

Addendum #6

To: Bid Documents Dated June 5, 2020

Project Name: Indiana State University – Dreiser Hall Renovation

Project #: 19052

Date: July 9, 2020

This Addendum, issued prior to bidding, alters, amends, corrects, or clarifies the Proposal Documents to the extent stated herein and does thereby become a part of the Proposal Documents and will become part of the Contract Documents of the successful bidder(s).

ITEMS INCLUDED IN THIS ADDENDUM

1. General
2. Changes to the Project Manual
3. Changes to the Drawings
4. Bidder Question Log

GENERAL

1. Delete all references to Alternate #8 throughout the bid documents. The scope of work described in Alternate #8 is to be provided by an Allowance. The Allowance that includes all work associated with the previous Alternate #8 is to be one hundred thousand dollars (\$100,000).
2. There have been several bidder questions related to hazardous materials and asbestos. Attached to this addendum is a letter from David Ellis, Indiana State University's Director of Environmental Safety. This letter and attached documents gives a background on the hazardous material survey and removal that has occurred in the past.

PROJECT MANUAL

1. Table of Contents – Replace in its entirety.
2. Section No. 00 20 20 – BID FORM
 - A. Replace in its entirety.
 - B. This revised bid form is to be submitted with the bid.
3. Section 01 10 00 – SUMMARY OF WORK
 - A. Replace in its entirety.
4. Section 01 23 60 – ALLOWANCES
 - A. Replace in its entirety.

5. Section No. 03 01 30 – REPAIR AND REHABILITATION OF CAST-IN-PLACE CONCRETE
 - A. Replace in its entirety.
6. Section 03 30 00 – CAST IN PLACE CONCRETE
 - A. Reissued in its entirety.
7. Section No. 04 21 13 – VENEER MASONRY SYSTEM
 - A. 2.03 GRANITE STONE VENEER AND TRIM – Add Mt. Airy and Silver Cloud Granite as acceptable products. Finishes to remain as specified.
 - B. 2.03/J./1. Accessories. Change galvanized steel to stainless steel.
8. Section No. 08 11 13 – HOLLOW METAL DOORS AND FRAMES
 - A. 2.01/D./Acceptable Manufacturers – Add Metal Products Inc. as an approved manufacturer.
 - B. Add Section: 2.01/E./Acceptable Manufacturers for Acoustical Doors – Any of the approved Hollow Metal Door manufacturers or Overly Doors.
9. Section No. 08 14 16 – FLUSH WOOD DOORS
 - A. 2.01/B./Standards – Add OshKosh Doors as approved manufacturer
 - B. Add Section: 2.01/C./Standards for Acoustical Doors – Any of the approved Flush Wood Door manufacturers or Overly Doors.
10. Section No. 09 51 13 – SUSPENDED ACOUSTICAL CEILINGS
 - A. 2.03/C./ Revise Celotex to Certainteed.
 - B. 2.04/A./Revise Armstrong Type 737 to Armstrong Optima
 - C. 2.04/A./1./ Revise Recessed Angular Tegral to Square Tegral
 - C. 2.04/A./3./ Revise grid to 9/16”.
11. Section No. 31 14 10 – SHORING AND BRACING
 - A. Add Section in its entirety.
12. Section No. 31 23 10 – EXCAVATION AND FILL
 - A. Add Section in its entirety.

DRAWINGS

1. Sheet C2.00 – Demolition Plan
 - A. Reissue Sheet – see clouds.
2. Sheet C3.00 – Site/Grading Plan
 - A. Reissue Sheet – see clouds.
3. Sheet S2.02 – Roof Framing Plan – Lobby
 - A. Reissue Sheet – see clouds.
4. Sheet D1.01B – 1st Floor Reflected Ceiling Demolition Plan
 - A. Reissue Sheet – see clouds.
5. Sheet D1.02B – 2nd Floor Reflected Ceiling Demolition Plan

- A. Reissue Sheet – see clouds.
- 6. Sheet D1.03B – 3rd Floor Reflected Ceiling Demolition Plan
 - A. Reissue Sheet – see clouds.
- 7. Sheet A1.00 – Basement Floor Plan
 - A. Reissue Sheet – see clouds.
- 8. Sheet A1.00B – Basement Reflected Ceiling Plan
 - A. Reissue Sheet – see clouds.
- 9. Sheet A1.01 – 1st Floor Plan
 - A. Reissue Sheet – see clouds.
- 10. Sheet A1.01B – 1st Floor Reflected Ceiling Plan
 - A. Reissue Sheet – see clouds.
- 11. Sheet A3.01 – Building Sections
 - A. Reissue Sheet – see clouds.
- 12. Sheet A6.02 – Details
 - A. Reissue Sheet – see clouds.

BIDDER QUESTION

See attached bidder question log

VOLUME 1

DIVISION 00 BIDDING REQUIREMENTS

001000	Notice to Bidders
001010	Instructions to Bidders
001020	Certification Regarding Suspension, Debarment, Ineligibility and Voluntary Exclusion
001030	MBE/WBE/VBE Compliance Instructions
001040	MBE/WBE/VBE Participation Plan
001045	Bidders Certification of Authorized Employment
001050	Sample ISU/Contractor Contract for Construction
002000	Bid Form
002010	Sample AIA A201 2007
002011	Amendments to General Conditions (AIA A201 2007)
002020	Supplementary General Conditions
003000	ISU Special Requirements and Information

DIVISION 01 GENERAL REQUIREMENTS

011000	Summary of Work
012360	Allowances
012370	Unit Prices
012500	Contract Considerations
013100	Coordination and Meetings
013200	Submittals and Substitutions
014000	Quality Control
014100	Testing Laboratory Services
014200	Definitions and Standards
015000	Temporary Facilities
015010	Temporary Facilities for Renovation Projects
016000	Materials and Equipment
017000	Field Engineering
017310	Cutting and Patching
017700	Contract Closeout

DIVISION 02 EXISTING CONDITION

024100	Demolition
024114	Selective Demolition

DIVISION 03 CONCRETE

030130	Repair and Rehabilitation of Cast-in-Place Concrete
031100	Concrete Forming
031500	Concrete Accessories
032000	Concrete Reinforcing
033000	Cast-in-Place Concrete
033513	Floor Sealer Concrete

DIVISION 03 CONCRETE (CONTINUED)

036000 Grouting

DIVISION 04 MASONRY

040120 Masonry Tuckpointing
040503 Masonry Mortaring and Grouting
040513 Mortar
040523 Masonry Accessories
042000 Unit Masonry
042113 Veneer Masonry Systems

DIVISION 05 METALS

050533 Anchor Systems
051200 Structural Steel Framing
053113 Steel Floor Decking
053123 Steel Roof Decking
054000 Cold-Formed Metal Framing
054100 Metal Studs for Interior Walls
055013 Miscellaneous Metal Fabrications
055113 Metal Pan Stairs
055213 Pipe and Tube Railings
055800 Metal Fabrication
057313 Glazed Decorative Metal Railings

DIVISION 06 WOOD, PLASTIC AND COMPOSITES

061000 Rough Carpentry
061040 Wood Blocking and Curbing
061643 Fiberglass Mat Sheathing
062000 Finish Carpentry
068000 Fiber Reinforced Polymer (FRP) Ladders and Cages
068210 Fiberglass Reinforced Grating

DIVISION 07 THERMAL AND MOISTURE PROTECTION

070150 Preparation for Re-Roofing
072116 Batt Insulation
074213.19 Insulated Metal Wall Panels
075324 Fully Adhered EPDM
076200 Sheet Metal Flashing and Trim
079200 Sealants

DIVISION 08 DOORS AND WINDOWS

081113 Hollow Metal Doors and Frames
081416 Flush Wood Doors

DIVISION 08 DOORS AND WINDOWS (CONTINUED)

- 084313 Aluminum Entrances and Store Fronts
- 084411 Aluminum Curtain Wall
- 085113 Aluminum Windows
- 087100 Door Hardware
- 087110 Door Hardware Schedule
- 088100 Glazing
- 089119 Louvers and Grills

DIVISION 09 FINISHES

- 092116 Gypsum Wallboard Systems
- 092117 Gypsum Board Acoustical Walls
- 093113 Ceramic Floor Tile
- 095113 Suspended Acoustical Ceilings
- 095426 Wood Ceilings
- 096423 Wood Flooring
- 096513 Resilient Wall Base and Accessories
- 096516 Resilient Tile Flooring
- 096566 Indoor Resilient Athletic Flooring
- 096613 Terrazzo
- 096813 Carpet Squares
- 097513 Wall Tile
- 099010 General Painting Requirements
- 099123 Painting and Finishing

DIVISION 10 SPECIALTIES

- 101116 Chalkboards, Multi-Media Boards, Whiteboards, Tackboards and Literature Racks
- 101423 Signage
- 102113 Metal Toilet Compartments
- 102813 Toilet Accessories
- 104413 Fire Extinguishers and Cabinets
- 105113 Metal Lockers

DIVISION 11 EQUIPMENT

- 116133 Rigging Systems
- 115213 Projection Screens

DIVISION 12 FURNISHINGS

- 122413 Roller Shades
- 123216 Plastic Laminate Casework and Countertops
- 123653 Solid Surface Fabrications
- 123661 Quartz Counter Tops

DIVISION 12 FURNISHINGS (CONTINUED)

126600 Telescoping Stands

DIVISION 14 CONVEYING SYSTEMS

142125 Electric Traction Passenger Elevators (Machine Roomless)

VOLUME 2

DIVISION 20 FIRE SUPPRESSION, PLUMBING & HVAC

200010 Common Work Results for Fire Suppression, Plumbing and HVAC

200050 Common Materials and Methods for Fire Suppression, Plumbing and HVAC

200060 Common Pipe, Valves and Fittings for Fire Suppression, Plumbing and HVAC

200180 Common Insulation for Plumbing and HVAC

DIVISION 21 FIRE PROTECTION

211000 Water Based Fire Suppression

DIVISION 22 PLUMBING

221119 Domestic Water Specialties

221123 Domestic Circulation Pumps

221319 Waste Specialties

221423 Storm Specialties

221429 Sump Pumps

221519 Air Compressors and Receivers

223100 Water Softeners

223300 Electric Water Heaters

224000 Plumbing Fixtures

224700 Drinking Fountain and Water Coolers

DIVISION 23 HVAC

230593 Testing and Balancing

230900 HVAC Instrumentation and Controls

232123 Hydronic Pumps and Trim

232213 Steam and Condensate Piping System

232224 Steam Condensate Pump – Steam Motive

232300 Refrigerant Piping

232500 HVAC Water Treatment

233113 Metal Ducts

233119 HVAC Housings & Plenums

233300 Air Duct Accessories

233416 Centrifugal HVAC Fans

233423 HVAC Power Ventilators

233600 Air Terminal Units

DIVISION 23 HVAC (CONTINUED)

233713	Diffusers, Registers, Grilles & Louvers
235700	HVAC Heat Exchangers
237313	Modular Indoor CSAC
237324	Custom Knock Down Air Handling Units
238134	Mini-Split Air Conditioning
238216	Air Coils
238219	Fan Coil Unit
238233	Convectors & Finned Tube Radiation-Hydronic
238239	Unit Heaters – Hydronic
238243	Radiant Ceiling Panels – Hydronic
238413	Humidifiers

DIVISION 26 ELECTRICAL

260500	Common Work Results for Electrical
260502	Selective Demolition
260519	Low-Voltage Electrical Power Conductors & Cables
260526	Grounding & Bonding for Electrical Systems
260533	Raceways & Boxes for Electrical Systems
260572	Power Acceptance Testing
260573	Short Circuit and Protective Device Coordination Study
260923	Lighting Control Devices
262213	Dry-Type Distribution Transformers – General Purpose
262413	Switchboards
262416	Panelboards
262726	Wiring Devices
262816	Safety Switches
262913	Enclosed Motor Starters
262933	AFD
263623	Automatic Transfer Switch
264313	Transient Voltage Surge Suppression (TVSS)
265100	Interior Lighting
265561	Theatrical Lighting and Controls

DIVISION 27 COMMUNICATIONS

270000	ISU General Requirements by Owner
270010	General Requirements for Communications
270100	Operations and Maintenance of Communications Systems
270501	Basic Materials & Methods for Communications
270526	Grounding and Bonding for Communications
270528	Pathways for Communications Systems
270550	Firestopping for Communications Systems

DIVISION 27 COMMUNICATIONS (CONTINUED)

- 270553 Identification for Communications
- 270810 Verification Testing of Structured Cabling
- 271111 Communications Wall Linings
- 271116 Communications Cabinets Racks Frames and Enclosures
- 271123 Communications Cable Management and Ladder Rack
- 271126 Communications RM Power Protection and Power Strips
- 271313 Communications Copper Backbone Cabling
- 271323 Communications Fiber Optic Backbone Cabling
- 271513 Communications Copper Horizontal Cabling
- 271600 Communications Connecting Cords, Devices & Adapters
- 274111 Instructional Classroom Audio Video System
- 274116 Theatre Audio Video Systems and Equipment

DIVISION 28 ELECTRONIC SAFETY AND SECURITY

- 280500 Common Work Results for Electronic Safety and Security
- 281300 Electronic Access Control (EAC) System
- 283111.10 Addressable Fire Alarm with Addressable Speaker/Visual

DIVISION 31 EARTHWORK

- 311400 Shoring and Bracing
- 312300 Excavation and Fill

DIVISION 33 UTILITIES

- 330900 Utility Metering

CIVIL SPECIFICATIONS – INCLUDED ON SHEET C6.00

- Section 1 Earthwork
- Section 2 Streets/Parking Lot
- Section 3 Storm Sewer Systems
- Section 4 Water Line System

END OF TABLE OF CONTENTS

PAGE INTENTIONALLY LEFT BLANK



To: Pat Teeters
Electrical Engineer
Facilities Management

From: David Ellis 
Director
Environmental Safety

Date: July 9, 2020

RE: Dreiser Hall

The University completed an asbestos survey in March of 1990. Asbestos Technologies, Inc. was the consultant who performed the survey and summary is attached. The survey was used to define the scope of work for asbestos abatement ahead of the Dreiser Hall renovation in the Fall of 1990. Mr. Robert Schwindy, Environmental Engineer for ISU Physical Plant prepared the bid specifications and contracted with Asbestos Technology, Inc. for project oversight. Mr. Schwindy was a licensed Indiana Asbestos Building Inspector, license #192727041.

The abatement work was performed by U. S. Abatement, Inc. out of Hamilton, Ohio. The original base bid plus alternates was \$122,275. A change order was also issued for \$6,636.60 for unknown concealed materials.

A review of our files also includes a transite structure removal from the roof in 2007 and a theater curtain removal in 2011.

To the best of my knowledge there is no friable or potentially friable asbestos containing materials remaining in the building.

There is a structure on the roof associated with exhaust from the theater that is transite but was covered with metal as part of a recent roof project.

If there are any questions or concerns, please feel free to contact me.

David Ellis, Indiana Asbestos Building Inspector, IN license #195203020

ACMs SURVEY SUMMARY

1. All chilled water lines are insulated with an expanded organic elastomer material. This product never contained asbestos and therefore was not sampled.
2. The high intensity lights in the auditorium and the T.V. Studio, Room number B-16, have asbestos insulation on the electric wiring. Some of this ACM is frayed and could potentially emit asbestos fibers.
3. In Room number 105, two (2) of the steam heat risers have areas of damage to the ACM insulation where the material is open to air. This damage could release asbestos fibers into the surrounding air.
4. All 107-numbered series rooms have transite ACM cement panels on the ceiling. The rooms in this area that have suspended ceilings, also demonstrated transite ceilings located above them.
5. Storage Room number 209 has some water damage to the non-ACM plaster ceiling, causing approximately ten (10) square feet to delaminate and fall to the floor.
6. The fire curtain above the auditorium stage is assumed to contain asbestos fibers. At the time of the inspection, it was visually inspected only due to its height above the stage floor which made the material inaccessible.
7. All vertical pipe chases in the building were found to be in poor condition. In many instances trash, pieces of old pipe covering, insulating cement, and general litter was observed on the chase floor.
8. The outside air supply ducts that are located above the transite ceilings on all three (3) floors, are insulated with a semi-rigid hairfelt-type of insulation. This material has a thin layer of asbestos cement, which is in turn covered with a layer of burlap. The air ducts in the two (2) fan rooms, number 30, on the ground floor, are insulated in the same manner. The outside air duct in the basement is also insulated with this same ACM.
9. Approximately 116 linear feet of ACM insulated steam line at the west side of the second floor and 37 linear feet of ACM insulated steam line above Room Number 235 could not be observed. The original building blueprints indicated that these lines are located in the attic. No attic was found, but the lines appear to be hung above the suspended plaster ceilings in these areas.

Quantities of Asbestos-Containing Materials

Material	Type	Amount
Floor Tile	All brown tile	8,622 square feet
Steam lines	On all floors	1,920 linear feet
Plumbing line	One inch drains	1,421 linear feet
Outside air ducts	On all floors	7,997 square feet
Transite ceilings	On all floors	10,852 square feet

Insulated Outside Air Ductwork Summary

A review of the Dreiser Hall original blueprints indicated both exposed and concealed ACM insulated outside air ductwork in the following areas:

Basement 2,623 square feet

Exposed except in rooms Number B-14 and B-15

Ground Floor 1,276 square feet

Concealed above the transite ceiling in the corridors.

Exposed in two (2) auditorium fan rooms, Number 30 810 square feet

First Floor 1,477 square feet

Concealed above the transite ceiling in the corridors, except for the following areas listed below.

The ducts in Room Numbers 121T-121J, 120T, and 120J are located above the plastered ceilings in the rest rooms.

Second Floor 2,117 square feet

Concealed above the transite ceiling in the corridors, except in the rooms listed below.

The ducts in Room Number 227T and the head of the stairs at Room Number 224 are located above a plastered ceiling.

002000
BID FORM (Revised for Addendum # 6)

OFFER:

Pursuant to and in compliance with 'Instructions to Bidders', and other Bidding Documents prepared by the Indiana State University Facilities Management Department for the above mentioned project, the signer, having become thoroughly familiar with the terms and conditions of the proposed Contract Documents and with local conditions affecting the performance and costs of the Work at the place where the Work is to be completed, and having fully inspected the site in all particulars, hereby proposes and agrees to fully perform the Work within the time stated and in strict accordance with the intent of the proposed Contract Documents, including furnishing bonds, insurance, labor, materials, and to do all the Work required to construct and complete in accordance with the proposed Contract Documents as follows:

BASE BID: Indiana State University Dreiser Hall Renovation per Specifications and Drawings.

_____ Dollars (\$ _____)
(State Amount in Words)

ALTERNATE BIDS

1. Alternate No. 1: Add operable function for exterior windows.

_____ Dollars (\$ _____)
(State Amount in Words) Add ☐ Deduct ☐

2. Alternate No. 2: Add portions of wood paneling on 2nd and 3rd floors.

_____ Dollars (\$ _____)
(State Amount in Words) Add ☐ Deduct ☐

3. Alternate No. 3: Add masonry restoration work. Refer to Building Elevation Drawings for Areas of Restoration

_____ Dollars (\$ _____)
(State Amount in Words) Add ☐ Deduct ☐

4. Alternate No. 4: Revised: Add pipe grid and theatrical lighting in room 014 – Performance and Technology Lab

_____ Dollars (\$ _____)
(State Amount in Words) Add ☐ Deduct ☐

5. Alternate No. 5: Add work associated with opening up Stair #2.

_____ Dollars (\$ _____)
(State Amount in Words) Add ☐ Deduct ☐

6. Alternate No. 6: Add select areas of glazed wall system on 1st and 3rd floors.

_____ Dollars (\$ _____)
(State Amount in Words) Add ☐ Deduct ☐

002000
BID FORM (Revised for Addendum # 6)

7. Alternate No. 7: Add reroofing work.

Dollars (\$ _____)

(State Amount in Words)

Add ☐ Deduct ☐

ALLOWANCES

1. A \$20,000 Allowance shall be included in the Base Bid for the A/E to create "Record Drawings" as detailed in Section 017700 Contract Closeout.
2. A \$300,000 Allowance shall be included in the Base Bid for Unforeseen Conditions and General Construction Contingency. It is solely at the discretion of the Architect/Engineer/Owner what costs may be applied to this Allowance.
3. A \$100,000 Allowance shall be included in the Base Bid for the purchase and installation of the stage lift. Full details will be provided at a later date.

ACCEPTANCE

This offer shall be opened to acceptance and is irrevocable for the period as follows:

- Base Bid and All Alternates - One Hundred Twenty (120) calendar days from the Bid opening date.

If the Owner accepts the Bid within the time period stated above, Bidder will:

- Furnish the required bonds and insurance certificates within ten (10) calendar days of receipt of the Award Letter
- Commence work within seven (7) calendar days of receipt of the Award Letter or as Directed by the Owner.
- Execute the Contract for Construction Between Indiana State University and Contractor within seven (7) calendar days of receipt of the Contract.

The Bidder agrees to coordinate and expedite their work and that if the Award is given within fourteen (14) calendar days from the Bid opening date the work shall be substantially completed as listed in Section 001010 Instructions to Bidders 1.01 C. If the Award is not made within the stated fourteen (14) calendar days then the substantial completion date may be adjusted as allowed by the Contract Documents or as mutually agreed upon in writing by the Owner and Contractor.

NON-COLLUSION AFFIDAVIT

The Bidder, by its officers and agents or representatives present at the time of filing their bid, being duly sworn, say on their oaths that neither they nor any of them have in any way, directly or indirectly, entered into any arrangement or agreement with any other bidder, or with any public office of the State of Indiana, of any county or municipality or other public offices whereby such affiance or either of them, has paid or is to pay to such other bidder or public officer any sum of money, or has given or is to give to such other bidders or public officer anything of value whatever, or such affiance of affiance or either of them has not, directly or indirectly entered into any arrangement or agreement with any other bidder or bidders, which tends to or does lessen or destroy free competition in letting of the contract sought for by the attached bids; that no inducement of any form or character other than which appears upon the face of the bid will be suggested, offered, paid, or delivered to any person whomsoever to influence the acceptance of the said bid or awarding of the contract, nor has this bidder any agreement or understanding of any kind whatsoever, with any person whomsoever to pay, deliver to, or share with any other person in any way or manner, any of the proceeds of the contract sought by this bid.

NON-DISCRIMINATION

The Bidder and its Subcontractors, if any, shall not discriminate against any employee or applicant for employment, to be employed in the performance of this Contract, with respect to their hire, tenure, terms, conditions or privileges of employment or any matter directly or indirectly related to employment because of

002000
BID FORM (Revised for Addendum # 6)

their sex, race, natural origin, ancestry or religion or disability as prohibited under the Americans with Disabilities Act. Breach of this covenant may be regarded as a material breach of the Contract.

CERTIFICATION OF UNITED STATES STEEL PRODUCTS

The Bidder certifies that the Bidder and all Subcontractors will comply with the statutory obligations to use steel products made in the United States.

MBE/WBE/VBE BIDDING:

See Section 001030 for requirements for MBE/WBE/VBE Compliance. Section 001040 MBE/WBE/VBE Participation Plan must be completed by **all Bidders** and submitted with the Bid. Failure to submit with the Bid may be sufficient cause to disqualify a Bid.

EXPERIENCE QUESTIONNAIRE

List similar projects completed by your organization:

1. Contract Amount _____
Description _____
Date Completed _____
Owner _____
(Name and phone #)
2. Contract Amount _____
Description _____
Date Completed _____
Owner _____
(Name and phone #)

List similar projects currently under construction by your organization

1. Contract Amount _____
Description _____
Date Completed _____
Owner _____
(Name and phone #)
2. Contract Amount _____
Description _____
Date Completed _____
Owner _____
(Name and phone #)

Yes ☐ No ☐ Has your organization ever failed to complete any work awarded it?

If yes, where and why?

002000
BID FORM (Revised for Addendum # 6)

Yes ☐ No ☐ Does your Organization have any pending litigation or litigation completed within the past five (5) years initiated by your Organization or the Owner as a result of your work on another Project?

If yes, attach a complete listing, with your Bid, of all such litigation(s) and name(s) of Institutions and/or Parties involved with complete contact information. Failure to submit this information may result in disqualification of your Bid.

Yes ☐ No ☐ Has your Organization been cited for violation of State or Federal regulations within the past twelve months?

If yes, what was the violation and resolution?

List references from firms for which your organization has performed work. Provide firm name, contact person name and phone number.

APPENDICES

The following Appendices are submitted with the Bid:

Appendix A - Subcontractors and Supplier & Manufacturer Lists

Appendix B - Unit Prices

Appendix C - Complete Subcontractor and Supplier & Manufacturer Lists to be submitted within 24 hours after Bid.

Appendix D - Wage Rate Schedules

OATH AND AFFIRMATION

Attested to this ____ day of _____, 201____

By _____

ACKNOWLEDGMENT

State of _____
SS:

County of _____

_____ being duly sworn, deposes and
(Name of person)

says that he/she is _____ of
(Title)

_____ and that the
(Name of organization)
statements contained in the foregoing bid, certification and affidavit are true and correct.

Subscribed and sworn to before me by _____

this ____ day of _____, 201____

Notary Public

My Commission Expires _____

County of Residence _____

002000
BID FORM (Revised for Addendum # 6)

SUPPLEMENTS TO BID FORM

TO: INDIANA STATE UNIVERSITY

PROJECT: **Dreiser Hall Renovation Bid # B0027086**

DATE: _____

SUBMITTED BY:
(full name)

(full address)

In accordance with Instructions to Bidders and Bid Form, we include the Supplements to Bid Form for Appendices listed below. The information provided shall be considered an integral part of the Bid Form.

Appendix A - Subcontractor and Manufacturers List (to be submitted at time of Bid)
Failure to submit may be cause to disqualify bid

(Bidder)

(Project)

The following will be performed (or provided) by the Subcontractors and Manufacturers listed herein and coordinated by us.

The Prime Contractor (Bidder) shall list all Subcontractors and Suppliers/Manufacturers called for in Appendix A of this Bid Form at the time of Bid Submission. Failure to provide this information may be sufficient cause to disallow a Bid.

The Prime Contractor (Bidder) shall use the Subcontractors, Suppliers, Materials and Equipment as listed in the Bid Form Appendix "A" submitted at the time of Bid. It is the Prime Contractor's (Bidder's) responsibility to assure they have listed the correct Subcontractors, Suppliers, Materials and Equipment on their Bid Form. THERE SHALL BE NO CHANGES PERMITTED TO THESE LISTS.

Exception: If the Owner determines the Subcontractors, Suppliers, Materials or Equipment are not acceptable, the Owner shall notify the Prime Contractor (Bidder) in writing within two (2) working days after receipt of Bids of the unacceptable Subcontractor(s), Supplier(s), Material(s) and/or Equipment(s).

(Listings begin on next page)

APPENDIX A – SUBCONTRACTOR LIST

Bidder shall provide the names of all applicable Subcontractors

Description	Subcontractor
Steel Fabricator	_____
Steel Erector	_____
Curtain Wall / Storefront	_____
Concrete Work	_____
Masonry Work	_____
Roofing Work	_____
Electrical Work	_____
IT (Voice Data) Work	_____
Sheet Metal Work	_____
Mechanical	_____
Temperature Control	_____
Plumbing Work	_____
FP Sprinkler Work	_____
Site Work	_____

APPENDIX A – SUPPLIER & MANUFACTURERS LIST

Bidder shall provide the names of all applicable Suppliers and Manufacturers

Product Description	Supplier	Manufacturer
Roofing System (Alternate Bid)	_____	_____
Elevator	_____	_____
Heat Exchanger	_____	_____
Built-up AHU (AHU 1)	_____	_____
Modular CSAC (AHU 2)	_____	_____
Mini-Split Units	_____	_____
Pumps	_____	_____
VAV Boxes	_____	_____

002000
BID FORM (Revised for Addendum # 6)

Exhaust Fans	_____	_____
Panelboards	_____	_____
Switchboards	_____	_____

Appendix B – Unit Prices

1. Unit Price #1 Repointing Materials and Labor per square foot of brick repointing. \$_____ sq ft
2. Unit Price #2 Plaster Patching Materials and Labor per square foot of plaster patching. \$_____ sq ft

Rest of page left intentionally blank

002000
BID FORM (Revised for Addendum # 6)

Appendix C – To be submitted within 24 hours after Bids received. See Section 001010 Instructions to Bidders 3.17 for further instructions

APPENDIX C – SUBCONTRACTOR LIST

Bidder shall provide the names of all the applicable Subcontractors with the Bid.

Description	Subcontractor
Ceiling Work	_____
Flooring Work	_____
Terrazzo Restoration	_____
Painting Work	_____
Testing (Electrical)	_____
Audio/Visual	_____
Theatrical Lighting / Integrator	_____
Theatrical Rigging	_____
Fire Alarm Installer	_____
Testing and Balancing (Mechanical)	_____
Irrigation Work	_____
Landscaping Work	_____
Sedimentation Control	_____

APPENDIX C – SUPPLIER AND MANUFACTURER'S LIST

Bidder shall provide the names of all applicable Suppliers and Manufacturers

Product Description	Supplier	Manufacturer
Ceiling: Grids	_____	_____
Ceiling: Panels	_____	_____
Flooring: Tile	_____	_____
Flooring: Carpet	_____	_____
Hollow Metal Frames	_____	_____
Doors	_____	_____
Door Hardware	_____	_____

002000
BID FORM (Revised for Addendum # 6)

Signage	_____	_____
Hydraulic Cement	_____	_____
Aluminum Entrances and Storefronts	_____	_____
Windows	_____	_____
Operable Windows (Alternate)	_____	_____
Stage Lift (Alternate 8)	_____	_____
Plumbing Fixtures and Trim	_____	_____
Plumbing Faucets	_____	_____
Grilles & Diffusers	_____	_____
Fire Alarm	_____	_____
Wiring Devices	_____	_____
Lighting	_____	_____
Lighting Controls	_____	_____
Theatrical Lighting Controls	_____	_____
Theatrical Lighting Fixtures	_____	_____

Appendix D – Wage Rate Schedules

By 2:00pm on the next business day after receipt of Bids the Bidder shall submit, a wage rate schedule for the workers of the Prime Bidder and all major Subcontractors involved in the Work. Failure to supply the wage rate schedule(s) as required by the Bidding Documents may be sufficient cause to disallow a Bid

END OF SECTION 002000

Blank Page

011000
SUMMARY OF WORK (Revised for Addendum # 6)

PART 1 - GENERAL

1.01 DESCRIPTION

- A. The project is located on the campus of Indiana State University at Dreiser Hall, 221 North 6th Street, Terre Haute, Indiana 47809

1.02 RELATED SECTIONS

- A. Division 00 Sections
B. Division 01 Sections
C. All Division 02-33 Sections as applicable

1.03 SCOPE OF WORK – BASE BID

- A. The Dreiser Hall Renovation project consists of a full building renovation of Dreiser Hall. Dreiser Hall is a ca. 1950s era classroom building that underwent a substantial renovation in the 1990s. The building will house functions from the Theater Department, the Department of Communication, and Student Media. All of these programs are within the College of Arts and Sciences. The project will include an exterior restoration of the existing masonry building envelope; new roof; new entry addition at the northwest corner; window/door replacement; new interior aesthetic; new mechanical, electrical, plumbing, and low voltage systems.
- B. The following, but not limited to, is included in the Base Bid Package:
1. Exterior Restoration – Isolated masonry restoration of existing brick and limestone façade.
 2. New Addition – New addition at northwest corner constructed from structural steel, steel studs, and masonry veneer.
 3. Windows/Door – New exterior windows and doors at existing and new locations.
 4. New Interior Aesthetic – Full renovation of interior including – new entry lobby, reconfigured performance theater, reimagined public corridors and lounge spaces, new faculty offices, new classroom and lab spaces, new theater back of house spaces.
 5. New Mechanical, Electrical, Plumbing, and Low Voltage Systems – Removal of all existing systems and replacement with all new. This includes a new sprinkler system
- C. Procedures
1. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the Base Bid into the Project.
 2. Include as part of the Base Bid miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of the Base Bid.

1.04 SCOPE OF WORK – ALTERNATES

- A. The following, but not limited to, is included in the Alternate(s)
1. Alternate #1 – Add materials and labor for the operable function of the exterior replacement windows.
 2. Alternate #2 – Add the materials and labor for wood paneling at the east face of the West Corridor 220 (on the second floor) and West Corridor 339 (on the third floor).
 3. Alternate #3 – Add material and labor for the masonry restoration. Refer to Building Elevation Drawings for Areas of Restoration
 4. Alternate #4 – Add materials and labor for pipe grid, curtain, mirror, and associated theatrical lighting in Room 016 – Performance and Technology Lab. All power infrastructure and rough ins are part of base bid.

SUMMARY OF WORK (Revised for Addendum # 6)

5. Alternate #5 – Add materials and labor associated with opening up Stair #2. This would include demolition of existing wall, installation of storefront at 1st floor, installation of guard rail at 2nd and 3rd floors, finishing of stair stringer, and all other associated work.
 6. Alternate #6 – Add materials and labor for select areas of glazed wall system on 1st and 3rd floors.
 7. Alternate #7 – Add materials and labor for reroofing work. This would include demolition of existing ballasted roof system down to decking; demolition of coping and flashing; demolition of select rooftop equipment; and installation of new membrane roof system with associated flashings and copings.
- B. The cost or credit for each Alternate is the net addition to or deduction from the Contract Sum to incorporate Alternate into the Work. No other adjustments are made to the Contract Sum.
- C. Procedures
1. Coordination: Modify or adjust affected adjacent work as necessary to completely integrate work of the Alternate into the Project.
 2. Include as part of each Alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation whether or not indicated as part of Alternate.
 3. Notification: Immediately following award of the Contract, notify each party involved, in writing, of the status of each Alternate. Indicate if Alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to Alternates.
 4. Execute accepted Alternates under the same conditions as other work of the Contract.
- D. Selection and Award of Alternates: The Owner reserves the right to selectively accept or reject Alternates at their discretion and is under no obligation to accept any Alternates.
- 1.05 BID SUBMISSION REQUIREMENTS
- A. Bids shall be submitted on the included Bid Form (Section 002000) and will be reviewed and accepted or rejected at the Owner's option.
 - B. All Bids shall be held for a period of One Hundred Twenty (120) Calendar days after submission of the Bid.
- 1.06 RELATED WORK SPECIFIED ELSEWHERE
- A. The Prime Contractor shall be aware, and shall make his subcontractors aware that the requirements in the sections of Divisions 00 and 01 pertain to all the work and they are binding on each section of these specifications as if they were repeated in each section in their entirety.
 - B. The Prime Contractor shall be responsible for understanding the scope and intent of the work in all sections of these Specifications
 - C. The Prime Contractor is responsible for review of all sections of the Specifications and all Drawings to confirm any additional areas of responsibility.
 - D. All Contractors are responsible for their area of work which might show up only on a drawing from another series or Specification section.
- 1.07 CONTRACTS
- A. Work shall be performed under one Prime Contract.

011000
SUMMARY OF WORK (Revised for Addendum # 6)

1.08 PRIME CONTRACTOR'S DUTIES

- A. Project Supervision: see Section 002020 item 1.09 for requirements
- B. Except as specifically noted, provide and pay for:
 - 1. Labor, materials and equipment
 - 2. Tools, construction equipment and machinery
 - 3. Other facilities and services necessary for proper execution and completion of work
- C. Pay legally required State and Federal Taxes.
- D. Contractor shall make all his own measurements in the field and shall be responsible for correct fitting. He shall coordinate this work with all other branches in such a manner as to cause a minimum of conflict or delay. Contractor shall coordinate his work in advance with all other trades and report immediately any difficulty which can be anticipated.
- E. The Contract Documents shall be carefully studied by the Contractor during the course of construction. Any errors in layout or errors of omission which are discovered shall be referred immediately to the Architect/Engineer for interpretation or correction.
- F. Secure and pay for, as necessary for proper execution and completion of work, and as applicable at time of receipt of bids:
 - 1. Permits
 - 2. Licenses
- G. Give required notices.
- H. Comply with codes ordinances, rules, regulations, orders and other legal requirements of public authorities which bear on performance of work.
- I. Promptly submit written notice to Architect/Engineer of observed variances of Contract Documents from legal requirements.
- J. Enforce strict discipline and good order among employees.
- K. Coordinate delivery and installation dates with Architect/Engineer and Owner and incorporate into Construction Schedule.
- L. Prepare and update Construction Schedule.
- M. Notify and receive approval from the Owner at least 48 hours in advance for utility connections, or shut-off. Coordinate these operations with the Owner, through the Architect/Engineer, and complete the work in the minimum amount of time.
- N. Notify the Architect/Engineer in writing when work is completed and keep the Architect/Engineer informed of the progress of the work. No work shall be closed or covered until it has been inspected and approved. Should work not inspected be covered, uncover all such work so that it can be properly inspected and after such inspection, properly repair and replace all of the work at no additional cost to the Owner.
- O. Where the Contract Documents require any work to be tested, the Architect/Engineer shall be notified sufficiently in advance so that he may observe such tests.
- P. Contractor shall submit a copy of any permits he has secured before starting work on this project unless otherwise stated by Owner.
- Q. Where the Contract Documents require the use of AIA Documents including, but not limited to, G702 Application and Certificate for Payment and G703 Continuation Sheet.

1.09 OTHER REQUIREMENTS

- A. Nightly the Prime Contractor shall secure the construction site to discourage unauthorized individuals from accessing the site. Special effort to secure the site shall be made on Friday evenings.

011000
SUMMARY OF WORK (Revised for Addendum # 6)

- B. While the site shall be kept orderly at all times, weekly the Prime Contractor shall clean-up the construction site of:
 - 1. Any accumulated trash and rubbish.
 - 2. Dirt, dust, mud, etc. associated with the construction process.
 - 3. Salvaged materials not slated for re-use and excess materials not slated for use.
- C. Weed and grass control: The Prime Contractor shall maintain weeds or grasses to less than 6" in height where applicable

PART 2 – NOT USED

PART 3 – NOT USED

END OF SECTION 011000

012360
ALLOWANCES (Revised for Addendum # 6)

PART 1 – GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

- A. This Section includes administrative and procedural requirements governing allowances.
 - 1. Certain materials and equipment are specified in the Contract Documents by allowances. In some cases, these allowances include installation. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Lump-sum allowances.
 - 2. Unit-cost allowances.
 - 3. Contingency allowances.
 - 4. Testing and inspecting allowances.
 - 5. Quantity allowances.
- C. Related Sections include the following:
 - 1. Division 01 Section "Contract Modification Procedures" for procedures for submitting and handling Change Orders.
 - 2. Division 01 Section "Quality Requirements" for procedures governing the use of allowances for testing and inspecting.

1.03 SELECTION AND PURCHASE

- A. At the earliest practical date after award of the Contract, advise the Architect of the date when final selection and purchase of each product or system described by an allowance must be completed to avoid delaying the Work.
- B. At Architect's request, obtain proposals for each allowance for use in making final selections. Include recommendations that are relevant to performing the Work.
- C. Purchase products and systems selected by Architect from the designated supplier.

1.04 SUBMITTALS

- A. Submit proposals for purchase of products or systems included in allowances, in the form specified for Change Orders.
- B. Submit invoices or delivery slips to show actual quantities of materials delivered to the site for use in fulfillment of each allowance.

1.05 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.

012360
ALLOWANCES (Revised for Addendum # 6)

- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

1.06 TESTING AND INSPECTING ALLOWANCES

- A. Testing and inspecting allowances include the cost of engaging testing agencies, actual tests and inspections, and reporting results.
- B. The allowance does not include incidental labor required to assist the testing agency or costs for retesting if previous tests and inspections result in failure.
- C. Costs of services not required by the Contract Documents are not included in the allowance.
- D. At Project closeout, credit unused amounts remaining in the testing and inspecting allowance to Owner by Change Order.

1.07 UNUSED MATERIALS

- A. Return unused materials purchased under an allowance to manufacturer or supplier for credit to Owner, after installation has been completed and accepted.
 - 1. If requested by Architect, prepare unused material for storage by Owner when it is not economically practical to return the material for credit. If directed by Architect, deliver unused material to Owner's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

PART 2 – PRODUCTS (Not Used)

PART 3 – EXECUTION

3.01 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.02 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.03 SCHEDULE OF ALLOWANCES

- A. Allowance # 1: A \$20,000 allowance shall be included in the Base Bid for the A/E to create record drawings. These drawings shall be based on the Contractors field mark-ups of the Construction Documents. The Contractor is solely responsible to provide accurate mark-ups for the creation of these record drawings. Should it be discovered that errors exist in the record drawings the Contractor shall pay for the re-creation of accurate record drawings at no additional cost to the Owner.
- B. Allowance # 2: A \$300,000 Allowance shall be included in the Base Bid for Unforeseen Conditions and General Construction Contingency. It is solely at the discretion of the Architect/Engineer/Owner what costs may be applied to this Allowance. Any unused Allowance monies shall be returned to the Owner at Project closeout by Change Order.
- C. Allowance # 3: A \$100,000 Allowance shall be included in the Base Bid for the purchase and installation of the stage lift. All work with regards to the stage lift will be included in this Allowance. Full details will be provided at a later date.

END OF SECTION 012360

SECTION 03 01 30 – REPAIR AND REHABILITATION OF CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. Contractor shall provide all labor, materials, equipment, and incidentals as shown, specified, and required to repair or rehabilitate, as required, all existing concrete shown or indicated in the Contract Documents as being repaired or rehabilitated.
2. Contractor shall repair all damage to new concrete construction as specified in this Section except for repair Work specified in Section 03 30 00 - Cast-In-Place Concrete.

B. Coordination:

1. Review installation procedures under this and other Sections and coordinate the Work that must be installed with or before repair and rehabilitation of concrete.

