

Addendum #2

To: Bid Documents Dated June 5, 2020

Project Name: Indiana State University – Dreiser Hall Renovation

Project #: 19052

Date: June 19, 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

GENERAL

1. Noisemaking activity on the Project may not commence before 8:00 am with normal classes are in session during the Fall semester August 17, 2020 until November 20, 2020 and the Spring Semester January 11, 2021 until May 10, 2021. Similar restrictions will be enforced in the Fall semester 2021. At all other times Contractors may begin noisemaking activity at 7:00AM or as approved by the Owner.
2. The bid date has been extended to July 8, 2020. All other times and specifics noted previously regarding the bid procedure remain the same.
3. The last day that bidder questions will be considered will be by 5 p.m. EST on July 1, 2020.

PROJECT MANUAL

1. Table of Contents: Replace in its entirety.
2. Section 06 16 43 Fiberglass Mat Sheathing – Add section in its entirety.
3. Section 08 11 13 Hollow Metal Door and Frames: Replace in its entirety.
4. Section 08 71 00 Door Hardware: Replace in its entirety
5. Section 08 71 10 Door Hardware Schedule: Add section in its entirety.
6. Section 26 55 61 – Theatrical Lighting and Controls

7. Section 27 41 16 Theatrical Audio Video Systems and Equipment:

A. Add Paragraph 2.56 Video Projector Lift to read as follows:

“A. Shall meet or exceed the following specifications:

1. Shall provide a maximum extension of 4'-0”.
2. Shall support up to 100 lbs.
3. Shall include operating steel pan with white powder coat finish.
4. Projector shall be mounted to operating pan with universal projector mount.
5. Coordinate required accessories and finish with Architect.
6. Shall be controlled via RS-232.
7. Acceptable Manufacturers:
 - a. Draper SL4
 - b. Or Equal”

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 C4.00 – Utility Plan
 - A. Reissue sheet – see clouds.
4. Sheet S0.01 – Structural Notes
 - A. Reissue sheet – see clouds.
5. Sheet S0.02 – Standard Str. Details
 - A. Reissue sheet – see clouds.
6. Sheet S0.03 – Standard Str. Details
 - A. Reissue sheet – see clouds.
7. Sheet S1.00 – Str. Basement Floor Plan
 - A. Reissue sheet – see clouds.
8. Sheet S1.01 – Str. 1st Floor Plan
 - A. Reissue sheet – see clouds.
9. Sheet S1.02 – Str. 2nd Floor Plan
 - A. Reissue sheet – see clouds.
10. Sheet S1.03 – Str. 3rd Floor Plan
 - A. Reissue sheet – see clouds.
11. Sheet S1.04 – Str. Roof Plan
 - A. Reissue sheet – see clouds.

12. Sheet S2.00 – Foundation Plan - Lobby
 - A. Reissue sheet – see clouds.
13. Sheet S2.01 – Str. Floor Plan - Lobby
 - A. Reissue sheet – see clouds.
14. Sheet S2.02 – Roof Framing Plan - Lobby
 - A. Reissue sheet – see clouds.
15. Sheet S3.01 – Str. Sections
 - A. Reissue sheet – see clouds.
16. Sheet S3.02 – Str. Sections
 - A. Reissue sheet – see clouds.
17. Sheet S3.03 – Str. Sections
 - A. Reissue sheet – see clouds.
18. Sheet S4.01 – Str. Details
 - A. Reissue sheet – see clouds.
19. Sheet S4.02 – Str. Details
 - A. Reissue sheet – see clouds.
20. Sheet S4.03 – Str. Details
 - A. Reissue sheet – see clouds.
21. Sheet D1.00 – Basement Demolition Plan
 - A. Reissue sheet – see clouds.
22. Sheet D1.01 – 1st Floor Demolition Plan
 - A. Reissue sheet – see clouds.
23. Sheet D1.02 – 2nd Floor Demolition Plan
 - A. Reissue sheet – see clouds.
24. Sheet D1.03 – 3rd Floor Demolition Plan
 - A. Reissue sheet – see clouds.
25. Sheet A0.10 – Wall Types
 - A. Reissue sheet – see clouds.
26. Sheet A0.11 – Wall Types
 - A. Issue new sheet.
27. Sheet D1.00 – Basement Demolition Plan
 - A. Reissue sheet – see clouds.
28. Sheet D1.01 – 1st Floor Demolition Plan
 - A. Reissue sheet – see clouds.

29. Sheet D1.02 – 2nd Floor Demolition Plan
 - A. Reissue sheet – see clouds.
30. Sheet D1.02 – 3rd Floor Demolition Plan
 - A. Reissue sheet – see clouds.
31. Sheet A1.00A – Basement Dimension Plan
 - A. Reissue sheet – see clouds.
32. Sheet A1.00C – Basement Finish Plan
 - A. Reissue sheet – see clouds.
33. Sheet A1.00D – Basement Terrazzo Plan
 - A. Reissue sheet – see clouds.
34. Sheet A1.00E – Basement Furniture Plan
 - A. Reissue sheet – see clouds.
35. Sheet A1.01A – 1st Floor Dimension Plan
 - A. Reissue sheet – see clouds.
36. Sheet A1.01C – 1st Floor Finish Plan
 - A. Reissue sheet – see clouds.
37. Sheet A1.01E – 1st Floor Furniture Plan
 - A. Reissue sheet – see clouds.
38. Sheet A1.02 – 2nd Floor Plan
 - A. Reissue sheet – see clouds.
39. Sheet A1.02A – 2nd Floor Dimension Plan
 - A. Reissue sheet – see clouds.
40. Sheet A1.02C – 2nd Floor Finish Plan
 - A. Reissue sheet – see clouds.
41. Sheet A1.02D – 2nd Floor Terrazzo Plan
 - A. Reissue sheet – see clouds.
42. Sheet A1.02E – 2nd Floor Furniture Plan
 - A. Reissue sheet – see clouds.
43. Sheet A1.03A – 3rd Floor Dimension Plan
 - A. Reissue sheet – see clouds.
44. Sheet A1.03C – 3rd Floor Finish Plan
 - A. Reissue sheet – see clouds.
45. Sheet A1.03D – 3rd Floor Terrazzo Plan
 - A. Reissue sheet – see clouds.

46. Sheet A1.03E – 3rd Floor Furniture Plan
 - A. Reissue sheet – see clouds.
47. Sheet A1.04 – Control Room Plans
 - A. Reissue sheet – see clouds.
48. Sheet A1.05 – Roof Plans
 - A. Reissue sheet – see clouds.
49. Sheet A1.05A – Roof Details
 - A. Reissue sheet – see clouds.
50. Sheet A3.04 – Wall Sections
 - A. Reissue sheet – see clouds.
51. Sheet A4.01 – Vertical Circulation
 - A. Reissue sheet – see clouds.
52. Sheet A4.02 – Vertical Circulation Sections and Details
 - A. Reissue sheet – see clouds.
53. Sheet A5.02 – Material Finish & Equipment Legend
 - A. Reissue sheet – see clouds.
54. Sheet A5.10 – Enlarged Plans & Elevations - Restrooms
 - A. Reissue sheet – see clouds.
55. Sheet A5.11 – Enlarged Plans & Elevations - Restrooms
 - A. Reissue sheet – see clouds.
56. Sheet A5.12 – Enlarged Plans & Elevations
 - A. Reissue sheet – see clouds.
57. Sheet A5.20 – Millwork & Details
 - A. Reissue sheet – see clouds.
58. Sheet A5.21 – Millwork & Details
 - A. Reissue sheet – see clouds.
59. Sheet A5.22 – Millwork & Details
 - A. Reissue sheet – see clouds.
60. Sheet A5.23 – Millwork & Details
 - A. Reissue sheet – see clouds.
61. Sheet A5.24 – Interior Details
 - A. Reissue sheet – see clouds.
62. Sheet A5.25 – Interior Details
 - A. Reissue sheet – see clouds.

63. Sheet A6.01 – Details

- A. Reissue sheet – see clouds.

64. Sheet A8.01 – Door Schedule and Frame Elevations

- A. Reissue sheet – see clouds
- B. Revise schedule to include head, jamb and sill details.
- C. Add hardware sets
- D. Coordinate schedule to align with specification section

65. Sheet A8.02 – Door Details

- A. Reissue sheet – see clouds
- B. Revise details as indicated.

66. Sheet A8.03 – Window Elevations and Details

- A. Reissue sheet – see clouds
- B. Revise Details 1, 2, 3, 4, 6 and 7.

67. Sheet A8.20 – Exterior Storefront Elevations and Details

- A. Reissue sheet – see clouds
- B. Revise General Notes
- C. Clarified glazing at elevations W31, W32, W33, W34, W36 and W37.
- D. Add details 4, 8, 11, and 12.
- E. Move interior storefront details to new sheet A8.31

68. Sheet A8.21 – Interior Storefront Elevations.

- A. Remove sheet from set.

69. Sheet A8.31 – Interior Storefront Elevations and Details

- A. Add sheet to set. Replaces sheet A8.21
- B. Revise General Notes
- C. Add interior storefront details from A8.20

70. Sheet AV1.01 – 1st Floor Audio Visual Plans

- A. Reissue sheet – see clouds.

71. Sheet AV2.00 – Theater Elevations

- A. Reissue sheet – see clouds.

72. Sheet AV3.02 – Theater Functional Diagrams

- A. Reissue sheet – see clouds.

73. Sheet AV4.01 – Audio Visual Details

- A. Reissue sheet – see clouds.

74. Sheet AV4.02 – Audio Visual Details

- A. Reissue sheet – see clouds.

See RE DIMOND Addendum No. 02 for Mechanical Electrical Plumbing and Telecommunications Items.

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
055800 Metal Fabrication

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
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
084313 Aluminum Entrances and Store Fronts
084411 Aluminum Curtain Wall
085113 Aluminum Windows
087100 Door Hardware

DIVISION 08 DOORS AND WINDOWS (CONTINUED)

- 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
- 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

DIVISION 12 FURNISHINGS

- 123216 Plastic Laminate Casework and Countertops
- 123653 Solid Surface Fabrications
- 123661 Quartz Counter Tops
- 126600 Telescoping Stands

DIVISION 14 CONVEYING SYSTEMS

- 140500 Basic Elevator Requirements
- 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
- 233713 Diffusers, Registers, Grilles & Louvers
- 235700 HVAC Heat Exchangers
- 237313 Modular Indoor CSAC
- 238134 Mini-Split Air Conditioning
- 238216 Air Coils

DIVISION 23 HVAC (CONTINUED)

- 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
- 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

DIVISION 23 COMMUNICATIONS (CONTINUED)

- 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
- 283111.10 Addressable Fire Alarm with Addressable Speaker/Visual

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

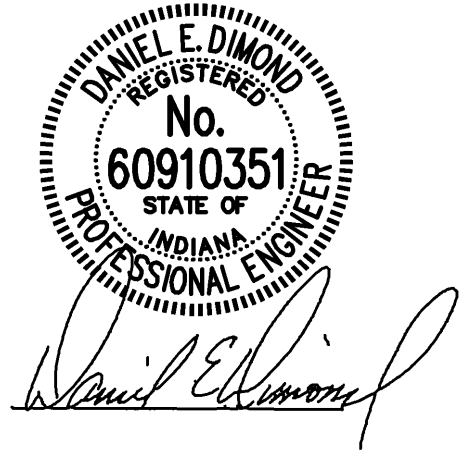
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ADDENDUM NO. 02

Indiana State University
Dreiser Hall Renovation

June 19, 2020



Daniel. E. Dimond, PE CEM

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

MECHANICAL

A. SPECIFICATIONS

1. Section No. 23 09 00 – INSTRUMENTATION AND CONTROL FOR HVAC
 - a. Add “Air Monitor” as an approved manufacturer of Airflow Measuring Stations within this section.
2. Section No. 23 34 23 – MODULAR INDOOR CENTRAL STATION AIR HANDLING UNITS
 - a. Add Paragraph 2.04 Dust Collectors to this section as follows:
 - 1) “2.04 Dust Collectors
 - a) High efficiency cyclone made from heavy gauge, powder coated steel.
 - b) Reinforced steel dust bin with quick release lid and automatic fill level indicator.
 - c) HEPA-certified filter media.
 - d) Provide one (1) RF remote control starter.
 - e) Provide local/remote adapter with three (3) auxiliary start/stop station switches. Wiring of devices to be by Division 26 Contractor.
 - f) Single-piece, backward inclined, non-sparking/non-ferrous impeller.
 - g) Noise level 78 dBA at 10 ft.

- h) 35 gallon waste capacity drum and free standing leg kit.
 - i) Stacking sound filter for additional noise reduction.
 - j) Refer to Fan Schedule for performance characteristics.
 - k) Warranty: 2 years.
 - l) Manufacturers: Oneida-Air System or approved equal.
3. Section No. 23 73 13 – MODULAR INDOOR CENTRAL STATION AIR HANDLING UNITS
 - a. Add “VTS” and “Dunham Bush” as an approved manufacturer of fan coil units within this section.
 4. Section No. 23 82 19 – FAN COILS
 - a. Add “AE Air” as an approved manufacturer of fan coil units within this section.
 5. Section No. 23 82 43 – RADIANT CEILING PANELS
 - a. Add “Airtite” as an approved manufacturer of radiant ceiling panels within this section.

B. DRAWINGS

1. Drawing M3.12 – MACHINE ROOM 010 – STEAM PIPING
 - a. On the PRV STATION ELVATION, provide an end of main trap at bottom of HPS and LPS piping and route along base of AHU to steam condensate pump.
2. Drawing M4.11 – DETAIL – HYDRONICS
 - a. On Detail L, delete the temperature control valve shown in heating water return piping upstream of shutoff valve. Detail is schematic in nature and should be expanded to include respective number of rooms along the piping run. Some rooms contain multiple sections of finned tube radiation on same zone. Refer to Detail K/M4.11 for finned tube radiation orientation.
3. Drawing M7.05 – CONTROLS – MISCELLANEOUS
 - a. On the “UTILITY METERING SCHEDULE”, add NCE Panel to be required. Refer to E-Series drawings for location. Final location to be coordinated in field.

ELECTRICAL

A. SPECIFICATIONS

1. Section No. 26 55 61 – THEATRICAL LIGHTING AND CONTROLS
 - a. Reissue this section in its entirety, per attached. *(We have tried to highlight revised/added sections as a courtesy, but the contractor is responsible for all work.)*

B. DRAWINGS

1. Re-issue Drawing E0.1 – SYMBOLS, ABBREVIATIONS, AND GENERAL NOTES - ELECTRICAL
 - a. Edit general note (13), demolition note (13), and add cloud ceiling note (9) as indicated.

2. Re-issue Drawing E2.00 – BASEMENT PLAN – LIGHTING
 - a. Re-lay out lighting in Storage 001 and 002 as indicated.
 - b. Add callout for Services 005.
 - c. Change 'F24B' fixtures in changing rooms in Makeup/Dressing 016 to 'F35' fixtures as indicated.
 - d. Add emergency light in Performance/Tech Lab as indicated.
 - e. Performance/Tech lab lighting changed from DMX dimming to 0-10V dimming to 1%.
3. Re-issue Drawing E2.01 – FIRST FLOOR PLAN – LIGHTING
 - a. Add circuits as indicated in theater.
 - b. (2) 'F51' lights in vestibules by theater change to 'F35' as indicated.
4. Drawing E2.02 – SECOND FLOOR PLAN – LIGHTING
 - a. Edit switchlegs in General Classroom 203 so north (3) fixtures are switchleg 'a' and all other fixtures are switchleg 'b'.
5. Re-issue Drawing E2.03 – THIRD FLOOR PLAN – LIGHTING
 - a. Change 'F30' fixtures to be 'F35' fixtures as indicated in Audio Commons 323.
 - b. Edit note (8) as indicated.
6. Re-issue Drawing E2.10 – BASEMENT FLOOR PLAN – POWER
 - a. See drawing for clouded changes.
7. Re-issue Drawing E2.11 – FIRST FLOOR PLAN – POWER
 - a. See drawing for clouded changes.
8. Drawing E2.12 – SECOND FLOOR PLAN – POWER
 - a. Relocate receptacles with note (20) to new location of Banquette in Seating 208A.
9. Drawing E2.13 – THIRD FLOOR PLAN – POWER
 - a. Relocate receptacles with note (15) to new location of Banquette in Seating 317A.
 - b. Add switch for garbage disposal and gfcı receptacle under counter in Workroom 304 and Audio Common Area 323. Feed from Panel '3A' and '3GB' respectively.
10. Drawing E2.20 – ROOF PLAN – ELECTRICAL
 - a. Relocate exhaust fan (EF-G) to be just north of exhaust fan (EF-C).
11. Drawing E3.01 – ENLARGED MECHANICAL ROOM – ELECTRICAL
 - a. Change wiring from 'F50' to 'F35' for Chilled Water Pumps (CHWP-A1 and CHWP-A2). Change VFD fuses from 40 Amps to 25 Amps.
 - b. Add NCE panel and 120v circuit (M-19) just north of Panel 'M'.
12. Add Drawing E7.00 – PERFORMANCE AND TECH LAB 014 – THEATRICAL
 - a. See issued drawing.
13. Add Drawing E7.01 – ENLARGED THEATER 126 - THEATRICAL
 - a. See issued drawing.
14. Add Drawing E7.02 – ENLARGED THEATER 126 – THEATRICAL RIGGING
 - a. See issued drawing.

15. Add Drawing E7.03 – ENLARGED THEATER 126 – THEATRICAL DIMENSIONS
 - a. See issued drawing.
16. Add Drawing E7.10 – THEATER RISER DIAGRAM - DMX
 - a. See issued drawing.
17. Add Drawing E7.11 – THEATER RISER DIAGRAM – LIGHTING NETWORK
 - a. See issued drawing.
18. Add Drawing E7.12 – THEATER RISER DIAGRAM – MOTORIZED RIGGING
 - a. See issued drawing.
19. Add Drawing E7.13 – THEATER RISER DIAGRAM - POWER
 - a. See issued drawing.
20. Add Drawing E7.14 – THEATER RISER DIAGRAM – LX BRANCH POWER
 - a. See issued drawing.
21. Add Drawing E7.15 – THEATER RISER DIAGRAM – ENTRY STATIONS
 - a. See issued drawing.

TELECOMMUNICATIONS

C. SPECIFICATIONS

1. Section No. 274111 – INSTRUCTIONAL CLASSROOM AUDIO AND VIDEO SYSTEMS
 - a. Paragraph 2.3.C.1.d)
 - 1) Delete “(Sony FW-85BZ35F)”.
 - b. Paragraph 2.3.C.1.e)
 - 1) Delete “(LG UT640S0UA)”.
 - c. Paragraph 2.3.C.1.f)
 - 1) Delete “(NEC E327)”.

D. DRAWINGS

1. Drawing T0.01 – LEGEND
 - a. In the Notes column for the TELEVISION OUTLET – WALL-MOUNTED, ADD “Provide Rough-in, Power and Cabling. Television Not Included.
 - b. Add the following to Plan Note #11. In addition, provide rough-in, cabling and power for confidence monitors and tracking cameras in GENERAL CLASSROOMS 207 AND 217 FOR Distance Education system as indicated on Sheet T4.04.
2. Drawing T2.02 – SECOND FLOOR PLAN - TELECOMMUNICATIONS
 - a. Add Plan Note #11 to GENERAL CLASSROOM 207.
3. Drawing T4.04 – A/V DETAILS
 - a. Where television displays are indicated, provide rough-in, cabling and power as indicated. Television displays are not included.
 - b. Details E and F, delete one student camera.
 - c. Detail C, for Classroom 207 provide second student camera and an Extron SW2 HD 4K PLUS. Connect both student cameras to the Extron SW2 HD 4K PLUS and the output of this device to the HDMI 8/DTP input on the DTP 84. In addition, provide rough-in, cabling and power for two 85” displays and add an Extron DA2 HD 4K PLUS. Connect the HDMI output from the DTP 84 to the Extron DA2 HD

4K PLUS to then serve the two 85" displays.

END OF ADDENDUM

SECTION 06 16 43 FIBERGLASS MAT SHEATHING

PART 1 GENERAL

1.01 SUMMARY

- A. Section Includes: Fiberglass-mat faced, moisture and mold resistant gypsum sheathing.
- B. Related Sections:
 - 1. Section 05 41 00 Structural Metal Stud Framing.
 - 2. Section 06 10 00 Rough Carpentry.
 - 3. Section 09 21 16 Gypsum Board Assemblies.

