall be in addition to the compensation to which Engineer is entitled under the terms of Exhibit C.

ARTICLE 5 – OPINIONS OF COST

5.01 *Opinions of Probable Construction Cost*

A. Engineer's opinions of probable Construction Cost are to be made on the basis of Engineer's experience and qualifications and represent Engineer's best judgment as an experienced and qualified professional generally familiar with the construction industry. However, because Engineer has no control over the cost of labor, materials, equipment, or services furnished by others, or over contractors' methods of determining prices, or over competitive bidding or market conditions, Engineer cannot and does not guarantee that proposals, bids, or actual Construction Cost will not vary from opinions of probable Construction Cost prepared by Engineer. If Owner requires greater assurance as to probable Construction Cost, Owner must employ an independent cost estimator as provided in Exhibit B.

5.02 *Designing to Construction Cost Limit*

A. If a Construction Cost limit is established between Owner and Engineer, such Construction Cost limit and a statement of Engineer's rights and responsibilities with respect thereto will be specifically set forth in Exhibit F, "Construction Cost Limit," to this Agreement.

5.03 *Opinions of Total Project Costs*

A. The services, if any, of Engineer with respect to Total Project Costs shall be limited to assisting the Owner in collating the various cost categories which comprise Total Project Costs. Engineer assumes no responsibility for the accuracy of any opinions of Total Project Costs.

ARTICLE 6 – GENERAL CONSIDERATIONS

6.01 *Standards of Performance*

A. *Standard of Care:* The standard of care for all professional engineering and related services performed or furnished by Engineer under this Agreement will be the care and skill ordinarily used by members of the subject profession practicing under similar circumstances at the same

SAMPLE

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time and in the same locality. Engineer makes no warranties, express or implied, under this Agreement or otherwise, in connection with Engineer's services.

B. *Technical Accuracy:* Owner shall not be responsible for discovering deficiencies in the technical accuracy of Engineer's services. Engineer shall correct deficiencies in technical accuracy without additional compensation, unless such corrective action is directly attributable to deficiencies in Owner-furnished information.

C. *Consultants:* Engineer may employ such Consultants as Engineer deems necessary to assist in the performance or furnishing of the services, subject to reasonable, timely, and substantive objections by Owner.

D. *Reliance on Others:* Subject to the standard of care set forth in Paragraph 6.01.A, Engineer and its Consultants may use or rely upon design elements and information ordinarily or customarily furnished by others, including, but not limited to, specialty contractors, manufacturers, suppliers, and the publishers of technical standards.

E. *Compliance with Laws and Regulations, and Policies and Procedures*:

1. Engineer and Owner shall comply with applicable Laws and regulations.

2. Prior to the Effective Date, Owner provided to Engineer in writing any and all policies and procedures of Owner applicable to Engineer's performance of services under this Agreement. provided to Engineer in writing. Engineer shall comply with such policies and procedures, subject to the standard of care set forth in Paragraph 6.01.A, and to the extent compliance is not inconsistent with professional practice requirements.

3. This Agreement is based on Laws and Regulations and Owner-provided written policies and procedures as of the Effective Date. Changes after the Effective Date to these Laws and Regulations, or to Owner-provided written policies and procedures, may be the basis for modifications to Owner's responsibilities or to Engineer's scope of services, times of performance, or compensation.

F. Engineer shall not be required to sign any documents, no matter by whom requested, that would result in the Engineer having to certify, guarantee, or warrant the existence of conditions whose existence the Engineer cannot ascertain. Owner agrees not to make resolution of any dispute with the Engineer or payment of any amount due to the Engineer in any way contingent upon the Engineer signing any such documents.

G. The general conditions for any construction contract documents prepared hereunder are to be the "Standard General Conditions of the Construction Contract" as prepared by the Engineers Joint Contract Documents Committee (EJCDC C-700, 2007 Edition) unless both parties mutually agree to use other general conditions by specific reference in Exhibit J.

H. Engineer shall not at any time supervise, direct, control, or have authority over any contractor work, nor shall Engineer have authority over or be responsible for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, or the safety precautions and programs incident thereto, for security or safety at the Site, nor for any

SAMPLE

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failure of a contractor to comply with Laws and Regulations applicable to such contractor's furnishing and performing of its work.

I. Engineer neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform the Work in accordance with the Contract Documents.

J. Engineer shall not provide or have any responsibility for surety bonding or insurance-related advice, recommendations, counseling, or research, or enforcement of construction insurance or surety bonding requirements.

K. Engineer shall not be responsible for the acts or omissions of any Contractor, Subcontractor, or Supplier, or of any of their agents or employees or of any other persons (except Engineer's own agents, employees, and Consultants) at the Site or otherwise furnishing or performing any Work; or for any decision made regarding the Contract Documents, or any application, interpretation, or clarification, of the Contract Documents, other than those made by Engineer.

L. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's and Owner's safety programs of which Engineer has been informed in writing.

6.02 *Design Without Construction Phase Services*

A. Engineer shall be responsible only for those Construction Phase services expressly required of Engineer in Exhibit A, Paragraph A1.05. With the exception of such expressly required services, Engineer shall have no design, Shop Drawing review, or other obligations during construction and Owner assumes all responsibility for the application and interpretation of the Contract Documents, review and response to Contractor claims, contract administration, processing Change Orders, revisions to the Contract Documents during construction, construction surety bonding and insurance requirements, construction observation and review, review of payment applications, and all other necessary Construction Phase engineering and professional services. Owner waives all claims against the Engineer that may be connected in any way to Construction Phase engineering or professional services except for those services that are expressly required of Engineer in Exhibit A, Paragraph A1.05.

6.03 *Use of Documents*

A. All Documents are instruments of service in respect to this Project, and Engineer shall retain an ownership and property interest therein (including the copyright and the right of reuse at the discretion of the Engineer) whether or not the Project is completed. Owner shall not rely in any way on any Document unless it is in printed form, signed or sealed by the Engineer or one of its Consultants.

B. Either party to this Agreement may rely that data or information set forth on paper (also known as hard copies) that the party receives from the other party by mail, hand delivery, or facsimile, are the items that the other party intended to send. Files in electronic media format of text, data, graphics, or other types that are furnished by one party to the other are furnished only for convenience, not reliance by the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between

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the electronic files and the hard copies, the hard copies govern. If the parties agree to other electronic transmittal procedures, such are set forth in Exhibit J.

C. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any transmittal errors detected within the 60-day acceptance period will be corrected by the party delivering the electronic files.

D. When transferring documents in electronic media format, the transferring party makes no representations as to long-term compatibility, usability, or readability of such documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the documents' creator.

E. Owner may make and retain copies of Documents for information and reference in connection with use on the Project by Owner. Engineer grants Owner a limited license to use the Documents on the Project, extensions of the Project, and for related uses of the Owner, subject to receipt by Engineer of full payment for all services relating to preparation of the Documents and subject to the following limitations: (1) Owner acknowledges that such Documents are not intended or represented to be suitable for use on the Project unless completed by Engineer, or for use or reuse by Owner or others on extensions of the Project, on any other project, or for any other use or purpose, without written verification or adaptation by Engineer; (2) any such use or reuse, or any modification of the Documents, without written verification, completion, or adaptation by Engineer, as appropriate for the specific purpose intended, will be at Owner's sole risk and without liability or legal exposure to Engineer or to its officers, directors, members, partners, agents, employees, and Consultants; (3) Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and Consultants from all claims, damages, losses, and expenses, including attorneys' fees, arising out of or resulting from any use, reuse, or modification of the Documents without written verification, completion, or adaptation by Engineer; and (4) such limited license to Owner shall not create any rights in third parties.

F. If Engineer at Owner's request verifies the suitability of the Documents, completes them, or adapts them for extensions of the Project or for any other purpose, then Owner shall compensate Engineer at rates or in an amount to be agreed upon by Owner and Engineer.

6.04 *Insurance*

A. Engineer shall procure and maintain insurance as set forth in Exhibit G, "Insurance." Engineer shall cause Owner to be listed as an additional insured on any applicable general liability insurance policy carried by Engineer.

B. Owner shall procure and maintain insurance as set forth in Exhibit G, "Insurance." Owner shall cause Engineer and its Consultants to be listed as additional insureds on any general liability policies and as loss payees on any property insurance policies carried by Owner which are applicable to the Project.

C. Owner shall require Contractor to purchase and maintain policies of insurance covering workers' compensation, general liability, property damage (other than to the Work itself), motor vehicle damage and injuries, and other insurance necessary to protect Owner's and Engineer's interests in

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the Project. Owner shall require Contractor to cause Engineer and its Consultants to be listed as additional insureds with respect to such liability and other insurance purchased and maintained by Contractor for the Project.

D. Owner and Engineer shall each deliver to the other certificates of insurance evidencing the coverages indicated in Exhibit G. Such certificates shall be furnished prior to commencement of Engineer's services and at renewals thereafter during the life of the Agreement.

E. All policies of property insurance relating to the Project shall contain provisions to the effect that Engineer's and its Consultants' interests are covered and that in the event of payment of any loss or damage the insurers will have no rights of recovery against Engineer or its Consultants, or any insureds, additional insureds, or loss payees thereunder.

F. All policies of insurance shall contain a provision or endorsement that the coverage afforded will not be canceled or reduced in limits by endorsement, and thatrenewal will not be refused, until at least 30 days prior written notice has been given to Owner and Engineer and to each other additional insured (if any) to which a certificate of insurance has been issued.

G. At any time, Owner may request that Engineer or its Consultants, at Owner's sole expense, provide additional insurance coverage, increased limits, or revised deductibles that are more protective than those specified in Exhibit G. If so requested by Owner, and if commercially available, Engineer shall obtain and shall require its Consultants to obtain such additional insurance coverage, different limits, or revised deductibles for such periods of time as requested by Owner, and Exhibit G will be supplemented to incorporate these requirements.

6.05 *Suspension and Termination*

A. *Suspension*:

1. By Owner: Owner may suspend the Project for up to 90 days upon seven days written notice to Engineer.

2. By Engineer: Engineer may, after giving seven days written notice to Owner, suspend services under this Agreement if Engineer's performance has been substantially delayed through no fault of Engineer.

B. *Termination*: The obligation to provide further services under this Agreement may be terminated:

1. For cause,

a. By either party upon 30 days written notice in the event of substantial failure by the other party to perform in accordance with the terms hereof through no fault of the terminating party.

b. By Engineer:

1) upon seven days written notice if Owner demands that Engineer furnish or perform services contrary to Engineer's responsibilities as a licensed professional; or

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2) upon seven days written notice if the Engineer's services for the Project are delayed or suspended for more than 90 days for reasons beyond Engineer's control.

3) Engineer shall have no liability to Owner on account of such termination.

c. Notwithstanding the foregoing, this Agreement will not terminate under Paragraph 6.05.B.1.a if the party receiving such notice begins, within seven days of receipt of such notice, to correct its substantial failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt thereof; provided, however, that if and to the extent such substantial failure cannot be reasonably cured within such 30 day period, and if such party has diligently attempted to cure the same and thereafter continues diligently to cure the same, then the cure period provided for herein shall extend up to, but in no case more than, 60 days after the date of receipt of the notice.

2. For convenience,

a. By Owner effective upon Engineer's receipt of notice from Owner.

C. *Effective Date of Termination*: The terminating party under Paragraph 6.05.B may set the effective date of termination at a time up to 30 days later than otherwise provided to allow Engineer to demobilize personnel and equipment from the Site, to complete tasks whose value would otherwise be lost, to prepare notes as to the status of completed and uncompleted tasks, and to assemble Project materials in orderly files.

D. *Payments Upon Termination*:

1. In the event of any termination under Paragraph 6.05, Engineer will be entitled to invoice Owner and to receive full payment for all services performed or furnished in accordance with this Agreement and all Reimbursable Expenses incurred through the effective date of termination. Upon making such payment, Owner shall have the limited right to the use of Documents, at Owner's sole risk, subject to the provisions of Paragraph 6.03.E.

2. In the event of termination by Owner for convenience or by Engineer for cause, Engineer shall be entitled, in addition to invoicing for those items identified in Paragraph 6.05.D.1, to invoice Owner and to payment of a reasonable amount for services and expenses directly attributable to termination, both before and after the effective date of termination, such as reassignment of personnel, costs of terminating contracts with Engineer's Consultants, and other related close-out costs, using methods and rates for Additional Services as set forth in Exhibit C.

6.06 *Controlling Law*

A. This Agreement is to be governed by the law of the state or jurisdiction in which the Project is located.

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6.07 *Successors, Assigns, and Beneficiaries*

A. Owner and Engineer are hereby bound and the successors, executors, administrators, and legal representatives of Owner and Engineer (and to the extent permitted by Paragraph 6.07.B the assigns of Owner and Engineer) are hereby bound to the other party to this Agreement and to the successors, executors, administrators and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements, and obligations of this Agreement.

B. Neither Owner nor Engineer may assign, sublet, or transfer any rights under or interest (including, but without limitation, moneys that are due or may become due) in this Agreement without the written consent of the other, except to the extent that any assignment, subletting, or transfer is mandated or restricted by law. Unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under this Agreement.

C. Unless expressly provided otherwise in this Agreement:

1. Nothing in this Agreement shall be construed to create, impose, or give rise to any duty owed by Owner or Engineer to any Contractor, Subcontractor, Supplier, other individual or entity, or to any surety for or employee of any of them.

2. All duties and responsibilities undertaken pursuant to this Agreement will be for the sole and exclusive benefit of Owner and Engineer and not for the benefit of any other party.

3. Owner agrees that the substance of the provisions of this Paragraph 6.07.C shall appear in the Contract Documents.

6.08 *Dispute Resolution*

A. Owner and Engineer agree to negotiate all disputes between them in good faith for a period of 30 days from the date of notice prior to invoking the procedures of Exhibit H or other provisions of this Agreement, or exercising their rights under law.

B. If the parties fail to resolve a dispute through negotiation under Paragraph 6.08.A, then either or both may invoke the procedures of Exhibit H. If Exhibit H is not included, or if no dispute resolution method is specified in Exhibit H, then the parties may exercise their rights under law.

6.09 *Environmental Condition of Site*

A. Owner has disclosed to Engineer in writing the existence of all known and suspected Asbestos, PCBs, Petroleum, Hazardous Waste, Radioactive Material, hazardous substances, and other Constituents of Concern located at or near the Site, including type, quantity, and location.

B. Owner represents to Engineer that to the best of its knowledge no Constituents of Concern, other than those disclosed in writing to Engineer, exist at the Site.

C. If Engineer encounters or learns of an undisclosed Constituent of Concern at the Site, then Engineer shall notify (1) Owner and (2) appropriate governmental officials if Engineer reasonably concludes that doing so is required by applicable Laws or Regulations.

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D. It is acknowledged by both parties that Engineer's scope of services does not include any services related to Constituents of Concern. If Engineer or any other party encounters an undisclosed Constituent of Concern, or if investigative or remedial action, or other professional services, are necessary with respect to disclosed or undisclosed Constituents of Concern, then Engineer may, at its option and without liability for consequential or any other damages, suspend performance of services on the portion of the Project affected thereby until Owner: (1) retains appropriate specialist consultants or contractors to identify and, as appropriate, abate, remediate, or remove the Constituents of Concern; and (2) warrants that the Site is in full compliance with applicable Laws and Regulations.

E. If the presence at the Site of undisclosed Constituents of Concern adversely affects the performance of Engineer's services under this Agreement, then the Engineer shall have the option of (1) accepting an equitable adjustment in its compensation or in the time of completion, or both; or (2) terminating this Agreement for cause on 30 days notice.

F. Owner acknowledges that Engineer is performing professional services for Owner and that Engineer is not and shall not be required to become an "owner" "arranger," "operator," "generator," or "transporter" of hazardous substances, as defined in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended, which are or may be encountered at or near the Site in connection with Engineer's activities under this Agreement.

6.10 *Indemnification and Mutual Waiver*

A. *Indemnification by Engineer*: To the fullest extent permitted by law, Engineer shall indemnify and hold harmless Owner, and Owner's officers, directors, members, partners, agents, consultants, and employees from reasonable claims, costs, losses, and damages arising out of or relating to the Project, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Engineer or Engineer's officers, directors, members, partners, agents, employees, or Consultants. **This indemnification provision is subject to and limited by the provisions, if any, agreed to by Owner and Engineer in Exhibit I, "Limitations of Liability."**

B. *Indemnification by Owner*: Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and Consultants as required by Laws and Regulations and to the extent (if any) required in Exhibit I, Limitations of Liability.

C. *Environmental Indemnification*: To the fullest extent permitted by law, Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and Consultants from and against any and all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys and other professionals, and all court, arbitration, or other dispute resolution costs) caused by, arising out of, relating to, or resulting from a Constituent of Concern at, on, or under the Site, provided that (1) any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, and (2) nothing in this paragraph shall obligate Owner to indemnify any individual or

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entity from and against the consequences of that individual's or entity's own negligence or willful misconduct.

D. *Percentage Share of Negligence*: To the fullest extent permitted by law, a party's total liability to the other party and anyone claiming by, through, or under the other party for any cost, loss, or damages caused in part by the negligence of the party and in part by the negligence of the other party or any other negligent entity or individual, shall not exceed the percentage share that the party's negligence bears to the total negligence of Owner, Engineer, and all other negligent entities and individuals.

E. *Mutual Waiver*: To the fullest extent permitted by law, Owner and Engineer waive against each other, and the other's employees, officers, directors, members, agents, insurers, partners, and consultants, any and all claims for or entitlement to special, incidental, indirect, or consequential damages arising out of, resulting from, or in any way related to the Project.

6.11 *Miscellaneous Provisions*

A. *Notices*: Any notice required under this Agreement will be in writing, addressed to the appropriate party at its address on the signature page and given personally, by facsimile, by registered or certified mail postage prepaid, or by a commercial courier service. All notices shall be effective upon the date of receipt.

B. *Survival*: All express representations, waivers, indemnifications, and limitations of liability included in this Agreement will survive its completion or termination for any reason.

C. *Severability*: Any provision or part of the Agreement held to be void or unenforceable under any Laws or Regulations shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Engineer, which agree that the Agreement shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

D. *Waiver*: A party's non-enforcement of any provision shall not constitute a waiver of that provision, nor shall it affect the enforceability of that provision or of the remainder of this Agreement.

E. *Accrual of Claims:* To the fullest extent permitted by law, all causes of action arising under this Agreement shall be deemed to have accrued, and all statutory periods of limitation shall commence, no later than the date of Substantial Completion.

ARTICLE 7 – DEFINITIONS

7.01 *Defined Terms*

A. Wherever used in this Agreement (including the Exhibits hereto) terms (including the singular and plural forms) printed with initial capital letters have the meanings indicated in the text above, in the exhibits, or in the following provisions:

1. *Additional Services* – The services to be performed for or furnished to Owner by Engineer in accordance with Part 2 of Exhibit A of this Agreement.

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2. *Agreement* – This written contract for professional services between Owner and Engineer, including all exhibits identified in Paragraph 8.01 and any duly executed amendments.

3. *Asbestos* – Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

4. *Basic Services* – The services to be performed for or furnished to Owner by Engineer in accordance with Part 1 of Exhibit A of this Agreement.

5. *Construction Contract* – The entire and integrated written agreement between Owner and Contractor concerning the Work.

6. *Construction Cost* – The cost to Owner of those portions of the entire Project designed or specified by Engineer. Construction Cost does not include costs of services of Engineer or other design professionals and consultants; cost of land or rights-of-way, or compensation for damages to properties; Owner's costs for legal, accounting, insurance counseling or auditing services; interest or financing charges incurred in connection with the Project; or the cost of other services to be provided by others to Owner pursuant to Exhibit B of this Agreement. Construction Cost is one of the items comprising Total Project Costs.

7. *Constituent of Concern* – Any substance, product, waste, or other material of any nature whatsoever (including, but not limited to, Asbestos, Petroleum, Radioactive Material, and PCBs) which is or becomes listed, regulated, or addressed pursuant to (a) the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§9601 et seq. ("CERCLA"); (b) the Hazardous Materials Transportation Act, 49 U.S.C. §§1801 et seq.; (c) the Resource Conservation and Recovery Act, 42 U.S.C. §§6901 et seq. ("RCRA"); (d) the Toxic Substances Control Act, 15 U.S.C. §§2601 et seq.; (e) the Clean Water Act, 33 U.S.C. §§1251 et seq.; (f) the Clean Air Act, 42 U.S.C. §§7401 et seq.; and (g) any other federal, state, or local statute, law, rule, regulation, ordinance, resolution, code, order, or decree regulating, relating to, or imposing liability or standards of conduct concerning, any hazardous, toxic, or dangerous waste, substance, or material.

8. *Consultants* – Individuals or entities having a contract with Engineer to furnish services with respect to this Project as Engineer's independent professional associates and consultants; subcontractors; or vendors.

9. *Contract Documents* – Those items so designated in the Construction Contract, including the Drawings, Specifications, construction agreement, and general and supplementary conditions. Only printed or hard copies of the items listed in the Construction Contract are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

10. *Contractor* – The entity or individual with which Owner has entered into a Construction Contract.

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11. *Documents* – Data, reports, Drawings, Specifications, Record Drawings, and other deliverables, whether in printed or electronic media format, provided or furnished in appropriate phases by Engineer to Owner pursuant to this Agreement.

12. *Drawings* – That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings are not Drawings as so defined.

13. *Effective Date* – The date indicated in this Agreement on which it becomes effective, but if no such date is indicated, the date on which this Agreement is signed and delivered by the last of the parties to sign and deliver.

14. *Engineer* – The individual or entity named as such in this Agreement.

15. *Hazardous Waste* – The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

16. *Laws and Regulations; Laws or Regulations* – Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

17. *Owner* – The individual or entity with which Engineer has entered into this Agreement and for which the Engineer's services are to be performed. Unless indicated otherwise, this is the same individual or entity that will enter into any Construction Contracts concerning the Project.

18. *PCBs* – Polychlorinated biphenyls.

19. *Petroleum* – Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-hazardous waste and crude oils.

20. *Project* – The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

21. *Radioactive Material* – Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

22. *Record Drawings* – Drawings depicting the completed Project, prepared by Engineer as an Additional Service and based solely on Contractor's record copy of all Drawings, Specifications, addenda, change orders, work change directives, field orders, and written interpretations and clarifications, as delivered to Engineer and annotated by Contractor to show changes made during construction.

23. *Reimbursable Expenses* – The expenses incurred directly by Engineer in connection with the performing or furnishing of Basic and Additional Services for the Project.

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24. *Resident Project Representative* – The authorized representative of Engineer assigned to assist Engineer at the Site during the Construction Phase. As used herein, the term Resident Project Representative or "RPR" includes any assistants or field staff of Resident Project Representative agreed to by Owner. The duties and responsibilities of the Resident Project Representative, if any, are as set forth in Exhibit D.

25. *Samples* – Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

26. *Shop Drawings* – All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

27. *Site* – Lands or areas to be indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

28. *Specifications* – That part of the Contract Documents consisting of written technical descriptions of materials, equipment, systems, standards, and workmanship as applied to the Work and certain administrative details applicable thereto.

29. *Subcontractor* – An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

30. *Substantial Completion* – The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

31. *Supplier* – A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

32. *Total Project Costs* – The sum of the Construction Cost, allowances for contingencies, and the total costs of services of Engineer or other design professionals and consultants, together with such other Project-related costs that Owner furnishes for inclusion, including but not limited to cost of land, rights-of-way, compensation for damages to properties, Owner's costs for legal, accounting, insurance counseling and auditing services, interest and financing charges incurred in connection with the Project, and the cost of other services to be provided by others to Owner pursuant to Exhibit B of this Agreement.

33. *Work* – The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such

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construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

ARTICLE 8 – EXHIBITS AND SPECIAL PROVISIONS

8.01 *Exhibits Included:*

A. Exhibit A, Engineer's Services.

B. Exhibit B, Owner's Responsibilities.

C. Exhibit C, Payments to Engineer for Services and Reimbursable Expenses.

D. Exhibit D, Duties, Responsibilities and Limitations of Authority of Resident Project Representative.

E. Exhibit E, Notice of Acceptability of Work.

F. Exhibit F, Construction Cost Limit.

G. Exhibit G, Insurance.

H. Exhibit H, Dispute Resolution.

I. Exhibit I, Limitations of Liability.

J. Exhibit J, Special Provisions. Not Included

K. Exhibit K, Amendment to Owner-Engineer Agreement. Not Included

~~***[NOTE TO USER: If an exhibit is not included, indicate "not included" after the listed exhibit item]***~~

8.02 *Total Agreement:*

A. This Agreement, (together with the exhibits identified above) constitutes the entire agreement between Owner and Engineer and supersedes all prior written or oral understandings. This Agreement may only be amended, supplemented, modified, or canceled by a duly executed written instrument based on the format of Exhibit K to this Agreement.

8.03 *Designated Representatives:*

A. With the execution of this Agreement, Engineer and Owner shall designate specific individuals to act as Engineer's and Owner's representatives with respect to the services to be performed or furnished by Engineer and responsibilities of Owner under this Agreement. Such an individual shall have authority to transmit instructions, receive information, and render decisions relative to the Project on behalf of the respective party whom the individual represents.

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8.04 *Engineer's Certifications:*

A. Engineer certifies that it has not engaged in corrupt, fraudulent, or coercive practices in competing for or in executing the Agreement. For the purposes of this Paragraph 8.04:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the selection process or in the Agreement execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the selection process or the execution of the Agreement to the detriment of Owner, or (b) to deprive Owner of the benefits of free and open competition;

3. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the selection process or affect the execution of the Agreement.

IN WITNESS WHEREOF, the parties hereto have executed this Agreement, the Effective Date of which is indicated on page 1.

Owner:	Engineer:
UW-Whitewater Facilities Planning & Management	ABCI Engineering Inc.
By: Mr. Michael Doran	By: Mr. Adam Cichanski
Title: Director of Facilities Planning & Management	Title: Project Manager
Date Signed: 10/1/13	Date Signed: 10/1/13
	Engineer License or Firm's Certificate No. 12345678
	State of: Wisconsin
Address for giving notices:	Address for giving notices:
2317 Engineering Hall	1415 Engineering Dr.
Madison, WI 53706	Madison, WI 53706
Designated Representative (Paragraph 8.03.A):	Designated Representative (Paragraph 8.03.A):
Michael Doran	Adam Cichanski
Title: Director of Facilities Planning & Management	Title: Project Manager
Phone Number: 608-980-####	Phone Number: 414-791-7161

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Facsimile Number:	608-980-####	Facsimile Number:	414-791-7162
E-Mail Address:	doran@uww.edu	E-Mail Address:	cichanski@abci.com

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This is **EXHIBIT A**, consisting of 12 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct 1, 2013.

Engineer's Services

Article 1 of the Agreement is supplemented to include the following agreement of the parties.

Engineer shall provide Basic and Additional Services as set forth below.

PART 1 – BASIC SERVICES

A1.01 *Study and Report Phase*

A. Engineer shall:

1. Consult with Owner to define and clarify Owner's requirements for the Project and available data.

2. Advise Owner of any need for Owner to provide data or services of the types described in Exhibit B which are not part of Engineer's Basic Services.

3. Identify, consult with, and analyze requirements of governmental authorities having jurisdiction to approve the portions of the Project designed or specified by Engineer, including but not limited to mitigating measures identified in the environmental assessment.

4. Identify and evaluate Four alternate solutions available to Owner and, after consultation with Owner, recommend to Owner those solutions which in Engineer's judgment meet Owner's requirements for the Project.

5. Prepare a report (the "Report") which will, as appropriate, contain schematic layouts, sketches, and conceptual design criteria with appropriate exhibits to indicate the agreed-to requirements, considerations involved, and those alternate solutions available to Owner which Engineer recommends. For each recommended solution Engineer will provide the following, which will be separately itemized: opinion of probable Construction Cost; proposed allowances for contingencies; the estimated total costs of design, professional, and related services to be provided by Engineer and its Consultants; and, on the basis of information furnished by Owner, a summary of allowances for other items and services included within the definition of Total Project Costs.

6. Perform or provide the following additional Study and Report Phase tasks or deliverables: [*here list any such tasks or deliverables*]

7. Furnish 2 review copies of the Report and any other deliverables to Owner within 23 calendar days of the Effective Date and review it with Owner. Within 7 calendar days of receipt, Owner shall submit to Engineer any comments regarding the Report and any other deliverables.

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8. Revise the Report and any other deliverables in response to Owner's comments, as appropriate, and furnish 2 copies of the revised Report and any other deliverables to the Owner within 14 calendar days of receipt of Owner's comments.

B. Engineer's services under the Study and Report Phase will be considered complete on the date when the revised Report and any other deliverables have been delivered to Owner.

A1.02 *Preliminary Design Phase*

A. After acceptance by Owner of the Report and any other deliverables, selection by Owner of a recommended solution and indication of any specific modifications or changes in the scope, extent, character, or design requirements of the Project desired by Owner, and upon written authorization from Owner, Engineer shall:

1. Prepare Preliminary Design Phase documents consisting of final design criteria, preliminary drawings, outline specifications, and written descriptions of the Project.

2. Provide necessary field surveys and topographic and utility mapping for design purposes. Utility mapping will be based upon information obtained from utility owners.

3. Advise Owner if additional reports, data, information, or services of the types described in Exhibit B are necessary and assist Owner in obtaining such reports, data, information, or services.

4. Based on the information contained in the Preliminary Design Phase documents, prepare a revised opinion of probable Construction Cost, and assist Owner in collating the various cost categories which comprise Total Project Costs.

5. ~~Perform or provide the following additional Preliminary Design Phase tasks or deliverables: [*here list any such tasks or deliverables*]~~

6. Furnish 2 review copies of the Preliminary Design Phase documents and any other deliverables to Owner within 23 calendar days of authorization to proceed with this phase, and review them with Owner. Within 7 calendar days of receipt, Owner shall submit to Engineer any comments regarding the Preliminary Design Phase documents and any other deliverables.

7. Revise the Preliminary Design Phase documents and any other deliverables in response to Owner's comments, as appropriate, and furnish to Owner 2 copies of the revised Preliminary Design Phase documents, revised opinion of probable Construction Cost, and any other deliverables within 14 calendar days after receipt of Owner's comments.

B. Engineer's services under the Preliminary Design Phase will be considered complete on the date when the revised Preliminary Design Phase documents, revised opinion of probable Construction Cost, and any other deliverables have been delivered to Owner.

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A1.03 *Final Design Phase*

A. After acceptance by Owner of the Preliminary Design Phase documents, revised opinion of probable Construction Cost as determined in the Preliminary Design Phase, and any other deliverables subject to any Owner-directed modifications or changes in the scope, extent, character, or design requirements of or for the Project, and upon written authorization from Owner, Engineer shall:

1. Prepare final Drawings and Specifications indicating the scope, extent, and character of the Work to be performed and furnished by Contractor.

2. Provide technical criteria, written descriptions, and design data for Owner's use in filing applications for permits from or approvals of governmental authorities having jurisdiction to review or approve the final design of the Project; assist Owner in consultations with such authorities; and revise the Drawings and Specifications in response to directives from such authorities.

3. Advise Owner of any adjustments to the opinion of probable Construction Cost known to Engineer.

4. ~~Perform or provide the following additional Final Design Phase tasks or deliverables: [*here list any such tasks or deliverables*]~~

5. Prepare and furnish bidding documents for review by Owner, its legal counsel, and other advisors, and assist Owner in the preparation of other related documents. Within 10 days of receipt, Owner shall submit to Engineer any comments and, subject to the provisions of Paragraph 6.01.G, instructions for revisions.

6. Revise the bidding documents in accordance with comments and instructions from the Owner, as appropriate, and submit 2 final copies of the bidding documents, a revised opinion of probable Construction Cost, and any other deliverables to Owner within 10 calendar days after receipt of Owner's comments and instructions.

B. Engineer's services under the Final Design Phase will be considered complete on the date when the submittals required by Paragraph A1.03.A.6 have been delivered to Owner.

C. In the event that the Work designed or specified by Engineer is to be performed or furnished under more than one prime contract, or if Engineer's services are to be separately sequenced with the work of one or more prime Contractors (such as in the case of fast-tracking), Owner and Engineer shall, prior to commencement of the Final Design Phase, develop a schedule for performance of Engineer's services during the Final Design, Bidding or Negotiating, Construction, and Post-Construction Phases in order to sequence and coordinate properly such services as are applicable to the work under such separate prime contracts. This schedule is to be prepared and included in or become an amendment to Exhibit A whether or not the work under such contracts is to proceed concurrently.

D. The number of prime contracts for Work designed or specified by Engineer upon which the Engineer's compensation has been established under this Agreement is 1. If more prime

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contracts are awarded, Engineer shall be entitled to an equitable increase in its compensation under this Agreement.

A1.04 *Bidding or Negotiating Phase*

A. After acceptance by Owner of the bidding documents and the most recent opinion of probable Construction Cost as determined in the Final Design Phase, and upon written authorization by Owner to proceed, Engineer shall:

1. Assist Owner in advertising for and obtaining bids or proposals for the Work and, where applicable, maintain a record of prospective bidders to whom Bidding Documents have been issued, attend pre-bid conferences, if any, and receive and process contractor deposits or charges for the bidding documents.

2. Issue addenda as appropriate to clarify, correct, or change the bidding documents.

3. Provide information or assistance needed by Owner in the course of any negotiations with prospective contractors.

4. Consult with Owner as to the acceptability of subcontractors, suppliers, and other individuals and entities proposed by prospective contractors for those portions of the Work as to which such acceptability is required by the bidding documents.

5. If bidding documents require, the Engineer shall evaluate and determine the acceptability of "or equals" and substitute materials and equipment proposed by bidders, but subject to the provisions of paragraph A2.02.A.2 of this Exhibit A.

6. Attend the Bid opening, prepare Bid tabulation sheets, and assist Owner in evaluating Bids or proposals and in assembling and awarding contracts for the Work.

7. ~~Perform or provide the following additional Bidding or Negotiating Phase tasks or deliverables: [*here list any such tasks or deliverables*]~~

B. The Bidding or Negotiating Phase will be considered complete upon commencement of the Construction Phase or upon cessation of negotiations with prospective contractors (except as may be required if Exhibit F is a part of this Agreement).

A1.05 *Construction Phase*

A. Upon successful completion of the Bidding and Negotiating Phase, and upon written authorization from Owner, Engineer shall:

1. *General Administration of Construction Contract:* Consult with Owner and act as Owner's representative as provided in the Construction Contract. The extent and limitations of the duties, responsibilities, and authority of Engineer as assigned in the Construction Contract shall not be modified, except as Engineer may otherwise agree in writing. All of Owner's instructions to Contractor will be issued through Engineer, which shall have authority to act

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on behalf of Owner in dealings with Contractor to the extent provided in this Agreement and the Construction Contract except as otherwise provided in writing.

2. *Resident Project Representative (RPR):* Provide the services of an RPR at the Site to assist the Engineer and to provide more extensive observation of Contractor's work. Duties, responsibilities, and authority of the RPR are as set forth in Exhibit D. The furnishing of such RPR's services will not limit, extend, or modify Engineer's responsibilities or authority except as expressly set forth in Exhibit D. ~~[If *Engineer will not be providing the services of an RPR, then delete this Paragraph 2 by inserting the word "DELETED" after the paragraph title, and do not include Exhibit D.*]~~

3. *Selecting Independent Testing Laboratory:* Assist Owner in the selection of an independent testing laboratory to perform the services identified in Exhibit B, Paragraph B2.01.0.

4. *Pre-Construction Conference:* Participate in a Pre-Construction Conference prior to commencement of Work at the Site.

5. *Schedules:* Receive, review, and determine the acceptability of any and all schedules that Contractor is required to submit to Engineer, including the Progress Schedule, Schedule of Submittals, and Schedule of Values.

6. *Baselines and Benchmarks:* As appropriate, establish baselines and benchmarks for locating the Work which in Engineer's judgment are necessary to enable Contractor to proceed.