C. Related Sections:

1. Section 03 15 00 - Concrete Accessories.
2. Section 03 30 00 - Cast-In-Place Concrete.
3. Section 03 60 00 - Grouting.

1.02 UNIT PRICE – MEASUREMENT AND PAYMENT

A. Crack Repair:

1. Basis of Measurement: Lump sum with any concrete repair work.
2. Basis of Payment: Includes surface preparation, injection ports, repair materials, and surface finishing. Unit price for payment of "Crack Repair" shall be as shown on the completed Bid Form. Crack Repair shall include structural crack repair and non-structural crack repair. The unit price shall be the same for both systems.

1.03 REFERENCES

A. Standards referenced in this Section are:

1. ASTM C109/C109M, Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).
2. ASTM C882/C882M, Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.
3. ASTM C1042 - Standard Test Method for Bond Strength of Latex Systems Used With Concrete By Slant Shear.
4. ASTM D1042, Test Method for Linear Dimensional Changes of Plastics Under Accelerated Service Conditions.
5. ASTM D3574, Test Methods for Flexible Cellular Materials – Slab, Bonded, and Molded Urethane Foams.
6. ASTM G109, Test Method for Determining the Effects of Chemical Admixtures on the Corrosion of Embedded Steel Reinforcement in Concrete Exposed to Chloride Environments.

1.04 SUBMITTALS

- A. Shop drawings, product data, samples and certifications for all materials herein shall be submitted in accordance with Section 01 33 00 Submittal Procedures.
- B. Submit the following:
 - 1. Product Data: Information on all products proposed for use, including manufacturer's brochures, technical data, specifications, and other applicable data.
 - 2. Manufacturer's Instructions: Manufacturer's recommended procedures for installing materials proposed for use.

1.05 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Conform to Section 01 60 00, Product Requirements, and this Section.
- B. Clearly mark on containers manufacturer's name and label, name or title of material, manufacturer's stock number, and date of manufacture.
- C. Handle materials carefully to prevent inclusion of foreign matter.
- D. Do not open containers or mix components until necessary preparatory Work has been completed and application Work is to start immediately.
- E. Store only approved materials at the site.

PART 2 – PRODUCTS

2.01 REPAIR MORTAR

- A. Product Description: Repair mortar shall be prepackaged, cement-based product specifically formulated for repairing concrete surface defects.
- B. Products and Manufacturers: Provide one of the following:
 - 1. SikaTop 122 Plus or SikaTop 123 Plus, by Sika Corporation.
 - 2. DuralTop Gel, DuralTop Flowable Mortar by Euclid Chemical Company.
 - 3. Or equal.
- C. Materials:
 - 1. Provide a two-component, polymer-modified, Portland cement, fast-setting, trowel-grade mortar. Repair mortar shall be enhanced with penetrating corrosion inhibitor, and shall have the following properties:

Physical Property	Value	ASTM Standard
Minimum Compressive Strength at One Day	2,000 psi	C109
Minimum Compressive Strength at 28 Days	6,000 psi	C109
Minimum Bond Strength at 28 Days	1,800 psi	C882*

* Modified for use with repair mortars.

- 2. Where the least dimension of the placement in width or thickness exceeds four inches, extend repair mortar by adding aggregate as recommended by repair mortar manufacturer.

2.02 REPAIR OF EXPOSED REINFORCING STEEL

- A. System Description: System for repair of exposed reinforcing steel shall consist of two components: an initial application of corrosion inhibitor and subsequent application of protective

slurry mortar.

B. Corrosion Inhibitor:

1. Corrosion inhibitor shall penetrate the hardened concrete surface and form a protective layer on reinforcing steel.
2. Products and Manufacturers: Provide one of the following:
 - a. Sika FerroGard 903, by Sika Corporation.
 - b. Or equal.
3. Corrosion inhibitor shall:
 - a. Not change the substrate's color, appearance, or texture.
 - b. Penetrate independently of orientation (horizontal, vertical, overhead) at rate up to 1/10 to 4/5 inches per day, depending on density of concrete, measured using secondary neutron mass spectroscopy.
 - c. Form on reinforcing steel a protective layer of high integrity of at least 100 angstroms thickness, measured using x-ray photon spectroscopy and secondary ion mass spectroscopy.
 - d. Demonstrate reduction in corrosion currents after treatment as determined using cracked beam corrosion tests of concrete, as adapted from ASTM G109.
 - e. Be capable of reducing active corrosion rates by at least 65 percent. Reduction shall be demonstrated by project references and an independent corrosion engineer using linear polarization resistance.
 - f. Penetrate up to three inches in 28 days, measured using secondary neutron mass spectroscopy.

C. Protective Slurry Mortar:

1. Material shall be two-component, polymer-modified, cementitious waterproofing and protective slurry mortar. Provide two coats at coverage of 50 square feet per gallon per coat.
2. Products and Manufacturers: Provide one of the following:
 - a. Sikatop Seal 107, by Sika Corporation.
 - b. Or equal.

2.03 CRACK INJECTION MATERIALS

A. Structural Crack Repair System:

1. Epoxy for injection shall be low-viscosity, high-modulus moisture insensitive type.
2. Products and Manufacturers: Provide one of the following:
 - a. Sikadur 55 SLV or Sikadur 52 and Sikadur 31, Hi-Mod Gel, by Sika Corporation.
 - b. Dural 335 by Euclid Chemical Company .
 - c. Or equal.

B. Non-structural Crack Repair System:

1. Hydrophobic Polyurethane Chemical Grout:
 - a. Provide hydrophobic polyurethane that forms a flexible gasket.

- b. Products and Manufacturers: Provide one of the following:
 - 1) SikaFix HH LV, by Sika Chemical Company.
 - 2) Hydro Active Flex SLV, by De Neef Construction Chemicals, Inc.
 - 3) Or equal.
 - c. Shrinkage limit shall not exceed 4.0 percent in accordance with ASTM D1042.
 - d. Minimum elongation of 250 percent in accordance with ASTM D3574.
 - e. Minimum tensile strength of 150 psi in accordance with ASTM D3574.
 - f. Product shall be listed in NSF/ANSI 61.
2. Hydrophilic Acrylate-Ester Resin:
- a. Hydrophilic crack repair system shall be acrylate-ester resin that forms a flexible gasket and increase in volume by at least 50 percent when in contact with water.
 - b. Products and Manufacturers: Provide one of the following:
 - 1) Gelacryl Superflex AR manufactured by DeNeef Corporation.
 - 2) AR870 manufactured by Prime Resins, Inc.
 - 3) Or equal.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine areas and conditions under which the repair Work is to be installed and notify Engineer in writing of conditions detrimental to proper and timely completion of the Work. Do not proceed with the Work until unsatisfactory conditions have been corrected.
- B. Sound concrete surfaces to be repaired by tapping with hammers, dragging chains or other suitable method to locate delaminations. Mark areas where delaminations are located and review with Engineer prior to removing delaminated concrete.
- C. Verify surfaces are ready to receive work. Engineer shall be contacted to verify quantity of repair prior to place of surface repairs, full depth repairs, expansion joint repairs and crack injection.

3.02 PREPARATION

- A. Surface Preparation:
 - 1. Initial Surface Preparation: Remove by chipping, abrasive blasting, or hydro blasting all laitance, foreign material, and unsound concrete from entire area to be repaired. Further roughen surface as specified in this Section. Where non-shrink grout or repair mortar is used, perform additional surface preparation, if any, recommended by product manufacturer.
 - 2. Wetting Procedure: Where repair concrete, shotcrete, or cement grout is used, and bonding agent is not required, or where repair mortar or non-shrink grout manufacturer recommends wet or saturated surface, perform the following:
 - a. Continuously apply water for at least four hours to surface being repaired. Where large surface areas are to be repaired, use fog-spray nozzles, mounted on stands, in sufficient number so that entire surface to be repaired is contacted by fog spray cloud.

- b. Prevent concrete from drying until after repair is completed. Re-wet surfaces not yet repaired using water sprays at least a daily; should more than four days elapse without re-wetting surfaces not yet repaired, repeat the original saturating procedure.
 - c. Remove standing water in areas to be repaired before placing repair material. Provide means to remove excess water from structure.
- 3. Preparation for Epoxy Bonding Agent: Where repair material manufacturer recommends use of epoxy-bonding agent, conform to recommendations of both repair material manufacturer and bonding agent manufacturer.

3.03 INSTALLATION, GENERAL

- A. Construction Tolerances: Shall be as specified in Section 03 30 00, Cast-In-Place Concrete, except as specified in this Section and elsewhere in the Contract Documents.
- B. Care shall be taken to fully consolidate repair material, completely filling all portions of space to be filled.
- C. Bring surface being repaired into alignment with adjacent surfaces, providing uniform, even surface. Surface repaired shall match adjacent existing surfaces in texture and shall receive coatings or surface treatments, if any, provided for the existing surface adjacent to repaired surface.
- D. Curing:
 - 1. Curing of repair mortar and non-shrink grout shall be in accordance with manufacturer's recommendations, except that minimum cure period shall be three days.
 - 2. Curing of other materials shall be in accordance with requirements of Section 03 30 00, Cast-In-Place Concrete.

3.04 REPAIR OF SURFACE DEFECTS

- A. Surface defects are depressions in a concrete surface that do not extend all the way through the concrete. Surface defects can result from removal of an embedded item, removal of an intersecting concrete member, physical damage, or unrepaired rock pockets created during original placement. For spalls that result from corroded reinforcing steel or other embedment refer to Article 3.7 of this Section.
- B. Preparation: Perform the following in addition to requirements of Article 3.2 of this Section
 - 1. Remove by chipping all loose, damaged concrete to sound material.
 - 2. Where existing reinforcing is exposed, remove concrete to minimum of one-inch around exposed bars. If existing bars are cut through, cracked, or cross sectional area is reduced by more than 25 percent from original, immediately notify Engineer.
 - 3. Score-cut perimeter of area to be repaired to minimum depth of 1/2-inch and maximum depth that will not cut existing reinforcing steel. Chip out existing concrete to the score line so that minimum thickness of repair mortar will be 1/2-inch.
- C. Repair Material:
 - 1. Completely fill the surface defect with specified repair material, in accordance with material manufacturer's instructions and the Contract Documents.
 - 2. Perform, with repair mortar, repairs of surface defects in concrete normally in contact with water or soil, and interior surfaces of structures that contain water.
 - 3. Repair of other surface defects may be by applying repair mortar, repair concrete, shotcrete, or cement grout, as appropriate.

3.05 PATCHING OF HOLES IN CONCRETE

- A. For holes larger than 16-inch diameter or equivalent area of hole, refer to the Drawings for reinforcing details.
- B. Fill openings less than four inches in their least dimension with Class III non-shrink epoxy grout in accordance with Section 03 60 00 - Grouting.
- C. Openings greater than four inches and less than 16 inches in their least dimension shall be coated with an epoxy bonding agent prior to filling with Class I non-shrink grout in accordance with Section 03 60 00 - Grouting.
- D. Openings greater than 16 inches in their least dimension shall be coated with an epoxy bonding agent prior to filling with Class A concrete in accordance with Section 03 30 00- Cast-In-Place Concrete.
- E. Where repaired holes are in contact with water or soil, provide hydrophilic rubber waterstop within the opening in accordance with Section 03 15 00 - Concrete Accessories, prior to filling with repair material.

3.06 REPAIR OF LINED HOLES

- A. This Article applies to openings with embedded material over all or a portion of inside surface of hole. Where indicated on the Drawings, remove embedded materials and repair the hole in accordance with Article 3.5 of this Section, as modified in this Article 3.6.
- B. Where embedded material is allowed to remain, remove embedded material to at least two inches into the hole, as measured from the plane surface of concrete wall or slab, as applicable. Embedded material left in place shall be roughened or abraded for proper bonding to repair material. Completely remove substances that interfere with proper bonding.
- C. Completely remove embedded items not securely and permanently anchored into concrete.
- D. Completely remove embedded items larger than 12 inches in their smallest dimension. In lieu of removing the embedded item, where reinforcing is required as shown or indicated in the Contract Documents, weld reinforcing to embedded item to remain, provided embedded item to remain is composed of metal to which reinforcing steel can be welded.

3.07 REPAIR OF DETERIORATED CONCRETE

- A. This Article pertains to deteriorated concrete which has been damaged due to corrosion of reinforcing steel, physical damage due to abrasion, or damage due to chemical attack. Use repair mortar, as specified in this Article, for repairing deteriorated concrete. Where repaired surface will be subsequently covered with plastic liner material, coordinate finishing with requirements for installing plastic liner material.
- B. Surface Preparation: In addition to requirements of Article 3.2 of this Section, perform the following surface preparation:
 - 1. Remove loose, broken, softened, and acid-contaminated concrete by abrasive blasting and chipping to sound, uncontaminated concrete.
 - 2. Upon completion of removal of deteriorated concrete, notify Engineer in writing. Allow two weeks for Engineer to evaluate the surface, perform testing for acid contamination if required, determine if additional concrete shall be removed, and to develop special repair details (if any) required. Should Engineer determine that additional concrete be removed to reach sound, uncontaminated concrete, allow another two-week period for further evaluation and testing following the additional removal.
 - 3. Surface preparation shall conform to recommendations of repair mortar manufacturer.
 - 4. Repair and rehabilitate isolated areas of exposed reinforcing bars in accordance with Article

3.4 of this Section. If extensive areas of reinforcing steel are uncovered after removal of deteriorated concrete, Engineer will determine the repair methods required.

C. Repair Mortar Placing:

1. Conform to manufacturer's recommended procedures for mixing and placing repair mortar.
2. After initial mixing of repair mortar, addition of water is not allowed.
3. Minimum Thickness:
 - a. Install repair mortar to not less than minimum thickness recommended by manufacturer, and not less than 1/2-inch.
 - b. Where removal of deteriorated concrete results in repair thickness of less than minimum required thickness to return to original concrete surface in isolated areas totaling less than ten percent of total repair surface area, remove additional concrete to obtain at least the required minimum thickness.
 - c. Where surface area with repair thickness less than minimum required thickness exceeds ten percent of total repair area, notify Engineer.
 - d. Provide repair mortar so that minimum cover over existing reinforcing steel is two inches. Do not place repair mortar creating locally raised areas.
 - e. Where transitioning to or from wall surfaces not requiring repair, do not feather-out repair mortar at transition. Instead, form the transition by saw cutting a score line to not less than minimum required repair mortar depth and chip out concrete to the saw cut line. Do not cut or otherwise damage reinforcing steel.
4. Place repair mortar to an even, uniform plane to restore concrete member to its original surface. Out-of-plane tolerance shall be such that the gap between 12-inch long straight edge and repair mortar surface does not exceed 1/8-inch, and gap between a four-foot long straight edge and repair mortar surface shall not exceed 1/4-inch. Tolerances specified in this paragraph apply to straight edges placed in any orientation at any location.

D. Finishing:

1. Provide smooth, steel trowel finish to repair mortar.
2. When completed, there shall be no sharp edges. Provide exterior corners, such as at penetrations, one-inch radius. Interior corners shall be square, except corners to receive plastic lining which shall be made with two-inch fillet in repair mortar.

3.08 REPAIR OF EXPOSED REINFORCING

- A. Remove, by abrasive blasting or hydro blasting, all corrosion, foreign materials, and unsound concrete from area to be repaired.
- B. Surface shall be visually dry before applying corrosion inhibitor. Liberally apply corrosion inhibitor to achieve coverage of 100 square feet per gallon in two or more coats, by allowing corrosion inhibitor to soak into substrate. Time between coats shall be the longer of: one hour, or as recommended by corrosion inhibitor manufacturer. Apply using rollers, brushes, or hand-pressure spray equipment.
- C. After applying final coat of corrosion inhibitor, minimum cure time of 24 hours is required.
- D. Provide high-pressure wash to surfaces to be repaired to remove filmy residue from corrosion inhibitor.
- E. For mortar coating, conform to Paragraphs 3.7.C, 3.7.D, 3.7.E of this Section.

3.09 CRACK INJECTION

- A. Examine areas under which injection Work will be installed and locate cracks that require injection. Identify and inject cracks greater than 0.010-inch wide in structures that retain or contain water, wastewater, or similar liquid.
- B. Install injection material in accordance with crack injection manufacturer's requirements.
- C. After injecting and curing, verify that injected material penetrated the crack adequately and that there is no visible leakage through the crack. After injecting, if crack continues to leak, re-inject crack at no additional cost to Owner until structure is watertight.
- D. If proper penetration of crack cannot be achieved, submit to Engineer a proposed alternate approach for modifying the specified injection procedure to properly seal the crack. In new concrete and in concrete cracked as a result of Contractor's operations, perform modifications to crack injection procedure and fully repair the crack without additional cost to Owner or extension of the Contract Times.

3.10 SITE QUALITY CONTROL

- A. Owner will employ and pay for services of testing laboratory for Site quality control testing. Engineer will direct the number of tests and specimens required, including providing necessary materials for making and facility for storing test specimens. Contractor shall make standard compression test specimens as specified in this Section under the observation of Engineer. Contractor shall provide:
 - 1. Necessary assistance required by Engineer.
 - 2. All labor, material, and equipment required, including rods, molds, thermometer, curing in heated storage box, and all other incidentals required, subject to approval by Engineer.
 - 3. All necessary storage, curing, and transportation required for testing.
 - 4. Contractor will be charged for cost of additional testing and investigation, if any, for Work performed that is not in accordance with the Contract Documents or is otherwise defective.
- B. Site Tests of Cement-based Grouts and Repair Mortar:
 - 1. Obtain compression test specimens during construction from first placement of each type of mortar or grout, and at intervals thereafter as selected by Engineer, to verify compliance with the Contract Documents. Specimens will be made by Engineer or Engineer's representative.
 - 2. Compression tests and fabrication of specimens for repair mortar and non-shrink grout will be performed in accordance with ASTM C109. Set of three specimens will be made for each test. Tests will be made at seven days, 28 days, and additional time periods as deemed appropriate by Engineer.
 - 3. Material, already placed, failing to conform to the Contract Documents, is defective.
- C. Repair Concrete: Repair concrete shall be tested as required in Section 03 30 00- Cast-In-Place Concrete.

END OF SECTION

SECTION 03 30 00 – CAST-IN-PLACE CONCRETE

PART 1 – GENERAL

1.01 DESCRIPTION

A. Scope:

1. Provide all labor, materials, equipment, and incidentals as shown, specified, and required to furnish and install cast-in-place concrete.
2. Concrete shall be in accordance with requirements of ACI 301 and ACI 350.5 unless otherwise specified.
3. The Work includes providing concrete consisting of Portland cement, fine and coarse aggregate, water, and approved admixtures; combined, mixed, transported, placed, finished, and cured. The Work also includes:
 - a. Providing openings in concrete to accommodate the Work under this and other Sections, and building into the concrete all items such as sleeves, frames, anchorage devices, inserts, and all other items to be embedded in concrete Work.

B. Coordination:

1. Review installation procedures under other Sections and coordinate installation of items to be installed in the concrete Work.
2. Notify other contractors in advance of placing concrete to provide other contractors with sufficient time for installing items included in their contracts that are to be installed in the concrete Work.

C. Classifications of Concrete:

1. Forming and finishing on all concrete Work shall be either:
 - a. Smooth Finish Concrete: applies to all visible interior concrete and all visible exterior concrete to one foot below grade or one-foot below the low-water line and is not Architectural Finished Concrete.
 - 1) Refer to Section 03 11 00 Part 2.2.A for forming requirements.
 - 2) Finish is required to be a smooth form finish (Section 03 30 00 Part 3.6.B) followed by a grout cleaned finish (Section 03 30 00 Part 3.6.C).
 - b. Standard Finish Concrete: applies to all exterior concrete that is neither Smooth Finish Concrete nor Architectural Finish Concrete.
 - 1) Refer to Section 03 11 00 Part 2.2.B for forming requirements.
 - 2) Refer to Section 03 30 00 Part 3.6.A for finish requirements.
 - c. Architectural Finish Concrete: applies to exterior concrete that has a form liner.
 - 1) Refer to Section 03 11 00 Part 2.2.C and Section 03 11 16 for form and forming requirements.
 - 2) Refer to architectural drawings for finish requirements.
2. Class "A" concrete shall be steel-reinforced and includes the following:
 - a. All concrete, unless otherwise shown or indicated.
3. Class "AF" concrete shall be steel-reinforced and may be used in lieu of Class "A" concrete for the following:

- a. Walls and foundations thicker than 16 inches.
- 4. For the following locations, Class "A" and/or "AF" shall include the Crystalline Waterproofing Admixture and shall be designated Class "AW" and "AFW".
 - a. New Elevator Shaft.
 - 1) Elevator Pit Walls and Foundation Slab
- 5. Class "B" concrete shall be placed without forms or with simple forms, with little or no reinforcing, and includes the following, unless otherwise shown or indicated:
 - a. Concrete fill within structures.
 - b. Duct banks.
 - c. Unreinforced encasements.
 - d. Curbs and gutters.
 - e. Sidewalks.
 - f. Thrust blocks.
- 6. Class "D" concrete shall be unreinforced and used where required as concrete fill under foundations, filling abandoned piping, and where "lean concrete" or "mudmat" is shown or indicated in the Contract Documents.
- 7. Class "SC" self-consolidating concrete may be used at the discretion of the Contractor in lieu of classes above. It shall comply with the durability and shrinkage requirements of whichever mix is being proposed to substitute.

D. Related Sections:

- 1. Section 03 15 00 – Concrete Accessories.
- 2. Section 03 20 00 – Concrete Reinforcing.
- 3. Section 03 60 00 – Grouting.

1.02 REFERENCES

A. Standards referenced in this Section are:

- 1. AASHTO M 182, Specification for Burlap Cloth Made From Jute or Kenaf and Cotton Materials.
- 2. AASHTO T318, Standard Method of test for Water Content of Freshly Mixed Concrete Using the Microwave Oven.
- 3. ACI 117, Specifications for Tolerances for Concrete Construction and Materials and Commentary.
- 4. ACI 301, Specifications for Structural Concrete.
- 5. ACI 305.1, Specification for Hot Weather Concreting.
- 6. ACI 306.1, Cold Weather Concreting.
- 7. ACI 318, Building Code Requirements for Structural Concrete and Commentary.
- 8. ACI 350/350R, Code Requirements for Environmental Engineering Concrete Structures and Commentary.
- 9. ASTM C31/C31M, Practice for Making and Curing Concrete Test Specimens in the Field.
- 10. ASTM C33, Specification for Concrete Aggregates.
- 11. ASTM C39/C39M, Test Method for Compressive Strength of Cylindrical Concrete Specimens.

12. ASTM C42/C42M, Test Method for Obtaining and Testing Drilled Cores and Sawed Beams of Concrete.
13. ASTM C94/C94M, Specification for Ready-Mixed Concrete.
14. ASTM C109/C109M, Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or [50-mm] Cube Specimens).
15. ASTM C138/C138M, Test Method for Density (Unit Weight), Yield, and Air Content (Gravimetric) of Concrete.
16. ASTM C143/C143M, Test Method for Slump of Hydraulic- Cement Concrete.
17. ASTM C150, Specification for Portland Cement.
18. ASTM C157/C157M, Test Method for Length Change of Hardened Hydraulic-Cement Mortar and Concrete.
19. ASTM C171, Specification for Sheet Materials for Curing Concrete.
20. ASTM C172, Practice for Sampling Freshly Mixed Concrete.
21. ASTM C231, Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
22. ASTM C260, Specification for Air-Entraining Admixtures for Concrete.
23. ASTM C309, Specification for Liquid Membrane-Forming Compounds for Curing Concrete.
24. ASTM C330, Specification for Lightweight Aggregates for Structural Concrete.
25. ASTM C494/C494M, Specification for Chemical Admixtures for Concrete.
26. ASTM C618, Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use in Concrete.
27. ASTM C882/C882M, Test Method for Bond Strength of Epoxy-Resin Systems Used with Concrete by Slant Shear.
28. ASTM C989, Specification for Slag Cement for Use in Concrete and Mortars.
29. ASTM C1017, Specification for Chemical Admixtures for Use in Producing Flowing Concrete
30. ASTM C1064/C1064M, Standard Test Method for Temperature of Freshly Mixed Hydraulic-Cement Concrete.
31. ASTM C1077, Practice for Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation.
32. ASTM C1240, Specification for Silica Fume Used in Cementitious Mixtures.
33. ASTM C1260, Test Method for Potential Alkali Reactivity of Aggregates (Mortar-Bar Method).
34. ASTM C1293, Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction.
35. ASTM C1567, Test Method for Determination of Length Change of Concrete Due to Alkali-Silica Reaction.
36. ASTM C1610, Test Method for Static Segregation of Self-Consolidating Concrete Using Column Technique.
37. ASTM C1611, Test Method for Slump Flow of Self-Consolidating Concrete.
38. ASTM C1621, Test Method for Passing Ability of Self-Consolidating Concrete by J-Ring.
39. ASTM D1042, Test Method for Linear Dimensional Changes of Plastics Caused by Exposure to Heat and Moisture.

40. ASTM D3574, Test Methods for Flexible Cellular Materials—Slab, Bonded, and Molded Urethane Foams.
41. ASTM E96/E96M, Test Methods for Water Vapor Transmission of Materials
42. ASTM E329, Specification for Agencies Engaged in Construction Inspection, Testing, or Special Inspection.
43. ASTM E1643, Practice for Installation of Water Vapor Retarders Used in Contact with Earth or Granular Fill Under Concrete Slabs.
44. ASTM E1745, Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs.
45. NRMCA, National Ready Mixed Concrete Association.

1.03 QUALITY ASSURANCE

A. Qualifications:

1. Concrete Testing Laboratory:

- a. Employ independent testing laboratory experienced in design and testing of concrete materials and mixes to perform material evaluation tests and to design concrete mixes. Employ different laboratories for design of concrete mixes and field testing.
 - 1) Testing agency shall be in accordance with ASTM E329 and ASTM C1077.
 - 2) Testing laboratory shall have been inspected and passed within previous two years by Cement and Concrete Reference Laboratory (CCRL) of NIST for: testing concrete aggregates, and for preparing and testing concrete trial batches with or without admixtures. Testing laboratory shall provide documentation indicating how deficiencies, if any, in most recent CCRL inspection report were corrected.
 - 3) Selection of testing laboratory is subject to Owner's acceptance.
 - 4) Submit written description of proposed concrete testing laboratory giving qualifications of personnel, laboratory facilities, and equipment, and other information requested by Engineer.
2. Batch Plant: NRMCA Program for Certification of Ready-Mixed Concrete Production Facilities or approved equivalent program.
3. Mix Designer: Person responsible for developing concrete mixture proportions certified as NRMCA Concrete Technologist Level 2 or DOT certified mix designer in jurisdiction of the Work. Requirement may be waived if individual is Contractor's Licensed Design Engineer.
4. Flatwork Finisher: Unless otherwise permitted, at least one person on finishing crew shall be certified as an ACI Flatwork Finisher, or equivalent.
5. Water Reducing Admixture Manufacturer:
 - a. Water-reducing admixtures shall be manufactured under strict quality control in facilities operated under a quality assurance program. Submit copy of manufacturer's quality assurance handbook to document program existence.
 - b. Manufacturer shall maintain a concrete testing laboratory approved by CCRL at NIST.
 - c. Manufacturer shall be capable of providing services of qualified field service representatives at the Site.

B. Laboratory Trial Batch:

1. Each concrete mix design specified shall be verified by laboratory trial batch, unless indicated otherwise.

2. For classes of concrete that require air-entrainment, test the trial batch at highest percentage of air (plus 1.5 percent) allowed for that class of concrete.
 3. Perform the following testing on each trial batch:
 - a. Aggregate gradation for fine and coarse aggregates.
 - b. Fly ash testing to verify meeting specified properties, unless fly ash Supplier submits certification by an independent testing laboratory.
 - c. Slump.
 - d. Where mix is designed to be self-consolidating concrete: slump flow, passing ability, visual stability index, and static segregation.
 - e. Air content.
 - f. Compressive strength based on three cylinders each tested at seven days and at 28 days.
 - g. Shrinkage test in accordance with this Section, for Class "A" concrete and Class "AF" concrete.
 4. Submit for each trial batch the following information:
 - a. Project identification name and number (if applicable).
 - b. Date of test report.
 - c. Complete identification of aggregate source of supply.
 - d. Tests of aggregates for compliance with the Contract Documents.
 - e. Scale weight of each aggregate.
 - f. Absorbed water in each aggregate.
 - g. Brand, type, and composition of cementitious materials.
 - h. Brand, type, and amount of each admixture.
 - i. Amounts of water used in trial mixes.
 - j. Proportions of each material per cubic yard.
 - k. Gross weight and yield per cubic yard of trial mixtures.
 - l. Measured slump. Where mix is self-consolidating concrete: measured slump flow, time to reach 20-inch diameter, passing ability, visual stability index, and static segregation.
 - m. Measured air content.
 - n. Compressive strength developed at seven days and 28 days, from not less than three test cylinders cast for each seven day and 28 day test, and for each design mix.
- C. Shrinkage test results where required and as specified in this Section. Report results and averages for original length and at zero, seven, 14, 21, and 28 days of drying. Shrinkage Test:
1. Perform drying shrinkage tests for trial batch as specified in this Section.
 2. Drying shrinkage specimens shall be four-inch by four-inch by 11-inch prisms with effective gage length of ten inches; fabricated, cured, dried, and measured in accordance with ASTM C157 modified as follows: remove specimens from molds at an age of 23 hours, plus-or-minus one hour, after trial batching; shall be placed immediately in water at 70 degrees F plus-or-minus three degrees F for at least 30 minutes; and shall be measured within 30 minutes thereafter to determine original length and then submerged in saturated lime water at 73 degrees F plus-or-minus three degrees F. Measurement to determine expansion expressed as

- percentage of original length shall be made at age of seven days. Length at age of seven days shall be base length for drying shrinkage calculations (zero days drying age). Immediately afterward store specimens in humidity-controlled room maintained at 73 degrees F plus-or-minus three degrees F, and 50 percent (plus-or-minus four percent) relative humidity for remainder of test. Obtain measurements to determine shrinkage expressed as percentage of base length and report measurements separately for seven, 14, 21, and 28 days of drying after seven days of moist curing.
3. Determine drying shrinkage deformation of each specimen as the difference between base length (at zero days drying age) and length after drying at each test age. Determine average drying shrinkage deformation of specimens to nearest 0.0001-inch at each test age. If drying shrinkage of a specimen departs from average of that test age by more than 0.0004-inch, results obtained from that specimen shall be disregarded. Report results of shrinkage test to nearest 0.001 percent of shrinkage. Compression test specimens shall be taken in each case from same concrete used for preparing drying shrinkage specimens. Tests shall be considered part of normal compression tests for the Work. Allowable shrinkage limitations shall be as specified in Part 2 of this Section.
- D. Component Supply and Compatibility:
1. Provide a certificate of compatibility for all admixture materials.
- E. Sample Panels:
1. Provide Sample panels of wall finishes, each at least 12 inches by 12 inches by three inches thick. Revise Sample panels to produce acceptable finished concrete surfaces.
 - a. Provide additional Sample panels as required if original results are unsatisfactory as determined by Engineer.
 2. Continuity of color and texture for exposed concrete surfaces is important. Maintain such controls and procedures, in addition to those specified, as necessary to provide continuous match of concrete Work with approved Samples.
- F. Mock-up Panels:
1. Provide mock-up panels representative of specified finished surfaces after Sample form panels are approved, at locations on the Site directed by Engineer. Form, reinforce, mix, cast, cure, and finish mock-up panels using selected materials and construction methods proposed for the Work. Provide mock-up panels as follows:
 - a. Wall section of L shaped panels, approximately four feet high by three feet each side by eight inches thick and set on an 18-inch wide by eight-inch thick base, unless otherwise shown or indicated. Form faces to represent each specified formed surface finish. Include not less than two form ties, two form panel intersections, one vertical construction joint, and one horizontal construction joint. Construction joints are in Section 03 15 00, Concrete Accessories.
 - b. Pan formed section using at least two pan form units. Set units to illustrate method of blending exposed pan joints.
 2. Reinforce mock-up panels as required to prevent cracking and to be structurally stable or as shown or indicated; reinforcing steel shall not be less than 0.25 percent of the gross concrete cross section in each direction.
 3. Protect mock-up panels from damage and do not remove approved mock-up panels without written Engineer's permission. Retain and protect mock-ups during construction as a standard for judging completed Work. When directed by Engineer, demolish mock-up panels and remove from the Site
 4. Build mock-ups as necessary to achieve Engineer's acceptance of the specified finishes. Owner

will not be responsible for the cost of additional mock-ups required to achieve the specified surface. Demolish rejected mock-ups and remove from Site.

G. Concrete Coordination Conference:

1. Conduct concrete coordination conference to review detailed requirements of Contractor's proposed concrete design mixes, to discuss procedures for producing proper concrete construction, and to clarify roles of the parties involved. Contractor shall organize and schedule the conference, and prepare and distribute to all parties attending conference minutes of the conference.
2. Conduct concrete coordination conference no later than 14 days after the date the Contract Times commence running. Conference shall be held at mutually agreed upon date and time; conference shall be held at the Site unless otherwise mutually agreed upon. Notify all parties to attend concrete coordination conference not less than five days prior to scheduled date of conference.
3. All parties involved in the concrete Work shall attend concrete coordination conference including, but not limited to, the following:
 - a. Contractor.
 - b. Field testing services representative.
 - c. Concrete Subcontractor (if any).
 - d. Reinforcing steel Subcontractor (if any) and reinforcing steel Supplier and detailer.
 - e. Concrete Supplier.
 - f. Admixture manufacturer's representative.
 - g. Engineer.
 - h. Concrete Special inspector.
 - i. Resident Project Representative (if any).

1.04 SUBMITTALS

- A. Shop drawings, product data, samples and certifications for all materials herein shall be submitted in accordance with Section 01 33 00 Submittal Procedures.
- B. Submit the following:
 1. Shop Drawings:
 - a. List of concrete materials and proportions for the proposed concrete mix designs. Include data sheets, test results, certifications, and mill reports to qualify the materials proposed for use in the mix designs. Do not start laboratory trial batch testing until this submittal is approved by Engineer.
 - b. Laboratory Trial Batch Reports: Submit laboratory test reports for concrete cylinders, materials, and mix design tests.
 - c. Test results per ASTM C33 confirming meets limit on deleterious material in fine aggregate.
 - d. Test results per ASTM C1260, ASTM C1293, and ASTM C1567 to determine potential for alkali-silica reactivity.
 - e. Certificate of compatibility of combined admixtures.
 - f. Certification of mix designer.
 2. Concrete Supply:

- a. Ready-mixed Concrete: Submit the following information.
 - 1) NRMCA plant certification.
 - 2) Physical capacity of mixing plant.
 - 3) Trucking facilities available.
 - 4) Estimated average amount of the specified concrete that can be produced and delivered to the Site during a normal, eight-hour day, excluding output to other customers.
 3. Product Data:
 - a. Manufacturers' specifications with application and installation instructions for proprietary materials and items, including admixtures and bonding agents.
 4. Samples:
 - a. Submit Samples of materials as specified and as requested by Engineer. Include with each Sample names of product and Supplier, and description.
 5. Curing and Protection Plans:
 - a. Submit detailed plan for curing concrete in water retaining and non-water retaining structures.
 - b. Submit detailed plan for curing and protection of concrete placed and cured in cold weather.
 - 1) Submit detailed plan for curing and protection of concrete placed and cured in ambient temperatures over 80 degrees F
 - C. Informational Submittals:
 1. Certifications:
 - a. Notarized certification of conformance to reference standards used in this Section, when required by Engineer.
 - b. Flatwork finisher certification.
 2. Delivery Tickets: Copies of all delivery tickets for each load of concrete delivered to or mixed at the Site prior to unloading. Each delivery ticket shall contain the information in accordance with ASTM C94 requirements of sections 14.2.1 through 14.2.10 along with project identification name and number (if any), date, mix type, mix time, quantity and amount of water initially withheld and introduced on site.
 3. Minutes of the Concrete Coordination Conference and other subsequent structure specific concrete construction conferences.
- 1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING
- A. Transportation, Delivery, and Handling:
 1. Materials used for concrete shall be clean and free from foreign matter during transportation and handling, and kept separate until measured and placed into concrete mixer.
 2. Implement suitable measures during hauling, piling, and handling to ensure that segregation of coarse and fine aggregate particles does not occur and grading is not affected.
 - B. Storage:
 1. For storage, provide bins or platforms with hard, clean surfaces.

PART 2 – PRODUCTS

2.01 CEMENTITIOUS MATERIALS

A. Cement:

1. Portland cement shall be Type II ASTM C150. Type I may be used in lieu of Type II when approved by Engineer.
2. Portland cement shall be produced by manufacturer's facility. Cement from other facilities of the manufacturer shall be tested for similarity of properties. Tested cement with different properties or alternate cement sources of other manufacturers may be used provided that mix design has been approved and acceptable trial batch verifying performance has been made.
3. Do not use cement that has deteriorated because of improper storage or handling.
4. Fly Ash: Fly ash, when used, shall conform to the requirements of ASTM C618 Class F, except as follows:
 - a. The loss on ignition shall be a maximum of four percent.
 - b. The maximum percent of sulfur trioxide (SO₃) shall be 4.0.
5. Fly ash shall be considered a cementitious material.
6. Laboratory trial batches shall be tested to determine compliance with strength requirements, times of setting, slump, slump loss, and shrinkage characteristics.

B. Slag Cement:

1. Slag Cement, when used, shall conform to ASTM C989, Grade 120.
2. Slag cement shall be considered a cementitious material.
3. Perform laboratory tests on trial batches to determine compliance with strength requirements, times of setting, slump, slump loss, and shrinkage characteristics.

C. For all classes of concrete, when Type II Cement is used, fly ash or slag cement may be used within the following percentages by weight. When Type I Cement is used, in lieu of Type II Cement, fly ash or slag cement shall be used such that total tricalcium aluminate content (C3A) of the resulting cementitious material is not greater than eight percent.

1. When fly ash is used, material shall have minimum of 20 percent and maximum of 25 percent of total weight of cementitious material.
2. When slag cement is used, material shall have minimum of 40 percent and maximum of 50 percent of total weight of cementitious material.

2.02 AGGREGATES

A. General:

1. Aggregates shall conform to ASTM C33, Class Designation 4S, and as specified in this Section.
2. Do not use aggregates containing soluble salts or other substances, such as iron sulfides, pyrite, marcasite, ochre, or other materials, that can cause stains on exposed concrete surfaces.
3. Aggregates shall be tested to determine potential for alkali-silica reactivity.

B. Fine Aggregate:

1. Provide clean, sharp, natural sand free of loam, clay, lumps, and other deleterious substances.
2. Dune sand, bank run sand, and manufactured sand are unacceptable.

C. Coarse Aggregate:

1. Provide clean, uncoated, processed aggregate containing no clay, mud, loam, or foreign matter, as follows:
 - a. Crushed stone, processed from natural rock or stone.
 - b. Washed gravel, either natural or crushed. Slag, pit gravel, and bank run gravel are unacceptable.

2.03 WATER

- A. Water used in producing and curing concrete shall be clean and free of injurious quantities of oils, acids, alkalis, organic materials, and other substances that may be deleterious to concrete and steel.

2.04 CONCRETE ADMIXTURES

- A. Provide admixtures in accordance with product manufacturer's published instructions. Admixtures shall be compatible with each other. Admixtures shall not contain thiocyanates, shall not contain more than 0.05 percent chloride ion, and shall be non-toxic in the concrete mix after 30 days. Do not use admixtures that have not been incorporated and tested in the accepted mixes, unless otherwise approved by Engineer.
- B. Air Entraining Admixtures:
 1. Air entraining admixture shall meet the requirements of ASTM C260.
- C. Water-Reducing Admixture: ASTM C494, Type A or D.
 1. Proportion Class "A", Class "AF", and Class "B" concrete with non-air entraining, water-reducing, aqueous solution of modified organic polymer. Admixture shall not contain lignin, nitrates, or chlorides added during manufacturing.
- D. High Range Water-Reducing Admixture (HRWR): ASTM C494, Type F or G.
 1. Use high range water reducing admixture in the concrete classifications so specified or indicated. Use of HRWR admixture is allowed at Contractor's option in all other classifications of concrete. Specific admixture formulation shall be as recommended by admixture manufacturer for Project conditions.
 2. Products:
 - a. Plastol Series by The Euclid Chemical Company.
 - b. Glenium Series by BASF.
 - c. Or equal
- E. Plasticizing Admixtures: ASTM C1017, Type I or Type II.
 1. Use plasticizing admixture as an alternate to high range water-reducing admixture. Specific admixture formulation shall be as recommended by admixture manufacturer for Project conditions.
- F. Viscosity Modifying Admixture
 1. Where necessary to control segregation of self-consolidating concrete, a viscosity modifying admixture shall be combined with a high range water reducing admixture either separately or in a combined admixture. Viscosity modifying and high range water reducing admixtures shall be from the same manufacturer and of the recommended types and dosages needed to produce the required concrete flowability and passing ability without segregation.
- G. Set Control Admixtures: In accordance with ASTM C494. Use the following as required:
 1. Type B, Retarding.