1.02 REFERENCES

- A. ASTM International (ASTM):
 - 1. ASTM C473 Standard Test Methods for Physical Testing of Gypsum Panel Products.
 - 2. ASTM C518 Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
 - 3. ASTM C1002 Standard Specification for Steel Self-Piercing Tapping Screws for the Application of Gypsum Panel Products or Metal Plaster Bases to Wood Studs or Steel Studs.
 - 4. ASTM C1177 Standard Specification for Glass Mat Gypsum Substrate for Use as Sheathing.
 - 5. ASTM C1280 Standard Specification for Application of Gypsum Sheathing.
 - 6. ASTM D3273 Standard Test Method for Resistance to Growth of Mold on the Surface of Interior Coatings in an Environmental Chamber.
 - 7. ASTM D6329 Standard Guide for Developing Methodology for Evaluating the Ability of Indoor Materials to Support Microbial Growth Using Static Environmental Chambers.
 - 8. ASTM E72 Standard Test Methods of Conducting Strength Tests of Panels for Building Construction.
 - 9. ASTM E96 Standard Test Methods for Water Vapor Transmission of Materials.
 - 10. ASTM C1396 Standard Specification for Gypsum Board
 - 11. ASTM E 136 Standard Test Method for Behavior of Materials in a Vertical Tube Furnace at 750°C
 - 12. ASTM E 84 Standard Test Method for Surface Burning Characteristics of Building Materials
- B. Gypsum Association (GA): GA-253 Application of Gypsum Sheathing.

1.03 SUBMITTALS

- A. Product Data: Manufacturer's specifications and installation instructions for each product specified.

1.04 WARRANTY

- A. Provide products that offer twelve months of coverage against in-place exposure damage (delamination, deterioration and decay) commencing with the date of installation of the product in such structure.
- B. Manufacturer's Warranty:
 - 1. Five years against manufacturing defects from the date of purchase of the product for installation.
 - 2. 12 years against manufacturing defects when used as a substrate in

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Georgia-Pacific Gypsum LLC or similar
 - 1. Fiberglass-Mat Faced Gypsum Sheathing: DensGlass Sheathing or similar product
 - 2. Fiberglass-Mat Faced Gypsum Sheathing, Type X for Fire Rated Designs: DensGlass

Fireguard Sheathing or similar product.

2.02 MATERIALS

PART 1 Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177:

1. Thickness: 1/2 inch.
2. Width: 4 feet.
3. Length: [8 feet] [9 feet] [10 feet].
4. Weight: 1.9 lb/sq. ft.
5. Edges: Square.
6. Surfacing: Fiberglass mat on face, back, and long edges.
7. Racking Strength (Ultimate, not design value) (ASTM E72): Not less than 540 pounds per square foot, dry.
8. Flexural Strength, Parallel (ASTM C473): 80 lbf, parallel.
9. Humidified Deflection (ASTM C1177): Not more than 2/8 inch.
10. Permeance (ASTM E96): Not less than 23 perms.
11. R-Value (ASTM C518): 0.56.
12. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
13. Microbial Resistance (ASTM D6329, UL Environmental GREENGUARD 3-week protocol): Will not support microbial growth.
14. Acceptable Products:
 - a. 1/2 inch DensGlass Sheathing, Georgia-Pacific Gypsum LLC. Or from similar product from similar manufacturer.

B. Fire-Rated Fiberglass-Mat Faced Gypsum Sheathing: ASTM C1177, Type X:

1. Thickness: 5/8 inch.
2. Width: 4 feet.
3. Length: [8 feet] [9 feet] [10 feet].
4. Weight: 2.5 lb/sq. ft.
5. Edges: Square.
6. Surfacing: Fiberglass mat on face, back, and long edges.
7. Racking Strength (Ultimate, not design value) (ASTM E72): Not less than 654 pounds per square foot, dry.
8. Flexural Strength, Parallel (ASTM C1177): 100 lbf, parallel.
9. Humidified Deflection (ASTM C1177): Not more than 1/8 inch.
10. Permeance (ASTM E96): Not less than 17 perms.
11. R-Value (ASTM C518): 0.67.
12. Mold Resistance (ASTM D3273): 10, in a test as manufactured.
13. Microbial Resistance (ASTM D6329, UL Environmental GREENGUARD 3-week protocol): Will not support microbial growth.
14. Acceptable Products:
 - a. 5/8 inch DensGlass Fireguard Sheathing, Georgia-Pacific Gypsum LLC. Or similar product from similar manufacturers.

2.03 ACCESSORIES

- A. Screws: ASTM C1002, corrosion resistant treated.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verification of Conditions:

1. Inspection: Verify that project conditions and substrates are acceptable, to the installer, to begin installation of work of this section.

3.02 INSTALLATION

A. General: In accordance with GA-253, ASTM C1280 and the manufacturer's recommendations.

1. Manufacturer's Recommendations:

a. Georgia-Pacific Gypsum or other similar products.

3.03 PROTECTION

A. Protect gypsum board installations from damage and deterioration until date of Substantial Completion.

END OF SECTION 06 16 43

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Standard and custom hollow metal doors and frames.
 - 2. Steel sidelight, borrowed lite and transom frames.
 - 3. Light frames and glazing installed in hollow metal doors.

- B. Related Sections:

- 1. Division 04 Section "Unit Masonry" for embedding anchors for hollow metal work into masonry construction.
 - 2. Division 08 Section "Flush Wood Doors".
 - 3. Division 08 Section "Glazing" for glass view panels in hollow metal doors.
 - 4. Division 08 Section "Door Hardware".
 - 5. Division 08 Section "Access Control Hardware".
 - 6. Division 09 Sections "Exterior Painting" and "Interior Painting" for field painting hollow metal doors and frames.
 - 7. Division 26 "Electrical" Sections for electrical connections including conduit and wiring for door controls and operators installed on frames with factory installed electrical knock out boxes.

- C. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.

- 1. ANSI/SDI A250.8 - Recommended Specifications for Standard Steel Doors and Frames.
 - 2. ANSI/SDI A250.4 - Test Procedure and Acceptance Criteria for Physical Endurance for Steel Doors, Frames, Frames Anchors and Hardware Reinforcing.
 - 3. ANSI/SDI A250.6 - Recommended Practice for Hardware Reinforcing on Standard Steel Doors and Frames.
 - 4. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames.
 - 5. ANSI/SDI A250.11 - Recommended Erection Instructions for Steel Frames.
 - 6. ASTM A1008 - Standard Specification for Steel Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy and High-Strength Low-Alloy with Improved Formability.
 - 7. ASTM A653 - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
 - 8. ASTM A924 - Standard Specification for General Requirements for Steel Sheet, Metallic-Coated by the Hot-Dip Process.
 - 9. ASTM C 1363 - Standard Test Method for Thermal Performance of Building Assemblies by Means of a Hot Box Apparatus.

10. ASTM E283 - Standard Test Method for Determining Rate of Air Leakage Through Exterior Doors Under Specified Pressure Differences Across the Specimens.
11. ANSI/BHMA A156.115 - Hardware Preparation in Steel Doors and Frames.
12. ANSI/SDI 122 - Installation and Troubleshooting Guide for Standard Steel Doors and Frames.
13. ANSI/NFPA 80 - Standard for Fire Doors and Fire Windows; National Fire Protection Association.
14. ANSI/NFPA 105: Standard for the Installation of Smoke Door Assemblies.
15. NFPA 252 - Standard Methods of Fire Tests of Door Assemblies; National Fire Protection Association.
16. NFRC 102 – Procedure for Measuring the Steady State Thermal Transmittance of Fenestration Systems.
17. NFRC 400 – Procedure for Determining Fenestration Product Air Leakage.
18. UL 10C - Positive Pressure Fire Tests of Door Assemblies.
19. UL 1784 - Standard for Air Leakage Tests of Door Assemblies.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, core descriptions, hardware reinforcements, profiles, anchors, fire-resistance rating, and finishes.
- B. Door hardware supplier is to furnish templates, template reference number and/or physical hardware to the steel door and frame supplier in order to prepare the doors and frames to receive the finish hardware items.
- C. Shop Drawings: Include the following:
 1. Elevations of each door design.
 2. Details of doors, including vertical and horizontal edge details and metal thicknesses.
 3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.
 4. Locations of reinforcement and preparations for hardware.
 5. Details of anchorages, joints, field splices, and connections.
 6. Details of accessories.
 7. Details of moldings, removable stops, and glazing.
 8. Details of conduit and preparations for power, signal, and control systems.
- D. Samples for Verification:
 1. Samples are only required by request of the architect and for manufacturers that are not current members of the Steel Door Institute.

1.4 QUALITY ASSURANCE

- A. Source Limitations: Obtain hollow metal doors and frames through one source from a single manufacturer wherever possible.
- B. Quality Standard: In addition to requirements specified, furnish SDI-Certified manufacturer products that comply with ANSI/SDI A250.8, latest edition, "Recommended Specifications for Standard Steel Doors and Frames".

- C. Fire-Rated Door Assemblies: Assemblies complying with NFPA 80 that are listed and labeled by a qualified testing agency, for fire-protection ratings indicated, based on testing at positive pressure according to UL10C (neutral pressure at 40" above sill) or UL 10C.
 - 1. Oversize Fire-Rated Door Assemblies Construction: For units exceeding sizes of tested assemblies, attach construction label certifying doors are built to standard construction requirements for tested and labeled fire rated door assemblies except for size.
 - 2. Temperature-Rise Limit: Where indicated and at vertical exit enclosures (stairwell openings) and exit passageways, provide doors that have a maximum transmitted temperature end point of not more than 450 deg F (250 deg C) above ambient after 30 minutes of standard fire-test exposure.
 - 3. Smoke Control Door Assemblies: Comply with NFPA 105.
 - a. Smoke "S" Label: Doors to bear "S" label, and include smoke and draft control gasketing applied to frame and on meeting stiles of pair doors.
 - D. Fire-Rated, Borrowed-Light Frame Assemblies: Assemblies complying with NFPA 80 that are listed and labeled, by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire-protection ratings indicated, based on testing according to NFPA 257. Provide labeled glazing material.
 - E. Energy Efficient Exterior Openings: Comply with minimum thermal ratings, based on ASTM C1363. Openings to be fabricated and tested as fully operable, thermal insulating door and frame assemblies.
 - 1. Thermal Performance (Exterior Openings): Independent testing laboratory certification for exterior door assemblies being tested in accordance with ASTM C1363 and meet or exceed the following requirements:
 - a. Door Assembly Operable U-Factor and R-Value Ratings: U-Factor 0.37, R-Value 2.7, including insulated door, thermal-break frame and threshold.
 - 2. Air Infiltration (Exterior Openings): Independent testing laboratory certification for exterior door assemblies being tested in accordance with ASTM E283 to meet or exceed the following requirements:
 - a. Rate of leakage of the door assembly shall not exceed 0.25 cfm per square foot of static differential air pressure of 1.567 psf (equivalent to 25 mph wind velocity).
 - F. Pre-Submittal Conference: Conduct conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier, Installer, and Contractor to review proper methods and procedures for installing hollow metal doors and frames and to verify installation of electrical knockout boxes and conduit at frames with electrified or access control hardware.
- 1.5 DELIVERY, STORAGE, AND HANDLING
- A. Deliver hollow metal work palletized, wrapped, or crated to provide protection during transit and Project site storage. Do not use non-vented plastic.
 - B. Deliver welded frames with two removable spreader bars across bottom of frames, tack welded to jambs and mullions.

- C. Store hollow metal work under cover at Project site. Place in stacks of five units maximum in a vertical position with heads up, spaced by blocking, on minimum 4-inch high wood blocking. Do not store in a manner that traps excess humidity.
 - 1. Provide minimum 1/4-inch space between each stacked door to permit air circulation. Door and frames to be stacked in a vertical upright position.

1.6 PROJECT CONDITIONS

- A. Field Measurements: Verify actual dimensions of openings by field measurements before fabrication.

1.7 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace doors that fail in materials or workmanship within specified warranty period.
- B. Warranty includes installation and finishing that may be required due to repair or replacement of defective doors.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide steel doors and frames from a SDI Certified manufacturer:
 - 1. CECO Door Products (C).
 - 2. Curries Company (CU).
 - 3. Steelcraft (S).

2.2 MATERIALS

- A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.
- B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.
- C. Frame Anchors: ASTM A 653/A 653M, Commercial Steel (CS), Commercial Steel (CS), Type B; with minimum G60 (Z180) or A60 (ZF180) metallic coating.

2.3 HOLLOW METAL DOORS

- A. General: Provide 1-3/4 inch doors of design indicated, not less than thickness indicated; fabricated with smooth surfaces, without visible joints or seams on exposed faces unless otherwise indicated. Comply with ANSI/SDI A250.8 and ANSI/NAAMM HMMA 867.

- B. Exterior Doors (Energy Efficient): Face sheets fabricated of commercial quality hot-dipped zinc coated steel that complies with ASTM A924 A60. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model, and ANSI/SDI A250.4 for physical performance level.
1. Design: Flush panel.
 2. Core Construction: Foamed in place polyurethane and steel reinforced core with no stiffener face welds.
 - a. Provide 18 gauge steel vertical reinforcements 6 inches apart and welded in place. Foamed in place polyurethane core is chemically bonded to all interior surfaces. No face welding is permitted.
 - b. Thermal properties to rate at a fully operable minimum U-Factor 0.37 and R-Value 2.6, including insulated door, Mercury thermal-break frame and threshold.
 - c. Kerf Type Frames: Thermal properties to rate at a fully operable minimum U-Factor 0.38 and R-Value 2.6, including insulated door, kerf type frame, and threshold.
 3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), Minimum 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2.
 4. Vertical Edges: Vertical edges to be mechanically interlocked with hairline seam. Beveled Lock Edge, 1/8 inch in 2 inches (3 mm in 50 mm).
 5. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet. Doors with an inverted top channel to include a steel closure channel, screw attached, with the web of the channel flush with the face sheets of the door. Plastic or composite channel fillers are not acceptable.
 6. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9".
 7. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- C. Interior Doors: Face sheets fabricated of commercial quality cold rolled steel that complies with ASTM A 1008/A 1008M. Provide doors complying with requirements indicated below by referencing ANSI/SDI A250.8 for level and model and ANSI/SDI A250.4 for physical performance level:
1. Design: Flush panel.
 2. Core Construction: Manufacturer's standard kraft-paper honeycomb, or one-piece polystyrene core, securely bonded to both faces.
 - a. Fire Door Core: As required to provide fire-protection and temperature-rise ratings indicated.
 3. Level/Model: Level 3 and Physical Performance Level A (Extra Heavy Duty), minimum 16 gauge (0.053-inch - 1.3-mm) thick steel, Model 2.
 4. Top and Bottom Edges: Reinforce tops and bottoms of doors with a continuous steel channel not less than 16 gauge, extending the full width of the door and welded to the face sheet.
 5. Hinge Reinforcement: Minimum 7 gauge (3/16") plate 1-1/4" x 9" or minimum 14 gauge continuous channel with pierced holes, drilled and tapped.
 6. Hardware Reinforcements: Fabricate according to ANSI/SDI A250.6 with reinforcing plates from same material as door face sheets.
- D. Manufacturers Basis of Design:

1. Curries Company (CU) - Polystyrene Core - 707 Series.
2. Curries Company (CU) - Energy Efficient - 797 Mercury Series.

2.4 HOLLOW METAL FRAMES

- A. General: Comply with ANSI/SDI A250.8 and with details indicated for type and profile.
- B. Thermal Break Frames: Subject to the same compliance standards and requirements as standard hollow metal frames. Tested for thermal performance in accordance with NFRC 102, and resistance to air infiltration in accordance with NFRC 400. Where indicated provide thermally broken frame profiles available for use in both masonry and drywall construction. Fabricate with 1/16" positive thermal break and integral vinyl weatherstripping.
- C. Exterior Frames: Fabricated of hot-dipped zinc coated steel that complies with ASTM A 653/A 653M, Coating Designation A60.
 1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Frames: Minimum 14 gauge (0.067-inch -1.7-mm) thick steel sheet.
 3. Manufacturers Basis of Design:
 - a. Curries Company (CU) – Thermal Break TQ Series.
- D. Interior Frames: Fabricated from cold-rolled steel sheet that complies with ASTM A 1008/A 1008M.
 1. Fabricate frames with mitered or coped corners. Profile as indicated on drawings.
 2. Frames: Minimum 16 gauge (0.053-inch -1.3-mm) thick steel sheet.
 3. Manufacturers Basis of Design:
 - a. Curries Company (CU) - CM Series.
 - b. Curries Company (CU) - M Series.
- E. Fire rated frames: Fabricate frames in accordance with NFPA 80, listed and labeled by a qualified testing agency, for fire-protection ratings indicated.
- F. Hardware Reinforcement: Fabricate according to ANSI/SDI A250.6 Table 4 with reinforcement plates from same material as frames.

2.5 FRAME ANCHORS

- A. Jamb Anchors:
 1. Masonry Type: Adjustable strap-and-stirrup or T-shaped anchors to suit frame size, formed from A60 metallic coated material, not less than 0.042 inch thick, with corrugated or perforated straps not less than 2 inches wide by 10 inches long; or wire anchors not less than 0.177 inch thick.
 2. Stud Wall Type: Designed to engage stud and not less than 0.042 inch thick.
- B. Floor Anchors: Floor anchors to be provided at each jamb, formed from A60 metallic coated material, not less than 0.042 inches thick.
- C. Mortar Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.6 LIGHT OPENINGS AND GLAZING

- A. Stops and Moldings: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with butted or mitered hairline joints at fabricator's shop. Fixed and removable stops to allow multiple glazed lites each to be removed independently. Coordinate frame rabbet widths between fixed and removable stops with the type of glazing and installation indicated.
- B. Moldings for Glazed Lites in Doors and Loose Stops for Glazed Lites in Frames: Minimum 20 gauge thick, fabricated from same material as door face sheet in which they are installed.
- C. Fixed Frame Moldings: Formed integral with hollow metal frames, a minimum of 5/8 inch (16 mm) high unless otherwise indicated. Provide fixed frame moldings and stops on outside of exterior and on secure side of interior doors and frames.
- D. Preformed Metal Frames for Light Openings: Manufacturer's standard frame formed of 0.048-inch-thick, cold rolled steel sheet; with baked enamel or powder coated finish; and approved for use in doors of fire protection rating indicated. Match pre-finished door paint color where applicable.

2.7 ACCESSORIES

- A. Mullions and Transom Bars: Join to adjacent members by welding or rigid mechanical anchors.
- B. Grout Guards: Formed from same material as frames, not less than 0.016 inches thick.

2.8 FABRICATION

- A. Fabricate hollow metal work to be rigid and free of defects, warp, or buckle. Accurately form metal to required sizes and profiles, with minimum radius for thickness of metal. Where practical, fit and assemble units in manufacturer's plant. When shipping limitations so dictate, frames for large openings are to be fabricated in sections for splicing or splining in the field by others.
- B. Tolerances: Fabricate hollow metal work to tolerances indicated in ANSI/SDI A250.8.
- C. Hollow Metal Doors:
 - 1. Exterior Doors: Provide optional weep-hole openings in bottom of exterior doors to permit moisture to escape where specified.
 - 2. Glazed Lites: Factory cut openings in doors with applied trim or kits to fit. Factory install glazing where indicated.
 - 3. Astragals: Provide overlapping astragals as noted in door hardware sets in Division 08 Section "Door Hardware" on one leaf of pairs of doors where required by NFPA 80 for fire-performance rating or where indicated. Extend minimum 3/4 inch beyond edge of door on which astragal is mounted.
 - 4. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge strap for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
 - 5. Electrical Raceways: Provide hollow metal doors to receive electrified hardware with concealed wiring harness and standardized Molex™ plug connectors on both ends to accommodate up to twelve wires. Coordinate connectors on end of the wiring harness to plug directly into the electrified hardware and the through-wire transfer hardware or wiring

harness specified in hardware sets in Division 08 Sections "Door Hardware" and "Access Control Hardware". Wire nut connections are not acceptable.

D. Hollow Metal Frames:

1. Shipping Limitations: Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated of same thickness metal as frames.
2. Welded Frames: Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible.
 - a. Welded frames are to be provided with two steel spreaders temporarily attached to the bottom of both jambs to serve as a brace during shipping and handling. Spreader bars are for bracing only and are not to be used to size the frame opening.
3. Sidelight and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by butt welding.
4. High Frequency Hinge Reinforcement: Provide high frequency hinge reinforcements at door openings 48-inches and wider with mortise butt type hinges at top hinge locations.
5. Continuous Hinge Reinforcement: Provide welded continuous 12 gauge straps for continuous hinges specified in hardware sets in Division 08 Section "Door Hardware".
6. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated for removable stops, provide security screws at exterior locations.
7. Mortar Guards: Provide guard boxes at back of hardware mortises in frames at all hinges and strike preps regardless of grouting requirements.
8. Electrical Knock Out Boxes: Factory weld 18 gauge electrical knock out boxes to frame for electrical hardware preps; including but not limited to, electric through wire transfer hardware, electrical raceways and wiring harnesses, door position switches, electric strikes, magnetic locks, and jamb mounted card readers as specified in hardware sets in Division 08 Sections "Door Hardware" and "Access Control Hardware".
 - a. Provide electrical knock out boxes with a dual 1/2-inch and 3/4-inch knockouts.
 - b. Conduit to be coordinated and installed in the field (Division 26) from middle hinge box and strike box to door position box.
 - c. Electrical knock out boxes to comply with NFPA requirements and fit electrical door hardware as specified in hardware sets in Division 08 Section "Door Hardware".
 - d. Electrical knock out boxes for continuous hinges should be located in the center of the vertical dimension on the hinge jamb.
9. Floor Anchors: Weld anchors to bottom of jambs and mullions with at least four spot welds per anchor.
10. Jamb Anchors: Provide number and spacing of anchors as follows:
 - a. Masonry Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Two anchors per jamb up to 60 inches high.
 - 2) Three anchors per jamb from 60 to 90 inches high.
 - 3) Four anchors per jamb from 90 to 120 inches high.