7. *Visits to Site and Observation of Construction:* In connection with observations of Contractor's Work while it is in progress:

    a. Make visits to the Site at intervals appropriate to the various stages of construction, as Engineer deems necessary, to observe as an experienced and qualified design professional the progress of Contractor's executed Work. Such visits and observations by Engineer, and the Resident Project Representative, if any, are not intended to be exhaustive or to extend to every aspect of Contractor's Work in progress or to involve detailed inspections of Contractor's Work in progress beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents, but rather are to be limited to spot checking, selective sampling, and similar methods of general observation of the Work based on Engineer's exercise of professional judgment, as assisted by the Resident Project Representative, if any. Based on information obtained during such visits and observations, Engineer will determine in general if the Work is proceeding in accordance with the Contract Documents, and Engineer shall keep Owner informed of the progress of the Work.

    b. The purpose of Engineer's visits to, and representation by the Resident Project Representative, if any, at the Site, will be to enable Engineer to better carry out the duties and responsibilities assigned to and undertaken by Engineer during the Construction Phase, and, in addition, by the exercise of Engineer's efforts as an experienced and qualified design professional, to provide for Owner a greater degree of confidence that the completed Work will conform in general to the Contract Documents

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and that Contractor has implemented and maintained the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents. Engineer shall not, during such visits or as a result of such observations of Contractor's Work in progress, supervise, direct, or have control over Contractor's Work, nor shall Engineer have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by Contractor, for security or safety at the Site, for safety precautions and programs incident to Contractor's Work, nor for any failure of Contractor to comply with Laws and Regulations applicable to Contractor's furnishing and performing the Work. Accordingly, Engineer neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish or perform the Work in accordance with the Contract Documents.

8. *Defective Work:* Reject Work if, on the basis of Engineer's observations, Engineer believes that such Work (a) is defective under the standards set forth in the Contract Documents, (b) will not produce a completed Project that conforms to the Contract Documents, or (c) will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

9. *Clarifications and Interpretations; Field Orders:* Issue necessary clarifications and interpretations of the Contract Documents as appropriate to the orderly completion of Contractor's work. Such clarifications and interpretations will be consistent with the intent of and reasonably inferable from the Contract Documents. Subject to any limitations in the Contract Documents, Engineer may issue field orders authorizing minor variations in the Work from the requirements of the Contract Documents.

10. *Change Orders and Work Change Directives:* Recommend change orders and work change directives to Owner, as appropriate, and prepare change orders and work change directives as required.

11. *Shop Drawings and Samples:* Review and approve or take other appropriate action in respect to Shop Drawings and Samples and other data which Contractor is required to submit, but only for conformance with the information given in the Contract Documents and compatibility with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Such reviews and approvals or other action will not extend to means, methods, techniques, sequences, or procedures of construction or to safety precautions and programs incident thereto. Engineer shall meet any Contractor's submittal schedule that Engineer has accepted.

12. *Substitutes and "or-equal":* Evaluate and determine the acceptability of substitute or "or-equal" materials and equipment proposed by Contractor, but subject to the provisions of Paragraph A2.02.A.2 of this Exhibit A.

13. *Inspections and Tests:* Require such special inspections or tests of Contractor's work as deemed reasonably necessary, and receive and review all certificates of inspections, tests, and approvals required by Laws and Regulations or the Contract Documents. Engineer's review of such certificates will be for the purpose of determining that the results certified

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indicate compliance with the Contract Documents and will not constitute an independent evaluation that the content or procedures of such inspections, tests, or approvals comply with the requirements of the Contract Documents. Engineer shall be entitled to rely on the results of such tests.

14. *Disagreements between Owner and Contractor*: Render formal written decisions on all duly submitted issues relating to the acceptability of Contractor's work or the interpretation of the requirements of the Contract Documents pertaining to the execution, performance, or progress of Contractor's Work; review each duly submitted Claim by Owner or Contractor, and in writing either deny such Claim in whole or in part, approve such Claim, or decline to resolve such Claim if Engineer in its discretion concludes that to do so would be inappropriate. In rendering such decisions, Engineer shall be fair and not show partiality to Owner or Contractor and shall not be liable in connection with any decision rendered in good faith in such capacity.

15. *Applications for Payment:* Based on Engineer's observations as an experienced and qualified design professional and on review of Applications for Payment and accompanying supporting documentation:

    a. Determine the amounts that Engineer recommends Contractor be paid. Such recommendations of payment will be in writing and will constitute Engineer's representation to Owner, based on such observations and review, that, to the best of Engineer's knowledge, information and belief, Contractor's Work has progressed to the point indicated, the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, to the results of any subsequent tests called for in the Contract Documents, and to any other qualifications stated in the recommendation), and the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe Contractor's Work. In the case of unit price work, Engineer's recommendations of payment will include final determinations of quantities and classifications of Contractor's Work (subject to any subsequent adjustments allowed by the Contract Documents).

    b. By recommending any payment, Engineer shall not thereby be deemed to have represented that observations made by Engineer to check the quality or quantity of Contractor's Work as it is performed and furnished have been exhaustive, extended to every aspect of Contractor's Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in this Agreement and the Contract Documents. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment including final payment will impose on Engineer responsibility to supervise, direct, or control Contractor's Work in progress or for the means, methods, techniques, sequences, or procedures of construction or safety precautions or programs incident thereto, or Contractor's compliance with Laws and Regulations applicable to Contractor's furnishing and performing the Work. It will also not impose responsibility on Engineer to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or to determine that title to

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any portion of the Work in progress, materials, or equipment has passed to Owner free and clear of any liens, claims, security interests, or encumbrances, or that there may not be other matters at issue between Owner and Contractor that might affect the amount that should be paid.

16. *Contractor's Completion Documents:* Receive, review, and transmit to Owner maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance required by the Contract Documents, certificates of inspection, tests and approvals, Shop Drawings, Samples and other data approved as provided under Paragraph A1.05.A.11, and transmit the annotated record documents which are to be assembled by Contractor in accordance with the Contract Documents to obtain final payment. The extent of such review by Engineer will be limited as provided in Paragraph A1.05.A.11.

17. *Substantial Completion:* Promptly after notice from Contractor that Contractor considers the entire Work ready for its intended use, in company with Owner and Contractor, visit the Project to determine if the Work is substantially complete. If after considering any objections of Owner, Engineer considers the Work substantially complete, Engineer shall deliver a certificate of Substantial Completion to Owner and Contractor.

~~18. *Additional Tasks:* Perform or provide the following additional Construction Phase tasks or deliverables: [*here list any such tasks or deliverables*].~~

19. *Final Notice of Acceptability of the Work:* Conduct a final visit to the Project to determine if the completed Work of Contractor is acceptable so that Engineer may recommend, in writing, final payment to Contractor. Accompanying the recommendation for final payment, Engineer shall also provide a notice in the form attached hereto as Exhibit E (the "Notice of Acceptability of Work") that the Work is acceptable (subject to the provisions of Paragraph A1.05.A.15.b) to the best of Engineer's knowledge, information, and belief and based on the extent of the services provided by Engineer under this Agreement.

B. *Duration of Construction Phase:* The Construction Phase will commence with the execution of the first Construction Contract for the Project or any part thereof and will terminate upon written recommendation by Engineer for final payment to Contractors. If the Project involves more than one prime contract as indicated in Paragraph A1.03.C, then Construction Phase services may be rendered at different times in respect to the separate contracts. Subject to the provisions of Article 3, Engineer shall be entitled to an equitable increase in compensation if Construction Phase services (including Resident Project Representative services, if any) are required after the original date for completion and readiness for final payment of Contractor as set forth in the Construction Contract.

C. *Limitation of Responsibilities:* Engineer shall not be responsible for the acts or omissions of any Contractor, Subcontractor or Supplier, or other individuals or entities performing or furnishing any of the Work, for safety or security at the Site, or for safety precautions and programs incident to Contractor's Work, during the Construction Phase or otherwise. Engineer shall not be responsible for the failure of any Contractor to perform or furnish the Work in accordance with the Contract Documents.

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A1.06 *Post-Construction Phase*

A. Upon written authorization from Ownerduring the Post-Construction Phase Engineer shall:

1. Together with Owner, visit the Project to observe any apparent defects in the Work, assist Owner in consultations and discussions with Contractor concerning correction of any such defects, and make recommendations as to replacement or correction of defective Work, if any.

2. Together with Owner or Owner's representative, visit the Project within one month before the end of the correction period to ascertain whether any portion of the Work is subject to correction.

3. ~~Perform or provide the following additional Post-Construction Phase tasks or deliverables: *[Here list any such tasks or deliverables]*~~

B. The Post-Construction Phase services may commence during the Construction Phase and, if not otherwise modified in this Exhibit A, will terminate twelve months after the commencement of the Construction Contract's correction period.

PART 2 – ADDITIONAL SERVICES

A2.01 *Additional Services Requiring Owner's Written Authorization*

A. If authorized in writing by Owner, Engineer shall furnish or obtain from others Additional Services of the types listed below.

1. Preparation of applications and supporting documents (in addition to those furnished under Basic Services) for private or governmental grants, loans, or advances in connection with the Project; preparation or review of environmental assessments and impact statements; review and evaluation of the effects on the design requirements for the Project of any such statements and documents prepared by others; and assistance in obtaining approvals of authorities having jurisdiction over the anticipated environmental impact of the Project.

2. Services to make measured drawings of or to investigate existing conditions or facilities, or to verify the accuracy of drawings or other information furnished by Owner or others.

3. Services resulting from significant changes in the scope, extent, or character of the portions of the Project designed or specified by Engineer or its design requirements including, but not limited to, changes in size, complexity, Owner's schedule, character of construction, or method of financing; and revising previously accepted studies, reports, Drawings, Specifications, or Contract Documents when such revisions are required by changes in Laws and Regulations enacted subsequent to the Effective Date or are due to any other causes beyond Engineer's control.

4. Services resulting from Owner's request to evaluate additional Study and Report Phase alternative solutions beyond those identified in Paragraph A1.01.A.4.

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5. Services required as a result of Owner's providing incomplete or incorrect Project information to Engineer.

6. Providing renderings or models for Owner's use.

7. Undertaking investigations and studies including, but not limited to, detailed consideration of operations, maintenance, and overhead expenses; the preparation of financial feasibility and cash flow studies, rate schedules, and appraisals; assistance in obtaining financing for the Project; evaluating processes available for licensing, and assisting Owner in obtaining process licensing; detailed quantity surveys of materials, equipment, and labor; and audits or inventories required in connection with construction performed by Owner.

8. Furnishing services of Consultants for other than Basic Services.

9. Services attributable to more prime construction contracts than specified in Paragraph A1.03.D.

10. Services during out-of-town travel required of Engineer other than for visits to the Site or Owner's office.

11. Preparing for, coordinating with, participating in and responding to structured independent review processes, including, but not limited to, construction management, cost estimating, project peer review, value engineering, and constructibility review requested by Owner; and performing or furnishing services required to revise studies, reports, Drawings, Specifications, or other Bidding Documents as a result of such review processes.

12. Preparing additional Bidding Documents or Contract Documents for alternate bids or prices requested by Owner for the Work or a portion thereof.

13. Assistance in connection with Bid protests, rebidding, or renegotiating contracts for construction, materials, equipment, or services, except when such assistance is required by Exhibit F.

14. Providing construction surveys and staking to enable Contractor to perform its work other than as required under Paragraph A1.05.A.6, and any type of property surveys or related engineering services needed for the transfer of interests in real property; and providing other special field surveys.

15. Providing Construction Phase services beyond the original date for completion and readiness for final payment of Contractor.

16. Providing assistance in responding to the presence of any Constituent of Concern at the Site, in compliance with current Laws and Regulations.

17. Preparing Record Drawings showing appropriate record information based on Project annotated record documents received from Contractor, and furnishing such Record Drawings to Owner.

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18. Preparation of operation and maintenance manuals.

19. Preparing to serve or serving as a consultant or witness for Owner in any litigation, arbitration, or other dispute resolution process related to the Project.

20. Providing more extensive services required to enable Engineer to issue notices or certifications requested by Owner.

21. Assistance in connection with the adjusting of Project equipment and systems.

22. Assistance to Owner in training Owner's staff to operate and maintain Project equipment and systems.

23. Assistance to Owner in developing procedures for (a) control of the operation and maintenance of Project equipment and systems, and (b) related record-keeping.

24. Overtime work requiring higher than regular rates.

25. Other services performed or furnished by Engineer not otherwise provided for in this Agreement.

A2.02 *Additional Services Not Requiring Owner's Written Authorization*

A. Engineer shall advise Owner in advance that Engineer is will immediately commence to perform or furnish the Additional Services of the types listed below. For such Additional Services, Engineer need not request or obtain specific advance written authorization from Owner. Engineer shall cease performing or furnishing such Additional Services upon receipt of written notice from Owner.

1. Services in connection with work change directives and change orders to reflect changes requested by Owner.

2. Services in making revisions to Drawings and Specifications occasioned by the acceptance of substitute materials or equipment other than "or-equal" items; services after the award of the Construction Contract in evaluating and determining the acceptability of a proposed "or equal" or substitution which is found to be inappropriate for the Project; evaluation and determination of an excessive number of proposed "or equals" or substitutions, whether proposed before or after award of the Construction Contract.

3. Services resulting from significant delays, changes, or price increases occurring as a direct or indirect result of materials, equipment, or energy shortages.

4. Additional or extended services during construction made necessary by (1) emergencies or acts of God endangering the Work (advance notice not required), (2) the presence at the Site of any Constituent of Concern or items of historical or cultural significance, (3) Work damaged by fire or other cause during construction, (4) a significant amount of defective, neglected, or delayed work by Contractor, (5) acceleration of the progress schedule involving services beyond normal working hours, or (6) default by Contractor.

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5. Services (other than Basic Services during the Post-Construction Phase) in connection with any partial utilization of any part of the Work by Owner prior to Substantial Completion.

6. Evaluating an unreasonable claim or an excessive number of claims submitted by Contractor or others in connection with the Work.

7. Services during the Construction Phase rendered after the original date for completion of the Work referred to in A1.05.B.

8. Reviewing a Shop Drawing more than three times, as a result of repeated inadequate submissions by Contractor.

9. While at the Site, compliance by Engineer and its staff with those terms of Owner's or Contractor's safety program provided to Engineer subsequent to the Effective Date that exceed those normally required of engineering personnel by federal, state, or local safety authorities for similar construction sites.

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This is **EXHIBIT B**, consisting of 3 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct. 1, 2013.

Owner's Responsibilities

Article 2 of the Agreement is supplemented to include the following agreement of the parties.

B2.01 In addition to other responsibilities of Owner as set forth in this Agreement, Owner shall at its expense:

A. Provide Engineer with all criteria and full information as to Owner's requirements for the Project, including design objectives and constraints, space, capacity and performance requirements, flexibility, and expandability, and any budgetary limitations; and furnish copies of all design and construction standards which Owner will require to be included in the Drawings and Specifications; and furnish copies of Owner's standard forms, conditions, and related documents for Engineer to include in the Bidding Documents, when applicable.

B. Furnish to Engineer any other available information pertinent to the Project including reports and data relative to previous designs, or investigation at or adjacent to the Site.

C. Following Engineer's assessment of initially-available Project information and data and upon Engineer's request, furnish or otherwise make available such additional Project related information and data as is reasonably required to enable Engineer to complete its Basic and Additional Services. Such additional information or data would generally include the following:

1. Property descriptions.

2. Zoning, deed, and other land use restrictions.

3. Property, boundary, easement, right-of-way, and other special surveys or data, including establishing relevant reference points.

4. Explorations and tests of subsurface conditions at or contiguous to the Site, drawings of physical conditions relating to existing surface or subsurface structures at the Site, or hydrographic surveys, with appropriate professional interpretation thereof.

5. Environmental assessments, audits, investigations, and impact statements, and other relevant environmental or cultural studies as to the Project, the Site, and adjacent areas.

6. Data or consultations as required for the Project but not otherwise identified in the Agreement or the Exhibits thereto.

D. Give prompt written notice to Engineer whenever Owner observes or otherwise becomes aware of the presence at the Site of any Constituent of Concern, or of any other development that affects the

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scope or time of performance of Engineer's services, or any defect or nonconformance in Engineer's services, the Work, or in the performance of any Contractor.

E. Authorize Engineer to provide Additional Services as set forth in Part 2 of Exhibit A of the Agreement as required.

F. Arrange for safe access to and make all provisions for Engineer to enter upon public and private property as required for Engineer to perform services under the Agreement.

G. Examine all alternate solutions, studies, reports, sketches, Drawings, Specifications, proposals, and other documents presented by Engineer (including obtaining advice of an attorney, insurance counselor, and other advisors or consultants as Owner deems appropriate with respect to such examination) and render in writing timely decisions pertaining thereto.

H. Provide reviews, approvals, and permits from all governmental authorities having jurisdiction to approve all phases of the Project designed or specified by Engineer and such reviews, approvals, and consents from others as may be necessary for completion of each phase of the Project.

I. Recognizing and acknowledging that Engineer's services and expertise do not include the following services, provide, as required for the Project:

1. Accounting, bond and financial advisory, independent cost estimating, and insurance counseling services.

2. Legal services with regard to issues pertaining to the Project as Owner requires, Contractor raises, or Engineer reasonably requests.

3. Such auditing services as Owner requires to ascertain how or for what purpose Contractor has used the moneys paid.

J. Place and pay for advertisement for Bids in appropriate publications.

K. Advise Engineer of the identity and scope of services of any independent consultants employed by Owner to perform or furnish services in regard to the Project, including, but not limited to, cost estimating, project peer review, value engineering, and constructibility review.

L. Furnish to Engineer data as to Owner's anticipated costs for services to be provided by others (including, but not limited to, accounting, bond and financial, independent cost estimating, insurance counseling, and legal advice) for Owner so that Engineer may assist Owner in collating the various cost categories which comprise Total Project Costs.

M. If Owner designates a construction manager or an individual or entity other than, or in addition to, Engineer to represent Owner at the Site, define and set forth as an attachment to this Exhibit B the duties, responsibilities, and limitations of authority of such other party and the relation thereof to the duties, responsibilities, and authority of Engineer.

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N. If more than one prime contract is to be awarded for the Work designed or specified by Engineer, designate a person or entity to have authority and responsibility for coordinating the activities among the various prime Contractors, and define and set forth the duties, responsibilities, and limitations of authority of such individual or entity and the relation thereof to the duties, responsibilities, and authority of Engineer as an attachment to this Exhibit B that is to be mutually agreed upon and made a part of this Agreement before such services begin.

O. Attend the pre-bid conference, bid opening, pre-construction conferences, construction progress and other job related meetings, and Substantial Completion and final payment visits to the Project.

P. Provide the services of an independent testing laboratory to perform all inspections, tests, and approvals of samples, materials, and equipment required by the Contract Documents, or to evaluate the performance of materials, equipment, and facilities of Owner, prior to their incorporation into the Work with appropriate professional interpretation thereof.

Q. Provide Engineer with the findings and reports generated by the entities providing services to Owner pursuant to this paragraph.

R. Inform Engineer in writing of any specific requirements of safety or security programs that are applicable to Engineer, as a visitor to the Site.

~~S. Perform or provide the following additional services: *[Here list any such additional services].*~~

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SUGGESTED FORMAT
(for use with E-500, 2008 Edition)

This is **EXHIBIT C**, consisting of 2 pages, referred to in and part of the Agreement between Owner and Engineer for Professional Services dated Oct. 1, 2013.

Payments to Engineer for Services and Reimbursable Expenses
COMPENSATION PACKET BC-1: Basic Services – Lump Sum

Article 2 of the Agreement is supplemented to include the following agreement of the parties:

ARTICLE 2 – OWNER'S RESPONSIBILITIES

C2.01 *Compensation for Basic Services (other than Resident Project Representative) – Lump Sum Method of Payment*

A. Owner shall pay Engineer for Basic Services set forth in Exhibit A, except for services of Engineer's Resident Project Representative, if any, as follows:

1. A Lump Sum amount of $1,216,000 based on the following estimated distribution of compensation:

a. Study and Report Phase	$121,600
b. Preliminary Design Phase	$364,800
c. Final Design Phase	$ 53,200
d. Bidding and Negotiating Phase	$ 67,960
e. Construction Phase	$ 107,120
f. Post-Construction Phase	$ 24,320

2. Engineer may alter the distribution of compensation between individual phases noted herein to be consistent with services actually rendered, but shall not exceed the total Lump Sum amount unless approved in writing by the Owner.

3. The Lump Sum includes compensation for Engineer's services and services of Engineer's Consultants, if any. Appropriate amounts have been incorporated in the Lump Sum to account for labor, overhead, profit, and Reimbursable Expenses.

4. The portion of the Lump Sum amount billed for Engineer's services will be based upon Engineer's estimate of the percentage of the total services actually completed during the billing period.

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B. *Period of Service:* The compensation amount stipulated in Compensation Packet BC-1 is conditioned on a period of service not exceeding _____ months. If such period of service is extended, the compensation amount for Engineer's services shall be appropriately adjusted.

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This is **EXHIBIT D**, consisting of 5 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct. 1, 2013.

~~***[Note to User: Delete this Exhibit D if Engineer will not be providing Resident Project Representative Services under Paragraph A1.05.A.2]***~~

Duties, Responsibilities, and Limitations of Authority of Resident Project Representative

Article 1 of the Agreement is supplemented to include the following agreement of the parties:

D1.01 *Resident Project Representative*

C. Engineer shall furnish a Resident Project Representative ("RPR") to assist Engineer in observing progress and quality of the Work. The RPR may provide full time representation or may provide representation to a lesser degree.

D. Through RPR's observations of Contractor's work in progress and field checks of materials and equipment, Engineer shall endeavor to provide further protection for Owner against defects and deficiencies in the Work. However, Engineer shall not, during such RPR field checks or as a result of such RPR observations of Contractor's work in progress, supervise, direct, or have control over Contractor's Work, nor shall Engineer (including the RPR) have authority over or responsibility for the means, methods, techniques, sequences, or procedures of construction selected or used by any contractor, for security or safety at the Site, for safety precautions and programs incident to any contractor's work in progress, or for any failure of a contractor to comply with Laws and Regulations applicable to such contractor's performing and furnishing of its work. The Engineer (including RPR) neither guarantee the performances of any contractor nor assumes responsibility for Contractor's failure to furnish and perform the Work in accordance with the Contract Documents. In addition, the specific terms set forth in Paragraph A1.05 of Exhibit A of the Agreement are applicable.

E. The duties and responsibilities of the RPR are as follows:

1. *General:* RPR is Engineer's representative at the Site, will act as directed by and under the supervision of Engineer, and will confer with Engineer regarding RPR's actions. RPR's dealings in matters pertaining to the Contractor's work in progress shall in general be with Engineer and Contractor. RPR's dealings with Subcontractors shall only be through or with the full knowledge and approval of Contractor. RPR shall generally communicate with Owner only with the knowledge of and under the direction of Engineer.

2. *Schedules:* Review the progress schedule, schedule of Shop Drawing and Sample submittals, and schedule of values prepared by Contractor and consult with Engineer concerning acceptability.

3. *Conferences and Meetings:* Attend meetings with Contractor, such as preconstruction conferences, progress meetings, job conferences and other project-related meetings, and prepare and circulate copies of minutes thereof.

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4. *Liaison:*

    a. Serve as Engineer's liaison with Contractor. Working principally through Contractor's authorized representative or designee, assist in providing information regarding the intent of the Contract Documents.

    b. Assist Engineer in serving as Owner's liaison with Contractor when Contractor's operations affect Owner's on-Site operations.

    c. Assist in obtaining from Owner additional details or information, when required for proper execution of the Work.

5. *Interpretation of Contract Documents:* Report to Engineer when clarifications and interpretations of the Contract Documents are needed and transmit to Contractor clarifications and interpretations as issued by Engineer.

6. *Shop Drawings and Samples:*

    a. Record date of receipt of Samples and approved Shop Drawings.

    b. Receive Samples which are furnished at the Site by Contractor, and notify Engineer of availability of Samples for examination.

    c. Advise Engineer and Contractor of the commencement of any portion of the Work requiring a Shop Drawing or Sample submittal for which RPR believes that the submittal has not been approved by Engineer.

7. M*odifications:* Consider and evaluate Contractor's suggestions for modifications in Drawings or Specifications and report such suggestions, together with RPR's recommendations, to Engineer. Transmit to Contractor in writing decisions as issued by Engineer.

8. *Review of Work and Rejection of Defective Work:*

    a. Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.

    b. Report to Engineer whenever RPR believes that any part of Contractor's work in progress will not produce a completed Project that conforms generally to the Contract Documents or will imperil the integrity of the design concept of the completed Project as a functioning whole as indicated in the Contract Documents, or has been damaged, or does not meet the requirements of any inspection, test or approval required to be made; and advise Engineer of that part of work in progress that RPR believes should be corrected or rejected or should be uncovered for observation, or requires special testing, inspection, or approval.

9. *Inspections, Tests, and System Start-ups:*

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a. Consult with Engineer in advance of scheduled inspections, tests, and systems start-ups.

b. Verify that tests, equipment, and systems start-ups and operating and maintenance training are conducted in the presence of appropriate Owner's personnel, and that Contractor maintains adequate records thereof.

c. Observe, record, and report to Engineer appropriate details relative to the test procedures and systems start-ups.

d. Accompany visiting inspectors representing public or other agencies having jurisdiction over the Project, record the results of these inspections, and report to Engineer.

10. *Records:*

a. Maintain at the Site orderly files for correspondence, reports of job conferences, reproductions of original Contract Documents including all change orders, field orders, work change directives, addenda, additional Drawings issued subsequent to the execution of the Construction Contract, Engineer's clarifications and interpretations of the Contract Documents, progress reports, Shop Drawing and Sample submittals received from and delivered to Contractor, and other Project-related documents.

b. Prepare a daily report or keep a diary or log book, recording Contractor's hours on the Site, weather conditions, data relative to questions of change orders, field orders, work change directives, or changed conditions, Site visitors, daily activities, decisions, observations in general, and specific observations in more detail as in the case of observing test procedures; and send copies to Engineer.

c. Record names, addresses, fax numbers, e-mail addresses, web site locations, and telephone numbers of all Contractors, Subcontractors, and major Suppliers of materials and equipment.

d. Maintain records for use in preparing Project documentation.

e. Upon completion of the Work, furnish original set of all RPR Project documentation to Engineer.

11. *Reports:*

a. Furnish to Engineer periodic reports as required of progress of the Work and of Contractor's compliance with the progress schedule and schedule of Shop Drawing and Sample submittals.

b. Draft and recommend to Engineer proposed change orders, work change directives, and field orders. Obtain backup material from Contractor.

c. Furnish to Engineer and Owner copies of all inspection, test, and system start-up reports.

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d. Immediately notify Engineer of the occurrence of any Site accidents, emergencies, acts of God endangering the Work, damage to property by fire or other causes, or the discovery of any Constituent of Concern.

12. *Payment Requests:* Review applications for payment with Contractor for compliance with the established procedure for their submission and forward with recommendations to Engineer, noting particularly the relationship of the payment requested to the schedule of values, Work completed, and materials and equipment delivered at the Site but not incorporated in the Work.

13. *Certificates, Operation and Maintenance Manuals:* During the course of the Work, verify that materials and equipment certificates, operation and maintenance manuals and other data required by the Contract Documents to be assembled and furnished by Contractor are applicable to the items actually installed and in accordance with the Contract Documents, and have these documents delivered to Engineer for review and forwarding to Owner prior to payment for that part of the Work.

14. *Completion*:

    a. Participate in visits to the Project to determine Substantial Completion, assist in the determination of Substantial Completion and the preparation of lists of items to be completed or corrected.

    b. Participate in a final visit to the Project in the company of Engineer, Owner, and Contractor, and prepare a final list of items to be completed and deficiencies to be remedied.

    c. Observe whether all items on the final list have been completed or corrected and make recommendations to Engineer concerning acceptance and issuance of the Notice of Acceptability of the Work (Exhibit E).

F. Resident Project Representative shall not:

1. Authorize any deviation from the Contract Documents or substitution of materials or equipment (including "or-equal" items).

2. Exceed limitations of Engineer's authority as set forth in this Agreement.

3. Undertake any of the responsibilities of Contractor, Subcontractors or Suppliers.

4. Advise on, issue directions relative to, or assume control over any aspect of the means, methods, techniques, sequences or procedures of Contractor's work.

5. Advise on, issue directions regarding, or assume control over security or safety practices, precautions, and programs in connection with the activities or operations of Owner or Contractor.

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6. Participate in specialized field or laboratory tests or inspections conducted off-site by others except as specifically authorized by Engineer.

7. Accept shop drawing or sample submittals from anyone other than Contractor.

8. Authorize Owner to occupy the Project in whole or in part.

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This is **EXHIBIT E**, consisting of 2 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct. 1, 2013.

NOTICE OF ACCEPTABILITY OF WORK

PROJECT: Winther Hall Renovation

OWNER: UW-Whitewater Facilities Planning & Management

CONTRACTOR:

OWNER'S CONSTRUCTION CONTRACT IDENTIFICATION: 578-231

EFFECTIVE DATE OF THE CONSTRUCTION CONTRACT:

ENGINEER: ABCI Engineering Inc.

NOTICE DATE:

To: UW-Whitewater Facilities Planning & Management
Owner

And To: _____
Contractor

From: ABCI Engineering Inc.
Engineer

The Engineer hereby gives notice to the above Owner and Contractor that the completed Work furnished and performed by Contractor under the above Contract is acceptable, expressly subject to the provisions of the related Contract Documents, the Agreement between Owner and Engineer for Professional Services dated Oct. 1, 2013, and the terms and conditions set forth in this Notice.

By: Adam Cichanski

Title: Project Manager

Dated: _____

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CONDITIONS OF NOTICE OF ACCEPTABILITY OF WORK

The Notice of Acceptability of Work ("Notice") is expressly made subject to the following terms and conditions to which all those who receive said Notice and rely thereon agree:

1. This Notice is given with the skill and care ordinarily used by members of the engineering profession practicing under similar conditions at the same time and in the same locality.

2. This Notice reflects and is an expression of the professional judgment of Engineer.

3. This Notice is given as to the best of Engineer's knowledge, information, and belief as of the Notice Date.

4. This Notice is based entirely on and expressly limited by the scope of services Engineer has been employed by Owner to perform or furnish during construction of the Project (including observation of the Contractor's work) under Engineer's Agreement with Owner and under the Construction Contract referred to in this Notice, and applies only to facts that are within Engineer's knowledge or could reasonably have been ascertained by Engineer as a result of carrying out the responsibilities specifically assigned to Engineer under such Agreement and Construction Contract.

5. This Notice is not a guarantee or warranty of Contractor's performance under the Construction Contract referred to in this Notice, nor an assumption of responsibility for any failure of Contractor to furnish and perform the Work thereunder in accordance with the Contract Documents.

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This is **EXHIBIT F**, consisting of 1 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct. 1, 2013.

Construction Cost Limit

Paragraph 5.02 of the Agreement is supplemented to include the following agreement of the parties:

F5.02 *Designing to Construction Cost Limit*

A. Owner and Engineer hereby agree to a Construction Cost limit in the amount of $ 25m.

B. A bidding or negotiating contingency of 10 percent will be added to any Construction Cost limit established.

C. The acceptance by Owner at any time during Basic Services of a revised opinion of probable Construction Cost in excess of the then established Construction Cost limit will constitute a corresponding increase in the Construction Cost limit.

D. Engineer will be permitted to determine what types and quality of materials, equipment and component systems are to be included in the Drawings and Specifications. Engineer may make reasonable adjustments in the scope, extent, and character of the Project to the extent consistent with the Project requirements and sound engineering practices, to bring the Project within the Construction Cost limit.

E. If the Bidding or Negotiating Phase has not commenced within three months after completion of the Final Design Phase, or if industry-wide prices are changed because of unusual or unanticipated events affecting the general level of prices or times of delivery in the construction industry, the established Construction Cost limit will not be binding on Engineer. In such cases, Owner shall consent to an adjustment in the Construction Cost limit commensurate with any applicable change in the general level of prices in the construction industry between the date of completion of the Final Design Phase and the date on which proposals or Bids are sought.

F. If the lowest bona fide proposal or Bid exceeds the established Construction Cost limit, Owner shall (1) give written approval to increase such Construction Cost limit, or (2) authorize negotiating or rebidding the Project within a reasonable time, or (3) cooperate in revising the Project's scope, extent, or character to the extent consistent with the Project's requirements and with sound engineering practices. In the case of (3), Engineer shall modify the Contract Documents as necessary to bring the Construction Cost within the Construction Cost Limit. Owner shall pay Engineer's cost to provide such modification services, including the costs of the services of its Consultants, all overhead expenses reasonably related thereto, and Reimbursable Expenses, but without profit to Engineer on account of such services. The providing of such services will be the limit of Engineer's responsibility in this regard and, having done so, Engineer shall be entitled to payment for services and expenses in accordance with this Agreement and will not otherwise be liable for damages attributable to the lowest bona fide proposal or bid exceeding the established Construction Cost limit.

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This is **EXHIBIT G**, consisting of 3 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct. 1, 2013.

Insurance

Paragraph 6.04 of the Agreement is supplemented to include the following agreement of the parties.

G6.04 *Insurance*

A. The limits of liability for the insurance required by Paragraph 6.04.A and 6.04.B of the Agreement are as follows:

1. By Engineer:

a. Workers' Compensation: Statutory

~~b. Employer's Liability --~~

~~1) Each Accident:~~ ~~$ _____~~
~~2) Disease, Policy Limit:~~ ~~$ _____~~
~~3) Disease, Each Employee:~~ ~~$ _____~~

c. General Liability --

1) Each Occurrence (Bodily Injury and Property Damage): $ 1,000,000
2) General Aggregate: $ 2,000,000

~~d. Excess or Umbrella Liability --~~

~~1) Each Occurrence:~~ ~~$ _____~~
~~2) General Aggregate:~~ ~~$ _____~~

e. Automobile Liability --Combined Single Limit (Bodily Injury and Property Damage):

Each Accident $ 1,000,000

f. Professional Liability –

1) Each Claim Made $ 1,000,000
2) Annual Aggregate $ 2,000,000

~~g. Other (specify):~~ ~~$ _____~~

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2. By Owner:

   a. Workers' Compensation: Statutory

   b. Employer's Liability --

      1) Each Accident $ 1,000,000
      2) Disease, Policy Limit $ 1,000,000
      3) Disease, Each Employee $ 1,000,000

   c. General Liability --

      1) General Aggregate: $ 1,000,000
      2) Each Occurrence (Bodily Injury and Property Damage): $ 1,000,000

   d. Excess Umbrella Liability --

      1) Each Occurrence: $ 5,000,000
      2) General Aggregate: $ 5,000,000

   e. Automobile Liability --Combined Single Limit (Bodily Injury and Property Damage):

      Each Accident:
      $ 1,000,000

   f. Other (specify): $ N/A

B. *Additional Insureds:*

1. The following persons or entities are to be listed on Owner's general liability policies of insurance as additional insureds, and on any applicable property insurance policy as loss payees, as provided in Paragraph 6.04.B:

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a. ABCI Engineering Inc.
Engineer

b. _____
Engineer's Consultant

c. _____
Engineer's Consultant

2. During the term of this Agreement the Engineer shall notify Owner of any other Consultant to be listed as an additional insured on Owner's general liability and property policies of insurance.

3. The Owner shall be listed on Engineer's general liability policy as provided in Paragraph 6.04.A.

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This is **EXHIBIT H**, consisting of 1 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct. 1, 2013.