2. Type C, Accelerating.
 3. Type D, Water reducing and Retarding.
 4. Type E, Water reducing and Accelerating.
 5. Type F, Water-reducing, high range admixtures.
 6. Type G, Water-reducing, high range, and retarding admixtures.
- H. Calcium Chloride: Do not use calcium chloride.
- I. Shrinkage Reducing Admixture:
1. Shrinkage reducing admixture may be used in mix design when necessary to conform to specified shrinkage limitations, provided that specified strength requirements are complied with and there is no reduction in sulfate resistance in the concrete and no increase in concrete permeability.
 2. Products:
 - a. Conex or Eucon SRA by The Euclid Chemical Company
 - b. MasterLife SRA 20 by BASF Corporation.
 - c. Sika Control 40 by Sika Corporation.
 - d. Or equal
- J. Hydration Controlling Admixture
- a. Where extended concrete delivery times are authorized by the ENGINEER, one of the following hydration controlling admixtures shall be used.
 - b. SikaTard 440, manufactured by Sika Corporation.
 - c. Eucon DS, manufactured by the Euclid Chemical Company.
 - d. MasterSet DELVO, manufactured by BASF Corporation.
 - e. Or equal

2.05 PROPORTIONING AND DESIGN OF MIXES

- A. Prepare concrete design mixes in accordance with Table 03 30 00-A:

TABLE 03 30 00-A CONCRETE DESIGN MIX CRITERIA

Concrete Class	Coarse Aggregate ⁽¹⁾		Minimum	Max. W/CM ⁽⁴⁾	Slump ⁽²⁾	Air (%) ⁽⁶⁾	Min. Comp Strength ⁽³⁾ (psi)
	Size A	Size B	Cementitious ⁽⁵⁾ (lbs/cu yd)				
Class "A" Class "AW"	No. 57	No. 8	553	0.42	4" max.	6 +/- 1.5	4,000
Class "AF" Class "AFW"	No. 467	No. 8	517	0.42	4" max.	5 +/- 1.5	4,000
Class "B"	No. 57 or No. 67		517	0.50	4" max.	6 +/- 1.5	3,000
Class "SC"	No. 57	No. 8	535	0.40	Slump flow ⁽⁷⁾	6 +/- 1.5	4,000
Class "D"	Any ASTM C33		No requirements				2,000

Notes Applicable to Table 03 30 00-A:

1. Coarse aggregate size numbers refer to ASTM C33. Where Size A and B are designated in Table 03 30 00-A, it is intended that the smaller Size B aggregate is to be added, replacing a portion of the coarse or fine aggregate, in the minimum amount necessary to make a workable and pumpable mix with sand content not exceeding 41 percent of total aggregate.
 2. Slumps indicated are prior to addition of high range water reducing admixture or plasticizing admixture.
 3. Mix designs shall be made for all but Class "D", which does not require trial batch, so that the compressive strength achieved for laboratory trial batches will not be less than 125 percent of specified design strength.
 4. Quantity of water to be used in the determination of water-cementitious materials (W/CM) ratio shall include free water on aggregates in excess of SSD and water portion of admixtures.
 5. Minimum cementitious content shall be adjusted in accordance with the requirements of ACI 350.5 and ACI 301 if smaller maximum coarse aggregate size is used.
 6. Required air content listed shall be adjusted in accordance with the requirements of ACI 350.5 and ACI 301 for cycles of freezing and thawing if a different maximum coarse aggregate size is used.
 7. Class "SC" concrete is self-consolidating concrete. Design mix to meet required plastic properties
- B. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, Site conditions, weather, test results, or other circumstances warrant; at no additional cost to Owner and as approved by Engineer. Before using adjusted concrete mixes, laboratory test data and strength results shall be submitted to and approved by Engineer.
- C. Admixtures:
1. Use air-entraining admixture in concrete, unless otherwise shown or indicated. Add air-entraining admixture at admixture manufacturer's prescribed rate to produce concrete at point of placement having air content within prescribed limits.

2. Use water-reducing or high-range water-reducing admixtures in all Class "A", Class "AF", Class "AW", Class "AFW" concrete, and Class SC.
 3. Use amounts of admixtures recommended by admixture manufacturer for climatic conditions prevailing at the Site at time of placing. Adjust quantities and types of admixtures as required to maintain quality.
- D. If adding water at the Site is desired, withhold water at the batch plant so that specified water-cement (or cementitious material) ratio is not exceeded. Addition of water shall be in accordance with ASTM C94. After high-range water-reducing admixture is incorporated into the batch, addition of water is not allowed. Additional high-range water reducing admixture may be added at the Site.
- E. Slump Limits with High-Range Water Reducer:
1. Slump shall not exceed three inches prior to adding high-range water reducer and shall not exceed nine inches, measured at point of placement, after adding high-range water reducer, except where the mix is designed as self-consolidating concrete.
- F. Plastic Properties Required for Self-Consolidating Concrete:
1. Class "SC", self-consolidating concrete, shall have the following plastic properties:
 - a. Slump flow, as determined by ASTM C1611, shall be 26 inches +/- 2 inches with a visual stability index of 0 or 1 and time to reach 20-inch diameter of 3.5 seconds +/- 1 second.
 - b. Passing ability of no greater than 1.5-inch difference between slump flow and J-Ring flow as measured by ASTM C1621.
 - c. Static segregation of less than 5 percent when tested per ASTM C1610.
- G. Shrinkage Limitation:
1. Concrete shrinkage for specimens cast in laboratory from trial batch with total water of 30.2 gallons per cubic yard or less, as measured at 21-day drying age and at 28-day drying age shall not exceed 0.035 percent and 0.040 percent, respectively. For trial batch with total water of 32.7 gallons per cubic yard or greater respective limits shall not exceed 0.030 percent and 0.036 percent. Limits in between shall be linear interpolated. Use mix design for construction that complies with trial batch shrinkage requirements. Shrinkage limitations apply to Class "A", Class "AF", Class "AW", and Class "AFW" concrete. Shrinkage limits for Class "SC" concrete shall meet the above requirements with an increase in allowable shrinkage of 0.003 percent for each category.
 2. Trial Batch Does Not Comply with Shrinkage Limitation:
 - a. If trial batch results do not comply with shrinkage limitation specified in the Contract Documents, redesign the mix to reduce shrinkage.
 - b. After mix has been repeatedly redesigned and Engineer is satisfied that all reasonable means to provide concrete mix that complies with shrinkage requirement have been exercised; and mix design still fails to comply with shrinkage limitation in the Contract Documents, Engineer reserves the right to accept the higher-shrinkage mix, provided that the quantity of shrinkage reinforcing in structures is increased.
 - c. "Reasonable means" will be construed as reducing the total water content to a maximum of 27 gallons per cubic yard, having the large aggregate blended so that eight percent to 18 percent of combined aggregate is retained on each sieve, using an alternate aggregate source, using a shrinkage reducing admixture, and a combination of these means.
 - d. Basis for shrinkage reinforcing increase will be proportional to amount that shrinkage value is over the specified shrinkage limitation and will be determined by Engineer. The cost of providing additional shrinkage reinforcement will be paid by the Owner.

2.06 BONDING AGENT

- A. Provide epoxy and epoxy-cement bonding agents in accordance with Section 03 15 00, Concrete Accessories.

2.07 CONCRETE CURING MATERIALS

- A. Absorptive Cover: Burlap cloth made from jute or kenaf, weighing approximately 10 ounces per square yard and complying with AASHTO M 182, Class 3.
- B. Curing Mats: Shall be heavy carpets or cotton mats, quilted at four inches on centers, and weighing minimum of 12 ounces per square yard when dry.
- C. Moisture-Retaining Cover: Provide one of the following, complying with ASTM C171:
 - 1. Waterproof paper.
 - 2. Polyethylene film.
 - 3. White burlap polyethylene sheet.
 - 4. Liquid Curing Compound: ASTM C309 Type 1-D (water retention requirements):
 - 5. Provide fugitive dye.
 - 6. Curing compound shall be applied by roller or power sprayer.

2.08 FINISHING AIDS

- A. Evaporation Retardant:
 - 1. Product and Manufacturer: Provide one of the following:
 - a. Confilm, by Master Builders.
 - b. Eucobar, by Euclid Chemical Company.
 - c. SikaFilm, by Sika Corporation.
 - d. Or equal.

2.09 CRACK INJECTION MATERIALS

- A. Structural Crack Repair System:
 - 1. Epoxy for Injection: Low-viscosity, high-modulus moisture insensitive type.
 - 2. Products and Manufacturers: Provide one of the following:
 - a. Sikadur 55 SLV or Sikadur 52, and Sikadur 31, Hi-Mod Gel, by Sika Corporation.
 - b. Dural 335, by Euclid Chemical Company.
 - c. Or equal.
- B. Non-structural Crack Repair System:
 - 1. Hydrophobic Polyurethane Chemical Grout:
 - a. Provide hydrophobic polyurethane that forms a flexible gasket.
 - b. Products and Manufacturers: Provide one of the following:
 - 1) SikaFix HH LV, by Sika Chemical Company.
 - 2) Hydro Active Flex SLV, by De Neef Construction Chemicals, Inc.
 - 3) Or equal.
 - c. Shrinkage limit shall not exceed 4.0 percent in accordance with ASTM D1042.

- d. Minimum elongation of 250 percent in accordance with ASTM D3574.
 - e. Minimum tensile strength of 150 psi in accordance with ASTM D3574.
 - 2. Hydrophilic Acrylate-Ester Resin:
 - a. Hydrophilic crack repair system shall be acrylate-ester resin that forms a flexible gasket and increase in volume a minimum of 50 percent when in contact with water.
 - b. Products and Manufacturers: Provide one of the following:
 - 1) Gelacryl Superflex AR manufactured by DeNeef Corporation.
 - 2) AR870 manufactured by Prime Resins, Inc.
 - 3) Or equal.
- 2.10 CONCRETE REPAIR MATERIALS
 - A. Concrete repair mortar shall be pre-packaged, polymer-modified cementitious repair mortar with the following minimum properties:
 - 1. Compressive Strength at One Day: 2,000 psi (ASTM C109).
 - 2. Compressive Strength at 28 Days: 6,000 psi (ASTM C109).
 - 3. Bond Strength at 28 Days: 1,800 psi (ASTM C882 modified).
 - B. Products and Manufacturers: Provide one of the following:
 - 1. Five Star Structural Concrete, by Five Star Products, Inc. Use formulation recommended by manufacturer for the specific application conditions.
 - 2. SikaTop 122 Plus, SikaTop 123 Plus, SikaTop 111 Plus, or Sikacem 133, by Sika Corporation. Use formulation from among those listed in this paragraph recommended by manufacturer for specific application conditions.
 - 3. Emaco S88-CA or S66-CR, by Master Builders Inc. Use formulation from among those listed in this paragraph recommended by manufacturer for specific application conditions.
 - 4. Verticoat, Verticoat Supreme, or Euco SR-VO, by Euclid Chemical Company. Use formulation from among those listed in this paragraph recommended by manufacturer for specific application conditions.
 - 5. Or equal.
 - C. Cement Mortar: Shall consist of mix of one part cement to 1.5 parts sand with sufficient water to form trowelable consistency. Minimum compressive strength at 28 days shall be 4,000 psi. Where required to match the color of adjacent concrete surfaces, blend white portland cement with standard portland cement so that, when dry, patching mortar matches the color of surrounding concrete.
- 2.11 SOURCE QUALITY CONTROL
 - A. Concrete materials may require testing, as directed by Engineer, at any time during the Work if concrete quality is in question. Provide access to material stockpiles and facilities at all times. Tests shall be done at no expense to Owner.

PART 3 – EXECUTION

3.01 INSPECTION

- A. Examine the substrate and conditions under which the Work will be performed and notify Engineer in writing of unsatisfactory conditions. Do not proceed with the Work until unsatisfactory conditions have been corrected.

3.02 CONCRETE MIXING

A. General:

1. Concrete may be produced at batch plants or by the ready-mixed process. Batch plants shall comply with the requirements of ACI 301 and ACI 350.5 and have sufficient capacity to produce concrete of qualities required and in quantities required to comply with the accepted Progress Schedule. All plant facilities are subject to acceptance of Engineer.
2. Mixing:
 - a. Mix concrete with a rotating type batch machine, except where hand mixing of very small quantities is approved by Engineer.
 - b. Remove hardened accumulations of cement and concrete from drum and blades to ensure proper mixing action.
 - c. Replace mixer blades upon loss of ten percent of mixer blades' original height.

B. Site Mixing:

1. When Site mixing of concrete is approved by Engineer mix all materials for concrete in a drum-type batch mixer.
 - a. For mixers of one cubic yard or smaller capacity, continue mixing at least 1.5 minutes but not more than five minutes after all ingredients are in the mixer, before any part of batch is released.
 - b. For mixers of capacity larger than one cubic yard, increase minimum 1.5 minutes of mixing time by 15 seconds for each additional cubic yard or fraction thereof.
2. Do not exceed mixer manufacturer's published rating of the mixer, or mixer nameplate capacity, for total volume of materials used per batch.
3. Equip mixer with automatic controls for proportioning materials and proper, measured quantities.
4. Do not exceed 45 minutes total elapsed time between intermingling of damp aggregates and cement to discharge of completed mix.

C. Ready-Mix Concrete:

1. Comply with ASTM C94 and the Contract Documents.
 - a. Plant Equipment and Facilities: Conform to requirements of NRMCA certification.
 - b. Truck-mixed concrete: Mix concrete in revolving-type truck mixers that are in good condition and produce thoroughly mixed concrete conforming to the Contract Documents. Truck shall operate at agitating speed after mixing is complete or 100 revolutions, whichever occurs first.
 - c. Central-Mixed Concrete: Truck shall operate at agitating speed while in transit.
 - d. Do not exceed rated capacity of mixer.
 - e. Mix concrete for minimum of two minutes after arrival at the Site, or as recommended by mixer manufacturer.
 - f. Mix at proper speed until concrete is discharged from mixer.
 - g. Maintain adequate facilities at the Site for continuous delivery of concrete at required rates.
 - h. Provide access to mixing plant for Engineer upon request.

D. Maintain equipment in proper operating condition, with drums cleaned before charging each batch.

Schedule rates of delivery to prevent delay of placing concrete after mixing, or holding dry-mixed materials too long in mixer before the adding water and admixtures.

3.03 TRANSPORTING CONCRETE

- A. Transport and place concrete not more than 90 minutes after water has been added to the dry ingredients, unless a hydration controlling admixture is authorized by Engineer.
- B. Avoid spilling and separation of concrete mixture during transportation.
- C. Do not place concrete in which the ingredients have separated.
- D. Do not retemper partially set concrete.
- E. Use suitable equipment for transporting concrete from mixer to forms.

3.04 PREPARATION FOR CONCRETING

- A. Submit to Engineer laboratory trial batch test results for proposed mixes at least 15 days prior to start of Work. Do not begin concrete production until associated laboratory trial batch test result submittal has been approved by Engineer.
- B. Notify Engineer a minimum of 24 hours in advance of placing concrete to allow for inspection of form work, joints, waterstops, reinforcement, embedded items, and vapor barriers. The section to be placed shall be fully prepared for concrete placement at the time of notice. Confirm inspection status with Engineer a minimum of 4 hours prior to concrete placement. Do not begin placing concrete until Work is in conformance with the Contract Documents.
- C. Subgrade surfaces shall be thoroughly wetted by sprinkling, prior to the placing of concrete, and these surfaces shall be kept moist by frequent sprinkling up to the time of placing concrete thereon. The surface shall be free from standing water, mud, and debris at the time of placing concrete.
- D. Reinforcing steel and embedded items shall be completely cleaned of mortar, loose rust, form release compounds, dirt, or other substances which would interfere with proper bonding with concrete. Protective coatings on embedded aluminum items shall continuously cover the surface to be in contact with concrete. Any defects in the coating shall be repaired.
- E. Do not place concrete until flow of water entering space to be filled with concrete has been properly stopped or has been diverted by pipes, or other means, and carried out of the forms, clear of the Work. Do not deposit concrete underwater, and do not allow water to rise on concrete surfaces until concrete has attained its initial set. Do not allow water to flow over concrete surface in manner and or velocity that will injure concrete surface finish. Provide temporary pumping or other dewatering operations for removing water as required.
- F. Prepare joint surfaces in accordance with Section 03 15 00, Concrete Accessories.

3.05 CONCRETE PLACEMENT

- A. General:
 - 1. Place concrete continuously, so that no concrete will be placed on concrete that has hardened sufficiently to cause formation of seams or planes of weakness within the section. If section cannot be placed continuously, provide construction joints in accordance with Section 03 15 00, Concrete Accessories.
 - 2. Deposit concrete as nearly as practical in its final location to avoid segregation due to re-handling or flowing. Do not subject concrete to action that may cause segregation. This requirement does not apply to self-consolidating concrete.
 - 3. Screed concrete that is to receive other construction to proper level to avoid excessive skimming or grouting.
 - 4. Do not use concrete that becomes non-plastic and unworkable, or does not conform to required

quality limits, or that has been contaminated by foreign materials. Do not use retempered concrete. Remove rejected concrete from the Site and dispose of it in conformance with Laws and Regulations.

5. Do not place concrete until forms, bracing, reinforcing, and embedded items are each in final position and secure.
6. Do not place footings in freezing weather unless adequate precautions are taken against frost action.
7. Do not place footings, piers or pile caps on frozen soil.
8. Unless otherwise instructed, place concrete only when Engineer is present.
9. Allow minimum of three days between adjoining concrete placements. At expansion joints, allow minimum of one day between adjoining concrete placements.

B. Bonding for Next Concrete Pour:

1. Prepare for bonding of fresh concrete to concrete that has set but is not fully cured, as follows:
 - a. The surface must be saturated surface dry .
 - b. For horizontal surfaces place a six-inch layer of Construction Joint Grout, as specified in Section 03 60 00, Grouting, over the hardened concrete surface.
 - c. Place fresh concrete before the grout has attained its initial set.
2. Accomplish bonding of fresh concrete to fully cured, hardened, existing concrete by using a bonding agent as specified in Section 03 15 00, Concrete Accessories.

C. Concrete Conveying:

1. Handle concrete from point of delivery at the Site, transfer to concrete conveying equipment, and transfer to locations of final deposit as rapidly as practical by methods that prevent segregation and loss of concrete mix materials.
2. Provide mechanical equipment for conveying concrete to ensure continuous flow of concrete at delivery end of conveyor. Provide runways for wheeled concrete conveying equipment from concrete delivery point to locations of final deposit. Keep interior surfaces of conveying equipment, including chutes, free of hardened concrete, debris, water, snow, ice, and other deleterious materials.
3. Do not use chutes for distributing concrete, unless accepted by Engineer.
4. Pumping concrete is allowed, however do not use aluminum pipe for conveying concrete.

D. Placing Concrete into Forms:

1. Deposit concrete in forms in horizontal layers not deeper than 18 inches each and in manner that avoids inclined construction joints. Where placement consists of several layers, place concrete at such rate that concrete being integrated with fresh concrete while still plastic.
2. Do not allow concrete to free-fall within the form from height exceeding four feet. Where high-range water reducer is used to extend slump to at least six inches, maximum allowable free-fall of concrete is six feet. Use "elephant trunks" to prevent free-fall and excessive splashing of concrete on forms and reinforcing. Discontinue free-falls in excess of four feet if there is evidence of segregation.
3. Remove temporary spreaders in forms when concrete placing has reached elevation of such spreaders.
4. Consolidate concrete placed in forms by mechanical vibrating equipment supplemented by hand-spading, rodding, or tamping. Use equipment and procedures for consolidating concrete

in accordance with requirements of ACI 301. Vibration of forms and reinforcing is not allowed unless otherwise accepted by Engineer.

5. Where height of concrete placement in walls exceeds 14 feet, provide temporary windows in formwork to facilitate vibration. Properly close temporary windows when height of concrete approaches windows. Determine location, size, and spacing of temporary windows to suit equipment used.
6. Do not use vibrators to transport concrete inside of forms. Insert and withdraw vibrators vertically at uniformly-spaced locations not farther than the visible effectiveness of the vibrator. Place vibrators to rapidly penetrate the layer of concrete and at least six inches into the preceding layer. Do not insert vibrators into lower layers of concrete that have begun to set. At each insertion, limit the duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcing and other embedded items without causing segregation of concrete mix.
7. Do not place concrete in beam and slab forms until concrete previously placed in columns and walls is no longer plastic.
8. Prevent voids in the concrete. Force concrete under pipes, sleeves, openings, and inserts from one side until visible from the other side.
9. Self-Consolidating Concrete (SCC) may be used with prior approval of Engineer.

E. Placing Concrete Slabs:

1. Deposit and consolidate concrete slabs in continuous operation, within limits of construction joints, until placing of a slab panel or section is completed.
2. Consolidate concrete during placing operations using mechanical vibrating equipment, so that concrete is thoroughly worked around reinforcing and other embedded items and into corners.
3. Consolidate concrete placed in beams and girders of supported slabs, and against bulkheads of slabs on ground, as specified in this Article for formed concrete structures.
4. Bring slab surfaces to correct elevation and level. Smooth the surface, leaving surface free of humps or hollows. Do not sprinkle water on surface while concrete is plastic. Do not disturb slab surfaces prior to commencing concrete finishing.
5. Where slabs are placed in conditions of high temperature or wind that could lead to formation of plastic shrinkage cracks, provide evaporation retardant applied in accordance with retardant manufacturer's recommendations.

F. Placing Self-Consolidating Concrete

1. Place concrete at a rate in locations such that the surface of placed concrete does not lose flowability and plasticity and newly placed concrete can fully integrate with previously placed fresh concrete.
2. Insert pump hose to the bottom of the form at one end such that concrete does not impact reinforcing steel or the sides of forms. Class "SC" concrete shall not be allowed to free fall into the forms. Allow the concrete to flow laterally to fill the form. Raise pump hose or elephant trunk as the concrete level rises keeping the discharge below the concrete surface taking care to avoid trapping air.
3. Alternately, formwork can be designed to allow pumping of self-consolidating concrete from the bottom of the form.
4. Remove temporary spreaders in forms when concrete placing has reached the elevation of such spreaders.
5. Prevent voids in the concrete. Force concrete under pipes, sleeves, openings, and inserts from

one side until visible from the other side.

6. Do not place concrete in beam and slab forms until concrete previously placed in columns and walls is no longer plastic.
7. Self-consolidating concrete shall not be vibrated unless there is evidence of incomplete consolidation and when authorized by Engineer.
8. Placement of self-consolidating concrete in slabs shall be as specified in this Article except that vibration is not required.

G. Quality of Concrete Work:

1. Concrete shall be solid, compact, and smooth, and free of laitance, cracks, and cold joints.
2. Concrete for liquid-retaining structures, and concrete in contact with earth, water, or exposed directly to the elements shall be watertight.
3. Cut out and properly replace to extent directed by Engineer, or repair to satisfaction of Engineer, defects as defined in Article 3.12. Thin patches or plastering are unacceptable.
4. Leaks through concrete that exhibit flowing water, and cracks, holes, or other defective concrete in areas of potential leakage, shall be repaired and made watertight.
5. Repair, removal, and replacement of defective concrete as directed by Engineer shall be at no additional cost to Owner.

H. Cold Weather Placing:

1. Protect concrete Work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures, in compliance with ACI 306.1 and the Contract Documents.
2. When air temperature has fallen to or may be expected to fall below 40 degrees F, provide adequate means to maintain temperature in area where concrete is being placed between 50 degrees F and 70 degrees F for at least seven days after placing. Provide temporary housings or coverings including tarpaulins or plastic film. Maintain temporary heating and protection as necessary so that ambient temperature does not fall more than 30 degrees F in the 24 hours following the seven-day period. Avoid rapid dry-out of concrete due to overheating, and avoid thermal shock due to sudden cooling or heating.
3. When air temperature has fallen to or is expected to fall below 40 degrees F, uniformly heat water and aggregates before mixing for concrete as required to obtain concrete mixture temperature not less than 55 degrees F and not more than 85 degrees F at point of placement.
4. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials. Before placing concrete, verify that forms, reinforcing, and adjacent concrete surfaces are entirely free of frost, snow, and ice.
5. Use only specified accelerating admixtures approved for use. Do not use salt or other materials containing antifreeze agents.

I. Hot Weather Placing:

1. When hot weather conditions exist that would impair the quality and strength of concrete, place concrete in compliance with ACI 305.1 and the Contract Documents.
2. When ambient air temperature is at or above 90 degrees F and rising, cool ingredients before mixing concrete to maintain concrete temperature at time of placement below 80 degrees F. When ambient air temperature is at or above 90 degrees F and falling, cool the ingredients before mixing concrete to maintain concrete temperature at time of placement below 85 degrees F. In no case shall the concrete temperature at time of placement exceed 90 degrees F.

3. Mixing water may be chilled, or chopped ice may be used to control concrete temperature provided the water equivalent of ice is calculated in total amount of mixing water. If required, reduce the time from addition of mix water to placement, or use set-retarding admixture.
4. Cover reinforcing materials with water-soaked burlap if ambient air temperature becomes too hot, so that reinforcing material temperature does not exceed ambient air temperature immediately before embedment of reinforcing in concrete.
5. Wet forms thoroughly before placing concrete.
6. Do not place concrete at temperature that causes difficulty from loss of slump, flash set, or cold joints.
7. Use set-control admixtures shall be as approved by Engineer.
8. Obtain Engineer's approval of substitute methods and materials proposed for use.

3.06 FINISHING OF FORMED SURFACES

A. Standard Form Finish:

1. Standard form finish shall be basically smooth and even, but is allowed to have texture imparted by the form material used. Repair defects in accordance with the Contract Documents.
2. Use standard form finish for the following:
 - a. Exterior vertical surfaces from foundation up to one foot below grade.
 - b. Vertical surfaces not exposed to view.
 - c. Other areas shown or indicated.

B. Smooth Form Finish:

1. Produce smooth form finish by selecting form materials that will impart smooth, hard, uniform texture. Arrange panels in orderly and symmetrical manner with minimum of seams. Repair and patch defective areas in accordance with the Contract Documents.
2. Use smooth form finish for the following:
 - a. Exterior surfaces exposed to view.
 - b. Surfaces to be covered with coating material. Coating material may be applied directly to concrete or may be a covering bonded to concrete such as waterproofing, dampproofing, painting, or other similar system.
 - c. Interior vertical surfaces of liquid-containers.
 - d. Interior and exterior exposed beams and undersides of slabs.
 - e. Surfaces to receive abrasive blasted finish.
 - f. Surfaces to receive smooth rubbed or grout cleaned finish.
 - g. Other areas shown or indicated.

C. Grout Cleaned Finish:

1. Provide grout cleaned finish to concrete surfaces that have received smooth form finish and where defects have been repaired, as follows:
 - a. Combine one part Portland cement to 1.5 parts fine sand by volume, and mix with water to consistency of thick paint. Blend standard Portland cement and white Portland cement, in proportions determined by trial patches, so that final color of dry grout will closely match adjacent concrete surfaces.

- b. Thoroughly wet concrete surface and apply grout uniformly by brushing or spraying immediately to wetted surfaces. Scrub surface with cork float or stone to coat surface and fill surface holes. Remove excess grout by scraping, followed by rubbing with clean burlap to remove visible grout film. Keep grout damp during setting period by using fog spray on surface for at least 36 hours after final rubbing. Complete each area the same day the area is started, with limits of each area being natural breaks in the finished surface.
2. Use grout cleaned finish for the following:
 - a. Interior exposed walls and other vertical surfaces.
 - b. Exterior exposed walls and other vertical surfaces down to one foot below grade.
 - c. Interior and exterior horizontal surfaces, except exterior exposed slabs and steps.
 - d. Interior exposed vertical surfaces of liquid-containing structures down to one foot below normal operating liquid level.
 - e. Other areas shown.

D. Related Unformed Surfaces:

1. At tops of walls, horizontal offsets, and similar unformed surfaces occurring adjacent to formed surfaces, strike off smooth and finish with texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces, unless otherwise shown or indicated.

3.07 SLAB FINISHES

A. Float Finish:

1. After placing concrete slabs, do not work the surface further until ready for floating. Begin floating when surface water has disappeared or when concrete has stiffened sufficiently. Check and level the surface plane to tolerance not exceeding 1/4-inch in ten feet when tested with a ten-foot straightedge placed on surface at not less than two different angles. Cut down high spots and fill low spots. Uniformly slope surfaces to drains. Immediately after leveling, refloat surface to uniform, smooth, granular texture.
2. Use float finish for the following:
 - a. Interior exposed horizontal surfaces of liquid-containing structures, except those to receive grout topping.
 - b. Exterior below-grade horizontal surfaces.
 - c. Surfaces to receive additional finishes, except as shown or indicated.

B. Trowel Finish:

1. After floating, begin first trowel finish operation using power-driven trowel. Begin final troweling when surface produces a ringing sound as trowel is moved over the surface.
2. Consolidate concrete surface by the final hand troweling operation. Finish shall be free of trowel marks, uniform in texture and appearance, and with surface plane tolerance not exceeding 1/8-inch in ten feet when tested with a ten foot straight edge. Grind smooth surface defects that would otherwise project through applied floor covering system.
3. Use trowel finish for the following:
 - a. Interior exposed slabs, unless otherwise shown or indicated.
 - b. Slabs that receive one of the following: resilient flooring, carpeting, or ceramic tile.

C. Non-Slip Broom Finish:

1. Immediately after float finishing, slightly roughen concrete surface by brooming in direction perpendicular to main traffic route. Use fine fiber-bristle broom, unless otherwise directed by Engineer. Coordinate required final finish with Engineer before applying finish.
2. Use non-slip broom finish for the following:
 - a. Exterior exposed horizontal surfaces subject to lightweight foot traffic.
 - b. Interior and exterior concrete steps and ramps.

D. Scratched Finish:

1. After providing float finish, roughen concrete surface with rake before concrete's final set. Amplitude of surface shall be minimum of 1/4-inch.
2. Provide scratched finish for the following:
 - a. Horizontal surfaces that will receive grout topping or concrete equipment pad.
 - b. Surfaces so indicated on the Drawings or elsewhere in the Contract Documents.

3.08 CONCRETE CURING AND PROTECTION

A. General:

1. Protect freshly placed concrete from premature drying, excessive cold or hot temperatures, and maintain without drying at relatively constant temperature for period necessary for hydration of cement and proper hardening of concrete.
2. Start curing after placing and finishing concrete, as soon as free moisture has disappeared from concrete surface. Keep surface continuously moist during entire curing period. Cure for a minimum of 10 days and in accordance with requirements of ACI 301 and ACI 308.1. For concrete sections over 30-inches thick, the curing period shall be for a minimum of 14 days. Avoid rapid drying at end of final curing period.
3. For curing, use water that is free of impurities that could etch or discolor exposed concrete surfaces.
4. Confine water for curing to area being cured.

B. Curing Methods: Curing methods are specified below. Curing methods to be used on each type of concrete surface are specified elsewhere in this Article.

1. Water Curing. Cure by one of the following methods:
 - a. Keep concrete surface continuously wet.
 - b. Ponding or immersion.
 - c. Continuous water-fog spray.
 - d. Covering concrete surface with curing mats, thoroughly saturating mats with water, and keeping mats continuously wet with sprinklers or porous hoses. Place curing mats to cover concrete surfaces and edges with four-inch horizontal lap over adjacent mats; provide eight-inch lap over adjacent mats at vertical surfaces. If necessary, weigh down curing cover to maintain contact with concrete surface.
2. Form Curing. Cure by one of the following methods:
 - a. Forms shall be maintained and loosened during curing period.
 - b. Immediately after forms are loosened or removed, continue with the required curing method as applicable, for remainder of curing period.
 - c. Where wood forms are kept in place, apply water to keep forms wet.

3. Moisture Retaining Cover Curing. Cure as follows:
 - a. Cover concrete surfaces with the required moisture retaining cover for curing concrete, placed in widest practical width with sides and ends lapped at least three inches and sealed using waterproof tape or adhesive. Immediately repair holes or tears during curing period using cover material and waterproof tape.
 4. Liquid Compound Curing. Cure as follows:
 - a. Unless otherwise approved by Engineer, provide water curing or form curing. Request to use liquid curing compound will be considered by Engineer on case-by-case basis. Construction joints, formed surfaces prior to receiving specified form finish, and concrete to receive surface treatment where surface treatment will be bonded to concrete surface (such as, but not limited to grout fill, hardener, coatings, lining, water repellent, painting, resilient flooring, terrazzo flooring, ceramic tile, quarry tile, chemical resistant coatings, or other applications) shall be water-cured or form-cured.
 - b. In liquid-retaining structures, provide water curing or form curing, unless other curing method is approved by Engineer. Requests to use liquid curing compound will be considered by Engineer on case-by-case basis. Request shall provide valid construction reason or safety reason for using liquid compound curing including reason why other curing methods are not viable.
 - c. Apply curing compounds immediately after final finishing or after terminating water curing. Apply curing compound in continuous operation by power spray equipment in accordance with curing compound manufacturer's directions. If areas are subjected to rainfall within three hours after completing curing compound application, area shall be recoated. Maintain coating continuity and repair areas damaged during curing period.
 - d. When liquid curing compound is used, apply first coat of liquid curing compound at compound manufacturer's recommended coverage rate, and subsequently apply second coat at identical rate, thus providing twice the curing compound manufacturer's recommended coverage.
 - e. At end of curing period, remove liquid curing compound where required.
- C. Formed Surfaces: Use the following curing methods:
1. Walls That Will Retain Liquid or That are Under Ground Surface:
 - a. If forms are wood, form curing is allowed for entire curing period. If forms are steel, form curing is allowed for maximum of three days after which forms shall be removed so that concrete is free of the forms for remainder of the curing process.
 - b. Immediately after the forms are loosened or removed, continue with water curing for remainder of curing period.
 - c. When wall surface will not receive surface treatment and when allowed by Engineer, use of liquid curing compound is allowed. Before using liquid compound curing, use water curing or form curing for at least the first three days of curing.
 2. Formed Slab Underside and Beam Surfaces Where Will Retain Liquid:
 - a. Form curing is allowed for the full curing period.
 - b. Immediately after forms are loosened or removed, continue with water curing for remainder of curing period.
 - c. When slab surface will not receive surface treatment and when allowed by Engineer, use of liquid curing compound is allowed.
 3. Vertical Joint Surfaces and Surfaces to Receive Surface Treatment:

- a. Form curing is allowed for entire curing period.
 - b. Immediately after forms are loosened or removed, continue with water curing for remainder of curing period.
 4. Cure other formed surfaces using an appropriate curing method specified in the Contract Documents.
 - D. Unformed Surfaces: Treat with one of the following curing methods:
 1. Slabs and Mats That Will Retain Liquid or are Below Ground Surface:
 - a. Water curing.
 - b. Moisture-retaining cover curing when allowed by Engineer.
 - c. When slab or mat surface will not receive surface treatment and when allowed by Engineer, use of liquid curing compound is allowed. Before using liquid compound curing, use water curing or form curing for at least the first three days of curing.
 2. Construction Joint Surfaces and Slab and Mat Surfaces to Receive Surface Treatment.
 - a. Water curing.
 - b. Moisture-retaining cover curing.
 3. Cure other formed surfaces using an appropriate curing method specified in the Contract Documents.
 - E. Temperature of Concrete During Curing:
 1. When ambient temperature is 40 degrees F or less, continuously maintain concrete temperature between 50 degrees F and 70 degrees F throughout curing period. When necessary, before concrete placing provide for temporary heating, covering, insulation, or housing as required to continuously maintain specified temperatures and moisture conditions throughout concrete curing period. Provide cold weather protection in accordance with requirements of ACI 306.1.
 2. When the ambient temperature is 80 degrees F and above, or during other climatic conditions that would cause too-rapid drying of concrete, before starting concrete placing, provide wind breaks and shading as required, and fog spraying, wet sprinkling, or moisture retaining coverings as required. Continuously protect concrete throughout concrete curing period. Provide hot weather protection in accordance with requirements of ACI 305.1, unless otherwise specified.
 3. Maintain concrete temperature as uniformly as possible, and protect from rapid ambient temperature changes. Avoid concrete temperature changes that exceed five degrees F in one hour and 50 degrees F in 24-hour period.
 - F. Protection:
 1. During curing period, protect concrete from damaging mechanical disturbances including load stresses, heavy shock, excessive vibration, and damage by rain and flowing water. Protect finished concrete surfaces from damage by subsequent construction operations.
- 3.09 CONCRETE INSTALLATION TOLERANCES
- A. Installation Tolerances
1. Concrete placement tolerances, unless otherwise specified in the Contract Documents, shall be in accordance with ACI 117. Tolerances for concrete cover shall be as required by Section 03 20 00, Concrete Reinforcing.
 2. Notify Engineer in writing when concrete placement does not conform with required tolerances, as soon as the condition is known to Contractor.

3. When concrete installation does not conform to required tolerances, do not repair or correct by grinding unless specified in the Contract Documents or approved by Engineer in writing.
4. Verification Measurements:
 - a. If surfaces where tolerances are in question, obtain measurements to verify conformance with tolerances in manner acceptable to Engineer.
 - b. If surfaces tolerances are in question, cost of obtaining measurements shall be at no additional cost to the Owner.
 - c. Before obtaining measurements, obtain Engineer's acceptance of method proposed for obtaining measurements.
 - d. After obtaining measurements, submit measurements to Engineer.
5. Submit with verification measurements submittal proposed method to rectify out-of-tolerance concrete. Do not start repair Work without obtaining Engineer's approval.

3.10 FIELD QUALITY CONTROL

A. Field Testing Services:

1. Owner will employ testing laboratory to perform field quality control testing for concrete. Engineer will direct the testing requirements.
2. Testing laboratory will make standard compression test cylinders and entrained air tests as specified in this Article, under observation of Engineer or Resident Project Representative.
3. Testing laboratory will provide all labor, material, and equipment required for sampling and testing concrete, including: scale, glass tray, cones, rods, molds, air tester, thermometer, and other incidentals required.

B. Quality Control Testing During Construction:

1. Perform sampling and testing for field quality control during placement of concrete, as follows:
 - a. Sampling Fresh Concrete: ASTM C172.
 - b. Slump: ASTM C143; one test for each concrete load at point of discharge. For Class "SC" concrete, determine slump flow and visual stability index per ASTM C1611, one test for every two concrete loads at point of discharge and when a change in the concrete is observed and determine passing ability per ASTM C1621 when directed by Engineer.
 - c. Concrete Temperature: ASTM C1064; one for every two concrete loads at point of discharge, and when a change in the concrete is observed. Test each load when time from batching to placement exceeds 75 minutes.
 - d. Air Content: ASTM C231; one for every two concrete load at point of discharge, and when a change in the concrete is observed.
 - e. Unit Weight: ASTM C138; one for every two concrete loads at point of discharge, and when a change in the concrete is observed.
 - f. Compression Test Specimens:
 - 1) In accordance with ASTM C31; make one set of compression cylinders for each 50 cubic yards of concrete, or fraction thereof, of each mix design placed each day. Each set shall be four standard cylinders, unless otherwise directed by Engineer.
 - 2) Cast, store, and cure specimens in accordance with ASTM C31.
 - 3) Test and record the following when cylinders are cast: slump, concrete temperature, air content, and unit weight. For Class "SC" determine slump flow and visual stability index per ASTM C1611 instead of slump.

- g. Compressive Strength Tests:
 - 1) In accordance with ASTM C39; one specimen tested at seven days and two specimens tested at 28 days. Test fourth cylinder if needed to verify test results .
 - 2) Adjust mix design if test results are unsatisfactory and resubmit for approval.
 - 3) Concrete that does not comply with strength requirements will be considered as defective Work.
 - h. Water/Cementitious Materials Ratio: Perform test when required by Engineer in accordance with AASHTO T318.
 - i. Within 24 hours of completion of test, testing laboratory will submit certified copy of test results to Contractor, concrete producer, and Engineer.
- C. Evaluation of Field Quality Control Tests:
- 1. Do not use concrete delivered to final point of placement having slump, concrete temperature, total air content or unit weight outside specified values.
 - 2. Water/Cementitious Materials Ratio:
 - a. When water content testing indicates water/cementitious materials ratio to exceed specified requirements by greater than 0.02, remaining batches required to complete concrete placement shall have water content decreased in the mix and water reducing admixture dosage increased as required to bring subsequently-batched concrete within specified water/cementitious materials ratio.
 - b. Perform additional testing to verify compliance with specified water/cementitious materials ratio.
 - c. Do not resume concrete production for further concrete placement until Contractor has identified cause of excess water in the mix and revised batching procedures, or adjusted the mix design (and obtained Engineer's associated approval) to bring water/cementitious materials ratio into conformance with the Contract Documents.
 - 3. Compressive Strength:
 - a. Compressive strength tests for laboratory-cured cylinders will be acceptable if the averages of all sets of three consecutive compressive strength tests results equal or exceed specified 28-day design compressive strength of the associated type or class of concrete, and no individual strength test falls below required compressive strength by more than 500 psi.
 - b. Questionable Field Conditions During Concrete Placement:
 - 1) Where questionable field conditions exist during concrete placement or immediately thereafter, strength tests of specimens cured under field conditions will be required by Engineer to check adequacy of curing and protecting of concrete placed. Specimens shall be molded at the same time and from the same samples as laboratory-cured specimens.
 - 2) Provide improved means and procedures for protecting concrete when 28-day compressive strength of field-cured cylinders is less than 85 percent of companion laboratory cured cylinders.
 - 3) When laboratory-cured cylinder strengths are appreciably higher than minimum required compressive strength, field-cured cylinder strengths need not exceed minimum required compressive strength by greater than 500 psi even though the 85 percent criterion may not be met.
 - 4) If individual tests of laboratory-cured specimens produce strengths more than 500 psi

below the required minimum compressive strength, or if tests of field-cured cylinders indicate deficiencies in protection and curing, provide additional measures to ensure that load-bearing capacity of the structure is not jeopardized or impaired. If likelihood of low-strength concrete is confirmed and evaluations indicate load-bearing capacity may have been reduced, perform tests of cores from the concrete in question at Contractor's expense.

- c. If compressive strength tests fail to indicate compliance with minimum requirements of the Contract Documents, concrete represented by such tests will be considered defective.