- 4) Four anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 120 inches high.
 - b. Stud Wall Type: Locate anchors not more than 18 inches from top and bottom of frame. Space anchors not more than 32 inches o.c. and as follows:
 - 1) Three anchors per jamb up to 60 inches high.
 - 2) Four anchors per jamb from 60 to 90 inches high.
 - 3) Five anchors per jamb from 90 to 96 inches high.
 - 4) Five anchors per jamb plus 1 additional anchor per jamb for each 24 inches or fraction thereof above 96 inches high.
 - 5) Two anchors per head for frames above 42 inches wide and mounted in metal stud partitions.
 11. Door Silencers: Except on weatherstripped or gasketed doors, drill stops to receive door silencers. Silencers to be supplied by frame manufacturer regardless if specified in Division 08 Section "Door Hardware".
 12. Bituminous Coating: Where frames are fully grouted with an approved Portland Cement based grout or mortar, coat inside of frame throat with a water based bituminous or asphaltic emulsion coating to a minimum thickness of 3 mils DFT, tested in accordance with UL 10C and applied to the frame under a 3rd party independent follow-up service procedure.
- E. Hardware Preparation: Factory prepare hollow metal work to receive template mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping according to the Door Hardware Schedule and templates furnished as specified in Division 08 Section "Door Hardware."
1. Locate hardware as indicated, or if not indicated, according to ANSI/SDI A250.8.
 2. Reinforce doors and frames to receive non-template, mortised and surface mounted door hardware.
 3. Comply with applicable requirements in ANSI/SDI A250.6 and ANSI/DHI A115 Series specifications for preparation of hollow metal work for hardware.
 4. Coordinate locations of conduit and wiring boxes for electrical connections with Division 26 Sections.

2.9 STEEL FINISHES

- A. Prime Finishes: Doors and frames to be cleaned, and chemically treated to insure maximum finish paint adhesion. Surfaces of the door and frame exposed to view to receive a factory applied coat of rust inhibiting shop primer.
1. Shop Primer: Manufacturer's standard, fast-curing, lead and chromate free primer complying with ANSI/SDI A250.10 acceptance criteria; recommended by primer manufacturer for substrate; and compatible with substrate and field-applied coatings.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

- B. General Contractor to verify the accuracy of dimensions given to the steel door and frame manufacturer for existing openings or existing frames (strike height, hinge spacing, hinge back set, etc.).
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove welded in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces.
- B. Prior to installation, adjust and securely brace welded hollow metal frames for square, level, twist, and plumb condition.
- C. Tolerances shall comply with SDI-117 "Manufacturing Tolerances Standard Steel Doors and Frames."
- D. Drill and tap doors and frames to receive non-template, mortised, and surface-mounted door hardware.

3.3 INSTALLATION

- A. General: Install hollow metal work plumb, rigid, properly aligned, and securely fastened in place; comply with Drawings and manufacturer's written instructions.
- B. Hollow Metal Frames: Install hollow metal frames of size and profile indicated. Comply with ANSI/SDI A250.11 and NFPA 80 at fire rated openings.
 - 1. Set frames accurately in position, plumbed, leveled, aligned, and braced securely until permanent anchors are set. After wall construction is complete and frames properly set and secured, remove temporary braces, leaving surfaces smooth and undamaged. Shim as necessary to comply with installation tolerances.
 - 2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with post-installed expansion anchors.
 - 3. Masonry Walls: Coordinate installation of frames to allow for solidly filling space between frames and masonry with mortar.
 - 4. Grout Requirements: Do not grout head of frames unless reinforcing has been installed in head of frame. Do not grout vertical or horizontal closed mullion members.
- C. Hollow Metal Doors: Fit hollow metal doors accurately in frames, within clearances specified below. Shim as necessary.
 - 1. Non-Fire-Rated Standard Steel Doors:
 - a. Jambs and Head: 1/8 inch plus or minus 1/16 inch.
 - b. Between Edges of Pairs of Doors: 1/8 inch plus or minus 1/16 inch.
 - c. Between Bottom of Door and Top of Threshold: Maximum 3/8 inch.
 - d. Between Bottom of Door and Top of Finish Floor (No Threshold): Maximum 3/4 inch.
 - 2. Fire-Rated Doors: Install doors with clearances according to NFPA 80.

- D. Field Glazing: Comply with installation requirements in Division 08 Section "Glazing" and with hollow metal manufacturer's written instructions.

3.4 ADJUSTING AND CLEANING

- A. Final Adjustments: Check and readjust operating hardware items immediately before final inspection. Leave work in complete and proper operating condition. Remove and replace defective work, including hollow metal work that is warped, bowed, or otherwise unacceptable.
- B. Remove grout and other bonding material from hollow metal work immediately after installation.
- C. Prime-Coat and Painted Finish Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat, or painted finishes, and apply touchup of compatible air drying, rust-inhibitive primer, zinc rich primer (exterior and galvanized openings) or finish paint.

END OF SECTION 081113

SECTION 087100 – DOOR HARDWARE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Other doors to the extent indicated.
- B. Door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical door hardware.
 - 3. Automatic operators.
 - 4. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 06 Section "Finish Carpentry".
 - 2. Division 08 Section "Door Schedule".
 - 3. Division 08 Section "Door Hardware Schedule".
 - 4. Division 08 Section "Hollow Metal Doors and Frames".
 - 5. Division 08 Section "Flush Wood Doors".
 - 6. Division 08 Section "Clad Wood Doors".
 - 7. Division 08 Section "Sound Control Hollow Metal Door Assemblies".
 - 8. Division 08 Section "Sound Control Wood Door Assemblies".
 - 9. Division 08 Section "Aluminum-Framed Entrances and Storefronts".
 - 10. Division 08 Section "Automatic Door Operators".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. UL/ULC and CSA C22.2 – Standards for Automatic Door Operators Used on Fire and Smoke Barrier Doors and Systems of Doors.
 - 8. State Building Codes, Local Amendments.

E. Standards: All hardware specified herein shall comply with the following industry standards:

1. ANSI/BHMA Certified Product Standards - A156 Series
2. UL10C – Positive Pressure Fire Tests of Door Assemblies

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - h. Warranty information for each product.
 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Shop Drawings: Details of electrified access control hardware indicating the following:
1. Wiring Diagrams: Upon receipt of approved schedules, submit detailed system wiring diagrams for power, signaling, monitoring, communication, and control of the access control system electrified hardware. Differentiate between manufacturer-installed and field-installed wiring. Include the following:

- a. Elevation diagram of each unique access controlled opening showing location and interconnection of major system components with respect to their placement in the respective door openings.
 - b. Complete (risers, point-to-point) access control system block wiring diagrams.
 - c. Wiring instructions for each electronic component scheduled herein.
2. Electrical Coordination: Coordinate with related sections the voltages and wiring details required at electrically controlled and operated hardware openings.
- D. Keying Schedule: After a keying meeting with the owner has taken place prepare a separate keying schedule detailing final instructions. Submit the keying schedule in electronic format. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner must approve submitted keying schedule prior to the ordering of permanent cylinders/cores.
- E. Informational Submittals:
 1. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- F. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Procedures.

1.4 QUALITY ASSURANCE

- A. Manufacturers Qualifications: Engage qualified manufacturers with a minimum 5 years of documented experience in producing hardware and equipment similar to that indicated for this Project and that have a proven record of successful in-service performance.
- B. Installer Qualifications: A minimum 3 years documented experience installing both standard and electrified door hardware similar in material, design, and extent to that indicated for this Project and whose work has resulted in construction with a record of successful in-service performance.
- C. Door Hardware Supplier Qualifications: Experienced commercial door hardware distributors with a minimum 5 years documented experience supplying both mechanical and electromechanical hardware installations comparable in material, design, and extent to that indicated for this Project. Supplier recognized as a factory direct distributor by the manufacturers of the primary materials with a warehousing facility in Project's vicinity. Supplier to have on staff a certified Architectural Hardware Consultant (AHC) available during the course of the Work to consult with Contractor, Architect, and Owner concerning both standard and electromechanical door hardware and keying.
- D. Source Limitations: Obtain each type and variety of door hardware specified in this section from a single source unless otherwise indicated.
 1. Electrified modifications or enhancements made to a source manufacturer's product line by a secondary or third party source will not be accepted.
 2. Provide electromechanical door hardware from the same manufacturer as mechanical door hardware, unless otherwise indicated.

- E. Each unit to bear third party permanent label demonstrating compliance with the referenced standards.
- F. Keying Conference: Conduct conference to comply with requirements in Division 01 Section "Project Meetings." Keying conference to incorporate the following criteria into the final keying schedule document:
 - 1. Function of building, purpose of each area and degree of security required.
 - 2. Plans for existing and future key system expansion.
 - 3. Requirements for key control storage and software.
 - 4. Installation of permanent keys, cylinder cores and software.
 - 5. Address and requirements for delivery of keys.
- G. Pre-Submittal Conference: Conduct coordination conference in compliance with requirements in Division 01 Section "Project Meetings" with attendance by representatives of Supplier(s), Installer(s), and Contractor(s) to review proper methods and the procedures for receiving, handling, and installing door hardware. Notify attendees seven (7) days in advance of meeting date.
 - 1. Prior to installation of door hardware, conduct a project specific training meeting to instruct the installing contractors' personnel on the proper installation and adjustment of their respective products. Product training to be attended by installers of door hardware (including electromechanical hardware) for aluminum, hollow metal and wood doors. Training will include the use of installation manuals, hardware schedules, templates and physical product samples as required.
 - 2. Inspect and discuss electrical roughing-in, power supply connections, and other preparatory work performed by other trades.
 - 3. Review sequence of operation narratives for each unique access controlled opening.
 - 4. Review and finalize construction schedule and verify availability of materials.
 - 5. Review the required inspecting, testing, commissioning, and demonstration procedures
- H. At completion of installation, provide written documentation that components were applied to manufacturer's instructions and recommendations and according to approved schedule.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.6 COORDINATION

- A. Templates: Obtain and distribute to the parties involved templates for doors, frames, and other work specified to be factory prepared for installing standard and electrified hardware. Check

Shop Drawings of other work to confirm that adequate provisions are made for locating and installing hardware to comply with indicated requirements.

- B. Door Hardware and Electrical Connections: Coordinate the layout and installation of scheduled electrified door hardware and related access control equipment with required connections to source power junction boxes, low voltage power supplies, detection and monitoring hardware, and fire and detection alarm systems.
- C. Door and Frame Preparation: Doors and corresponding frames are to be prepared, reinforced and pre-wired (if applicable) to receive the installation of the specified electrified, monitoring, signaling and access control system hardware without additional in-field modifications.

1.7 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.
- B. Warranty Period: Written warranty, executed by manufacturer(s), agreeing to repair or replace components of standard and electrified door hardware that fails in materials or workmanship within specified warranty period after final acceptance by the Owner. Failures include, but are not limited to, the following:
 - 1. Structural failures including excessive deflection, cracking, or breakage.
 - 2. Faulty operation of the hardware.
 - 3. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 - 4. Electrical component defects and failures within the systems operation.
- C. Standard Warranty Period: One year from date of Substantial Completion, unless otherwise indicated.
- D. Special Warranty Periods:
 - 1. Three years for heavy duty cylindrical (bored) locks and latches.
 - 2. Three years for exit hardware.
 - 3. Ten years for manual overhead door closer bodies.
 - 4. Three years for motorized electric latch retraction exit devices.
 - 5. Two years for electromechanical door hardware.

1.8 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. General: Provide door hardware for each door to comply with requirements in Door Hardware Sets and each referenced section that products are to be supplied under.
- B. Designations: Requirements for quantity, item, size, finish or color, grade, function, and other distinctive qualities of each type of door hardware are indicated in the Door Hardware Sets at the end of Part 3. Products are identified by using door hardware designations, as follows:
 - 1. Named Manufacturer's Products: Product designation and manufacturer are listed for each door hardware type required for the purpose of establishing requirements. Manufacturers' names are abbreviated in the Door Hardware Schedule.
- C. Substitutions: Requests for substitution and product approval for inclusive mechanical and electromechanical door hardware in compliance with the specifications must be submitted in writing and in accordance with the procedures and time frames outlined in Division 01, Substitution Procedures. Approval of requests is at the discretion of the architect, owner, and their designated consultants.

2.2 HANGING DEVICES

- A. Hinges: ANSI/BHMA A156.1 certified butt hinges with number of hinge knuckles and other options as specified in the Door Hardware Sets.
 - 1. Quantity: Provide the following hinge quantity:
 - a. Two Hinges: For doors with heights up to 60 inches.
 - b. Three Hinges: For doors with heights 61 to 90 inches.
 - c. Four Hinges: For doors with heights 91 to 120 inches.
 - d. For doors with heights more than 120 inches, provide 4 hinges, plus 1 hinge for every 30 inches of door height greater than 120 inches.
 - 2. Hinge Size: Provide the following, unless otherwise indicated, with hinge widths sized for door thickness and clearances required:
 - a. Widths up to 3'0": 4-1/2" standard or heavy weight as specified.
 - b. Sizes from 3'1" to 4'0": 5" standard or heavy weight as specified.
 - 3. Hinge Weight and Base Material: Unless otherwise indicated, provide the following:
 - a. Exterior Doors: Heavy weight, non-ferrous, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate standard weight.
 - b. Interior Doors: Standard weight, steel, ball bearing or oil impregnated bearing hinges unless Hardware Sets indicate heavy weight.
 - 4. Hinge Options: Comply with the following:

- a. Non-removable Pins: Provide set screw in hinge barrel that, when tightened into a groove in hinge pin, prevents removal of pin while door is closed; for the all out-swinging lockable doors.
5. Manufacturers:
 - a. Hager Companies (HA) - CB Series.
 - b. McKinney Products; ASSA ABLOY Architectural Door Accessories (MK) - TA Series.
 - c. Stanley Hardware (ST) - CB Series.
- B. Continuous Geared Hinges: ANSI/BHMA A156.26 Grade 1-600 certified continuous geared hinge. with minimum 0.120-inch thick extruded 6060 T6 aluminum alloy hinge leaves and a minimum overall width of 4 inches. Hinges are non-handed, reversible and fabricated to template screw locations. Factory trim hinges to suit door height and prepare for electrical cut-outs.
 1. Manufacturers:
 - a. Hager Companies (HA).
 - b. Select (SL).
 - c. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).

2.3 POWER TRANSFER DEVICES

- A. Concealed Quick Connect Electric Power Transfers: Provide concealed wiring pathway housing mortised into the door and frame for low voltage electrified door hardware. Furnish with Molex™ standardized plug connectors and sufficient number of concealed wires (up to 12) to accommodate the electrified functions specified in the Door Hardware Sets. Connectors plug directly to through-door wiring harnesses for connection to electric locking devices and power supplies. Wire nut connections are not acceptable.
 1. Manufacturers:
 - a. Securitron (SU) - EL-CEPT Series.
 - b. Stanley Hardware (ST) EPT-12C Series.
 - c. Von Duprin (VD) - EPT-10 Series.

2.4 DOOR OPERATING TRIM

- A. Flush Bolts and Surface Bolts: ANSI/BHMA A156.3 and A156.16, Grade 1, certified.
 1. Flush bolts to be furnished with top rod of sufficient length to allow bolt retraction device location approximately six feet from the floor.
 2. Furnish dust proof strikes for bottom bolts.
 3. Surface bolts to be minimum 8" in length and U.L. listed for labeled fire doors and U.L. listed for windstorm components where applicable.
 4. Provide related accessories (mounting brackets, strikes, coordinators, etc.) as required for appropriate installation and operation.

5. Manufacturers:

- a. Hager (HA).
- b. Ives (IV).
- c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

B. Coordinators: ANSI/BHMA A156.3 certified door coordinators consisting of active-leaf, hold-open lever and inactive-leaf release trigger. Model as indicated in hardware sets.

1. Manufacturers:

- a. Hager (HA).
- b. Ives (IV).
- c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

C. Door Push Plates and Pulls: ANSI/BHMA A156.6 certified door pushes and pulls of type and design specified in the Hardware Sets. Coordinate and provide proper width and height as required where conflicting hardware dictates.

- 1. Push/Pull Plates: Minimum .050 inch thick, size as indicated in hardware sets, with beveled edges, secured with exposed screws unless otherwise indicated.
- 2. Door Pull and Push Bar Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door unless otherwise indicated.
- 3. Offset Pull Design: Size, shape, and material as indicated in the hardware sets. Minimum clearance of 2 1/2-inches from face of door and offset of 90 degrees unless otherwise indicated.
- 4. Fasteners: Provide manufacturer's designated fastener type as indicated in Hardware Sets.
- 5. Manufacturers:
 - a. Hager. (HA).
 - b. Ives (IV).
 - c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.5 CYLINDERS AND KEYING

A. General: Cylinder manufacturer to have minimum (10) years experience designing secured master key systems and have on record a published security keying system policy.

1. Manufacturers:

- a. Stanley Best (BE).
- b. No Substitution.

B. Cylinders: Original manufacturer cylinders complying with the following:

- 1. Mortise Type: Threaded cylinders with rings and cams to suit hardware application.
- 2. Rim Type: Cylinders with back plate, flat-type vertical or horizontal tailpiece, and raised trim ring.
- 3. Bored-Lock Type: Cylinders with tailpieces to suit locks.

4. Mortise and rim cylinder collars to be solid and recessed to allow the cylinder face to be flush and be free spinning with matching finishes.
 5. Keyway: Match Facility Standard.
- C. Permanent Cores: Manufacturer's standard; finish face to match lockset; complying with the following:
1. Interchangeable Cores: Core insert, removable by use of a special key; usable with other manufacturers' cylinders.
- D. Keying System: Each type of lock and cylinders to be factory keyed.
1. Conduct specified "Keying Conference" to define and document keying system instructions and requirements.
 2. Furnish factory cut, nickel-silver large bow permanently inscribed with a visual key control number as directed by Owner.
 3. Existing System: Field verify and key locks to match Owner's existing system.
- E. Key Quantity: Provide the following minimum number of keys:
1. Change Keys per Cylinder: Two (2)
 2. Master Keys (per Master Key Level/Group): Five (5).
 3. Construction Keys (where required): Ten (10).
 4. Construction Control Keys (where required): Two (2).
 5. Permanent Control Keys (where required): Two (2).
- F. Construction Keying: Provide construction master keyed cylinders.
- G. Key Registration List (Bitting List):
1. Furnish a list of opening numbers with locking devices, showing cylinder types and quantities required when cylinders or cores are to be owner furnished.

2.6 MECHANICAL LOCKS AND LATCHING DEVICES

- A. Cylindrical Locksets, Grade 1 (Heavy Duty): ANSI/BHMA A156.2, Series 4000, Grade 1 certified.
1. Furnish with solid cast levers, standard 2 3/4" backset, and 1/2" (3/4" at rated paired openings) throw brass or stainless steel latchbolt.
 2. Locks are to be non-handed and fully field reversible.
 3. Manufacturers:
 - a. Stanley Best (BE) – 9K Series.
 - b. No Substitution.

2.7 LOCK AND LATCH STRIKES

- A. Strikes: Provide manufacturer's standard strike with strike box for each latch or lock bolt, with curved lip extended to protect frame, finished to match door hardware set, unless otherwise indicated, and as follows:
1. Flat-Lip Strikes: For locks with three-piece antifriction latchbolts, as recommended by manufacturer.
 2. Extra-Long-Lip Strikes: For locks used on frames with applied wood casing trim.
 3. Aluminum-Frame Strike Box: Provide manufacturer's special strike box fabricated for aluminum framing.
 4. Double-lipped strikes: For locks at double acting doors. Furnish with retractable stop for rescue hardware applications.
- B. Standards: Comply with the following:
1. Strikes for Mortise Locks and Latches: BHMA A156.13.
 2. Strikes for Bored Locks and Latches: BHMA A156.2.
 3. Strikes for Auxiliary Deadlocks: BHMA A156.36.
 4. Dustproof Strikes: BHMA A156.16.