Dispute Resolution

Paragraph 6.08 of the Agreement is amended and supplemented to include the following agreement of the parties:

~~**[*NOTE TO USER: Select one of the two alternatives provided*]**~~

H6.08 *Dispute Resolution*

A. *Mediation*: Owner and Engineer agree that they shall first submit any and all unsettled claims, counterclaims, disputes, and other matters in question between them arising out of or relating to this Agreement or the breach thereof ("Disputes") to mediation by *[insert name of mediator, or mediation service]*. Owner and Engineer agree to participate in the mediation process in good faith. The process shall be conducted on a confidential basis, and shall be completed within 120 days. If such mediation is unsuccessful in resolving a Dispute, then (1) the parties may mutually agree to a dispute resolution of their choice, or (2) either party may seek to have the Dispute resolved by a court of competent jurisdiction.

~~[or]~~

~~A. *Arbitration:* All Disputes between Owner and Engineer shall be settled by arbitration in accordance with the [*here insert the name of a specified arbitration service or organization*] rules effective at the Effective Date, subject to the conditions stated below. This agreement to arbitrate and any other agreement or consent to arbitrate entered into in accordance with this Paragraph H6.08.A will be specifically enforceable under prevailing law of any court having jurisdiction.~~

~~1. Notice of the demand for arbitration must be filed in writing with the other party to the Agreement and with the [*specified arbitration service or organization*]. The demand must be made within a reasonable time after the Dispute has arisen. In no event may the demand for arbitration be made after the date when institution of legal or equitable proceedings based on such Dispute would be barred by the applicable statute of limitations.~~

~~2. All demands for arbitration and all answering statements thereto which include any monetary claims must contain a statement that the total sum or value in controversy as alleged by the party making such demand or answering statement is not more than $_____ (exclusive of interest and costs). The arbitrators will not have jurisdiction, power, or authority to consider, or make findings (except in denial of their own jurisdiction) concerning any Dispute if the amount in controversy in such Dispute is more than $_____ (exclusive of interest and costs), or to render a monetary award in response thereto against any party which totals more than $_____ (exclusive of interest and costs). Disputes that~~

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are not subject to arbitration under this paragraph may be resolved in any court of competent jurisdiction.

3. The award rendered by the arbitrators shall be in writing, and shall include: (i) a precise breakdown of the award; and (ii) a written explanation of the award specifically citing the Agreement provisions deemed applicable and relied on in making the award.

4. The award rendered by the arbitrators will be consistent with the Agreement of the parties and final, and judgment may be entered upon it in any court having jurisdiction thereof, and will not be subject to appeal or modification.

5. If a Dispute in question between Owner and Engineer involves the work of a Contractor, Subcontractor, or consultants to the Owner or Engineer (each a "Joinable Party"), and such Joinable Party has agreed contractually or otherwise to participate in a consolidated arbitration concerning this Project, then either Owner or Engineer may join such Joinable Party as a party to the arbitration between Owner and Engineer hereunder. Nothing in this Paragraph H6.08.A.5 nor in the provision of such contract consenting to joinder shall create any claim, right, or cause of action in favor of the Joinable Party and against Owner or Engineer that does not otherwise exist.

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This is **EXHIBIT I**, consisting of 3 pages, referred to in and part of the **Agreement between Owner and Engineer for Professional Services** dated Oct. 1, 2013.

Limitations of Liability

Paragraph 6.10 of the Agreement is supplemented to include the following agreement of the parties:

A. *Limitation of Engineer's Liability*

[*NOTE TO USER: Select one of the three alternatives listed below for I6.10 A.1*]

1. *Engineer's Liability Limited to Amount of Engineer's Compensation:* To the fullest extent permitted by law, and notwithstanding any other provision of this Agreement, the total liability, in the aggregate, of Engineer and Engineer's officers, directors, members, partners, agents, employees, and Consultants, to Owner and anyone claiming by, through, or under Owner for any and all claims, losses, costs, or damages whatsoever arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warranty express or implied of Engineer or Engineer's officers, directors, members, partners, agents, employees, or Consultants shall not exceed the total compensation received by Engineer under this Agreement.

~~[or]~~

~~1. *Engineer's Liability Limited to Amount of Insurance Proceeds:* Engineer shall procure and maintain insurance as required by and set forth in Exhibit G to this Agreement. Notwithstanding any other provision of this Agreement, and to the fullest extent permitted by law, the total liability, in the aggregate, of Engineer and Engineer's officers, directors, members, partners, agents, employees, and Consultants to Owner and anyone claiming by, through, or under Owner for any and all claims, losses, costs, or damages whatsoever arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warranty express or implied, of Engineer or Engineer's officers, directors, members, partners, agents, employees, or Consultantss (hereafter "Owner's Claims"), shall not exceed the total insurance proceeds paid on behalf of or to Engineer by Engineer's insurers in settlement or satisfaction of Owner's Claims under the terms and conditions of Engineer's insurance policies applicable thereto (excluding fees, costs and expenses of investigation, claims adjustment, defense, and appeal). If no such insurance coverage is provided with respect to Owner's Claims, then the total liability, in the aggregate, of Engineer and Engineer's officers, directors, members, partners, agents, employees, and Consultants to Owner and anyone claiming by, through, or under Owner for any and all such uninsured Owner's Claims shall not exceed $_____ [*or*]~~

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1. *Engineer's Liability Limited to the Amount of $_____:* Notwithstanding any other provision of this Agreement, and to the fullest extent permitted by law, the total liability, in the aggregate, of Engineer and Engineer's officers, directors, members, partners, agents, employees, and Consultants, to Owner and anyone claiming by, through, or under Owner for any and all claims, losses, costs, or damages whatsoever arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warranty express or implied of Engineer or Engineer's officers, directors, members, partners, agents, employees, or Consultants shall not exceed the total amount of $_____.

[NOTE TO USER: If appropriate and desired, include I6.10.A.2 below as a supplement to Paragraph 6.10, which contains a mutual waiver of damages applicable to the benefit of both Owner and Engineer]

2. *Exclusion of Special, Incidental, Indirect, and Consequential Damages:* To the fullest extent permitted by law, and notwithstanding any other provision in the Agreement, consistent with the terms of Paragraph 6.10. the Engineer and Engineer's officers, directors, members, partners, agents, Consultants, and employees shall not be liable to Owner or anyone claiming by, through, or under Owner for any special, incidental, indirect, or consequential damages whatsoever arising out of, resulting from, or in any way related to the Project or the Agreement from any cause or causes, including but not limited to any such damages caused by the negligence, professional errors or omissions, strict liability, breach of contract, indemnity obligations, or warrantyexpress or implied of Engineer or Engineer's officers, directors, members, partners, agents, employees, or Consultants, and including but not limited to:

[NOTE TO USER: list here particular types of damages that may be of special concern because of the nature of the project or specific circumstances, e.g., cost of replacement power, loss of use of equipment or of the facility, loss of profits or revenue, loss of financing, regulatory fines, etc. If the parties prefer to leave the language general, then end the sentence after the word "employees"]

[NOTE TO USER: the above exclusion of consequential and other damages can be converted to a limitation on the amount of such damages, following the format of Paragraph I6.10.A.1 above, by providing that "Engineer's total liability for such damages shall not exceed $_____."]

[NOTE TO USER: If appropriate and desired, include I6.10.A.3 below]

3. *Agreement Not to Claim for Cost of Certain Change Orders:* Owner recognizes and expects that certain Change Orders may be required to be issued as the result in whole or part of imprecision, incompleteness, errors, omissions, ambiguities, or inconsistencies in

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the Drawings, Specifications, and other design documentation furnished by Engineer or in the other professional services performed or furnished by Engineer under this Agreement ("Covered Change Orders"). Accordingly, Owner agrees not to sue or to make any claim directly or indirectly against Engineer on the basis of professional negligence, breach of contract, or otherwise with respect to the costs of approved Covered Change Orders unless the costs of such approved Covered Change Orders exceed 3 % of Construction Cost, and then only for an amount in excess of such percentage. Any responsibility of Engineer for the costs of Covered Change Orders in excess of such percentage will be determined on the basis of applicable contractual obligations and professional liability standards. For purposes of this paragraph, the cost of Covered Change Orders will not include any costs that Owner would have incurred if the Covered Change Order work had been included originally without any imprecision, incompleteness, error, omission, ambiguity, or inconsistency in the Contract Documents and without any other error or omission of Engineer related thereto. Nothing in this provision creates a presumption that, or changes the professional liability standard for determining if, Engineer is liable for the cost of Covered Change Orders in excess of the percentage of Construction Cost stated above or for any other Change Order. Wherever used in this paragraph, the term Engineer includes Engineer's officers, directors, members, partners, agents, employees, and Consultants.

~~***[NOTE TO USER: The parties may wish to consider the additional limitation contained in the following sentence.]***~~

Owner further agrees not to sue or to make any claim directly or indirectly against Engineer with respect to any Covered Change Order not in excess of such percentage stated above, and Owner agrees to hold Engineer harmless from and against any suit or claim made by the Contractor relating to any such Covered Change Order.]

~~***[NOTE TO USER: Many professional service agreements contain mutual indemnifications. If the parties elect to provide a mutual counterpart to the indemnification of Owner by Engineer in Paragraph 6.10.A, then supplement Paragraph 6.10.B by including the following indemnification of Engineer by Owner as Paragraph I6.10.B.]***~~

B. *Indemnification by Owner*: To the fullest extent permitted by law, Owner shall indemnify and hold harmless Engineer and its officers, directors, members, partners, agents, employees, and Consultants from and against any and all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court, arbitration, or other dispute resolution costs) arising out of or relating to the Project, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom, but only to the extent caused by any negligent act or omission of Owner or Owner's officers, directors, members, partners, agents, employees,

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consultants, or others retained by or under contract to the Owner with respect to this Agreement or to the Project.

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UW-Whitewater Facilities Planning & Management
ADVERTISEMENT FOR BIDS
Winther Hall Renovation
UNIVERSITY PROJECT 10-11

Notice is hereby given that sealed bids will be received at the ABCI Engineering Inc. office, 1415 Engineering Dr., Madison, WI 53706, until 10:00 a.m. on Tuesday, May 27, 2014, at which time they will be publicly opened and read aloud by the Director of Facilities Planning & Management. All bids to be for the furnishing of all labor and materials to complete the following described improvements:

Scenic Study View Design
Contract quantities include the following:

Furnish and install	17,500 SF addition
	24,500 SF interior upgrades

All bids should be made on the proposal form provided for that purpose and according to the contract documents prepared by ABCI Engineering Inc., 1415 Engineering Dr., Madison, WI 53706

Specifications, bid forms and contract documents are available at the office of ABCI, 1415 Engineering Dr., Madison, WI 53706. Contractors desiring a copy of these contract documents may obtain them from the office of the City Engineer upon payment of a deposit of $20.00, which is non-refundable. Bidding documents may also be obtained in electronic form through www.anbi.com for a fee of $10.00.

Each bid shall be accompanied by a bidder's bond naming the UW-Whitewater Facilities Planning & Management as obligee, cashiers' or certified check made payable to the UW-Whitewater Facilities Planning & Management department or a cash deposit equal to at least 5% of the amount of the bid, which shall be forfeited to the University in the event that the bidder fails to enter into a contract.

Bids should be directed to the UW-Whitewater Facilities Planning & Management office, 500 N Fremont St. Whitewater, WI 53190, securely sealed and endorsed upon the outside wrapper with a brief statement or summary as to the work for which the bid is made, labeled, "Winther Hall Renovation-University Project 10-11". The University board of regents reserves the right to reject any and all bids, to waive irregularities and informalities therein, and to award the contract in the best interest of the University. Bids arriving after the designated time will be returned unopened. No bidder may withdraw his bid within sixty (60) days after the scheduled closing time for the receipt of bids.

Immediately following expiration for the time for receiving bids, the UW-Whitewater Facilities Planning & Management department & ABCI Engineering Inc. will open the bids at UW-Whitewater Facilities Planning & Management office, 500 N Fremont St., Whitewater, WI 53190.

Adam Cichanski, P.E.
ABCI Engineering Inc.
Madison, Wisconsin

INSTRUCTION TO BIDDERS

ALL BIDDERS MUST ADHERE TO THESE INSTRUCTIONS. BIDS THAT DO NOT MEET ALL THE REQUIREMENTS OF THESE INSTRUCTIONS WILL NOT BE CONSIDERED.

1. INVITATION FOR BID

The Invitation for Bid enclosed here is an integral part of these instructions.

2. BID LIST

Vendors who wish to remain on the Active Bid List must either submit a bid or a letter of explanation as to the reason for not submitting same, no later than the official bid opening.

3. BID PROPOSAL

The Bid Proposal must be filled out on the forms prescribed and enclosed in a sealed envelope which shall be clearly marked on the outside "BID FOR …" and shall indicate as well the name and address of the bidder.

4. BID SECURITY

Each bid must be accompanied by certified check of the bidder or a bid bond duly executed by the bidder as principal and having as surety thereon a surety company licensed in Wisconsin and approved by the University of Wisconsin – Whitewater Facilities Planning and Management, in the amount of 5% of the bid amount.

5. INSURANCE

The Contractor shall, prior to execution of the contract, provide the University of Wisconsin – Whitewater Facilities Planning and Management with a Certificate of Insurance, with the amounts as specified in this section, which insurance shall be maintained at all times during the term of the contract. Failure to provide or maintain such insurance shall be grounds to reject a bid or execute a contract. Public Commercial Liability coverage $l,000,000.00. General aggregate $500,000.00 per occurrence and Automobile Liability Insurance $1,000,000.00 combined single limit.

The Certificate of Insurance shall provide Worker's Compensation coverage in the amounts required by Wisconsin Law, and Coverage B in the amount of at least $500,000.00.

6. BID FORM

All information must be typewritten or printed in ink, including the price(s) which the bidder proposes in the space(s) as provided on the official Bid Proposal.

7. BID DOCUMENTS

The Bidder is to thoroughly familiarize himself/herself with all documents contained herein, as it is mandatory that all proposals be in compliance with all of the provisions contained in said documents. The documents compromising the bid consist of (a) Invitation for Bid, (b) Instructions to Bidders and General Conditions, (c) Special Conditions (if any), (d) Specifications and (e) Bid Proposal (f) Corporate Authority (g) Non-Collusion/Tax Attestation Statement

8. BID PRICES

These shall encompass everything necessary for installation of all items, materials, supplies or services as specified.

9. UNIT PRICE

In the event of a discrepancy between the Unit Price and the Extension, the Unit Price shall govern.

10. EXPLANATION, EXCEPTIONS

Other information pertinent to the specifications may be made in the form of a letter included in the same envelope with the Bid Proposal.

11. CORRECTIONS

Proposals that are submitted containing crossouts, whiteouts, or erasures WILL BE REJECTED. All corrections or modifications to an original proposal are to be submitted in a separate envelope, properly marked, prior to the bid opening only.

ALL DOCUMENTS WILL BE INCORPORATED INTO THE CONTRACT DOCUMENTS.

12. WITHDRAWAL OF BID

A bid may be withdrawn by written request prior to the scheduled time for the bid opening.

13. AWARD

Bid will be awarded not later than thirty (30) days after the scheduled time for the bid opening.

14. EVALUATION

Bids will be evaluated and awarded to the responsible, responsive bidder offering the lowest price.

15. EXAMINATION

By submitting a bid, the bidder warrants that he has thoroughly examined the specifications and is fully acquainted with all conditions and restrictions pertaining to the bid items. No claims for any extra work or extension of time will be allowed for failure to observe this requirement.

16. TAXES

Purchases by the City of Whitewater are exempt from any Federal, State or Municipal Sales and/or Excise Tax.

17. CONTRACTORS RECORDS

Contractors shall retain their records for at least six (6) years after final payment. These records may be subject to inspection by authorized representatives of the state or City of Whitewater during the entire six (6) year period.

18. CONTRACT OBLIGATION

Any financial obligation of the University of Wisconsin – Whitewater Facilities Planning and Management is subject to an annual appropriation to cover the contract obligation and an annual authorization by the University of Wisconsin – Whitewater Facilities Planning and Management to continue said contract obligations.

19. MINORITY PROCUREMENT GOALS

Under Wisconsin Executive Order 237, it is the policy of the Commonwealth to promote to the fullest, participation of all citizens in resources provided by municipal government. Therefore, the City of Whitewater invites the participation of Minority and Women owned businesses in any and all parts of the
contracts.

20. NON-DISCRIMINATION IN EMPLOYMENT

A contract for work under this proposal shall obligate the Contractors or subcontractors not to discriminate in employment practices.

Bidders must, if requested, submit compliance reports concerning their employment practices and policies in order to maintain their ability to receive an award of Contract. Bidders must, if requested, submit a list of all subcontractors who will perform work on this Contract together with a "Certification of Bidder Regarding Equal Employment Opportunity" signed by the Contractor and/or his Subcontractors as requested.

21. ADDENDA AND INTERPRETATIONS

All questions by the prospective bidders as to any information contained within this bid package must be submitted in writing to Michael Doran, Campus Facilities Planner, Facilities Planning and Management, General Services Building, 500 N. Fremont Street, Room 100B, Whitewater, WI 53190-1790 (262472-6704, at least five (5) days before the date set herein for bid opening.

22. THE AWARDING AUTHORITY RESERVES THE RIGHT TO REJECT ANY OR ALL BIDS OR ANY PART OF ANY BID WHICH IN THE OPINION OF THE AWARDING AUTHORITY SERVES THE BEST INTERESTS OF THE CITY OF WHITEWATER.

Any discounts available to the University of Wisconsin – Whitewater Facilities Planning and Management by the manufacturer shall be made known to the University of Wisconsin – Whitewater Facilities Planning and Management in writing at the time of bid submission deadline.

The bidder shall be responsible for checking bid specifications to ensure that there are no missing pages. Should the bidder find that a page or pages are missing, notification shall be made to the University of Wisconsin – Whitewater Facilities Planning and Management within 48 hours upon receipt of the bid specification package. Any missing pages will be sent immediately to the bidder within 24 hours of notification.

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ARTICLE 1 – BID RECIPIENT

1.01 This Bid is submitted to:

~~*[Insert Name and Address of Owner]*~~

1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

~~*NOTE TO USER*~~

~~*The party to whom the Bid is submitted should be the specific entity that will enter into the Agreement with the Successful Bidder.*~~

ARTICLE 2 – BIDDER'S ACKNOWLEDGEMENTS

2.01 Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

~~*NOTES TO USER*~~

~~*1. Bid acceptance periods may vary, particularly if funding agency reviews and approvals are required.*~~

~~*2. Bid acceptance periods should be coordinated with GC-2.03. See Narrative Guide, EJCDC C-001, for discussion.*~~

~~*3. Bid acceptance periods may also be set by statute.*~~

ARTICLE 3 – BIDDER'S REPRESENTATIONS

3.01 In submitting this Bid, Bidder represents that:

A. Bidder has examined and carefully studied the Bidding Documents, other related data identified in the Bidding Documents, and the following Addenda, receipt of which is hereby acknowledged:

Addendum No.	Addendum Date
_____	_____
_____	_____
_____	_____

~~*NOTE TO USER*~~

~~*It is important that all Bidders receive and acknowledge receipt of all Addenda. To be certain that Bidders receive all Addenda, use of methods*~~

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providing proof of receipt, such as courier services or return receipt requested mail, is suggested. (If fax or e-mail are used, Bidders should be requested to confirm receipt by the same means.) Ensure any specific requirement of the Owner concerning issuing and receipt of Addenda are reviewed and addressed. Note also the definition of Addenda in Article 1 of General Conditions that indicate Addenda are only issued prior to the opening of Bids.

B. Bidder has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

NOTE TO USER

It is important for Bidder to visit the Site before submitting its Bid and to conduct an alert, heads-up, eyes-open examination of the area and conditions under which the Work is to be performed. Bidder should acknowledge that Bidder has made the required visit (see particularly I-4 and GC-4.02 and GC-4.03) and also specifically accepts the Bidder's responsibility to obtain additional data.

C. Bidder is familiar with and is satisfied as to all Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Bidder has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities) that have been identified in SC-4.02 as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in SC-4.06 as containing reliable "technical data."

NOTE TO USER

Modify the above paragraph if such reports and/or drawings do not exist.

E. Bidder has considered the information known to Bidder; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Site-related reports and drawings identified in the Bidding Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, including applying the specific means, methods, techniques, sequences, and procedures of construction expressly required by the Bidding Documents; and (3) Bidder's safety precautions and programs.

NOTE TO USER

If the Bidding Documents do not identify any Site-related reports or drawings, modify this paragraph accordingly.

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F. Based on the information and observations referred to in Paragraph 3.01.E above, Bidder does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the determination of this Bid for performance of the Work at the price(s) bid and within the times required, and in accordance with the other terms and conditions of the Bidding Documents.

G. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.

H. Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and the written resolution thereof by Engineer is acceptable to Bidder.

1. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for the performance of the Work for which this Bid is submitted.

NOTE TO USER

~~If any changes to these representations are made in the Bid Form, corresponding changes may need to be made in both the Instructions to Bidders and the Agreement.~~

ARTICLE 4 – BIDDER'S CERTIFICATION

4.01 Bidder certifies that:

A. This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation;

B. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid;

C. Bidder has not solicited or induced any individual or entity to refrain from bidding; and

D. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 4.01.D:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels; and

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4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

~~*NOTE TO USER*~~

~~*For public work, relevant requirements of Laws and Regulations in the jurisdiction where Work is to be performed should be coordinated with the language of this paragraph.*~~

ARTICLE 5 – BASIS OF BID

5.01 Bidder will complete the Work in accordance with the Contract Documents for the following price(s):

~~*NOTES TO USER*~~

~~*1. Note that language is provided for lump sum (three suggested formats), cost-plus (two suggested fee formats), and unit price Bids. The contract pricing may include various combinations of these methods. Inapplicable language should be deleted.*~~

~~*2. Provide sufficient space and arrange format so that Bidders will have uniform understanding of how to submit prices.*~~

[SUGGESTED FORMATS FOR LUMP SUM BID]

Lump Sum Bid Price	$

[or]

Lump Sum Bid Price for Section I only	*$*
Lump Sum Bid Price for Section II only	*$*
Lump Sum Bid Price for Sections 1 and II	*$*

[or]

Lump Sum Bid Price for Base Bid	*$*
Alternate A [Add] [Deduct]	*$*
Alternate B [Add] [Deduct]	*$*

All specified cash allowances are included in the price(s) set forth above, and have been computed in accordance with Paragraph 11.02 of the General Conditions.

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NOTES TO USER

1. *If alternate Bids are requested, it is preferable that they be all "deductive" or all "additive." Alternates should be clearly specified in Division 1, General Requirements. The itemization in the Bid Form should be clearly identifiable and carefully follow the Division 1 presentation. The Instructions should contain appropriate guidance for preparing the Bid. Alternates should be accepted in a particular order which should be explained in the Instructions. The alternates should be listed in the Bid Form in order of priority.*

2. *To minimize the risk of error and to ensure objectivity in comparison of Bids, a single lump sum Bid price for a complete project or section is preferable to a total price determined by the sum of a list of individual lump sum items.*

3. *Cash allowances, if to be used, should be clearly specified in Division 1. Language such as the following is typically used: "Allow the lump sum of [$___] for the supply and installation of: [.1 Amount and description of Cash Allowance 1] [.2 Amount and description of Cash Allowance 2]."*

[SUGGESTED FORMATS FOR COST-PLUS BID]

The cost of the Work (other than Unit Price and other excluded Work), determined as provided in Paragraph 11.01 of the General Conditions, together with the following fee, and subject to the Guaranteed Maximum Price:

NOTE TO USER

Select one of the following methods to determine the Bidder's fee.

Contractor's fee will be a fixed sum of $_____

[or]

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Contractor's fee will be determined by applying the following percentages to the various portions of the Cost of the Work as defined in Article 11 of the General Conditions:

	Percent
Payroll costs (see GC-11.01.A.1)	_____
Material and Equipment costs (see GC-11.01.A.2)	_____
Amounts paid to Subcontractors (see GC-11.01.A.3)	_____
Amounts paid to special consultants (see GC-11.01.A.4)	_____
Supplemental costs (see GC-11.01.A.5)	_____

None of the costs described in Paragraph 11.01.B of the General Conditions will be included in determining Contractor's fee.

[The maximum amount payable to Contractor on account of this percentage fee will not exceed: $_____.]

~~NOTES TO USER~~

1. *~~In cost-plus contracts, provide space for the Bid figures to be included in the Agreement, such as varying percentages on which the Contractor's fee may be based and amount of Work to be subcontracted. Provide space for the guaranteed maximum price(s) where applicable. See EJCDC C-525, Suggested Form of Agreement between Owner and Contractor for Construction Contract (Cost-Plus), 2007 Edition.~~*

2. *~~The Bid Form must be identical with that of the proposed Agreement, and the format for submission of percentages and maximum amount organized so as to permit the easy transfer of information in the Bid of the Successful Bidder to Agreement.~~*

3. *~~If a Guaranteed Maximum Price will apply to the Cost of the Work plus Contractor's fee, then include and complete the following provision. See EJCDC C-525, Suggested Form of Agreement between Owner and Contractor for Construction Contract (Cost-Plus), 2007 Edition, Article 8.~~*

The Guaranteed Maximum Price to Owner of the Cost of the Work including Contractor's Fee will not exceed $_____.

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[SUGGESTED FORMAT FOR UNIT PRICE BID]

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price
				$	$
				$	$
				$	$
Total of All Bid Prices					$

Unit Prices have been computed in accordance with Paragraph 11.03.B of the General Conditions.

Bidder acknowledges that estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all unit price Bid items will be based on actual quantities, determined as provided in the Contract Documents.

~~*NOTE TO USER*~~

~~*If unit prices are requested, whether it be a unit price Bid or in connection with a lump sum or cost-plus contract, appropriate guidance for completing the Bid Form should appear in the Instructions and details with respect to what is included in each unit price item should be included in the General Requirements. Provide an estimated quantity in the Bid Form for each item as defined or indicated in the Specifications. Read specifically GC-11.03 and SC-11.03.*~~

[END OF SUGGESTED BID FORMATS]

ARTICLE 6 – TIME OF COMPLETION

6.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before the dates or within the number of calendar days indicated in the Agreement.

[or]

6.01 Bidder agrees that the Work will be substantially complete on or before _____, and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before _____.

[or]

6.01 Bidder agrees that the Work will be substantially complete within _____ calendar days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and will be completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within _____ calendar days after the date when the Contract Times commence to run.

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NOTES TO USER

1. *Select one of the above paragraphs to establish the Contract Times for the Work.*

2. *If the Contract Times are designated by the Owner prior to the receipt of Bids, the first option should be selected in order to avoid a potential conflict with the Agreement.*

3. *If Bidders are permitted to designate the Contract Times by calendar date, the second option should be selected.*

4. *If Bidders are permitted to designate the Contract Times by calendar days, the third option should be selected.*

5. *Bid Form language should follow exactly the language of the Agreement. For some projects it may be desirable to include space for Bidders to indicate variations in completion times, but note that in some jurisdictions it is required that an award be made to the lowest Bidder regardless of time for completion.*

6.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

NOTE TO USER

Provisions for liquidated damages should appear in the Agreement and may be cross-referenced in other places in the Bidding Requirements and the Contract Documents. It is unwise to repeat liquidated damages provisions in the Bid or to summarize or paraphrase them here or elsewhere.

ARTICLE 7 – ATTACHMENTS TO THIS BID

7.01 The following documents are submitted with and made a condition of this Bid:

A. Required Bid security in the form of _____;

B. List of Proposed Subcontractors;

C. List of Proposed Suppliers;

D. List of Project References;

E. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such license within the time for acceptance of Bids;

F. *[If applicable]* Contractor's License No.: _____ *[or]* Evidence of Bidder's ability to obtain a State Contractor's License and a covenant by Bidder to obtain said license within the time for acceptance of Bids;

G. Required Bidder Qualification Statement with Supporting Data; and

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H. *[List other documents as pertinent]*

NOTES TO USER

1. *The above paragraph should be coordinated with I-15 of the Instructions. If no documents are required to be submitted with the Bid, the paragraph may be eliminated.*

2. *Requirements as to Bid security should be contained in the Instructions (See I-8). For recommended form of Bid Bond see EJCDC documents Nos. C-430 and C-435.*

3. *Requirements for identifying Subcontractors, Suppliers and other individuals and entities furnishing materials and equipment and for indicating the amount of Work to be subcontracted in the case of cost-plus contracts are to be set forth in the Instructions and Supplementary Conditions.*

4. *Requirements as to qualification of Bidders appear in the Instructions (See I-3). EJCDC has recommended for use AGC's "Construction Contractor's Qualification Statement for Engineered Construction" (AGC Document No. 220) and "Contractor's Qualifications for a Specific Project" (AGC Document No. 221).*

5. *Additional documents may have to be submitted with the Bid because of Laws and Regulations applicable to the Project. List all of these so Bidders can understand what is required.*

ARTICLE 8 – DEFINED TERMS

8.01 The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

NOTE TO USER

Careful attention to proper use of terms defined in the Instructions to Bidders, the General Conditions, and Supplementary Conditions is most important.

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ARTICLE 9 – BID SUBMITTAL

9.01 This Bid is submitted by:

If Bidder is:

An Individual

Name (typed or printed): _____

By: _____
(Individual's signature)

Doing business as: _____

A Partnership

Partnership Name: _____

By: _____
(Signature of general partner -- attach evidence of authority to sign)

Name (typed or printed): _____

A Corporation

Corporation Name: _____ (SEAL)

State of Incorporation: _____
Type (General Business, Professional, Service, Limited Liability):_____

By: _____
(Signature -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____
(CORPORATE SEAL)

Attest _____

Date of Qualification to do business in _*[State where Project is located]*_ is ____/____/____.

A Joint Venture

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Name of Joint Venture: _____

First Joint Venturer Name: _____ (SEAL)

By: _____
(Signature of first joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

Second Joint Venturer Name: _____(SEAL)

By: _____
(Signature of second joint venture partner -- attach evidence of authority to sign)

Name (typed or printed): _____

Title: _____

(Each joint venturer must sign. The manner of signing for each individual, partnership, and corporation that is a party to the joint venture should be in the manner indicated above.)

Bidder's Business Address _____

_____

Phone No. _____ Fax No. _____

E-mail _____ _____

SUBMITTED on _____, 20____.

State Contractor License No. _____. *[If applicable]*

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NOTES TO USER

1. *The laws of certain states require the listing of Contractor's license number on the Bid Form as well as on the Agreement.*

2. *See I-13.11 as to evidence of Bidder's qualification to do business as a foreign corporation in the state where the Project is located if Bidder is not incorporated in that state.*

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BID BOND

Any singular reference to Bidder, Surety, Owner or other party shall be considered plural where applicable.

BIDDER *(Name and Address)*:

SURETY *(Name and Address of Principal Place of Business)*:

OWNER *(Name and Address)*:

BID

Bid Due Date:

Description *(Project Name and Include Location)*:

BOND

Bond Number:

Date *(Not earlier than Bid due date)*:

Penal sum _____ $ _____

(Words) (Figures)

Surety and Bidder, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Bid Bond to be duly executed by an authorized officer, agent, or representative.

BIDDER	**SURETY**
_____ (Seal)	_____ (Seal)
Bidder's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

SAMPLE

Note: Above addresses are to be used for giving any required notice. Provide execution by any additional parties, such as joint venturers, if necessary.

SAMPLE

1. Bidder and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to pay to Owner upon default of Bidder the penal sum set forth on the face of this Bond. Payment of the penal sum is the extent of Bidder's and Surety's liability. Recovery of such penal sum under the terms of this Bond shall be Owner's sole and exclusive remedy upon default of Bidder.

2. Default of Bidder shall occur upon the failure of Bidder to deliver within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents.

3. This obligation shall be null and void if:

3.1 Owner accepts Bidder's Bid and Bidder delivers within the time required by the Bidding Documents (or any extension thereof agreed to in writing by Owner) the executed Agreement required by the Bidding Documents and any performance and payment bonds required by the Bidding Documents, or

3.2 All Bids are rejected by Owner, or

3.3 Owner fails to issue a Notice of Award to Bidder within the time specified in the Bidding Documents (or any extension thereof agreed to in writing by Bidder and, if applicable, consented to by Surety when required by Paragraph 5 hereof).

4. Payment under this Bond will be due and payable upon default of Bidder and within 30 calendar days after receipt by Bidder and Surety of written notice of default from Owner, which notice will be given with reasonable promptness, identifying this Bond and the Project and including a statement of the amount due.

5. Surety waives notice of any and all defenses based on or arising out of any time extension to issue Notice of Award agreed to in writing by Owner and Bidder, provided that the total time for issuing Notice of Award including extensions shall not in the aggregate exceed 120 days from Bid due date without Surety's written consent.

6. No suit or action shall be commenced under this Bond prior to 30 calendar days after the notice of default required in Paragraph 4 above is received by Bidder and Surety and in no case later than one year after Bid due date.

7. Any suit or action under this Bond shall be commenced only in a court of competent jurisdiction located in the state in which the Project is located.

8. Notices required hereunder shall be in writing and sent to Bidder and Surety at their respective addresses shown on the face of this Bond. Such notices may be sent by personal delivery, commercial courier, or by United States Registered or Certified Mail, return receipt requested, postage pre-paid, and shall be deemed to be effective upon receipt by the party concerned.

9. Surety shall cause to be attached to this Bond a current and effective Power of Attorney evidencing the authority of the officer, agent, or representative who executed this Bond on behalf of Surety to execute, seal, and deliver such Bond and bind the Surety thereby.

10. This Bond is intended to conform to all applicable statutory requirements. Any applicable requirement of any applicable statute that has been omitted from this Bond shall be deemed to be included herein as if set forth at length. If any provision of this Bond conflicts with any applicable statute, then the provision of said statute shall govern and the remainder of this Bond that is not in conflict therewith shall continue in full force and effect.

11. The term "Bid" as used herein includes a Bid, offer, or proposal as applicable.

SAMPLE

Notice of Award

Date: _____

Project:	
Owner:	Owner's Contract No.:
Contract:	Engineer's Project No.:
Bidder:	
Bidder's Address: *[send Notice of Award Certified Mail, Return Receipt Requested]*	

You are notified that your Bid dated _____ for the above Contract has been considered. You are the Successful Bidder and are awarded a Contract for _____

[Indicate total Work, alternates, or sections of Work awarded.]

The Contract Price of your Contract is _____ Dollars ($_____).

[Insert appropriate data if unit prices are used. Change language for cost-plus contracts.]

_____ copies of the proposed Contract Documents (except Drawings) accompany this Notice of Award.

_____ sets of the Drawings will be delivered separately or otherwise made available to you immediately.

You must comply with the following conditions precedent within [15] days of the date you receive this Notice of Award.

1. Deliver to the Owner [_____] fully executed counterparts of the Contract Documents.
2. Deliver with the executed Contract Documents the Contract security [Bonds] as specified in the Instructions to Bidders (Article 20), General Conditions (Paragraph 5.01), and Supplementary Conditions (Paragraph SC-5.01).
3. Other conditions precedent:

_____

Failure to comply with these conditions within the time specified will entitle Owner to consider you in default, annul this Notice of Award, and declare your Bid security forfeited.

Within ten days after you comply with the above conditions, Owner will return to you one fully executed counterpart of the Contract Documents.

_____
Owner

By:_____
Authorized Signature

_____
Title

Copy to Engineer

SAMPLE

This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

AMERICAN SOCIETY OF CIVIL ENGINEERS

PROFESSIONAL ENGINEERS IN PRIVATE PRACTICE
A Practice Division of the
NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Endorsed by

CONSTRUCTION SPECIFICATIONS INSTITUTE

SAMPLE

EJCDC C-520 Suggested Form of Agreement Between Owner and Contractor for Construction Contract (Stipulated Price)
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This Suggested Form of Agreement has been prepared for use with the Standard General Conditions of the Construction Contract (EJCDC C-700, 2007 Edition). Their provisions are interrelated, and a change in one may necessitate a change in the other. The language contained in the Suggested Instructions to Bidders (EJCDC C-200, 2007 Edition) is also carefully interrelated with the language of this Agreement. Their usage is discussed in the Narrative Guide to the 2007 EJCDC Construction Documents (EJCDC C-001, 2007 Edition).