D. Testing Concrete Structure for Strength:

1. When there is evidence that strength of in-place concrete does not comply with the Contract Documents, Contractor shall employ the services of concrete testing laboratory to obtain cores from hardened concrete for compressive strength determination. Cores and tests shall comply with ASTM C42 and the following:
 - a. Obtain at least three representative cores from each concrete member or suspect area of concrete at locations directed by Engineer.
 - b. Strength of concrete for each series of cores will be acceptable if average compressive strength is at least 85 percent of specified compressive strength and no single core is less than 75 percent of required 28-day required concrete compressive strength.
 - c. Testing laboratory shall submit test results to Engineer on same day that tests are completed. Include in test reports Project name and number (if any), date of sampling and testing, Contractor name, name of concrete testing laboratory, exact location of test core in the Work, type or class of concrete represented by core sample, nominal maximum size aggregate, design compressive strength, compression breaking strength, and type of break (corrected for length-diameter ratio), direction of applied load to core with respect to horizontal plane of concrete as placed, and moisture condition of the core at time of testing.
2. Fill core holes solid with non-shrink grout in accordance with Section 03 60 00, Grouting, and finish to match adjacent concrete surfaces.
3. If results of core tests are unacceptable or if it is impractical to obtain cores, perform static load test and evaluations complying with ACI 318 and ACI 350, as directed by Engineer.

E. Concrete Tolerance Verification Measurements: Refer to Article 3.9 of this Section.

F. Supplier's Services:

1. Water-Reducing Admixture Manufacturer: Furnish services of qualified concrete technician employed by admixture manufacturer to assist in proportioning concrete for optimum use of admixture. Concrete technician shall advise on proper addition of admixture to concrete and on adjustment of concrete mix proportions to meet changing conditions at the Site.

3.11 MISCELLANEOUS CONCRETE ITEMS

A. Temporary Openings:

1. Openings in concrete walls and slabs required for passage of Work are allowed only upon approval of Engineer.
2. Temporary openings made in concrete shall be provided with waterstop in below-ground or liquid-retaining members and structures. Reinforcement going through and around the opening shall be made continuous to provide continuity and shall be approved by the Engineer.
3. Temporary openings that remain in concrete structures shall be filled with the same class of concrete as the adjoining construction, after the Work causing need for temporary opening is complete, unless otherwise shown or directed by Engineer. Mix, place, and cure concrete as specified in this Section to blend with in-place construction. Provide miscellaneous concrete

filling shown or required to complete the Work.

B. Bases or Pads for Piping, Panels, and Equipment:

1. Unless specifically shown or indicated otherwise, provide concrete bases or pads for equipment, floor-mounted panels, and floor-mounted supports for piping and similar construction. Provide all concrete pad and base Work not specifically included under other Sections or other contracts.
2. Dimensions and Elevations:
 - a. Coordinate and construct bases and pads to dimensions shown or indicated, or as required to comply with equipment, panel, or piping manufacturer's requirements and elevations indicated on the Drawing.
 - b. Unless otherwise shown or indicated, place concrete bases for equipment up to one-inch below the equipment manufacturer's base or mounting plate.
 - c. Where specific dimensions or elevations are not shown or indicated, bases and pads shall be six inches thick and extend three inches outside dimensions of the equipment, panel, or supports.
3. Finish: Bases and pads outside of areas to receive non-shrink grout shall have smooth trowel finish, unless special finish such as terrazzo, ceramic tile, quarry tile, or heavy-duty concrete topping is required. In such cases, provide appropriate concrete finish. Surfaces of bases and pads to receive non-shrink grout shall have broom finish.

C. Curbs:

1. Provide monolithic finish to interior curbs by stripping forms while concrete is still green followed by steel-troweling surfaces to hard, dense finish with corners, intersections, and terminations slightly rounded.
2. Exterior curbs shall have rubbed finish for vertical surfaces and broomed finish for top surfaces.

D. Steel Pan Stairs:

1. Provide grout fill for steel pan stair treads, landings, and associated items per the requirements of Section 03 60 00, Grouting.
2. Screed, tamp, and finish concrete surfaces as shown or indicated. Concrete fill surfaces shall receive a non-slip broom finish.
3. Cast into the concrete fill safety inserts and accessories as shown or indicated.

3.12 REPAIR OF CONCRETE PLACED UNDER THIS CONTRACT

A. Repair of Formed Surfaces:

1. Repair the following defects in all formed finishes:
 - a. Spalls, air bubbles, rock pockets, form depressions, and other defects that are more than 1/4-inch in depth.
 - b. Holes from tie rods and other form tie systems.
 - c. Fins, offsets, and other projections that extend more than 1/4-inch beyond designated concrete member surface.
 - d. Structural cracks, as defined by Engineer.
 - e. Non-structural cracks greater than 0.010-inch wide as defined by Engineer. In liquid-retaining structures, elevated slabs subject to the elements or washdowns, below-grade members, and cracks that evidence leakage. Where it is not possible to verify whether a crack is leaking, repair the crack.

2. Repair the following defects in smooth-finish surfaces, in addition to those listed above in this Section:
 - a. Spalls, air bubbles, rock pockets, form depressions, and other defects that extend to more than 1/2-inch in width in any direction, no matter how deep.
 - b. Spalls, air bubbles, rock pockets, form depressions, and other defects of any size that exceed three in number in a 12-inch by 12-inch area, or 12 in number in a three-foot by three-foot area.
 - c. Fins, offsets, and other projections shall be completely removed and smoothed.
 - d. Scratches and gouges in concrete surface.
 - e. Texture and color irregularities. In liquid-retaining surfaces, texture and color irregularities need not be repaired when greater than 12 inches below minimum normal operating liquid surface elevation, except where such defects are indicative of reduced durability.
 3. Where smooth rubbed or grout cleaned finish is specified, minor surface defects repairable by the finishing process need not be repaired prior to finish application, when approved by Engineer.
- B. Method of Repair of Formed Surfaces:
1. Immediately after removing forms, repair and patch defective areas with cement mortar or concrete repair mortar as directed by Engineer. Make repairs made to liquid-retaining structures and below-grade surfaces with repair mortar only. Repair form tie holes in liquid-retaining or below-grade surfaces with non-shrink grout in accordance with Section 03 60 00, Grouting.
 2. Honeycombs, Rock Pockets, and Holes Left by Tie Rods and Bolts:
 - a. Cut out honeycomb, rock pockets, voids, and holes left by tie rods and bolts, down to solid concrete but, in no case, to depth less than one-inch for cement mortar and 1/2-inch for repair mortar. Make edges of cuts perpendicular to concrete surface.
 - b. Before placing cement mortar, thoroughly clean and brush-coat area to be patched with specified bonding agent.
 - c. When using concrete repair mortar, use of bonding agent is optional; prepare the surface and place mortar in accordance with mortar manufacturer's recommendations.
 - d. Repairs at exposed-to-view surfaces shall match the color of surrounding concrete, except color matching is not required for interior surfaces of liquid-retaining surfaces up to one foot below typical minimum liquid level. Impart texture to repaired surfaces to match texture of existing adjacent surfaces. Provide test areas at inconspicuous locations to verify mixture, texture, and color match before proceeding with patching.
 - e. Compact mortar in place and strike off slightly higher than the surrounding surface.
 3. Structural Cracks: Pressure-grout structural cracks using injectable epoxy installed using pressurized system. Apply in accordance with epoxy manufacturer's directions and recommendations.
 4. Non-structural Cracks: Shall be pressure-grouted using injection material specified in paragraph 2.10. Install in accordance with manufacturer's directions and recommendations.
 5. Determination of the crack type shall be made by the Engineer.
 6. Holes Through Concrete:
 - a. Using plunger-type gun or other suitable device, fill holes extending through concrete from least-exposed face, using flush stop held at exposed face; completely fill the hole with

specified repair material.

- b. At below-grade and liquid-containing members, fill holes with concrete repair mortar and use color-matched cement mortar for outer two inches at exposed-to-view surfaces.
 7. Where powerwashing or scrubbing is not adequate, abrasive blast exposed- to-view surfaces that require removal of stains, grout accumulations, sealing compounds, and other substances marring the surfaces. Use sand finer than No. 30 and air pressure from 15 to 25 psi.
- C. Repair of Unformed Surfaces:
1. Test unformed surfaces, such as monolithic slabs, for smoothness and to verify surface plane to specified tolerances for each surface and finish. Correct low and high areas in accordance with this Section.
 2. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness, using template having the required slope. Correct high and low areas in accordance with this Section.
 3. Repair finish of unformed surfaces containing defects that adversely affect concrete durability. Surface defects include crazing, cracks in excess of 0.01-inch wide, spalling, popouts, honeycombs, rock pockets, and other objectionable conditions.
 4. Repair structural cracks in all structures and non-structural cracks in liquid-retaining structures. In liquid-retaining structures, where dry face of concrete member can be observed, repair all cracks evidencing any rate of water flow through crack. Where dry face of member cannot be observed, repair all cracks.
- D. Methods of Repair of Unformed Surfaces:
1. Correct high areas in unformed surfaces by grinding, after concrete has cured sufficiently so that repairs can be made without damage to adjacent areas.
 2. Correct low areas in unformed surfaces, during or immediately after completion of surface finishing, by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Where repairs are required and concrete has already set, sawcut around perimeter of area to be repaired to depth of 1/2-inch and remove concrete so that minimum thickness of repair is 1/2-inch. Apply specified concrete repair mortar in accordance with repair mortar manufacturer's directions and recommendations.
 3. Repair defective areas, except random cracks and single holes not exceeding one-inch diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean, square cuts, and expose reinforcing steel with at least 3/4-inch clearance all around. Minimum thickness of repair shall be 1.5 inches. Dampen concrete surfaces in contact with patching concrete and brush with specified bonding agent. Place patching concrete while bonding agent is tacky. Mix patching concrete of same materials and proportions to provide concrete of same classification as original, adjacent concrete. Place, compact, and finish as required to blend with adjacent finished concrete. Cure in the same manner as adjacent concrete.
 4. Repair isolated, random, non-structural cracks (in members that are not below grade or liquid-retaining), and single holes not greater than one-inch diameter, by dry-pack method. Groove top of cracks, and cut out holes to sound concrete, and clean repair area of dust, dirt, and loose particles. Dampen all cleaned concrete surfaces and brush with the specified bonding agent. Place dry-pack before cement grout takes its initial set. Mix dry-pack, consisting of one part portland cement to 2.5 parts fine aggregate passing No. 16 mesh sieve, using only enough water as required for handling and placing. Compact dry-pack mixture in place and finish to match adjacent concrete. Keep patched areas continuously moist for at least 72 hours.
 5. Structural cracks shall be pressure-grouted using injectable epoxy. Apply in accordance with epoxy manufacturer's directions and recommendations.

6. Non-structural cracks in below-grade and liquid-retaining structures shall be pressure-grouted using injection material specified in paragraph 2.10.B. Apply in accordance with resin manufacturer's directions and recommendations.
 7. Determination of crack type will be by Engineer.
- E. Other Methods of Repair:
1. Repair methods not specified in this Section may be used when approved by Engineer.

END OF SECTION

SECTION 31 14 10 SHORING AND BRACING

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Work required for protection of an excavation or structure through shoring, sheeting, and bracing.
- B. Contractor to provide support for existing tanks, tunnels, and building foundations at all locations where excavation for new Work impacts or has the potential to impact existing tanks, tunnels and building foundations.

1.2 SUPERVISION

- A. Engage and assign supervision and design of shoring and bracing work to a qualified foundation consultant who is a Licensed Professional Engineer experienced in structural engineering and registered in the State of Indiana.

1.3 REFERENCES

- A. Comply with local codes and ordinances of governing authorities having jurisdiction and all federal and state laws and regulations applying to the design and construction of shoring, sheeting, and bracing.
- B. National Bureau of Standards Building Sciences Series 127 "Recommended Technical Provisions for Construction Practice in Shoring and Sloping Trenches and Excavations."

1.4 SUBMITTALS

- A. Provide submittals as specified in 01 33 00, Submittal Procedures.
- B. Submit a certificate signed and sealed by a Licensed Professional Engineer experienced in structural engineering and registered in the State of Indiana that certifies that the Licensed Professional Engineer has evaluated and approved the Contractor's excavation plan and has prepared complete design calculations and working drawings for the shoring, sheeting, and bracing which will be used for excavation support.
 - 1. Provide a separate certificate for each unique situation, location and/or type of support required before starting the excavation.
 - 2. Where commercially manufactured trench boxes are used, provide a certificate from the Contractor's Licensed Professional Engineer stating the conditions under which the trench boxes will be used.

1.5 JOB CONDITIONS

- A. Before starting work, check and verify governing dimensions and elevations. Survey condition of adjoining properties, take photographs, recording existing settlement or cracking of structures, pavements, and other improvements. Prepare list of such damages, verified by dated photographs, and signed by Contractor and others conducting investigation.

1.6 EXISTING UTILITIES

- A. Protect existing active utility services and structures from damage during shoring and bracing work. Repair or replace damages to satisfaction of utility owner.

PART 2 PRODUCTS

2.1 MATERIALS

- A. Provide suitable shoring and bracing materials which will support loads imposed as recommended by the Contractor's Licensed Professional Engineer who designed the shoring, sheeting, and bracing.
- B. Where wood lagging is to be left in place, use oak or treated fir or treated pine. Use only environmentally safe treatment for wood lagging.

PART 3 EXECUTION

3.1 GENERAL

- A. Provide safe working conditions. Prevent shifting of material and damage to structures or other work and comply with all applicable laws and regulations.
- B. Properly shore, sheet, and brace all excavations that are not cut back to the proper slope, as determined by the Contractor's Licensed Professional Engineer.
- C. Place shoring, sheeting, and bracing so as not to strain portions or the completed work or existing structures or infrastructure until construction has proceeded far enough to provide adequate strength.
- D. Take immediate corrective action any time Contractor's Licensed Professional Engineer determines existing shoring, sheeting or bracing is inadequate or unsuited for the purpose.

3.2 SHORING

- A. Protect site from caving and unacceptable soil movement. Where shoring is required, locate system to clear permanent construction and to permit forming and finishing of concrete surfaces. Provide shoring system adequately anchored and braced to resist earth and hydrostatic pressures.
- B. Shoring systems retaining earth on which support or stability of existing structures is dependent must be left in place at completion of work. If wood is part of shoring system near existing structures, use pressure preservative treated materials or remove before placement of backfill.

3.3 BRACING

- A. Locate bracing to clear permanent work. If necessary, to move a brace, install new bracing prior to removal of original brace.
- B. Install internal bracing, if required, to prevent spreading or distortion to braced frames.

- C. Maintain bracing until structural elements are rebraced by other bracing or until permanent construction can withstand lateral earth and hydrostatic pressures.
- D. Remove sheeting, shoring and bracing in stages to avoid disturbance to underlying soils and damage to structures, pavements, facilities, and utilities.
- E. Repair or replace adjacent work damaged or displaced through installation or removal of shoring and bracing work.

3.4 REMOVAL

- A. Remove shoring, sheeting, and bracing as the excavation is refilled in a manner to avoid the caving in of the bank or disturbance to adjacent areas or structures.
- B. Fill voids left by the withdrawal of the shoring, sheeting, or bracing. If bedding is disturbed, re-compact to meet specified density requirements.
- C. Obtain permission from the Contractor's Licensed Professional Engineer before removal of any shoring, sheeting or bracing.

END OF SECTION

SECTION 31 23 00 – EXCAVATION AND FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. This WORK shall consist of excavation, embankment fill, disposal of excess material, shaping, and compaction of all material encountered within the limits of WORK, including excavation and fill for structures. The excavation shall include, but is not limited to, the native soils which shall be excavated for the PROJECT WORK. All WORK shall be completed in accordance with these SPECIFICATIONS, the lines and grades, and typical cross-sections shown on the DRAWINGS.
- B. All excavation shall be classified, “unclassified excavation,” or “muck excavation” or “rock excavation,” as hereafter described. All embankment shall be classified “embankment material” as hereafter described.

1.02 RELATED SECTIONS

- A. The following is a list of SPECIFICATIONS which may be related to this section:
 - 1. Section 01 57 19, Temporary Environmental Controls
 - 2. Section 31 11 00, Clearing and Grubbing.
 - 3. Section 31 23 19, Dewatering.
 - 4. Section 31 25 00, Erosion and Sedimentation Control

1.03 REFERENCES

- A. The following is a list of standards which may be referenced in this section:
 - 1. ASTM International (ASTM):
 - a. D698, Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12 400 ft-lbf/ft³ (600 kN-m/m³)).
 - b. D4253, Standard Test Methods for Maximum Index Density and Unit Weight of Soils Using a Vibratory Table.

1.04 DEFINITIONS

- A. Embankment Material shall consist of approved material acquired from excavation or from outside sources, hauled and placed in embankments.
- B. Muck Excavation shall consist of the removal of mixtures of soils and organic matter not suitable for foundation material and replacement with approved material.
- C. Rock Excavation shall consist of igneous, metamorphic and sedimentary rock which cannot be excavated without the use of rippers, and all boulders or other detached stones each having a volume of one-half (1/2) cubic yard or more, as determined by physical or visual measurement. It shall also include replacement with approved material as required.
- D. Unclassified Excavation shall consist of the excavation of all materials of whatever character required of the WORK, obtained within the PROJECT limits.

1.05 QUALITY ASSURANCE

- A. Final topography and/or cross-sections shall be surveyed of areas that are to finished grade and compared to the design section for accuracy.
- B. Final grade shall match design grades within the tolerances discussed in PART 3 EXECUTION.

PART 2 PRODUCTS

2.01 MATERIALS

- A. Embankment Material may consist of approved material acquired from excavations or material hauled from outside the PROJECT limits.
- B. Suitable material identified onsite shall be used first for embankments and backfill.
- C. Excess excavated native soils which are not used as embankment or backfill shall become the property of CONTRACTOR and shall be disposed of offsite by CONTRACTOR, in a location acceptable to ENGINEER.
- D. Muck Excavation shall also include the replacement of excavated muck with uniformly graded rock, riprap, onsite or imported soils, or other material, whichever is most suitable for the specific situation encountered.
- E. ENGINEER will determine which type of aggregate or other material which shall be used after observing the specific site conditions.
- F. Structural Backfill:
 - 1. When specified on the DRAWINGS or as required by ENGINEER, Class I structural backfill shall meet the following gradation requirements:

Sieve Size	% By Weight Passing
	Square Mesh Sieves
2-inch	100
No. 4	30 - 100
No. 50	10-60
No. 200	5-20

- 2. In addition, this material shall have a liquid limit not exceeding thirty five (35) and a plasticity index of not over six (6).
- 3. Impervious structural backfill, where shown or specified, shall consist of material having one hundred percent (100%) finer than two (2) inches in diameter and a minimum of thirty-five percent (35%) passing a No. 200 U.S. Standard Sieve.

PART 3 EXECUTION

3.01 GENERAL EXCAVATION/EMBANKMENT

A. General:

1. The excavation and embankment shall be finished to reasonably smooth and uniform surfaces.
2. Variation from the subgrade plane shall not be more than eight-tenths (0.08) foot in soil or more than eight-tenths (0.08) foot above or one-half (0.50) foot below in rock.
3. Where bituminous or concrete surfacing materials are to be placed directly on the subgrade, the subgrade plane shall not vary more than four-tenths (0.04) foot.
4. Materials shall not be wasted without permission of ENGINEER.
5. Excavation operations shall be conducted so that material outside of the limits of slopes will not be disturbed.
6. Prior to beginning grading operations in any area, all necessary clearing and grubbing in that area shall have been performed in accordance with Section 31 11 00, Clearing and Grubbing, of these SPECIFICATIONS.
7. CONTRACTOR shall notify ENGINEER in sufficient time before beginning excavation or embankment such that the necessary topography and/or cross-sections may be taken. CONTRACTOR shall not excavate beyond the dimensions and elevations established, and material shall not be removed prior to surveying the site.
8. When CONTRACTOR's excavating operations encounter remains of prehistoric people's dwelling sites or artifacts of historical or archaeological significance, the operations shall be temporarily discontinued.
 - a. ENGINEER will contact archaeological authorities to determine the disposition thereof.
 - b. When directed, CONTRACTOR shall excavate the site in such a manner as to preserve the artifacts encountered and shall remove them for delivery to the custody of the proper state authorities.
 - c. Such excavation will be considered and paid for as extra WORK.

B. Excavation:

1. Unclassified:
 - a. All excess suitable material excavated from the PROJECT site and not used for embankment shall be removed from the PROJECT site and become the property of CONTRACTOR.
 - b. Where material encountered within the limits of the WORK is considered unsuitable for embankment (fills) on any portion of this PROJECT WORK, such material shall be excavated as directed by ENGINEER and replaced with suitable fill material.
 - c. All unsuitable excavated material from excavation consisting of any type of debris (surface or buried), excavated rock, bedrock or rocks larger than six (6) inches in diameter, and boulders shall be hauled from the PROJECT site and disposed of by CONTRACTOR at CONTRACTOR's expense.

- d. Debris is defined as "anything that is not earth which exists at the job site."
- 2. Muck:
 - a. Where excavation to the finished grade section results in a subgrade or slopes of unsuitable soil, ENGINEER may require CONTRACTOR to remove the unsuitable materials and backfill to the finished graded section with approved material.
 - b. Disposal of the unsuitable material and replacement with suitable material shall be at CONTRACTOR's expense.
- 3. Good surface drainage shall be provided around all permanent cuts to direct surface runoff away from the cut face.
- 4. Rock:
 - a. Unless otherwise specified, rock shall be excavated to a minimum depth of 0.5 foot below subgrade within the limits of the channel area, and the excavation shall be backfilled with material shown on the DRAWINGS or as designated by ENGINEER.
 - b. Disposal of material and replacement with suitable approved material shall be at CONTRACTOR's expense.
- C. Embankment Construction:
 - 1. Embankment construction shall consist of constructing all fill areas, including preparation of the areas upon which they are to be placed, the placing and compacting of approved material within areas where unsuitable materials have been removed, and the placing and compacting of Embankment Material in holes, pits and other depressions within the PROJECT area.
 - 2. Only approved materials shall be used in the construction of embankments and backfills.
 - 3. Approved materials shall consist of clean onsite cohesive soils or approved imported soils.
 - 4. Onsite cohesive soils or imported soils shall be placed and compacted in horizontal lifts, using equipment and procedures that produce recommended moisture contents and densities throughout the lift and embankment height. Onsite or imported cohesive soils shall be compacted within a moisture content range of two percent (2%) below, to two percent (2%) above optimum moisture content and compacted to ninety-five percent (95%) of the Maximum Standard Proctor Density (ASTM D698).
 - 5. When embankment is to be placed and compacted on hillsides, or when new embankment is to be compacted against existing embankments, or when embankment is built one-half (1/2) width at a time, the slopes that are steeper than four-to-one (4:1) when measured longitudinally or at right angles to the adjacent ground shall be continuously benched over those areas where it is required as the WORK is brought up in layers.
 - a. Benching shall be well "keyed" and where practical a minimum of eight (8) feet. Each horizontal cut shall begin at the intersection of the original ground and the vertical sides of the previous cuts.

- b. Material thus cut out shall be recompacted along with the new Embankment Material at CONTRACTOR's expense.
- 6. The ground surface underlying all fills shall be carefully prepared by removing all organic matter, scarification to a depth of eight (8) inches and recompacting to ninety-five percent (95%) of the Maximum Standard Proctor Density (ASTM D698) at optimum moisture content + or - two percent (2%) prior to fill placement.
- 7. Embankment Material shall be placed in horizontal layers not exceeding 8 inches (loose measurement) and shall be compacted to ninety five percent (95%) of the Maximum Standard Proctor Density (ASTM D698) at optimum moisture content + or - two percent (2%).
 - a. Effective spreading equipment shall be used on each lift to obtain uniform thickness prior to compacting.
 - b. As the compaction of each layer progresses, continuous leveling and manipulating required to ensure uniform density.
- 8. For embankments which serve as berms, the downstream portion shall be keyed into the subsurface soils a minimum of three (3) feet to enhance the stability of the slope.
- 9. Materials which are removed from excavations beneath the water table may be over the optimum moisture content and shall be required to be dried out prior to reusing them.
- 10. Cross hauling or other action as appropriate will be ordered when necessary to ensure that the best available material is placed in critical areas of embankments, including the top two (2) feet of all embankments. No additional payment will be made for cross hauling ordered by ENGINEER.
- 11. Frozen materials shall not be used in construction of embankments.
- 12. During the construction of the channels, the channel bottom shall be maintained in such condition that it will be well drained at all times.
- 13. Excavation or embankment (fill), and structural backfill WORK either completed or in a stage of completion that is either eroded or washed away or becomes unstable as a result of either rains, snow, snow melt, channel flows, or lack of proper water control shall be either removed and replaced, recompacted, or reshaped as directed by ENGINEER and in accordance with the DRAWINGS and SPECIFICATIONS at CONTRACTOR's sole expense.
- 14. Removed unsuitable materials shall be hauled away and disposed of at CONTRACTOR's expense. Placing of replacement materials for removed unsuitable materials shall be purchased, placed, and compacted at CONTRACTOR's expense.

D. Proof Rolling:

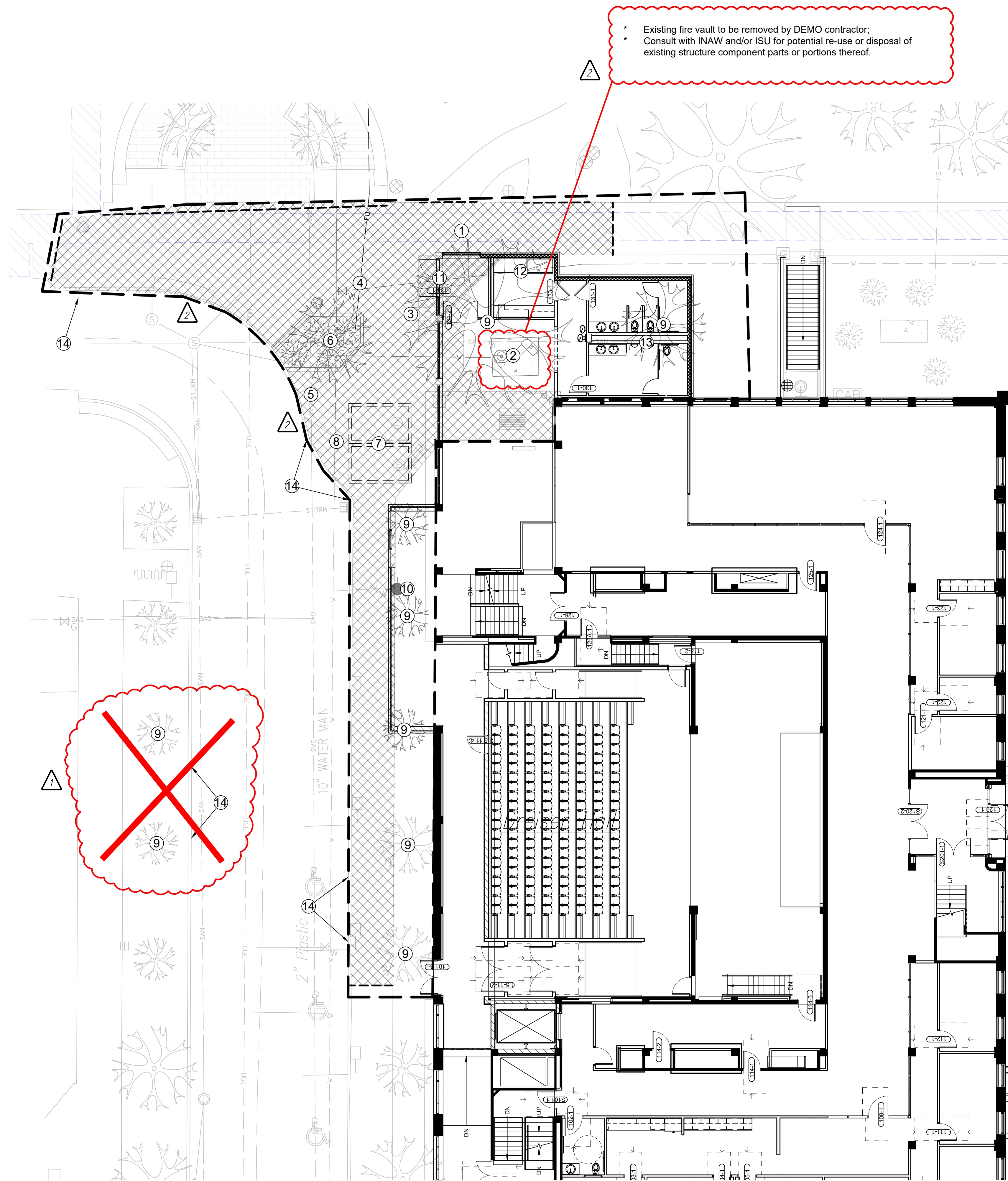
- 1. Proof rolling with a heavy rubber tired roller shall be required, if designated on the DRAWINGS or when ordered by ENGINEER.
- 2. Proof rolling shall be done after specified compaction has been obtained. Areas found to be weak and those areas which failed shall be ripped, scarified, wetted if necessary, and recompacted to the requirements for density and moisture at CONTRACTOR's expense.
- 3. Proof rolling shall be done with equipment and in a manner acceptable to ENGINEER. Proof rolling as shown on the DRAWINGS or as ordered by ENGINEER shall not be measured and paid for separately, but shall be included in the unit prices bid for the WORK.

3.02 EXCAVATION AND BACKFILL FOR STRUCTURES

- A. Poor foundation material for any of the WORK shall be removed, by CONTRACTOR, as directed by ENGINEER.
 - 1. CONTRACTOR will be compensated for removal and replacement of such materials in accordance with Muck Excavation.
- B. CONTRACTOR is cautioned that construction equipment may cause the natural soils to pump or deform while performing excavation WORK inside and on footings, structural floor slabs, or other structure foundation areas.
- C. CONTRACTOR shall remove and replace at CONTRACTOR's expense any foundation materials which are:
 - 1. Saturated by either surface or subsurface flows because of the lack of adequate water control or dewatering work by CONTRACTOR;
 - 2. Frozen for any reason; or
 - 3. Disturbed by CONTRACTOR's WORK or caused to become unacceptable for foundation material purposes by means of CONTRACTOR's equipment, manpower, or methods of WORK.
- D. Dewatering shall not be conducted by pumping from inside footings, structural floor slabs, or other structure foundation limits. This may decrease the supporting capacity of the soils.
- E. Care shall be taken when excavating the foundations to avoid disturbing the supporting materials. Excavation by either hand or careful backhoe soil removal, may be required in excavating the last few inches of material to obtain the subgrade of any item of the concrete WORK.
- F. Any over-excavated subgrades that are due to CONTRACTOR's actions, shall be brought back to subgrade elevations, as indicated on the DRAWINGS, by CONTRACTOR and at CONTRACTOR's expense in the following manner:
- G. For over-excavations of two (2) inches or less, either backfill and compact with approved granular materials; backfill with one-half (1/2) inch crushed rock; or fill with concrete at the time of the appurtenant structure concrete pour.
- H. For over-excavations greater than two (2) inches, backfill and compact with an approved granular material.
 - 1. All granular footings, structural floor slabs, or other structure areas shall be compacted with a vibratory plate compactor prior to placement of concrete, reinforcing, or bedding materials.
 - 2. Backfill, and fill within three (3) feet adjacent to all structures and for the full height of walls, shall be selected non-swelling material.
 - a. It shall be granular, well graded, and free from stones larger than two (2) inches.
 - b. Material may be job excavated, but shall selectivity be required as determined by ENGINEER.

- c. Stockpiled material, other than topsoil from the excavation, shall be used for backfilling unless an impervious structural backfill is specified.
 - d. The backfill material shall consist of either clean onsite granular material free of stones larger than two (2) inches in diameter with no more than twenty percent (20%) passing the No. 200 sieve, or equivalent imported materials.
 - e. All backfill around the structures shall be consolidated by mechanical tamping.
 - f. The material shall be placed in six-inch (6") loose lifts within a range of two percent (2%) above to two percent (2%) below the optimum moisture content and compacted to ninety-five percent (95%) of Maximum Standard Proctor Density (ASTM D698) for cohesive soils, or to seventy-five percent (75%) relative density for pervious material as determined by the relative density of cohesionless soils test, ASTM D4253.
3. Impervious structural backfill shall be placed in six-inch (6") loose lifts within a range of two percent (2%) above to two percent (2%) below the optimum moisture content and compacted to ninety-five percent (95%) of Maximum Standard Proctor Density for cohesive soils as determined by ASTM D698.

END OF SECTION



DEMO SITE LEGEND

- ① Excavate to Expose and Confirm Edge of Utility (Tunnel to Remain in Place Undisturbed)
- ② Remove and Re-locate Fire Protection Vault
- ③ Remove and Re-locate Electric Handhole
- ④ Excavate to Expose and Confirm Location of Fiber Optic Line (To Remain in Place Undisturbed)
- ⑤ Excavate to Expose and Confirm Location of Gas Main (To Remain in Place Undisturbed)
- ⑥ Sawcut to Remove Curb Island, Tree, Shrubs, ADA Ramp, and Irrigation
- ⑦ Excavate to Expose and Confirm Edge of Electrical Vault (To Remain in Place Undisturbed)
- ⑧ Excavate to Expose and Confirm Location of Water Main (To Remain in Place)
- ⑨ Tree to be Removed
- ⑩ Remove and Re-locate Fire Hydrant
- ⑪ Remove Brick Pavers to Excavate for New Building Foundations
- ⑫ Excavate to Expose Water Main Confirm Invert Elevation Depth for Re-location or Encasement in Concrete Under New Foundation
- Excavate to Expose Sewer Pipe Confirm Invert Elevation Depth for Re-location or Encasement in Concrete Under New Foundation

- ⑭ Street Curb Removal

- Remove Sidewalk and / or street pavement and curb
- Sawcut Concrete Sidewalk and/or street pavement and curb

- See Sheet C4.00 for proposed locations for new fire vault and hydrant.
- Consult with INAW and/or ISU for potential re-use or disposal of existing structure component parts or portions thereof.



CERTIFICATION

Bid Set

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: TM20-177
Drawn By: ATF
Checked By: MV, EM
Scale: See Drawing
Issue Date: June 4, 2020

REVISION SCHEDULE			
Rev. 1	Addendum #2	June 19, 2020	
Rev. 2	Addendum #6	July 8, 2020	

Demolition Plan

C2.00



CERTIFICATION

Bid Set

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: TM20-177
Drawn By: ATF
Checked By: MV, EM
Scale: See Drawing
Issue Date: June 4, 2020

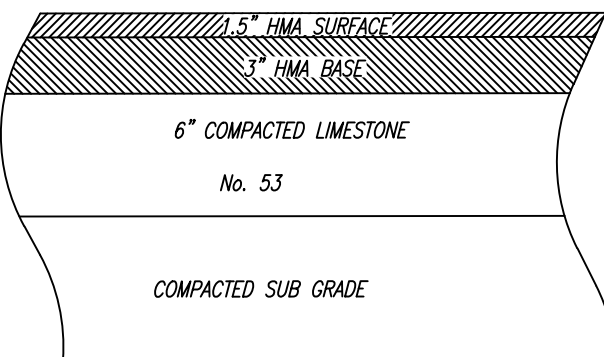
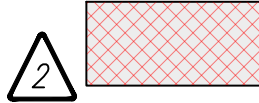
REVISION SCHEDULE			
Rev. 1	Addendum #2	June 19, 2020	
Rev. 2	Addendum #6	July 8, 2020	

Site/Grading Plan

C3.00

SITE LEGEND

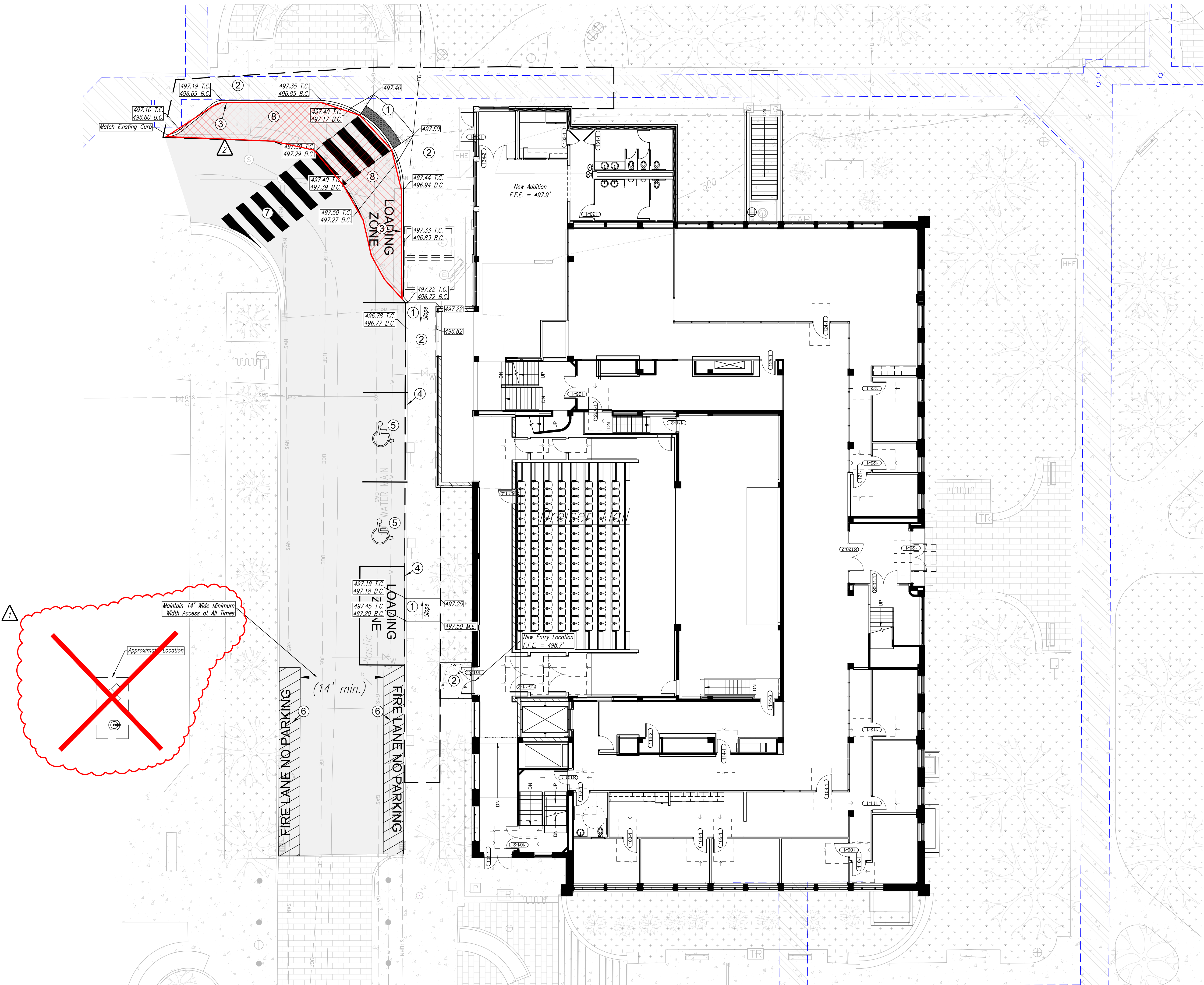
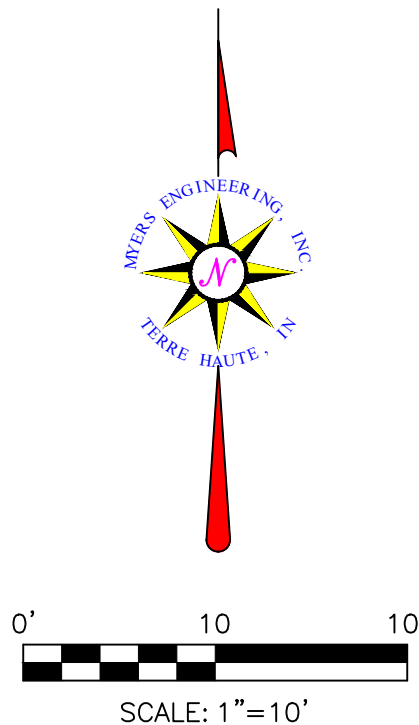
- 1 ADA Ramp
- 2 Concrete Sidewalk
- 3 Integral Walk - 6" Curb
- 4 Sidewalk Flush with Pavement
- 5 ADA Parking (See Detail)
- 6 Fire Lane Pavement Markings (See Detail)
- 7 Cross-walk Pavement Marking (See Detail)
- 8 Standard Asphalt Pavement



- NOTES
- 1) COMPACT SUBGRADE TO MINIMUM 98% OF OPTIMUM DRY DENSITY PER ASTM D-698 (STANDARD PROCTOR).
 - 2) PLACE AND COMPACT AGGREGATE BASE IN TWO(2) LIFTS, EACH COMPACTED TO 100% OPTIMUM DRY DENSITY PER ASTM D-698.
 - 3) STANDARD HMA PER INDOT STANDARD SPECIFICATIONS.