2.8 CONVENTIONAL EXIT DEVICES

- A. General Requirements: All exit devices specified herein shall meet or exceed the following criteria:
1. At doors not requiring a fire rating, provide devices complying with NFPA 101 and listed and labeled for "Panic Hardware" according to UL305. Provide proper fasteners as required by manufacturer including sex nuts and bolts at openings specified in the Hardware Sets.
 2. Where exit devices are required on fire rated doors, provide devices complying with NFPA 80 and with UL labeling indicating "Fire Exit Hardware". Provide devices with the proper fasteners for installation as tested and listed by UL. Consult manufacturer's catalog and template book for specific requirements.
 3. Except on fire rated doors, provide exit devices with hex key dogging device to hold the pushbar and latch in a retracted position. Provide optional keyed cylinder dogging on devices where specified in Hardware Sets.
 4. Devices must fit flat against the door face with no gap that permits unauthorized dogging of the push bar. The addition of filler strips is required in any case where the door light extends behind the device as in a full glass configuration.
 5. Motorized Electric Latch Retraction: Devices with an electric latch retraction feature must use motors which have a maximum current draw of 600mA. Solenoid driven latch retraction is not acceptable.
 6. Lever Operating Trim: Where exit devices require lever trim, furnish manufacturer's heavy duty escutcheon trim with threaded studs for thru-bolts.

- a. Lock Trim Design: As indicated in Hardware Sets, provide finishes and designs to match that of the specified locksets.
 - b. Where function of exit device requires a cylinder, provide a cylinder (Rim or Mortise) as specified in Hardware Sets.
7. Vertical Rod Exit Devices: Where surface or concealed vertical rod exit devices are used at interior openings, provide as less bottom rod (LBR) unless otherwise indicated. Provide dust proof strikes where thermal pins are required to project into the floor.
8. Narrow Stile Applications: At doors constructed with narrow stiles, or as specified in Hardware Sets, provide devices designed for maximum 2" wide stiles.
9. Dummy Push Bar: Nonfunctioning push bar matching functional push bar.
10. Rail Sizing: Provide exit device rails factory sized for proper door width application.
11. Through Bolt Installation: For exit devices and trim as indicated in Door Hardware Sets.
- B. Conventional Push Rail Exit Devices (Heavy Duty): ANSI/BHMA A156.3, Grade 1 certified panic and fire exit hardware devices furnished in the functions specified in the Hardware Sets. Exit device latch to be stainless steel, pullman type, with deadlock feature.
 1. Manufacturers:
 - a. Von Duprin (VD) - 35A/98 XP Series.
 - b. No Substitution.

2.9 DOOR CLOSERS

- A. All door closers specified herein shall meet or exceed the following criteria:
 1. General: Door closers to be from one manufacturer, matching in design and style, with the same type door preparations and templates regardless of application or spring size. Closers to be non-handed with full sized covers including installation and adjusting information on inside of cover.
 2. Standards: Closers to comply with UL-10C for Positive Pressure Fire Test and be U.L. listed for use of fire rated doors.
 3. Cycle Testing: Provide closers which have surpassed 15 million cycles in a test witnessed and verified by UL.
 4. Size of Units: Comply with manufacturer's written recommendations for sizing of door closers depending on size of door, exposure to weather, and anticipated frequency of use. Where closers are indicated for doors required to be accessible to the physically handicapped, provide units complying with ANSI ICC/A117.1.
 5. Closer Arms: Provide heavy duty, forged steel closer arms unless otherwise indicated in Hardware Sets.
 6. Closers shall not be installed on exterior or corridor side of doors; where possible install closers on door for optimum aesthetics.

7. Closer Accessories: Provide door closer accessories including custom templates, special mounting brackets, spacers and drop plates as required for proper installation. Provide through-bolt and security type fasteners as specified in the hardware sets.

- B. Door Closers, Surface Mounted (Heavy Duty): ANSI/BHMA A156.4, Grade 1 surface mounted, heavy duty door closers with complete spring power adjustment, sizes 1 thru 6; and fully operational adjustable according to door size, frequency of use, and opening force. Closers to be rack and pinion type, one piece cast iron or aluminum alloy body construction, with adjustable backcheck and separate non-critical valves for closing sweep and latch speed control. Provide non-handed units standard.

1. Manufacturers:

- a. LCN Closers (LC) - 4040 Series.
- b. No Substitution.

2.10 ELECTROHYDRAULIC DOOR OPERATORS

- A. General: Provide low energy operators of size recommended by manufacturer for door size, weight, and movement; for condition of exposure; and for compliance with UL 325. Coordinate operator mechanisms with door operation, hinges, and activation devices.

1. Fire-Rated Doors: Provide door operators for fire-rated door assemblies that comply with NFPA 80 for fire-rated door components and are listed and labeled by a qualified testing agency.

- B. Standard: Certified ANSI/BHMA A156.19.

- C. Performance Requirements:

1. Opening Force if Power Fails: Not more than 15 lbf required to release a latch if provided, not more than 30 lbf required to manually set door in motion, and not more than 15 lbf required to fully open door.
2. Entrapment Protection: Not more than 15 lbf required to prevent stopped door from closing or opening.

- D. Configuration: Surface mounted or in-ground as required. Door operators to control single swinging and pair of swinging doors.

- E. Operation: Power opening and spring closing operation capable of meeting ANSI A117.1 accessibility guideline. Provide time delay for door to remain open before initiating closing cycle as required by ANSI/BHMA A156.19. When not in automatic mode, door operator to function as manual door closer with fully adjustable opening and closing forces, with or without electrical power.

- F. Features: Operator units to have full feature adjustments for door opening and closing force and speed, backcheck, motor assist acceleration from 0 to 30 seconds, time delay, vestibule interface delay, obstruction recycle, and hold open time from 0 up to 30 seconds.

- G. Provide outputs and relays on board the operator to allow for coordination of exit device latch retraction, electric strikes, magnetic locks, card readers, safety and motion sensors and specified auxiliary contacts.

- H. Brackets and Reinforcements: Manufacturer's standard, fabricated from aluminum with nonferrous shims for aligning system components.
- I. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. LCN Closers (LC) - 4640 Series.

2.11 ARCHITECTURAL TRIM

A. Door Protective Trim

- 1. General: Door protective trim units to be of type and design as specified below or in the Hardware Sets.
- 2. Size: Fabricate protection plates (kick, armor, or mop) not more than 2" less than door width (LDW) on stop side of single doors and 1" LDW on stop side of pairs of doors, and not more than 1" less than door width on pull side. Coordinate and provide proper width and height as required where conflicting hardware dictates. Height to be as specified in the Hardware Sets.
- 3. Where plates are applied to fire rated doors with the top of the plate more than 16" above the bottom of the door, provide plates complying with NFPA 80. Consult manufacturer's catalog and template book for specific requirements for size and applications.
- 4. Protection Plates: ANSI/BHMA A156.6 certified protection plates (kick, armor, or mop), fabricated from the following:
 - a. Stainless Steel: 300 grade, 050-inch thick.
- 5. Options and fasteners: Provide manufacturer's designated fastener type as specified in the Hardware Sets. Provide countersunk screw holes.
- 6. Manufacturers:
 - a. Hager Companies (HA).
 - b. Ives (IV).
 - c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.12 DOOR STOPS AND HOLDERS

- A. General: Door stops and holders to be of type and design as specified below or in the Hardware Sets.
- B. Door Stops and Bumpers: ANSI/BHMA A156.16, Grade 1 certified door stops and wall bumpers. Provide wall bumpers, either convex or concave types with anchorage as indicated, unless floor or other types of door stops are specified in Hardware Sets. Do not mount floor stops where they will impede traffic. Where floor or wall bumpers are not appropriate, provide overhead type stops and holders.

1. Manufacturers:
 - a. Hager Companies (HA).
 - b. Ives (IV).
 - c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

- C. Overhead Door Stops and Holders: ANSI/BHMA A156.8, Grade 1 certified overhead stops and holders to be surface or concealed types as indicated in Hardware Sets. Track, slide, arm and jamb bracket to be constructed of extruded bronze and shock absorber spring of heavy tempered steel. Provide non-handed design with mounting brackets as required for proper operation and function.

1. Manufacturers:
 - a. Glynn Johnson (GJ).
 - b. Rixson Door Controls (RF).
 - c. Rockwood Products; ASSA ABLOY Architectural Door Accessories (RO).

2.13 ARCHITECTURAL SEALS

- A. General: Thresholds, weatherstripping, and gasket seals to be of type and design as specified below or in the Hardware Sets. Provide continuous weatherstrip gasketing on exterior doors and provide smoke, light, or sound gasketing on interior doors where indicated. At exterior applications provide non-corrosive fasteners and elsewhere where indicated.
- B. Smoke Labeled Gasketing: Assemblies complying with NFPA 105 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for smoke control ratings indicated, based on testing according to UL 1784.
 1. Provide smoke labeled perimeter gasketing at all smoke labeled openings.
- C. Fire Labeled Gasketing: Assemblies complying with NFPA 80 that are listed and labeled by a testing and inspecting agency acceptable to authorities having jurisdiction, for fire ratings indicated, based on testing according to UL-10C.
 1. Provide intumescent seals as indicated to meet UL10C Standard for Positive Pressure Fire Tests of Door Assemblies, and NPFA 252, Standard Methods of Fire Tests of Door Assemblies.
- D. Sound-Rated Gasketing: Assemblies that are listed and labeled by a testing and inspecting agency, for sound ratings indicated.
- E. Replaceable Seal Strips: Provide only those units where resilient or flexible seal strips are easily replaceable and readily available from stocks maintained by manufacturer.
- F. Manufacturers:
 1. National Guard Products (NG).
 2. Pemko Products; ASSA ABLOY Architectural Door Accessories (PE).
 3. Zero (ZE).

2.14 ELECTRONIC ACCESSORIES

- A. Door Position Switches: Door position magnetic reed contact switches specifically designed for use in commercial door applications. On recessed models the contact and magnetic housing snap-lock into a 1" diameter hole. Surface mounted models include wide gap distance design complete with armored flex cabling. Provide SPDT, N/O switches with optional Rare Earth Magnet installation on steel doors with flush top channels.
 - 1. Manufacturers:
 - a. Sargent Manufacturing (SA) – 3280 Series.
 - b. Security Door Controls (SD) - DPS Series.
 - c. Securitron (SU) - DPS Series.
- B. Linear Power Supplies: Provide Nationally Recognized Testing Laboratory Listed 12VDC or 24VDC (field selectable) filtered and regulated power supplies. Include battery backup option with integral battery charging capability in addition to operating the DC load in event of line voltage failure. Provide the least number of units, at the appropriate amperage level, sufficient to exceed the required total draw plus 50% for the specified electrified hardware and access control equipment.
 - 1. Manufacturers:
 - a. Alarm Controls (AK) - APS Series.
 - b. Security Door Controls (SD) - 630 Series.
 - c. Von Duprin (VD) - PS.

2.15 FABRICATION

- A. Fasteners: Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. Provide screws according to manufacturers recognized installation standards for application intended.

2.16 FINISHES

- A. Standard: Designations used in the Hardware Sets and elsewhere indicate hardware finishes complying with ANSI/BHMA A156.18, including coordination with traditional U.S. finishes indicated by certain manufacturers for their products.
- B. Provide quality of finish, including thickness of plating or coating (if any), composition, hardness, and other qualities complying with manufacturer's standards, but in no case less than specified by referenced standards for the applicable units of hardware
- C. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine scheduled openings, with Installer present, for compliance with requirements for installation tolerances, labeled fire door assembly construction, wall and floor construction, and other conditions affecting performance.
- B. Notify architect of any discrepancies or conflicts between the door schedule, door types, drawings and scheduled hardware. Proceed only after such discrepancies or conflicts have been resolved in writing.

3.2 PREPARATION

- A. Hollow Metal Doors and Frames: Comply with ANSI/DHI A115 series.
- B. Wood Doors: Comply with ANSI/DHI A115-W series.

3.3 INSTALLATION

- A. Install each item of mechanical and electromechanical hardware and access control equipment to comply with manufacturer's written instructions and according to specifications.
 - 1. Installers are to be trained and certified by the manufacturer on the proper installation and adjustment of fire, life safety, and security products including: hanging devices; locking devices; closing devices; and seals.
- B. Mounting Heights: Mount door hardware units at heights indicated in following applicable publications, unless specifically indicated or required to comply with governing regulations:
 - 1. Standard Steel Doors and Frames: DHI's "Recommended Locations for Architectural Hardware for Standard Steel Doors and Frames."
 - 2. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
 - 3. Where indicated to comply with accessibility requirements, comply with ANSI A117.1 "Accessibility Guidelines for Buildings and Facilities."
 - 4. Provide blocking in drywall partitions where wall stops or other wall mounted hardware is located.
- C. Retrofitting: Install door hardware to comply with manufacturer's published templates and written instructions. Where cutting and fitting are required to install door hardware onto or into surfaces that are later to be painted or finished in another way, coordinate removal, storage, and reinstallation of surface protective trim units with finishing work specified in Division 9 Sections. Do not install surface-mounted items until finishes have been completed on substrates involved.
- D. Thresholds: Set thresholds for exterior and acoustical doors in full bed of sealant complying with requirements specified in Division 7 Section "Joint Sealants."

- E. Storage: Provide a secure lock up for hardware delivered to the project but not yet installed. Control the handling and installation of hardware items so that the completion of the work will not be delayed by hardware losses before and after installation.

3.4 FIELD QUALITY CONTROL

- A. Field Inspection (Punch Report): Reference Division 01 Section "Closeout Procedures" for project punch and reporting requirements including compliance with approved submittals and verification door hardware is properly installed, operating and adjusted.

3.5 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.

3.6 CLEANING AND PROTECTION

- A. Protect all hardware stored on construction site in a covered and dry place. Protect exposed hardware installed on doors during the construction phase. Install any and all hardware at the latest possible time frame.
- B. Clean adjacent surfaces soiled by door hardware installation.
- C. Clean operating items as necessary to restore proper finish. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of owner occupancy.

3.7 DEMONSTRATION

- A. Instruct Owner's maintenance personnel to adjust, operate, and maintain mechanical and electromechanical door hardware.

3.8 DOOR HARDWARE SETS

- A. The hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.
 - 1. Quantities listed are for each pair of doors, or for each single door.
 - 2. The supplier is responsible for handing and sizing all products.

3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate selection for the material and application.
 4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.
- B. Refer to Section 080671, Door Hardware Sets, for hardware sets.

END OF SECTION 087100

SECTION 080671 – DOOR HARDWARE SCHEDULE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section references specification sections relating to commercial door hardware for the following:
 - 1. Swinging doors.
 - 2. Other doors to the extent indicated.
- B. Commercial door hardware includes, but is not necessarily limited to, the following:
 - 1. Mechanical door hardware.
 - 2. Electromechanical and access control door hardware.
 - 3. Electromechanical and access control door hardware power supplies, back-ups and surge protection.
 - 4. Automatic operators.
 - 5. Cylinders specified for doors in other sections.
- C. Related Sections:
 - 1. Division 08 Section "Door Hardware".
 - 2. Division 08 Section "Automatic Door Operators".
 - 3. Division 26 Section "Electrical".
- D. Codes and References: Comply with the version year adopted by the Authority Having Jurisdiction.
 - 1. ANSI A117.1 - Accessible and Usable Buildings and Facilities.
 - 2. ICC/IBC - International Building Code.
 - 3. NFPA 70 - National Electrical Code.
 - 4. NFPA 80 - Fire Doors and Windows.
 - 5. NFPA 101 - Life Safety Code.
 - 6. NFPA 105 - Installation of Smoke Door Assemblies.
 - 7. State Building Codes, Local Amendments.
- E. Standards: Reference Related Sections for requirements regarding compliance with applicable industry standards.

1.3 SUBMITTALS

- A. Product Data: Manufacturer's product data sheets including installation details, material descriptions, dimensions of individual components and profiles, operational descriptions and finishes.
- B. Door Hardware Schedule: Prepared by or under the supervision of supplier, detailing fabrication and assembly of door hardware, as well as procedures and diagrams. Coordinate the final Door Hardware Schedule with doors, frames, and related work to ensure proper size, thickness, hand, function, and finish of door hardware.
 - 1. Format: Comply with scheduling sequence and vertical format in DHI's "Sequence and Format for the Hardware Schedule."
 - 2. Organization: Organize the Door Hardware Schedule into door hardware sets indicating complete designations of every item required for each door or opening. Organize door hardware sets in same order as in the Door Hardware Sets at the end of Part 3. Submittals that do not follow the same format and order as the Door Hardware Sets will be rejected and subject to resubmission.
 - 3. Content: Include the following information:
 - a. Type, style, function, size, label, hand, and finish of each door hardware item.
 - b. Manufacturer of each item.
 - c. Fastenings and other pertinent information.
 - d. Location of door hardware set, cross-referenced to Drawings, both on floor plans and in door and frame schedule.
 - e. Explanation of abbreviations, symbols, and codes contained in schedule.
 - f. Mounting locations for door hardware.
 - g. Door and frame sizes and materials.
 - 4. Submittal Sequence: Submit the final Door Hardware Schedule at earliest possible date, particularly where approval of the Door Hardware Schedule must precede fabrication of other work that is critical in the Project construction schedule. Include Product Data, Samples, Shop Drawings of other work affected by door hardware, and other information essential to the coordinated review of the Door Hardware Schedule.
- C. Keying Schedule: Prepared under the supervision of the Owner, separate schedule detailing final keying instructions for locksets and cylinders in writing. Include keying system explanation, door numbers, key set symbols, hardware set numbers and special instructions. Owner to approve submitted keying schedule prior to the ordering of permanent cylinders.
- D. Product Test Reports: Indicating compliance with cycle testing requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by a qualified independent testing agency.
- E. Operating and Maintenance Manuals: Provide manufacturers operating and maintenance manuals for each item comprising the complete door hardware installation in quantity as required in Division 01, Closeout Submittals. The manual to include the name, address, and contact information of the manufacturers providing the hardware and their nearest service

representatives. The final copies delivered after completion of the installation test to include "as built" modifications made during installation, checkout, and acceptance.

- F. Warranties and Maintenance: Special warranties and maintenance agreements specified in the Related Sections.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Inventory door hardware on receipt and provide secure lock-up and shelving for door hardware delivered to Project site. Do not store electronic access control hardware, software or accessories at Project site without prior authorization.
- B. Tag each item or package separately with identification related to the final Door Hardware Schedule, and include basic installation instructions with each item or package.
- C. Deliver, as applicable, permanent keys, cylinders, cores, access control credentials, software and related accessories directly to Owner via registered mail or overnight package service. Instructions for delivery to the Owner shall be established at the "Keying Conference".

1.5 WARRANTY

- A. General Warranty: Reference Division 01, General Requirements. Special warranties specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

1.6 MAINTENANCE SERVICE

- A. Maintenance Tools and Instructions: Furnish a complete set of specialized tools and maintenance instructions as needed for Owner's continued adjustment, maintenance, and removal and replacement of door hardware.

PART 2 - PRODUCTS

2.1 SCHEDULED DOOR HARDWARE

- A. Refer to "PART 3 – EXECUTION" for required specification sections.

PART 3 - EXECUTION

3.1 DOOR HARDWARE SETS

- A. The door hardware sets represent the design intent and direction of the owner and architect. They are a guideline only and should not be considered a detailed hardware schedule. Discrepancies, conflicting hardware and missing items should be brought to the attention of the architect with corrections made prior to the bidding process. Omitted items not included in a

hardware set should be scheduled with the appropriate additional hardware required for proper application and functionality.

1. Quantities listed are for each pair of doors, or for each single door.
2. The supplier is responsible for handing and sizing all products.
3. Where multiple options for a piece of hardware are given in a single line item, the supplier shall provide the appropriate selection for the material and application.
4. At existing openings with new hardware the supplier shall field inspect existing conditions prior to the submittal stage to verify the specified hardware will work as required. Provide alternate solutions and proposals as needed.

B. Products listed in the hardware sets shall be supplied by and in accordance with the requirements described in the specification section as noted for each item.

1. Section 08 71 00 – Door Hardware.

C. Manufacturer's Abbreviations:

1. HA - Hager
2. OT - Other
3. RO - Rockwood
4. VD - Von Duprin
5. BE - dormakaba Best
6. RF - Rixson
7. LC - LCN Closers
8. NO - Norton
9. NG - National Guard
10. PE - Pemko
11. TC - Trimco

Hardware Sets

Set: 1.0

Doors: 015-1, 101-3

2 Continuous Hinge	780-110HD EPT (Length as Required)	Clear	HA	087100
1 Mullion	KR4954 (Length as Required)	SP28	VD	087100
1 Rim Exit Device (EL-Trim, RX-LX, CD)	CD LX-RX 98L E 996L(Std) FSE	US32D	VD	087100
1 Rim Exit Device (Dummy, RX-LX, CD)	CD LX-RX 98L-DT 996L-DT	US32D	VD	087100

4 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100	
1 SFIC Rim Cylinder	12E (Size and Tail as Required) Less Core	626	BE	087100	
3 SFIC Mortised Cylinder	1E (Size and Cam as Required) Less Core	626	BE	087100	
2 Surface Closer	4040XP SCUSH	AL	LC	087100	
1 Threshold	8533N X Length Required		NG		
1 Gasketing	137NA (Head and Jambs)		NG		
1 Mullion Gasketing	5100N x Length Required		NG		
2 Sweep	1015V x Length Required		NG		
1 Astragal	9115A(SET) x Length Required		NG		
2 Electric Power Transfer	EPT10	SP28	VD	087100	⚡
1 Card Reader	By Security Supplier				
2 Position Switch	DPS2 - M / W-BK			087100	⚡
1 Power Supply	PS914 (w/Size and Components as Required)		VD	087100	⚡
1 Wiring Diagram	Elevation and Point to Point as Specified		OT		

Notes: System Operational Narrative:

- Doors normally closed and secure.
- Access by valid credential presentation releasing the exit trim lever on the active lead for a pre-determined time limit and then relocking.
- Egress always free for immediate exit. Request-to-Exit sensors allows exit without alarm condition.
- Door position switches provide open/closed monitoring to both access control system and intrusion alarm service.
- Levers remain locked (fail secure) in event of power loss. Key override cylinder for emergency access.