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www.asce.org

Associated General Contractors of America
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www.agc.org

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INTRODUCTION

This Suggested Form of Agreement between Owner and Contractor for Construction Contract (Stipulated Price) ("Agreement") has been prepared for use with the Suggested Instructions to Bidders for Construction Contracts ("Instructions to Bidders") (EJCDC C-200, 2007 Edition); the Suggested Bid Form for Construction Contracts ("Bid Form") (EJCDC C-410, 2007 Edition); and the Standard General Conditions of the Construction Contract ("General Conditions") (EJCDC C-700, 2007 Edition). Their provisions are interrelated, and a change in one may necessitate a change in the others. See also the Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition), and the Narrative Guide to the 2007 EJCDC Construction Documents (EJCDC C-001, 2007 Edition).

This Agreement form assumes use of a Project Manual that contains the following documentary information for a construction project:

- Bidding Requirements, which include the advertisement or invitation to bid, the Instructions to Bidders, and the Bid Form that is suggested or prescribed, all of which provide information and guidance for all Bidders; and

- Contract Documents, which include the Agreement, performance and payment bonds, the General Conditions, the Supplementary Conditions, the Drawings, and the Specifications.

The Bidding Requirements are not Contract Documents because much of their substance pertains to the relationships prior to the award of the Contract and has little effect or impact thereafter, and because many contracts are awarded without going through the bidding process. In some cases, however, the actual Bid may be attached as an exhibit to the Agreement to avoid extensive rekeying. (The definitions of terms used in this Agreement, including "Bidding Documents," "Bidding Requirements," and "Contract Documents," are set forth Article 1 of the General Conditions.)

Suggested provisions are accompanied by "Notes to User" to assist in preparing the Agreement. The provisions have been coordinated with the other forms produced by EJCDC. Much of the language should be usable on most projects, but modifications and additional provisions will often be necessary. When modifying the suggested language or writing additional provisions, the user must check the other documents thoroughly for conflicts and coordination of terms and make appropriate revisions in all affected documents.

All parties involved in construction projects benefit significantly from a standardized approach in the location of subject matter throughout the documents. Experience confirms the danger of addressing the same subject matter in more than one location: doing so frequently leads to confusion and unanticipated legal consequences. When preparing documents for a construction project, careful attention should be given to the guidance provided in the Uniform Location of Subject Matter (EJCDC N-122).

EJCDC has designated Section 00520 for this Agreement. If this convention is used, the first page of the Agreement would be numbered 00520-1. If CSI's MasterFormat 04™ is being used for the Project Manual, consult MasterFormat 04 for the appropriate section number and number the pages accordingly.

For brevity, paragraphs of the Instructions to Bidders are referenced with the prefix "I," those of the Bid Form are referenced with the prefix "BF," and those of this Agreement are referenced with the prefix "A."

NOTE: EJCDC publications may be purchased from any of the organizations listed on the page immediately following the cover page of this document.

SAMPLE

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SUGGESTED FORM OF AGREEMENT BETWEEN OWNER AND CONTRACTOR FOR CONSTRUCTION CONTRACT (STIPULATED PRICE)

THIS AGREEMENT is by and between _____ ("Owner") and _____ ("Contractor").

Owner and Contractor hereby agree as follows:

ARTICLE 1 – WORK

1.01 Contractor shall complete all Work as specified or indicated in the Contract Documents. The Work is generally described as follows:

ARTICLE 2 – THE PROJECT

2.01 The Project for which the Work under the Contract Documents may be the whole or only a part is generally described as follows:

ARTICLE 3 – ENGINEER

3.01 The Project has been designed by _____ (Engineer), which is to act as Owner's representative, assume all duties and responsibilities, and have the rights and authority assigned to Engineer in the Contract Documents in connection with the completion of the Work in accordance with the Contract Documents.

ARTICLE 4 – CONTRACT TIMES

4.01 *Time of the Essence*

A. All time limits for Milestones, if any, Substantial Completion, and completion and readiness for final payment as stated in the Contract Documents are of the essence of the Contract.

4.02 *Dates for Substantial Completion and Final Payment*

A. The Work will be substantially completed on or before _____, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions on or before _____.

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[or]

4.02 *Days to Achieve Substantial Completion and Final Payment*

A. The Work will be substantially completed within _____ days after the date when the Contract Times commence to run as provided in Paragraph 2.03 of the General Conditions, and completed and ready for final payment in accordance with Paragraph 14.07 of the General Conditions within _____ days after the date when the Contract Times commence to run.

4.03 *Liquidated Damages*

A. Contractor and Owner recognize that time is of the essence as stated in Paragraph 4.01 above and that Owner will suffer financial loss if the Work is not completed within the times specified in Paragraph 4.02 above, plus any extensions thereof allowed in accordance with Article 12 of the General Conditions. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Owner if the Work is not completed on time. Accordingly, instead of requiring any such proof, Owner and Contractor agree that as liquidated damages for delay (but not as a penalty), Contractor shall pay Owner $_____ for each day that expires after the time specified in Paragraph 4.02 above for Substantial Completion until the Work is substantially complete. After Substantial Completion, if Contractor shall neglect, refuse, or fail to complete the remaining Work within the Contract Time or any proper extension thereof granted by Owner, Contractor shall pay Owner $_____ for each day that expires after the time specified in Paragraph 4.02 above for completion and readiness for final payment until the Work is completed and ready for final payment.

NOTE TO USER

If failure to reach a Milestone on time is of such consequence that the assessment of liquidated damages for failure to reach one or more Milestones on time is to be provided, appropriate amending or supplementing language should be inserted here.

ARTICLE 5 – CONTRACT PRICE

5.01 Owner shall pay Contractor for completion of the Work in accordance with the Contract Documents an amount in current funds equal to the sum of the amounts determined pursuant to Paragraphs 5.01.A, 5.01.B, and 5.01.C below:

A. For all Work other than Unit Price Work, a lump sum of: $_____

All specific cash allowances are included in the above price in accordance with Paragraph 11.02 of the General Conditions.

B. For all Unit Price Work, an amount equal to the sum of the established unit price for each separately identified item of Unit Price Work times the actual quantity of that item:

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UNIT PRICE WORK

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Price

Total of all Bid Prices (Unit Price Work) $_____

The Bid prices for Unit Price Work set forth as of the Effective Date of the Agreement are based on estimated quantities. As provided in Paragraph 11.03 of the General Conditions, estimated quantities are not guaranteed, and determinations of actual quantities and classifications are to be made by Engineer as provided in Paragraph 9.07 of the General Conditions.

C. For all Work, at the prices stated in Contractor's Bid, attached hereto as an exhibit.

NOTES TO USER

1. *If adjustment prices for variations from stipulated Base Bid quantities have been agreed to, insert appropriate provisions.*

2. *Depending upon the particular project bid form used, use 5.01.A alone, 5.01.A and 5.01.B together, 5.01.B alone, or 5.01.C alone, deleting those not used and renumbering accordingly. If 5.01.C is used, Contractor's Bid is attached as an exhibit and listed as a Contract Document in A-9.*

ARTICLE 6 – PAYMENT PROCEDURES

6.01 *Submittal and Processing of Payments*

A. Contractor shall submit Applications for Payment in accordance with Article 14 of the General Conditions. Applications for Payment will be processed by Engineer as provided in the General Conditions.

6.02 *Progress Payments; Retainage*

A. Owner shall make progress payments on account of the Contract Price on the basis of Contractor's Applications for Payment on or about the _____ day of each month during performance of the Work as provided in Paragraph 6.02.A.1 below. All such payments will be measured by the schedule of values established as provided in Paragraph 2.07.A of the General Conditions (and in the case of Unit Price Work based on the number of units completed) or, in the event there is no schedule of values, as provided in the General Requirements.

SAMPLE

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1. Prior to Substantial Completion, progress payments will be made in an amount equal to the percentage indicated below but, in each case, less the aggregate of payments previously made and less such amounts as Engineer may determine or Owner may withhold, including but not limited to liquidated damages, in accordance with Paragraph 14.02 of the General Conditions.

    a. _____ percent of Work completed (with the balance being retainage). If the Work has been 50 percent completed as determined by Engineer, and if the character and progress of the Work have been satisfactory to Owner and Engineer, then as long as the character and progress of the Work remain satisfactory to Owner and Engineer, there will be no additional retainage; and

    b. _____ percent of cost of materials and equipment not incorporated in the Work (with the balance being retainage).

B. Upon Substantial Completion, Owner shall pay an amount sufficient to increase total payments to Contractor to _____ percent of the Work completed, less such amounts as Engineer shall determine in accordance with Paragraph 14.02.B.5 of the General Conditions and less _____percent of Engineer's estimate of the value of Work to be completed or corrected as shown on the tentative list of items to be completed or corrected attached to the certificate of Substantial Completion.

NOTE TO USER

Typical values used in Paragraph 6.02.B are 100 percent and 200 percent respectively.

6.03 *Final Payment*

A. Upon final completion and acceptance of the Work in accordance with Paragraph 14.07 of the General Conditions, Owner shall pay the remainder of the Contract Price as recommended by Engineer as provided in said Paragraph 14.07.

ARTICLE 7 – INTEREST

7.01 All moneys not paid when due as provided in Article 14 of the General Conditions shall bear interest at the rate of _____ percent per annum.

ARTICLE 8 – CONTRACTOR'S REPRESENTATIONS

8.01 In order to induce Owner to enter into this Agreement, Contractor makes the following representations:

A. Contractor has examined and carefully studied the Contract Documents and the other related data identified in the Bidding Documents.

B. Contractor has visited the Site and become familiar with and is satisfied as to the general, local, and Site conditions that may affect cost, progress, and performance of the Work.

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C. Contractor is familiar with and is satisfied as to all federal, state, and local Laws and Regulations that may affect cost, progress, and performance of the Work.

D. Contractor has carefully studied all: (1) reports of explorations and tests of subsurface conditions at or contiguous to the Site and all drawings of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities), if any, that have been identified in Paragraph SC-4.02 of the Supplementary Conditions as containing reliable "technical data," and (2) reports and drawings of Hazardous Environmental Conditions, if any, at the Site that have been identified in Paragraph SC-4.06 of the Supplementary Conditions as containing reliable "technical data."

NOTE TO USER

Modify the above paragraph if there are no such reports or drawings.

E. Contractor has considered the information known to Contractor; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Contract Documents; and the Site-related reports and drawings identified in the Contract Documents, with respect to the effect of such information, observations, and documents on (1) the cost, progress, and performance of the Work; (2) the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, including any specific means, methods, techniques, sequences, and procedures of construction expressly required by the Contract Documents; and (3) Contractor's safety precautions and programs.

NOTE TO USER

If the Contract Documents do not identify any Site-related reports and drawings, modify this paragraph accordingly.

F. Based on the information and observations referred to in Paragraph 8.01.E above, Contractor does not consider that further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract Documents.

G. Contractor is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Contract Documents.

H. Contractor has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Contractor has discovered in the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.

I. The Contract Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.

ARTICLE 9 – CONTRACT DOCUMENTS

9.01 *Contents*

A. The Contract Documents consist of the following:

SAMPLE

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1. This Agreement (pages 1 to __, inclusive).
2. Performance bond (pages _____ to _____, inclusive).
3. Payment bond (pages _____ to _____, inclusive).
4. Other bonds (pages _____ to _____, inclusive).
    a. _____ (pages _____ to _____, inclusive).
    b. _____ (pages _____ to _____, inclusive).
    c. _____ (pages _____ to _____, inclusive).
5. General Conditions (pages _____ to _____, inclusive).
6. Supplementary Conditions (pages _____ to _____, inclusive).
7. Specifications as listed in the table of contents of the Project Manual.
8. Drawings consisting of _____ sheets with each sheet bearing the following general title: _____ [or] the Drawings listed on attached sheet index.
9. Addenda (numbers _____ to _____, inclusive).
10. Exhibits to this Agreement (enumerated as follows):
    a. Contractor's Bid (pages _____ to _____, inclusive).
    b. Documentation submitted by Contractor prior to Notice of Award (pages _____ to _____, inclusive).
    c. *[List other required attachments (if any), such as documents required by funding or lending agencies]*.
11. The following which may be delivered or issued on or after the Effective Date of the Agreement and are not attached hereto:
    a. Notice to Proceed (pages _____ to _____, inclusive).
    b. Work Change Directives.
    c. Change Orders.

NOTE TO USER

If any of the items listed are not to be included as Contract Documents, remove such item from the list and renumber the remaining items.

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B. The documents listed in Paragraph 9.01.A are attached to this Agreement (except as expressly noted otherwise above).

C. There are no Contract Documents other than those listed above in this Article 9.

D. The Contract Documents may only be amended, modified, or supplemented as provided in Paragraph 3.04 of the General Conditions.

ARTICLE 10 – MISCELLANEOUS

10.01 *Terms*

A. Terms used in this Agreement will have the meanings stated in the General Conditions and the Supplementary Conditions.

10.02 *Assignment of Contract*

A. No assignment by a party hereto of any rights under or interests in the Contract will be binding on another party hereto without the written consent of the party sought to be bound; and, specifically but without limitation, moneys that may become due and moneys that are due may not be assigned without such consent (except to the extent that the effect of this restriction may be limited by law), and unless specifically stated to the contrary in any written consent to an assignment, no assignment will release or discharge the assignor from any duty or responsibility under the Contract Documents.

10.03 *Successors and Assigns*

A. Owner and Contractor each binds itself, its partners, successors, assigns, and legal representatives to the other party hereto, its partners, successors, assigns, and legal representatives in respect to all covenants, agreements, and obligations contained in the Contract Documents.

10.04 *Severability*

A. Any provision or part of the Contract Documents held to be void or unenforceable under any Law or Regulation shall be deemed stricken, and all remaining provisions shall continue to be valid and binding upon Owner and Contractor, who agree that the Contract Documents shall be reformed to replace such stricken provision or part thereof with a valid and enforceable provision that comes as close as possible to expressing the intention of the stricken provision.

10.05 *Contractor's Certifications*

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A. Contractor certifies that it has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for or in executing the Contract. For the purposes of this Paragraph 10.05:

1. "corrupt practice" means the offering, giving, receiving, or soliciting of any thing of value likely to influence the action of a public official in the bidding process or in the Contract execution;

2. "fraudulent practice" means an intentional misrepresentation of facts made (a) to influence the bidding process or the execution of the Contract to the detriment of Owner, (b) to establish Bid or Contract prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition;

3. "collusive practice" means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish Bid prices at artificial, non-competitive levels; and

4. "coercive practice" means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

10.06 *Other Provisions*

NOTES TO USER

1. *If Owner intends to assign a procurement contract (for goods and services) to the Contractor, see Notes to User at Article 23 of Suggested Instructions to Bidders for Procurement Contracts (EJCDC P-200, 2000 Edition) for provisions to be inserted in this Article.*

2. *Insert other provisions here if applicable.*

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IN WITNESS WHEREOF, Owner and Contractor have signed this Agreement. Counterparts have been delivered to Owner and Contractor. All portions of the Contract Documents have been signed or have been identified by Owner and Contractor or on their behalf.

NOTE TO USER
See I-21 and correlate procedures for format and signing of the documents.

This Agreement will be effective on _____ (which is the Effective Date of the Agreement).

NOTE TO USER
The Effective Date of the Agreement and the dates of any Construction Performance Bond (EJCDC C-610) and Construction Payment Bond (EJCDC C-615) should be the same, if possible. In no case may the date of any bonds be earlier then the Effective Date of the Agreement.

OWNER:

_____

By: _____

Title: _____

Attest: _____

Title: _____

Address for giving notices:

_____

_____

_____

(If Owner is a corporation, attach evidence of authority to sign. If Owner is a public body, attach evidence of authority to sign and resolution or other documents authorizing execution of this Agreement.)

CONTRACTOR

_____

By: _____

Title: _____

(If Contractor is a corporation, a partnership, or a joint venture, attach evidence of authority to sign.)

Attest: _____

Title: _____

Address for giving notices:

_____

_____

_____

License No.: _____
(Where applicable)

NOTE TO USER: Use in those states or other jurisdictions where applicable or required.

Agent for service of process:

_____

SAMPLE

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Notice to Proceed

Date: _____

Project:	
Owner:	Owner's Contract No.:
Contract:	Engineer's Project No.:
Contractor:	
Contractor's Address: *[send Certified Mail, Return Receipt Requested]*	

You are notified that the Contract Times under the above Contract will commence to run on_____. On or before that date, you are to start performing your obligations under the Contract Documents. In accordance with Article 4 of the Agreement, the date of Substantial Completion is_____, and the date of readiness for final payment is _____ [(or) the number of days to achieve Substantial Completion is _____, and the number of days to achieve readiness for final payment is _____].

Before you may start any Work at the Site, Paragraph 2.01.B of the General Conditions provides that you and Owner must each deliver to the other (with copies to Engineer and other identified additional insureds and loss payees) certificates of insurance which each is required to purchase and maintain in accordance with the Contract Documents.

Also, before you may start any Work at the Site, you must:

_____ *[add other requirements].*

_____ _____

Owner

Given by:

_____ _____

Authorized Signature

_____ _____

Title

_____ _____

Date

Copy to Engineer

SAMPLE

PERFORMANCE BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:
Amount:
Description (*Name and Location*):

BOND

Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Performance Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL	**SURETY**
_____ (Seal)	_____ (Seal)
Contractor's Name and Corporate Seal	Surety's Name and Corporate Seal
By: _____	By: _____
Signature	Signature (Attach Power of Attorney)
_____	_____
Print Name	Print Name
_____	_____
Title	Title
Attest: _____	Attest: _____
Signature	Signature
_____	_____
Title	Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

SAMPLE

Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner for the performance of the Contract, which is incorporated herein by reference.

1. If Contractor performs the Contract, Surety and Contractor have no obligation under this Bond, except to participate in conferences as provided in Paragraph 2.1.

2. If there is no Owner Default, Surety's obligation under this Bond shall arise after:
   2.1 Owner has notified Contractor and Surety, at the addresses described in Paragraph 9 below, that Owner is considering declaring a Contractor Default and has requested and attempted to arrange a conference with Contractor and Surety to be held not later than 15 days after receipt of such notice to discuss methods of performing the Contract. If Owner, Contractor, and Surety agree, Contractor shall be allowed a reasonable time to perform the Contract, but such an agreement shall not waive Owner's right, if any, subsequently to declare a Contractor Default; and
   2.2 Owner has declared a Contractor Default and formally terminated Contractor's right to complete the Contract. Such Contractor Default shall not be declared earlier than 20 days after Contractor and Surety have received notice as provided in Paragraph 2.1; and
   2.3 Owner has agreed to pay the Balance of the Contract Price to:
      1. Surety in accordance with the terms of the Contract; or
      2. Another contractor selected pursuant to Paragraph 3.3 to perform the Contract.

3. When Owner has satisfied the conditions of Paragraph 2, Surety shall promptly, and at Surety's expense, take one of the following actions:

   3.1 Arrange for Contractor, with consent of Owner, to perform and complete the Contract; or
   3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or
   3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by Owner and contractor selected with Owner's concurrence, to be secured with performance and payment bonds executed by a qualified surety equivalent to the bonds issued on the Contract, and pay to Owner the amount of damages as described in Paragraph 5 in excess of the Balance of the Contract Price incurred by Owner resulting from Contractor Default; or
   3.4 Waive its right to perform and complete, arrange for completion, or obtain a new contractor, and with reasonable promptness under the circumstances:
      1. After investigation, determine the amount for which it may be liable to Owner and, as soon as practicable after the amount is determined, tender payment therefor to Owner; or
      2. Deny liability in whole or in part and notify Owner citing reasons therefor.

4. If Surety does not proceed as provided in Paragraph 3 with reasonable promptness, Surety shall be deemed to be in default on this Bond 15 days after receipt of an additional written notice from Owner to Surety demanding that Surety perform its obligations under this Bond, and Owner shall be entitled to enforce any remedy available to Owner. If Surety proceeds as provided in Paragraph 3.4, and Owner refuses the payment tendered or Surety has denied liability, in whole or in part, without further notice Owner shall be entitled to enforce any remedy available to Owner.

SAMPLE

5. After Owner has terminated Contractor's right to complete the Contract, and if Surety elects to act under Paragraph 3.1, 3.2, or 3.3 above, then the responsibilities of Surety to Owner shall not be greater than those of Contractor under the Contract, and the responsibilities of Owner to Surety shall not be greater than those of Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, Surety is obligated without duplication for:

5.1 The responsibilities of Contractor for correction of defective Work and completion of the Contract;
5.2 Additional legal, design professional, and delay costs resulting from Contractor's Default, and resulting from the actions of or failure to act of Surety under Paragraph 3; and
5.3 Liquidated damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of Contractor.

6. Surety shall not be liable to Owner or others for obligations of Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than Owner or its heirs, executors, administrators, or successors.

7. Surety hereby waives notice of any change, including changes of time, to Contract or to related subcontracts, purchase orders, and other obligations.

8. Any proceeding, legal or equitable, under this Bond may be instituted in any court of competent jurisdiction in the location in which the Work or part of the Work is located, and shall be instituted within two years after Contractor Default or within two years after Contractor ceased working or within two years after Surety refuses or fails to perform its obligations under this Bond, whichever occurs first. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

9. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the address shown on the signature page.

10. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

11. Definitions.

11.1 Balance of the Contract Price: The total amount payable by Owner to Contractor under the Contract after all proper adjustments have been made, including allowance to Contractor of any amounts received or to be received by Owner in settlement of insurance or other Claims for damages to which Contractor is entitled, reduced by all valid and proper payments made to or on behalf of Contractor under the Contract.
11.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.
11.3 Contractor Default: Failure of Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.
11.4 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract or to perform and complete or otherwise comply with the other terms thereof.

SAMPLE

FOR INFORMATION ONLY – (*Name, Address and Telephone*) Surety Agency or Broker: Owner's Representative (*Engineer or other party*):

SAMPLE

PAYMENT BOND

Any singular reference to Contractor, Surety, Owner, or other party shall be considered plural where applicable.

CONTRACTOR (*Name and Address*):

SURETY (*Name, and Address of Principal Place of Business*):

OWNER (*Name and Address*):

CONTRACT

Effective Date of Agreement:
Amount:
Description *(Name and Location)*:

BOND

Bond Number:
Date (*Not earlier than Effective Date of Agreement*):
Amount:
Modifications to this Bond Form:

Surety and Contractor, intending to be legally bound hereby, subject to the terms set forth below, do each cause this Payment Bond to be duly executed by an authorized officer, agent, or representative.

CONTRACTOR AS PRINCIPAL

_____ (Seal)
Contractor's Name and Corporate Seal

By: _____
Signature

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

SURETY

_____ (Seal)
Surety's Name and Corporate Seal

By: _____
Signature (Attach Power of Attorney)

_____
Print Name

_____
Title

Attest: _____
Signature

_____
Title

Note: Provide execution by additional parties, such as joint venturers, if necessary.

SAMPLE

1. Contractor and Surety, jointly and severally, bind themselves, their heirs, executors, administrators, successors, and assigns to Owner to pay for labor, materials, and equipment furnished by Claimants for use in the performance of the Contract, which is incorporated herein by reference.

2. With respect to Owner, this obligation shall be null and void if Contractor:

2.1 Promptly makes payment, directly or indirectly, for all sums due Claimants, and

2.2 Defends, indemnifies, and holds harmless Owner from all claims, demands, liens, or suits alleging non-payment by Contractor by any person or entity who furnished labor, materials, or equipment for use in the performance of the Contract, provided Owner has promptly notified Contractor and Surety (at the addresses described in Paragraph 12) of any claims, demands, liens, or suits and tendered defense of such claims, demands, liens, or suits to Contractor and Surety, and provided there is no Owner Default.

3. With respect to Claimants, this obligation shall be null and void if Contractor promptly makes payment, directly or indirectly, for all sums due.

4. Surety shall have no obligation to Claimants under this Bond until:

4.1 Claimants who are employed by or have a direct contract with Contractor have given notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and, with substantial accuracy, the amount of the claim.

4.2 Claimants who do not have a direct contract with Contractor:

1. Have furnished written notice to Contractor and sent a copy, or notice thereof, to Owner, within 90 days after having last performed labor or last furnished materials or equipment included in the claim stating, with substantial accuracy, the amount of the claim and the name of the party to whom the materials or equipment were furnished or supplied, or for whom the labor was done or performed; and
2. Have either received a rejection in whole or in part from Contractor, or not received within 30 days of furnishing the above notice any communication from Contractor by which Contractor had indicated the claim will be paid directly or indirectly; and
3. Not having been paid within the above 30 days, have sent a written notice to Surety (at the address described in Paragraph 12) and sent a copy, or notice thereof, to Owner, stating that a claim is being made under this Bond and enclosing a copy of the previous written notice furnished to Contractor.

5. If a notice by a Claimant required by Paragraph 4 is provided by Owner to Contractor or to Surety, that is sufficient compliance.

6. When a Claimant has satisfied the conditions of Paragraph 4, the Surety shall promptly and at Surety's expense take the following actions:

6.1 Send an answer to that Claimant, with a copy to Owner, within 45 days after receipt of the claim, stating the amounts that are undisputed and the basis for challenging any amounts that are disputed.

6.2 Pay or arrange for payment of any undisputed amounts.

7. Surety's total obligation shall not exceed the amount of this Bond, and the amount of this Bond shall be credited for any payments made in good faith by Surety.

8. Amounts owed by Owner to Contractor under the Contract shall be used for the performance of the Contract and to satisfy claims, if any, under any performance bond. By Contractor furnishing and Owner accepting this Bond, they agree that all funds earned by Contractor in the performance of the Contract are dedicated to satisfy obligations of Contractor and Surety under this Bond, subject to Owner's priority to use

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the funds for the completion of the Work.

9. Surety shall not be liable to Owner, Claimants, or others for obligations of Contractor that are unrelated to the Contract. Owner shall not be liable for payment of any costs or expenses of any Claimant under this Bond, and shall have under this Bond no obligations to make payments to, give notices on behalf of, or otherwise have obligations to Claimants under this Bond.

10. Surety hereby waives notice of any change, including changes of time, to the Contract or to related subcontracts, purchase orders, and other obligations.

11. No suit or action shall be commenced by a Claimant under this Bond other than in a court of competent jurisdiction in the location in which the Work or part of the Work is located or after the expiration of one year from the date (1) on which the Claimant gave the notice required by Paragraph 4.1 or Paragraph 4.2.3, or (2) on which the last labor or service was performed by anyone or the last materials or equipment were furnished by anyone under the Contract, whichever of (1) or (2) first occurs. If the provisions of this paragraph are void or prohibited by law, the minimum period of limitation available to sureties as a defense in the jurisdiction of the suit shall be applicable.

12. Notice to Surety, Owner, or Contractor shall be mailed or delivered to the addresses shown on the signature page. Actual receipt of notice by Surety, Owner, or Contractor, however accomplished, shall be sufficient compliance as of the date received at the address shown on the signature page.

13. When this Bond has been furnished to comply with a statutory requirement in the location where the Contract was to be performed, any provision in this Bond conflicting with said statutory requirement shall be deemed deleted herefrom and provisions conforming to such statutory requirement shall be deemed incorporated herein. The intent is that this Bond shall be construed as a statutory Bond and not as a common law bond.

14. Upon request of any person or entity appearing to be a potential beneficiary of this Bond, Contractor shall promptly furnish a copy of this Bond or shall permit a copy to be made.

15. Definitions

15.1 Claimant: An individual or entity having a direct contract with Contractor, or with a first-tier subcontractor of Contractor, to furnish labor, materials, or equipment for use in the performance of the Contract. The intent of this Bond shall be to include without limitation in the terms "labor, materials or equipment" that part of water, gas, power, light, heat, oil, gasoline, telephone service, or rental equipment used in the Contract, architectural and engineering services required for performance of the Work of Contractor and Contractor's subcontractors, and all other items for which a mechanic's lien may be asserted in the jurisdiction where the labor, materials, or equipment were furnished.

15.2 Contract: The agreement between Owner and Contractor identified on the signature page, including all Contract Documents and changes thereto.

15.3 Owner Default: Failure of Owner, which has neither been remedied nor waived, to pay Contractor as required by the Contract, or to perform and complete or otherwise comply with the other terms thereof.

FOR INFORMATION ONLY – (*Name, Address, and Telephone*) Surety Agency or Broker: Owner's Representative (*Engineer or other*):

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Contractor's Application for Payment No.

Application Period:		Application Date:
To (Owner):	From (Contractor):	Via (Engineer):
Project:	Contract:	
Owner's Contract No.:	Contractor's Project No.:	Engineer's Project No.:

Application For Payment

Change Order Summary

Approved Change Orders		
Number	Additions	Deductions
TOTALS		
NET CHANGE BY CHANGE ORDERS		

1. ORIGINAL CONTRACT PRICE					**$**
2. Net change by Change Orders					**$**
3. Current Contract Price (Line 1 ± 2)					**$**
4. TOTAL COMPLETED AND STORED TO DATE					
(Column F on Progress Estimate)					**$**
5. RETAINAGE:					
a.		**X**		**Work Completed**	**$**
b.		**X**		**Stored Material**	**$**
c.	**Total Retainage (Line 5a + Line 5b)**				**$**
6. AMOUNT ELIGIBLE TO DATE (Line 4 - Line 5c)					**$**
7. LESS PREVIOUS PAYMENTS (Line 6 from prior Application)					**$**
8. AMOUNT DUE THIS APPLICATION					**$**
9. BALANCE TO FINISH, PLUS RETAINAGE					
(Column G on Progress Estimate + Line 5 above)					**$**

Contractor's Certification

The undersigned Contractor certifies that to the best of its knowledge: (1) all previous progress payments received from Owner on account of Work done under the Contract have been applied on account to discharge Contractor's legitimate obligations incurred in connection with Work covered by prior Applications for Payment; (2) title of all Work, materials and equipment incorporated in said Work or otherwise listed in or covered by this Application for Payment will pass to Owner at time of payment free and clear of all Liens, security interests and encumbrances (except such as are covered by a Bond acceptable to Owner indemnifying Owner against any such Liens, security interest or encumbrances); and (3) all Work covered by this Application for Payment is in accordance with the Contract Documents and is not defective.

Payment of:	$	(Line 8 or other - attach explanation of the other amount)	
is recommended by:		(Engineer)	(Date)
Payment of:	$	(Line 8 or other - attach explanation of the other amount)	
is approved by:		(Owner)	(Date)
Approved by:		Funding Agency (if applicable)	(Date)

By: Date:

Endorsed by the Construction Specifications Institute.

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Progress Estimate — Contractor's Application

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For (contract):

Application Number:

Application Period:

Application Date:

A				B	Work Completed		E	F		G
Item					C	D	Materials Presently	Total Completed	%	Balance to Finish
Specification Section No.	Description			Scheduled Value	From Previous Application (C+D)	This Period	Stored (not in C or D)	and Stored to Date (C + D + E)	(F) / B	(B - F)
	Totals									

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Progress Estimate — Contractor's Application

For (contract):

Application Number:

Application Period:

Application Date:

A		B			C	D	E	F		
Item		Bid Quantity	Unit Price	Bid Value	Estimated Quantity Installed	Value	Materials Presently Stored (not in C)	Total Completed and Stored to Date (D + E)	% (F) B	Balance to Finish (B - F)
Bid Item No.	Description									
	Totals									

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Stored Material Summary — Contractor's Application

For (contract):

Application Number:

Application Period:

Application Date:

A	B	C	D		E		F		G
			Stored Previously		Stored this Month		Incorporated in Work		Materials Remaining
Invoice No.	Shop Drawing Transmittal No.	Materials Description	Date (Month/Year)	Amount ($)	Amount ($)	Subtotal	Date (Month/Year)	Amount ($)	in Storage ($) (D + E - F)
		Totals							

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This document has important legal consequences; consultation with an attorney is encouraged with respect to its use or modification. This document should be adapted to the particular circumstances of the contemplated Project and the controlling Laws and Regulations.

STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

Prepared by

ENGINEERS JOINT CONTRACT DOCUMENTS COMMITTEE

and

Issued and Published Jointly by

ACEC
American Council of Engineering Companies

The Associated General Contractors of America — AGC — Skill · Responsibility · Integrity

ASCE American Society of Civil Engineers

PE National Society of Professional Engineers
Professional Engineers in Private Practice

AMERICAN COUNCIL OF ENGINEERING COMPANIES

ASSOCIATED GENERAL CONTRACTORS OF AMERICA

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These General Conditions have been prepared for use with the Suggested Forms of Agreement Between Owner and Contractor (EJCDC C-520 or C-525, 2007 Editions). Their provisions are interrelated and a change in one may necessitate a change in the other. Comments concerning their usage are contained in the Narrative Guide to the EJCDC Construction Documents (EJCDC C-001, 2007 Edition). For guidance in the preparation of Supplementary Conditions, see Guide to the Preparation of Supplementary Conditions (EJCDC C-800, 2007 Edition).

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STANDARD GENERAL CONDITIONS OF THE CONSTRUCTION CONTRACT

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ARTICLE 1 – DEFINITIONS AND TERMINOLOGY

1.01 *Defined Terms*

A. Wherever used in the Bidding Requirements or Contract Documents and printed with initial capital letters, the terms listed below will have the meanings indicated which are applicable to both the singular and plural thereof. In addition to terms specifically defined, terms with initial capital letters in the Contract Documents include references to identified articles and paragraphs, and the titles of other documents or forms.

1. *Addenda*—Written or graphic instruments issued prior to the opening of Bids which clarify, correct, or change the Bidding Requirements or the proposed Contract Documents.

2. *Agreement*—The written instrument which is evidence of the agreement between Owner and Contractor covering the Work.

3. *Application for Payment*—The form acceptable to Engineer which is to be used by Contractor during the course of the Work in requesting progress or final payments and which is to be accompanied by such supporting documentation as is required by the Contract Documents.

4. *Asbestos*—Any material that contains more than one percent asbestos and is friable or is releasing asbestos fibers into the air above current action levels established by the United States Occupational Safety and Health Administration.

5. *Bid*—The offer or proposal of a Bidder submitted on the prescribed form setting forth the prices for the Work to be performed.

6. *Bidder*—The individual or entity who submits a Bid directly to Owner.

7. *Bidding Documents*—The Bidding Requirements and the proposed Contract Documents (including all Addenda).

8. *Bidding Requirements*—The advertisement or invitation to bid, Instructions to Bidders, Bid security of acceptable form, if any, and the Bid Form with any supplements.

9. *Change Order*—A document recommended by Engineer which is signed by Contractor and Owner and authorizes an addition, deletion, or revision in the Work or an adjustment in the Contract Price or the Contract Times, issued on or after the Effective Date of the Agreement.

10. *Claim*—A demand or assertion by Owner or Contractor seeking an adjustment of Contract Price or Contract Times, or both, or other relief with respect to the terms of the Contract. A demand for money or services by a third party is not a Claim.

11. *Contract*—The entire and integrated written agreement between the Owner and Contractor concerning the Work. The Contract supersedes prior negotiations, representations, or agreements, whether written or oral.

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12. *Contract Documents*—Those items so designated in the Agreement. Only printed or hard copies of the items listed in the Agreement are Contract Documents. Approved Shop Drawings, other Contractor submittals, and the reports and drawings of subsurface and physical conditions are not Contract Documents.

13. *Contract Price*—The moneys payable by Owner to Contractor for completion of the Work in accordance with the Contract Documents as stated in the Agreement (subject to the provisions of Paragraph 11.03 in the case of Unit Price Work).

14. *Contract Times*—The number of days or the dates stated in the Agreement to: (i) achieve Milestones, if any; (ii) achieve Substantial Completion; and (iii) complete the Work so that it is ready for final payment as evidenced by Engineer's written recommendation of final payment.

15. *Contractor*—The individual or entity with whom Owner has entered into the Agreement.