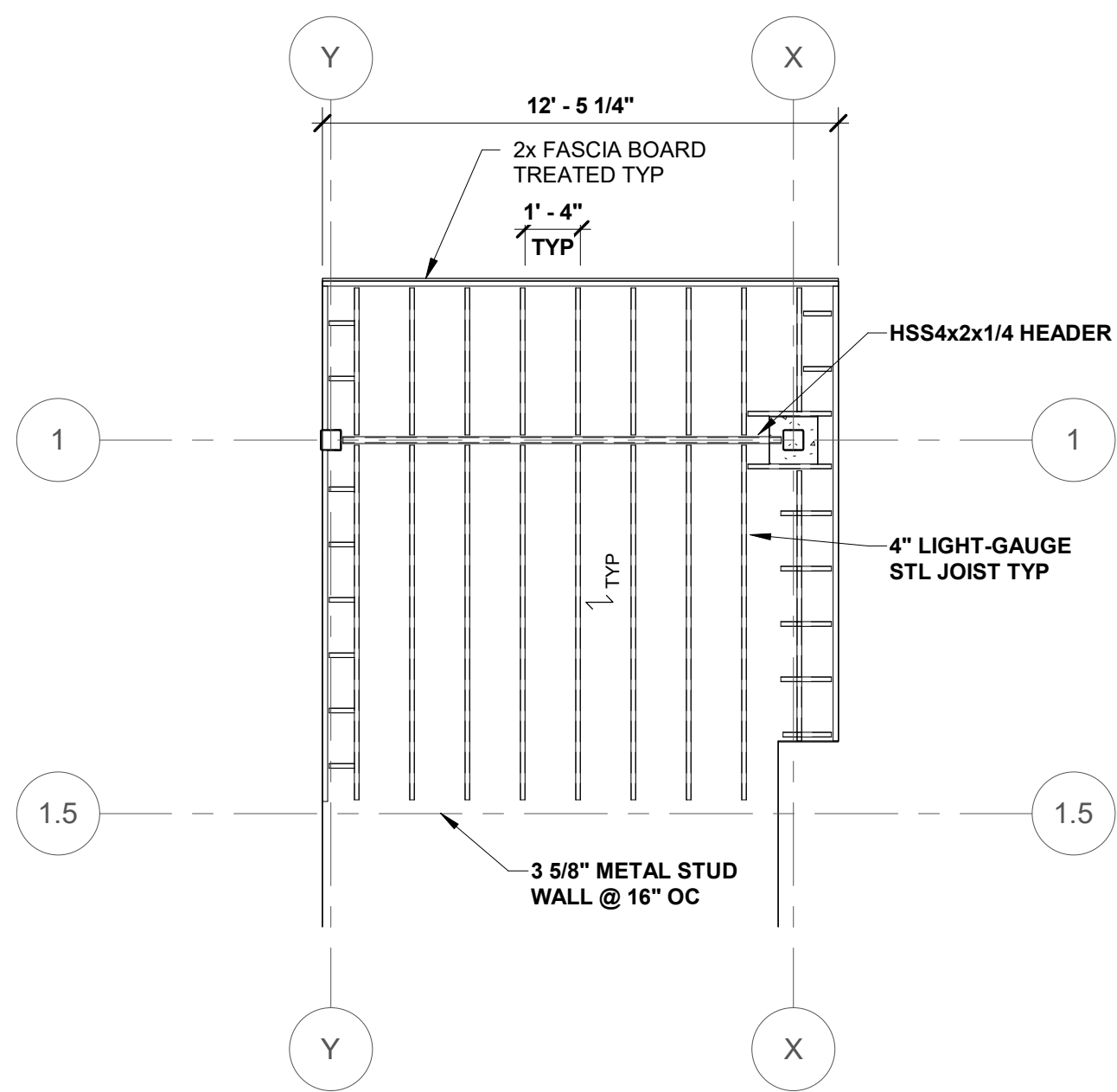
STANDARD ASPHALT PAVEMENT SECTION

NOT TO SCALE



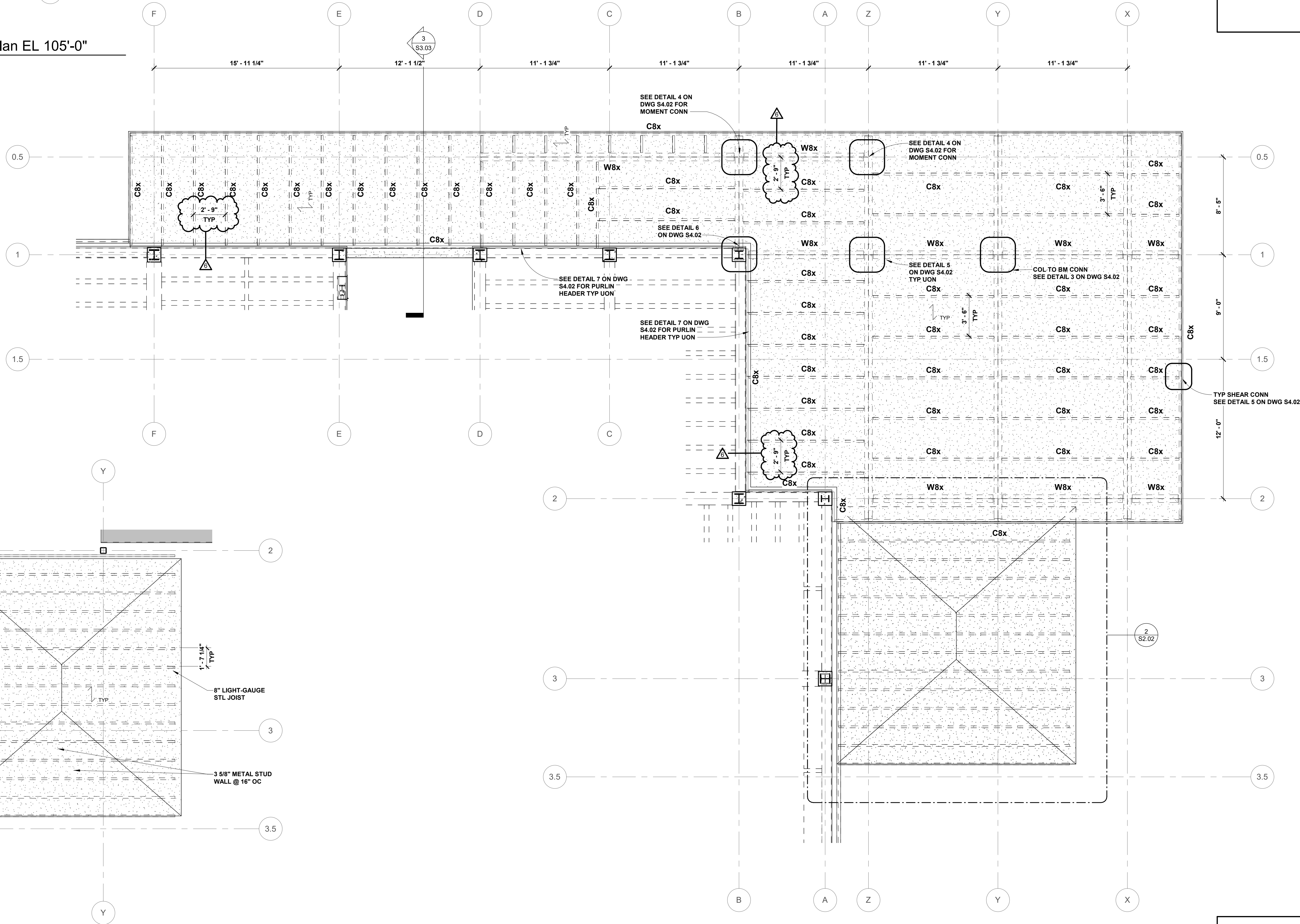
C:\2020\04-4271 ISU Dreiser Hall Renovations\25 Revit Files\10 Central Moduli\19052_ISU Dreiser Hall_19_STRUCT.rvt

7/8/2020 9:04:14 AM



- STRUCTURAL NOTES**
LOBBY CANOPY
1. FIELD VERIFY ALL DIMENSIONS.
 2. FOR CONNECTION DETAILS SEE DRAWING S4.03 FOR DOOR HEADER AND LIGHT GA METAL LEDGER.
 3. SEE ARCH DRAWINGS FOR ADDITIONAL DETAILS OF ROOF ASSEMBLY.
 4. ROOF WL = 24.96 PSF TYP DECK UPLIFT
 5. ROOF OVERHANG WL = 13.21 PSF TYP DECK UPLIFT
 6. SHEATHING SPAN NOTED THUS (---). SHEATHING SIZE IS NOTED:
ROOF = 3/4"
 7. LIGHT-GAUGE JOIST ARE C4 UON.
 8. ADDITIONAL FRAMING REQ'D FOR MEP ELEMENTS SEE VARIOUS DIVISIONS FOR MORE INFORMATION.

3 Structural Plan
Lobby Canopy - Plan EL 105'-0"
S2.02 1/4" = 1'-0"



1 Structural Plan
Lobby Addition - Plan EL 113'-1 1/2"
S2.02 1/4" = 1'-0"

- STRUCTURAL NOTES**
ROOF FRAMING
1. FIELD VERIFY ALL DIMENSIONS.
 2. FOR SIZE AND LOCATION OF EQUIPMENT SUPPORTS AND DUCT/PIPE OPENINGS SEE OTHER DRAWINGS.
 3. ROOF DESIGN LL = 20 PSF
 4. ROOF DESIGN SL = 19 PSF (W RAIN-ON-SNOW SURCHARGE)
 5. ROOF WL = 24.96 PSF TYP DECK UPLIFT
 6. ROOF OVERHANG WL = 13.21 PSF TYP DECK UPLIFT
 7. ALL STRUCTURAL SHAPES SHALL BE STEEL AS FOLLOWS (UNLESS OTHERWISE NOTED):
WBx = WBx31
CBx = CBx13.75
 8. STEEL DECKING SPAN NOTED THUS (---). STEEL DECKING SIZES AS NOTED:
ROOF = 0.6B22
 9. LIGHT-GAUGE JOIST ARE C8 UON.
 10. SECURE THE EXISTING BEAMS AND COLUMNS UON.

- GENERAL STRUCTURAL NOTES**
1. DO NOT SCALE DRAWINGS.
 2. FOR GENERAL NOTES AND TYPICAL DETAILS SEE S0.01 TO S0.03 DRAWINGS.
 3. FOR ADDITIONAL BUILDING INFORMATION SEE DRAWINGS FROM DIVISIONS A, D, M, E, T, P, & FP.



626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47809
Phone: (812) 237-3173
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsenengineering.com

RE Dimond
MEP Engineer

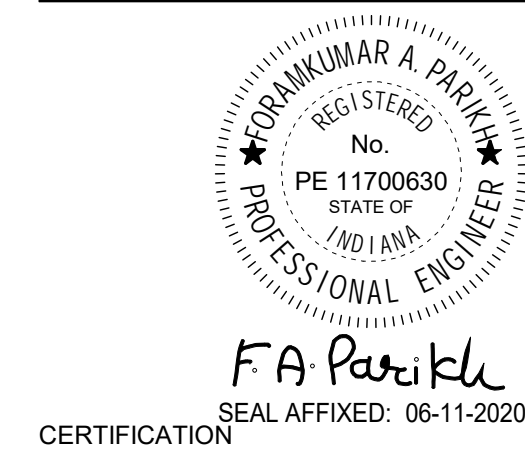
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Website: www.redimond.com

Design 27
Acoustical Engineer

1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

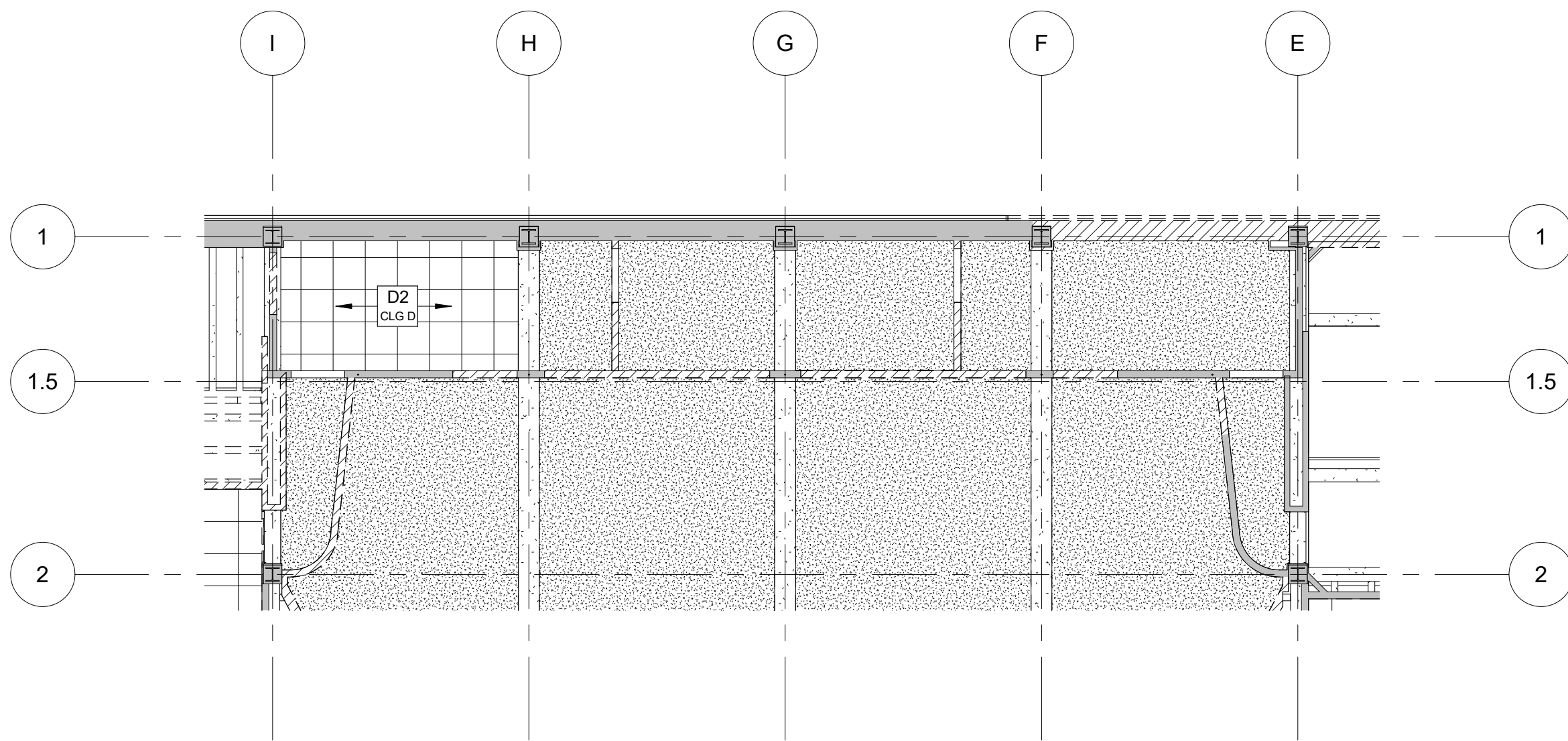
Project No.: 19A052
Drawn By: J. Hand
Checked By: F. Parkk
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020
3	Addendum #3	6/26/2020
6	Addendum #6	7/09/2020



Roof Framing Plan - Lobby

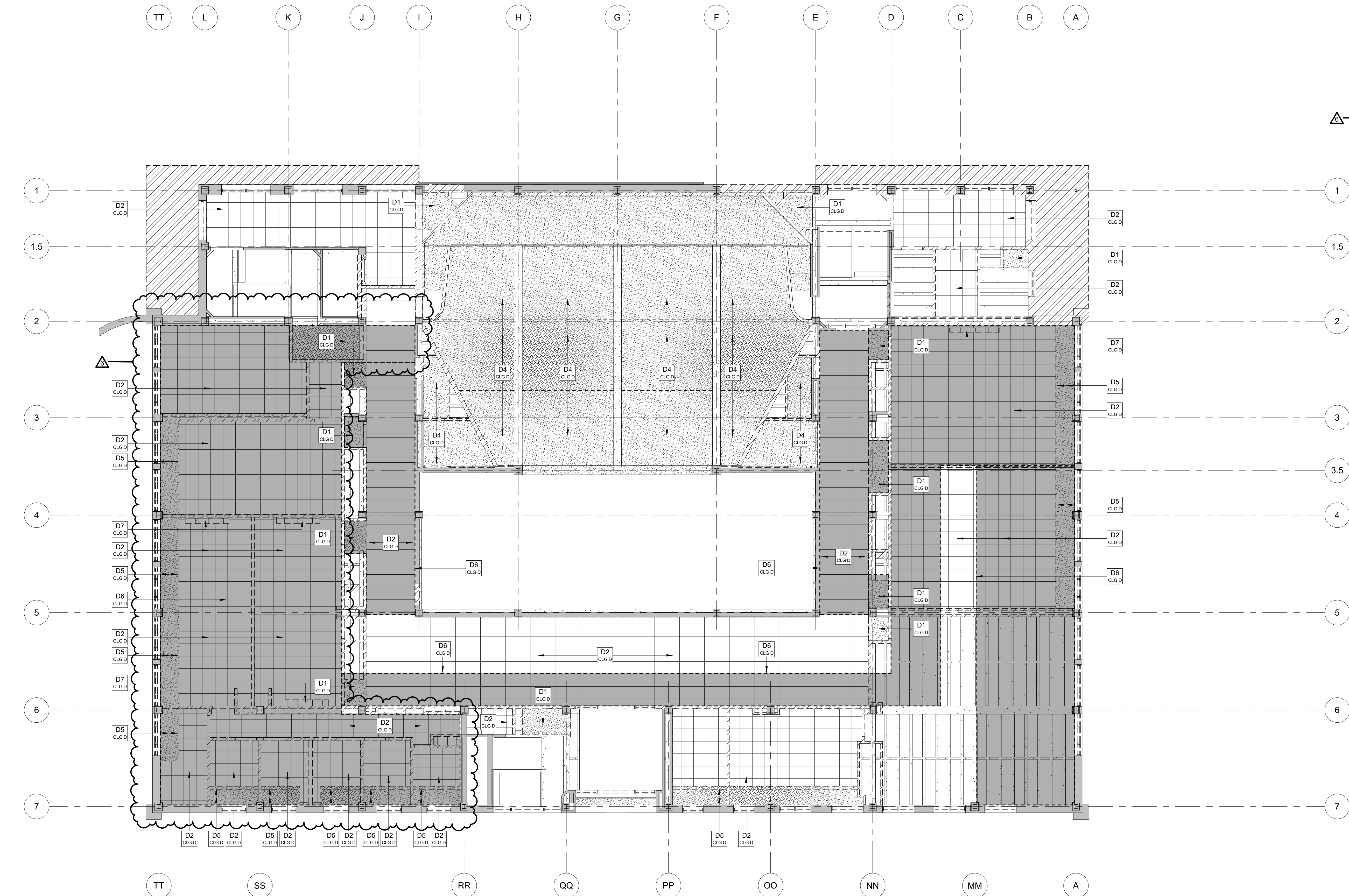
S2.02



2 Reflected Ceiling Plan Demo
Control Room - Reflected Ceiling Plan Demo
D1.01B 1/8" = 1'-0"

GENERAL DEMOLITION NOTES

- THOROUGHLY REVIEW THE CONSTRUCTION DOCUMENT SET FOR ADDITIONAL DEMOLITION COORDINATION. VERIFY CONFLICTING ITEMS WITH THE ARCHITECT PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK.
- DEMOLITION IS TO BE CLEAN, COMPLETE, AND IN A MANNER SUITABLE TO ACCEPT NEW FINISHES AND SURFACES. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DESCRIPTION OF NEW MATERIALS.
- WHERE EXTERIOR SKIN OF THE EXISTING BUILDING IS TO BE REMOVED OR MODIFIED THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ENSURE THAT THE BUILDING REMAINS WEATHERTIGHT DURING DEMOLITION.
- CONTRACTOR TO VERIFY LOCATIONS OF DUCTWORK AND PIPING PENETRATIONS THROUGH EXISTING WALLS AND ABOVE CEILINGS PRIOR TO MAKING OPENING.
- OPENINGS IN THE EXISTING BUILDING WHICH REMAIN AFTER PIPING, DUCTWORK, AND OTHER PENETRATIONS HAVE BEEN REMOVED AND WHICH ARE NOT BEING REUSED AS A PART OF THE BUILDING RENOVATION ARE TO BE INFILLED FLUSH WITH THE SAME MATERIAL AS THE SURROUNDING WALL.
- WHEN DEMOLITION CAUSES OR EXPOSES DAMAGE TO THE FLOOR SLAB, WALLS, CEILINGS, OR ROOF THE CONTRACTOR SHALL REPAIR SUCH CONDITIONS AND MAKE THEM SUITABLE FOR FINAL CONSTRUCTION.
- IF ANY MATERIAL IS ENCOUNTERED THAT IS SUSPECTED TO CONTAIN ASBESTOS DO NOT DISTURB AND IMMEDIATELY CONTACT THE OWNER FOR REMEDIATION.
- THE CONTRACTOR IS TO FOLLOW AND OBEY ALL FEDERAL, STATE, AND LOCAL CODES, LAWS, SAFETY REGULATIONS, AND HAZARDOUS WASTE LAWS ETC. CONTRACTOR IS TO OBTAIN ALL NECESSARY PERMITS, RELEASES, AND AUTHORIZATIONS BEFORE PERFORMING DEMOLITION WORK.
- ALL CONTRACTORS ARE TO CONDUCT NON-STRUCTURAL EXPLORATORY DEMOLITION TO DETERMINE STRUCTURAL EFFECT ON ALL PLANNED DEMOLITION AND CONFIRM WITH THE STRUCTURAL ENGINEER BEFORE ANY DEMOLITION OCCURS.
- WALLS TO BE REMOVED SHALL BE REMOVED IN FULL UNLESS NOTED OTHERWISE. REMOVE TO SUBFLOOR MATERIAL. ALL FLOOR ATTACHMENTS, AND GRIND SMOOTH REMAINING ITEMS FLUSH WITH EXISTING FINISH FLOOR. PATCH AND FILL ANY VOIDS LEFT BY REMOVAL OF EXISTING WALL WITH EXISTING FINISH FLOOR.
- FOR DOORS TO BE REMOVED THE CONTRACTOR SHALL REMOVE DOOR, DOOR FRAME, DOOR HARDWARE, ASSOCIATED ANCHORING, AND ALL ASSOCIATED TRANSOMS AND/OR SIDELITES AND GLAZING COMPLETE UNLESS NOTED OTHERWISE.
- ANY FLOOR MATERIALS THAT ARE INDICATED TO BE REMOVED SHALL BE REMOVED TO SOUND SUB-BASE MATERIAL AND ARE TO BE FREE OF GLUES, FASTENERS AND FILLERS.
- FURNISH AND INSTALL TEMPORARY BARRICADES AND HANDRAILS AT ALL OPENINGS DURING DEMOLITION AND CONSTRUCTION.
- THESE DRAWINGS WERE DEVELOPED FROM A VISUAL SURVEY OF THE EXISTING CONDITIONS. THE AVAILABLE ORIGINAL ARCHITECTURAL AND STRUCTURAL DRAWINGS HAVE BEEN USED FOR LOCATION OF STRUCTURAL SUPPORTS. THE INFORMATION REFLECTED IN THOSE DRAWINGS DOES NOT GUARANTEE THAT ALL THE AS-BUILT CONDITIONS HAVE BEEN REPRESENTED. ALL EXISTING CONDITIONS, ELEVATIONS, AND DIMENSIONS ARE TO BE VERIFIED IN FIELD BY THE CONTRACTOR OR SUBCONTRACTORS PRIOR TO CONSTRUCTION OR FABRICATION.
- THE CONTRACTOR IS TO FIELD VERIFY ALL EXISTING CONDITIONS WITH THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IN WRITING BEFORE PROCEEDING WITH THE WORK.
- EXISTING CONSTRUCTION TO REMAIN ARE TO BE PROTECTED DURING THE DEMOLITION AND CONSTRUCTION PROCESS INCLUDING BUT NOT LIMITED TO ALL WALLS (STRUCTURAL AND PARTITION), CEILINGS, FLOORS, DOORS, FINISHES, ETC.
- DEMOLITION IS TO BE CONDUCTED IN A MEANS THAT DOES NOT DAMAGE THE IMMEDIATELY ADJACENT EXISTING CONSTRUCTION TO REMAIN. ANY DAMAGE INCURRED DURING DEMOLITION TO EXISTING CONSTRUCTION TO REMAIN IS TO BE REPAIRED BACK TO ORIGINAL CONDITION AS PART OF THIS CONTRACT.
- SALVAGEABLE. TO BE REMOVED DOORS, EQUIPMENT, FIXTURES, ETC. ARE TO BE STOCKPILED IN A DESIGNATED AREA FOR REVIEW BY THE OWNER.
- CAP ABANDONED CONDUITS AT POINT OF TERMINATION AND MAINTAIN ANY REQUIRED FIRE SEPARATION.
- CONTRACTOR TO PROVIDE FILTRATION IN THE EXISTING AND OR NEW MECHANICAL SYSTEMS TO ELIMINATE DEMOLITION AND CONSTRUCTION DUST FROM ENTERING ADJACENT PORTIONS OF THE BUILDING.
- EXISTING 120 VOLT, 208 VOLT, AND 480 VOLT SINGLE AND 3 PHASE POWER, LIGHTING, RECEPTACLES, AND POWER TO EQUIPMENT IS TO BE REMOVED BACK TO SOURCES (PANEL BOARDS), EXCEPT ITEMS INDICATED TO REMAIN. THIS INCLUDES BUT IS NOT LIMITED TO ALL WIRING AND CONDUIT NOT REUSED. PROVIDE FOR CIRCUIT CONTINUITY FOR ITEMS THAT REMAIN.
- ALL EXISTING LOOSE AND OR FLAKING PAINT THAT IS NOT ENCAPSULATED IN A NEW FINISH IS TO BE SCRAPED, ABRADED, AND/OR SANDED TO A SMOOTH FLAT SURFACE PREPARED TO RECEIVE NEW FINISH.
- DEMOLISH ALL EXISTING INTERIOR SIGNAGE UNLESS NOTED OTHERWISE.



CODED RCP DEMOLITION NOTES

NO.	NOTE
D1	DEMOLISH PLASTER CEILING IN ITS ENTIRETY. THIS INCLUDES PLASTER, METAL LATH, HANGING WIRES, AND SUPPORT STRUCTURE.
D2	DEMOLISH ACOUSTICAL CEILING TILE CEILING SYSTEM IN ITS ENTIRETY. THIS INCLUDES TILE, METAL GRID, HANGING WIRES, AND SUPPORT STRUCTURE.
D3	DEMOLISH GYPSUM BOARD CEILING IN ITS ENTIRETY. THIS INCLUDES GYPSUM BOARD, SUBSTRUCTURE, HANGING WIRES, AND SUPPORT STRUCTURE.
D4	DEMOLISH THEATER SAWTOOTH PLASTER CEILING IN ITS ENTIRETY. THIS INCLUDES PLASTER, METAL LATH, HANGING WIRES, AND SUPPORT STRUCTURE.
D5	DEMOLISH GYPSUM BOARD BULKHEAD IN ITS ENTIRETY. THIS INCLUDES GYPSUM BOARD, SUBSTRUCTURE, HANGING WIRES, AND SUPPORT STRUCTURE.
D6	CEILINGS WITHIN THIS BOUNDARY ARE TO BE EXPOSED STRUCTURE. CEILINGS IN THE RENOVATION OR REQUIRE ADDITIONAL HEIGHT FOR THE RUNNING OF DUCTWORK, CONDUIT, ETC. DEMOLITION IS TO INCLUDE THE VISIBLE CEILINGS AND DEMOLITION OF ANY NON-VISIBLE CEILINGS OR CONSTRUCTION (LOCATED ABOVE THE EXISTING VISIBLE CEILING) SO THAT THE EXISTING STRUCTURE IS UNCOVERED. CONTRACTOR MAY CHOOSE TO DEMOLISH NON-VISIBLE CEILINGS AND CONSTRUCTION OUTSIDE OF THESE BOUNDARIES, BUT ARE NOT REQUIRED TO DO SO UNLESS NECESSARY FOR OTHER ASPECTS OF THE CONSTRUCTION.
D7	DEMOLISH PLASTER ON SCREEN HOUSING AND HANGING STRUCTURE. REFER TO MEP DRAWINGS FOR DEMOLITION OF ELECTRICAL COMPONENTS.

1 Reflected Ceiling Plan Demo
1st Floor Reflected Ceiling Plan Demo
D1.01B 1/8" = 1'-0"

626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47805
Phone: (812) 237-3773
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsenengineering.com

RE Dimond
MEP Engineer

732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4872
Website: www.redimond.com

Design 27
Acoustical Engineer

1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: J. Young
Checked By: Checker
Scale: As Noted
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
6	Addendum #6	07/09/2020

1st Floor Reflected Ceiling
Demolition Plan

D1.01B

\\adm1-local\UEM\Users\JYoung\Documents\19032_SSU Dreiser Hall_r15_CENTRAL_JYoung.dwg

7/9/2020 1:35:26 PM



GENERAL DEMOLITION NOTES

1. THOROUGHLY REVIEW THE CONSTRUCTION DOCUMENT SET FOR ADDITIONAL DEMOLITION COORDINATION. VERIFY CONFLICTING ITEMS WITH THE ARCHITCT PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK.
2. DEMOLITION IS TO BE CLEAN, COMPLETE, AND IN A MANNER SUITABLE TO ACCEPT NEW FINISHES AND SURFACES. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DESCRIPTION OF NEW MATERIALS.
3. WHERE EXTERIOR SKIN OF THE EXISTING BUILDING IS TO BE REMOVED OR MODIFIED THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ENSURE THAT THE BUILDING REMAINS WEATHERTIGHT DURING DEMOLITION.
4. CONTRACTOR TO VERIFY LOCATIONS OF DUCTWORK AND PIPING PENETRATIONS THROUGH EXISTING WALLS AND ABOVE CEILINGS PRIOR TO MAKING OPENING.
5. OPENINGS IN THE EXISTING BUILDING WHICH REMAIN AFTER PIPING, DUCTWORK, AND OTHER PENETRATIONS HAVE BEEN REMOVED AND WHICH ARE NOT BEING REUSED AS A PART OF THE BUILDING RENOVATION ARE TO BE INFILLED FLUSH WITH THE SAME MATERIAL AS THE SURROUNDING WALL.
6. WHEN DEMOLITION CAUSES OR EXPOSES DAMAGE TO THE FLOOR SLAB, WALLS, CEILINGS, OR ROOF THE CONTRACTOR SHALL REPAIR SUCH CONDITIONS AND MAKE THEM SUITABLE FOR FINAL CONSTRUCTION.
7. IF ANY MATERIAL IS ENCOUNTERED THAT IS SUSPECTED TO CONTAIN ASBESTOS DO NOT DISTURB AND IMMEDIATELY CONTACT THE OWNER FOR REMEDIATION.
8. THE CONTRACTOR IS TO FOLLOW AND OBEY ALL FEDERAL, STATE, AND LOCAL CODES, LAWS, SAFETY REGULATIONS, AND HAZARDOUS WASTE LAWS ETC. CONTRACTOR IS TO OBTAIN ALL NECESSARY PERMITS, RELEASES, AND AUTHORIZATIONS BEFORE PERFORMING DEMOLITION WORK.
9. ALL CONTRACTORS ARE TO CONDUCT NON-STRUCTURAL EXPLORATORY DEMOLITION TO DETERMINE STRUCTURAL EFFECT ON ALL PLANNED DEMOLITION AND CONFIRM WITH THE STRUCTURAL ENGINEER BEFORE ANY DEMOLITION OCCURS.
10. WALLS TO BE REMOVED SHALL BE REMOVED IN FULL UNLESS NOTED OTHERWISE. REMOVE TO SUBFLOOR MATERIAL. ALL FLOOR ATTACHMENTS, AND GRIND SMOOTH REMAINING ITEMS FLUSH WITH EXISTING FINISH FLOOR. PATCH AND FILL ANY VOIDS LEFT BY REMOVAL OF EXISTING WALL WITH EXISTING FINISH FLOOR.
11. FOR DOORS TO BE REMOVED THE CONTRACTOR SHALL REMOVE DOOR, DOOR FRAME, DOOR HARDWARE, ASSOCIATED ANCHORING, AND ALL ASSOCIATED TRANSOMS AND/OR SIDELITES AND GLAZING COMPLETE UNLESS NOTED OTHERWISE.
12. ANY FLOOR MATERIALS THAT ARE INDICATED TO BE REMOVED SHALL BE REMOVED TO SOUND SUB-BASE MATERIAL AND ARE TO BE FREE OF GLUES, FASTENERS AND FILLERS.
13. FURNISH AND INSTALL TEMPORARY BARRICADES AND HANDRAILS AT ALL OPENINGS DURING DEMOLITION AND CONSTRUCTION.
14. THESE DRAWINGS WERE DEVELOPED FROM A VISUAL SURVEY OF THE EXISTING CONDITIONS. THE AVAILABLE ORIGINAL ARCHITECTURAL AND STRUCTURAL DRAWINGS HAVE BEEN USED FOR LOCATION OF STRUCTURAL SUPPORTS. THE INFORMATION REFLECTED IN THOSE DRAWINGS DOES NOT GUARANTEE THAT ALL THE AS-BUILT CONDITIONS HAVE BEEN REPRESENTED. ALL EXISTING CONDITIONS, ELEVATIONS, AND DIMENSIONS ARE TO BE VERIFIED IN FIELD BY THE CONTRACTOR OR SUBCONTRACTORS PRIOR TO CONSTRUCTION OR FABRICATION.
15. THE CONTRACTOR IS TO FIELD VERIFY ALL EXISTING CONDITIONS WITH THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IN WRITING BEFORE PROCEEDING WITH THE WORK.
16. EXISTING CONSTRUCTION TO REMAIN ARE TO BE PROTECTED DURING THE DEMOLITION AND CONSTRUCTION PROCESS INCLUDING BUT NOT LIMITED TO ALL WALLS (STRUCTURAL AND PARTITION), CEILINGS, FLOORS, DOORS, FINISHES, ETC.
17. DEMOLITION IS TO BE CONDUCTED IN A MEANS THAT DOES NOT DAMAGE THE IMMEDIATELY ADJACENT EXISTING CONSTRUCTION TO REMAIN. ANY DAMAGE INCURRED DURING DEMOLITION TO EXISTING CONSTRUCTION TO REMAIN IS TO BE REPAIRED BACK TO ORIGINAL CONDITION AS PART OF THIS CONTRACT.
18. SALVAGEABLE, TO BE REMOVED DOORS, EQUIPMENT, FIXTURES, ETC. ARE TO BE STOCKPILED IN A DESIGNATED AREA FOR REVIEW BY THE OWNER.
19. CAP ABANDONED CONDUITS AT POINT OF TERMINATION AND MAINTAIN ANY REQUIRED FIRE SEPARATION.
20. CONTRACTOR TO PROVIDE FILTRATION IN THE EXISTING AND OR NEW MECHANICAL SYSTEMS TO ELIMINATE DEMOLITION AND CONSTRUCTION DUST FROM ENTERING ADJACENT PORTIONS OF THE BUILDING.
21. EXISTING 120 VOLT, 208 VOLT, AND 480 VOLT SINGLE AND 3 PHASE POWER, LIGHTING, RECEPTACLES, AND POWER TO EQUIPMENT IS TO BE REMOVED BACK TO SOURCES (PANEL BOARDS), EXCEPT ITEMS INDICATED TO REMAIN. THIS INCLUDES BUT IS NOT LIMITED TO ALL WIRING AND CONDUIT NOT REUSED. PROVIDE FOR CIRCUIT CONTINUITY FOR ITEMS THAT REMAIN.
22. ALL EXISTING LOOSE AND OR FLAKING PAINT THAT IS NOT ENCAPSULATED IN A NEW FINISH IS TO BE SCRAPED, ABRADED, AND/OR SANDED TO A SMOOTH FLAT SURFACE PREPARED TO RECEIVE NEW FINISH.
23. DEMOLISH ALL EXISTING INTERIOR SIGNAGE UNLESS NOTED OTHERWISE.

CODED RCP DEMOLITION NOTES

NO.	NOTE
D1	DEMOLISH PLASTER CEILING IN ITS ENTIRETY. THIS INCLUDES PLASTER, METAL LATH, HANGING WIRES, AND SUPPORT STRUCTURE.
D2	DEMOLISH ACOUSTICAL CEILING TILE CEILING SYSTEM IN ITS ENTIRETY. THIS INCLUDES TILE, METAL GRID, HANGING WIRES, AND SUPPORT STRUCTURE.
D3	DEMOLISH GYPSUM BOARD CEILING IN ITS ENTIRETY. THIS INCLUDES GYPSUM BOARD, SUBSTRUCTURE, HANGING WIRES, AND SUPPORT STRUCTURE.
D4	DEMOLISH THEATER SAWTOOTH PLASTER CEILING IN ITS ENTIRETY. THIS INCLUDES PLASTER, METAL LATH, HANGING WIRES, AND SUPPORT STRUCTURE.
D5	DEMOLISH GYPSUM BOARD BULKHEAD IN ITS ENTIRETY. THIS INCLUDES GYPSUM BOARD, SUBSTRUCTURE, HANGING WIRES, AND SUPPORT STRUCTURE.
D6	CEILINGS WITHIN THIS BOUNDARY ARE TO BE EXPOSED STRUCTURE. CEILINGS IN THE RENOVATION OR REQUIRE ADDITIONAL HEIGHT FOR THE RUNNING OF DUCTWORK, CONDUIT, ETC. DEMOLITION IS TO INCLUDE THE VISIBLE CEILINGS AND DEMOLITION OF ANY NON-VISIBLE CEILINGS OR CONSTRUCTION (LOCATED ABOVE THE EXISTING VISIBLE CEILING) SO THAT THE EXISTING STRUCTURE IS UNCOVERED. CONTRACTOR MAY CHOOSE TO DEMOLISH NON-VISIBLE CEILINGS AND CONSTRUCTION OUTSIDE OF THESE BOUNDARIES, BUT ARE NOT REQUIRED TO DO SO UNLESS NECESSARY FOR OTHER ASPECTS OF THE CONSTRUCTION. REFER TO MEP DRAWINGS FOR DEMOLITION OF ELECTRICAL COMPONENTS.