Set: 2.0

Doors: 101-1, 120-1, 120-2, 134-1, 134-2

2 Continuous Hinge	780-110HD EPT (Length as Required)	Clear	HA	087100	
1 CVR Exit Device (NL, RX, ELR, CD)	CD EL LX-RX 3347A-NL-OP 388(Std) FSE	US26D	VD	087100	
1 CVR Exit Device (EO, RX, CD)	CD LX-RX 3347A-EO	US26D	VD	087100	
3 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100	
1 SFIC Rim Cylinder	12E (Size and Tail as Required) Less Core	626	BE	087100	
2 SFIC Mortised Cylinder	1E (Size and Cam as Required) Less Core	626	BE	087100	
2 Door Pull	RM3331-36 Mtg-Type 12XHD	US32D	RO	087100	
1 Surface Closer	4040XP SCUSH	AL	LC	087100	
1 Door Operator	4642 (Size and Mounting Hardware	AL	LC	087100	⚡

	As Required)				
1 Threshold	8533N X Length Required			NG	
2 Sweep	1015V x Length Required			NG	
2 Electric Power Transfer	EPT10	SP28	VD	087100	⚡
1 Card Reader	By Security Supplier				
2 Actuator Switch	8310-856		LC	087100	
2 Position Switch	DPS2 - M / W-BK			087100	⚡
1 Power Supply	PS914 (w/Size and Components as Required)		VD	087100	⚡
1 Wiring Diagram	Elevation and Point to Point as Specified		OT		

Notes: Perimeter and meeting stile gasket by door / frame manufacturer.

System Operational Narrative:

- Doors are normally closed and secure.
- During normal hours of operation the exit devices are electronically held allowing the doors to have manual push pull operation or they can be automatically opened by pressing the auto operator actuator switch at the interior or exterior of the opening.
- After normal hours of operation, a valid card read at the exterior will signal the exit device at the active leaf to retract and activate the exterior auto operator actuator for manual or auto operator entry.
- Manual Egress, always free for immediate exit at either door by pushing the exit device push bar. Auto operator egress is always available at the active leaf by pushing the auto operator actuator switch at the interior of the opening, retracting the exit device latch and activating the auto operator.
- Exit devices can be manually dogged with the cylinder in the exit device push bar to allow Push/Pull operation.
- Latch remains projected/locked (fail secure) in event of power loss, unless manually dogged. Key override cylinder for emergency access.

Set: 2.1

Doors: S104-3, S304-1

3 Hinge (Hvy Wgt)	BB1168 (NRP and Size as Required)	US26D	HA	087100	
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100	
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100	
1 Surface Closer	4040XP SCUSH	AL	LC	087100	
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100	
1 Threshold	8533N X Length Required			NG	
1 Gasketing	137NA (Head and Jambs)			NG	
1 Sweep	1015V x Length Required			NG	

Set: 3.0

Doors: S201-1

2 Continuous Hinge	780-110HD (Length as Required)	Clear	HA	087100	
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1 CVR Exit Device (CLRM, CD)	CD 3347A-T 360T(Std)	US26D	VD	087100
1 CVR Exit Device (EO, CD)	CD 3347A-EO	US26D	VD	087100
3 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
3 SFIC Mortised Cylinder	1E (Size and Cam as Required) Less Core	626	BE	087100
2 Door Pull	RM3331-36 Mtg-Type 12XHD	US32D	RO	087100
2 Surface Closer	4040XP SCUSH	AL	LC	087100
1 Threshold	8533N X Length Required		NG	
2 Sweep	1015V x Length Required		NG	
2 Panic Button	LDH100-DM	626	TC	087100

Notes: Weatherstrip and Astragals by Aluminum Door Manufacturer.

Set: 4.0

Doors: 116-1

6 Hinge (Hvy Wgt)	BB1168 (NRP and Size as Required)	US26D	HA	087100
2 SVR Exit Device (CLRM, CD)	CD 9827L LBR 996L(Std)	US26D	VD	087100
4 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
2 SFIC Rim Cylinder	12E (Size and Tail as Required) Less Core	626	BE	087100
2 SFIC Mortised Cylinder	1E (Size and Cam as Required) Less Core	626	BE	087100
2 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
2 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
2 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Threshold	512		NG	
1 Gasketing	137NA (Head and Jambs)		NG	
2 Door Bottom	229NSS x Length Required		NG	
1 Astragal	9115A(SET) x Length Required		NG	
2 Panic Button	LDH100-DM	626	TC	087100

Set: 5.0

Doors: 101-2, S302-1, S303-1

6 Hinge (Hvy Wgt)	BB1168 (NRP and Size as Required)	US26D	HA	087100
2 Fire Rated SVR Exit Device (CLRM)	9827L-F LBR 996L(Std)	US26D	VD	087100
2 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
2 SFIC Rim Cylinder	12E (Size and Tail as Required)	626	BE	087100

	Less Core			
2 Surface Closer	4040XP SCUSH	AL	LC	087100
2 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Gasketing	5050C (Head and Jambs)		NG	
1 Astragal	5070CL		NG	

Set: 6.0

Doors: 116-2

6 Cam Lift Hinges	Cam Lift Hinges - As Recommended by Sound Door and Frame Supplier		OT	
2 SVR Exit Device (CLRM, CD)	CD 9827L LBR 996L(Std)	US26D	VD	087100
4 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
2 SFIC Rim Cylinder	12E (Size and Tail as Required) Less Core	626	BE	087100
1 SFIC Mortised Cylinder	1E (Size and Cam as Required) Less Core	626	BE	087100
2 Surface Closer	4040XP SCUSH	AL	LC	087100
2 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Threshold	512		NG	
1 Sound Seals	Sound Seals as Recommended or Provided by Sound Door and Frame Supplier		OT	
2 Panic Button	LDH100-DM	626	TC	087100

Set: 7.0

Doors: 117-1

3 Hinge (Hvy Wgt)	BB1168 (NRP and Size as Required)	US26D	HA	087100
1 Rim Exit Device (CLRM, CD)	CD 98L 996L(Std)	US26D	VD	087100
2 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 SFIC Rim Cylinder	12E (Size and Tail as Required) Less Core	626	BE	087100
1 SFIC Mortised Cylinder	1E (Size and Cam as Required) Less Core	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Threshold	512		NG	
1 Gasketing	137NA (Head and Jambs)		NG	
1 Door Bottom	229NSS x Length Required		NG	
1 Panic Button	LDH100-DM	626	TC	087100

Set: 8.0

Doors: S100-1, S101-1, S102-1, S103-1, S300-1

3 Hinge (Hvy Wgt)	BB1168 (NRP and Size as Required)	US26D	HA	087100
1 Fire Rated Rim Exit (CLRM)	98L-F 996L(Std)	US26D	VD	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 SFIC Rim Cylinder	12E (Size and Tail as Required) Less Core	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Gasketing	5050C (Head and Jambs)		NG	

Set: 9.0

Doors: 126A-1

3 Hinge (Hvy Wgt)	BB1168 (NRP and Size as Required)	US26D	HA	087100
1 Fire Rated Rim Exit (CLRM)	98L-F 996L(Std)	US26D	VD	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 SFIC Rim Cylinder	12E (Size and Tail as Required) Less Core	626	BE	087100
1 Surface Closer	4040XP SCUSH	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Gasketing	5050C (Head and Jambs)		NG	

Set: 10.0

Doors: 011-1, 011-2, 117-2, 118-2, 205-1, 205-2

4 Cam Lift Hinges	Cam Lift Hinges - As Recommended by Sound Door and Frame Supplier		OT	
1 Rim Exit Device (CLRM, CD)	CD 98L 996L(Std)	US26D	VD	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Threshold	512		NG	
1 Sound Seals	Sound Seals as Recommended or Provided by Sound Door and Frame Supplier		OT	

1 Panic Button	LDH100-DM	626	TC	087100
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Set: 11.0

Doors: 011C-1

6 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Dust Proof Strike	570	US26D	RO	087100
2 Flush Bolt	555 / 557 (As Required)	US26D	RO	087100
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
2 Surf Overhead Stop	10-X36	630	RF	087100
2 Silencer	608		RO	087100

Set: 12.0

Doors: 126-1

6 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Self Latching Flush Bolt Set	2845 / 2945 (As Required)	US26D	RO	087100
1 Dust Proof Strike	570	US26D	RO	087100
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Coordinator	2600 Series x Wear Plates	Black	RO	087100
2 Mounting Bracket	2601AB / C (type as req)	Black	RO	087100
2 Surface Closer	4040XP SCUSH	AL	LC	087100
2 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Gasketing	5050C (Head and Jambs)		NG	
1 Astragal	5070CL		NG	

Set: 13.0

Doors: 202-1, 302-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Silencer	608		RO	087100

Set: 14.0

Doors: 101A-1, 114-2, 135-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100

1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surf Overhead Stop	10-X36	630	RF	087100
3 Silencer	608		RO	087100

Set: 15.0

Doors: 001-1, 002-1, 010-2, 114-1, 125-1, 134-5, 135-2, 135-3, S104-2, S303-2

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
3 Silencer	608		RO	087100

Set: 16.0

Doors: 007-1, 009-1, 013-1, 101-4, 211-1, 301-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP SCUSH	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
3 Silencer	608		RO	087100

Set: 17.0

Doors: 115-1

3 Cam Lift Hinges	Cam Lift Hinges - As Recommended by Sound Door and Frame Supplier		OT	
1 Storeroom Lock	9K37D 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Threshold	512		NG	
1 Sound Seals	Sound Seals as Recommended or Provided by Sound Door and Frame Supplier		OT	

Set: 18.0

Doors: 333-1

6 Cam Lift Hinges	Cam Lift Hinges - As Recommended by Sound Door and Frame Supplier		OT	
1 Self Latching Flush Bolt Set	2845 / 2945 (As Required)	US26D	RO	087100
1 Dust Proof Strike	570	US26D	RO	087100
1 Entrance Lock	9K37AB 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Coordinator	2600 Series x Wear Plates	Black	RO	087100
2 Mounting Bracket	2601AB / C (type as req)	Black	RO	087100
2 Surface Closer	CLP7500	689	NO	087100
2 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Gasketing	5050C (Head and Jambs)		NG	
1 Astragal	S771C x Door Height		PE	087100

Set: 19.0

Doors: 011A-1, 103-1, 104-1, 105-1, 106-1, 110-1, 111-1, 112-1, 123-1, 224-1, 303-1, 305-1, 307-1, 310-1, 312-1, 321-1, 328-1, 330-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Entrance Lock	9K37AB 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Silencer	608		RO	087100

Set: 20.0

Doors: 005-1, 006-1, 133-1, 304-1, 315-1, 331-1, 332-1, 334-1, 335-1, 337-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Entrance Lock	9K37AB 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Silencer	608		RO	087100

Set: 21.0

Doors: 006-2, 108-1, 311-1, 324-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Entrance Lock	9K37AB 15D Less Core	626	BE	087100

1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP SCUSH	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
3 Silencer	608		RO	087100

Set: 22.0

Doors: 121-1, 122-1, 313-1, 318-1, 319-1, 322-1, 325-1, 326-1, 327-1, 333-2, 333-3, 336-1

3 Cam Lift Hinges	Cam Lift Hinges - As Recommended by Sound Door and Frame Supplier		OT	
1 Entrance Lock	9K37AB 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Threshold	512		NG	
1 Sound Seals	Sound Seals as Recommended or Provided by Sound Door and Frame Supplier		OT	

Set: 23.0

Doors: 014-1, 118-1, 212-1, 213-1, 217-1, 222-1, 222-2

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Classroom Lock	9K37R 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Silencer	608		RO	087100

Set: 24.0

Doors: 011B-1, 016-1, 124-1, 207-1, 218-1, 223-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Classroom Lock	9K37R 15D Less Core	626	BE	087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE	087100
1 Surface Closer	4040XP SCUSH	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100

3 Silencer 608 RO 087100

Set: 25.0

Doors: 114-3, 203-1, 216-1

3 Cam Lift Hinges	Cam Lift Hinges - As Recommended by Sound Door and Frame Supplier		OT
1 Classroom Lock	9K37R 15D Less Core	626	BE 087100
1 SFIC Core	7 Pin (Provided by Owner)	626	BE 087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC 087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO 087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO 087100
1 Threshold	512		NG
1 Sound Seals	Sound Seals as Recommended or Provided by Sound Door and Frame Supplier		OT

Set: 26.0

Doors: 016A-1, 221-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA 087100
1 Privacy Lock	9K30L 15D	626	BE 087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO 087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO 087100
1 Silencer	608		RO 087100
1 Coat Hook	RM801	US26D	RO 087100

Set: 27.0

Doors: 016B-1, 016C-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA 087100
1 Privacy Lock	9K30L 15D	626	BE 087100
1 Surf Overhead Stop	10-X36	630	RF 087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO 087100
1 Silencer	608		RO 087100
1 Coat Hook	RM801	US26D	RO 087100

Set: 28.0

Doors: 102-1

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Privacy Lock	9K30L 15D	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
3 Silencer	608		RO	087100
1 Coat Hook	RM801	US26D	RO	087100

Set: 29.0

Doors: 012C-1, 213-2, 216-2, 314-1, 331-2

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Passage Latch	9K30N 15D	626	BE	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
3 Silencer	608		RO	087100

Set: 30.0

Doors: 217-2, 308A-1, 332-2

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Passage Latch	9K30N 15D	626	BE	087100
1 Surf Overhead Stop	10-X36	630	RF	087100
3 Silencer	608		RO	087100

Set: 31.0

Doors: 308-1, 308-2

3 Hinge	BB1191 (NRP and Size as Required)	US26D	HA	087100
1 Passage Latch	9K30N 15D	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
3 Silencer	608		RO	087100

Set: 32.0

Doors: 336-2

3 Cam Lift Hinges	Cam Lift Hinges - As Recommended by Sound Door and Frame Supplier	OT
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1 Passage Latch	9K30N 15D	626	BE	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Threshold	512		NG	
1 Sound Seals	Sound Seals as Recommended or Provided by Sound Door and Frame Supplier		OT	

Set: 33.0

Doors: 017-1, 018-1, 130-1, 131-1, 204-1, 215-1, 306-1, 329-1

1 Hinge (Hvy Wgt)	BB1168 (NRP and Size as Required)	US26D	HA	087100
1 Push Plate	70C-RKW	US32D	RO	087100
1 Pull	RM301 Mtg-Type 12XHD	US32D	RO	087100
1 Surface Closer	4040XP Rw/PA (RA or P/A Arm as Required)	AL	LC	087100
1 Kick Plate	K1050 10" high BEV CSK	US32D	RO	087100
1 Wall Stop	403 (or) 441CU (As Required)	US26D	RO	087100
1 Silencer	608		RO	087100

Set: 34.0

Doors: 133-2, S103-2

1	All Hardware Provided By Door Supplier
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END OF SECTION 080671

SECTION 26 55 61 – THEATRICAL LIGHTING AND CONTROLS

PART 1. GENERAL

1.01 GENERAL CONDITIONS

- A. Refer to Bid forms, Division 1 General Conditions and Division 265561. It is called to the Electrical Contractor's attention that the work of this section includes all requirements listed therein.
- B. The systems: complete functioning apparatus consistent with the current state of the art of theatrical practice and including all components necessary for the operational functions specified, whether or not each separate device is specifically mentioned.
- C. Furnish all required control wiring. All components necessary to make the system a working Network shall be included in the bid. Actual length of network cabling and system layout shall be refined during the project submittal process.
- D. Attention is called to the requirement to protect control electronics and dimmer outputs from momentary voltage changes that may be caused by clock systems.
- E. Products utilized in the bid must conform to the functionality, quantity, and quality of all requirements of the design-basis specifications and drawings including the contract documents.
- F. The services of systems integration firm's responsibilities are specified herein.
- G. The Theatrical Lighting Systems Integrator shall coordinate the installation of complete Specialty Lighting Systems and other equipment as described herein and shown on the Theatrical drawings
- H. The Electrical Contractor and the Theatrical Lighting Systems Integrator shall refer to this specification and the drawings to confirm each entity's exact scope of work. Inform the Electrical Engineer and the ISU Technical staff prior to the completion of scope clarification of any conflicts or unresolved scope issues in order that they may determine appropriate responsibilities and document this decision.
- I. Equipment manufacturers authorized system integrator shall test installed system, instruct Owner's designated personnel in operation of the system, and assist the ISU Theater staff and Electrical Engineer in Programming the network and theatrical lighting controls.

1.02 CLASSES OF MATERIALS AND INSTALLATIONS SPECIALTY LIGHTING, DIMMING, CONTROL SYSTEM

- A. Provide all labor, materials, and equipment for the complete installation of specialty lighting, dimming and control systems as shown on the drawings and specified herein.
- B. Refer to drawings for dimensions and locations. Check and verify dimensions and details on drawings before proceeding with the Work. Report any discrepancy at once to Engineer. Should it appear the work intended to be described, or any of the matters relative thereto, are not sufficiently detailed or explained on the drawings or in the specifications, apply to the Engineer for further drawings for explanations, as may be necessary. Conform to these explanations in the work. If any question arises about the true meaning of the drawings or specifications, refer the matter to the Electrical Engineer whose decision is final and conclusive. In no case submit a bid, or proceed on any work with uncertainty. The intention of this specification and the accompanying

applicable drawings are to provide a job complete in every respect. Electrical Contractor is responsible for this result.

1.03 SUMMARY

- A. Provide labor, materials and equipment necessary for the complete installation of the theatrical lighting equipment and control systems.
- B. Base Bid work under this section includes, but is not limited to the following demolition & installation of the following components:
 - 1. Existing: Remove
 - a. Remove existing Strand Dimmer Rack, Dimmer Module & Control Modules.
 - b. Remove existing Theatrical Control Console & all associated accessories and store for reuse.
 - c. Remove all existing theatrical wiring devices and associated conduit and wiring.
 - 2. New: Provide and install complete
 - a. New dimmer racks with:
 - 1) ETC Sensor Dimmer Rack
 - 2) Thru-power modules which can operate as relays and dimmers as required
 - 3) CEM3 Control module with QR attributes.
 - b. New Centralized Architectural Control & Network Control Rack
 - 1) Architectural Processor
 - 2) Station Power Module
 - 3) 24 port patch and associated networking devices.
 - 4) DMX gateways
 - c. Architectural Control Stations
 - d. Theatrical Control Stations
 - e. Network Receptacles
 - f. DMX Receptacles
 - g. Emergency DMX control
 - h. New LED DMX 0-100% house lights
 - i. New Running Lights
 - j. New Safety Lights
 - k. New Stage Work Lights

1.04 INTENT

- A. It is the intent of the contract requirements to provide a complete specialty dimming, lighting control package as described herein including delivery and installation. The Electrical Contractor is responsible for complete Lighting Control system. The Theatrical Lighting Systems Integrator is responsible to coordinate with and assist the Electrical Contractor to properly execute the work of this section.
- B. These systems shall consist of the components and functions as described herein: shop drawings, as-built drawings, installation, and engineering supervision for checkout of installation, operation/maintenance manuals, and on-site operation instructions to local personnel. The systems shall be a complete functioning apparatus consistent with the current state of the practice of theatrical lighting including all components necessary for the operational functions described

whether or not each separate device is specifically mentioned. Provide and install any and all conduit and wire as required for a complete working system.

- C. Electrical Contractor and Theatrical Lighting Systems Integrator shall coordinate this work with all and other trades.

1.05 COORDINATION

- A. Clearly indicate the work to be performed by other trade Contractors, and the materials which are adjacent or abutting the work of this Section. Coordinate as required, especially with concrete, drywall, ceiling and painting contractors to insure a finished and acceptable installation to the owner.
- B. Fixture plug-in locations as indicated on the electrical drawings are generalized and approximate, carefully verify locations with specifications, Electrical Engineer's plans, and other reference data prior to installation.
- C. Give ample notice of any special openings or rough-in required for placing equipment on the site in order to avoid cutting of completed work.
- D. Furnish the materials and labor for work included under this Section in ample time; and in sufficient quantities so that all of the work may be installed in proper sequence to avoid unnecessary cutting of walls.
- E. Coordinate and Schedule the work of this Section with the work of other Sections, utility companies and the telephone company so that there shall be no delay in the proper installation and completion of any part of each respective work. Construction work shall proceed in its natural sequence without unnecessary delay caused by the work of this section.
- F. Where work of this Section is to be flush or concealed, install it to assure that it does not project beyond the finished lines of ceilings or walls except as noted.
- G. Although the location of equipment included in the work of this Section may be shown on The Contract Drawings in a certain place. Actual construction may disclose that the location for the work does not make its position easily and quickly accessible. In such cases, call the Engineer's attention to this situation before installing this Work, and comply with his Installation instructions.
- H. Verify item conditions and furnish appropriate mounting details for each fixture. All mounting details shall be approved by Electrical Engineer and Theatrical Lighting Systems Integrator.