16. *Cost of the Work*—See Paragraph 11.01 for definition.

17. *Drawings*—That part of the Contract Documents prepared or approved by Engineer which graphically shows the scope, extent, and character of the Work to be performed by Contractor. Shop Drawings and other Contractor submittals are not Drawings as so defined.

18. *Effective Date of the Agreement*—The date indicated in the Agreement on which it becomes effective, but if no such date is indicated, it means the date on which the Agreement is signed and delivered by the last of the two parties to sign and deliver.

19. *Engineer*—The individual or entity named as such in the Agreement.

20. *Field Order*—A written order issued by Engineer which requires minor changes in the Work but which does not involve a change in the Contract Price or the Contract Times.

21. *General Requirements*—Sections of Division 1 of the Specifications.

22. *Hazardous Environmental Condition*—The presence at the Site of Asbestos, PCBs, Petroleum, Hazardous Waste, or Radioactive Material in such quantities or circumstances that may present a substantial danger to persons or property exposed thereto.

23. *Hazardous Waste*—The term Hazardous Waste shall have the meaning provided in Section 1004 of the Solid Waste Disposal Act (42 USC Section 6903) as amended from time to time.

24. *Laws and Regulations; Laws or Regulations*—Any and all applicable laws, rules, regulations, ordinances, codes, and orders of any and all governmental bodies, agencies, authorities, and courts having jurisdiction.

25. *Liens*—Charges, security interests, or encumbrances upon Project funds, real property, or personal property.

26. *Milestone*—A principal event specified in the Contract Documents relating to an intermediate completion date or time prior to Substantial Completion of all the Work.

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27. *Notice of Award*—The written notice by Owner to the Successful Bidder stating that upon timely compliance by the Successful Bidder with the conditions precedent listed therein, Owner will sign and deliver the Agreement.

28. *Notice to Proceed*—A written notice given by Owner to Contractor fixing the date on which the Contract Times will commence to run and on which Contractor shall start to perform the Work under the Contract Documents.

29. *Owner*—The individual or entity with whom Contractor has entered into the Agreement and for whom the Work is to be performed.

30. *PCBs*—Polychlorinated biphenyls.

31. *Petroleum*—Petroleum, including crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute), such as oil, petroleum, fuel oil, oil sludge, oil refuse, gasoline, kerosene, and oil mixed with other non-Hazardous Waste and crude oils.

32. *Progress Schedule*—A schedule, prepared and maintained by Contractor, describing the sequence and duration of the activities comprising the Contractor's plan to accomplish the Work within the Contract Times.

33. *Project*—The total construction of which the Work to be performed under the Contract Documents may be the whole, or a part.

34. *Project Manual*—The bound documentary information prepared for bidding and constructing the Work. A listing of the contents of the Project Manual, which may be bound in one or more volumes, is contained in the table(s) of contents.

35. *Radioactive Material*—Source, special nuclear, or byproduct material as defined by the Atomic Energy Act of 1954 (42 USC Section 2011 et seq.) as amended from time to time.

36. *Resident Project Representative*—The authorized representative of Engineer who may be assigned to the Site or any part thereof.

37. *Samples*—Physical examples of materials, equipment, or workmanship that are representative of some portion of the Work and which establish the standards by which such portion of the Work will be judged.

38. *Schedule of Submittals*—A schedule, prepared and maintained by Contractor, of required submittals and the time requirements to support scheduled performance of related construction activities.

39. *Schedule of Values*—A schedule, prepared and maintained by Contractor, allocating portions of the Contract Price to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

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40. *Shop Drawings*—All drawings, diagrams, illustrations, schedules, and other data or information which are specifically prepared or assembled by or for Contractor and submitted by Contractor to illustrate some portion of the Work.

41. *Site*—Lands or areas indicated in the Contract Documents as being furnished by Owner upon which the Work is to be performed, including rights-of-way and easements for access thereto, and such other lands furnished by Owner which are designated for the use of Contractor.

42. *Specifications*—That part of the Contract Documents consisting of written requirements for materials, equipment, systems, standards and workmanship as applied to the Work, and certain administrative requirements and procedural matters applicable thereto.

43. *Subcontractor*—An individual or entity having a direct contract with Contractor or with any other Subcontractor for the performance of a part of the Work at the Site.

44. *Substantial Completion*—The time at which the Work (or a specified part thereof) has progressed to the point where, in the opinion of Engineer, the Work (or a specified part thereof) is sufficiently complete, in accordance with the Contract Documents, so that the Work (or a specified part thereof) can be utilized for the purposes for which it is intended. The terms "substantially complete" and "substantially completed" as applied to all or part of the Work refer to Substantial Completion thereof.

45. *Successful Bidder*—The Bidder submitting a responsive Bid to whom Owner makes an award.

46. *Supplementary Conditions*—That part of the Contract Documents which amends or supplements these General Conditions.

47. *Supplier*—A manufacturer, fabricator, supplier, distributor, materialman, or vendor having a direct contract with Contractor or with any Subcontractor to furnish materials or equipment to be incorporated in the Work by Contractor or Subcontractor.

48. *Underground Facilities*—All underground pipelines, conduits, ducts, cables, wires, manholes, vaults, tanks, tunnels, or other such facilities or attachments, and any encasements containing such facilities, including those that convey electricity, gases, steam, liquid petroleum products, telephone or other communications, cable television, water, wastewater, storm water, other liquids or chemicals, or traffic or other control systems.

49. *Unit Price Work*—Work to be paid for on the basis of unit prices.

50. *Work*—The entire construction or the various separately identifiable parts thereof required to be provided under the Contract Documents. Work includes and is the result of performing or providing all labor, services, and documentation necessary to produce such construction, and furnishing, installing, and incorporating all materials and equipment into such construction, all as required by the Contract Documents.

51. *Work Change Directive*—A written statement to Contractor issued on or after the Effective Date of the Agreement and signed by Owner and recommended by Engineer ordering an

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addition, deletion, or revision in the Work, or responding to differing or unforeseen subsurface or physical conditions under which the Work is to be performed or to emergencies. A Work Change Directive will not change the Contract Price or the Contract Times but is evidence that the parties expect that the change ordered or documented by a Work Change Directive will be incorporated in a subsequently issued Change Order following negotiations by the parties as to its effect, if any, on the Contract Price or Contract Times.

1.02 *Terminology*

A. The words and terms discussed in Paragraph 1.02.B through F are not defined but, when used in the Bidding Requirements or Contract Documents, have the indicated meaning.

B. *Intent of Certain Terms or Adjectives:*

1. The Contract Documents include the terms "as allowed," "as approved," "as ordered," "as directed" or terms of like effect or import to authorize an exercise of professional judgment by Engineer. In addition, the adjectives "reasonable," "suitable," "acceptable," "proper," "satisfactory," or adjectives of like effect or import are used to describe an action or determination of Engineer as to the Work. It is intended that such exercise of professional judgment, action, or determination will be solely to evaluate, in general, the Work for compliance with the information in the Contract Documents and with the design concept of the Project as a functioning whole as shown or indicated in the Contract Documents (unless there is a specific statement indicating otherwise). The use of any such term or adjective is not intended to and shall not be effective to assign to Engineer any duty or authority to supervise or direct the performance of the Work, or any duty or authority to undertake responsibility contrary to the provisions of Paragraph 9.09 or any other provision of the Contract Documents.

C. *Day:*

1. The word "day" means a calendar day of 24 hours measured from midnight to the next midnight.

D. *Defective:*

1. The word "defective," when modifying the word "Work," refers to Work that is unsatisfactory, faulty, or deficient in that it:

a. does not conform to the Contract Documents; or

b. does not meet the requirements of any applicable inspection, reference standard, test, or approval referred to in the Contract Documents; or

c. has been damaged prior to Engineer's recommendation of final payment (unless responsibility for the protection thereof has been assumed by Owner at Substantial Completion in accordance with Paragraph 14.04 or 14.05).

E. *Furnish, Install, Perform, Provide:*

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1. The word "furnish," when used in connection with services, materials, or equipment, shall mean to supply and deliver said services, materials, or equipment to the Site (or some other specified location) ready for use or installation and in usable or operable condition.

2. The word "install," when used in connection with services, materials, or equipment, shall mean to put into use or place in final position said services, materials, or equipment complete and ready for intended use.

3. The words "perform" or "provide," when used in connection with services, materials, or equipment, shall mean to furnish and install said services, materials, or equipment complete and ready for intended use.

4. When "furnish," "install," "perform," or "provide" is not used in connection with services, materials, or equipment in a context clearly requiring an obligation of Contractor, "provide" is implied.

F. Unless stated otherwise in the Contract Documents, words or phrases that have a well-known technical or construction industry or trade meaning are used in the Contract Documents in accordance with such recognized meaning.

ARTICLE 2 – PRELIMINARY MATTERS

2.01 *Delivery of Bonds and Evidence of Insurance*

A. When Contractor delivers the executed counterparts of the Agreement to Owner, Contractor shall also deliver to Owner such bonds as Contractor may be required to furnish.

B. *Evidence of Insurance:* Before any Work at the Site is started, Contractor and Owner shall each deliver to the other, with copies to each additional insured identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance which either of them or any additional insured may reasonably request) which Contractor and Owner respectively are required to purchase and maintain in accordance with Article 5.

2.02 *Copies of Documents*

A. Owner shall furnish to Contractor up to ten printed or hard copies of the Drawings and Project Manual. Additional copies will be furnished upon request at the cost of reproduction.

2.03 *Commencement of Contract Times; Notice to Proceed*

A. The Contract Times will commence to run on the thirtieth day after the Effective Date of the Agreement or, if a Notice to Proceed is given, on the day indicated in the Notice to Proceed. A Notice to Proceed may be given at any time within 30 days after the Effective Date of the Agreement. In no event will the Contract Times commence to run later than the sixtieth day after the day of Bid opening or the thirtieth day after the Effective Date of the Agreement, whichever date is earlier.

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2.04 *Starting the Work*

A. Contractor shall start to perform the Work on the date when the Contract Times commence to run. No Work shall be done at the Site prior to the date on which the Contract Times commence to run.

2.05 *Before Starting Construction*

A. *Preliminary Schedules:* Within 10 days after the Effective Date of the Agreement (unless otherwise specified in the General Requirements), Contractor shall submit to Engineer for timely review:

1. a preliminary Progress Schedule indicating the times (numbers of days or dates) for starting and completing the various stages of the Work, including any Milestones specified in the Contract Documents;

2. a preliminary Schedule of Submittals; and

3. a preliminary Schedule of Values for all of the Work which includes quantities and prices of items which when added together equal the Contract Price and subdivides the Work into component parts in sufficient detail to serve as the basis for progress payments during performance of the Work. Such prices will include an appropriate amount of overhead and profit applicable to each item of Work.

2.06 *Preconstruction Conference; Designation of Authorized Representatives*

A. Before any Work at the Site is started, a conference attended by Owner, Contractor, Engineer, and others as appropriate will be held to establish a working understanding among the parties as to the Work and to discuss the schedules referred to in Paragraph 2.05.A, procedures for handling Shop Drawings and other submittals, processing Applications for Payment, and maintaining required records.

B. At this conference Owner and Contractor each shall designate, in writing, a specific individual to act as its authorized representative with respect to the services and responsibilities under the Contract. Such individuals shall have the authority to transmit instructions, receive information, render decisions relative to the Contract, and otherwise act on behalf of each respective party.

2.07 *Initial Acceptance of Schedules*

A. At least 10 days before submission of the first Application for Payment a conference attended by Contractor, Engineer, and others as appropriate will be held to review for acceptability to Engineer as provided below the schedules submitted in accordance with Paragraph 2.05.A. Contractor shall have an additional 10 days to make corrections and adjustments and to complete and resubmit the schedules. No progress payment shall be made to Contractor until acceptable schedules are submitted to Engineer.

1. The Progress Schedule will be acceptable to Engineer if it provides an orderly progression of the Work to completion within the Contract Times. Such acceptance will not impose on Engineer responsibility for the Progress Schedule, for sequencing, scheduling, or progress of

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2. Contractor's Schedule of Submittals will be acceptable to Engineer if it provides a workable arrangement for reviewing and processing the required submittals.

3. Contractor's Schedule of Values will be acceptable to Engineer as to form and substance if it provides a reasonable allocation of the Contract Price to component parts of the Work.

ARTICLE 3 – CONTRACT DOCUMENTS: INTENT, AMENDING, REUSE

3.01 *Intent*

A. The Contract Documents are complementary; what is required by one is as binding as if required by all.

B. It is the intent of the Contract Documents to describe a functionally complete project (or part thereof) to be constructed in accordance with the Contract Documents. Any labor, documentation, services, materials, or equipment that reasonably may be inferred from the Contract Documents or from prevailing custom or trade usage as being required to produce the indicated result will be provided whether or not specifically called for, at no additional cost to Owner.

C. Clarifications and interpretations of the Contract Documents shall be issued by Engineer as provided in Article 9.

3.02 *Reference Standards*

A. Standards, Specifications, Codes, Laws, and Regulations

1. Reference to standards, specifications, manuals, or codes of any technical society, organization, or association, or to Laws or Regulations, whether such reference be specific or by implication, shall mean the standard, specification, manual, code, or Laws or Regulations in effect at the time of opening of Bids (or on the Effective Date of the Agreement if there were no Bids), except as may be otherwise specifically stated in the Contract Documents.

2. No provision of any such standard, specification, manual, or code, or any instruction of a Supplier, shall be effective to change the duties or responsibilities of Owner, Contractor, or Engineer, or any of their subcontractors, consultants, agents, or employees, from those set forth in the Contract Documents. No such provision or instruction shall be effective to assign to Owner, Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors, any duty or authority to supervise or direct the performance of the Work or any duty or authority to undertake responsibility inconsistent with the provisions of the Contract Documents.

3.03 *Reporting and Resolving Discrepancies*

A. *Reporting Discrepancies:*

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1. *Contractor's Review of Contract Documents Before Starting Work*: Before undertaking each part of the Work, Contractor shall carefully study and compare the Contract Documents and check and verify pertinent figures therein and all applicable field measurements. Contractor shall promptly report in writing to Engineer any conflict, error, ambiguity, or discrepancy which Contractor discovers, or has actual knowledge of, and shall obtain a written interpretation or clarification from Engineer before proceeding with any Work affected thereby.

2. *Contractor's Review of Contract Documents During Performance of Work*: If, during the performance of the Work, Contractor discovers any conflict, error, ambiguity, or discrepancy within the Contract Documents, or between the Contract Documents and (a) any applicable Law or Regulation , (b) any standard, specification, manual, or code, or (c) any instruction of any Supplier, then Contractor shall promptly report it to Engineer in writing. Contractor shall not proceed with the Work affected thereby (except in an emergency as required by Paragraph 6.16.A) until an amendment or supplement to the Contract Documents has been issued by one of the methods indicated in Paragraph 3.04.

3. Contractor shall not be liable to Owner or Engineer for failure to report any conflict, error, ambiguity, or discrepancy in the Contract Documents unless Contractor had actual knowledge thereof.

B. *Resolving Discrepancies:*

1. Except as may be otherwise specifically stated in the Contract Documents, the provisions of the Contract Documents shall take precedence in resolving any conflict, error, ambiguity, or discrepancy between the provisions of the Contract Documents and:

   a. the provisions of any standard, specification, manual, or code, or the instruction of any Supplier (whether or not specifically incorporated by reference in the Contract Documents); or

   b. the provisions of any Laws or Regulations applicable to the performance of the Work (unless such an interpretation of the provisions of the Contract Documents would result in violation of such Law or Regulation).

3.04 *Amending and Supplementing Contract Documents*

A. The Contract Documents may be amended to provide for additions, deletions, and revisions in the Work or to modify the terms and conditions thereof by either a Change Order or a Work Change Directive.

B. The requirements of the Contract Documents may be supplemented, and minor variations and deviations in the Work may be authorized, by one or more of the following ways:

1. A Field Order;

2. Engineer's approval of a Shop Drawing or Sample (subject to the provisions of Paragraph 6.17.D.3); or

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3. Engineer's written interpretation or clarification.

3.05 *Reuse of Documents*

A. Contractor and any Subcontractor or Supplier shall not:

1. have or acquire any title to or ownership rights in any of the Drawings, Specifications, or other documents (or copies of any thereof) prepared by or bearing the seal of Engineer or its consultants, including electronic media editions; or

2. reuse any such Drawings, Specifications, other documents, or copies thereof on extensions of the Project or any other project without written consent of Owner and Engineer and specific written verification or adaptation by Engineer.

B. The prohibitions of this Paragraph 3.05 will survive final payment, or termination of the Contract. Nothing herein shall preclude Contractor from retaining copies of the Contract Documents for record purposes.

3.06 *Electronic Data*

A. Unless otherwise stated in the Supplementary Conditions, the data furnished by Owner or Engineer to Contractor, or by Contractor to Owner or Engineer, that may be relied upon are limited to the printed copies (also known as hard copies). Files in electronic media format of text, data, graphics, or other types are furnished only for the convenience of the receiving party. Any conclusion or information obtained or derived from such electronic files will be at the user's sole risk. If there is a discrepancy between the electronic files and the hard copies, the hard copies govern.

B. Because data stored in electronic media format can deteriorate or be modified inadvertently or otherwise without authorization of the data's creator, the party receiving electronic files agrees that it will perform acceptance tests or procedures within 60 days, after which the receiving party shall be deemed to have accepted the data thus transferred. Any errors detected within the 60-day acceptance period will be corrected by the transferring party.

C. When transferring documents in electronic media format, the transferring party makes no representations as to long term compatibility, usability, or readability of documents resulting from the use of software application packages, operating systems, or computer hardware differing from those used by the data's creator.

ARTICLE 4 – AVAILABILITY OF LANDS; SUBSURFACE AND PHYSICAL CONDITIONS; HAZARDOUS ENVIRONMENTAL CONDITIONS; REFERENCE POINTS

4.01 *Availability of Lands*

A. Owner shall furnish the Site. Owner shall notify Contractor of any encumbrances or restrictions not of general application but specifically related to use of the Site with which Contractor must comply in performing the Work. Owner will obtain in a timely manner and pay for easements for permanent structures or permanent changes in existing facilities. If Contractor and Owner are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the

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Contract Price or Contract Times, or both, as a result of any delay in Owner's furnishing the Site or a part thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

B. Upon reasonable written request, Owner shall furnish Contractor with a current statement of record legal title and legal description of the lands upon which the Work is to be performed and Owner's interest therein as necessary for giving notice of or filing a mechanic's or construction lien against such lands in accordance with applicable Laws and Regulations.

C. Contractor shall provide for all additional lands and access thereto that may be required for temporary construction facilities or storage of materials and equipment.

4.02 *Subsurface and Physical Conditions*

A. *Reports and Drawings:* The Supplementary Conditions identify:

1. those reports known to Owner of explorations and tests of subsurface conditions at or contiguous to the Site; and

2. those drawings known to Owner of physical conditions relating to existing surface or subsurface structures at the Site (except Underground Facilities).

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences, and procedures of construction to be employed by Contractor, and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions, and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions, or information.

4.03 *Differing Subsurface or Physical Conditions*

A. *Notice:* If Contractor believes that any subsurface or physical condition that is uncovered or revealed either:

1. is of such a nature as to establish that any "technical data" on which Contractor is entitled to rely as provided in Paragraph 4.02 is materially inaccurate; or

2. is of such a nature as to require a change in the Contract Documents; or

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3. differs materially from that shown or indicated in the Contract Documents; or

4. is of an unusual nature, and differs materially from conditions ordinarily encountered and generally recognized as inherent in work of the character provided for in the Contract Documents;

then Contractor shall, promptly after becoming aware thereof and before further disturbing the subsurface or physical conditions or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), notify Owner and Engineer in writing about such condition. Contractor shall not further disturb such condition or perform any Work in connection therewith (except as aforesaid) until receipt of written order to do so.

B. *Engineer's Review*: After receipt of written notice as required by Paragraph 4.03.A, Engineer will promptly review the pertinent condition, determine the necessity of Owner's obtaining additional exploration or tests with respect thereto, and advise Owner in writing (with a copy to Contractor) of Engineer's findings and conclusions.

C. *Possible Price and Times Adjustments:*

1. The Contract Price or the Contract Times, or both, will be equitably adjusted to the extent that the existence of such differing subsurface or physical condition causes an increase or decrease in Contractor's cost of, or time required for, performance of the Work; subject, however, to the following:

   a. such condition must meet any one or more of the categories described in Paragraph 4.03.A; and

   b. with respect to Work that is paid for on a unit price basis, any adjustment in Contract Price will be subject to the provisions of Paragraphs 9.07 and 11.03.

2. Contractor shall not be entitled to any adjustment in the Contract Price or Contract Times if:

   a. Contractor knew of the existence of such conditions at the time Contractor made a final commitment to Owner with respect to Contract Price and Contract Times by the submission of a Bid or becoming bound under a negotiated contract; or

   b. the existence of such condition could reasonably have been discovered or revealed as a result of any examination, investigation, exploration, test, or study of the Site and contiguous areas required by the Bidding Requirements or Contract Documents to be conducted by or for Contractor prior to Contractor's making such final commitment; or

   c. Contractor failed to give the written notice as required by Paragraph 4.03.A.

3. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times, or both, a Claim may be made therefor as provided in Paragraph 10.05. However, neither Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other

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professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

4.04 *Underground Facilities*

A. *Shown or Indicated:* The information and data shown or indicated in the Contract Documents with respect to existing Underground Facilities at or contiguous to the Site is based on information and data furnished to Owner or Engineer by the owners of such Underground Facilities, including Owner, or by others. Unless it is otherwise expressly provided in the Supplementary Conditions:

1. Owner and Engineer shall not be responsible for the accuracy or completeness of any such information or data provided by others; and

2. the cost of all of the following will be included in the Contract Price, and Contractor shall have full responsibility for:

a. reviewing and checking all such information and data;

b. locating all Underground Facilities shown or indicated in the Contract Documents;

c. coordination of the Work with the owners of such Underground Facilities, including Owner, during construction; and

d. the safety and protection of all such Underground Facilities and repairing any damage thereto resulting from the Work.

B. *Not Shown or Indicated:*

1. If an Underground Facility is uncovered or revealed at or contiguous to the Site which was not shown or indicated, or not shown or indicated with reasonable accuracy in the Contract Documents, Contractor shall, promptly after becoming aware thereof and before further disturbing conditions affected thereby or performing any Work in connection therewith (except in an emergency as required by Paragraph 6.16.A), identify the owner of such Underground Facility and give written notice to that owner and to Owner and Engineer. Engineer will promptly review the Underground Facility and determine the extent, if any, to which a change is required in the Contract Documents to reflect and document the consequences of the existence or location of the Underground Facility. During such time, Contractor shall be responsible for the safety and protection of such Underground Facility.

2. If Engineer concludes that a change in the Contract Documents is required, a Work Change Directive or a Change Order will be issued to reflect and document such consequences. An equitable adjustment shall be made in the Contract Price or Contract Times, or both, to the extent that they are attributable to the existence or location of any Underground Facility that was not shown or indicated or not shown or indicated with reasonable accuracy in the Contract Documents and that Contractor did not know of and could not reasonably have been expected to be aware of or to have anticipated. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment in Contract Price

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or Contract Times, Owner or Contractor may make a Claim therefor as provided in Paragraph 10.05.

4.05 *Reference Points*

A. Owner shall provide engineering surveys to establish reference points for construction which in Engineer's judgment are necessary to enable Contractor to proceed with the Work. Contractor shall be responsible for laying out the Work, shall protect and preserve the established reference points and property monuments, and shall make no changes or relocations without the prior written approval of Owner. Contractor shall report to Engineer whenever any reference point or property monument is lost or destroyed or requires relocation because of necessary changes in grades or locations, and shall be responsible for the accurate replacement or relocation of such reference points or property monuments by professionally qualified personnel.

4.06 *Hazardous Environmental Condition at Site*

A. *Reports and Drawings:* The Supplementary Conditions identify those reports and drawings known to Owner relating to Hazardous Environmental Conditions that have been identified at the Site.

B. *Limited Reliance by Contractor on Technical Data Authorized:* Contractor may rely upon the accuracy of the "technical data" contained in such reports and drawings, but such reports and drawings are not Contract Documents. Such "technical data" is identified in the Supplementary Conditions. Except for such reliance on such "technical data," Contractor may not rely upon or make any claim against Owner or Engineer, or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors with respect to:

1. the completeness of such reports and drawings for Contractor's purposes, including, but not limited to, any aspects of the means, methods, techniques, sequences and procedures of construction to be employed by Contractor and safety precautions and programs incident thereto; or

2. other data, interpretations, opinions and information contained in such reports or shown or indicated in such drawings; or

3. any Contractor interpretation of or conclusion drawn from any "technical data" or any such other data, interpretations, opinions or information.

C. Contractor shall not be responsible for any Hazardous Environmental Condition uncovered or revealed at the Site which was not shown or indicated in Drawings or Specifications or identified in the Contract Documents to be within the scope of the Work. Contractor shall be responsible for a Hazardous Environmental Condition created with any materials brought to the Site by Contractor, Subcontractors, Suppliers, or anyone else for whom Contractor is responsible.

D. If Contractor encounters a Hazardous Environmental Condition or if Contractor or anyone for whom Contractor is responsible creates a Hazardous Environmental Condition, Contractor shall immediately: (i) secure or otherwise isolate such condition; (ii) stop all Work in connection with such condition and in any area affected thereby (except in an emergency as required by

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Paragraph 6.16.A); and (iii) notify Owner and Engineer (and promptly thereafter confirm such notice in writing). Owner shall promptly consult with Engineer concerning the necessity for Owner to retain a qualified expert to evaluate such condition or take corrective action, if any. Promptly after consulting with Engineer, Owner shall take such actions as are necessary to permit Owner to timely obtain required permits and provide Contractor the written notice required by Paragraph 4.06.E.

E. Contractor shall not be required to resume Work in connection with such condition or in any affected area until after Owner has obtained any required permits related thereto and delivered written notice to Contractor: (i) specifying that such condition and any affected area is or has been rendered safe for the resumption of Work; or (ii) specifying any special conditions under which such Work may be resumed safely. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of any adjustment in Contract Price or Contract Times, or both, as a result of such Work stoppage or such special conditions under which Work is agreed to be resumed by Contractor, either party may make a Claim therefor as provided in Paragraph 10.05.

F. If after receipt of such written notice Contractor does not agree to resume such Work based on a reasonable belief it is unsafe, or does not agree to resume such Work under such special conditions, then Owner may order the portion of the Work that is in the area affected by such condition to be deleted from the Work. If Owner and Contractor cannot agree as to entitlement to or on the amount or extent, if any, of an adjustment in Contract Price or Contract Times as a result of deleting such portion of the Work, then either party may make a Claim therefor as provided in Paragraph 10.05. Owner may have such deleted portion of the Work performed by Owner's own forces or others in accordance with Article 7.

G. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition, provided that such Hazardous Environmental Condition: (i) was not shown or indicated in the Drawings or Specifications or identified in the Contract Documents to be included within the scope of the Work, and (ii) was not created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.G shall obligate Owner to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

H. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to a Hazardous Environmental Condition created by Contractor or by anyone for whom Contractor is responsible. Nothing in this Paragraph 4.06.H shall obligate Contractor to indemnify any individual or entity from and against the consequences of that individual's or entity's own negligence.

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I. The provisions of Paragraphs 4.02, 4.03, and 4.04 do not apply to a Hazardous Environmental Condition uncovered or revealed at the Site.

ARTICLE 5 – BONDS AND INSURANCE

5.01 *Performance, Payment, and Other Bonds*

A. Contractor shall furnish performance and payment bonds, each in an amount at least equal to the Contract Price as security for the faithful performance and payment of all of Contractor's obligations under the Contract Documents. These bonds shall remain in effect until one year after the date when final payment becomes due or until completion of the correction period specified in Paragraph 13.07, whichever is later, except as provided otherwise by Laws or Regulations or by the Contract Documents. Contractor shall also furnish such other bonds as are required by the Contract Documents.

B. All bonds shall be in the form prescribed by the Contract Documents except as provided otherwise by Laws or Regulations, and shall be executed by such sureties as are named in the list of "Companies Holding Certificates of Authority as Acceptable Sureties on Federal Bonds and as Acceptable Reinsuring Companies" as published in Circular 570 (amended) by the Financial Management Service, Surety Bond Branch, U.S. Department of the Treasury. All bonds signed by an agent or attorney-in-fact must be accompanied by a certified copy of that individual's authority to bind the surety. The evidence of authority shall show that it is effective on the date the agent or attorney-in-fact signed each bond.

C. If the surety on any bond furnished by Contractor is declared bankrupt or becomes insolvent or its right to do business is terminated in any state where any part of the Project is located or it ceases to meet the requirements of Paragraph 5.01.B, Contractor shall promptly notify Owner and Engineer and shall, within 20 days after the event giving rise to such notification, provide another bond and surety, both of which shall comply with the requirements of Paragraphs 5.01.B and 5.02.

5.02 *Licensed Sureties and Insurers*

A. All bonds and insurance required by the Contract Documents to be purchased and maintained by Owner or Contractor shall be obtained from surety or insurance companies that are duly licensed or authorized in the jurisdiction in which the Project is located to issue bonds or insurance policies for the limits and coverages so required. Such surety and insurance companies shall also meet such additional requirements and qualifications as may be provided in the Supplementary Conditions.

5.03 *Certificates of Insurance*

A. Contractor shall deliver to Owner, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Owner or any other additional insured) which Contractor is required to purchase and maintain.

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B. Owner shall deliver to Contractor, with copies to each additional insured and loss payee identified in the Supplementary Conditions, certificates of insurance (and other evidence of insurance requested by Contractor or any other additional insured) which Owner is required to purchase and maintain.

C. Failure of Owner to demand such certificates or other evidence of Contractor's full compliance with these insurance requirements or failure of Owner to identify a deficiency in compliance from the evidence provided shall not be construed as a waiver of Contractor's obligation to maintain such insurance.

D. Owner does not represent that insurance coverage and limits established in this Contract necessarily will be adequate to protect Contractor.

E. The insurance and insurance limits required herein shall not be deemed as a limitation on Contractor's liability under the indemnities granted to Owner in the Contract Documents.

5.04 *Contractor's Insurance*

A. Contractor shall purchase and maintain such insurance as is appropriate for the Work being performed and as will provide protection from claims set forth below which may arise out of or result from Contractor's performance of the Work and Contractor's other obligations under the Contract Documents, whether it is to be performed by Contractor, any Subcontractor or Supplier, or by anyone directly or indirectly employed by any of them to perform any of the Work, or by anyone for whose acts any of them may be liable:

1. claims under workers' compensation, disability benefits, and other similar employee benefit acts;

2. claims for damages because of bodily injury, occupational sickness or disease, or death of Contractor's employees;

3. claims for damages because of bodily injury, sickness or disease, or death of any person other than Contractor's employees;

4. claims for damages insured by reasonably available personal injury liability coverage which are sustained:

   a. by any person as a result of an offense directly or indirectly related to the employment of such person by Contractor, or

   b. by any other person for any other reason;

5. claims for damages, other than to the Work itself, because of injury to or destruction of tangible property wherever located, including loss of use resulting therefrom; and

6. claims for damages because of bodily injury or death of any person or property damage arising out of the ownership, maintenance or use of any motor vehicle.

B. The policies of insurance required by this Paragraph 5.04 shall:

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1. with respect to insurance required by Paragraphs 5.04.A.3 through 5.04.A.6 inclusive, be written on an occurrence basis, include as additional insureds (subject to any customary exclusion regarding professional liability) Owner and Engineer, and any other individuals or entities identified in the Supplementary Conditions, all of whom shall be listed as additional insureds, and include coverage for the respective officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of all such additional insureds, and the insurance afforded to these additional insureds shall provide primary coverage for all claims covered thereby;

2. include at least the specific coverages and be written for not less than the limits of liability provided in the Supplementary Conditions or required by Laws or Regulations, whichever is greater;

3. include contractual liability insurance covering Contractor's indemnity obligations under Paragraphs 6.11 and 6.20;

4. contain a provision or endorsement that the coverage afforded will not be canceled, materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other additional insured identified in the Supplementary Conditions to whom a certificate of insurance has been issued (and the certificates of insurance furnished by the Contractor pursuant to Paragraph 5.03 will so provide);

5. remain in effect at least until final payment and at all times thereafter when Contractor may be correcting, removing, or replacing defective Work in accordance with Paragraph 13.07; and

6. include completed operations coverage:

    a. Such insurance shall remain in effect for two years after final payment.

    b. Contractor shall furnish Owner and each other additional insured identified in the Supplementary Conditions, to whom a certificate of insurance has been issued, evidence satisfactory to Owner and any such additional insured of continuation of such insurance at final payment and one year thereafter.

5.05 *Owner's Liability Insurance*

A. In addition to the insurance required to be provided by Contractor under Paragraph 5.04, Owner, at Owner's option, may purchase and maintain at Owner's expense Owner's own liability insurance as will protect Owner against claims which may arise from operations under the Contract Documents.

5.06 *Property Insurance*

A. Unless otherwise provided in the Supplementary Conditions, Owner shall purchase and maintain property insurance upon the Work at the Site in the amount of the full replacement cost thereof (subject to such deductible amounts as may be provided in the Supplementary Conditions or required by Laws and Regulations). This insurance shall:

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1. include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee;

2. be written on a Builder's Risk "all-risk" policy form that shall at least include insurance for physical loss or damage to the Work, temporary buildings, falsework, and materials and equipment in transit, and shall insure against at least the following perils or causes of loss: fire, lightning, extended coverage, theft, vandalism and malicious mischief, earthquake, collapse, debris removal, demolition occasioned by enforcement of Laws and Regulations, water damage (other than that caused by flood), and such other perils or causes of loss as may be specifically required by the Supplementary Conditions.

3. include expenses incurred in the repair or replacement of any insured property (including but not limited to fees and charges of engineers and architects);

4. cover materials and equipment stored at the Site or at another location that was agreed to in writing by Owner prior to being incorporated in the Work, provided that such materials and equipment have been included in an Application for Payment recommended by Engineer;

5. allow for partial utilization of the Work by Owner;

6. include testing and startup; and

7. be maintained in effect until final payment is made unless otherwise agreed to in writing by Owner, Contractor, and Engineer with 30 days written notice to each other loss payee to whom a certificate of insurance has been issued.

B. Owner shall purchase and maintain such equipment breakdown insurance or additional property insurance as may be required by the Supplementary Conditions or Laws and Regulations which will include the interests of Owner, Contractor, Subcontractors, and Engineer, and any other individuals or entities identified in the Supplementary Conditions, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them, each of whom is deemed to have an insurable interest and shall be listed as a loss payee.

C. All the policies of insurance (and the certificates or other evidence thereof) required to be purchased and maintained in accordance with this Paragraph 5.06 will contain a provision or endorsement that the coverage afforded will not be canceled or materially changed or renewal refused until at least 30 days prior written notice has been given to Owner and Contractor and to each other loss payee to whom a certificate of insurance has been issued and will contain waiver provisions in accordance with Paragraph 5.07.

D. Owner shall not be responsible for purchasing and maintaining any property insurance specified in this Paragraph 5.06 to protect the interests of Contractor, Subcontractors, or others in the Work to the extent of any deductible amounts that are identified in the Supplementary Conditions. The risk of loss within such identified deductible amount will be borne by Contractor, Subcontractors, or others suffering any such loss, and if any of them wishes property

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insurance coverage within the limits of such amounts, each may purchase and maintain it at the purchaser's own expense.

E. If Contractor requests in writing that other special insurance be included in the property insurance policies provided under this Paragraph 5.06, Owner shall, if possible, include such insurance, and the cost thereof will be charged to Contractor by appropriate Change Order. Prior to commencement of the Work at the Site, Owner shall in writing advise Contractor whether or not such other insurance has been procured by Owner.