1

Reflected Ceiling Plan

2nd Floor Reflected Ceiling Plan Demo

D1.02B

1/8" = 1'-0"



browning day

626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47805
Phone: (812) 237-3773
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsenengineering.com

RE Dimond
MEP Engineer

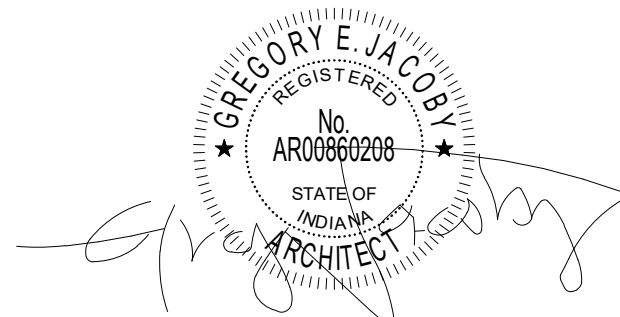
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4872
Website: www.redimond.com

Design 27
Acoustical Engineer

1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: J. Young
Checked By: Checker
Scale: As Noted
Issue Date: June 5, 2020

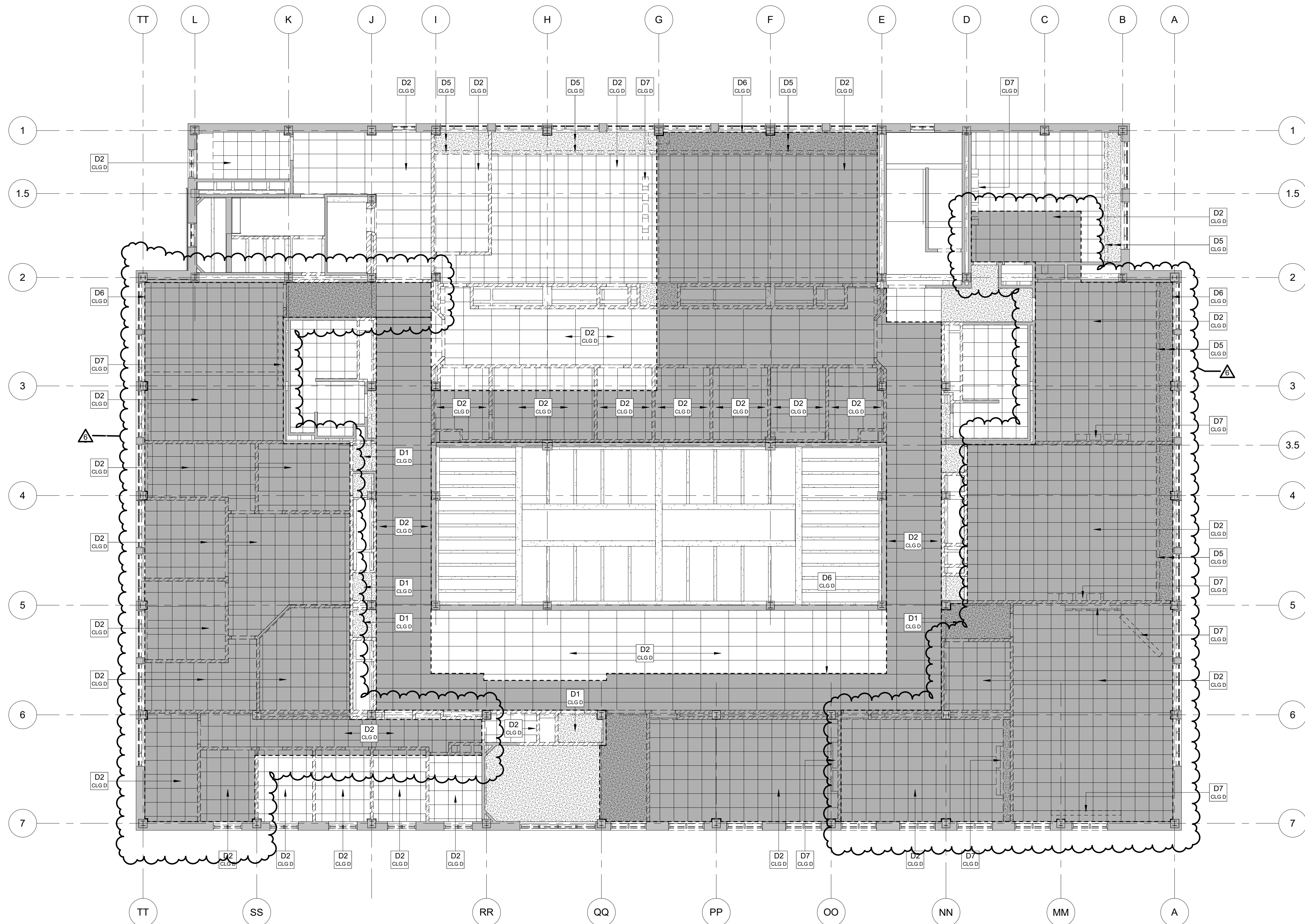
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
6	Addendum #6	07/09/2020

2nd Floor Reflected Ceiling
Demolition Plan

D1.02B

\\adm1.local\UEMUsers\JYoung\Documents\19032_SSU Draiser Hall_r15_CENTRAL_jyoung.dwg

7/9/2020 1:35:29 PM



1 Reflected Ceiling Plan
3rd Floor Reflected Ceiling Plan Demo
D1.03B 1/8" = 1'-0"

GENERAL DEMOLITION NOTES

- THOROUGHLY REVIEW THE CONSTRUCTION DOCUMENT SET FOR ADDITIONAL DEMOLITION COORDINATION. VERIFY CONFLICTING ITEMS WITH THE ARCHITCT PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK.
- DEMOLITION IS TO BE CLEAN, COMPLETE, AND IN A MANNER SUITABLE TO ACCEPT NEW FINISHES AND SURFACES. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DESCRIPTION OF NEW MATERIALS.
- WHERE EXTERIOR SKIN OF THE EXISTING BUILDING IS TO BE REMOVED OR MODIFIED THE CONTRACTOR SHALL TAKE PRECAUTIONS TO ENSURE THAT THE BUILDING REMAINS WEATHERTIGHT DURING DEMOLITION.
- CONTRACTOR TO VERIFY LOCATIONS OF DUCTWORK AND PIPING PENETRATIONS THROUGH EXISTING WALLS AND ABOVE CEILINGS PRIOR TO MAKING OPENING.
- OPENINGS IN THE EXISTING BUILDING WHICH REMAIN AFTER PIPING, DUCTWORK, AND OTHER PENETRATIONS HAVE BEEN REMOVED AND WHICH ARE NOT BEING REUSED AS A PART OF THE BUILDING RENOVATION ARE TO BE INFILLED FLUSH WITH THE SAME MATERIAL AS THE SURROUNDING WALL.
- WHEN DEMOLITION CAUSES OR EXPOSES DAMAGE TO THE FLOOR SLAB, WALLS, CEILINGS, OR ROOF THE CONTRACTOR SHALL REPAIR SUCH CONDITIONS AND MAKE THEM SUITABLE FOR FINAL CONSTRUCTION.
- IF ANY MATERIAL IS ENCOUNTERED THAT IS SUSPECTED TO CONTAIN ASBESTOS DO NOT DISTURB AND IMMEDIATELY CONTACT THE OWNER FOR REMEDIATION.
- THE CONTRACTOR IS TO FOLLOW AND OBEY ALL FEDERAL, STATE, AND LOCAL CODES, LAWS, SAFETY REGULATIONS, AND HAZARDOUS WASTE LAWS ETC. CONTRACTOR IS TO OBTAIN ALL NECESSARY PERMITS, RELEASES, AND AUTHORIZATIONS BEFORE PERFORMING DEMOLITION WORK.
- ALL CONTRACTORS ARE TO CONDUCT NON-STRUCTURAL EXPLORATORY DEMOLITION TO DETERMINE STRUCTURAL EFFECT ON ALL PLANNED DEMOLITION AND CONFIRM WITH THE STRUCTURAL ENGINEER BEFORE ANY DEMOLITION OCCURS.
- WALLS TO BE REMOVED SHALL BE REMOVED IN FULL UNLESS NOTED OTHERWISE. REMOVE TO SUBFLOOR MATERIAL. ALL FLOOR ATTACHMENTS, AND GRIND SMOOTH REMAINING ITEMS FLUSH WITH EXISTING FINISH FLOOR. PATCH AND FILL ANY VOIDS LEFT BY REMOVAL OF EXISTING WALL WITH EXISTING FINISH FLOOR.
- FOR DOORS TO BE REMOVED THE CONTRACTOR SHALL REMOVE DOOR, DOOR FRAME, DOOR HARDWARE, ASSOCIATED ANCHORING, AND ALL ASSOCIATED TRANSOMS AND/OR SIDELITES AND GLAZING COMPLETE UNLESS NOTED OTHERWISE.
- ANY FLOOR MATERIALS THAT ARE INDICATED TO BE REMOVED SHALL BE REMOVED TO SOUND SUB-BASE MATERIAL AND ARE TO BE FREE OF GLUES, FASTENERS AND FILLERS.
- FURNISH AND INSTALL TEMPORARY BARRICADES AND HANDRAILS AT ALL OPENINGS DURING DEMOLITION AND CONSTRUCTION.
- THESE DRAWINGS WERE DEVELOPED FROM A VISUAL SURVEY OF THE EXISTING CONDITIONS. THE AVAILABLE ORIGINAL ARCHITECTURAL AND STRUCTURAL DRAWINGS HAVE BEEN USED FOR LOCATION OF STRUCTURAL SUPPORTS. THE INFORMATION REFLECTED IN THOSE DRAWINGS DOES NOT GUARANTEE THAT ALL THE AS-BUILT CONDITIONS HAVE BEEN REPRESENTED. ALL EXISTING CONDITIONS, ELEVATIONS, AND DIMENSIONS ARE TO BE VERIFIED IN FIELD BY THE CONTRACTOR OR SUBCONTRACTORS PRIOR TO CONSTRUCTION OR FABRICATION.
- THE CONTRACTOR IS TO FIELD VERIFY ALL EXISTING CONDITIONS WITH THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES IN WRITING BEFORE PROCEEDING WITH THE WORK.
- EXISTING CONSTRUCTION TO REMAIN ARE TO BE PROTECTED DURING THE DEMOLITION AND CONSTRUCTION PROCESS INCLUDING BUT NOT LIMITED TO ALL WALLS (STRUCTURAL AND PARTITION), CEILINGS, FLOORS, DOORS, FINISHES, ETC.
- DEMOLITION IS TO BE CONDUCTED IN A MEANS THAT DOES NOT DAMAGE THE IMMEDIATELY ADJACENT EXISTING CONSTRUCTION TO REMAIN. ANY DAMAGE INCURRED DURING DEMOLITION TO EXISTING CONSTRUCTION TO REMAIN IS TO BE REPAIRED BACK TO ORIGINAL CONDITION AS PART OF THIS CONTRACT.
- SALVAGEABLE. TO BE REMOVED DOORS, EQUIPMENT, FIXTURES, ETC. ARE TO BE STOCKPILED IN A DESIGNATED AREA FOR REVIEW BY THE OWNER.
- CAP ABANDONED CONDUITS AT POINT OF TERMINATION AND MAINTAIN ANY REQUIRED FIRE SEPARATION.
- CONTRACTOR TO PROVIDE FILTRATION IN THE EXISTING AND OR NEW MECHANICAL SYSTEMS TO ELIMINATE DEMOLITION AND CONSTRUCTION DUST FROM ENTERING ADJACENT PORTIONS OF THE BUILDING.
- EXISTING 120 VOLT, 208 VOLT, AND 480 VOLT SINGLE AND 3 PHASE POWER, LIGHTING, RECEPTACLES, AND POWER TO EQUIPMENT IS TO BE REMOVED BACK TO SOURCES (PANEL BOARDS), EXCEPT ITEMS INDICATED TO REMAIN. THIS INCLUDES BUT IS NOT LIMITED TO ALL WIRING AND CONDUIT NOT REUSED. PROVIDE FOR CIRCUIT CONTINUITY FOR ITEMS THAT REMAIN.
- ALL EXISTING LOOSE AND OR FLAKING PAINT THAT IS NOT ENCAPSULATED IN A NEW FINISH IS TO BE SCRAPED, ABRADED, AND/OR SANDED TO A SMOOTH FLAT SURFACE PREPARED TO RECEIVE NEW FINISH.
- DEMOLISH ALL EXISTING INTERIOR SIGNAGE UNLESS NOTED OTHERWISE.

CODED RCP DEMOLITION NOTES

NO.	NOTE
D1	DEMOLISH PLASTER CEILING IN ITS ENTIRETY. THIS INCLUDES PLASTER, METAL LATH, HANGING WIRES, AND SUPPORT STRUCTURE.
D2	DEMOLISH ACOUSTICAL CEILING TILE CEILING SYSTEM IN ITS ENTIRETY. THIS INCLUDES TILE, METAL GRID, HANGING WIRES, AND SUPPORT STRUCTURE.
D3	DEMOLISH GYPSUM BOARD CEILING IN ITS ENTIRETY. THIS INCLUDES GYPSUM BOARD, SUBSTRUCTURE, HANGING WIRES, AND SUPPORT STRUCTURE.
D4	DEMOLISH THEATER SAWTOOTH PLASTER CEILING IN ITS ENTIRETY. THIS INCLUDES PLASTER, METAL LATH, HANGING WIRES, AND SUPPORT STRUCTURE.
D5	DEMOLISH GYPSUM BOARD BULKHEAD IN ITS ENTIRETY. THIS INCLUDES GYPSUM BOARD, SUBSTRUCTURE, HANGING WIRES, AND SUPPORT STRUCTURE.
D6	CEILINGS WITHIN THIS BOUNDARY ARE TO BE EXPOSED STRUCTURE. CEILINGS IN THE RENOVATION OR REQUIRE ADDITIONAL HEIGHT FOR THE RUNNING OF DUCTWORK, CONDUIT, ETC. DEMOLITION IS TO INCLUDE THE VISIBLE CEILINGS AND DEMOLITION OF ANY NON-VISIBLE CEILINGS OR CONSTRUCTION (LOCATED ABOVE THE EXISTING VISIBLE CEILING) SO THAT THE EXISTING STRUCTURE IS UNCOVERED. CONTRACTOR MAY CHOOSE TO DEMOLISH NON-VISIBLE CEILINGS AND CONSTRUCTION OUTSIDE OF THESE BOUNDARIES, BUT ARE NOT REQUIRED TO DO SO UNLESS NECESSARY FOR OTHER ASPECTS OF THE CONSTRUCTION.
D7	DEMOLISH PROJECTION SCREEN, HOUSING, AND HANGING STRUCTURE. REFER TO MEP DRAWINGS FOR DEMOLITION OF ELECTRICAL COMPONENTS.



626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47805
Phone: (812) 237-3773
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsenengineering.com

RE Dimond
MEP Engineer

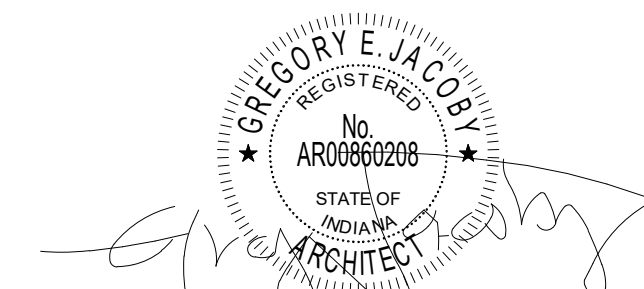
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4872
Website: www.redimond.com

Design 27
Acoustical Engineer

1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

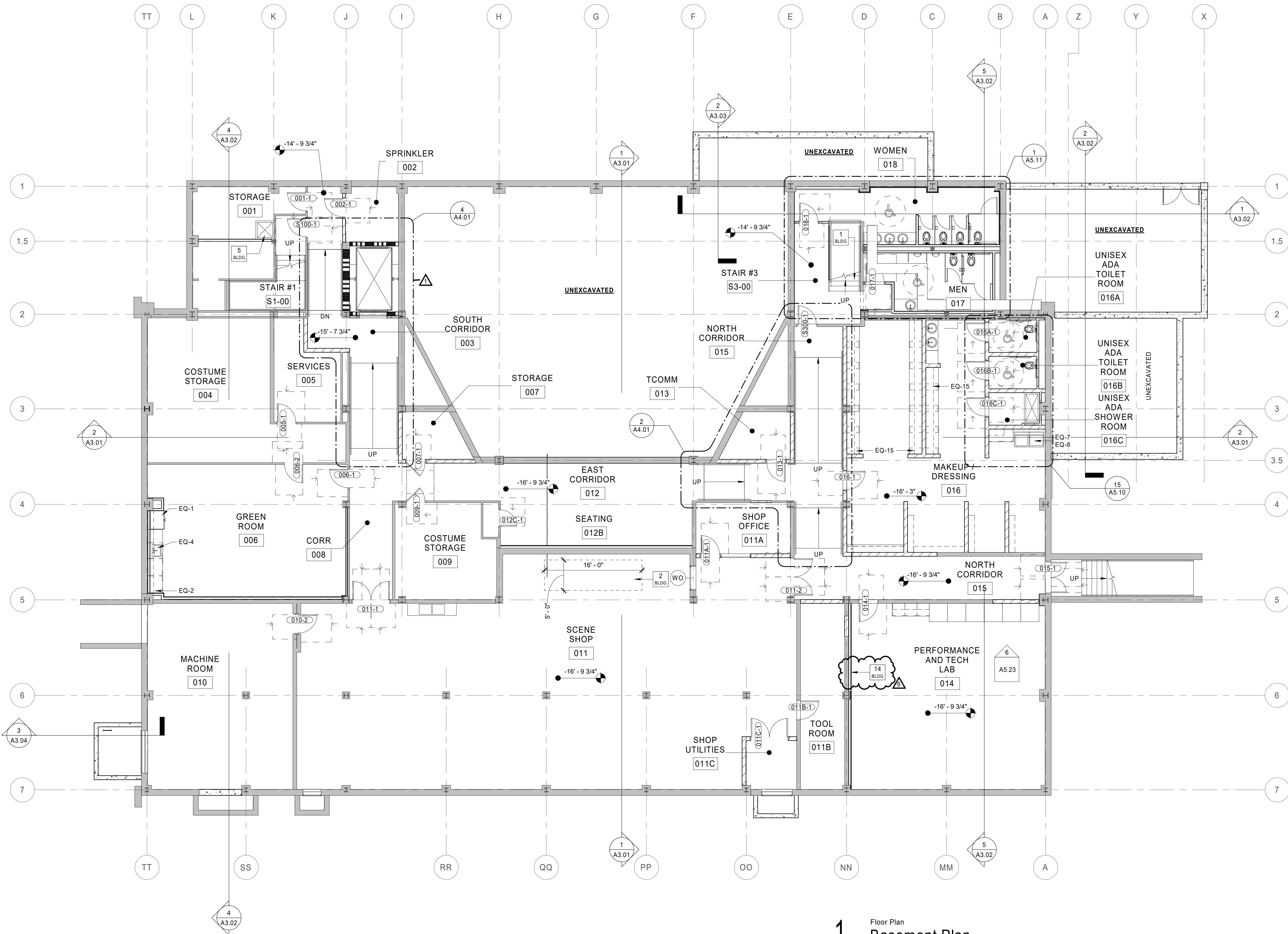
Project No.: 19A052
Drawn By: J. Young
Checked By: Checker
Scale: As Noted
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
6	Addendum #6	07/09/2020

3rd Floor Reflected Ceiling
Demolition Plan

D1.03B

\\smdt-local\UEM\Users\jstarnier\Documents\19052-USU Dreiser Hall_r19_CENTRAL_jstarnier.dwg 7/9/2020 10:48:14 AM



1 Floor Plan
Basement Plan
A1.00 1/8" = 1'-0"

CODED BUILDING NOTES	
NO.	NOTE
1	EXISTING TERRAZZO STAIR - CLEAN, REPAIR AND POLISH TERRAZZO PER PROJECT SPECIFICATIONS. CLEAN, REPAIR AND POLISH ALL HANDRAILS AND ALL ASSOCIATED COMPONENTS (POSTS, BRACKETS, ETC.) PER PROJECT SPECIFICATIONS
2	ALTERNATE #8 - NEW HYDRAULIC MATERIALS LIFT. LIFT TO BE RECESSED IN NEW PIT IN BASEMENT SO THAT IT IS FLUSH WITH THE ADJACENT SLAB IN THE DOWN POSITION. IN THE UP POSITION, THE LIFT IS TO FORM THE STAGE FLOOR IN AREA INDICATED. BASE BID - NO HYDRAULIC LIFT.
3	ALTERNATE #6 - NEW INTERIOR ALUMINUM STOREFRONT WALL SYSTEM. BASE BID - METAL STUD WALLS WITH GYPSUM BOARD ON BOTH SIDES (PAINTED).
4	ALTERNATE #5 - OPEN STAIR #2 AND INSTALL NEW GUARDRAIL, STOREFRONT, AND WALLS AS INDICATED. BASE BID - NOT NEW GUARDRAILS, STOREFRONT, WALLS TO BE STEEL STUD WITH GYPSUM BOARD ON BOTH SIDES (PAINTED).
5	MOP SINK - REFER TO PLUMBING DRAWINGS
6	STAINLESS STEEL / GLASS RAILING SYSTEM SEE DETAIL 5/A4.02 and 6/A4.02
7	BUILT IN BENCH SEATING - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
8	CASEWORK / APPLIANCES - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
9	WOOD WALL PANEL SYSTEM - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
10	DRINKING FOUNTAINS - REFER TO PLUMBING DRAWINGS
11	RELOCATED EXISTING FURNISHINGS/ EQUIPMENT
12	TELESCOPIC SEATING SYSTEM - 144 FIXED SEATS, 8 MOVABLE FLOOR SEATS AND 5 OPEN HANDICAP SPOTS.
13	NEW STAGE FLOOR SYSTEM - REFER TO DETAILS 7 & 8/A6.02
14	24'-0" X 6'-0" MIRROR - BOTTOM OF MIRROR @ 1'-0" A.F.F.

GENERAL PLAN NOTES

- DO NOT SCALE DRAWINGS.
- DIMENSIONS ARE TAKEN TO FACE OF STUD, FACE OF CONCRETE, FACE OF MASONRY, FACE OF EXISTING FINISHES, AND COLUMN LINES UNLESS SPECIFICALLY NOTED OTHERWISE. FINISHED (FIN, FD) OR CLEAR (CLR) DIMENSIONS INDICATE FINISH SURFACE TO FINISH SURFACE SPANS BETWEEN WALLS OR FROM FINISH SURFACE OF WALL TO LATCHING OF ADJACENT DOOR OR CENTERLINE OF PLUMBING FIXTURES.
- LETTER DESIGNATIONS WITHIN A DIMENSION STRING (SUCH AS "A", "B", "C" AND SO ON) INDICATE THAT THE DIMENSION IS TO BE FIELD DETERMINED AND IT IS TO BE EQUAL TO OTHER DIMENSIONS OF THE SAME LETTER THROUGHOUT THAT SPECIFIC DRAWING SHEET, BUT NOT TO THE SAME DESIGNATION ON OTHER DRAWING SHEETS.
- USE OF "EQUAL" OR "EQ" WITHIN A DIMENSION STRING INDICATES A DIMENSION THAT IS TO BE EQUAL ONLY RELATIVE TO OTHER EQUAL CALLOUTS ON THE SAME DIMENSION STRING IN WHICH IT APPEARS. DIMENSIONS CALLED OUT AS EQUAL ON TWO DIFFERENT DIMENSION STRINGS ARE NOT NECESSARILY EQUAL TO EACH OTHER.
- ALL DESIGN TEAM DRAWINGS SHALL BE USED TO LOCATE BUILDING ELEMENTS. CONTACT THE ARCHITECT WITH CONFLICTS, DISCREPANCIES, AND OMISSIONS PRIOR TO COMMENCEMENT OF WORK. WRITTEN DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR REGARDING SUCH ITEMS.
- STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, LOW VOLTAGE AND FOOD SERVICE ELEMENTS ARE SHOWN FOR REFERENCE ONLY. VERIFY EACH ELEMENT WITH THE ASSOCIATED ENGINEER'S DRAWINGS. COORDINATE CONFLICTS WITH THE ARCHITECT.
- FLOORS SHALL SLOPE TO FLOOR DRAINS. SLOPES SHALL COMPLY WITH ADA ACCESSIBILITY GUIDELINES.
- WALL FRAMING, INSULATION, SHEATHING, AND FINISHES SHALL EXTEND FROM THE TOP OF SLAB TIGHT TO THE UNDERSIDE OF THE DECK ABOVE UNLESS NOTED OTHERWISE. PARTIAL HEIGHT WALLS ARE NOTED WITH TOP OF WALL ELEVATIONS.
- REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
- STUD WALL CONTRACTOR SHALL PROVIDE IN-WALL BLOCKING FOR WALL MOUNTED OWNER PROVIDED AND CONTRACTOR PROVIDED ITEMS REPRESENTED WITHIN THE DRAWINGS AND SPECIFICATIONS.
- GENERAL CONTRACTOR TO PROVIDE BACKER ROD AND SEALANT OF A TYPE APPROPRIATE TO EACH CONDITION, BETWEEN MATERIALS BOTH SIMILAR AND DISSIMILAR THROUGHOUT THE INTERIOR AND EXTERIOR OF THE BUILDING. (COLORS TO BE SELECTED BY ARCHITECT)
- EACH EXTERIOR STUD WALL ACROSS THE ENTIRETY OF THE BUILDING IS TO RECEIVE A MINIMUM R-19 BATT INSULATION.
- SEE STRUCTURAL DRAWINGS FOR INFORMATION REGARDING CMU AND CAST-IN-PLACE WALLS.
- IT IS THE GENERAL DESIGN INTENT THAT ALL NEW WALLS ALIGN WITH THE FACE OF EXISTING ADJACENT WALL CONSTRUCTION.



SYMBOL LEGEND

- CODED NOTES OF VARYING TYPES: SEE SCHEDULES ON THIS SHEET
- 101 DOOR TAG: SEE SHEET A8-SERIES DRAWINGS
- WW WALL TAG: SEE SHEET A0.10 AND A0.11 FOR WALL TYPE AND FIRE RATING REQUIREMENTS. SEE A5 SERIES DRAWINGS FOR WALL FINISHES.
- [S: 101A] SIGN TAG: SEE SIGNAGE PACKAGE
- W1 WINDOW TAG: SEE A8-SERIES DRAWINGS



626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47809
Phone: (812) 237-3773
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsenengineering.com

RE Dimond
MEP Engineer

732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Website: www.redimond.com

Design 27
Acoustical Engineer
1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: J. Starnier
Checked By: Checker
Scale: As Noted
Issue Date: June 5, 2020

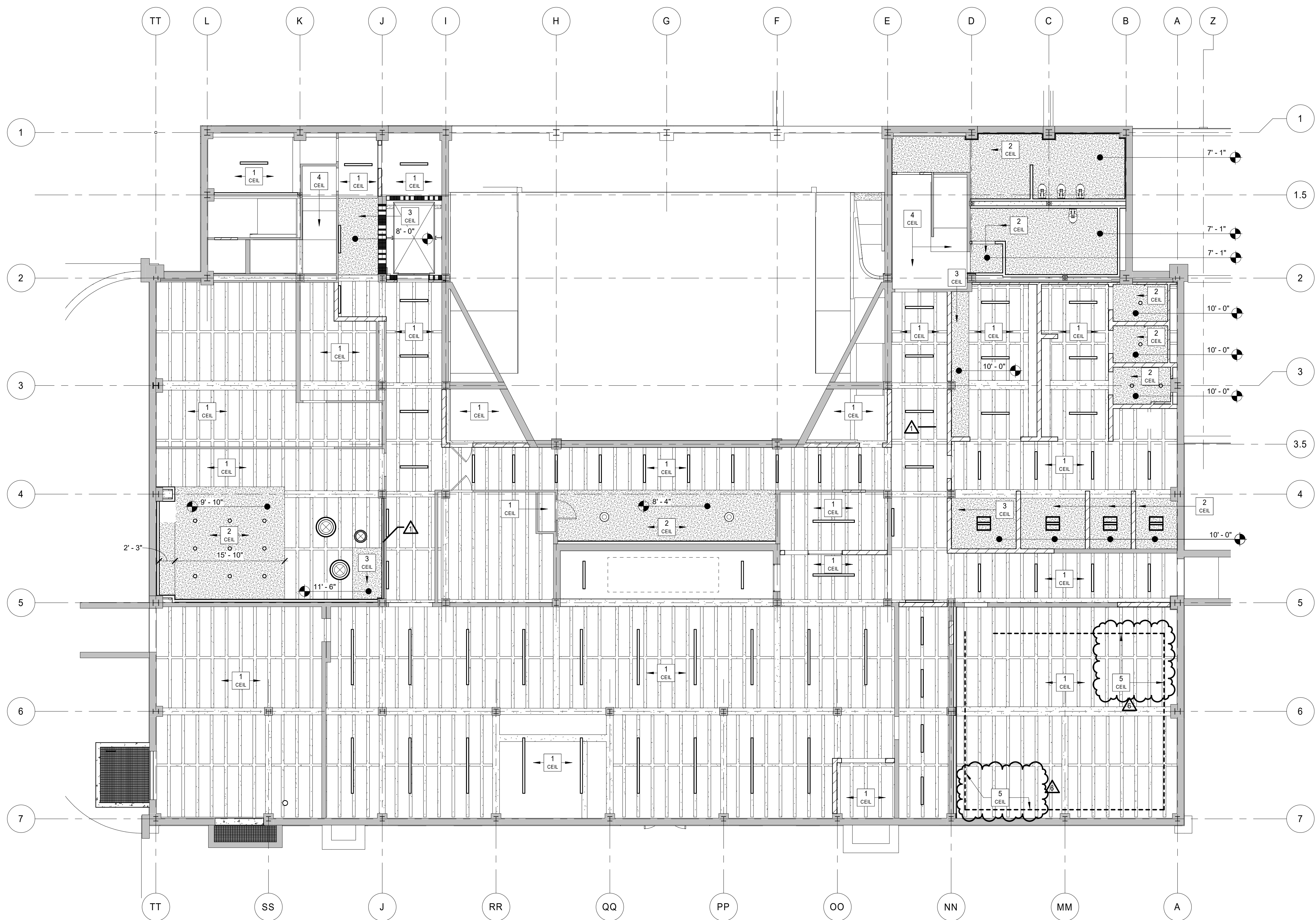
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
3	Addendum #3	6/26/2020
6	Addendum #6	07/09/2020

Basement Floor Plan

A1.00

\\adm1-local\UEM\user\jsham\Documents\19052_USU Dreiser Hall_r19_CENTRAL_planner.rvt

7/9/2020 10:48:24 AM



1
A1.00B
Reflected Ceiling Plan
Basement Reflected Ceiling Plan
1/8" = 1'-0"

CODED CEILING NOTES	
NO.	NOTE
1	EXPOSED CONCRETE STRUCTURE CEILING - PAINTED. ALL HANGER WIRE, ANCHORS, MISC. HARDWARE SHALL BE REMOVED FROM THE CONCRETE STRUCTURE DURING THE DEMOLITION. EMBEDDED REMNANTS ARE TO BE GROUND FLUSH WITH THE CONCRETE.
2	GYPSUM BOARD CEILING, PAINTED.
3	2-HOUR RATED HORIZONTALLY INSTALLED SHAFT WALL SYSTEM. GYPSUM BOARD CEILING ASSEMBLY TO ENCLOSE LOWER PORTION OF 2-HOUR RATED MECHANICAL SHAFT. REPORT NUMBER AER-09038 OR EQUAL, PAINTED.
4	PATCH AND PAINT EXISTING PLASTER CEILING.
5	ALTERNATE #4 - PROVIDE PIPE GRID CEILING AND THEATRICAL LIGHTING. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS. BASE BID - NO PIPE GRID OR THEATRICAL LIGHTING. PROVIDE THEATRICAL CURTAIN.
6	2' X 2' ACOUSTICAL CEILING TILE SYSTEM.
7	PROVIDE PIPE GRID AND STUDIO LIGHT FIXTURES. SEE ELECTRICAL DRAWINGS FOR DETAILS.
8	EXISTING CEILING GRID, TILE, AND LIGHT FIXTURES TO REMAIN.
9	NEW VENEERED WOOD PANEL CEILING.
10	SUSPENDED GYPSUM BOARD CLOUD CEILING, PAINTED.
11	GYPSUM BOARD BULKHEAD.
12	WOOD PANEL CEILING SYSTEM, BASIS OF DESIGN - ARMSTRONG "WOODWORKS" LINEAR, SOLID PANEL.
13	SUSPENDED WOOD PLANK CLOUD CEILING.
14	(2) LAYERS GYPSUM BOARD ON METAL FRAMING AND ISOLATION HANGERS (KINETICS ICC OR EQUIVALENT) WITH 3-1/2" FIBERGLASS INSULATION - SEE DETAIL 2/A1.01B
15	WOOD REFLECTOR PANELS ON METAL FRAMING / ISOLATION HANGERS (KINETICS ICC OR EQUIVALENT). BASIS OF DESIGN KINETICS REFLECT.
16	METAL PANEL CEILING SYSTEM TO MATCH METAL PANELS.
17	GYPSUM BOARD AND METAL FRAMING LIGHT WELL.
18	BLACKOUT ROLLER SHADE - MANUAL.
19	LIGHT FILTERING ROLLER SHADE - MANUAL.
20	72.5" x 116" RECESSED MOUNTED MOTORIZED PROJECTION SCREEN WITH TRIM KIT.
21	72.5" x 116" WALL MOUNTED MOTORIZED PROJECTION SCREEN.
22	REINSTALL SALVAGED STAGE CURTAIN.
23	100" x 160" WALL MOUNTED MOTORIZED PROJECTION SCREEN.

- GENERAL CEILING PLAN NOTES
- DO NOT SCALE DRAWINGS.
 - SEE INTERIOR DRAWINGS FOR PAINT COLOR OF GYP. BD. AND EXPOSED CONCRETE STRUCTURE CEILINGS AND THEIR ASSOCIATED BULKHEADS.
 - UNLIKE FLOOR PLAN DIMENSIONS, THOSE SHOWN ON THE REFLECTED CEILING PLAN ARE FINISHED DIMENSIONS UNLESS NOTED OTHERWISE.

CEILING ELEVATIONS ARE TO THE FINISHED FACE OF THE CEILING FINISH MATERIAL.

BULKHEAD DIMENSIONS ARE TO THE FINISHED FACE OF GYP. BD.

DIMENSIONS TO LIGHT FIXTURES ARE TO THE CENTERPOINT OF THE FIXTURE. THE FINISHED EDGE OF FIXTURE, OR TO THE CENTERLINE OF ASSOCIATED CEILING GRID SYSTEM.
 - LETTER DESIGNATIONS WITHIN A DIMENSION STRING (SUCH AS "A", "B", "C" AND SO ON) INDICATE THAT THE DIMENSION IS TO BE FIELD DETERMINED AND IT IS TO BE EQUAL TO OTHER DIMENSIONS OF THE SAME LETTER THROUGHOUT THAT SPECIFIC DRAWING SHEET, BUT NOT TO THE SAME DESIGNATION ON OTHER DRAWING SHEETS.
 - USE OF "EQUAL" OR "EO" WITHIN A DIMENSION STRING INDICATES A DIMENSION THAT IS TO BE EQUAL ONLY RELATIVE TO OTHER EQUAL CALLOUTS ON THE SAME DIMENSION STRING IN WHICH IT APPEARS. DIMENSIONS CALLED OUT AS EQUAL ON TWO DIFFERENT DIMENSION STRINGS ARE NOT NECESSARILY EQUAL TO EACH OTHER.
 - ALL DESIGN TEAM DRAWINGS SHALL BE USED TO LOCATE BUILDING ELEMENTS. CONTACT THE ARCHITECT WITH CONFLICTS, DISCREPANCIES, AND OMISSIONS PRIOR TO COMMENCEMENT OF WORK. WRITTEN DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR REGARDING SUCH ITEMS.
 - STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, LOW VOLTAGE AND FOOD SERVICE ELEMENTS ARE SHOWN FOR REFERENCE ONLY. VERIFY EACH ELEMENT WITH THE ASSOCIATED ENGINEER'S DRAWINGS. COORDINATE CONFLICTS WITH THE ARCHITECT.
 - REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
 - GENERAL CONTRACTOR TO PROVIDE BACKER ROD AND SEALANT, OF A TYPE APPROPRIATE TO EACH CONDITION, BETWEEN MATERIALS BOTH SIMILAR AND DISSIMILAR THROUGHOUT THE INTERIOR AND EXTERIOR OF THE BUILDING. (COLORS TO BE SELECTED BY ARCHITECT)
 - NOT ALL LIGHT FIXTURES ARE REPRESENTED ON THE ARCHITECTURAL DRAWINGS. LIGHT FIXTURES ARE SHOWN FOR PLACEMENT LOCATION AND SIZE RELATIONSHIPS. ACTUAL FIXTURE TYPES ARE SHOWN ON ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL LIGHT FIXTURE TYPES AND LOCATIONS. CONFIRM ANY DISCREPANCIES BETWEEN DRAWINGS WITH THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
 - WHERE GYP. BD. CEILINGS ARE INDICATED TO BE LOWER THAN ADJACENT ACT CEILINGS THE CONTRACTOR IS TO PROVIDE A FINISHED VERTICAL GYP. BD. BULKHEAD RETURN FROM THE LOWER FINISHED GYP. BD. CEILING TO A MINIMUM OF 6" ABOVE THE ADJACENT ACT CEILING UNLESS NOTED OTHERWISE. SEE FLOOR PLANS AND LIFE SAFETY PLANS.
 - WHERE GYP. BD. CEILINGS ARE INDICATED TO BE LOWER THAN ADJACENT GYP. BD. OR EXPOSED STRUCTURE CEILINGS THE CONTRACTOR IS TO PROVIDE A CONTINUOUS FINISHED VERTICAL GYP. BD. BULKHEAD RETURN TO THE ADJACENT FINISHED GYP. BD. CEILING.
 - EACH FIRE RATED BUILDING SHAFT IS TO HAVE A CLOSURE AT THE TOP AND BOTTOM OF THE SHAFT THAT MATCHES THE FIRE RATING OF THE SHAFT.



626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47809
Phone: (812) 237-3773
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsengineering.com

RE Dimond
MEP Engineer

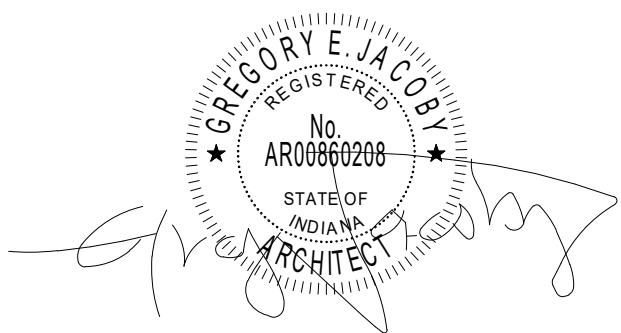
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Website: www.reDimond.com

Design 27
Acoustical Engineer

1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

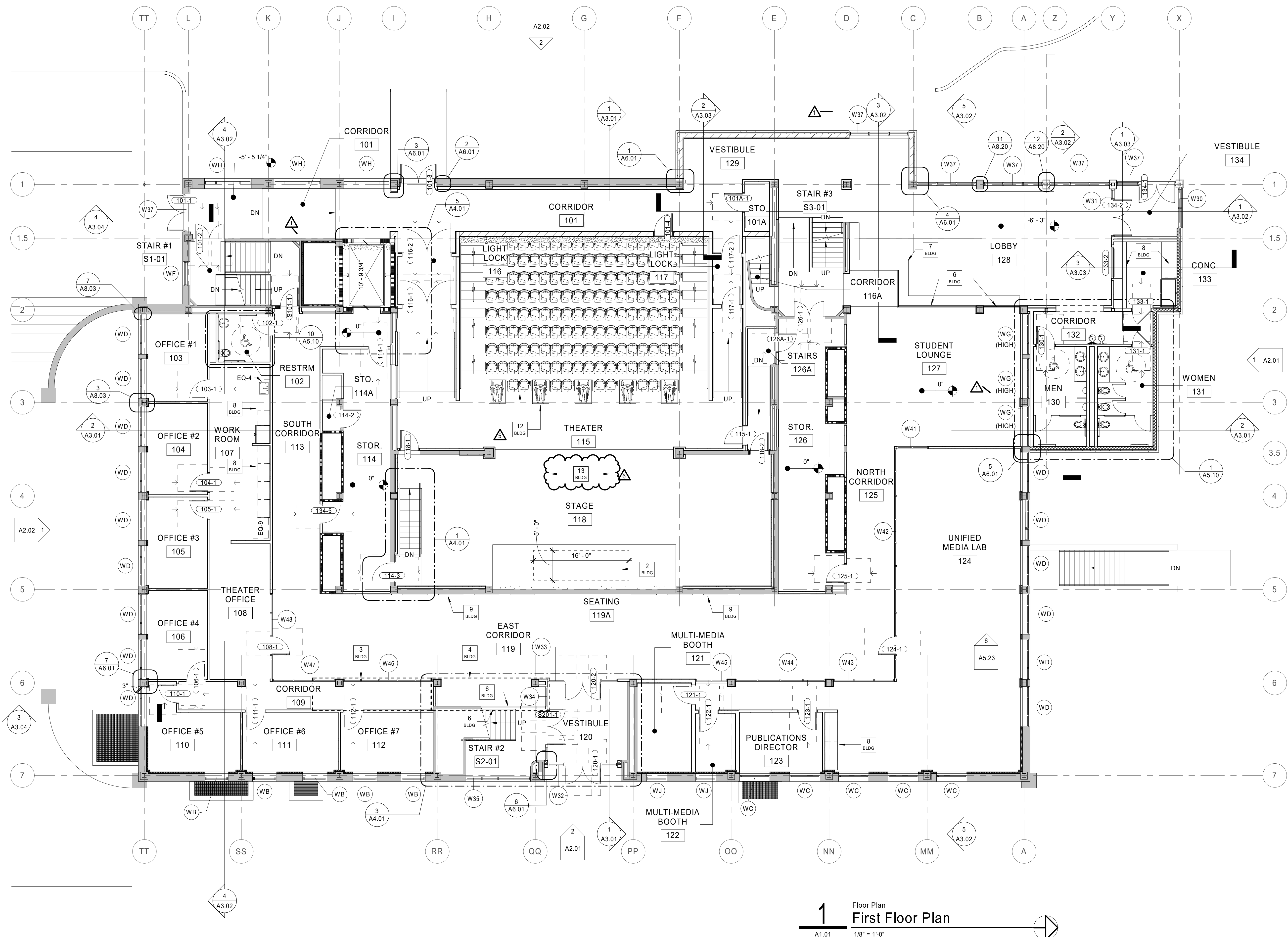
Project No.: 19A052
Drawn By: J. Young
Checked By: Checker
Scale: As Noted
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
3	Addendum #3	6/26/2020
5	Addendum #5	07/02/2020
6	Addendum #6	07/09/2020

Basement Reflected Ceiling
Plan

A1.00B

\\adm1-local\UEM\user\jstam\Documents\19452_ISU Dreiser Hall_r19_CENTRAL_planner.rvt 7/9/2020 10:48:29 AM



1 Floor Plan
First Floor Plan
A1.01 1/8" = 1'-0"

CODED BUILDING NOTES

NO.	NOTE
1	EXISTING TERRAZZO STAIR - CLEAN, REPAIR AND POLISH TERRAZZO PER PROJECT SPECIFICATIONS. CLEAN, REPAIR AND POLISH ALL HANDRAILS AND ALL ASSOCIATED COMPONENTS (POSTS, BRACKETS, ETC.) PER PROJECT SPECIFICATIONS
2	ALTERNATE #8 - NEW HYDRAULIC MATERIALS LIFT. LIFT TO BE RECESSED IN NEW PIT IN BASEMENT SO THAT IT IS FLUSH WITH THE ADJACENT SLAB IN THE DOWN POSITION. IN THE UP POSITION, THE LIFT IS TO FORM THE STAGE FLOOR IN AREA INDICATED. BASE BID - NO HYDRAULIC LIFT.
3	ALTERNATE #6 - NEW INTERIOR ALUMINUM STOREFRONT WALL SYSTEM. BASE BID - METAL STUD WALLS WITH GYPSUM BOARD ON BOTH SIDES (PAINTED).
4	ALTERNATE #5 - OPEN STAIR #2 AND INSTALL NEW GUARDRAIL, STOREFRONT, AND WALLS AS INDICATED. BASE BID - NOT NEW GUARDRAILS, STOREFRONT, WALLS TO BE STEEL STUD WITH GYPSUM BOARD ON BOTH SIDES (PAINTED).
5	MOP SINK - REFER TO PLUMBING DRAWINGS
6	STAINLESS STEEL / GLASS RAILING SYSTEM SEE DETAIL 5/A4.02 AND 6/A4.02
7	BUILT IN BENCH SEATING - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
8	CASEWORK / APPLIANCES - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
9	WOOD WALL PANEL SYSTEM - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
10	DRINKING FOUNTAINS - REFER TO PLUMBING DRAWINGS
11	RELOCATED EXISTING FURNISHINGS / EQUIPMENT
12	TELESCOPIC SEATING SYSTEM - 144 FIXED SEATS, 8 MOVABLE FLOOR SEATS AND 5 OPEN HANDICAP SPOTS.
13	NEW STAGE FLOOR SYSTEM - REFER TO DETAILS 7 & 8/A6.02
14	24" x 36" x 1/2" CORRUGATED STEEL DECK WITH 1" x 4" x 5" S

GENERAL PLAN NOTES

- DO NOT SCALE DRAWINGS.
- DIMENSIONS ARE TAKEN TO FACE OF STUD, FACE OF CONCRETE, FACE OF MASONRY, FACE OF EXISTING FINISHES, AND COLUMN LINES UNLESS SPECIFICALLY NOTED OTHERWISE. FINISHED (FIN, FD) OR CLEAR (CLR) DIMENSIONS INDICATE FINISH SURFACE TO FINISH SURFACE SPANS BETWEEN WALLS OR FROM FINISH SURFACE OF WALL TO LATCHING OF ADJACENT DOOR OR CENTERLINE OF PLUMBING FIXTURES.
- LETTER DESIGNATIONS WITHIN A DIMENSION STRING (SUCH AS "A", "B", "C" AND SO ON) INDICATE THAT THE DIMENSION IS TO BE FIELD DETERMINED AND IT IS TO BE EQUAL TO OTHER DIMENSIONS OF THE SAME LETTER THROUGHOUT THAT SPECIFIC DRAWING SHEET, BUT NOT TO THE SAME DESIGNATION ON OTHER DRAWING SHEETS.
- USE OF "EQUAL" OR "EQ" WITHIN A DIMENSION STRING INDICATES A DIMENSION THAT IS TO BE EQUAL ONLY RELATIVE TO OTHER EQUAL CALLOUTS ON THE SAME DIMENSION STRING IN WHICH IT APPEARS. DIMENSIONS CALLED OUT AS EQUAL ON TWO DIFFERENT DIMENSION STRINGS ARE NOT NECESSARILY EQUAL TO EACH OTHER.
- ALL DESIGN TEAM DRAWINGS SHALL BE USED TO LOCATE BUILDING ELEMENTS. CONTACT THE ARCHITECT WITH CONFLICTS, DISCREPANCIES, AND OMISSIONS PRIOR TO COMMENCEMENT OF WORK. WRITTEN DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR REGARDING SUCH ITEMS.
- STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, LOW VOLTAGE AND FOOD SERVICE ELEMENTS ARE SHOWN FOR REFERENCE ONLY. VERIFY EACH ELEMENT WITH THE ASSOCIATED ENGINEER'S DRAWINGS. COORDINATE CONFLICTS WITH THE ARCHITECT.
- FLOORS SHALL SLOPE TO FLOOR DRAINS. SLOPES SHALL COMPLY WITH ADA ACCESSIBILITY GUIDELINES.
- WALL FRAMING, INSULATION, SHEATHING, AND FINISHES SHALL EXTEND FROM THE TOP OF SLAB TIGHT TO THE UNDERSIDE OF THE DECK ABOVE UNLESS NOTED OTHERWISE. PARTIAL HEIGHT WALLS ARE NOTED WITH TOP OF WALL ELEVATIONS.
- REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
- STUD WALL CONTRACTOR SHALL PROVIDE IN-WALL BLOCKING FOR WALL MOUNTED OWNER PROVIDED AND CONTRACTOR PROVIDED ITEMS REPRESENTED WITHIN THE DRAWINGS AND SPECIFICATIONS.
- GENERAL CONTRACTOR TO PROVIDE BACKER ROD AND SEALANT OF A TYPE APPROPRIATE TO EACH CONDITION, BETWEEN MATERIALS BOTH SIMILAR AND DISSIMILAR THROUGHOUT THE INTERIOR AND EXTERIOR OF THE BUILDING. (COLORS TO BE SELECTED BY ARCHITECT)
- EACH EXTERIOR STUD WALL ACROSS THE ENTIRETY OF THE BUILDING IS TO RECEIVE A MINIMUM R-19 BATT INSULATION.
- SEE STRUCTURAL DRAWINGS FOR INFORMATION REGARDING CMU AND CAST-IN-PLACE WALLS.
- IT IS THE GENERAL DESIGN INTENT THAT ALL NEW WALLS ALIGN WITH THE FACE OF EXISTING ADJACENT WALL CONSTRUCTION.