1.06 QUALITY ASSURANCES

- A. A Theatrical Lighting Systems Integrator shall be included by each bidder with its team. Each Theatrical Lighting Systems Integrator will be required to demonstrate their understanding of the project scope, their capability to coordinate and execute their portion of the work, and their ability to respond to warranty and ongoing service calls as specified herein.
- B. Statement of Application: The Electrical Contractor, by commencing the work of this section assumes overall responsibility, as part of the warranty for the work, to assure that assemblies,

components and parts shown or required within the work of this section, comply with the Contract Documents.

1.07 STANDARDS

- A. All applicable requirements of Division 1, and all other sections of Division 26 govern all work in this Section. I
- B. NFPA 70 national Electrical Code 2012.
- C. All equipment provided for this project shall be UL listed where applicable standards have been established. Proof of UL listing shall be required prior to award of contracts.
- D. All Equipment: shall be the products of one manufacturer or supplier; complete with all required apparatus, devices, controls, lamps, accessories, etc., except as specifically noted herein. In the case of power control devices including emergency lighting equipment, dimmer racks, relay panels, power bays, and related components, these products must be the product of one manufacturer.
- E. System apparatus, conduit and wiring shown on drawings are for estimating purposes only. Actual work will depend on furnished product's manufacturer's standards. It is the Submitting Electrical Contractor's responsibility to ascertain the Manufacturer's requirements and shall be sized and located in conformity with minimum acceptable standards as Set forth in the Machinery's Handbook and all revisions to date.
- F. All moving parts shall have acceptable tolerances, mountings, connections, and accessories coordinated into the system in a manner approved by the Owner and Electrical Engineer. No wood construction or equipment shall be incorporated into the system excepting as may be set Forth in the specifications.
- G. All electrical and electronic parts and components: selected and installed shall be consistent with good practice and conservatively rated in their use in the circuit design. Each piece of equipment shall meet accepted basic engineering standards.

1.08 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Dimming Systems and their component elements shall be delivered to this job site factory assembled and wired to the greatest extent practical, in strict accordance with the approved shop drawings, samples, certificates, and shall be handled in a careful manner to avoid damage.
- B. Exposed finishes shall be protected during manufacture, transport, storage and handling. Materials that become damaged shall be repaired and/or replaced as directed at no cost to the owner.
- C. Equipment shall be stored under cover, above the ground, in clean, dry areas, and shall be tagged and/or marked as to type and location.
- D. Delivered equipment shall include wiring, sockets, ballasts, shielding, channels, lenses, lamps and other parts necessary for fixture installation of each fixture type.
- E. Contractor must schedule delivery of equipment to the site within the Contract approved schedule of installation.

1.09 FIELD ENGINEERING SERVICES

- A. Manufacturer's Representative shall furnish engineering assistance as needed during delivery and installation to assist contractor. A qualified Field Engineer shall check the installation prior to initial energizing of the system. The field engineer shall supervise initial turn-on and shall make or cooperate with the installing contractor in making any required adjustments or trimming of components to enable the system to function as specified.
- B. The Field Engineer shall be factory certified and be fully experienced in the programming requirements of all the Electrical controllers.
- C. As a portion of the final inspection, the Factory Field Engineer will demonstrate the systems in the presence of the Owner and/or Electrical Engineer. He or she shall provide instructions in the use and maintenance of the system.
- D. The Theatrical Lighting Systems Integrator and the Field Engineer shall provide instruction in system operation and maintenance: a minimum two (2) hour period shall be provided for maintenance training. A minimum of two eight (8) hour period shall be provided for the lighting control system training. Training shall be offered at the Convenience of the Owner's schedule in the presence of the Electrical Engineer.

1.10 INSPECTIONS

- A. The Electrical Contractor shall arrange for the Theatrical Lighting Systems Integrator to attend a minimum of two (2) coordination meetings during the construction.
 - 1. Pre-installation conference prior to the installation of major conduit rough-ins and dimmer rack placement.
 - 2. Post rough-in conference after conduit has been roughed in and dimmer racks have been installed but before major load and control wiring is pulled and/or dimmer rack terminations have begun.
- B. Attendance by the Theatrical Lighting Systems Integrator at any preliminary conference and or inspection shall not be construed as eliminating the possible rejection of various components during the final inspection.
- C. The final inspection shall be by the Electrical Engineer. Completion of all items and acceptance of the lighting control system as substantially complete shall be required prior to the instruction of the Owner's representatives/users.
- D. If inspection reveals any detail of construction, fabrication, or installation not in strict accord with the specification or the contract requirements; approval and payment will be withheld in accordance with the General Conditions. The cost for additional inspections required for the approval of the Theatrical Lighting System shall be borne by parties show to be responsible for failure to comply with Plans, Specifications and Bid Documents.

1.11 TESTING

- A. Standard factory testing by the manufacturer shall be performed and typewritten copies submitted to the Owner for record purposes.
- B. The manufacturer shall provide for final adjustments for systems. These adjustments shall accomplish at least the following:
 - 1. Provide smooth, continuous light level control from zero percent light output through full light output for both increasing and decreasing light levels.
 - 2. Limit dimmer output voltage to all incandescent circuits to between 90 and 95 percent of the rated lamp voltage or as directed by the owner.
 - 3. Eliminate all radio frequency interference.
- C. During testing and adjustment of the systems it will be necessary to rearrange portable fixtures from circuit to circuit in order to test each dimmer for compliance with operating requirements. The Electrical Contractor shall provide labor for testing as directed.
- D. The manufacturer shall provide labor to assist the Electrical Engineer with field configuration of system software during final adjustments and inspection of installation.

1.12 SPECIALTY LIGHTING CLOSEOUT SERVICES

- A. The Theatrical Lighting Systems Integrator shall provide an allowance for initial programming with the school staff.
- B. The Theatrical Lighting Systems Integrator shall provide an allowance of eight (8) hours minimum for initial programming of the Architectural system with the school staff in addition to the manufacturers turn-on and programming time.
- C. The cost of programming, focus, and instruction shall be part of The Theatrical Lighting Systems Integrator's price to the Electrical Contractor for this project.

1.13 UNDERWRITERS LABORATORIES

- A. All equipment and components shall be approved and Listed by UL where applicable standards have been established. This approval applies specifically but is not limited to Dimmer Racks, Dimmer Modules, Breaker Panels and Wiring Devices.
- B. All equipment: manufactured and tested in accordance with the applicable portions of the latest editions of UL, ETL, NEMA, ASA, AIEE
- C. USITT, ESTA, PASA, and IPECA standards.

1.14 PAINTING

- A. All consoles, racks, panels, and other metal parts are to be provided with the manufacturer's standard powder coat over an approved primer, except as specified otherwise.

1.15 ACCESSORIES

- A. All loose accessories shall be delivered to the owner and installed or stored as directed.

1.16 WARRANTY

- A. All systems, including all parts and labor, shall be under warranty for a period of not less than two (2) years from the date of written final acceptance. Manufacturers of products provided by 26 55

61 must provide standard warranties which run directly to the Owner. Manufacturers standard warranties provided under this section must allow for repair or replacement of defects in materials or workmanship under the warranty period. In the event that any of the equipment should fail to produce capacities or meet design characteristics as specified, it shall be replaced with equipment that will meet requirements without additional cost. After occupancy, any necessary work performed shall be done at the convenience of the Owner's operational schedule, including overtime, if required. Acceptable Manufacturer's Standard Warranties on power control, architectural control, and emergency power and control equipment shall not disclaim or attempt to disclaim implied warranties available under Title 26, Article 1 of the Indiana Code. Bids which do not comply or which include products which do not comply with this section shall be construed as unresponsive and rejected by Owner. Warranties and other terms and conditions provided by manufacturers must conform with all other sections of the specifications including Section 00 21 13, 1.14.

1.17 MAINTENANCE SERVICES

- A. The Theatrical Lighting Systems Integrator shall maintain a theatrical lighting control systems service center with a minimum of one (1) factory-trained full-time factory trained and authorized service technician. The service center shall be located within 125 miles of Indianapolis, IN. The service center and the named technician shall have been authorized in writing by the Specialty Dimming Systems Manufacturer to perform all necessary maintenance, repairs and upgrades to both the equipment and its embedded accessible software. Provide proof of factory authorization prior to award of contract for this project. In addition, the Manufacturer shall maintain a 24-hour service hotline and shall provide certification of its existence.
- B. The Theatrical Lighting Systems Integrator, as part of the system requirements, shall provide equipment and services necessary to passively monitor all connected network and RDM equipment and devices. This monitoring shall include the use of syslog, UDP messages, eDMX protocols, sACN, ArtNet, or similar, RDM messages or sensor data from RDM devices. Such equipment and/or services shall send email and SMS alerts to Owner and the local Factory trained technician from a secure, centralized cloud-based system. Owner shall be contacted within 12 hours of a system error or failure by a factory trained technician. Duration of this service shall be provided for no less than three (3) years after the date of system commissioning and owner acceptance. Additional monitoring shall be available for purchase on a yearly basis.

1.18 SUBMITTALS

- A. Manufacturer shall provide seven (7) sets of full system submittals. Submittals shall include:
 - 1. Full system riser diagrams illustrating interconnection of system components, wiring requirements, back box sizes and any special installation considerations.
 - 2. Full set of printed technical data sheets.
 - 3. Detailed set of dimmer schedules.
 - 4. Detailed set of circuit and control schedules, including a complete list of all deviations from specifications.
 - 5. A complete Bill of Materials listing all equipment including Manufacture, Model Number and Capacities.
 - 6. The Bill of Materials shall also include a detailed list of all associated accessories and services to be provided per the published plans and specifications.
 - 7. The Bill of Materials shall also include complete detailed set of circuit and control schedules, including a complete list of all deviations from specifications.

- B. Manufacturer shall provide any additional information, including equipment demonstrations, as required by the engineer and owner to verify compliance with specifications prior to the award of this project.

1.19 ACCEPTABLE MANUFACTURERS

- A. Electronic Theatre Controls is the basis of design and shall be included in the Electrical Contractor bid. This Manufacture shall be one who has been continuously engaged in the manufacture of lighting control equipment for a minimum of ten years. All dimmer and cabinet fabrication must take place in a U.S. manufacturing plant.
- B. All equipment shall be built to the standards of Underwriters Laboratories, Inc., the National Electric Code and the United States Institute for Theater Technology. Permanently installed power distribution equipment such as dimmer racks and distribution shall be UL Listed, and bear the appropriate labels
- C. Other than as specified above, manufacturers are generally acceptable so long as the products utilized are of like quality and quantity and meet or exceed all physical, electrical, and functional requirements contained within the specifications and drawings. All bidders must provide a complete working system which meets the functional, contractual, and performance requirements of these specifications. It is the responsibility of the Electrical Contractor to verify that all products conform to this requirement. Products which are determined by the Owner to be non-conforming to the specifications shall be grounds for rendering a bid unresponsive. If there is any doubt about a product's acceptability, the Electrical Contractor should contact the theatre consultant no later than ten (10) days prior to the bid date.

1.20 ACCEPTABLE SYSTEM INTEGRATORS

- A. Approved Theatrical Lighting Systems Integrator shall be ones that maintain full time factory approved field service technicians:
- B. Indianapolis Stage, Indianapolis IN

Scenic Solutions, Dayton OH

Vincent Lighting Systems, Erlanger KY

PART 2. PRODUCTS

2.01 LIGHTING SYSTEM AND ACCESSORIES

A. General

1. The lighting control desk shall be a microprocessor-based system specifically designed to provide complete control of stage, studio, and entertainment lighting systems. The device shall be the Gio as manufactured by Electronic Theatre Controls, Inc., or equal.
2. The system shall provide control either 4,096 or 24,576 outputs on a maximum of 32,768 control channels, patched across any number up to 99,999. Systems that require external co-processing to control 24,576 outputs shall not be acceptable. Output shall be distributed over a 10/100 MB Ethernet network using Net3/ACN, ETCNet 2, Avab and/or ArtNet (multi-cast) protocols. The user shall be able to control the application of protocols at an individual address level.
3. The system shall support full bi-directional RDM communication with compatible devices via Net3 DMX/RDM Gateways. RDM communication shall adhere to ANSI standard E1.20-2006 Entertainment Technology – RDM – Remote Device Management over DMX512 Networks. Supported RDM features shall include:
 - a. Discovery and Identification of RDM capable devices
 - b. Setting of start addresses, operating modes and additional settings as exposed by connected devices and controllable via RDM
 - c. Viewing of Sensor data as provided by connected devices
 - d. Error reporting as provided by connected devices
4. A maximum of 10,000 cues, 999 cue lists, 1000 groups, 1000 presets, 4 x 1000 palettes (Intensity, Focus, Color and Beam), 99,999 macros, 1000 effects, 1000 curves, 1000 color paths and 1000 snapshots may be contained in non-volatile electronic memory and stored to an onboard solid-state hard drive or to any USB storage device.
5. Recorded cue lists may be played back simultaneously on a maximum of 200 faders. Channels shall, by default, respond to cue information by last instruction, with discrete rate control provided for all cues. The console may be placed in Tracking or Cue Only mode by the user as a system default and overridden on individual record actions as required. HTP/LTP intensity flags, assert, proportional, intensity master or manual master fade control and priority status may be placed on each cue list. It shall also be possible for a cue list to contribute to playback background states or to withhold such contributions.
6. A Master Playback fader pair shall be provided. The 100 mm motorized fader pair may execute move fades, state fades or all fades, with IFCB cue level timing,
7. Ten 100mm motorized faders shall be user configurable across 100 pages and provide additional playback faders (up to 200), additive, inhibitive or effect submasters (up to 999), and one grand master. Presets and IFCB palettes may be loaded to faders for playback control, either individually or in user-defined lists. Virtual fader control is also provided.

8. The system shall have two 12.1 inch integral articulating multi-touch displays. Content posted to these displays shall be user definable. Displays shall support multiple interpreted simultaneous touches.
9. A high-resolution level wheel shall be provided to control intensity for selected channels and scrolling/zooming of selected displays. Four page-able high-resolution encoders shall be provided for control of non-intensity parameters. Non-intensity encoders may be operated in coarse or fine mode, with the amount of movement per revolution of the encoders in coarse mode definable by the user. Tactile feedback for full frame (color or image) operations shall be provided. The expand function for frame table devices shall provide a graphic representation of all images and colors in the associated device for instant selection. The display shall also provide an indication of the current value for the associated parameter, based on channel selection. A high-resolution rate wheel, which may also be used for fader paging, is provided.
10. Control surface buttons shall be backlit. The backlighting shall provide indication of functional states. Backlight intensity shall be user configurable and shall automatically dim after a defined period of inactivity.
11. Control and programming features for automated fixtures shall also include: a standard library of fixture profiles, the ability to copy and edit existing profiles and create new profiles, patch displays including channel and output addressing, 16-bit fade resolution, color characterization allowing color mixing and matching to color media data.
12. System information, including playback status, live output and blind values for all record targets shall be displayed on a maximum of three external high resolution Display Port monitors, which may also be multi/touch-screens. All displays may also be routed to the two integral touch screens.
13. A context sensitive on-line Help feature shall explain and provide an example of the operation of each feature of the system. The help system shall be integrated into the on-board user manual via hyperlinks.
14. A fully integrated Virtual Media Server feature shall allow the user to map images and animations to a rig array. 40 such maps may be created, each with 12 layers. Systems that rely on external hardware or software for this functionality shall not be acceptable.
15. User-definable, interactive displays may be created. These displays, which can be used in live and blind operating modes, allow graphical layout of channels, desk buttons and programming tools. Standard symbols are provided, and the user may import their own symbols or graphics. Each symbol may be individually defined with data feedback characteristics. Non-interactive status information, such as a mirror of other user's command lines, may also be included in the display. A graphical browser is provided for fast selection of these views. Multiple zoom factors and placements may be stored and recalled for each display
16. A full-function external backlit alphanumeric keyboard shall be provided. The keyboard shall allow labeling of all show content. The central touch screen shall also repaint to access a virtual alphanumeric keyboard.

17. Software upgrades shall be made by the user via USB flash drive. It shall be possible to install software updates in all desks, processor units and remotes from one device over the network.
18. The operating software shall be loaded into program execution memory from the internal solid-state hard drive when the console is powered. In the event of an uncontrolled shutdown, the device shall return to its last output state when power is restored. Devices requiring a UPS to provide such protections shall not be acceptable.
19. Dimmer monitoring and configuration features shall be provided (in conjunction with ETC's Sensor+, Sensor 3 or FDX dimming systems) to allow indication of dimming system status, dimmer load monitoring and show specific configurations. Communications with the dimming system shall utilize ANSI E1.17 2006 - Entertainment Technology - Architecture for Control Networks.
20. Show data may be created and modified on a personal computer, using either Windows 7 or higher operating systems, with a free offline editing application. The offline editor may also run natively on Intel-based Macintosh platforms using OS 10.11 (El Capitan) or later. The program shall also allow output to visualization software supporting the same protocols as the lighting system.
21. PC using Windows 7 or higher or an Intel-based Macintosh computer using OS 10.11 or later running a client software application shall be able to connect to a control system via the network and view or modify current show data in an independent display environment, using an ETCnomad key. When connected without the key, the computer shall operate in Mirror Mode, with the device to be mirrored selectable by the user. Systems that do not provide client software that may run natively on the Apple platform in this environment shall not be acceptable.
22. Synchronized backup shall be provided via another full desk on the network, a remote processor unit or a PC/Mac using ETCnomad. The backup unit shall maintain synchronized playback with the master and shall take over control of the lighting system upon loss of communication with the master, either automatically or upon user confirmation. Use of two RPUs to service and backup system output is also supported.
23. A maximum of 99 users may access and interact with show data simultaneously. Each user shall have an individual workspace. User identification may be assigned to more than one control device, allowing users to work in tandem, or allowing a designer/ALD to mirror the current display format, mode and command line of the associated programmer. Partitioned control allows discrete control of channel/parameter groupings by user. Partitioned control may be easily enabled and disabled with no need to merge show data from multiple users.
24. Show files are saved across the system to all available integral hard drives simultaneously.
25. The system shall support up to 32 individual simultaneous Time Code inputs or Event lists using Show Control Gateways.
26. Systems that do not provide the above capabilities shall not be acceptable.

B. Controls and Playback

1. Manual Control and Programming Section

- a. The programming keyboard shall be grouped by function. Major groupings shall be record target functions, numeric keys, level assignment functions, display navigation functions and controls, as well as non-intensity parameter controls.
- b. The command keypad shall be fully interactive with direct select controls, Magic Sheets and in-cell editing.
- c. Non-intensity parameters may be set numerically via an extensible keypad on the central LCD. This control shall be fully interactive with the page-able encoders. The LCD touch screen associated with the encoders shall display the current encoder function. The touch screen shall also access available modes for each parameter type, min and max values for each parameter as applicable, as well as home position on a parameter basis. Each encoder shall support shift functions for fine control. The range of motion of coarse control may be set by the user. Tactile encoder feedback shall indicate full and half frame positioning of certain controls.
- d. Only those parameters available for control in the active lighting system shall be displayed for control. Displays shall lowlight parameters not available to selected channels. Alternatively, the encoders may be placed in a state allowing parameters not applicable to the current selection to be suppressed.
- e. Lamp controls provide direct access to luminaire functions such as striking and dousing arc lamps and calibrating entire fixtures or individual mechanisms of fixtures, as provided by the luminaire manufacturer. User access to these features is normalized across all manufacturers for ease of use. Use of a "control channel" for accessing these functions shall not be required and systems requiring use of control channels for these functions shall not be acceptable.
- f. Fan functions shall be provided both via command line operation and through encoder controls.
- g. Highlight shall be supported, with user definable highlight values. Lowlight conditions may be defined for selected, but not specified channels. Rem Dim commands, at specific levels by channel, may be optionally and automatically called with the highlight command.
- h. Fixtures with color mixing may be set with direct additive or subtractive encoder controls or the command line, as well as via the color pickers. Six optional color spaces are supported, as well as tinting tools, and spectrum tools for systems with more than three color mixing elements. Color may also be set directly to a gel match via a graphic selection tool or from the command line. The gel picker shall support tools for identifying similar colors, show favorites and graphic indications of gel locations. Color Path tools, allow the user to control the live fade of fixtures through the color space, with intensity dampening.

- i. The Virtual Media Server function shall allow the user to create layouts of devices, identified as pixel maps. Media content (images, movies, text and procedurally generated effects) may then be applied, manipulated and stored. Stock content is provided and the user may import custom imagery and animations.
- j. Macros may be set to run as default. Default macros called manually shall post to the command line, but executed via cue lists shall run in the background. The user may override this behavior by defining the macro to always execute in the foreground or background, regardless of the recall method. Startup, Shutdown and Disconnect macros may also be defined.