5.07 *Waiver of Rights*

A. Owner and Contractor intend that all policies purchased in accordance with Paragraph 5.06 will protect Owner, Contractor, Subcontractors, and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) in such policies and will provide primary coverage for all losses and damages caused by the perils or causes of loss covered thereby. All such policies shall contain provisions to the effect that in the event of payment of any loss or damage the insurers will have no rights of recovery against any of the insureds or loss payees thereunder. Owner and Contractor waive all rights against each other and their respective officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for all losses and damages caused by, arising out of or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work; and, in addition, waive all such rights against Subcontractors and Engineer, and all other individuals or entities identified in the Supplementary Conditions as loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) under such policies for losses and damages so caused. None of the above waivers shall extend to the rights that any party making such waiver may have to the proceeds of insurance held by Owner as trustee or otherwise payable under any policy so issued.

B. Owner waives all rights against Contractor, Subcontractors, and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them for:

1. loss due to business interruption, loss of use, or other consequential loss extending beyond direct physical loss or damage to Owner's property or the Work caused by, arising out of, or resulting from fire or other perils whether or not insured by Owner; and

2. loss or damage to the completed Project or part thereof caused by, arising out of, or resulting from fire or other insured peril or cause of loss covered by any property insurance maintained on the completed Project or part thereof by Owner during partial utilization pursuant to Paragraph 14.05, after Substantial Completion pursuant to Paragraph 14.04, or after final payment pursuant to Paragraph 14.07.

C. Any insurance policy maintained by Owner covering any loss, damage or consequential loss referred to in Paragraph 5.07.B shall contain provisions to the effect that in the event of payment of any such loss, damage, or consequential loss, the insurers will have no rights of recovery

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against Contractor, Subcontractors, or Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them.

5.08 *Receipt and Application of Insurance Proceeds*

A. Any insured loss under the policies of insurance required by Paragraph 5.06 will be adjusted with Owner and made payable to Owner as fiduciary for the loss payees, as their interests may appear, subject to the requirements of any applicable mortgage clause and of Paragraph 5.08.B. Owner shall deposit in a separate account any money so received and shall distribute it in accordance with such agreement as the parties in interest may reach. If no other special agreement is reached, the damaged Work shall be repaired or replaced, the moneys so received applied on account thereof, and the Work and the cost thereof covered by an appropriate Change Order.

B. Owner as fiduciary shall have power to adjust and settle any loss with the insurers unless one of the parties in interest shall object in writing within 15 days after the occurrence of loss to Owner's exercise of this power. If such objection be made, Owner as fiduciary shall make settlement with the insurers in accordance with such agreement as the parties in interest may reach. If no such agreement among the parties in interest is reached, Owner as fiduciary shall adjust and settle the loss with the insurers and, if required in writing by any party in interest, Owner as fiduciary shall give bond for the proper performance of such duties.

5.09 *Acceptance of Bonds and Insurance; Option to Replace*

A. If either Owner or Contractor has any objection to the coverage afforded by or other provisions of the bonds or insurance required to be purchased and maintained by the other party in accordance with Article 5 on the basis of non-conformance with the Contract Documents, the objecting party shall so notify the other party in writing within 10 days after receipt of the certificates (or other evidence requested) required by Paragraph 2.01.B. Owner and Contractor shall each provide to the other such additional information in respect of insurance provided as the other may reasonably request. If either party does not purchase or maintain all of the bonds and insurance required of such party by the Contract Documents, such party shall notify the other party in writing of such failure to purchase prior to the start of the Work, or of such failure to maintain prior to any change in the required coverage. Without prejudice to any other right or remedy, the other party may elect to obtain equivalent bonds or insurance to protect such other party's interests at the expense of the party who was required to provide such coverage, and a Change Order shall be issued to adjust the Contract Price accordingly.

5.10 *Partial Utilization, Acknowledgment of Property Insurer*

A. If Owner finds it necessary to occupy or use a portion or portions of the Work prior to Substantial Completion of all the Work as provided in Paragraph 14.05, no such use or occupancy shall commence before the insurers providing the property insurance pursuant to Paragraph 5.06 have acknowledged notice thereof and in writing effected any changes in coverage necessitated thereby. The insurers providing the property insurance shall consent by endorsement on the policy or policies, but the property insurance shall not be canceled or permitted to lapse on account of any such partial use or occupancy.

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ARTICLE 6 – CONTRACTOR'S RESPONSIBILITIES

6.01 *Supervision and Superintendence*

A. Contractor shall supervise, inspect, and direct the Work competently and efficiently, devoting such attention thereto and applying such skills and expertise as may be necessary to perform the Work in accordance with the Contract Documents. Contractor shall be solely responsible for the means, methods, techniques, sequences, and procedures of construction. Contractor shall not be responsible for the negligence of Owner or Engineer in the design or specification of a specific means, method, technique, sequence, or procedure of construction which is shown or indicated in and expressly required by the Contract Documents.

B. At all times during the progress of the Work, Contractor shall assign a competent resident superintendent who shall not be replaced without written notice to Owner and Engineer except under extraordinary circumstances.

6.02 *Labor; Working Hours*

A. Contractor shall provide competent, suitably qualified personnel to survey and lay out the Work and perform construction as required by the Contract Documents. Contractor shall at all times maintain good discipline and order at the Site.

B. Except as otherwise required for the safety or protection of persons or the Work or property at the Site or adjacent thereto, and except as otherwise stated in the Contract Documents, all Work at the Site shall be performed during regular working hours. Contractor will not permit the performance of Work on a Saturday, Sunday, or any legal holiday without Owner's written consent (which will not be unreasonably withheld) given after prior written notice to Engineer.

6.03 *Services, Materials, and Equipment*

A. Unless otherwise specified in the Contract Documents, Contractor shall provide and assume full responsibility for all services, materials, equipment, labor, transportation, construction equipment and machinery, tools, appliances, fuel, power, light, heat, telephone, water, sanitary facilities, temporary facilities, and all other facilities and incidentals necessary for the performance, testing, start-up, and completion of the Work.

B. All materials and equipment incorporated into the Work shall be as specified or, if not specified, shall be of good quality and new, except as otherwise provided in the Contract Documents. All special warranties and guarantees required by the Specifications shall expressly run to the benefit of Owner. If required by Engineer, Contractor shall furnish satisfactory evidence (including reports of required tests) as to the source, kind, and quality of materials and equipment.

C. All materials and equipment shall be stored, applied, installed, connected, erected, protected, used, cleaned, and conditioned in accordance with instructions of the applicable Supplier, except as otherwise may be provided in the Contract Documents.

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6.04 *Progress Schedule*

A. Contractor shall adhere to the Progress Schedule established in accordance with Paragraph 2.07 as it may be adjusted from time to time as provided below.

1. Contractor shall submit to Engineer for acceptance (to the extent indicated in Paragraph 2.07) proposed adjustments in the Progress Schedule that will not result in changing the Contract Times. Such adjustments will comply with any provisions of the General Requirements applicable thereto.

2. Proposed adjustments in the Progress Schedule that will change the Contract Times shall be submitted in accordance with the requirements of Article 12. Adjustments in Contract Times may only be made by a Change Order.

6.05 *Substitutes and "Or-Equals"*

A. Whenever an item of material or equipment is specified or described in the Contract Documents by using the name of a proprietary item or the name of a particular Supplier, the specification or description is intended to establish the type, function, appearance, and quality required. Unless the specification or description contains or is followed by words reading that no like, equivalent, or "or-equal" item or no substitution is permitted, other items of material or equipment or material or equipment of other Suppliers may be submitted to Engineer for review under the circumstances described below.

1. *"Or-Equal" Items:* If in Engineer's sole discretion an item of material or equipment proposed by Contractor is functionally equal to that named and sufficiently similar so that no change in related Work will be required, it may be considered by Engineer as an "or-equal" item, in which case review and approval of the proposed item may, in Engineer's sole discretion, be accomplished without compliance with some or all of the requirements for approval of proposed substitute items. For the purposes of this Paragraph 6.05.A.1, a proposed item of material or equipment will be considered functionally equal to an item so named if:

a. in the exercise of reasonable judgment Engineer determines that:

1) it is at least equal in materials of construction, quality, durability, appearance, strength, and design characteristics;

2) it will reliably perform at least equally well the function and achieve the results imposed by the design concept of the completed Project as a functioning whole; and

3) it has a proven record of performance and availability of responsive service.

b. Contractor certifies that, if approved and incorporated into the Work:

1) there will be no increase in cost to the Owner or increase in Contract Times; and

2) it will conform substantially to the detailed requirements of the item named in the Contract Documents.

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2. *Substitute Items:*

   a. If in Engineer's sole discretion an item of material or equipment proposed by Contractor does not qualify as an "or-equal" item under Paragraph 6.05.A.1, it will be considered a proposed substitute item.

   b. Contractor shall submit sufficient information as provided below to allow Engineer to determine if the item of material or equipment proposed is essentially equivalent to that named and an acceptable substitute therefor. Requests for review of proposed substitute items of material or equipment will not be accepted by Engineer from anyone other than Contractor.

   c. The requirements for review by Engineer will be as set forth in Paragraph 6.05.A.2.d, as supplemented by the General Requirements, and as Engineer may decide is appropriate under the circumstances.

   d. Contractor shall make written application to Engineer for review of a proposed substitute item of material or equipment that Contractor seeks to furnish or use. The application:

      1) shall certify that the proposed substitute item will:

         a) perform adequately the functions and achieve the results called for by the general design,

         b) be similar in substance to that specified, and

         c) be suited to the same use as that specified;

      2) will state:

         a) the extent, if any, to which the use of the proposed substitute item will prejudice Contractor's achievement of Substantial Completion on time,

         b) whether use of the proposed substitute item in the Work will require a change in any of the Contract Documents (or in the provisions of any other direct contract with Owner for other work on the Project) to adapt the design to the proposed substitute item, and

         c) whether incorporation or use of the proposed substitute item in connection with the Work is subject to payment of any license fee or royalty;

      3) will identify:

         a) all variations of the proposed substitute item from that specified, and

         b) available engineering, sales, maintenance, repair, and replacement services; and

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4) shall contain an itemized estimate of all costs or credits that will result directly or indirectly from use of such substitute item, including costs of redesign and claims of other contractors affected by any resulting change.

B. *Substitute Construction Methods or Procedures:* If a specific means, method, technique, sequence, or procedure of construction is expressly required by the Contract Documents, Contractor may furnish or utilize a substitute means, method, technique, sequence, or procedure of construction approved by Engineer. Contractor shall submit sufficient information to allow Engineer, in Engineer's sole discretion, to determine that the substitute proposed is equivalent to that expressly called for by the Contract Documents. The requirements for review by Engineer will be similar to those provided in Paragraph 6.05.A.2.

C. *Engineer's Evaluation:* Engineer will be allowed a reasonable time within which to evaluate each proposal or submittal made pursuant to Paragraphs 6.05.A and 6.05.B. Engineer may require Contractor to furnish additional data about the proposed substitute item. Engineer will be the sole judge of acceptability. No "or equal" or substitute will be ordered, installed or utilized until Engineer's review is complete, which will be evidenced by a Change Order in the case of a substitute and an approved Shop Drawing for an "or equal." Engineer will advise Contractor in writing of any negative determination.

D. *Special Guarantee:* Owner may require Contractor to furnish at Contractor's expense a special performance guarantee or other surety with respect to any substitute.

E. *Engineer's Cost Reimbursement*: Engineer will record Engineer's costs in evaluating a substitute proposed or submitted by Contractor pursuant to Paragraphs 6.05.A.2 and 6.05.B. Whether or not Engineer approves a substitute so proposed or submitted by Contractor, Contractor shall reimburse Owner for the reasonable charges of Engineer for evaluating each such proposed substitute. Contractor shall also reimburse Owner for the reasonable charges of Engineer for making changes in the Contract Documents (or in the provisions of any other direct contract with Owner) resulting from the acceptance of each proposed substitute.

F. *Contractor's Expense*: Contractor shall provide all data in support of any proposed substitute or "or-equal" at Contractor's expense.

6.06 *Concerning Subcontractors, Suppliers, and Others*

A. Contractor shall not employ any Subcontractor, Supplier, or other individual or entity (including those acceptable to Owner as indicated in Paragraph 6.06.B), whether initially or as a replacement, against whom Owner may have reasonable objection. Contractor shall not be required to employ any Subcontractor, Supplier, or other individual or entity to furnish or perform any of the Work against whom Contractor has reasonable objection.

B. If the Supplementary Conditions require the identity of certain Subcontractors, Suppliers, or other individuals or entities to be submitted to Owner in advance for acceptance by Owner by a specified date prior to the Effective Date of the Agreement, and if Contractor has submitted a list thereof in accordance with the Supplementary Conditions, Owner's acceptance (either in writing or by failing to make written objection thereto by the date indicated for acceptance or objection in the Bidding Documents or the Contract Documents) of any such Subcontractor, Supplier, or

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other individual or entity so identified may be revoked on the basis of reasonable objection after due investigation. Contractor shall submit an acceptable replacement for the rejected Subcontractor, Supplier, or other individual or entity, and the Contract Price will be adjusted by the difference in the cost occasioned by such replacement, and an appropriate Change Order will be issued. No acceptance by Owner of any such Subcontractor, Supplier, or other individual or entity, whether initially or as a replacement, shall constitute a waiver of any right of Owner or Engineer to reject defective Work.

C. Contractor shall be fully responsible to Owner and Engineer for all acts and omissions of the Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work just as Contractor is responsible for Contractor's own acts and omissions. Nothing in the Contract Documents:

   1. shall create for the benefit of any such Subcontractor, Supplier, or other individual or entity any contractual relationship between Owner or Engineer and any such Subcontractor, Supplier or other individual or entity; nor

   2. shall create any obligation on the part of Owner or Engineer to pay or to see to the payment of any moneys due any such Subcontractor, Supplier, or other individual or entity except as may otherwise be required by Laws and Regulations.

D. Contractor shall be solely responsible for scheduling and coordinating the Work of Subcontractors, Suppliers, and other individuals or entities performing or furnishing any of the Work under a direct or indirect contract with Contractor.

E. Contractor shall require all Subcontractors, Suppliers, and such other individuals or entities performing or furnishing any of the Work to communicate with Engineer through Contractor.

F. The divisions and sections of the Specifications and the identifications of any Drawings shall not control Contractor in dividing the Work among Subcontractors or Suppliers or delineating the Work to be performed by any specific trade.

G. All Work performed for Contractor by a Subcontractor or Supplier will be pursuant to an appropriate agreement between Contractor and the Subcontractor or Supplier which specifically binds the Subcontractor or Supplier to the applicable terms and conditions of the Contract Documents for the benefit of Owner and Engineer. Whenever any such agreement is with a Subcontractor or Supplier who is listed as a loss payee on the property insurance provided in Paragraph 5.06, the agreement between the Contractor and the Subcontractor or Supplier will contain provisions whereby the Subcontractor or Supplier waives all rights against Owner, Contractor, Engineer, and all other individuals or entities identified in the Supplementary Conditions to be listed as insureds or loss payees (and the officers, directors, members, partners, employees, agents, consultants, and subcontractors of each and any of them) for all losses and damages caused by, arising out of, relating to, or resulting from any of the perils or causes of loss covered by such policies and any other property insurance applicable to the Work. If the insurers on any such policies require separate waiver forms to be signed by any Subcontractor or Supplier, Contractor will obtain the same.

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6.07 *Patent Fees and Royalties*

A. Contractor shall pay all license fees and royalties and assume all costs incident to the use in the performance of the Work or the incorporation in the Work of any invention, design, process, product, or device which is the subject of patent rights or copyrights held by others. If a particular invention, design, process, product, or device is specified in the Contract Documents for use in the performance of the Work and if, to the actual knowledge of Owner or Engineer, its use is subject to patent rights or copyrights calling for the payment of any license fee or royalty to others, the existence of such rights shall be disclosed by Owner in the Contract Documents.

B. To the fullest extent permitted by Laws and Regulations, Owner shall indemnify and hold harmless Contractor, and its officers, directors, members, partners, employees, agents, consultants, and subcontractors from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals, and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device specified in the Contract Documents, but not identified as being subject to payment of any license fee or royalty to others required by patent rights or copyrights.

C. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any infringement of patent rights or copyrights incident to the use in the performance of the Work or resulting from the incorporation in the Work of any invention, design, process, product, or device not specified in the Contract Documents.

6.08 *Permits*

A. Unless otherwise provided in the Supplementary Conditions, Contractor shall obtain and pay for all construction permits and licenses. Owner shall assist Contractor, when necessary, in obtaining such permits and licenses. Contractor shall pay all governmental charges and inspection fees necessary for the prosecution of the Work which are applicable at the time of opening of Bids, or, if there are no Bids, on the Effective Date of the Agreement. Owner shall pay all charges of utility owners for connections for providing permanent service to the Work.

6.09 *Laws and Regulations*

A. Contractor shall give all notices required by and shall comply with all Laws and Regulations applicable to the performance of the Work. Except where otherwise expressly required by applicable Laws and Regulations, neither Owner nor Engineer shall be responsible for monitoring Contractor's compliance with any Laws or Regulations.

B. If Contractor performs any Work knowing or having reason to know that it is contrary to Laws or Regulations, Contractor shall bear all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all

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court or arbitration or other dispute resolution costs) arising out of or relating to such Work. However, it shall not be Contractor's responsibility to make certain that the Specifications and Drawings are in accordance with Laws and Regulations, but this shall not relieve Contractor of Contractor's obligations under Paragraph 3.03.

C. Changes in Laws or Regulations not known at the time of opening of Bids (or, on the Effective Date of the Agreement if there were no Bids) having an effect on the cost or time of performance of the Work shall be the subject of an adjustment in Contract Price or Contract Times. If Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

6.10 *Taxes*

A. Contractor shall pay all sales, consumer, use, and other similar taxes required to be paid by Contractor in accordance with the Laws and Regulations of the place of the Project which are applicable during the performance of the Work.

6.11 *Use of Site and Other Areas*

A. *Limitation on Use of Site and Other Areas:*

1. Contractor shall confine construction equipment, the storage of materials and equipment, and the operations of workers to the Site and other areas permitted by Laws and Regulations, and shall not unreasonably encumber the Site and other areas with construction equipment or other materials or equipment. Contractor shall assume full responsibility for any damage to any such land or area, or to the owner or occupant thereof, or of any adjacent land or areas resulting from the performance of the Work.

2. Should any claim be made by any such owner or occupant because of the performance of the Work, Contractor shall promptly settle with such other party by negotiation or otherwise resolve the claim by arbitration or other dispute resolution proceeding or at law.

3. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to any claim or action, legal or equitable, brought by any such owner or occupant against Owner, Engineer, or any other party indemnified hereunder to the extent caused by or based upon Contractor's performance of the Work.

B. *Removal of Debris During Performance of the Work:* During the progress of the Work Contractor shall keep the Site and other areas free from accumulations of waste materials, rubbish, and other debris. Removal and disposal of such waste materials, rubbish, and other debris shall conform to applicable Laws and Regulations.

C. *Cleaning:* Prior to Substantial Completion of the Work Contractor shall clean the Site and the Work and make it ready for utilization by Owner. At the completion of the Work Contractor

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shall remove from the Site all tools, appliances, construction equipment and machinery, and surplus materials and shall restore to original condition all property not designated for alteration by the Contract Documents.

D. *Loading Structures:* Contractor shall not load nor permit any part of any structure to be loaded in any manner that will endanger the structure, nor shall Contractor subject any part of the Work or adjacent property to stresses or pressures that will endanger it.

6.12 *Record Documents*

A. Contractor shall maintain in a safe place at the Site one record copy of all Drawings, Specifications, Addenda, Change Orders, Work Change Directives, Field Orders, and written interpretations and clarifications in good order and annotated to show changes made during construction. These record documents together with all approved Samples and a counterpart of all approved Shop Drawings will be available to Engineer for reference. Upon completion of the Work, these record documents, Samples, and Shop Drawings will be delivered to Engineer for Owner.

6.13 *Safety and Protection*

A. Contractor shall be solely responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Such responsibility does not relieve Subcontractors of their responsibility for the safety of persons or property in the performance of their work, nor for compliance with applicable safety Laws and Regulations. Contractor shall take all necessary precautions for the safety of, and shall provide the necessary protection to prevent damage, injury or loss to:

1. all persons on the Site or who may be affected by the Work;

2. all the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site; and

3. other property at the Site or adjacent thereto, including trees, shrubs, lawns, walks, pavements, roadways, structures, utilities, and Underground Facilities not designated for removal, relocation, or replacement in the course of construction.

B. Contractor shall comply with all applicable Laws and Regulations relating to the safety of persons or property, or to the protection of persons or property from damage, injury, or loss; and shall erect and maintain all necessary safeguards for such safety and protection. Contractor shall notify owners of adjacent property and of Underground Facilities and other utility owners when prosecution of the Work may affect them, and shall cooperate with them in the protection, removal, relocation, and replacement of their property.

C. Contractor shall comply with the applicable requirements of Owner's safety programs, if any. The Supplementary Conditions identify any Owner's safety programs that are applicable to the Work.

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D. Contractor shall inform Owner and Engineer of the specific requirements of Contractor's safety program with which Owner's and Engineer's employees and representatives must comply while at the Site.

E. All damage, injury, or loss to any property referred to in Paragraph 6.13.A.2 or 6.13.A.3 caused, directly or indirectly, in whole or in part, by Contractor, any Subcontractor, Supplier, or any other individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, shall be remedied by Contractor (except damage or loss attributable to the fault of Drawings or Specifications or to the acts or omissions of Owner or Engineer or anyone employed by any of them, or anyone for whose acts any of them may be liable, and not attributable, directly or indirectly, in whole or in part, to the fault or negligence of Contractor or any Subcontractor, Supplier, or other individual or entity directly or indirectly employed by any of them).

F. Contractor's duties and responsibilities for safety and for protection of the Work shall continue until such time as all the Work is completed and Engineer has issued a notice to Owner and Contractor in accordance with Paragraph 14.07.B that the Work is acceptable (except as otherwise expressly provided in connection with Substantial Completion).

6.14 *Safety Representative*

A. Contractor shall designate a qualified and experienced safety representative at the Site whose duties and responsibilities shall be the prevention of accidents and the maintaining and supervising of safety precautions and programs.

6.15 *Hazard Communication Programs*

A. Contractor shall be responsible for coordinating any exchange of material safety data sheets or other hazard communication information required to be made available to or exchanged between or among employers at the Site in accordance with Laws or Regulations.

6.16 *Emergencies*

A. In emergencies affecting the safety or protection of persons or the Work or property at the Site or adjacent thereto, Contractor is obligated to act to prevent threatened damage, injury, or loss. Contractor shall give Engineer prompt written notice if Contractor believes that any significant changes in the Work or variations from the Contract Documents have been caused thereby or are required as a result thereof. If Engineer determines that a change in the Contract Documents is required because of the action taken by Contractor in response to such an emergency, a Work Change Directive or Change Order will be issued.

6.17 *Shop Drawings and Samples*

A. Contractor shall submit Shop Drawings and Samples to Engineer for review and approval in accordance with the accepted Schedule of Submittals (as required by Paragraph 2.07). Each submittal will be identified as Engineer may require.

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1. *Shop Drawings:*

    a. Submit number of copies specified in the General Requirements.

    b. Data shown on the Shop Drawings will be complete with respect to quantities, dimensions, specified performance and design criteria, materials, and similar data to show Engineer the services, materials, and equipment Contractor proposes to provide and to enable Engineer to review the information for the limited purposes required by Paragraph 6.17.D.

2. *Samples:*

    a. Submit number of Samples specified in the Specifications.

    b. Clearly identify each Sample as to material, Supplier, pertinent data such as catalog numbers, the use for which intended and other data as Engineer may require to enable Engineer to review the submittal for the limited purposes required by Paragraph 6.17.D.

B. Where a Shop Drawing or Sample is required by the Contract Documents or the Schedule of Submittals, any related Work performed prior to Engineer's review and approval of the pertinent submittal will be at the sole expense and responsibility of Contractor.

C. *Submittal Procedures:*

1. Before submitting each Shop Drawing or Sample, Contractor shall have:

    a. reviewed and coordinated each Shop Drawing or Sample with other Shop Drawings and Samples and with the requirements of the Work and the Contract Documents;

    b. determined and verified all field measurements, quantities, dimensions, specified performance and design criteria, installation requirements, materials, catalog numbers, and similar information with respect thereto;

    c. determined and verified the suitability of all materials offered with respect to the indicated application, fabrication, shipping, handling, storage, assembly, and installation pertaining to the performance of the Work; and

    d. determined and verified all information relative to Contractor's responsibilities for means, methods, techniques, sequences, and procedures of construction, and safety precautions and programs incident thereto.

2. Each submittal shall bear a stamp or specific written certification that Contractor has satisfied Contractor's obligations under the Contract Documents with respect to Contractor's review and approval of that submittal.

3. With each submittal, Contractor shall give Engineer specific written notice of any variations that the Shop Drawing or Sample may have from the requirements of the Contract Documents. This notice shall be both a written communication separate from the Shop

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Drawings or Sample submittal; and, in addition, by a specific notation made on each Shop Drawing or Sample submitted to Engineer for review and approval of each such variation.

D. *Engineer's Review:*

1. Engineer will provide timely review of Shop Drawings and Samples in accordance with the Schedule of Submittals acceptable to Engineer. Engineer's review and approval will be only to determine if the items covered by the submittals will, after installation or incorporation in the Work, conform to the information given in the Contract Documents and be compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents.

2. Engineer's review and approval will not extend to means, methods, techniques, sequences, or procedures of construction (except where a particular means, method, technique, sequence, or procedure of construction is specifically and expressly called for by the Contract Documents) or to safety precautions or programs incident thereto. The review and approval of a separate item as such will not indicate approval of the assembly in which the item functions.

3. Engineer's review and approval shall not relieve Contractor from responsibility for any variation from the requirements of the Contract Documents unless Contractor has complied with the requirements of Paragraph 6.17.C.3 and Engineer has given written approval of each such variation by specific written notation thereof incorporated in or accompanying the Shop Drawing or Sample. Engineer's review and approval shall not relieve Contractor from responsibility for complying with the requirements of Paragraph 6.17.C.1.

E. *Resubmittal Procedures:*

1. Contractor shall make corrections required by Engineer and shall return the required number of corrected copies of Shop Drawings and submit, as required, new Samples for review and approval. Contractor shall direct specific attention in writing to revisions other than the corrections called for by Engineer on previous submittals.

6.18 *Continuing the Work*

A. Contractor shall carry on the Work and adhere to the Progress Schedule during all disputes or disagreements with Owner. No Work shall be delayed or postponed pending resolution of any disputes or disagreements, except as permitted by Paragraph 15.04 or as Owner and Contractor may otherwise agree in writing.

6.19 *Contractor's General Warranty and Guarantee*

A. Contractor warrants and guarantees to Owner that all Work will be in accordance with the Contract Documents and will not be defective. Engineer and its officers, directors, members, partners, employees, agents, consultants, and subcontractors shall be entitled to rely on representation of Contractor's warranty and guarantee.

B. Contractor's warranty and guarantee hereunder excludes defects or damage caused by:

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1. abuse, modification, or improper maintenance or operation by persons other than Contractor, Subcontractors, Suppliers, or any other individual or entity for whom Contractor is responsible; or

2. normal wear and tear under normal usage.

C. Contractor's obligation to perform and complete the Work in accordance with the Contract Documents shall be absolute. None of the following will constitute an acceptance of Work that is not in accordance with the Contract Documents or a release of Contractor's obligation to perform the Work in accordance with the Contract Documents:

1. observations by Engineer;

2. recommendation by Engineer or payment by Owner of any progress or final payment;

3. the issuance of a certificate of Substantial Completion by Engineer or any payment related thereto by Owner;

4. use or occupancy of the Work or any part thereof by Owner;

5. any review and approval of a Shop Drawing or Sample submittal or the issuance of a notice of acceptability by Engineer;

6. any inspection, test, or approval by others; or

7. any correction of defective Work by Owner.

6.20 *Indemnification*

A. To the fullest extent permitted by Laws and Regulations, Contractor shall indemnify and hold harmless Owner and Engineer, and the officers, directors, members, partners, employees, agents, consultants and subcontractors of each and any of them from and against all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to the performance of the Work, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself), including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work or anyone for whose acts any of them may be liable .

B. In any and all claims against Owner or Engineer or any of their officers, directors, members, partners, employees, agents, consultants, or subcontractors by any employee (or the survivor or personal representative of such employee) of Contractor, any Subcontractor, any Supplier, or any individual or entity directly or indirectly employed by any of them to perform any of the Work, or anyone for whose acts any of them may be liable, the indemnification obligation under Paragraph 6.20.A shall not be limited in any way by any limitation on the amount or type of damages, compensation, or benefits payable by or for Contractor or any such Subcontractor,

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C. The indemnification obligations of Contractor under Paragraph 6.20.A shall not extend to the liability of Engineer and Engineer's officers, directors, members, partners, employees, agents, consultants and subcontractors arising out of:

1. the preparation or approval of, or the failure to prepare or approve maps, Drawings, opinions, reports, surveys, Change Orders, designs, or Specifications; or

2. giving directions or instructions, or failing to give them, if that is the primary cause of the injury or damage.

6.21 *Delegation of Professional Design Services*

A. Contractor will not be required to provide professional design services unless such services are specifically required by the Contract Documents for a portion of the Work or unless such services are required to carry out Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. Contractor shall not be required to provide professional services in violation of applicable law.

B. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of Contractor by the Contract Documents, Owner and Engineer will specify all performance and design criteria that such services must satisfy. Contractor shall cause such services or certifications to be provided by a properly licensed professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to Engineer.

C. Owner and Engineer shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided Owner and Engineer have specified to Contractor all performance and design criteria that such services must satisfy.

D. Pursuant to this Paragraph 6.21, Engineer's review and approval of design calculations and design drawings will be only for the limited purpose of checking for conformance with performance and design criteria given and the design concept expressed in the Contract Documents. Engineer's review and approval of Shop Drawings and other submittals (except design calculations and design drawings) will be only for the purpose stated in Paragraph 6.17.D.1.

E. Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

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ARTICLE 7 – OTHER WORK AT THE SITE

7.01 *Related Work at Site*

A. Owner may perform other work related to the Project at the Site with Owner's employees, or through other direct contracts therefor, or have other work performed by utility owners. If such other work is not noted in the Contract Documents, then:

1. written notice thereof will be given to Contractor prior to starting any such other work; and

2. if Owner and Contractor are unable to agree on entitlement to or on the amount or extent, if any, of any adjustment in the Contract Price or Contract Times that should be allowed as a result of such other work, a Claim may be made therefor as provided in Paragraph 10.05.

B. Contractor shall afford each other contractor who is a party to such a direct contract, each utility owner, and Owner, if Owner is performing other work with Owner's employees, proper and safe access to the Site, provide a reasonable opportunity for the introduction and storage of materials and equipment and the execution of such other work, and properly coordinate the Work with theirs. Contractor shall do all cutting, fitting, and patching of the Work that may be required to properly connect or otherwise make its several parts come together and properly integrate with such other work. Contractor shall not endanger any work of others by cutting, excavating, or otherwise altering such work; provided, however, that Contractor may cut or alter others' work with the written consent of Engineer and the others whose work will be affected. The duties and responsibilities of Contractor under this Paragraph are for the benefit of such utility owners and other contractors to the extent that there are comparable provisions for the benefit of Contractor in said direct contracts between Owner and such utility owners and other contractors.

C. If the proper execution or results of any part of Contractor's Work depends upon work performed by others under this Article 7, Contractor shall inspect such other work and promptly report to Engineer in writing any delays, defects, or deficiencies in such other work that render it unavailable or unsuitable for the proper execution and results of Contractor's Work. Contractor's failure to so report will constitute an acceptance of such other work as fit and proper for integration with Contractor's Work except for latent defects and deficiencies in such other work.

7.02 *Coordination*

A. If Owner intends to contract with others for the performance of other work on the Project at the Site, the following will be set forth in Supplementary Conditions:

1. the individual or entity who will have authority and responsibility for coordination of the activities among the various contractors will be identified;

2. the specific matters to be covered by such authority and responsibility will be itemized; and

3. the extent of such authority and responsibilities will be provided.

B. Unless otherwise provided in the Supplementary Conditions, Owner shall have sole authority and responsibility for such coordination.

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7.03 *Legal Relationships*

A. Paragraphs 7.01.A and 7.02 are not applicable for utilities not under the control of Owner.

B. Each other direct contract of Owner under Paragraph 7.01.A shall provide that the other contractor is liable to Owner and Contractor for the reasonable direct delay and disruption costs incurred by Contractor as a result of the other contractor's wrongful actions or inactions.

C. Contractor shall be liable to Owner and any other contractor under direct contract to Owner for the reasonable direct delay and disruption costs incurred by such other contractor as a result of Contractor's wrongful action or inactions.

ARTICLE 8 – OWNER'S RESPONSIBILITIES

8.01 *Communications to Contractor*

A. Except as otherwise provided in these General Conditions, Owner shall issue all communications to Contractor through Engineer.

8.02 *Replacement of Engineer*

A. In case of termination of the employment of Engineer, Owner shall appoint an engineer to whom Contractor makes no reasonable objection, whose status under the Contract Documents shall be that of the former Engineer.

8.03 *Furnish Data*

A. Owner shall promptly furnish the data required of Owner under the Contract Documents.

8.04 *Pay When Due*

A. Owner shall make payments to Contractor when they are due as provided in Paragraphs 14.02.C and 14.07.C.

8.05 *Lands and Easements; Reports and Tests*

A. Owner's duties with respect to providing lands and easements and providing engineering surveys to establish reference points are set forth in Paragraphs 4.01 and 4.05. Paragraph 4.02 refers to Owner's identifying and making available to Contractor copies of reports of explorations and tests of subsurface conditions and drawings of physical conditions relating to existing surface or subsurface structures at the Site.

8.06 *Insurance*

A. Owner's responsibilities, if any, with respect to purchasing and maintaining liability and property insurance are set forth in Article 5.

8.07 *Change Orders*

A. Owner is obligated to execute Change Orders as indicated in Paragraph 10.03.

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8.08 *Inspections, Tests, and Approvals*

A. Owner's responsibility with respect to certain inspections, tests, and approvals is set forth in Paragraph 13.03.B.

8.09 *Limitations on Owner's Responsibilities*

A. The Owner shall not supervise, direct, or have control or authority over, nor be responsible for, Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Owner will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

8.10 *Undisclosed Hazardous Environmental Condition*

A. Owner's responsibility in respect to an undisclosed Hazardous Environmental Condition is set forth in Paragraph 4.06.

8.11 *Evidence of Financial Arrangements*

A. Upon request of Contractor, Owner shall furnish Contractor reasonable evidence that financial arrangements have been made to satisfy Owner's obligations under the Contract Documents.

8.12 *Compliance with Safety Program*

A. While at the Site, Owner's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Owner has been informed pursuant to Paragraph 6.13.D.

ARTICLE 9 – ENGINEER'S STATUS DURING CONSTRUCTION

9.01 *Owner's Representative*

A. Engineer will be Owner's representative during the construction period. The duties and responsibilities and the limitations of authority of Engineer as Owner's representative during construction are set forth in the Contract Documents.

9.02 *Visits to Site*

A. Engineer will make visits to the Site at intervals appropriate to the various stages of construction as Engineer deems necessary in order to observe as an experienced and qualified design professional the progress that has been made and the quality of the various aspects of Contractor's executed Work. Based on information obtained during such visits and observations, Engineer, for the benefit of Owner, will determine, in general, if the Work is proceeding in accordance with the Contract Documents. Engineer will not be required to make exhaustive or continuous inspections on the Site to check the quality or quantity of the Work. Engineer's efforts will be directed toward providing for Owner a greater degree of confidence that the completed Work will conform generally to the Contract Documents. On the basis of such visits

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and observations, Engineer will keep Owner informed of the progress of the Work and will endeavor to guard Owner against defective Work.