626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47809
Phone: (812) 237-3773
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsenengineering.com

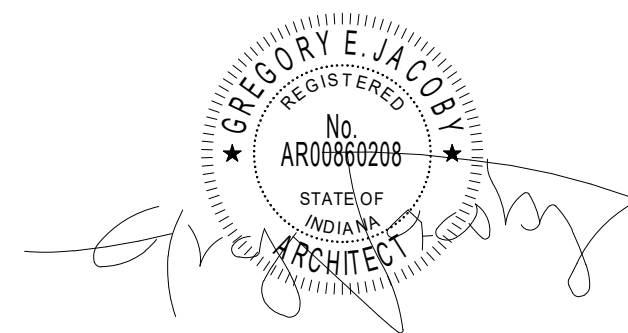
RE Dimond
MEP Engineer

732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Website: www.reimond.com

Design 27
Acoustical Engineer
1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: J. Starneri
Checked By: Checker
Scale: As Noted
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
3	Addendum #3	6/26/2020
5	Addendum #5	07/02/2020
6	Addendum #6	07/09/2020

SYMBOL LEGEND

CODED NOTES OF VARYING
TYPES: SEE SCHEDULES ON THIS
SHEET

101

DOOR TAG: SEE SHEET A8-SERIES
DRAWINGS

WW

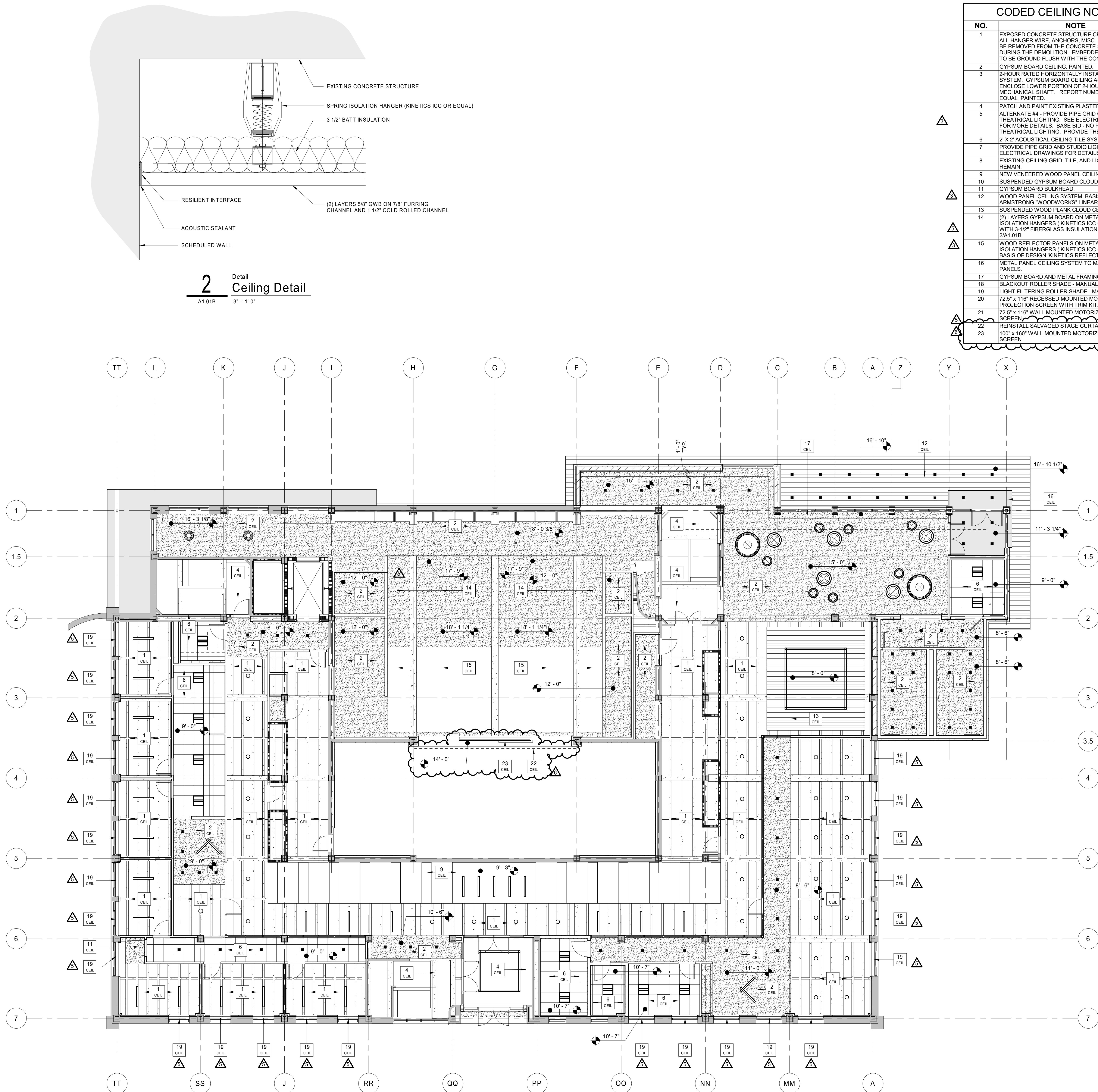
WALL TAG: SEE SHEET A0.10 AND A0.11 FOR
WALL TYPE AND FIRE RATING
REQUIREMENTS. SEE A5 SERIES DRAWINGS
FOR WALL FINISHES.

[S: 101A]

SIGN TAG: SEE SIGNAGE PACKAGE

W1

WINDOW TAG: SEE A8-SERIES DRAWINGS



CODED CEILING NOTES	
NO.	NOTE
1	EXPOSED CONCRETE STRUCTURE CEILING - PAINTED. ALL HANGER WIRE, ANCHORS, MISC. HARDWARE SHALL BE REMOVED FROM THE CONCRETE STRUCTURE DURING THE DEMOLITION. EMBEDDED REMNANTS ARE TO BE GROUND FLUSH WITH THE CONCRETE.
2	GYPSUM BOARD CEILING, PAINTED.
3	2-HOUR RATED HORIZONTALLY INSTALLED SHAFT WALL SYSTEM. GYPSUM BOARD CEILING ASSEMBLY TO ENCLOSE LOWER PORTION OF 2-HOUR RATED MECHANICAL SHAFT. REPORT NUMBER AER-09038 OR EQUAL. PAINTED.
4	PATCH AND PAINT EXISTING PLASTER CEILING.
5	ALTERNATE #4 - PROVIDE PIPE GRID CEILING AND THEATRICAL LIGHTING. SEE ELECTRICAL DRAWINGS FOR MORE DETAILS. BASE BID - NO PIPE GRID OR THEATRICAL LIGHTING. PROVIDE THEATRICAL CURTAIN.
6	2' X 2' ACOUSTICAL CEILING TILE SYSTEM.
7	PROVIDE PIPE GRID AND STUDIO LIGHT FIXTURES. SEE ELECTRICAL DRAWINGS FOR DETAILS.
8	EXISTING CEILING GRID, TILE, AND LIGHT FIXTURES TO REMAIN.
9	NEW VENEERED WOOD PANEL CEILING.
10	SUSPENDED GYPSUM BOARD CLOUD CEILING, PAINTED.
11	GYPSUM BOARD BULKHEAD.
12	WOOD PANEL CEILING SYSTEM, BASIS OF DESIGN - ARMSTRONG "WOODWORKS" LINEAR, SOLID PANEL.
13	SUSPENDED WOOD PLANK CLOUD CEILING.
14	(2) LAYERS GYPSUM BOARD ON METAL FRAMING AND ISOLATION HANGERS (KINETICS ICC OR EQUIVALENT) WITH 3-1/2" FIBERGLASS INSULATION - SEE DETAIL 2/A1.01B
15	WOOD REFLECTOR PANELS ON METAL FRAMING / ISOLATION HANGERS (KINETICS ICC OR EQUIVALENT). BASIS OF DESIGN KINETICS REFLECT
16	METAL PANEL CEILING SYSTEM TO MATCH METAL PANELS.
17	GYPSUM BOARD AND METAL FRAMING LIGHT WELL.
18	BLACKOUT ROLLER SHADE - MANUAL.
19	LIGHT FILTERING ROLLER SHADE - MANUAL.
20	72.5" x 116" RECESSED MOUNTED MOTORIZED PROJECTION SCREEN WITH TRIM KIT.
21	72.5" x 116" WALL MOUNTED MOTORIZED PROJECTION SCREEN.
22	REINSTALL SALVAGED STAGE CURTAIN.
23	100" x 160" WALL MOUNTED MOTORIZED PROJECTION SCREEN.

- GENERAL CEILING PLAN NOTES**
- DO NOT SCALE DRAWINGS.
 - SEE INTERIOR DRAWINGS FOR PAINT COLOR OF GYP. BD. AND EXPOSED CONCRETE STRUCTURE CEILINGS AND THEIR ASSOCIATED BULKHEADS.
 - UNLIKE FLOOR PLAN DIMENSIONS, THOSE SHOWN ON THE REFLECTED CEILING PLAN ARE FINISHED DIMENSIONS UNLESS NOTED OTHERWISE.

CEILING ELEVATIONS ARE TO THE FINISHED FACE OF THE CEILING FINISH MATERIAL.

BULKHEAD DIMENSIONS ARE TO THE FINISHED FACE OF GYP. BD.

DIMENSIONS TO LIGHT FIXTURES ARE TO THE CENTERPOINT OF THE FIXTURE. THE FINISHED EDGE OF FIXTURE, OR TO THE CENTERLINE OF ASSOCIATED CEILING GRID SYSTEM.
 - LETTER DESIGNATIONS WITHIN A DIMENSION STRING (SUCH AS "A", "B", "C" AND SO ON) INDICATE THAT THE DIMENSION IS TO BE FIELD DETERMINED AND IT IS TO BE EQUAL TO OTHER DIMENSIONS OF THE SAME LETTER THROUGHOUT THAT SPECIFIC DRAWING SHEET, BUT NOT TO THE SAME DESIGNATION ON OTHER DRAWING SHEETS.
 - USE OF "EQUAL" OR "EQ" WITHIN A DIMENSION STRING INDICATES A DIMENSION THAT IS TO BE EQUAL ONLY RELATIVE TO OTHER EQUAL CALLOUTS ON THE SAME DIMENSION STRING IN WHICH IT APPEARS. DIMENSIONS CALLED OUT AS EQUAL ON TWO DIFFERENT DIMENSION STRINGS ARE NOT NECESSARILY EQUAL TO EACH OTHER.
 - ALL DESIGN TEAM DRAWINGS SHALL BE USED TO LOCATE BUILDING ELEMENTS. CONTACT THE ARCHITECT WITH CONFLICTS, DISCREPANCIES, AND OMISSIONS PRIOR TO COMMENCEMENT OF WORK. WRITTEN DOCUMENTATION SHALL BE PROVIDED BY THE CONTRACTOR REGARDING SUCH ITEMS.
 - STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, LOW VOLTAGE AND FOOD SERVICE ELEMENTS ARE SHOWN FOR REFERENCE ONLY. VERIFY EACH ELEMENT WITH THE ASSOCIATED ENGINEER'S DRAWINGS. COORDINATE CONFLICTS WITH THE ARCHITECT.
 - REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
 - GENERAL CONTRACTOR TO PROVIDE BACKER ROD AND SEALANT, OF A TYPE APPROPRIATE TO EACH CONDITION, BETWEEN MATERIALS BOTH SIMILAR AND DISSIMILAR THROUGHOUT THE INTERIOR AND EXTERIOR OF THE BUILDING. (COLORS TO BE SELECTED BY ARCHITECT)
 - NOT ALL LIGHT FIXTURES ARE REPRESENTED ON THE ARCHITECTURAL DRAWINGS. LIGHT FIXTURES ARE SHOWN FOR PLACEMENT LOCATION AND SIZE RELATIONSHIPS. ACTUAL FIXTURE TYPES ARE SHOWN ON ELECTRICAL DRAWINGS. SEE ELECTRICAL DRAWINGS FOR ADDITIONAL LIGHT FIXTURE TYPES AND LOCATIONS. CONFIRM ANY DISCREPANCIES BETWEEN DRAWINGS WITH THE ARCHITECT PRIOR TO COMMENCEMENT OF WORK.
 - WHERE GYP. BD. CEILINGS ARE INDICATED TO BE LOWER THAN ADJACENT ACT CEILINGS THE CONTRACTOR IS TO PROVIDE A FINISHED VERTICAL GYP. BD. BULKHEAD RETURN FROM THE LOWER FINISHED GYP. BD. CEILING TO A MINIMUM OF 6" ABOVE THE ADJACENT ACT CEILING UNLESS NOTED OTHERWISE. SEE FLOOR PLANS AND LIFE SAFETY PLANS.
 - WHERE GYP. BD. CEILINGS ARE INDICATED TO BE LOWER THAN ADJACENT GYP. BD. OR EXPOSED STRUCTURE CEILINGS THE CONTRACTOR IS TO PROVIDE A CONTINUOUS FINISHED VERTICAL GYP. BD. BULKHEAD RETURN TO THE ADJACENT FINISHED GYP. BD. CEILING.
 - EACH FIRE RATED BUILDING SHAFT IS TO HAVE A CLOSURE AT THE TOP AND BOTTOM OF THE SHAFT THAT MATCHES THE FIRE RATING OF THE SHAFT.



626 North Illinois Street
Indianapolis, Indiana 46204
Phone: (317) 635-5030
Website: www.browningday.com

Indiana State University
Owner

200 North 7th Street
Terre Haute, IN 47809
Phone: (812) 237-3773
Website: www.indstate.edu

VS Engineering
Structural Engineer

4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsengineering.com

RE Dimond
MEP Engineer

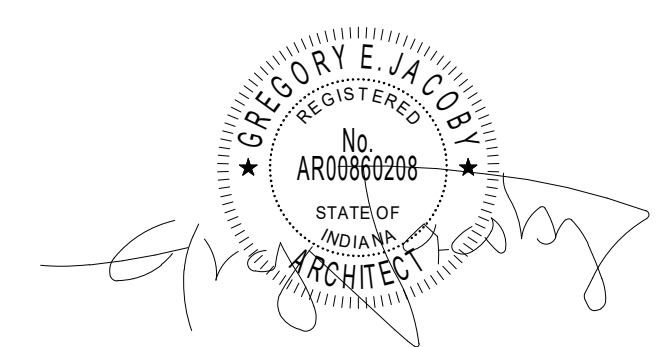
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Website: www.reDimond.com

Design 27
Acoustical Engineer

1650 East 49th Street
Indianapolis, IN 46205
Phone: (317) 536-8000
Website: www.design27.com

Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 238-9731
Website: www.myersengineering.com



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: J. Young
Checked By: Checker
Scale: As Noted
Issue Date: June 5, 2020

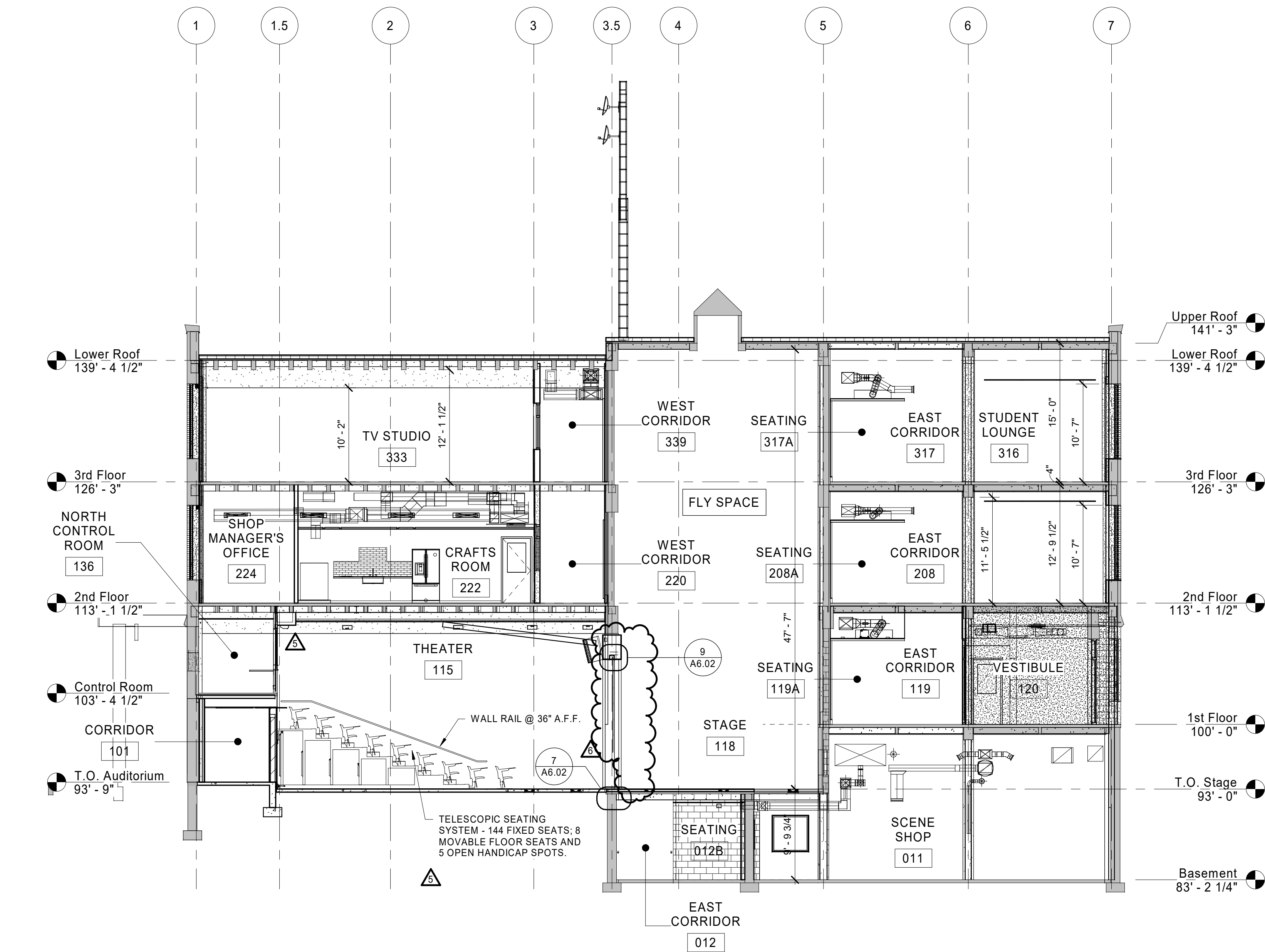
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
3	Addendum #3	6/26/2020
5	Addendum #5	07/02/2020
6	Addendum #6	07/09/2020

1st Floor Reflected Ceiling
Plan

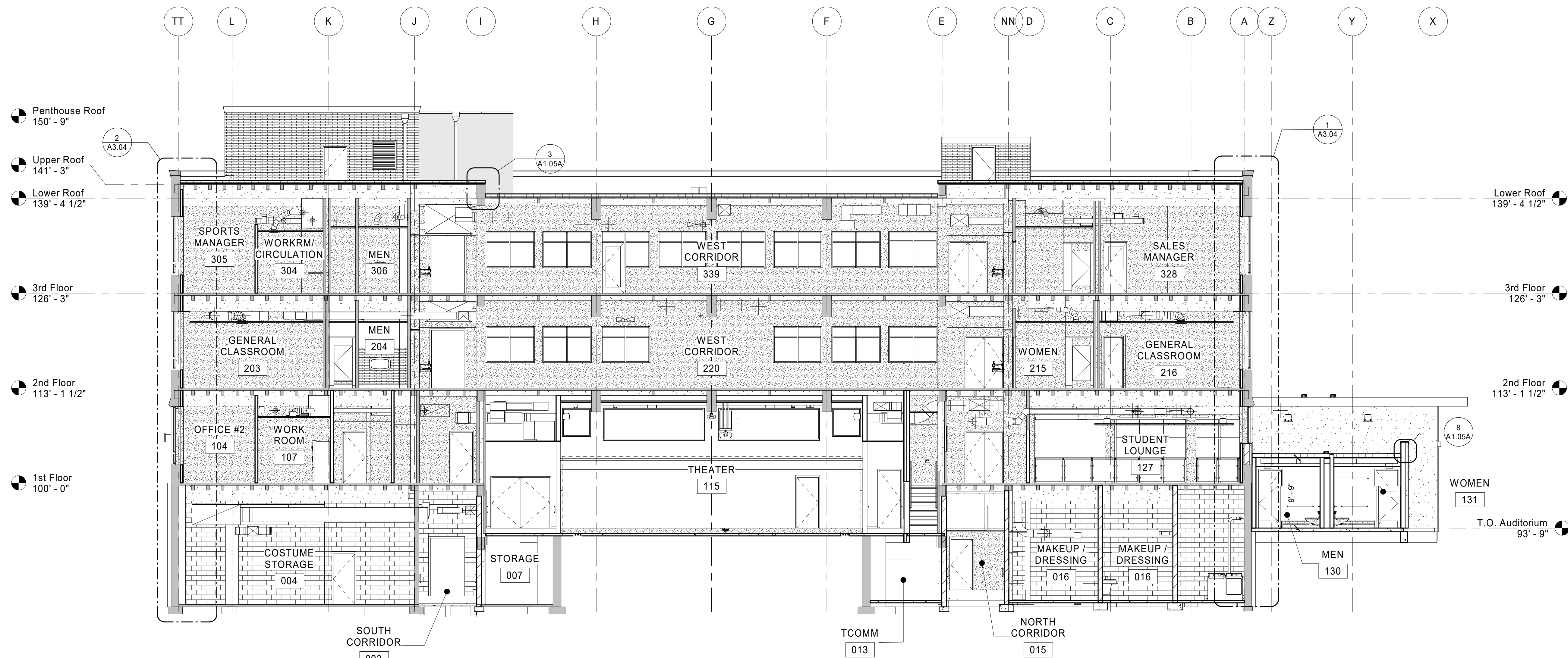
A1.01B

1
A1.01B
1/8" = 1'-0"
Reflected Ceiling Plan
1st Floor Reflected Ceiling Plan

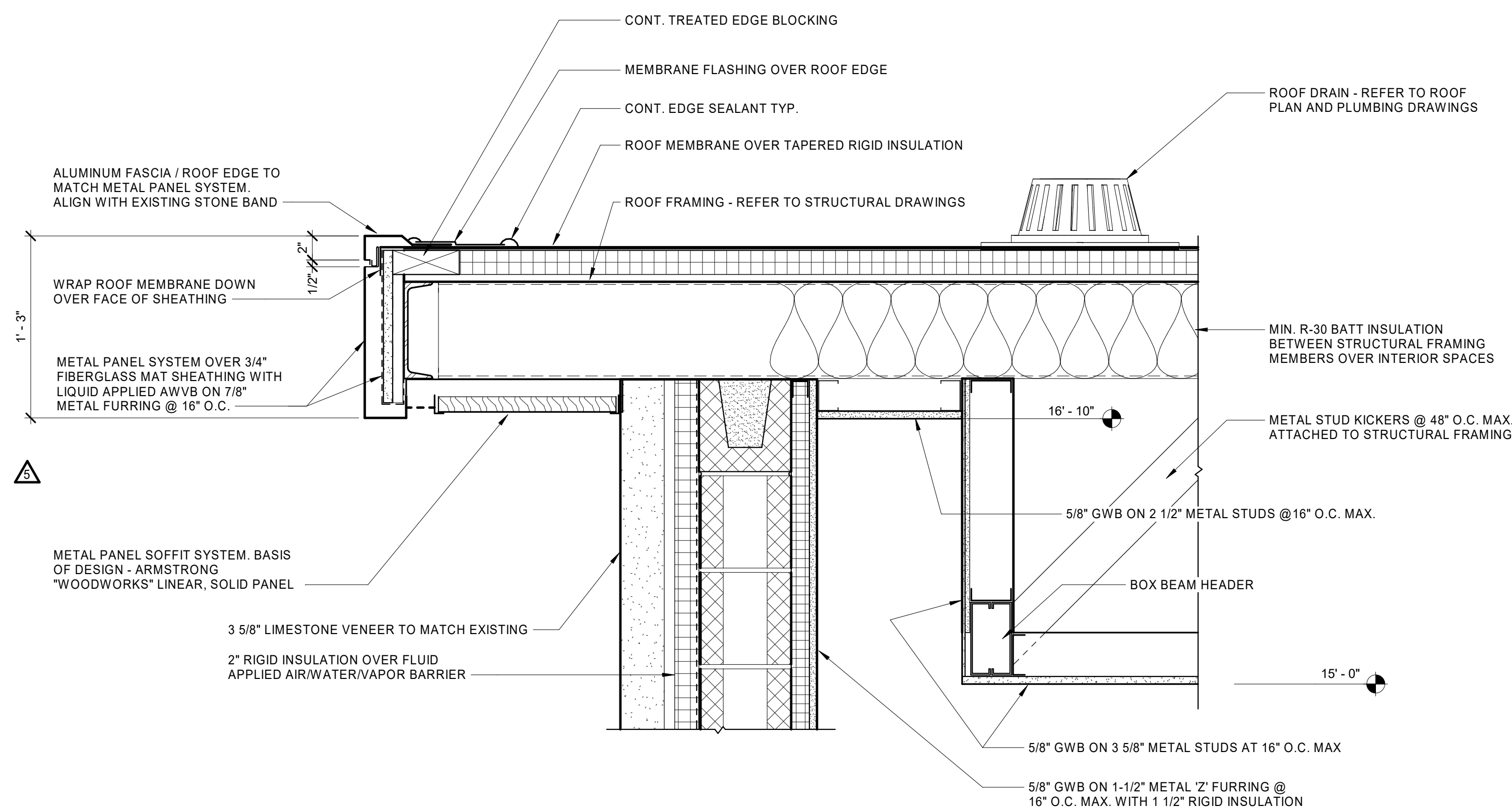
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
5	Addendum #5	07/02/2020
6	Addendum #6	07/09/2020



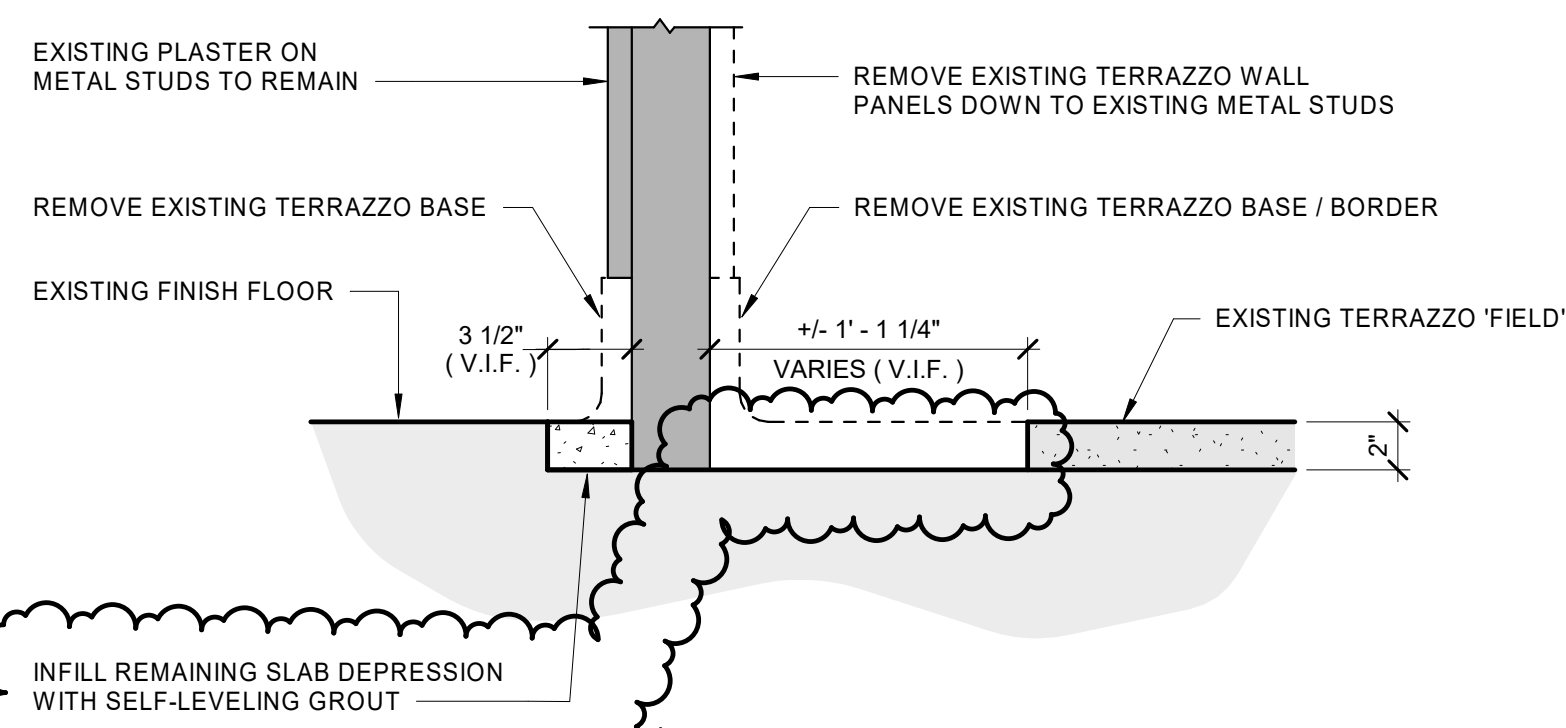
1 Wall Section
Transverse Section
A3.01 1/8" = 1'-0"



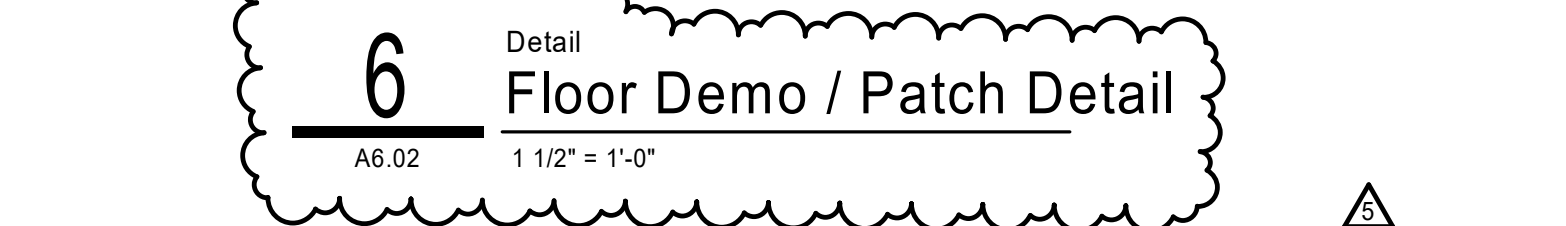
2 Wall Section
Longitudinal Section
A3.01 1/8" = 1'-0"



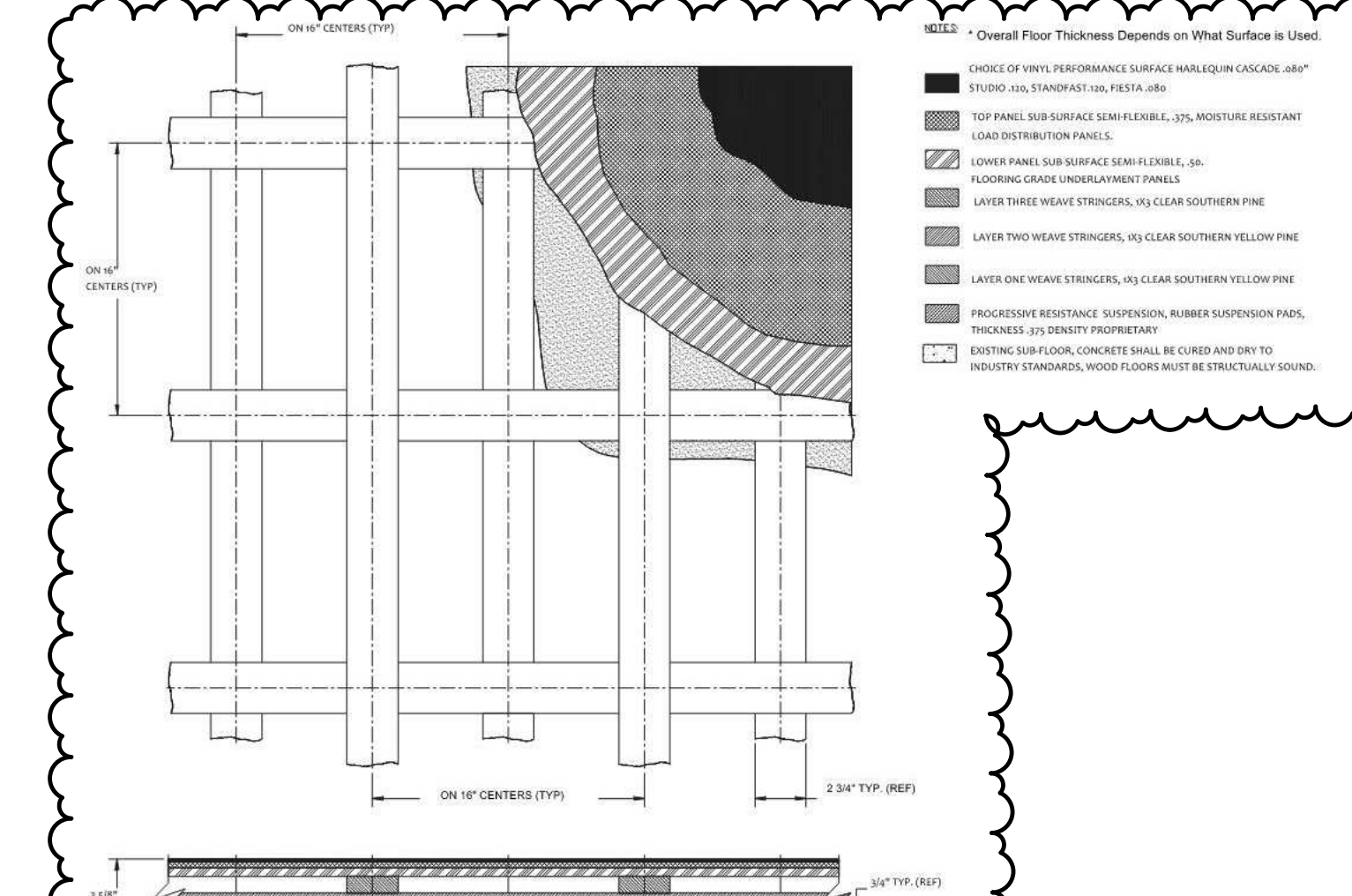
2 Wall Section Vestibule #129 Roof Detail