2. Playback Section

- a. The playback faders shall consist of a motorized 100mm Master Fader pair with associated Load, Go and Stop/Back buttons and a 10 x 100 page fader array.
- b. Up to 200 playback faders may be defined on the 10 fader x 100 page fader array. Each playback shall have an associated 100mm motorized potentiometer and three control buttons.
- c. Faders may be grouped for playback with slides and button action defined by the user.
- d. It shall be possible to instantaneously halt an active cue, back to the previous cue, manually override the intensity fade or manually override the entire fade.
- e. It shall be possible for a cue list to contribute to the background state or for the contents of each cue list to be withheld from such. Priority and background priority states may be established.
- f. Playback faders shall have the following associated controls:
 - 1) Freeze, which halts the output of the fader
 - 2) Stop Effect, which stops the action of an effect
 - 3) Filter, to assign filter states to a fader
 - 4) Go To Cue 0, to reset a cue list
 - 5) Off, to turn off the contents of a playback, releasing control to the background state or to set to null.
 - 6) Assert, to replay an active cue
 - 7) Release, to release control to the background and reset the cue list.
 - 8) Timing Disable, channel filters and independent status may also be defined.
 - 9) The potentiometer shall be configurable as a proportional master, an intensity master, or manual master. Support for rate, effect rate, effect size and Master Only controls is also provided. Filtered manual timing masters and effects masters may be configured.
 - 10) Rate override and fader paging are supported with a wheel encoder and associated controls.

3. Submasters

- a. Up to 999 proportional, fully overlapping additive, effect or inhibitive submasters may be defined. Submasters shall have colored LEDs to indicate submaster status. Each submaster may have fade up, dwell and down fade times. Each has a bump and assert/channel select button.
- b. Submasters may be set to HTP or LTP intensity. Non-intensity parameters on submasters shall be LPT only.
- c. Exclusive mode for a submaster shall prohibit the live contribution of that submaster from storing to cues or other submasters. Shield mode prohibits access of associated channels from any other playback or manual control operations.
- d. A submaster potentiometer may be defined as proportional or intensity master. When set as intensity master, a mark and unmark feature is supplied. Priority states may be assigned.
- e. Motorized faders shall set submasters to required positions as fader pages are changed.
- f. The submaster blind buffer shall be linked directly to live playback.
- g. It shall be possible to set submaster values directly from the command line.
- h. LTP submasters may be set to fade to background or to minimum value when the fader is returned toward zero.
- i. Submaster values may contribute to the background state or withheld from such.

4. Grand Master Fader

- a. The location of the Grand Master shall be user definable. The grand master shall have associated blackout and blackout enable buttons.
- b. Blackout shall send all associated intensity outputs to zero. Non-intensity outputs shall not be affected.
- c. Motorized faders shall set grand masters to required positions as fader pages are changed.

C. Display Controls

- 1. Format shall change the view of selected displays.
- 2. It shall be possible for the user to choose which parameter categories or parameters (s)he wishes to display.
- 3. Flexichannel modes shall change which channels are viewed in selected displays, as follows:
 - a. No modes
 - b. Masters only/ cells only
 - c. Use Partitions
- 4. Flexichannel states shall change which channels are viewed in selected displays, as follows:
 - a. All channels

- b. Patched channels
 - c. Show channels
 - d. Active/Moved channels
 - e. Selected channels
 - f. Manual Channels
 - g. View channels (user identified list)
 - h. Channels with discrete timing
- 5. Expand shall extend the selected view sequentially across connected displays.
 - 6. [Time] depressed shall display discrete timing data. [Data] suppressed shall display absolute values of referenced data. These controls may be latched.
 - 7. Displays may also be toggled to show stored data currently manually overridden, the source of the current parameter data, output level, patch assignment, part structure and referenced marking data.
 - 8. User definable magic sheets shall provide alternative display of and access to channels and record targets. Multiple magic sheets may be created, each with a variety of zoom and placement factors for rapid recall of the required view.
 - 9. Playback status displays are provided with a variety of different formats. Indications are provided per cue for live moves (lights fading from zero and also moving non-intensity parameters) and dark moves (inactive lights which have stored non-intensity parameter moves). The user may select a static or dynamic time display in the cue list itself.
 - 10. Display content including which of the workspaces is in focus on any of the five monitors and what views are docked in those workspaces may be instantly recalled using snapshots.

D. Operating Modes

- 1. Live Mode
 - a. Channel lists may be constructed using the +, -, and Thru keys as well as the direct selects. Channel selection is fully interactive, regardless of the method used.
 - b. Levels may also be set with the keypad, level wheel and non-intensity encoders. "Selected" channels shall be those last addressed and under keypad control. Controls are provided for single button access to the last selected channel list, all channels with manual levels and all active channels.
 - c. Channels may be set at a user defined default level using the Level key. +% and -% keys adjust channels quickly by user definable values.
 - d. Channels and/or channel parameters may be captured. Capture mode shall allow the user to selectively capture channel data at specific levels. Captured data shall be indicated on the Live display.

- e. Sneak shall be used to restore specified channels to background states, default values, or to send them to specified values, in user specified times.
- f. Selected channels may be set at a level or held to current values while all other channels are set to zero using Rem Dim. Toggling Rem Dim shall restore all unselected channels to original levels. The Rem Dim level shall be user definable via the command line or with a default setup value.
- g. Channels may be recorded into groups for fast recall of commonly used channels. 1000 groups shall be available. Groups shall store selection order and subgrouping functions. The Offset function supports rapid creation of ordered groups, including reverse and random order.
- h. Parameter settings may be stored to Intensity, Focus, Color and Beam Palettes and to Presets. All referenced data may be stored to whole numbers or to up to 99 decimal places between each whole number.
- i. The following conditions may be placed on a channel or channel parameter to be included with a cue record action.
 - 1) Discrete fade time and/or delay
 - 2) Block flag
 - 3) Assert flag
 - 4) IFCB Filters, which may be set at a parameter level.
 - 5) Release and Restore
- j. 999 cue lists may be stored. Cues may be recorded in any order. Up to 99 decimal cues may be inserted between any two whole number cues. Each cue may contain a maximum of twenty parts.
- k. It shall be possible to record cues and cue parts with the following information:
 - 1) Any collection of channel data, as determined by the use of "Record", "Record Only" or selective store commands, combined with parameter filters.
 - 2) Cue Level timing and delays for Intensity Up, Intensity Down, Focus, Color and Beam.
 - 3) Follow or hang time
 - 4) Link instruction
 - 5) Loop value
 - 6) Block, Assert, Preheat, and/or Mark Flag
 - 7) Curve
 - 8) Allfade
 - 9) Label and note
 - 10) Execute list to trigger other activity (execute cue lists, cues, macros and snapshots). Cue list partitions shall be available to curate list content.

- I. Non-intensity channel parameters may be marked (preset), in two ways. Automark presets any parameters transitions in the cue just prior to intensity becoming active. Automark may be disabled on a cue or cue part basis, enabling a "live" move. Alternatively, non-intensity parameters may be marked to a specific cue with a single command instruction. It shall not be necessary to store these parameters directly into the cue in which the movement is to occur.
 - m. Any channel parameter may be stored with an effect instruction. These effects may contain relative offsets from current value, or absolute instructions. Effects may be progressive action or on/off states. Entry and exit behaviors shall modify the channel parameters activity when beginning and ending the effect.
 - n. Update may be used to selectively add modified parameter data quickly to that parameter's current source. Trace may be used to modify the data to the original source of its move instruction. It shall be possible to update inactive record targets. A context sensitive display provides detailed information regarding the results of the update command.
 - o. Recall From quickly pulls specified data from record targets or other channels into the current view. Recall on an HTP basis shall be provided.
 - p. Copy To quickly copies selected data to specified channels or other record targets.
 - q. Address and channel check functions shall be provided.
 - r. Channel parameters may be "parked" at levels. Those levels are not added to any live record operations, nor may they be changed until the parked element is "unparked". Scaled park provides real time proportional adjustment of stored intensity values. Address Park shall also be provided.
 - s. About shall provide detailed status of selected channels or specified record targets. This shall include current source, current value, discrete timing, parked value, marked to and for indications. Background levels and current DMX output are also displayed. Channel usage indicates submaster and cue information and also provides a "dark moves" report on a per channel basis.
 - t. 1000 snapshots may be stored which instantly recall specified front panel and display configurations.
 - u. Live data may be displayed in a summary view, a detailed table orientation or a user-defined magic sheet.
 - v. Query shall allow selection of channels by their current or possible state. Keywords and fixture types shall allow quick access to fixtures.
 - w. User definable home positions may be defined on a per- channel/per-parameter basis.
 - x. Undo shall be used to sequentially step back through manual operations or to undo record and delete actions. It shall be possible to undo multiple commands in one action.
2. Blind Mode
- a. The Blind display allows viewing and modification of all record targets without affecting stage levels.

- b. Record target data may be displayed in a summary view, a detailed table orientation or a spreadsheet view, which allows quick data comparisons, move and replace functions.
- c. Changes to blind data shall be automatically stored. Range selection of both record targets and channels shall be supported.

3. Patch Display

- a. Patch shall be used to display and modify the system control channels with their associated library data.
- b. Each channel may be provided with a proportional patch level, curve, label, White Point, swap and invert functions, Live/Dark flag enable/disable, as well as keywords to service Query.
- c. A full library of profiles is provided, with the ability for the user to define "favorites" for fast selection.
- d. Offset functions in patch shall allow selection of channel ranges and shall allow the user to establish a "custom" footprint for any device output.
- e. Custom color wheels, color scrolls and gobo wheels shall be defined in patch. These devices shall be created with a simple table and graphical user interface supported by images of major manufacturers.
- f. RDM discovery and device monitoring shall be supported.
- g. Copy to, Swap and Move functions shall be supported in patch.

4. Setup/Browser

- a. Setup shall access system, user and device configurations.
- b. It shall be possible to partially import show files. Users shall be able to select as much or as little of the show file as required, with renumber tools.
- c. It shall be possible to import ASCII and Lightwright data files. It shall be possible to export as ASCII or .csv.
- d. Setup shall also access show data storage, import, export, print to .pdf and clear functions, as well as show data utilities.
- e. The system shall support programming and playback of real time clock events, including cue, submaster and macro execution at specific times of specified days or at a time based on astronomical events.
- f. A control screen shall be provided for network configuration, selecting date/time, software update controls, selecting functional language and/or keyboard for labeling option, as well as other system level tools.
- g. Available languages for prompts, advisories and help messages shall include English, Bulgarian, German, Spanish, French, Italian, Japanese, Korean, Russian, Chinese, simplified and Chinese, traditional.
- h. Supported keyboards shall include American, United Kingdom, French, German, Italian, Korean, Norwegian, Russian, Slovakian, Turkish, Swiss, Swedish, Finnish and Bulgarian

E. Dimmer Monitoring and Configuration

1. The lighting control system shall provide communication with an ETC Sensor+, Sensor3 or FDX dimming system for remote monitoring and configuration of show specific functions from within the software application.
2. Circuit level configuration and monitoring functions shall include but not be limited to:
 - a. Control mode (dimmable, switched, latch-lock, always on, off or fluorescent).
 - b. Curves
 - c. Control threshold
 - d. Min and Max Scale Voltage
 - e. Preheat
 - f. Scale load
3. Rack status messages shall include but not be limited to:
 - a. State of UL924 panic closure
 - b. DMX port error/failure
 - c. Network error/failure
 - d. A, B, C Phase below 90 or above 139 volts and headroom warning
 - e. Ambient temperatures out of range
4. Circuit status shall include but not be limited to:
 - a. Module type and location
 - b. Output level
 - c. Control Source
 - d. Overtemp
5. Advanced circuit feedback shall include but not be limited to:
 - a. Load higher or lower than recorded value
 - b. DC detected on output
 - c. SCR failed on/off
 - d. Breaker trip
 - e. Module has been removed
 - f. Load failure
 - g. Shutdown due to Overtemp

F. Interface Options

1. The desk shall support a variety of local interfaces.
 - a. AC input

- b. USB (a minimum of seven ports shall be provided for connecting devices such as an Alpha-numeric keyboard, mouse, touch screens, USB Flash drive, etc.)
- c. Ethernet (two ports): 802.3af compliant PSE. Each port shall be individually configurable.
- d. Three Display Port output connectors, supporting monitors at 1280x1024 resolution minimum. Touch or multi-touch support of any/all of these monitors is provided.
- e. Four DMX512A/RDM Ports
- f. Contact Closure Trigger Via D-Sub Connector
- g. OSC and UDP Transmit/Receive

G. Accessories

- 1. ETCpad (ETC Portable Access Device)
- 2. iRFR and iRFR Preview (applications for iPhone, iPod Touch and iPad units)
- 3. aRFR (application for Android devices)
- 4. Net3 Remote Video Interface 3
- 5. 20 Fader or 40 Fader non-motorized fader wings
- 6. 10 Fader or 20 Fader non-motorized fader wings
- 7. Net 3Gateways
 - a. Net3/ETCNet 2 to DMX/RDM Gateways (one to four ports)
 - b. Show Control Gateway
 - c. I/O Gateway with 12 analog inputs, 12 SPDT contact outputs, RD232 interface
- 8. ETCnomad (offline, client and/or backup operation)

H. Synchronized Backup

- 1. An optional Backup system shall consist of one of the following combinations of devices:
 - a. Two networked desks.
 - b. One (or more) desk with one Remote Processor Unit (RPU)
 - c. One (or more) desk with two Remote Processor Units (RPUs)
 - d. One (or more) desk with ETCnomad

I. Physical and Acoustical

1. All operator controls and electronics for a standard system shall be housed in a single desktop unit, not to exceed 44.7" wide, 25" deep, 12" high, weighing 83 pounds.
2. Power shall be 90 – 240V AC at 50 or 60Hz, supplied via a detachable power cord.
3. At typical CPU utilization, the unit shall operate at ≤ 32 dBA.

Provide 1 Gio 5 – 4K Gio @5 console, 4,096 outputs (minimum)

1 Gio @5 – FC Gio @5 Flightcase

2 ELO Touch Solutions 2201L LED Monitor General

ETC SENSOR3 DIMMER

1. The installation rack shall be the Sensor3 120V as manufactured by Electronic Theatre Controls, Inc., or equal. The Power Control System enclosure shall consist of up to 48 module spaces.

Electrical

2. Sensor3 racks shall operate at 120V, three phase, four wire + ground, 47-53 or to 57-63 Hz at 800 amps max. Other voltage and phase options are available upon request. Sensor racks shall automatically compensate for frequency variations.
3. during operation. Provisions shall be made for optional amp trap devices for fault current protection. Standard SCCR fault current protection shall be 100,000A.
4. All load and neutral terminals shall accept up to #4 AWG (25mm²) wire. Systems providing smaller terminals do not allow contractor wire sizing flexibility and shall be deemed unacceptable.
5. Load terminals shall be located at the front of the wiring cavity. Front access racks having terminals located at the back of the rack or on the side near the back of the rack such that adjacent load cabling may block terminal access shall not be acceptable.

i. Electronics

6. Power control electronics (CEM3) shall be contained in a single module that can be plug-in capable without use of tools. Power control and dimming systems that require tools for removal of control electronics shall not be acceptable.
7. All data and power input for CEM3 control electronics shall be located on a separately removable/pluggable termination connector on the backplane such that backplane can be replaced without removal and discrete secondary conductor terminations. Systems that require discrete termination of DMX, Ethernet, power

input, and dimmer control output directly on terminals on the control module or pluggable backplane shall not be permitted.

8. The power controller shall directly support the following network protocols:

a. Net3 protocol suite including ANSI E1.31 Streaming ACN (sACN)

b. ANSI E1.17 Architecture for Control Networks (ACN)

Systems that do not support the above listed industry standard ACN protocols for Ethernet setup, control and feedback integrated directly between the power system and control system shall not be deemed acceptable.

9. The power controller shall directly support 2 ports of control input using ANSI E1.11 USITT DMX512-A

10. Control signal connections within the enclosure shall be sent between control module and dimmer/power modules using flat ribbon cables. Systems using cat5 cable and RJ45 connections or discrete hand wired conductors for internal connections between control module and dimmer/power modules shall not be acceptable.

11. System shall provide an optional low voltage connection to maintain power of control electronics through brown out, instantaneous, and sustained power outages. Systems that do not provide optional low voltage backup power connection to the power controller shall not be acceptable.

12. Control electronics shall be housed in a formed steel body with cast-aluminum face panel.

ii. Physical

13. The Sensor3 rack shall be a free-standing, dead-front switchboard, substantially framed and enclosed with 16 gauge, formed steel panels. All rack components shall be properly treated, primed and finished. Exterior surfaces shall be finished in fine-texture, scratch-resistant, epoxy paint. Removable top and bottom panels shall facilitate conduit termination on the 48 module rack. Knockouts shall serve the same purpose on 12 and 24 module racks.

14. Sensor3 racks shall be available in three sizes, with the following dimensions.

c. SR3-12 (12 module) 25.8"H x 14.8"W x 13.3"D

d. SR3-24 (24 module) 45.8"H x 14.8"W x 16.8"D

e. SR3-48 (48 module) 83.1"H x 14.8"W x 22.8"D

15. Racks shall be designed for front access to allow back-to-back or side-by-side installation.

16. Racks shall be designed to allow easy insertion and removal of all modules without the use of tools. Supports shall be provided for precise alignment of modules into power and signal connector blocks. With modules removed, racks shall provide clear front access to all load, neutral and control terminations. Racks that require

removable panels to access load, neutral or control terminations shall not be acceptable.

17. An optional bus bar kit shall be available from the factory to allow adjacent racks to be powered by a single line feed. No soft buss rack-to-rack wiring shall be required. Racks that require discrete cabling to connect adjacent racks shall not be acceptable.
18. Module spaces shall be mechanically keyed to accept only the 20A or below, 50A, or 100A module specified for that space. Racks that allow modules of varying wattages to plug into the same space shall not be acceptable. The rack shall be configurable to accept mixed dimmer types and sizes throughout the rack.
19. Each rack shall provide a lockable full-height door containing an integral electrostatic air filter that shall be removable for easy cleaning. A single low-noise fan shall be located at the top of each rack. Design of the rack and modules shall draw all cool air intake air through the integral electrostatic air filter at the front of the rack, discretely through each module housing and directly out the top of the rack such that exhausted hot air from adjacent modules does not heat the module(s) above, below, or to the side of each other. System designs that draw the same heated air through multiple modules shall not be acceptable.
20. The fan shall maintain the temperature of all components at proper operating levels with dimmers under full load, provided the ambient temperature of the dimmer room does not exceed 40°C/104°F. Racks that do not employ both locking doors and electrostatic air filters shall not be acceptable.
21. The fan shall turn on whenever any circuit in the system is activated. In the event of an over-temperature condition, only the affected dimmer module(s) shall shut down and a message shall appear on the control module LCD. The fan shall remain on during thermal shutdown of individual dimmer modules. Systems that do not include over-temperature sensing and preventative thermal shutdown shall not be acceptable.
22. A fan sensor shall be provided. In the event of momentary fan failure, error message will be displayed and sent remotely over Ethernet to optional logging systems. Systems that do not provide optional system event logging shall not be deemed acceptable.
23. If the ambient room temperature drops below 0°C/32°F or rises above 40°C/104°F, a warning shall appear on the dimmer rack LCD. If the temperature rises above 46°C/115°F, the rack shall shut down until the condition is corrected.
24. A 3 x .5-inch LED status indicator (beacon) shall be mounted in the rack door. The beacon shall be visible throughout a wide viewing angle. In normal operating conditions, this LED is illuminated. If the rack's control module senses an error condition, the beacon shall flash until the error is corrected. An optional indicator shall be available for remote locations. Racks have no external means of visually showing that an error is present shall not be acceptable.

1.02 POWER CONTROL ELECTRONICS

1. General

1. The Power Control electronics shall be contained in one plug-in Power Controller. Each power controller shall plug into a dimming cabinet with no need for tools or discrete wire connections. A simple user interface shall be provided for group configuration, testing and diagnostics. The Power Control System shall be Sensor 3 as manufactured by Electronic Theatre Controls, Inc.
2. Power control shall be UL/cUL Listed and CE Marked. Power and dimming control that require tools for removal of control electronics shall not be acceptable.

2. Physical (Control Interface)

3. The control electronics shall be contained in one plug-in module, housed in a formed steel body with cast-aluminum face panel, and self-retaining ejection handles to ease removal from the rack.
4. A backlit eight-line by 20-character graphical LCD shall be provided for system configuration, live control and status display.
5. The following features shall be available in power control to reduce setup and tech times:
 - a. Full number pad shall be provided for quick access to dimmers. Power Control that does not provide 0-9 number pad and logic keys for AND, THRU, and AT for fast access, selection, and control of circuit/dimmer numbers shall not be acceptable.
 - b. Power control shall provide NEXT and LAST buttons to progress through individual circuits/dimmers during pre-show lighting checks for lamp burnouts.
 - c. Shortcut buttons for Setup, About and live control shall be provided. These functions shall be separated in such a way that user intending to check status or settings does not accidentally render their system unusable. These buttons shall also serve to reduce maximum time to access any feature or setting on a single dimmer, range of dimmers or an entire rack.