B. Engineer's visits and observations are subject to all the limitations on Engineer's authority and responsibility set forth in Paragraph 9.09. Particularly, but without limitation, during or as a result of Engineer's visits or observations of Contractor's Work, Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work.

9.03 *Project Representative*

A. If Owner and Engineer agree, Engineer will furnish a Resident Project Representative to assist Engineer in providing more extensive observation of the Work. The authority and responsibilities of any such Resident Project Representative and assistants will be as provided in the Supplementary Conditions, and limitations on the responsibilities thereof will be as provided in Paragraph 9.09. If Owner designates another representative or agent to represent Owner at the Site who is not Engineer's consultant, agent or employee, the responsibilities and authority and limitations thereon of such other individual or entity will be as provided in the Supplementary Conditions.

9.04 *Authorized Variations in Work*

A. Engineer may authorize minor variations in the Work from the requirements of the Contract Documents which do not involve an adjustment in the Contract Price or the Contract Times and are compatible with the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. These may be accomplished by a Field Order and will be binding on Owner and also on Contractor, who shall perform the Work involved promptly. If Owner or Contractor believes that a Field Order justifies an adjustment in the Contract Price or Contract Times, or both, and the parties are unable to agree on entitlement to or on the amount or extent, if any, of any such adjustment, a Claim may be made therefor as provided in Paragraph 10.05.

9.05 *Rejecting Defective Work*

A. Engineer will have authority to reject Work which Engineer believes to be defective, or that Engineer believes will not produce a completed Project that conforms to the Contract Documents or that will prejudice the integrity of the design concept of the completed Project as a functioning whole as indicated by the Contract Documents. Engineer will also have authority to require special inspection or testing of the Work as provided in Paragraph 13.04, whether or not the Work is fabricated, installed, or completed.

9.06 *Shop Drawings, Change Orders and Payments*

A. In connection with Engineer's authority, and limitations thereof, as to Shop Drawings and Samples, see Paragraph 6.17.

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B. In connection with Engineer's authority, and limitations thereof, as to design calculations and design drawings submitted in response to a delegation of professional design services, if any, see Paragraph 6.21.

C. In connection with Engineer's authority as to Change Orders, see Articles 10, 11, and 12.

D. In connection with Engineer's authority as to Applications for Payment, see Article 14.

9.07 *Determinations for Unit Price Work*

A. Engineer will determine the actual quantities and classifications of Unit Price Work performed by Contractor. Engineer will review with Contractor the Engineer's preliminary determinations on such matters before rendering a written decision thereon (by recommendation of an Application for Payment or otherwise). Engineer's written decision thereon will be final and binding (except as modified by Engineer to reflect changed factual conditions or more accurate data) upon Owner and Contractor, subject to the provisions of Paragraph 10.05.

9.08 *Decisions on Requirements of Contract Documents and Acceptability of Work*

A. Engineer will be the initial interpreter of the requirements of the Contract Documents and judge of the acceptability of the Work thereunder. All matters in question and other matters between Owner and Contractor arising prior to the date final payment is due relating to the acceptability of the Work, and the interpretation of the requirements of the Contract Documents pertaining to the performance of the Work, will be referred initially to Engineer in writing within 30 days of the event giving rise to the question.

B. Engineer will, with reasonable promptness, render a written decision on the issue referred. If Owner or Contractor believes that any such decision entitles them to an adjustment in the Contract Price or Contract Times or both, a Claim may be made under Paragraph 10.05. The date of Engineer's decision shall be the date of the event giving rise to the issues referenced for the purposes of Paragraph 10.05.B.

C. Engineer's written decision on the issue referred will be final and binding on Owner and Contractor, subject to the provisions of Paragraph 10.05.

D. When functioning as interpreter and judge under this Paragraph 9.08, Engineer will not show partiality to Owner or Contractor and will not be liable in connection with any interpretation or decision rendered in good faith in such capacity.

9.09 *Limitations on Engineer's Authority and Responsibilities*

A. Neither Engineer's authority or responsibility under this Article 9 or under any other provision of the Contract Documents nor any decision made by Engineer in good faith either to exercise or not exercise such authority or responsibility or the undertaking, exercise, or performance of any authority or responsibility by Engineer shall create, impose, or give rise to any duty in contract, tort, or otherwise owed by Engineer to Contractor, any Subcontractor, any Supplier, any other individual or entity, or to any surety for or employee or agent of any of them.

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B. Engineer will not supervise, direct, control, or have authority over or be responsible for Contractor's means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or for any failure of Contractor to comply with Laws and Regulations applicable to the performance of the Work. Engineer will not be responsible for Contractor's failure to perform the Work in accordance with the Contract Documents.

C. Engineer will not be responsible for the acts or omissions of Contractor or of any Subcontractor, any Supplier, or of any other individual or entity performing any of the Work.

D. Engineer's review of the final Application for Payment and accompanying documentation and all maintenance and operating instructions, schedules, guarantees, bonds, certificates of inspection, tests and approvals, and other documentation required to be delivered by Paragraph 14.07.A will only be to determine generally that their content complies with the requirements of, and in the case of certificates of inspections, tests, and approvals that the results certified indicate compliance with, the Contract Documents.

E. The limitations upon authority and responsibility set forth in this Paragraph 9.09 shall also apply to the Resident Project Representative, if any, and assistants, if any.

9.10 *Compliance with Safety Program*

A. While at the Site, Engineer's employees and representatives shall comply with the specific applicable requirements of Contractor's safety programs of which Engineer has been informed pursuant to Paragraph 6.13.D.

ARTICLE 10 – CHANGES IN THE WORK; CLAIMS

10.01 *Authorized Changes in the Work*

A. Without invalidating the Contract and without notice to any surety, Owner may, at any time or from time to time, order additions, deletions, or revisions in the Work by a Change Order, or a Work Change Directive. Upon receipt of any such document, Contractor shall promptly proceed with the Work involved which will be performed under the applicable conditions of the Contract Documents (except as otherwise specifically provided).

B. If Owner and Contractor are unable to agree on entitlement to, or on the amount or extent, if any, of an adjustment in the Contract Price or Contract Times, or both, that should be allowed as a result of a Work Change Directive, a Claim may be made therefor as provided in Paragraph 10.05.

10.02 *Unauthorized Changes in the Work*

A. Contractor shall not be entitled to an increase in the Contract Price or an extension of the Contract Times with respect to any work performed that is not required by the Contract Documents as amended, modified, or supplemented as provided in Paragraph 3.04, except in the case of an emergency as provided in Paragraph 6.16 or in the case of uncovering Work as provided in Paragraph 13.04.D.

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10.03 *Execution of Change Orders*

A. Owner and Contractor shall execute appropriate Change Orders recommended by Engineer covering:

1. changes in the Work which are: (i) ordered by Owner pursuant to Paragraph 10.01.A, (ii) required because of acceptance of defective Work under Paragraph 13.08.A or Owner's correction of defective Work under Paragraph 13.09, or (iii) agreed to by the parties;

2. changes in the Contract Price or Contract Times which are agreed to by the parties, including any undisputed sum or amount of time for Work actually performed in accordance with a Work Change Directive; and

3. changes in the Contract Price or Contract Times which embody the substance of any written decision rendered by Engineer pursuant to Paragraph 10.05; provided that, in lieu of executing any such Change Order, an appeal may be taken from any such decision in accordance with the provisions of the Contract Documents and applicable Laws and Regulations, but during any such appeal, Contractor shall carry on the Work and adhere to the Progress Schedule as provided in Paragraph 6.18.A.

10.04 *Notification to Surety*

A. If the provisions of any bond require notice to be given to a surety of any change affecting the general scope of the Work or the provisions of the Contract Documents (including, but not limited to, Contract Price or Contract Times), the giving of any such notice will be Contractor's responsibility. The amount of each applicable bond will be adjusted to reflect the effect of any such change.

10.05 *Claims*

A. *Engineer's Decision Required*: All Claims, except those waived pursuant to Paragraph 14.09, shall be referred to the Engineer for decision. A decision by Engineer shall be required as a condition precedent to any exercise by Owner or Contractor of any rights or remedies either may otherwise have under the Contract Documents or by Laws and Regulations in respect of such Claims.

B. *Notice:* Written notice stating the general nature of each Claim shall be delivered by the claimant to Engineer and the other party to the Contract promptly (but in no event later than 30 days) after the start of the event giving rise thereto. The responsibility to substantiate a Claim shall rest with the party making the Claim. Notice of the amount or extent of the Claim, with supporting data shall be delivered to the Engineer and the other party to the Contract within 60 days after the start of such event (unless Engineer allows additional time for claimant to submit additional or more accurate data in support of such Claim). A Claim for an adjustment in Contract Price shall be prepared in accordance with the provisions of Paragraph 12.01.B. A Claim for an adjustment in Contract Times shall be prepared in accordance with the provisions of Paragraph 12.02.B. Each Claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event. The

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opposing party shall submit any response to Engineer and the claimant within 30 days after receipt of the claimant's last submittal (unless Engineer allows additional time).

C. *Engineer's Action*: Engineer will review each Claim and, within 30 days after receipt of the last submittal of the claimant or the last submittal of the opposing party, if any, take one of the following actions in writing:

1. deny the Claim in whole or in part;

2. approve the Claim; or

3. notify the parties that the Engineer is unable to resolve the Claim if, in the Engineer's sole discretion, it would be inappropriate for the Engineer to do so. For purposes of further resolution of the Claim, such notice shall be deemed a denial.

D. In the event that Engineer does not take action on a Claim within said 30 days, the Claim shall be deemed denied.

E. Engineer's written action under Paragraph 10.05.C or denial pursuant to Paragraphs 10.05.C.3 or 10.05.D will be final and binding upon Owner and Contractor, unless Owner or Contractor invoke the dispute resolution procedure set forth in Article 16 within 30 days of such action or denial.

F. No Claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph 10.05.

ARTICLE 11 – COST OF THE WORK; ALLOWANCES; UNIT PRICE WORK

11.01 *Cost of the Work*

A. *Costs Included:* The term Cost of the Work means the sum of all costs, except those excluded in Paragraph 11.01.B, necessarily incurred and paid by Contractor in the proper performance of the Work. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, the costs to be reimbursed to Contractor will be only those additional or incremental costs required because of the change in the Work or because of the event giving rise to the Claim. Except as otherwise may be agreed to in writing by Owner, such costs shall be in amounts no higher than those prevailing in the locality of the Project, shall not include any of the costs itemized in Paragraph 11.01.B, and shall include only the following items:

1. Payroll costs for employees in the direct employ of Contractor in the performance of the Work under schedules of job classifications agreed upon by Owner and Contractor. Such employees shall include, without limitation, superintendents, foremen, and other personnel employed full time on the Work. Payroll costs for employees not employed full time on the Work shall be apportioned on the basis of their time spent on the Work. Payroll costs shall include, but not be limited to, salaries and wages plus the cost of fringe benefits, which shall include social security contributions, unemployment, excise, and payroll taxes, workers' compensation, health and retirement benefits, bonuses, sick leave, vacation and holiday pay applicable thereto. The expenses of performing Work outside of regular working hours, on

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Saturday, Sunday, or legal holidays, shall be included in the above to the extent authorized by Owner.

2. Cost of all materials and equipment furnished and incorporated in the Work, including costs of transportation and storage thereof, and Suppliers' field services required in connection therewith. All cash discounts shall accrue to Contractor unless Owner deposits funds with Contractor with which to make payments, in which case the cash discounts shall accrue to Owner. All trade discounts, rebates and refunds and returns from sale of surplus materials and equipment shall accrue to Owner, and Contractor shall make provisions so that they may be obtained.

3. Payments made by Contractor to Subcontractors for Work performed by Subcontractors. If required by Owner, Contractor shall obtain competitive bids from subcontractors acceptable to Owner and Contractor and shall deliver such bids to Owner, who will then determine, with the advice of Engineer, which bids, if any, will be acceptable. If any subcontract provides that the Subcontractor is to be paid on the basis of Cost of the Work plus a fee, the Subcontractor's Cost of the Work and fee shall be determined in the same manner as Contractor's Cost of the Work and fee as provided in this Paragraph 11.01.

4. Costs of special consultants (including but not limited to engineers, architects, testing laboratories, surveyors, attorneys, and accountants) employed for services specifically related to the Work.

5. Supplemental costs including the following:

    a. The proportion of necessary transportation, travel, and subsistence expenses of Contractor's employees incurred in discharge of duties connected with the Work.

    b. Cost, including transportation and maintenance, of all materials, supplies, equipment, machinery, appliances, office, and temporary facilities at the Site, and hand tools not owned by the workers, which are consumed in the performance of the Work, and cost, less market value, of such items used but not consumed which remain the property of Contractor.

    c. Rentals of all construction equipment and machinery, and the parts thereof whether rented from Contractor or others in accordance with rental agreements approved by Owner with the advice of Engineer, and the costs of transportation, loading, unloading, assembly, dismantling, and removal thereof. All such costs shall be in accordance with the terms of said rental agreements. The rental of any such equipment, machinery, or parts shall cease when the use thereof is no longer necessary for the Work.

    d. Sales, consumer, use, and other similar taxes related to the Work, and for which Contractor is liable, as imposed by Laws and Regulations.

    e. Deposits lost for causes other than negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, and royalty payments and fees for permits and licenses.

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f. Losses and damages (and related expenses) caused by damage to the Work, not compensated by insurance or otherwise, sustained by Contractor in connection with the performance of the Work (except losses and damages within the deductible amounts of property insurance established in accordance with Paragraph 5.06.D), provided such losses and damages have resulted from causes other than the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable. Such losses shall include settlements made with the written consent and approval of Owner. No such losses, damages, and expenses shall be included in the Cost of the Work for the purpose of determining Contractor's fee.

g. The cost of utilities, fuel, and sanitary facilities at the Site.

h. Minor expenses such as telegrams, long distance telephone calls, telephone service at the Site, express and courier services, and similar petty cash items in connection with the Work.

i. The costs of premiums for all bonds and insurance Contractor is required by the Contract Documents to purchase and maintain.

B. *Costs Excluded:* The term Cost of the Work shall not include any of the following items:

1. Payroll costs and other compensation of Contractor's officers, executives, principals (of partnerships and sole proprietorships), general managers, safety managers, engineers, architects, estimators, attorneys, auditors, accountants, purchasing and contracting agents, expediters, timekeepers, clerks, and other personnel employed by Contractor, whether at the Site or in Contractor's principal or branch office for general administration of the Work and not specifically included in the agreed upon schedule of job classifications referred to in Paragraph 11.01.A.1 or specifically covered by Paragraph 11.01.A.4, all of which are to be considered administrative costs covered by the Contractor's fee.

2. Expenses of Contractor's principal and branch offices other than Contractor's office at the Site.

3. Any part of Contractor's capital expenses, including interest on Contractor's capital employed for the Work and charges against Contractor for delinquent payments.

4. Costs due to the negligence of Contractor, any Subcontractor, or anyone directly or indirectly employed by any of them or for whose acts any of them may be liable, including but not limited to, the correction of defective Work, disposal of materials or equipment wrongly supplied, and making good any damage to property.

5. Other overhead or general expense costs of any kind and the costs of any item not specifically and expressly included in Paragraphs 11.01.A.

C. *Contractor's Fee:* When all the Work is performed on the basis of cost-plus, Contractor's fee shall be determined as set forth in the Agreement. When the value of any Work covered by a Change Order or when a Claim for an adjustment in Contract Price is determined on the basis of Cost of the Work, Contractor's fee shall be determined as set forth in Paragraph 12.01.C.

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D. *Documentation:* Whenever the Cost of the Work for any purpose is to be determined pursuant to Paragraphs 11.01.A and 11.01.B, Contractor will establish and maintain records thereof in accordance with generally accepted accounting practices and submit in a form acceptable to Engineer an itemized cost breakdown together with supporting data.

11.02 *Allowances*

A. It is understood that Contractor has included in the Contract Price all allowances so named in the Contract Documents and shall cause the Work so covered to be performed for such sums and by such persons or entities as may be acceptable to Owner and Engineer.

B. *Cash Allowances:*

1. Contractor agrees that:

a. the cash allowances include the cost to Contractor (less any applicable trade discounts) of materials and equipment required by the allowances to be delivered at the Site, and all applicable taxes; and

b. Contractor's costs for unloading and handling on the Site, labor, installation, overhead, profit, and other expenses contemplated for the cash allowances have been included in the Contract Price and not in the allowances, and no demand for additional payment on account of any of the foregoing will be valid.

C. *Contingency Allowance:*

1. Contractor agrees that a contingency allowance, if any, is for the sole use of Owner to cover unanticipated costs.

D. Prior to final payment, an appropriate Change Order will be issued as recommended by Engineer to reflect actual amounts due Contractor on account of Work covered by allowances, and the Contract Price shall be correspondingly adjusted.

11.03 *Unit Price Work*

A. Where the Contract Documents provide that all or part of the Work is to be Unit Price Work, initially the Contract Price will be deemed to include for all Unit Price Work an amount equal to the sum of the unit price for each separately identified item of Unit Price Work times the estimated quantity of each item as indicated in the Agreement.

B. The estimated quantities of items of Unit Price Work are not guaranteed and are solely for the purpose of comparison of Bids and determining an initial Contract Price. Determinations of the actual quantities and classifications of Unit Price Work performed by Contractor will be made by Engineer subject to the provisions of Paragraph 9.07.

C. Each unit price will be deemed to include an amount considered by Contractor to be adequate to cover Contractor's overhead and profit for each separately identified item.

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D. Owner or Contractor may make a Claim for an adjustment in the Contract Price in accordance with Paragraph 10.05 if:

1. the quantity of any item of Unit Price Work performed by Contractor differs materially and significantly from the estimated quantity of such item indicated in the Agreement; and

2. there is no corresponding adjustment with respect to any other item of Work; and

3. Contractor believes that Contractor is entitled to an increase in Contract Price as a result of having incurred additional expense or Owner believes that Owner is entitled to a decrease in Contract Price and the parties are unable to agree as to the amount of any such increase or decrease.

ARTICLE 12 – CHANGE OF CONTRACT PRICE; CHANGE OF CONTRACT TIMES

12.01 *Change of Contract Price*

A. The Contract Price may only be changed by a Change Order. Any Claim for an adjustment in the Contract Price shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. The value of any Work covered by a Change Order or of any Claim for an adjustment in the Contract Price will be determined as follows:

1. where the Work involved is covered by unit prices contained in the Contract Documents, by application of such unit prices to the quantities of the items involved (subject to the provisions of Paragraph 11.03); or

2. where the Work involved is not covered by unit prices contained in the Contract Documents, by a mutually agreed lump sum (which may include an allowance for overhead and profit not necessarily in accordance with Paragraph 12.01.C.2); or

3. where the Work involved is not covered by unit prices contained in the Contract Documents and agreement to a lump sum is not reached under Paragraph 12.01.B.2, on the basis of the Cost of the Work (determined as provided in Paragraph 11.01) plus a Contractor's fee for overhead and profit (determined as provided in Paragraph 12.01.C).

C. *Contractor's Fee:* The Contractor's fee for overhead and profit shall be determined as follows:

1. a mutually acceptable fixed fee; or

2. if a fixed fee is not agreed upon, then a fee based on the following percentages of the various portions of the Cost of the Work:

a. for costs incurred under Paragraphs 11.01.A.1 and 11.01.A.2, the Contractor's fee shall be 15 percent;

b. for costs incurred under Paragraph 11.01.A.3, the Contractor's fee shall be five percent;

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c. where one or more tiers of subcontracts are on the basis of Cost of the Work plus a fee and no fixed fee is agreed upon, the intent of Paragraphs 12.01.C.2.a and 12.01.C.2.b is that the Subcontractor who actually performs the Work, at whatever tier, will be paid a fee of 15 percent of the costs incurred by such Subcontractor under Paragraphs 11.01.A.1 and 11.01.A.2 and that any higher tier Subcontractor and Contractor will each be paid a fee of five percent of the amount paid to the next lower tier Subcontractor;

d. no fee shall be payable on the basis of costs itemized under Paragraphs 11.01.A.4, 11.01.A.5, and 11.01.B;

e. the amount of credit to be allowed by Contractor to Owner for any change which results in a net decrease in cost will be the amount of the actual net decrease in cost plus a deduction in Contractor's fee by an amount equal to five percent of such net decrease; and

f. when both additions and credits are involved in any one change, the adjustment in Contractor's fee shall be computed on the basis of the net change in accordance with Paragraphs 12.01.C.2.a through 12.01.C.2.e, inclusive.

12.02 *Change of Contract Times*

A. The Contract Times may only be changed by a Change Order. Any Claim for an adjustment in the Contract Times shall be based on written notice submitted by the party making the Claim to the Engineer and the other party to the Contract in accordance with the provisions of Paragraph 10.05.

B. Any adjustment of the Contract Times covered by a Change Order or any Claim for an adjustment in the Contract Times will be determined in accordance with the provisions of this Article 12.

12.03 *Delays*

A. Where Contractor is prevented from completing any part of the Work within the Contract Times due to delay beyond the control of Contractor, the Contract Times will be extended in an amount equal to the time lost due to such delay if a Claim is made therefor as provided in Paragraph 12.02.A. Delays beyond the control of Contractor shall include, but not be limited to, acts or neglect by Owner, acts or neglect of utility owners or other contractors performing other work as contemplated by Article 7, fires, floods, epidemics, abnormal weather conditions, or acts of God.

B. If Owner, Engineer, or other contractors or utility owners performing other work for Owner as contemplated by Article 7, or anyone for whom Owner is responsible, delays, disrupts, or interferes with the performance or progress of the Work, then Contractor shall be entitled to an equitable adjustment in the Contract Price or the Contract Times, or both. Contractor's entitlement to an adjustment of the Contract Times is conditioned on such adjustment being essential to Contractor's ability to complete the Work within the Contract Times.

C. If Contractor is delayed in the performance or progress of the Work by fire, flood, epidemic, abnormal weather conditions, acts of God, acts or failures to act of utility owners not under the

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control of Owner, or other causes not the fault of and beyond control of Owner and Contractor, then Contractor shall be entitled to an equitable adjustment in Contract Times, if such adjustment is essential to Contractor's ability to complete the Work within the Contract Times. Such an adjustment shall be Contractor's sole and exclusive remedy for the delays described in this Paragraph 12.03.C.

D. Owner, Engineer, and their officers, directors, members, partners, employees, agents, consultants, or subcontractors shall not be liable to Contractor for any claims, costs, losses, or damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Contractor on or in connection with any other project or anticipated project.

E. Contractor shall not be entitled to an adjustment in Contract Price or Contract Times for delays within the control of Contractor. Delays attributable to and within the control of a Subcontractor or Supplier shall be deemed to be delays within the control of Contractor.

ARTICLE 13 – TESTS AND INSPECTIONS; CORRECTION, REMOVAL OR ACCEPTANCE OF DEFECTIVE WORK

13.01 *Notice of Defects*

A. Prompt notice of all defective Work of which Owner or Engineer has actual knowledge will be given to Contractor. Defective Work may be rejected, corrected, or accepted as provided in this Article 13.

13.02 *Access to Work*

A. Owner, Engineer, their consultants and other representatives and personnel of Owner, independent testing laboratories, and governmental agencies with jurisdictional interests will have access to the Site and the Work at reasonable times for their observation, inspection, and testing. Contractor shall provide them proper and safe conditions for such access and advise them of Contractor's safety procedures and programs so that they may comply therewith as applicable.

13.03 *Tests and Inspections*

A. Contractor shall give Engineer timely notice of readiness of the Work for all required inspections, tests, or approvals and shall cooperate with inspection and testing personnel to facilitate required inspections or tests.

B. Owner shall employ and pay for the services of an independent testing laboratory to perform all inspections, tests, or approvals required by the Contract Documents except:

1. for inspections, tests, or approvals covered by Paragraphs 13.03.C and 13.03.D below;

2. that costs incurred in connection with tests or inspections conducted pursuant to Paragraph 13.04.B shall be paid as provided in Paragraph 13.04.C; and

3. as otherwise specifically provided in the Contract Documents.

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C. If Laws or Regulations of any public body having jurisdiction require any Work (or part thereof) specifically to be inspected, tested, or approved by an employee or other representative of such public body, Contractor shall assume full responsibility for arranging and obtaining such inspections, tests, or approvals, pay all costs in connection therewith, and furnish Engineer the required certificates of inspection or approval.

D. Contractor shall be responsible for arranging and obtaining and shall pay all costs in connection with any inspections, tests, or approvals required for Owner's and Engineer's acceptance of materials or equipment to be incorporated in the Work; or acceptance of materials, mix designs, or equipment submitted for approval prior to Contractor's purchase thereof for incorporation in the Work. Such inspections, tests, or approvals shall be performed by organizations acceptable to Owner and Engineer.

E. If any Work (or the work of others) that is to be inspected, tested, or approved is covered by Contractor without written concurrence of Engineer, Contractor shall, if requested by Engineer, uncover such Work for observation.

F. Uncovering Work as provided in Paragraph 13.03.E shall be at Contractor's expense unless Contractor has given Engineer timely notice of Contractor's intention to cover the same and Engineer has not acted with reasonable promptness in response to such notice.

13.04 *Uncovering Work*

A. If any Work is covered contrary to the written request of Engineer, it must, if requested by Engineer, be uncovered for Engineer's observation and replaced at Contractor's expense.

B. If Engineer considers it necessary or advisable that covered Work be observed by Engineer or inspected or tested by others, Contractor, at Engineer's request, shall uncover, expose, or otherwise make available for observation, inspection, or testing as Engineer may require, that portion of the Work in question, furnishing all necessary labor, material, and equipment.

C. If it is found that the uncovered Work is defective, Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such uncovering, exposure, observation, inspection, and testing, and of satisfactory replacement or reconstruction (including but not limited to all costs of repair or replacement of work of others); and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05.

D. If the uncovered Work is not found to be defective, Contractor shall be allowed an increase in the Contract Price or an extension of the Contract Times, or both, directly attributable to such uncovering, exposure, observation, inspection, testing, replacement, and reconstruction. If the parties are unable to agree as to the amount or extent thereof, Contractor may make a Claim therefor as provided in Paragraph 10.05.

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13.05 *Owner May Stop the Work*

A. If the Work is defective, or Contractor fails to supply sufficient skilled workers or suitable materials or equipment, or fails to perform the Work in such a way that the completed Work will conform to the Contract Documents, Owner may order Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, this right of Owner to stop the Work shall not give rise to any duty on the part of Owner to exercise this right for the benefit of Contractor, any Subcontractor, any Supplier, any other individual or entity, or any surety for, or employee or agent of any of them.

13.06 *Correction or Removal of Defective Work*

A. Promptly after receipt of written notice, Contractor shall correct all defective Work, whether or not fabricated, installed, or completed, or, if the Work has been rejected by Engineer, remove it from the Project and replace it with Work that is not defective. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) arising out of or relating to such correction or removal (including but not limited to all costs of repair or replacement of work of others).

B. When correcting defective Work under the terms of this Paragraph 13.06 or Paragraph 13.07, Contractor shall take no action that would void or otherwise impair Owner's special warranty and guarantee, if any, on said Work.

13.07 *Correction Period*

A. If within one year after the date of Substantial Completion (or such longer period of time as may be prescribed by the terms of any applicable special guarantee required by the Contract Documents) or by any specific provision of the Contract Documents, any Work is found to be defective, or if the repair of any damages to the land or areas made available for Contractor's use by Owner or permitted by Laws and Regulations as contemplated in Paragraph 6.11.A is found to be defective, Contractor shall promptly, without cost to Owner and in accordance with Owner's written instructions:

1. repair such defective land or areas; or

2. correct such defective Work; or

3. if the defective Work has been rejected by Owner, remove it from the Project and replace it with Work that is not defective, and

4. satisfactorily correct or repair or remove and replace any damage to other Work, to the work of others or other land or areas resulting therefrom.

B. If Contractor does not promptly comply with the terms of Owner's written instructions, or in an emergency where delay would cause serious risk of loss or damage, Owner may have the defective Work corrected or repaired or may have the rejected Work removed and replaced. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute

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resolution costs) arising out of or relating to such correction or repair or such removal and replacement (including but not limited to all costs of repair or replacement of work of others) will be paid by Contractor.

C. In special circumstances where a particular item of equipment is placed in continuous service before Substantial Completion of all the Work, the correction period for that item may start to run from an earlier date if so provided in the Specifications.

D. Where defective Work (and damage to other Work resulting therefrom) has been corrected or removed and replaced under this Paragraph 13.07, the correction period hereunder with respect to such Work will be extended for an additional period of one year after such correction or removal and replacement has been satisfactorily completed.

E. Contractor's obligations under this Paragraph 13.07 are in addition to any other obligation or warranty. The provisions of this Paragraph 13.07 shall not be construed as a substitute for, or a waiver of, the provisions of any applicable statute of limitation or repose.

13.08 *Acceptance of Defective Work*

A. If, instead of requiring correction or removal and replacement of defective Work, Owner (and, prior to Engineer's recommendation of final payment, Engineer) prefers to accept it, Owner may do so. Contractor shall pay all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) attributable to Owner's evaluation of and determination to accept such defective Work (such costs to be approved by Engineer as to reasonableness) and for the diminished value of the Work to the extent not otherwise paid by Contractor pursuant to this sentence. If any such acceptance occurs prior to Engineer's recommendation of final payment, a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work, and Owner shall be entitled to an appropriate decrease in the Contract Price, reflecting the diminished value of Work so accepted. If the parties are unable to agree as to the amount thereof, Owner may make a Claim therefor as provided in Paragraph 10.05. If the acceptance occurs after such recommendation, an appropriate amount will be paid by Contractor to Owner.

13.09 *Owner May Correct Defective Work*

A. If Contractor fails within a reasonable time after written notice from Engineer to correct defective Work, or to remove and replace rejected Work as required by Engineer in accordance with Paragraph 13.06.A, or if Contractor fails to perform the Work in accordance with the Contract Documents, or if Contractor fails to comply with any other provision of the Contract Documents, Owner may, after seven days written notice to Contractor, correct, or remedy any such deficiency.

B. In exercising the rights and remedies under this Paragraph 13.09, Owner shall proceed expeditiously. In connection with such corrective or remedial action, Owner may exclude Contractor from all or part of the Site, take possession of all or part of the Work and suspend Contractor's services related thereto, take possession of Contractor's tools, appliances, construction equipment and machinery at the Site, and incorporate in the Work all materials and

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C. All claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred or sustained by Owner in exercising the rights and remedies under this Paragraph 13.09 will be charged against Contractor, and a Change Order will be issued incorporating the necessary revisions in the Contract Documents with respect to the Work; and Owner shall be entitled to an appropriate decrease in the Contract Price. If the parties are unable to agree as to the amount of the adjustment, Owner may make a Claim therefor as provided in Paragraph 10.05. Such claims, costs, losses and damages will include but not be limited to all costs of repair, or replacement of work of others destroyed or damaged by correction, removal, or replacement of Contractor's defective Work.

D. Contractor shall not be allowed an extension of the Contract Times because of any delay in the performance of the Work attributable to the exercise by Owner of Owner's rights and remedies under this Paragraph 13.09.

ARTICLE 14 – PAYMENTS TO CONTRACTOR AND COMPLETION

14.01 *Schedule of Values*

A. The Schedule of Values established as provided in Paragraph 2.07.A will serve as the basis for progress payments and will be incorporated into a form of Application for Payment acceptable to Engineer. Progress payments on account of Unit Price Work will be based on the number of units completed.

14.02 *Progress Payments*

A. *Applications for Payments:*

1. At least 20 days before the date established in the Agreement for each progress payment (but not more often than once a month), Contractor shall submit to Engineer for review an Application for Payment filled out and signed by Contractor covering the Work completed as of the date of the Application and accompanied by such supporting documentation as is required by the Contract Documents. If payment is requested on the basis of materials and equipment not incorporated in the Work but delivered and suitably stored at the Site or at another location agreed to in writing, the Application for Payment shall also be accompanied by a bill of sale, invoice, or other documentation warranting that Owner has received the materials and equipment free and clear of all Liens and evidence that the materials and equipment are covered by appropriate property insurance or other arrangements to protect Owner's interest therein, all of which must be satisfactory to Owner.

2. Beginning with the second Application for Payment, each Application shall include an affidavit of Contractor stating that all previous progress payments received on account of the

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Work have been applied on account to discharge Contractor's legitimate obligations associated with prior Applications for Payment.

3. The amount of retainage with respect to progress payments will be as stipulated in the Agreement.

B. *Review of Applications:*

1. Engineer will, within 10 days after receipt of each Application for Payment, either indicate in writing a recommendation of payment and present the Application to Owner or return the Application to Contractor indicating in writing Engineer's reasons for refusing to recommend payment. In the latter case, Contractor may make the necessary corrections and resubmit the Application.

2. Engineer's recommendation of any payment requested in an Application for Payment will constitute a representation by Engineer to Owner, based on Engineer's observations of the executed Work as an experienced and qualified design professional, and on Engineer's review of the Application for Payment and the accompanying data and schedules, that to the best of Engineer's knowledge, information and belief:

   a. the Work has progressed to the point indicated;

   b. the quality of the Work is generally in accordance with the Contract Documents (subject to an evaluation of the Work as a functioning whole prior to or upon Substantial Completion, the results of any subsequent tests called for in the Contract Documents, a final determination of quantities and classifications for Unit Price Work under Paragraph 9.07, and any other qualifications stated in the recommendation); and

   c. the conditions precedent to Contractor's being entitled to such payment appear to have been fulfilled in so far as it is Engineer's responsibility to observe the Work.

3. By recommending any such payment Engineer will not thereby be deemed to have represented that:

   a. inspections made to check the quality or the quantity of the Work as it has been performed have been exhaustive, extended to every aspect of the Work in progress, or involved detailed inspections of the Work beyond the responsibilities specifically assigned to Engineer in the Contract Documents; or

   b. there may not be other matters or issues between the parties that might entitle Contractor to be paid additionally by Owner or entitle Owner to withhold payment to Contractor.

4. Neither Engineer's review of Contractor's Work for the purposes of recommending payments nor Engineer's recommendation of any payment, including final payment, will impose responsibility on Engineer:

   a. to supervise, direct, or control the Work, or

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b. for the means, methods, techniques, sequences, or procedures of construction, or the safety precautions and programs incident thereto, or

c. for Contractor's failure to comply with Laws and Regulations applicable to Contractor's performance of the Work, or

d. to make any examination to ascertain how or for what purposes Contractor has used the moneys paid on account of the Contract Price, or

e. to determine that title to any of the Work, materials, or equipment has passed to Owner free and clear of any Liens.

5. Engineer may refuse to recommend the whole or any part of any payment if, in Engineer's opinion, it would be incorrect to make the representations to Owner stated in Paragraph 14.02.B.2. Engineer may also refuse to recommend any such payment or, because of subsequently discovered evidence or the results of subsequent inspections or tests, revise or revoke any such payment recommendation previously made, to such extent as may be necessary in Engineer's opinion to protect Owner from loss because:

a. the Work is defective, or completed Work has been damaged, requiring correction or replacement;

b. the Contract Price has been reduced by Change Orders;

c. Owner has been required to correct defective Work or complete Work in accordance with Paragraph 13.09; or

d. Engineer has actual knowledge of the occurrence of any of the events enumerated in Paragraph 15.02.A.

C. *Payment Becomes Due:*

1. Ten days after presentation of the Application for Payment to Owner with Engineer's recommendation, the amount recommended will (subject to the provisions of Paragraph 14.02.D) become due, and when due will be paid by Owner to Contractor.