6 Detail
Floor Demo / Patch Detail
A6.02 1 1/2" = 1'-0"

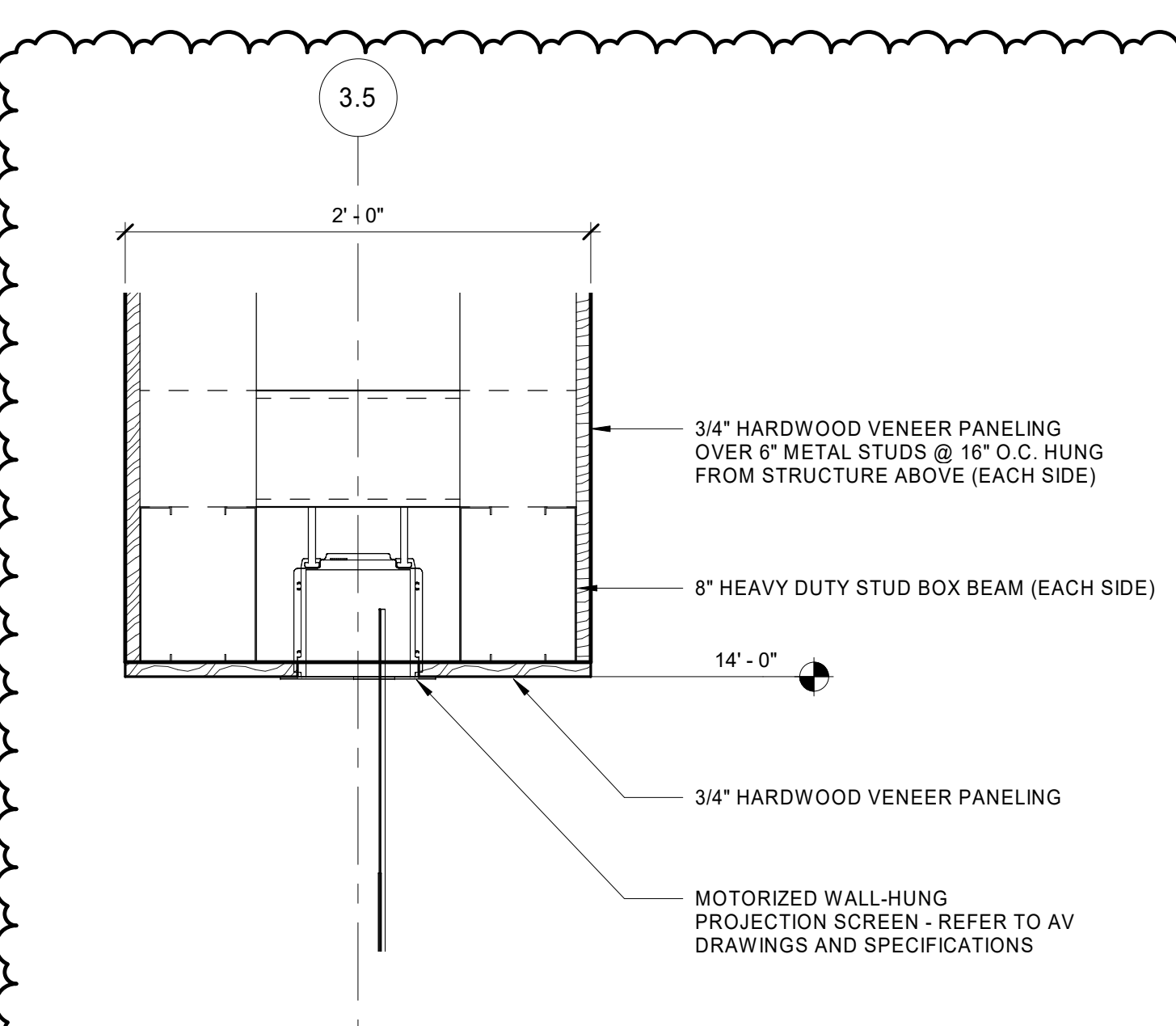


7 Wall Section Stage Edge @ Theater

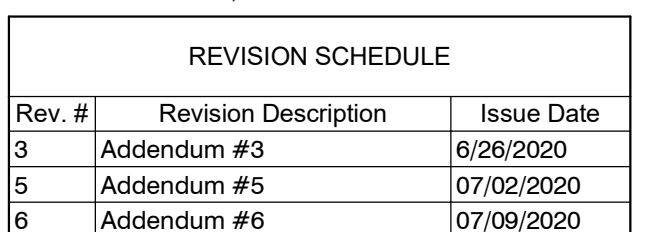
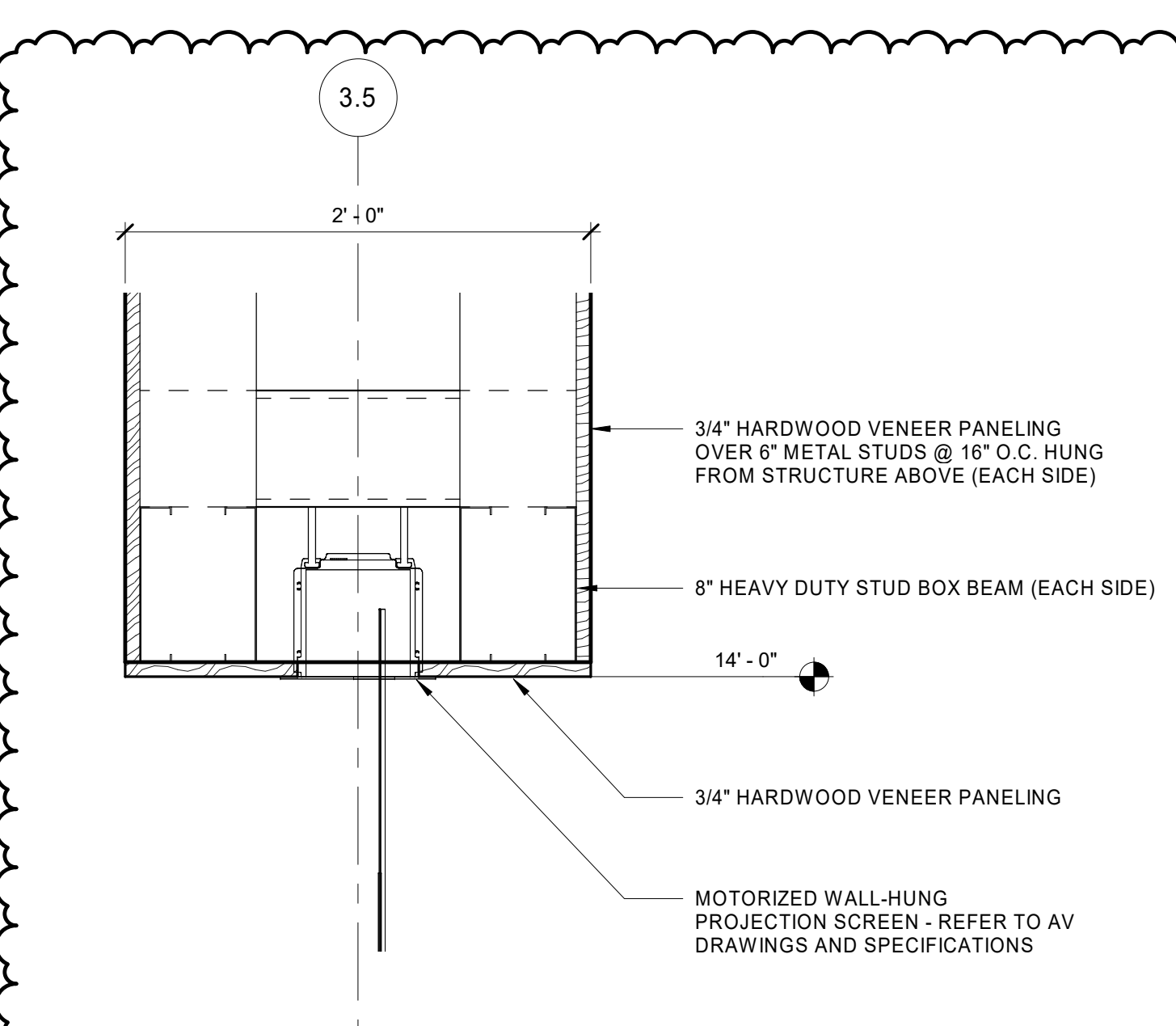


8 Detail

Stage Floor Detail



9 Wall Section Projection Screen Detail



BIDDER QUESTIONS

Unified Bid					
Project:	Project Name Location		Indiana State University Dreiser Hall Renovation Terre Haute, Indiana		Bid Date: June 15, 2020
Architect:	Browning Day Browning Day Project No. 19a052				Bid Type: Single Prime

#	Date Submitted	Organization	Contact	Question	Answer
1	06.05.2020	Construct Connect	Jared Watkins	What is the estimated budget?	The construction budget is +- \$13 million.
2	06.05.2020	Construct Connect	Jared Watkins	What is the anticipated start date?	The start date is is mid July assuming bids come in on budget.
3	06.05.2020	Ambrose Industries	Chester Sokowski	Do you anticipate extending the bid date?	No.
4	06.05.2020	Ambrose Industries	Chester Sokowski	What additional details are you willing to provide, if any, beyond what is stated in bid documents concerning how you will identify the winning bid?	Winning bids are determined following all procurement requirements as set forth by the State of Indiana for state funded universities and Indiana State University policies.
5	06.05.2020	Ambrose Industries	Chester Sokowski	Was this bid posted to the nationwide free bid notification website at www.MyGovWatch.com/free	No.
6	06.05.2020	Ambrose Industries	Chester Sokowski	Other than your own website, where was the bid posted?	The bid was advertised in local media. It is also available through plan rooms including Bluebook Building and Construction Network, Dodge Data and Anayltics, Builders Exchange of Kentucky
7	06.10.2020	Cleveland Construction	Paul Alexander	Who is the permitting authority for this project? Have plans been submitted for review?	State permitting is provided through the Indiana Department of Homeland Security. Local permitting is provided through the City of Terre Haute. Plans will be submitted for review the week of June 15, 2020.
8	06.10.2020	Cleveland Construction	Paul Alexander	Is the AIA A310 form and acceptable Bid Bond document?	Yes, and it is preferred.
9	06.11.2020	Cleveland Construction	Paul Alexander	Will a specification be issued for the Stage Lift referenced in Alternate #8?	Yes, it will be issued the week of June 15, 2020. Revised: this will be issued the week of June 29,2020.
10	06.11.2020	Hannig Construction	Wes Readinger	Please confirm that an enlarged opening reinforced per detail 1/S0.02 is necessary and that the opening cant be cut to fit the new louver size. Is the addition of a structural angle an option for these openings?	An enlarged opening is necessary. The Structural Engineer will revise detail 1/S0.02 to delete angled rebar.
11	06.11.2020	Hannig Construction	Wes Readinger	Can you clarify the extent of concrete floor slab removal and replacement in the basement? Demo drawing D1.00 indicates some large hatched areas (D1) to be removed, however the structural drawings do not indicate these areas to receive a new slab that I can see.	The slab demo as shown on D1.00 is correct, although it has been revised in Addendum #1. The structural drawings will show a new slab in these areas in updated plans.
12	06.11.2020	Hannig Construction	Wes Readinger	Can you provide frame elevations associated with door openings 108-1, 124-1, 311-1, 315-1, 324-1, and 335-1. These are called out to be aluminum frames to receive wood doors.	The frame elevations requested are shown on Sheet A8.21 - Interior Storefront Elevations. This is issued in Addendum #1 .
ANSWERED IN ADDENDUM #1					
13	06.12.2020	Crestline Construction	Keith Roembke	Please confirm that the project is a Non-Prevailing Wage project	The project is a Non-Prevailing Wage project.
14	06.12.2020	Weddle Brothers	Josh Naugle	The specification requires the structural steel fabricator to be AISC certified. Can that be waived as long as the fabricator is an AISC member and has a quality program that meets or exceeds AISC?	Per the structural engineer (VS), the requirement to be AISC can be waived so long as the fabricator is an AISC member and has a quality program that meets or exceeds AISC.

BIDDER QUESTIONS

Unified Bid					
Project:	Project Name Location		Indiana State University Dreiser Hall Renovation Terre Haute, Indiana		Bid Date: June 15, 2020
Architect:	Browning Day Browning Day Project No. 19a052		Bid Type: Single Prime		

15	06.12.2020	Hannig Construction	Bill Hann Jr.	This project requires the steel fabricator to be AISC certified. Can this be waived?	Per the structural engineer (VS), the requirement to be AISC can be waived so long as the fabricator is an AISC member and has a quality program that meets or exceeds AISC.
16	06.15.2020	Garmong Construction	Kent Ferrari	This project requires the steel fabricator to be AISC certified. Can that be waived?	Per the structural engineer (VS), the requirement to be AISC can be waived so long as the fabricator is an AISC member and has a quality program that meets or exceeds AISC.
17	06.16.2020	Pepper Construction	Caitlin Poe	The project requires the steel fabricator to be AISC certified. Can this be waived?	Per the structural engineer (VS), the requirement to be AISC can be waived so long as the fabricator is an AISC member and has a quality program that meets or exceeds AISC.
18	06.22.2020	Fairchild Communications	Pat O'Neill	Section 2.19 Intercomm System - None of the specified part #'s seem to match up with Detail #2, sheet AV4.00, specifically, the chime mute and volume control panel. Could a manufacturer and part # be provided, please?	The chime mute and volume control panel are custom and connect directly to the DSP as shown on Detail #1/AV3.00 and Detail #2/AV3.01. These are not a part of the intercom system, but are utilized to page the theatre/BOH loudspeakers from the house manager's station in location (mainly to call patrons if needed before the show or during intermission). There really is not particular part number required for these components as long as they are compatible with the DSP.
19	06.22.2020	Fairchild Communications	Pat O'Neill	Section 2.24 AV Switcher - This is an 8x8 switcher frame, and as such will not accommodate the I/O card configurations listed in 2.24.1 and 2.24.2.. AV System Functional Diagram on sheet AV3.02 does not indicate the I/O config specified in 2.24.1 and 2.24.2. Clarification in requested, please.	Please reference the functional diagram on sheet AV3.02 for required input/output configuration.
20	06.22.2020	Fairchild Communications	Pat O'Neill	Section 2.29 Projection Screen - This section does not indicate tab tensioning, but elevation diagram #1 sheet AV2.00 seems to show a tab tensioned screen. Clarification is requested, please.	The projection screen shall be tab-tensioned.
21	06.22.2020	Fairchild Communications	Pat O'Neill	Section 2.38 AV Rack type 2 - The specified Middle Atlantic BRK12 lacks sufficient interior space for the MPR sequenced system raceway. Would the Middle Atlantic # PDS-620R rack mount sequenced power be acceptable as an alternate product?	The use of the PDS-620R is acceptable and shall be tied into the larger power sequencing system.
22	06.24.2020	Grunloh Construction	Evan Sudkamp	In specification 51200 - Structural Steel Framing, it calls for the Structural steel fabricating plant to possess current certified certificate from AISC. Can this qualification be waived?	Per the structural engineer (VS), the requirement to be AISC can be waived so long as the fabricator is an AISC member and has a quality program that meets or exceeds AISC. The specification will be updated in Addendum 2.
ANSWERED IN ADDENDUM #3					
23	06.22.2020	Garmong Construction	Kent Ferrari	At the east and south of the building, the excavator may have to move equipment over existing walks/and or tunnels? Is this acceptable? Is protection required?	The sidewalks on the east and south are tunnel tops, so they will need to be protected. Weight of any heavy equipment would need to be coordinated with the weight limit of the tunnels. Steel plate would be required to protect. As for standard sidewalks, they are to be protected as to not require replacement.
24	06.30.2020	Fairchild Communications	Pat O'Neill	AV3.01 indicates 4 outputs from power amplifier type 2 to FB locations, on 12 AWG loudspeaker cable. However, floorbox details shown on AV4.01 (Revision 1 addendum 2, dated 6/19/2020) show no loudspeaker output connections, only audio/video and network connections. Please clarify.	Loudspeaker connections at floorboxes are not required. Reference revised drawing in Addendum #5 for removal of power amplifiers and speaker connections.
25	06.30.2020	Fairchild Communications	Pat O'Neill	Sheet notes 6, 7, and 8 AV1.01 (Revision 1 addendum 2, dated 6/19/2020). Can you confirm that AV contractor is not responsible for travelling cable between connection point and line sets, as stated in these notes?	Traveling cable will be provided and installed by others. AV Contractor is responsible for coordinating cable type requirements with General Contractor and Rigging Contractor.
26	06.30.2020	Fairchild Communications	Pat O'Neill	Sheet note 9 AV1.01 (Revision 1 addendum 2, dated 6/19/2020). Can you confirm that AV contractor is not responsible for supplying or installing House Manager rack, as sated in this note?	Stage rack will be provided and installed by others. AV Contractor is responsible for coordinating installation of AV equipment within this rack with the Rigging and/or Lighting Contractor.

BIDDER QUESTIONS

Unified Bid					
Project:	Project Name LocationIndiana State University Dreiser Hall Renovation Terre Haute, Indiana			Bid Date: June 15, 2020	
Architect:	Browning Day Browning Day Project No. 19a052			Bid Type: Single Prime	

27	07.01.2020	Tech Electronics	Jim Trautman	Addendum #2 specifies the Draper SL4 as the projector lift, but the Panasonic PT-RZ12K with lens added exceeds both the weight limit and dimension limits of the projector lift. Please advise.	Video projector shall be revised to be the Panasonic PT-RZ970. Ceiling closure panel and finish kit are not required as projector will remain below isolated ceiling and visible in space when retracted. Therefore, video projector dimensions are not critical.
28	07.01.2020	Tech Electronics	Jim Trautman	Drawing AV3.01 shows the First Floor Corridor Speakers to be Type 3/5. Will you please indicate on Drawing AV1.01 which of the corridor speakers are flush mount ceiling speakers (Type 3) and which are pendant mount speakers (Type 5)?	Please reference the architectural reflected ceiling plans for exact ceiling types. In general, the North Corridor 125 will require pendant mount speakers as it is exposed. Within East Corridor 119 & Student Lounge 127 flush mounted speakers shall be used.
29	07.01.2020	Team Tech	Shawn White	Note 13 on T3.01 indicates 72MM, 36SM, 12SM, 12SM. This doesn't allow anything for the (2) existing 12-strand OM1 62.5 fibers that are being rerouted to 013. Could you verify if and OM1 is required from 013 to 211?	Yes, provide (2) new 62.5 micron multimode cables as part of Plan Note 13.
30	07.01.2020	Team Tech	Shawn White	The detailed requirements for the LI locations are conflicting. The detail on T5.13 shows the LI to have 4 data, RCA, HDMI, etc. The detail in the specs shows a different configuration. Could you please confirm what connectivity the LI is to have?	Do not provide as indicated on T5.13 for this outlet.
31	07.01.2020	Team Tech	Shawn White	The detail for the PR locations is unclear. The detail on T5.13 shows the PR location to have an active zone enclosure w/ 24 port patch panel. Is this detail correct?	Do not provide as indicated on T5.13 for this outlet.
32	07.06.2020	Garmong Construction	Kent Ferrari	Anchors for limestone and granite are recommended to be stainless steel in lieu of specified galvanized. Can this be changed?	Provide stainless steel anchors at limestone and granite veneer.
33	07.06.2020	Garmong Construction	Kent Ferrari	Would and equal granite to the specified granite be considered. Mt. Airy and Silver Cloud are proposed.	Mt. Airy and Silver Cloud Granite are approved pending architect's approval.
34	07.06.2020	Dealers Wholesale	Paul Mennel	What is the STC of Doors 011-1 and 011-2?	These doors are to both be STC 45.
35	07.06.2020	Dealers Wholesale	Paul Mennel	Doors 205-1 and 205-2 have sound door hardware sets but are do not have an STC rating listed for the door. Please clarify.	Both of these doors can be switched to Hardware Set # 23.
36	07.06.2020	Dealers Wholesale	Paul Mennel	Opening 336-1 has not STC rating listed bu is in Hardware Set #22.	This door is to be a STC 45.
37	07.06.2020	Dealers Wholesale	Paul Mennel	Opening 101-4 has a STC rating of 51 but the hardware set is for a standard door.	Switch to Hardware Set #17
38	07.06.2020	Team Tech	Shawn White	Spec section 27.41.11, 2.3, B calls for both an IPCP Pro 555 w/ TLP pro 725 and Shure MXA910 while Print T4.04 shows these classrooms to have an acoustic magic 3 and an Extron MLC 200 plus. Which is correct the prints or the specs?	Follow the direction provided on the drawings.
39	07.06.2020	Conference Technologies	Michael Kessell	Drawing page T4.04 calls for room 207 to have an additional 85" display, but does not show where or how this additional display would connect. All outputs on the switcher are already used. Please provide direction for connecting display.	See Addendum #2 for this information.
40	07.06.2020	Conference Technologies	Michael Kessell	In regard to the dual display configuration for room 207, and with reference to drawing page T4.04, figures D & G - is the 65" confidence screen dedicated to following just one of the 85" displays, or should there be a means to switch sources?	See Addendum #2 for this information.

BIDDER QUESTIONS

Unified Bid					
Project:	Project Name Location		Indiana State University Dreiser Hall Renovation Terre Haute, Indiana		Bid Date: June 15, 2020
Architect:	Browning Day Browning Day Project No. 19a052				Bid Type: Single Prime

41	07.06.2021	Conference Technologies	Michael Kessell	In regard to the dual display configuration for room 207, the design stipulates that the connection plate will near the first 85" display, so that this display can be connected simply with HDMI cable. How should the greater distance to the second 85" display be accomplished?	See Addendum #2 for this information.
42	07.06.2022	Conference Technologies	Michael Kessell	Display mounts are not specified for the diplays in the Distance Education classrooms. Are there preferred models for these mounts?	No.
43	07.06.2023	Conference Technologies	Michael Kessell	Specification section 274116/2.24/A/1 asks for a total of 12 input cards for the AV switcher, but this is an 8 input switcher. The signal flow for this system (AV3.02, fig.1) shows 6 STP inputs, and 1 HDMI. Please confirm which inputs are required.	Reference the AV diagram on sheet AV3.02 for the input types and quantities required. Per Addendum #5, six (6) STP and two (2) HDMI inputs will be required.
44	07.06.2024	Conference Technologies	Michael Kessell	Specification section 2744116/2.24/A/2 asks for 5 STP and 3 HDMI outputs for the AV switcher. Since output cards for this switcher provide pairs of outputs, that configuration won't be possible. The signal flow for this system (AV3.02, fig. 1) shows 6 STP inputs, and 1 HDMI. Please confirm which outputs configuration is required.	Reference the AV diagram on sheet AV3.02 for the output types and quantities required. Per Addendum #5, four (4) STP and two (2) HDMI outputs will be required. The specification only calls out the minimum number of outputs, not the exact quantity. Provide type of cards to provide minimum outputs as shown on the diagram.
45	07.06.2025	Conference Technologies	Michael Kessell	Specification section 274116/2.3/A/7 b,c ask for "1 per receiver" for those items. However, these are 4 channel receivers. Also, a total quantity of 12 lavalier mics is specified. It seems there should be either a total of 8 (2 per receiver) or 12 of the the ULXD1, and perhaps a total of 8 ULXD2/**. Please clarify the number of ULXD1 and ULXD2 required.	As shown on AV3.00, there are four (4) 4-channel microphone receivers for a total of sixteen (16) receivers as part of the system. Therefore, sixteen (16) ULXD2/SM58 transmitters and sixteen (16) ULXD1 transmitters should be provided.
46	07.06.2020	Conference Technologies	Michael Kessell	Specification section 274116/2.18/A/8/c asks for Listen Tech LT-400-072, which is an out-of-production transmitter. It is assumed that this is intended to be the LR-400-216 receiver (which also will be out-of-production soon, replaced by LR-4200-216). Please clarify which model is intended here.	The LT-400-072 receiver was a mis-print. The receiver should operate on the same frequency as the transmitter (i.e. 216MHz). Therefore, the LR-4200-216 is acceptable.
47	07.07.2020	Garmong Construction	Tim Twitchell	Spec section 101116 Chalkboards, Multi-Media Boards, Tack Boards and Literature Racks. Please indicate the location, sizes and quantities for the Chalkboards, Tack boards and Literature racks.	Only whiteboards are in the project.
48	07.07.2020	Conference Technologies	Michael Kessell	On AV1.01, the speakers shown in North Corridor 125 are a square symbol that does not appear in the legend. Is this a different type of speaker, or should those be the same round symbol?	Square speakers in North Corridor 125 will be pendant mount Type 5 loudspeakers.
49	07.07.2020	Conference Technologies	Michael Kessell	Drawing AV1.01 shows the speakers in the Lobby with a symbol defined as a ceiling pendant. While on AV3.01, speaker for the Lobby are shown as type 3, which is an in-ceiling type. Which is the correct type?	Round speaker symbol shall indicate a flush-mounted in-ceiling loudspeaker. Type 3 flush mounted loudspeakers should be utilized in the lobby.
50	07.07.2020	Conference Technologies	Michael Kessell	On the Tech, T#.@@ drawing, floor plans, there are 32 additional TVs, in room such as offices and lounges, that are not part of the Theater or Classroom systems. These do not appear in the specification anywhere, and there is not enough information on the drawings to include these in the proposal. Are these part of the current scope for Divison 27? If they are intended to be included, is there information on these and the associated systems available?	These Television Displays will be purchased at a later date and are not to be included in this scope, Rough-in and power for these devises are to be included in this scope.

BIDDER QUESTIONS

Unified Bid

Project:

Project Name
Location

Indiana State University Dreiser Hall Renovation
Terre Haute, Indiana

Bid Date: June 15, 2020

Architect:

Browning Day
Browning Day Project No. 19a052

Bid Type: Single Prime

51	07.07.2020	Conference Technologies	Michael Kessell	T 4.04 figure A (Standard Classroom AV with Cameras) shows Acoustic mic array, while the specification calls out a Shure MXA910 array in those classrooms. Which is correct	Follow direction indicated on Drawings T4.04 for this Work.
52	07.07.2020	Ryan Fire Protection	Jim Dishner	Addendum 2 Sheet C400 indicates the location of the new valve pit and fire hydrant. Is it your intention for underground work to be performed by the site utility contractor or the fire sprinkler contractor.	Work scope is to be coordinated between the subcontractors and general contractors. The design team does not have a preference as to who does this scope of work.
53	07.07.2020	Ryan Fire Protection	Jim Dishner	Addendum 2 Sheet C200 makes mention of existing vault, but does not indicate the location. The existing FDC and post indicator that need to be removed located at the northwest corner of the building not shown. Are these removed by your site contractor or sprinkler contractor?	See Addendum #6 - Drawing C2.00 for this information.
54	07.07.2020	Team Tech	Shawn White	Spec Section 27.41.11 2.3, B 3 L only calls for 1 student camera - Sony SRG-120DH. Print T4.04 shows 2 student cameras. Which is correct?	See Addendum #2 for this information.
55	07.07.2000	Team Tech	Shawn White	Spec Section 27.41.11 2.3, B 10 c refers to a matrix switcher, but none is called out. Are we to provide a matrix switcher?	Yes.
56	07.07.2000	Team Tech	Shawn White	Spec Section 27.41.11 2.3, C 7 h calls for a Chief mount, but no projector is called for. Are we to provide a mount?	Yes, provide projector and mount.
57	07.07.2000	Team Tech	Shawn White	Spec Section 27.41.11 2.3, C 7 k only calls for 1 student camera - Sony SRG-120DH. Print T4.04 shows 2 student cameras. Which is correct?	See Addendum #2 for this information.
58	07.07.2000	Team Tech	Shawn White	Spec Section 27.41.11 2.3, C doesn't address Distance Ed room 207 w/ 2 main displays. How is this 2nd display to tie in? All outputs on the DTP Crosspoint 84 are already used.	See Addendum #2 for this information.
59	07.08.2020	R. Adams Roofing	Steven Moffett	What is the makeup of the existing roof?	According to Rick Ryherd who is the rep for the existing roofing product, the roof consists of the following: 2 ply vapor barrier over 6" concrete deck, 3" polyisocyanurate insulation hot mopped (R 18.5), .5" HDWF insulation board (R 1.39), 3 ply modified built up roof, coal tar pitch flood coat and gravel, all new metal flashing and counterflashing. The roof was installed in 2007 and the metal coping was installed in 2016. Rick can be reached at 317.432.8580.
60	07.08.2020	R. Adams Roofing	Steven Moffett	Has the existing roof system been tested fro asbestos? What were the results?	The existing roof was replaced in 2007 so the new components of this system do not contain asbestos. The University can provide additional information of any hazardous material testing that has taken place at a later date.
61	07.08.2020	Conference Technologies	Michael Kessell	The specified projector lift for the theater – Draper SL4 – has a capacity of 100 lb. However, it appears that the combined weight of the projector, lens and mount will be about 150 lb. The SLX10 has a 350 lb capacity, and a 10 ft. max extension. Please advise which lift model to use.	Reference Addendum #5 for change to video projector to the Panasonic PT-RZ970 for use with the Draper SL4.
62	07.08.2020	Garmong Construction	Kent Ferrari	Can you clarify the extent of the painting in the fly loft and stage area - 118? How high should the paint go up on the walls? Is the ceiling painted? It is over 40' above the stage floor. Access will be be costly to paint.	Everything to approximately 35' from the finished floor of the stage is to be painted on the north, south, east, and west walls. The ceiling and/or ceiling structure does not need to be painted.

BIDDER QUESTIONS

Unified Bid

Project:

Project Name

Location

Indiana State University Dreiser Hall Renovation

Terre Haute, Indiana

Bid Date:

June 15, 2020

Architect:

Browning Day

Browning Day Project No. 19a052

Bid Type:

Single Prime

63	07.08.2020	Cleveland Construction	Paul Alexander	Regarding EPDM Roofing, will coverboard be required over insulation? Neither specification c	Coverboard is not required
64	07.08.2020	Cleveland Construction	Paul Alexander	Regarding EPDM Roofing, is the insulation board to be mechanically fastened or fully adhered. Specification 075324 does not mention insulation at all.	Fully adhered
65	07.08.2020	Cleveland Construction	Paul Alexander	D1.00 at the existing South Louver pit is missing demolition keynote. Please clarify the scopes of work to be performed at these areas. Are both walls and existing slab to be removed?	Remove walls, footings, and slabs
66	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet A2.02 and similar new Aluminum Column Wraps will be installed. Upon review of Project Manual and finish schedule, no product specification is provided. Please provide applicable Aluminum Column Wrap product date and installation details.	Specification issued as part of Addendum #5
67	07.08.2020	Cleveland Construction	Paul Alexander	055316 Aluminum Grating is mentioned in Spec 055013 Misc. Metal Fabrications, however not provided. Fiberglass Grating is also depicted on the project documents. Please confirm if this specification and material type is applicable to the project.	All new gratings shall be fiberglass
68	07.08.2020	Cleveland Construction	Paul Alexander	Per specification 05 50 13 aluminum stair nosings are to be installed within the panfill stairs. We recommend the design team review this product as the long term proximity of the aluminum and steel pans will cause a chemical reaction resulting in discoloring and deterioration of the materials. We recommend a steel nosing or no nosing at all be installed within the panfill stairs as a nosing is already included as part of the material.	Provide steel nosing as recommended
69	07.08.2020	Cleveland Construction	Paul Alexander	Substitution request attached to allow Tubelite as an approved product for specification section 08 43 13 and 08 44 11.	Substitution request received too late to review. Bid as specified
70	07.08.2020	Cleveland Construction	Paul Alexander	Per sheet General Finish note 11 on sheet A1.00C and A1.02C intumescent paint is mentioned in a finish capacity, upon review of the project manual no intumescent fireproofing specification nor any fireproofing specification is provided. Please confirm if we are to clean and modify the appearance of existing intumescent paint in this and similar locations, however by modifying the appearance we are potentially affecting the provided rating. Please provide applicable intumescent paint specification and clarify scope of work on documents.	There is no intumescent paint on the project.

BIDDER QUESTIONS

Unified Bid

Project:

Project Name

Indiana State University Dreiser Hall Renovation

Bid Date: June 15, 2020

Location

Terre Haute, Indiana

Architect:

Browning Day

Bid Type: Single Prime

Browning Day Project No. 19a052

71	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet A3.01 Transverse Section it appears a new railing is installed within the auditorium however upon review of sheet D1.01 no mention is made of removing the existing railing system. Please confirm if a new handrail is to be assumed within the auditorium.	There is no existing railing in the Theater. New handrail shall be stainless steel.
72	07.08.2020	Cleveland Construction	Paul Alexander	Per sheet D1.01 handrails are to be removed at Stair #3, however upon review of the architectural drawings no new railing and guardrail is depicted. Please confirm Stair #3 receives new railings.	Existing handrails to remain.
73	07.08.2020	Cleveland Construction	Paul Alexander	Per Alternate #5 we are to provide the add cost associated with opening up Stair #2, upon review of demolition and architectural documents no mention is made of demoing the existing rail system to make way for the new potential glass rails. Please confirm if existing railing demo is to be included in Alternate #5 Pricing.	Include demolition of existing railing on west wall of stair #2, all floors.
74	07.08.2020	Cleveland Construction	Paul Alexander	Detail 1 on A6.02 depicts ¾” treated plywood as the roof deck material for the Lobby Canopy upon review of sheet S2.02 detail 3 decking is only noted as ¾” please confirm this plywood sheathing is to be used at this location.	Provide decking per structural drawings
75	07.08.2020	Cleveland Construction	Paul Alexander	Provide type of decking to be utilized in South Awning Extension as depicted on sheet S1.02 details 3 and 4.	Provide decking per structural drawings
76	07.08.2020	Cleveland Construction	Paul Alexander	Detail 1 sheet A1.04 depicts Coded Building Notes 3 & 8 on the detail which per the schedule is undefined. Provide information for these notes.	Notes are the same as other floor Plan sheets
77	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of demolition and architectural floor plans such as D1.01 and A1.01 and similar. It appears new railings will be required at locations where the wall systems are being removed. Please confirm if new railings should be assumed throughout the building specifically at ramp locations as this is unclear on the documents.	Provide code compliant, painted steel handrails at all ramps, and existing stairs where walls are being removed.
78	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of documents depth and construction of Existing South Louver pit and surrounding Screen wall are not provided between column lines 6 and 7 which are necessary in order to accurately assume shoring, excavation, demolition and new CIP work provide details of exiting louver well pits.	Sheet D1.00 shows the plan for existing south louver pit. Depth of the existing south louver pit is approx. 7'-0" deep, however this should be field verified. The structural engineer is only responsible to design the new south louver pit which is shown on the structural plans. The section of the new south louver pit has been shown. The removal of existing shall be assumed based on the new south louver pit for quantity purposes

BIDDER QUESTIONS

Unified Bid

Project:

Project Name

Indiana State University Dreiser Hall Renovation

Bid Date: June 15, 2020

Location

Terre Haute, Indiana

Architect:

Browning Day

Bid Type: Single Prime

Browning Day Project No. 19a052

79	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of project documents and site conditions there is not enough room to layback the soils as required for typical excavation efforts in order to install the new “South Louver Pit” we believe it is in the owners best interest to define the shoring methods required at these locations as sheet piling may be detrimental to existing conditions such as existing screen wall and surrounding landscaping.	Shoring is considered in the project wherever it is necessary. Shoring specifications are provided
80	07.08.2020	Cleveland Construction	Paul Alexander	D1.00 shows an existing louver pit between SS and J which appears to remain. S1.00 shows a new louver pit in the same location that looks to be the same size. Confirm is the intent is for existing to be removed.	Addendum #5 drawings show the correct information. The S1.00 has been updated to show existing louver pit instead of new louver pit. There isn't any new louver pit at this location
81	07.08.2020	Cleveland Construction	Paul Alexander	Spec 03 01 30 – Repair and Rehabilitation of Cast-In-Place Concrete mentions a unit price to be provided of crack repair per Linear foot, however the description of work that must occur within the unit price is not provided which could include but not limited to; additional tearout that results from chipping of cracks to prepare, width of cracked substrate, etc. Please provide additional detail in order for this unit price to be accurately provided as well as confirm if necessary as this is not found on the bid form per addendum #3.	The specification has been revised for Addendum #6. The cracks repair is part of any repair work and the cost of the repair is LS
82	07.08.2020	Cleveland Construction	Paul Alexander	Due to the limited space on site for laydown, equipment, etc. please confirm if concrete mockup as outlined in specification 03 30 00 will be performed at the project area or elsewhere. If elsewhere, please provide location where this will occur.	If the work space is limited, the concrete mockup can be performed outside of the project location upon approval of the Engineer on site.
83	07.08.2020	Cleveland Construction	Paul Alexander	Per sheet S3.01 detail 6 additional compacted fill is required at the South corridor reconstruction. Please provide specification for this fill material.	The specification for Excavation and Fill (31 23 00) has been added
84	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet S3.01 and S4.03 per addendum #3 there is a conflict in material specified for applicable ladder in the south louver pit. Please confirm if this ladder will be fiberglass or tube steel.	The material for the ladder should be "Fiberglass". A specification for the fiberglass material has been included in the specifications.
85	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet S3.01 no backfill material specification is provided for the new louver pits as well as any applicable waterproofing, concrete specification calls for Xypex admixtures in walltypes “A” and/or “AF” however upon review of the documents these may not be applicable at these locations. Please confirm the backfill and waterproofing requirements as well as applicable concrete admixtures at these pits.	A specification for Excavation and Fill has been added. A specification of Cast-In-Place Concrete has been revised by removing the waterproofing admixtures as it is not required for this project
86	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of structural documents it is unclear of the lintel condition required at elevator shaft openings. Please confirm if these opening supports are to be precast or steel lintels	Masonry lintel is required on top of the elevator door opening

BIDDER QUESTIONS

Unified Bid

Project:

Project Name

Indiana State University Dreiser Hall Renovation

Bid Date: June 15, 2020

Location

Terre Haute, Indiana

Architect:

Browning Day

Bid Type: Single Prime

Browning Day Project No. 19a052

87	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet S1.00 and similar bottom and/ or top of footing elevation is not provided, nor the location of existing foundations which we are to epoxy our new work to. Please provide existing details of these areas in order to accurately assume demolition, excavation, and concrete efforts that need to be included.	The elevations for the proposed And existing top of foundation are provided on sheet S1.00. The depth of the foundations is known. The bottom of foundation elevation can be calculated with the known depth
88	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet S3.02 no details are provided for the connection of the new masonry shaft to existing slab conditions. Please provide the applicable details to structurally attach the new elevator shaft to the existing building structure.	A typical detail on sheet S0.03 for load bearing masonry wall has been provided. Please use these details as necessary
89	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet S1.04 detail 2 and S3.02 no structural details are provided for the top of Elevator shaft slab on deck condition nor the type of decking necessary at this location. Please provide applicable details and callouts for this location as well as how it will be connected to the new masonry shaft.	The typical floor deck specification (05 31 13) has been provided for the project. Please refer to that specification and use the steel deck according to that specification for that area
90	07.08.2020	Cleveland Construction	Paul Alexander	Sheet S4.01 Slab type 5 remarks note a cantilever slab at the lobby area for an overlook. Upon review of sheet S2.02 no such slab is called out nor located on the documents for the lobby overlook area. Please confirm location of lobby overlook.	See detail 2 on sheet S3.03 for Lobby Cantilever Slab. This is the slab for Lobby area overlook.
91	07.08.2020	Cleveland Construction	Paul Alexander	S4.01 Foundation and Slab Schedule, Slabs 3 and 5 are indicated as 4" slab on deck depth over unclear deck corrugation depth and unknown gauge formdeck. Please provide formdeck thickness and gauge as required.	The specification for floor deck (05 31 13) has been included in the project Please use this specification for the floor deck requirement
92	07.08.2020	Cleveland Construction	Paul Alexander	Detail 7 on sheets S3.01 noted on sheet S1.00. Detail does not provide Slab type to be used in TCOMM room or East Corridor. Please confirm slab depth/ type to be used is Slab 3 Slab on Grade Condition.	Concur. The detail 7 has missing slab type information for East Corridor and Tcomm but the reinforcement information has been provided. The slab 3 should be used at this location
93	07.08.2020	Cleveland Construction	Paul Alexander	Please provide additional hatching on floor plans in order to clearly indicate areas receiving a new slab as well as corresponding form deck as cut sections indicate additional slab replacement areas not clearly outlined on the floor plans. This is apparent upon review of sheets S1.00, S1.01, S1.02 and corresponding cuts and details depicted on sheets S3.01 through S3.03	All the structural drawing plans show the slab type wherever the new slab is required. Also refer to the architectural finish plans for the location of new slabs
94	07.08.2020	Cleveland Construction	Paul Alexander	Detail 5 on S3.02 detail for CIP Stem wall, footing and slabs on grade is not provided @ Corridor 101. Please provide connection detail of Corridor Slab, CIP Wall, CIP Wall Footer and new Auditorium Slab.	The details of cast-in-place slab-on-grade for Corridor, masonry stem wall between Theater and Corridor, concrete base wall below masonry wall and a cast-in-place slab-on-grade for Theater have been shown in the Detail 5. The reinforcing information has been shown. The slab-on-grade can be connected to the wall with minimum dowel length. The shop drawings will be prepared by the fabricator and the connection detail can be modified in the shop drawings

BIDDER QUESTIONS

Unified Bid

Project:

Project Name

Indiana State University Dreiser Hall Renovation

Bid Date: June 15, 2020

Location

Terre Haute, Indiana

Architect:

Browning Day

Bid Type: Single Prime

Browning Day Project No. 19a052

95	07.08.2020	Cleveland Construction	Paul Alexander	When comparing sheet S1.00 Elevator Wall types to sheets S3.02 as well as S4.01 there appears to be a conflict in wall types. S3.02 as well as S4.01 indicate Concrete walls for the Elevator pit, however S1.00 indicates masonry walls with no wall type provided for below grade CIP Concrete other than Cn8 depicted in detail 2 on S1.00 . Please confirm if CIP walls are to be provided per sheets S3.02 and S4.01 Wall Schedule amended in Addendum #5 for wall type Cn12 as this wall type is not noted within the documents.	Sheet s1.00 shows elevator plan at Basement Level at which the elevator walls are masonry. The walls for the elevator pit are concrete.
96	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheets S1.00 as well as S3.02 it appears a new CIP Wall will be required on the Western Side as per detail 2 on S3.02 this wall also gets demolished. Please clarify this wall demolition on the demolition documents as well as provide wall type to be used at this western wall elevation.	The detail 2 has been modified in Addendum #5. The detail reflects demolition of the existing 8" CMU wall and construction of new concrrete wall. The thickness of the concrete wall should be 14"
97	07.08.2020	Cleveland Construction	Paul Alexander	Upon review of sheet S4.04 added in addendum #5 Misc. Lateral Support conditions are to be provided around existing members. Upon review of other addendum #5 documents no exact locations or lengths are specifically called out to receive this new condition. Please provide exact locations where these angles are to be installed as numerous potential locations exist on this project.	This is typical detail and it applicable wherever it is necessary
98	07.08.2020	Cleveland Construction	Paul Alexander	When reviewing detail 3 on S2.02 it appears a plywood or fiberglass decking is to be used over the vestibule contrary to the 22 GA Steel Roof decking depicted on S2.02, please confirm the front fascia reveal of 1'3" has accommodated for this additional distance which will be required by the steel decking.	The fascia reveal was set by the Architecture. As a Structural Engineer, we have designed the framing and prepared the framing plans including details for roof deck, fiberglass sheathing and joists. Refer to architecturfal plans for fascia reveal details
99	07.08.2020	Cleveland Construction	Paul Alexander	Detail 5 on A6.02 details self-leveling grout to be used for slab depression patching. No surface finish requirements are provided on the contract documents for this condition. Are subs to assume smooth troweled finish as depicted within the division 3 specifications? Please confirm.	The finish shall be in accordance with the specifications
100	07.08.2020	Cleveland Construction	Paul Alexander	When comparing sheets D1.00, S1.00, A1.00, A5.10 and P1.00 it appears sloping of the floor may be required in the Makeup/ Dressing Room Restrooms and shower room to create positive slope to floor drains. When reviewing the patch back and flooring materials to be used, should slope be provided in flooring prep or with slab replacement, should slab replacement be desired, please outline areas of slab replacement on structural documents and desired slope. This condition is applicable to all other floor drains as depicted on P1.00, P2.01 and similar . Please clarify how slope will be created in these areas.	The Contractor shall use their own means and methods to develop the floor slope
101	07.08.2020	Cleveland Construction	Paul Alexander	Provide sub-slab granular or compacted base requirement. In order to accurately estimate this project contractors must be made aware of requirement if applicable for cutting of existing soil as necessary within the building to apply sub-slab granular or compacted structural fill.	Compacted aggregate is required underneath the slab-on-grade. The detailed section cut do not show the material underneath. Engineer/Compacted Fill is required as necessary behind the new structural walls. A specification for Excavation and Fill has been added

ANSWERED IN ADDENDUM #6