D. *Reduction in Payment:*

1. Owner may refuse to make payment of the full amount recommended by Engineer because:

a. claims have been made against Owner on account of Contractor's performance or furnishing of the Work;

b. Liens have been filed in connection with the Work, except where Contractor has delivered a specific bond satisfactory to Owner to secure the satisfaction and discharge of such Liens;

c. there are other items entitling Owner to a set-off against the amount recommended; or

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d. Owner has actual knowledge of the occurrence of any of the events enumerated in Paragraphs 14.02.B.5.a through 14.02.B.5.c or Paragraph 15.02.A.

2. If Owner refuses to make payment of the full amount recommended by Engineer, Owner will give Contractor immediate written notice (with a copy to Engineer) stating the reasons for such action and promptly pay Contractor any amount remaining after deduction of the amount so withheld. Owner shall promptly pay Contractor the amount so withheld, or any adjustment thereto agreed to by Owner and Contractor, when Contractor remedies the reasons for such action.

3. Upon a subsequent determination that Owner's refusal of payment was not justified, the amount wrongfully withheld shall be treated as an amount due as determined by Paragraph 14.02.C.1 and subject to interest as provided in the Agreement.

14.03 *Contractor's Warranty of Title*

A. Contractor warrants and guarantees that title to all Work, materials, and equipment covered by any Application for Payment, whether incorporated in the Project or not, will pass to Owner no later than the time of payment free and clear of all Liens.

14.04 *Substantial Completion*

A. When Contractor considers the entire Work ready for its intended use Contractor shall notify Owner and Engineer in writing that the entire Work is substantially complete (except for items specifically listed by Contractor as incomplete) and request that Engineer issue a certificate of Substantial Completion.

B. Promptly after Contractor's notification, Owner, Contractor, and Engineer shall make an inspection of the Work to determine the status of completion. If Engineer does not consider the Work substantially complete, Engineer will notify Contractor in writing giving the reasons therefor.

C. If Engineer considers the Work substantially complete, Engineer will deliver to Owner a tentative certificate of Substantial Completion which shall fix the date of Substantial Completion. There shall be attached to the certificate a tentative list of items to be completed or corrected before final payment. Owner shall have seven days after receipt of the tentative certificate during which to make written objection to Engineer as to any provisions of the certificate or attached list. If, after considering such objections, Engineer concludes that the Work is not substantially complete, Engineer will, within 14 days after submission of the tentative certificate to Owner, notify Contractor in writing, stating the reasons therefor. If, after consideration of Owner's objections, Engineer considers the Work substantially complete, Engineer will, within said 14 days, execute and deliver to Owner and Contractor a definitive certificate of Substantial Completion (with a revised tentative list of items to be completed or corrected) reflecting such changes from the tentative certificate as Engineer believes justified after consideration of any objections from Owner.

D. At the time of delivery of the tentative certificate of Substantial Completion, Engineer will deliver to Owner and Contractor a written recommendation as to division of responsibilities

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pending final payment between Owner and Contractor with respect to security, operation, safety, and protection of the Work, maintenance, heat, utilities, insurance, and warranties and guarantees. Unless Owner and Contractor agree otherwise in writing and so inform Engineer in writing prior to Engineer's issuing the definitive certificate of Substantial Completion, Engineer's aforesaid recommendation will be binding on Owner and Contractor until final payment.

E. Owner shall have the right to exclude Contractor from the Site after the date of Substantial Completion subject to allowing Contractor reasonable access to remove its property and complete or correct items on the tentative list.

14.05 *Partial Utilization*

A. Prior to Substantial Completion of all the Work, Owner may use or occupy any substantially completed part of the Work which has specifically been identified in the Contract Documents, or which Owner, Engineer, and Contractor agree constitutes a separately functioning and usable part of the Work that can be used by Owner for its intended purpose without significant interference with Contractor's performance of the remainder of the Work, subject to the following conditions:

1. Owner at any time may request Contractor in writing to permit Owner to use or occupy any such part of the Work which Owner believes to be ready for its intended use and substantially complete. If and when Contractor agrees that such part of the Work is substantially complete, Contractor, Owner, and Engineer will follow the procedures of Paragraph 14.04.A through D for that part of the Work.

2. Contractor at any time may notify Owner and Engineer in writing that Contractor considers any such part of the Work ready for its intended use and substantially complete and request Engineer to issue a certificate of Substantial Completion for that part of the Work.

3. Within a reasonable time after either such request, Owner, Contractor, and Engineer shall make an inspection of that part of the Work to determine its status of completion. If Engineer does not consider that part of the Work to be substantially complete, Engineer will notify Owner and Contractor in writing giving the reasons therefor. If Engineer considers that part of the Work to be substantially complete, the provisions of Paragraph 14.04 will apply with respect to certification of Substantial Completion of that part of the Work and the division of responsibility in respect thereof and access thereto.

4. No use or occupancy or separate operation of part of the Work may occur prior to compliance with the requirements of Paragraph 5.10 regarding property insurance.

14.06 *Final Inspection*

A. Upon written notice from Contractor that the entire Work or an agreed portion thereof is complete, Engineer will promptly make a final inspection with Owner and Contractor and will notify Contractor in writing of all particulars in which this inspection reveals that the Work is incomplete or defective. Contractor shall immediately take such measures as are necessary to complete such Work or remedy such deficiencies.

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14.07 *Final Payment*

A. *Application for Payment:*

1. After Contractor has, in the opinion of Engineer, satisfactorily completed all corrections identified during the final inspection and has delivered, in accordance with the Contract Documents, all maintenance and operating instructions, schedules, guarantees, bonds, certificates or other evidence of insurance, certificates of inspection, marked-up record documents (as provided in Paragraph 6.12), and other documents, Contractor may make application for final payment following the procedure for progress payments.

2. The final Application for Payment shall be accompanied (except as previously delivered) by:

   a. all documentation called for in the Contract Documents, including but not limited to the evidence of insurance required by Paragraph 5.04.B.6;

   b. consent of the surety, if any, to final payment;

   c. a list of all Claims against Owner that Contractor believes are unsettled; and

   d. complete and legally effective releases or waivers (satisfactory to Owner) of all Lien rights arising out of or Liens filed in connection with the Work.

3. In lieu of the releases or waivers of Liens specified in Paragraph 14.07.A.2 and as approved by Owner, Contractor may furnish receipts or releases in full and an affidavit of Contractor that: (i) the releases and receipts include all labor, services, material, and equipment for which a Lien could be filed; and (ii) all payrolls, material and equipment bills, and other indebtedness connected with the Work for which Owner might in any way be responsible, or which might in any way result in liens or other burdens on Owner's property, have been paid or otherwise satisfied. If any Subcontractor or Supplier fails to furnish such a release or receipt in full, Contractor may furnish a bond or other collateral satisfactory to Owner to indemnify Owner against any Lien.

B. *Engineer's Review of Application and Acceptance:*

1. If, on the basis of Engineer's observation of the Work during construction and final inspection, and Engineer's review of the final Application for Payment and accompanying documentation as required by the Contract Documents, Engineer is satisfied that the Work has been completed and Contractor's other obligations under the Contract Documents have been fulfilled, Engineer will, within ten days after receipt of the final Application for Payment, indicate in writing Engineer's recommendation of payment and present the Application for Payment to Owner for payment. At the same time Engineer will also give written notice to Owner and Contractor that the Work is acceptable subject to the provisions of Paragraph 14.09. Otherwise, Engineer will return the Application for Payment to Contractor, indicating in writing the reasons for refusing to recommend final payment, in which case Contractor shall make the necessary corrections and resubmit the Application for Payment.

C. *Payment Becomes Due:*

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1. Thirty days after the presentation to Owner of the Application for Payment and accompanying documentation, the amount recommended by Engineer, less any sum Owner is entitled to set off against Engineer's recommendation, including but not limited to liquidated damages, will become due and will be paid by Owner to Contractor.

14.08 *Final Completion Delayed*

A. If, through no fault of Contractor, final completion of the Work is significantly delayed, and if Engineer so confirms, Owner shall, upon receipt of Contractor's final Application for Payment (for Work fully completed and accepted) and recommendation of Engineer, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance to be held by Owner for Work not fully completed or corrected is less than the retainage stipulated in the Agreement, and if bonds have been furnished as required in Paragraph 5.01, the written consent of the surety to the payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by Contractor to Engineer with the Application for such payment. Such payment shall be made under the terms and conditions governing final payment, except that it shall not constitute a waiver of Claims.

14.09 *Waiver of Claims*

A. The making and acceptance of final payment will constitute:

1. a waiver of all Claims by Owner against Contractor, except Claims arising from unsettled Liens, from defective Work appearing after final inspection pursuant to Paragraph 14.06, from failure to comply with the Contract Documents or the terms of any special guarantees specified therein, or from Contractor's continuing obligations under the Contract Documents; and

2. a waiver of all Claims by Contractor against Owner other than those previously made in accordance with the requirements herein and expressly acknowledged by Owner in writing as still unsettled.

ARTICLE 15 – SUSPENSION OF WORK AND TERMINATION

15.01 *Owner May Suspend Work*

A. At any time and without cause, Owner may suspend the Work or any portion thereof for a period of not more than 90 consecutive days by notice in writing to Contractor and Engineer which will fix the date on which Work will be resumed. Contractor shall resume the Work on the date so fixed. Contractor shall be granted an adjustment in the Contract Price or an extension of the Contract Times, or both, directly attributable to any such suspension if Contractor makes a Claim therefor as provided in Paragraph 10.05.

15.02 *Owner May Terminate for Cause*

A. The occurrence of any one or more of the following events will justify termination for cause:

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1. Contractor's persistent failure to perform the Work in accordance with the Contract Documents (including, but not limited to, failure to supply sufficient skilled workers or suitable materials or equipment or failure to adhere to the Progress Schedule established under Paragraph 2.07 as adjusted from time to time pursuant to Paragraph 6.04);

2. Contractor's disregard of Laws or Regulations of any public body having jurisdiction;

3. Contractor's repeated disregard of the authority of Engineer; or

4. Contractor's violation in any substantial way of any provisions of the Contract Documents.

B. If one or more of the events identified in Paragraph 15.02.A occur, Owner may, after giving Contractor (and surety) seven days written notice of its intent to terminate the services of Contractor:

1. exclude Contractor from the Site, and take possession of the Work and of all Contractor's tools, appliances, construction equipment, and machinery at the Site, and use the same to the full extent they could be used by Contractor (without liability to Contractor for trespass or conversion);

2. incorporate in the Work all materials and equipment stored at the Site or for which Owner has paid Contractor but which are stored elsewhere; and

3. complete the Work as Owner may deem expedient.

C. If Owner proceeds as provided in Paragraph 15.02.B, Contractor shall not be entitled to receive any further payment until the Work is completed. If the unpaid balance of the Contract Price exceeds all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) sustained by Owner arising out of or relating to completing the Work, such excess will be paid to Contractor. If such claims, costs, losses, and damages exceed such unpaid balance, Contractor shall pay the difference to Owner. Such claims, costs, losses, and damages incurred by Owner will be reviewed by Engineer as to their reasonableness and, when so approved by Engineer, incorporated in a Change Order. When exercising any rights or remedies under this Paragraph, Owner shall not be required to obtain the lowest price for the Work performed.

D. Notwithstanding Paragraphs 15.02.B and 15.02.C, Contractor's services will not be terminated if Contractor begins within seven days of receipt of notice of intent to terminate to correct its failure to perform and proceeds diligently to cure such failure within no more than 30 days of receipt of said notice.

E. Where Contractor's services have been so terminated by Owner, the termination will not affect any rights or remedies of Owner against Contractor then existing or which may thereafter accrue. Any retention or payment of moneys due Contractor by Owner will not release Contractor from liability.

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F. If and to the extent that Contractor has provided a performance bond under the provisions of Paragraph 5.01.A, the termination procedures of that bond shall supersede the provisions of Paragraphs 15.02.B and 15.02.C.

15.03 *Owner May Terminate For Convenience*

A. Upon seven days written notice to Contractor and Engineer, Owner may, without cause and without prejudice to any other right or remedy of Owner, terminate the Contract. In such case, Contractor shall be paid for (without duplication of any items):

1. completed and acceptable Work executed in accordance with the Contract Documents prior to the effective date of termination, including fair and reasonable sums for overhead and profit on such Work;

2. expenses sustained prior to the effective date of termination in performing services and furnishing labor, materials, or equipment as required by the Contract Documents in connection with uncompleted Work, plus fair and reasonable sums for overhead and profit on such expenses;

3. all claims, costs, losses, and damages (including but not limited to all fees and charges of engineers, architects, attorneys, and other professionals and all court or arbitration or other dispute resolution costs) incurred in settlement of terminated contracts with Subcontractors, Suppliers, and others; and

4. reasonable expenses directly attributable to termination.

B. Contractor shall not be paid on account of loss of anticipated profits or revenue or other economic loss arising out of or resulting from such termination.

15.04 *Contractor May Stop Work or Terminate*

A. If, through no act or fault of Contractor, (i) the Work is suspended for more than 90 consecutive days by Owner or under an order of court or other public authority, or (ii) Engineer fails to act on any Application for Payment within 30 days after it is submitted, or (iii) Owner fails for 30 days to pay Contractor any sum finally determined to be due, then Contractor may, upon seven days written notice to Owner and Engineer, and provided Owner or Engineer do not remedy such suspension or failure within that time, terminate the Contract and recover from Owner payment on the same terms as provided in Paragraph 15.03.

B. In lieu of terminating the Contract and without prejudice to any other right or remedy, if Engineer has failed to act on an Application for Payment within 30 days after it is submitted, or Owner has failed for 30 days to pay Contractor any sum finally determined to be due, Contractor may, seven days after written notice to Owner and Engineer, stop the Work until payment is made of all such amounts due Contractor, including interest thereon. The provisions of this Paragraph 15.04 are not intended to preclude Contractor from making a Claim under Paragraph 10.05 for an adjustment in Contract Price or Contract Times or otherwise for expenses or damage directly attributable to Contractor's stopping the Work as permitted by this Paragraph.

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ARTICLE 16 – DISPUTE RESOLUTION

16.01 *Methods and Procedures*

A. Either Owner or Contractor may request mediation of any Claim submitted to Engineer for a decision under Paragraph 10.05 before such decision becomes final and binding. The mediation will be governed by the Construction Industry Mediation Rules of the American Arbitration Association in effect as of the Effective Date of the Agreement. The request for mediation shall be submitted in writing to the American Arbitration Association and the other party to the Contract. Timely submission of the request shall stay the effect of Paragraph 10.05.E.

B. Owner and Contractor shall participate in the mediation process in good faith. The process shall be concluded within 60 days of filing of the request. The date of termination of the mediation shall be determined by application of the mediation rules referenced above.

C. If the Claim is not resolved by mediation, Engineer's action under Paragraph 10.05.C or a denial pursuant to Paragraphs 10.05.C.3 or 10.05.D shall become final and binding 30 days after termination of the mediation unless, within that time period, Owner or Contractor:

1. elects in writing to invoke any dispute resolution process provided for in the Supplementary Conditions; or

2. agrees with the other party to submit the Claim to another dispute resolution process; or

3. gives written notice to the other party of the intent to submit the Claim to a court of competent jurisdiction.

ARTICLE 17 – MISCELLANEOUS

17.01 *Giving Notice*

A. Whenever any provision of the Contract Documents requires the giving of written notice, it will be deemed to have been validly given if:

1. delivered in person to the individual or to a member of the firm or to an officer of the corporation for whom it is intended; or

2. delivered at or sent by registered or certified mail, postage prepaid, to the last business address known to the giver of the notice.

17.02 *Computation of Times*

A. When any period of time is referred to in the Contract Documents by days, it will be computed to exclude the first and include the last day of such period. If the last day of any such period falls on a Saturday or Sunday or on a day made a legal holiday by the law of the applicable jurisdiction, such day will be omitted from the computation.

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17.03 *Cumulative Remedies*

A. The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by Laws or Regulations, by special warranty or guarantee, or by other provisions of the Contract Documents. The provisions of this Paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right, and remedy to which they apply.

17.04 *Survival of Obligations*

A. All representations, indemnifications, warranties, and guarantees made in, required by, or given in accordance with the Contract Documents, as well as all continuing obligations indicated in the Contract Documents, will survive final payment, completion, and acceptance of the Work or termination or completion of the Contract or termination of the services of Contractor.

17.05 *Controlling Law*

A. This Contract is to be governed by the law of the state in which the Project is located.

17.06 *Headings*

A. Article and paragraph headings are inserted for convenience only and do not constitute parts of these General Conditions.

SAMPLE

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Change Order

No. _____

Date of Issuance: _____ Effective Date: _____

Project:	Owner:	Owner's Contract No.:
Contract:		Date of Contract:
Contractor:		Engineer's Project No.:

The Contract Documents are modified as follows upon execution of this Change Order:

Description:

Attachments (list documents supporting change):

CHANGE IN CONTRACT PRICE:	**CHANGE IN CONTRACT TIMES:**
Original Contract Price: $_____	Original Contract Times: ☐ Working days ☐ Calendar days Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: $_____	[Increase] [Decrease] from previously approved Change Orders No. _____ to No. _____: Substantial completion (days): _____ Ready for final payment (days): _____
Contract Price prior to this Change Order: $_____	Contract Times prior to this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
[Increase] [Decrease] of this Change Order: $_____	[Increase] [Decrease] of this Change Order: Substantial completion (days or date): _____ Ready for final payment (days or date): _____
Contract Price incorporating this Change Order: $_____	Contract Times with all approved Change Orders: Substantial completion (days or date): _____ Ready for final payment (days or date): _____

RECOMMENDED:	ACCEPTED:	ACCEPTED:
By: _____	By: _____	By: _____
Engineer (Authorized Signature)	Owner (Authorized Signature)	Contractor (Authorized Signature)
Date: _____	Date: _____	Date: _____

SAMPLE

Approved by Funding Agency (if applicable):

_____ Date: _____

Change Order

Instructions

A. GENERAL INFORMATION

This document was developed to provide a uniform format for handling contract changes that affect Contract Price or Contract Times. Changes that have been initiated by a Work Change Directive must be incorporated into a subsequent Change Order if they affect Price or Times.

Changes that affect Contract Price or Contract Times should be promptly covered by a Change Order. The practice of accumulating Change Orders to reduce the administrative burden may lead to unnecessary disputes.

If Milestones have been listed in the Agreement, any effect of a Change Order thereon should be addressed.

For supplemental instructions and minor changes not involving a change in the Contract Price or Contract Times, a Field Order should be used.

B. COMPLETING THE CHANGE ORDER FORM

Engineer normally initiates the form, including a description of the changes involved and attachments based upon documents and proposals submitted by Contractor, or requests from Owner, or both.

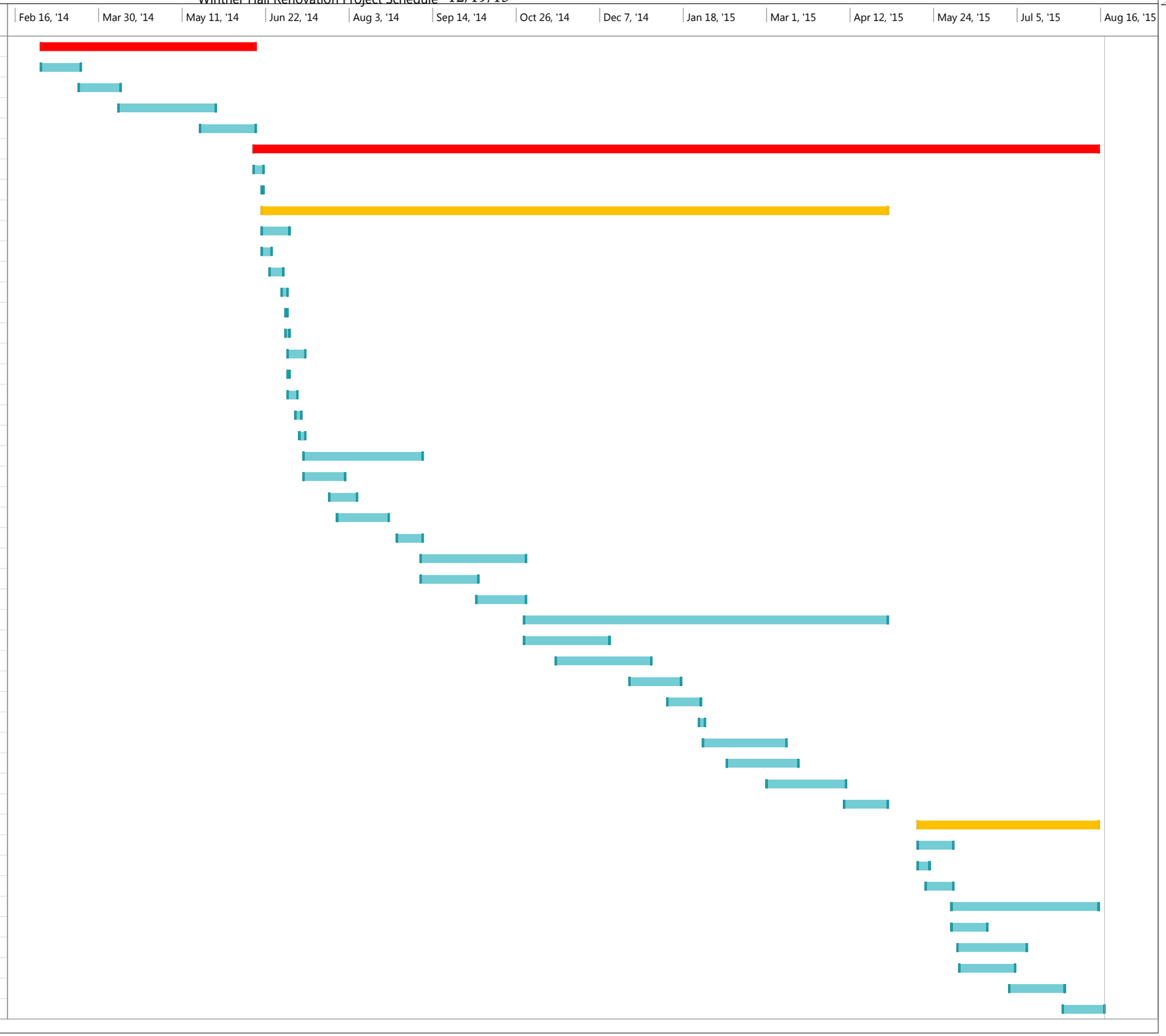
Once Engineer has completed and signed the form, all copies should be sent to Owner or Contractor for approval, depending on whether the Change Order is a true order to the Contractor or the formalization of a negotiated agreement for a previously performed change. After approval by one contracting party, all copies should be sent to the other party for approval. Engineer should make distribution of executed copies after approval by both parties.

If a change only applies to price or to times, cross out the part of the tabulation that does not apply.

SAMPLE

Winther Hall Renovation Project Schedule 12/19/13

ID	Task Name	Duration	Start	Finish
1	**Preconstruction**	**77 days**	**Sat 3/1/14**	**Mon 6/16/14**
2	Contract Documents	15 days	Sat 3/1/14	Thu 3/20/14
3	Approval	15 days	Thu 3/20/14	Wed 4/9/14
4	Bidding	35 days	Wed 4/9/14	Tue 5/27/14
5	Award Bid	20 days	Tue 5/20/14	Mon 6/16/14
6	**Construction**	**305 days**	**Mon 6/16/14**	**Fri 8/14/15**
7	Mobilize	5 days	Mon 6/16/14	Fri 6/20/14
8	Erosion Control Measures	1 day	Fri 6/20/14	Fri 6/20/14
9	**Phase 1 (Exterior Addition)**	**225 days**	**Fri 6/20/14**	**Thu 4/30/15**
10	**Site Work**	**10 days**	**Fri 6/20/14**	**Thu 7/3/14**
11	Clear Lot	3 days	Fri 6/20/14	Tue 6/24/14
12	Demo existing stair	5 days	Tue 6/24/14	Mon 6/30/14
13	Demo exterior concrete	3 days	Mon 6/30/14	Wed 7/2/14
14	Rough grade lot	1 day	Wed 7/2/14	Wed 7/2/14
15	Excavate for foundation	2 days	Wed 7/2/14	Thu 7/3/14
16	**Foundation**	**7 days**	**Thu 7/3/14**	**Fri 7/11/14**
17	Layout footing	1 day	Thu 7/3/14	Thu 7/3/14
18	Dig footings	3 days	Thu 7/3/14	Mon 7/7/14
19	Pour footings	3 days	Mon 7/7/14	Wed 7/9/14
20	Pin footings	3 days	Wed 7/9/14	Fri 7/11/14
21	**Exterior structure erection**	**42 days**	**Fri 7/11/14**	**Mon 9/8/14**
22	Erect steel frame	15 days	Fri 7/11/14	Thu 7/31/14
23	Composite steel/concrete floor	10 days	Thu 7/24/14	Wed 8/6/14
24	Elevator & stair shafts (CMU)	20 days	Mon 7/28/14	Fri 8/22/14
25	Roof	9 days	Wed 8/27/14	Mon 9/8/14
26	**Glazing**	**39 days**	**Mon 9/8/14**	**Thu 10/30/14**
27	Curtain wall framing	21 days	Mon 9/8/14	Mon 10/6/14
28	Glass	19 days	Mon 10/6/14	Thu 10/30/14
29	**Interior**	**131 days**	**Thu 10/30/14**	**Thu 4/30/15**
30	Walls/Ceilings/Soffits	31 days	Thu 10/30/14	Thu 12/11/14
31	MEPF rough-ins	35 days	Sat 11/15/14	Thu 1/1/15
32	Drywall/Tape/Paint	20 days	Mon 12/22/14	Fri 1/16/15
33	Bathroom fixtures	12 days	Sat 1/10/15	Mon 1/26/15
34	Bathroom partitions	3 days	Mon 1/26/15	Wed 1/28/15
35	Bathroom Tile	30 days	Wed 1/28/15	Tue 3/10/15
36	Flooring	26 days	Mon 2/9/15	Mon 3/16/15
37	MEPF finishes	30 days	Sun 3/1/15	Thu 4/9/15
38	Punch list/Turn over	16 days	Thu 4/9/15	Thu 4/30/15
39	**Phase 2**	**66 days**	**Sat 5/16/15**	**Fri 8/14/15**
40	**Demolition**	**13 days**	**Sat 5/16/15**	**Tue 6/2/15**
41	Demo existing elevator	5 days	Sat 5/16/15	Thu 5/21/15
42	Demo existing bathrooms	10 days	Wed 5/20/15	Tue 6/2/15
43	**Interior Upgrades**	**54 days**	**Tue 6/2/15**	**Fri 8/14/15**
44	Ceiling	14 days	Tue 6/2/15	Fri 6/19/15
45	Flooring	25 days	Fri 6/5/15	Thu 7/9/15
46	Paint	21 days	Sat 6/6/15	Fri 7/3/15
47	Lights	20 days	Wed 7/1/15	Tue 7/28/15
48	Punch list/Turn over	15 days	Tue 7/28/15	Mon 8/17/15



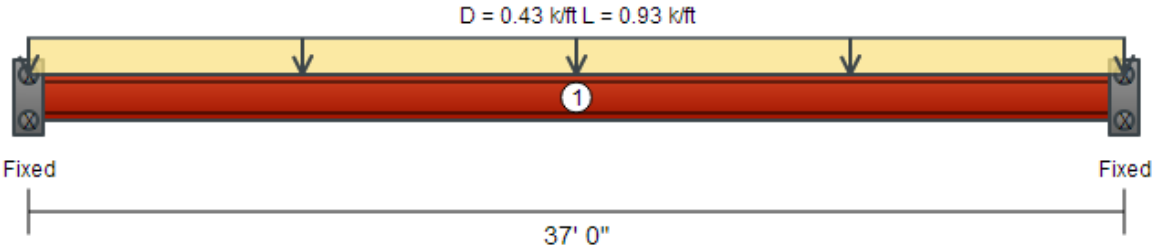
Opinion of Probable Cost

Revised Scenic Study View Final Design 12/19/13

Activity	Est. Qty.	UOM	Description of Quantity	Unit Price	UOM	Cost
GENERAL REQUIREMENTS						
Superintendent	40	WEEKS		$3,400	$/WEEK	$136,000
Project Manager	30	WEEKS		$3,760	$/WEEK	$113,000
Senior Safety Engineer	20	WEEKS		$3,200	$/WEEK	$64,000
Accounting Specialist	10	WEEKS		$2,200	$/WEEK	$22,000
Estimator	2	WEEKS		$3,000	$/WEEK	$6,000
Project Allowance for Other Requirements	1	lsum	Loading & Unloading, Trailer, Cell Phone, Final Cleaning, Travel Expenses, etc.	$1,250,000	lsum	$1,250,000
						$1,591,000
SITE WORK						
Excavation	6500	CY	Removal of soil for addition. Assumed to be dug down 15' and 18' for elevator.	$30	$/CY	$195,000
Earth Retention	3000	SF	Prevent soil runoff.	$25	$/SF	$75,000
Stone Backfill Under Basement Slab	343	CY	Drainage & support for additon.	$20	$/CY	$7,000
Dewatering	1	lsum	Lump some to cover any water removal needed.	$20,000	lsum	$20,000
Demo Exterior Wall	1993	SF	SF of wall, not flooring.	$20	$/SF	$40,000
Demo of North Staircase	4968	SF	SF of wall, not flooring. Added value to account for removal of steps as well.	$30	$/SF	$149,000
Demo Existing Elevator Shaft	4583	SF	SF of wall and pit.	$20	$/SF	$92,000
Demo Existing Restrooms	1180	SF	Removal of walls, flooring, ceiling, utilities, & fixtures.	$18	$/SF	$21,000
Demo of Existing Janitorial Storage	560	SF	Removal of walls, flooring, ceiling, & utilities.	$15	$/SF	$8,000
Demo of Existing Classrooms	24500	SF	Demo of flooring, ceiling, & lights. As well as some architectural walls.	$18	$/SF	$441,000
Demo of Existing MEP Work	34600	SF	Removal of old MEP work to make way for new	$15	$/SF	$519,000
Site Work Allowance	1	lsum	Loading & Unloading, Trailer, Cell Phone, Final Cleaning, Travel Expenses, End Repair of Construction Site, etc.	$1,000,000	lsum	$1,000,000
						$2,567,000
CONSTRUCTION						
Footings/Foundations	3776	SF	Strip footings & others, but priced by SF of footprint.	$20	$/SF	$76,000
Concrete Slabs	19089	SF	For each floor & infill of old elevator.	$15	$/SF	$286,000
Basement Walls	1912	SF	Includes formwork. SF of wall, not flooring. 12' tall.	$35	$/SF	$67,000
Elevators	12	stops	Shafts, cars, & equipment	$100,000	$/stop	$1,200,000
Elevator Car & Equipment	2	cars	$50k for each elevator & $90k($15k for each stop) to account for the cars & equipment needed.	$90,000	$100,000.00	$180,000
Elevator Pits Support	1	lsum	Extra Support	$20,000	lsum	$20,000
Staircase	5796	SF	SF of wall, not flooring. Includes rails & stairs.	$45	$/SF	$261,000
Floor Construction	17129	SF	Steel framing & steel deck.	$35	$/SF	$600,000
Roof Construction	3920	SF	Steel Framing.	$30	$/SF	$118,000
Roof Covering	3920	SF	Enclosure of building.	$25	$/SF	$98,000

Exterior Curtain Wall Enclosing (GLASS)	4272	SF	SF of wall, not flooring. Also includes interior framing and shades.	$125	$/SF	$534,000
Exterior Curtain Wall Enclosing (BRICK)	3795	SF	SF of wall, not flooring. Also includes interior framing.	$55	$/SF	$209,000
Restrooms in Addition	2020	SF	Fixtures, flooring, walls, ceiling, MEP, etc.	$75	$/SF	$152,000
Rerouting of Sanitary for Services/Sanitary Tie-Ins	1	lsum	Lump sum to cover connection of new plumbing to existing sanitary pipes	$15,000	lsum	$15,000
Interior Completion	17500	SF	Flooring, ceiling, lights, paint, etc.	$40	$/SF	$700,000
New Windows	80	Each	Cutting through wall, supporting, new window, & patching to match.	$7,000	$/Each	$560,000
Exterior Glass Doors	6	Each	Aluminum frame, glass, hardware, & install (42") + ADA door opener.	$4,500	$/Each	$27,000
Restroom Doors	16	Each	42" wood w/ADA door opener	$3,000	$/Each	$48,000
New Classroom Doors	20	Each	Wood	$400	$/Each	$8,000
Won Doors (Fire Doors)	1	LSUM	8 Won Doors for fireguard	$75,200	lsum	$75,000
Movable Partitions	4	Each	Each 26' long	$3,500	$/Each	$14,000
Roof Patio	1112	SF	Plants, concrete, railing.	$90	$/SF	$100,000
Patio Railing	100	LF	Guardrail	$300	$/LF	$30,000
Existing Classroom Renovations & Up Grades	24500	SF	Removal & reconfiguring of some architectural walls. Demo of flooring, ceiling, & lights. Replace with new. Paint.	$125	$/SF	$3,063,000
Technology Up Grades	1	lsum	Lump sum to upgrade the technology capabilities of building.	$500,000	lsum	$500,000
						$8,941,000
MEP WORK						
Electrical for Elevators	2	Each	Equipment & set up for each new elevator.	$30,000	$/elevator	$60,000
New Electrical Work	17500	SF	Cost to set up electrical work.	$20	$/SF	$350,000
New Fire Protection	17500	SF	Sprinklers, alarms, etc.	$5	$/SF	$88,000
New Mechanical Work	17500	SF	Plumbing & ductwork.	$16	$/SF	$280,000
New Rooftop AHU	1	lsum	New AHU to take on the added load to the building.	$100,000	$/SF	$100,000
MEP Upgrades to Existing Structure	34600	SF	Upgrade ductwork, piping, and mechanical work of existing building.	$30	$/SF	$1,038,000
						$1,916,000
Subtotal						**$15,015,000**
Contingency					10%	$1,501,000
A/E Fees					8%	$1,321,000
DFD Management Fees					6%	$991,000
TOTAL CONSTRUCTION COST						**$18,828,000**
Other Project Costs Not Included						
Furniture, Fixtures, Equipment (chairs, tables, monitors, AV Equipment)						
Window Treatments (except on curtain wall)						
Security Surveilance						
Abatement of Aesbestos						
Unsuitable Soil Allowances						

Sample Beam Sizing Calculation (Beams B-E)



Step I. Calculate the factored loads assuming a reasonable self-weight.

Dead load = w_D = 0.45 kips/ft.
Live load = w_L = 0.98 kips/ft.
Ultimate load = $w_u = 1.2\ w_D + 1.6\ w_L$ = 2.11 kips/ft.
Factored ultimate moment (occurs at middle of beam) = $M_u = \frac{w_u}{12}(6Lx - L^2 - 6x^2)$ = 119.2 kip-ft

Step II. Determine unsupported length L_b and C_b

There is only one unsupported span with L_b = 37 ft.

$$C_b = \frac{12.5M_{max}}{2.5M_{max} + 3M_A + 4M_B + 3M_C}$$

M_{max}=119.2 M_A=30.1 M_B=119.2 M_C=30.1
C_b = 1.56

Step III. Select a wide-flange shape

The moment capacity of the selected section $\phi_b M_n > M_u$ (Note ϕ_b **= 0.9**)

M_u/C_b = 114.1/1.56 = 73.14 kip-ft. (looked at tables in AISC Manual)

Select W24 x 64 (50 ksi steel) with $\varphi_b M_n$ =141.03 kip-ft. for L_b = 37 ft. and C_b =1.0
$\phi_b M_n$ = 1.56 x 141.03 = 220 kip-ft., **which must be** $\leq \varphi_b M_p$ **= 664 kip-ft**.

OK!

Step IV. Check for local buckling

λ = bf / 2tf = 7.67; Corresponding λp = 0.38 (E/Fy)0.5 = 9.192
Therefore, λ < λp - compact flange

λ = h/tw = 52.0; Corresponding λp = 3.76 (E/Fy) = 90.5
Therefore, λ < λp - compact web

Compact section. - **OK!**