Power control that does not include the above features shall not be acceptable.

6. The front panel shall have five status LED indicators: power, network activity, DMX A, DMX B, and panic state.

3. Control Signals and Physical Communications Media ports

7. The power control shall be provided with an Ethernet control signal input. This input shall be fully configurable with a range of patching and priority programming capabilities. The Ethernet signal shall supply seamless integration between the dimmer racks and both the entertainment and architectural lighting control systems. The Ethernet signal shall also enable remote configuration, playback, file storage and monitoring features on a personal computer on the network. Dimming systems that require Ethernet to DMX translation devices for control of critical show lighting introduce a potential failure point and shall not be acceptable.

8. All data and power input for control electronics shall be located on a separately removable/pluggable termination connector on the backplane such that backplane can be replaced without removal and discrete secondary conductor terminations. Systems that do not support tool-less replacement or that require removal of wires connected directly to the control electronics shall not be acceptable.
9. Dimming systems that require discrete termination of DMX, Ethernet, power input, and dimmer control output directly on terminals on the power control or pluggable backplane shall not be acceptable.
10. DMX connections shall be available with option for pluggable screw or punch-down type terminal. Systems that do not allow this option do not support both DMX over CAT5 and multi-strand conductors shall not be acceptable.
11. Ethernet connection shall be available via standard Cat5 RJ45 connection. System requiring punch down direct to rack or controller cannot be Cat5 system certified and shall not be acceptable.
12. Power Control shall provide a convenience Ethernet uplink to the lighting network at the front face of the control module. Network capable 3rd party control and monitoring devices shall be provided full access to control, editing and real time feedback.
13. The following options shall be available to backup all controller setup UL924 Panic configuration, and recorded presets:
 - d. Automatic backup in non-volatile backplane memory
 - e. Automatic backup in non-volatile Controller memory
 - f. 3rd party FTP server
 - g. USB storage device pluggable on the controller face panel
 - h. Data shall also be transferable to and from library storage on a personal computer on a per-rack basis
4. Power Controller shall support Class 2 EchoConnect control communications
 - a. The control network shall utilize unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit). Use of Category 5, or better, control network wiring shall also be supported.
 - b. The control network wiring may be bus, loop, home run, star or any combination of these
14. The control network wiring may be bus, loop, home run, star or any combination of these
15. The power controller shall directly support the following network protocols:
 - c. Net3 protocol suite including ANSI E1.31 Streaming ACN (sACN)
 - d. ANSI E1.17 Architecture for Control Networks (ACN)

- e. Systems that do not support the above listed industry standard ACN protocols for Ethernet setup, control, and feedback integrated directly between the power system and control system shall not be deemed acceptable.
 - 16. The power control shall directly support 2 optically isolated ports of ANSI E1.11 USITT DMX512-A for control input. Minimum 2,500V of optical isolation shall be provided between the DMX512 inputs and the electronics. Systems that do not have optical isolation on a prewired factory plug-in device shall not be acceptable.
4. Power Control Features
- 17. The power control shall automatically compensate for frequency variations during operation.
 - 18. Dimmer outputs shall exhibit no oscillating or hunting for levels. Dimmers with the same choke type set to the same level shall output within $\pm 1V$ of each other, regardless of phase or input voltage.
 - 19. Power control shall maintain proper dimming performance for all line feed frequencies from 47-53Hz and 57-63Hz without flicker or misfire. Shifts in frequencies up to 3 Hz shall not result in flicker or loss of dimming timing. Systems that cannot perform to these frequency tolerances and shifts shall not be acceptable.
 - 20. Dimmer output levels shall be regulated for incoming line voltages. The regulation shall adjust for both RMS voltage changes and deformations in the incoming AC waveform. The power control shall monitor and adjust each dimmer's output to maintain a constant power to the load. Regulation shall maintain the desired output voltage $\pm 1V$ for the entire operating range (91-139V and 181-259 VAC) with the exception that the maximum output will be no greater than the line voltage minus dimmer insulation loss. The regulation shall compensate for dips and anomalies in the AC waveform on a dimmer-by-dimmer basis. There shall be no interaction between dimmers in the system or any other equipment. The output shall be nominally regulated to 115V/230V appropriate for the market, but shall be field adjustable on a dimmer-by-dimmer basis to allow for varying cable length. Systems that cannot maintain perform to the above stated voltage regulation shall not be acceptable.
 - 21. Power control shall support a rack filled with different types and sizes of dimmer modules. The properties of each dimmer shall be configurable, including dimmer name, output curve, dimmer firing mode, and scale voltage values.
 - f. The output curve selections shall include IES Modified Square, Square, Linear, Modified Linear and a Sensor v2.0 output curve. The power control shall also have the capability of storing up to three custom curves as well as an adjustable preheat level, assignable on a per-dimmer basis.
 - g. Circuit control modes shall include: Always on, Dimmable, Dimmer Doubled, Switched (unregulated on/off with adjustable on-at level), Fluorescent with adjustable threshold and Off.
 - h. Power Control shall support forward or reverse phase firing of appropriate modules.

- i. Dimmers set as Dimmer Doubled shall allow a single dimmer to set two different levels on one dimmer circuit by splitting the AC power into positive and negative half cycles with no resultant DC line current.

Power Control that does not support all above listed adjustments to dimmers on a per circuit basis shall not be acceptable.

- 22. User programmable parameters shall support onsite setup via the local interface in the rack. These parameters shall include, but not be limited to, defining module type, scale voltage for each dimmer, firing mode, curve, dimmer numbering, and DMX512/sACN network port assignments. Systems requiring factory programming shall not be acceptable.
- 23. Hardware settings for rack type, available module types, availability of AF features, and operating voltage shall be configurable at the factory or in the field, and shall not require secondary setup after system commissioning even in the event of power controller replacement.
- 24. Controller shall support two methods of automatic configuration during controller replacement in a rack.
 - j. Use backplane configuration: The backplane shall retain full setup and preset data in. In this recovery mode, when a new power control is inserted, the controller shall automatically come on-line fully functional without any manual intervention.
 - k. Use controller configuration: Override backplane configuration such that replacement modules automatically use the configuration resident in nonvolatile memory of the power control.
- 25. Controller shall be capable of changing rack setup for multiple shows for an entire system with a single update command from a remote PC.
- 26. In the event of data loss each rack shall maintain the last level for a user-programmable time (zero to five minutes or indefinitely) or may be programmed to fade out or to play a specific preset. Systems that do not offer this feature shall not be acceptable.
- 27. The power control shall contain diagnostic routines to allow the user to test and troubleshoot the system. The power control shall also contain a Test/Bypass switch to turn all dimmers on to full for testing. This switch shall bypass all electronics and shall force the fan on. Systems that do not include local control, "all on" control bypass, and diagnostic routines shall not be deemed acceptable.
- 28. The power control shall be able to record up to 64 presets in a rack. Presets shall be user programmable by recording a snapshot of current dimmer levels (as set by the all control sources), by entering dimmer levels on the power control directly or by a combination of both methods. The system shall have the ability to program and activate group-wide presets from the power control, remote station, console, networked computer or handheld device. Presets shall be activated in the default fade time of 2 seconds but shall be have a user-programmable fade time between 0 and 60 minutes.

29. A system-wide panic (emergency UL924) activation circuit shall be provided. Any dimmer in any rack may be assigned to the panic circuit. The panic closure shall be maintained. Upon activation the system shall:
 - l. Force all circuits selected to be included in panic to a master level between 80-100%
 - m. Optionally force all non-panic dimmers to zero
 - n. Provide configurable fade time to and from "emergency" state
 - o. Provide configurable delay to and from "emergency" state
30. DMX A and B as well as the Ethernet DMX (EDMX) data may be patched using a rack start address - assigned sequentially from a starting control channel or patched individually on a per-dimmer basis. Priority may be set per universe for the DMX inputs, and set per universe by the control source for Ethernet input. Each dimmer may have up to six network control inputs with either a highest takes precedence or priority patch. Each dimmer may also then be assigned to one of 16 spaces for additional specific preset control. Each preset shall have a separate priority for maximum flexibility of prioritization. Systems that do not support prioritization of multiple Ethernet sources beyond HTP shall not be acceptable. Systems that do not support the above listed flexibility in control source prioritization shall not be acceptable.
31. Power control shall provide the ability to set a single circuit, all circuits or a range of circuits to a level at the control interface in the rack. Systems that cannot locally control dimmers through local control override shall not be acceptable.
32. The power control shall be capable of monitoring and displaying incoming line voltage for all three phases on the LCD. With installed current sensors, the same display shall show amperage on each phase.
33. The power control shall support security protected access. The user shall be able to program passwords that restrict access, preventing unauthorized use of higher-level functions by unauthorized personnel. Systems that do not provide security protected access to features that can render the system unusable shall not be acceptable.
34. Advanced Features (AF) option shall add an additional sensor in the individual dimmer modules. This option shall allow monitoring of current and output voltage on a dimmer-by-dimmer basis and provide information on lamp burnouts, dimmer status and input voltages.
35. Power control shall allow the user to record the loads of all AF dimmers in the system. The power control shall, during operation, test each AF dimmer, determine its load and compare it to the recorded load. Any change from recorded loads of configured tolerance shall display an error on the power control and any monitoring device on the network. If a dimmer is driven on with no load, an optional message shall be available to notify the console operator and electrician that there is no load.
36. Power control shall support a mobile application which allows users to access limited circuit configuration controls via Wi-Fi connection. The mobile application shall be the ThruPower System Reporter (TPSR) app by ETC.

- p. Mobile application shall select the circuit to configure either by scanning a QR code label applied to circuit distribution or by manual entry of circuit information
- q. Mobile application shall allow users to set the Control Mode of the selected circuit in order to shift a ThruPower module between Dimmable and Switched mode according to the requirement of a connected load
- r. Mobile application shall allow users to activate the circuit test function for the selected module
- s. Power controls which do not support mobile circuit configuration from the plugin location of a supported load shall not be acceptable

5. Connect to Console Communications

- 37. The Ethernet network shall provide an integral link to connect all racks in the system for remote rack-to-console and rack-to-network device communication of the below listed features of real-time control, configuration, and status/feedback using industry standard ANSI E1.17 ACN lighting protocol. Power control and dimming systems that do not use this protocol shall not be permitted. Reported system errors shall be given ACN access to be cleared remotely at the console with exception of system critical errors that require a person to go directly to the rack to manually clear the exiting fault.
- 38. Control
 - t. E1.31 sACN control
 - u. Activate/Deactivate rack presets
 - v. Set/Unset circuit levels as overrides to Preset, DMX, and sACN control
 - w. Lock relays into On/Off/Remote switching states without patching to a console.
 - x. Lock dimmers into non-dim mode with On/Off/Remote switching states without patching to a console.
- 39. Remote console configuration shall include, but not be limited to, real time reporting and editing the following:
 - y. Circuit's control mode
 - 1) Dimmable
 - 2) Switched
 - 3) Latch-lock
 - 4) Always on
 - 5) Off
 - 6) Fluorescent
 - z. Curves
 - aa. Control threshold
 - bb. Min Scale Voltage
 - cc. Max Scale Voltage
 - dd. Preheat

- ee. Scale load
- 40. Standard rack feedback - Rack status messages shall include, but not be limited to, real time reporting of the following:
 - ff. Identification
 - 1) Rack type
 - 2) Rack name
 - 3) Rack number
 - gg. State of UL924 panic closure
 - hh. DMX port A or B has an error or has failed
 - ii. Network has an error or has failed
 - jj. Phase A, B or C is below 90 volts
 - kk. Phase A, B or C is above 139 volts
 - ll. Phase A, B or C did not start because it was outside of allowable voltage ranges at power up
 - mm. Phase A, B or C voltage headroom warning
 - nn. Frequency is not 50 or 60 Hz
 - oo. Ambient temperature is below 0°C/32°F
 - pp. Ambient temperature is above 40°C/104°F
 - qq. System Critical-Ambient temperature exceeds 46°C/115°F
 - rr. Configuration memory error
 - ss. Run hours remaining before rack filter needs to be cleaned
 - tt. IP address of the controller in the rack
 - uu. Software version of the controller in the rack
- 41. Standard branch circuit feedback - Ethernet console access of the following circuit status shall be provided:
 - vv. Module type
 - ww. Circuit location
 - xx. Patched circuit addresses
 - yy. Output level
 - zz. Control Source
 - aaa. Overtemp
- 42. Advanced branch circuit feedback - Dimmer Specific status messages shall include, but not be limited to, the following:
 - bbb. Load has dropped below recorded value
 - ccc. Load has raised above recorded value
 - ddd. DC detected on dimmer output

- eee. One SCR has failed on/off
- fff. Dimmer has failed off or circuit breaker has tripped
- ggg. Dimmer has been removed
- hhh. Dimmer load has failed
- iii. Dimmer has shut down due to over temperature

1.03 INTELLIGENT BREAKER SYSTEM

K. General

- 3. Intelligent breaker system shall be 120V Sensor IQ as manufactured by ETC, Inc., or equal
- 4. Breaker Panels shall be UL508, UL67, and UL924 Listed, and shall be so labeled when delivered
- 5. Breakers shall be UL489 listed and shall be labeled when delivered
- 6. Breaker Panels shall consist of a main enclosure with 12, 24, or 48 pole breaker subpanels, integral control electronics for low voltage terminations and provision for accessory cards
 - a. Up to two accessory cards shall be supported per breaker panel

L. Mechanical

- 3. The panel shall be constructed of 16-gauge galvanized steel. All panel components shall be properly treated or finished in fine-textured, scratch resistant paint
- 4. Breaker panels shall be capable of being mounted on the surface of a wall or recessed mounted
- 5. Breaker panels shall be available in 12, 24, and 48 pole configurations
 - a. 12 pole MLO (No provision for main Breaker)
 - 1) 31 inches high, 14.25" wide and 4" deep (with front panel attached)
 - b. 12 pole (with provision to add main breaker)
 - 1) 40.25 inches high, 14.25" wide and 4" deep (with front panel attached)
 - c. 24 pole (with provision to add main breaker)
 - 1) 50.25 inches high, 14.25" wide and 4" deep (with front panel attached)
 - d. 48 pole (with provision to add main breaker)
 - 1) 64 inches high, 20" wide and 5.25" deep (with front panel attached)
- 6. Choice of panel covers shall be available for surface or recess mount applications. This outer panel shall ship complete with a locking door to limit access to electronics and breakers
 - a. Optional center-pin reject security screws shall be available for all accessible screws

- b. Optional recess mount doors shall extend 1" beyond all panel edges to hide wall cut-out
- 7. The unit shall provide interior cover over the control electronics and accessory cards to allow access only to class 2 wiring and prevent direct access to class 1 line voltage components
- 8. The panel shall support up to twelve, twenty-four, or 48 single pole branch circuits
 - a. Branch circuits shall range from 15A to 30A capable of holding full rated load for minimum of three hours continuously
 - b. Two and three-pole circuits shall be supported at decreased density where each pole constitutes one of the available single-pole circuits. Mixing of circuits in any combination shall be supported
- 9. Breakers shall provide manual switching control while power is unavailable to the panel such that critical lighting can be set to an on state, without the need for power to the panel
- 10. Breaker output lugs shall accept 10-14 AWG dual conductor wire
- 11. Breaker output lug shall support solid or stranded 6-14 AWG class B, C, or K copper wire
- 12. Control wiring for DMX, station bus, and Emergency input terminations shall land on a removable headers for contractor installation

M. User Interface

- 3. The user interface shall contain an LCD display with button pad to include 0-9 number entry, up, down back arrow navigation and enter
- 4. Test shortcut button shall be available for local activation of preset, sequence and set level overrides
- 5. The user interface shall have a power status LED indicator (Blue), a DMX status LED indicator (Green), a network status LED indicator (Green) and an LED indicator (red) for errors
- 6. Interface shall allow the backlight to timeout and shall provide user editable options to shut off backlight completely as well as adjust screen contrast
- 7. Ethernet interface shall default to automatic IP through link local and DHCP. Upon receiving IP address, the address of the Network Interface Card (NIC) shall display in the about menu. Static address and settings shall also be possible
- 8. The control interface shall support a USB memory stick interface for uploads of configurations and software updates
- 9. The user interface shall support power input from an external Uninterruptible Power Supply (UPS) supplying 800W-2400W AC power

N. Functional

3. Panel setup shall be user programmable. The control interface shall provide the following breaker setup features (per circuit):
 - a. Type (1 pole, 2 pole, or 3 pole)
 - b. Name
 - c. Circuit Number
 - d. DMX address
 - e. sACN address
 - f. Space Number
 - g. Circuit Modes
 - 1) Normal (priority and HTP based activation and dimming)
 - 2) Latch-lock
 - 3) Fluorescent
 - 4) DALI
 - h. On threshold level
 - i. Off threshold level
 - j. Include in UL924 emergency activation
 - k. Allow Manual
4. Breaker panels shall support discrete addressing of each breaker. Panels that are restricted to use of start address with sequential addressing, and cannot assign each 0-10V output control to any internal circuit shall not be acceptable
5. The panel shall be capable of switching 6 poles on or off at once, or in a user-selectable delay per breaker using a period of 0.1 to 60 seconds, in 0.1 second increments
6. An Ethernet connection shall provide advanced control of relays over streaming ACN (sACN) and transmit status, control override, and measured energy usage per branch circuit via an internal Web UI or central monitoring interface
 - a. Control electronics shall report the following information per branch circuit.
 - 1) Breaker state (On/Off)
 - 2) Breaker state (Open/Closed)
 - 3) Current draw (In Amps)
 - 4) Voltage
 - 5) Energy usage
 - b. Panels that do not report this information shall not be acceptable.
7. Built-in Control shall include:
 - a. Ability to record up to 16 presets in each space from the control panel, connected control stations, or timed events

- b. Presets shall be programmable by recording current levels (as set by DMX or connected control stations), by entering levels on the control panel directly, manually selecting breaker state on each breaker, or a combination of these methods. From the control panel, stations, or timed events it shall be possible to record values for up to 16 zones per space
 - c. Up to 8 spaces in a single rack for total of up to 16 spaces shall be supported per system or system subnet
 - d. Indication of an active preset shall be visible on the control panel display
 - e. One 16-step sequence per space for power up and power down routines
 - f. The panel shall have a UL924-listed contact input for use in Emergency Lighting systems. The panel shall respond to the contact input by setting included breakers to "on", while setting non-emergency breakers "off". Each breaker can be selected for activation upon contact input
 - g. Upon Data loss the system shall provide options to hold last look infinitely or hold for a configured time period set by the installing technician then fade/switch to the input of the next available priority
 - h. Control electronics shall respond directly to control stations for zone, preset, and sequence control. Systems that require secondary control systems for this functionality are not acceptable
 - i. After power loss, electronics shall be capable of holding the system in its previous state until new level data (DMX, architectural presets, sequences and zones, or local overrides) is received to make each breaker change state
8. The control of lighting and associated systems via timed and Astronomical clock controls
- a. The breaker panel shall allow the activation of presets, sequence, and zone programming of up to 50 time clock events via a built in real and astronomical time clock
 - b. System time events shall be programmable via the control panel
 - 1) Time clock events shall be assigned to system day types. Standard day types include: everyday, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday
 - 2) Time clock events shall be activated based on sunrise, sunset, time of day or periodic event
 - 3) System shall automatically compensate for regions using a fully configurable daylight saving time
 - 4) Presets shall be assigned to events at the time clock
 - c. The time clock shall support event override
 - 1) It shall be possible to override the timed event schedule from the face panel of the time clock
 - d. The time clock shall support timed event hold
 - 1) It shall be possible to hold a timed event from the face panel of the processor
 - 2) Timed event hold shall meet California Title 24 requirements

9. The panel shall receive ESTA DMX512-A control protocol. Addressing shall be set via the user interface button keypad with any circuit patched to any DMX control address
 - a. 2,500V of optical isolation shall be provided between the DMX512 inputs and the control electronics as well as between control and power components
 - b. The breakers shall respond to control changes (DMX or Stations) in less than 25 milliseconds. DMX512 update speed shall be 40Hz
 - c. Setting changes shall be able to be made across all, some, or just one selected breaker in a single action from the face panel
 - d. DMX data loss shall allow for levels/breakers to be held for ever or for a specified time before switching to a lower priority source
 - e. Initial Panel setup

- 1) The breaker panel shall automatically detect the type of breaker or dimmer installed in each location without need for manual configuration of the physical arrangement
- 2) Quick rack setup shall be available to apply address settings across all circuits for rack number, DMX Start Address, sACN universe, and sACN start address
- 3) Emergency Setup Menu shall provide optional delays when emergency is activated or deactivated, and option to turn off non-emergency circuits shall be available. Record function shall allow circuits that are turned on to be added to the emergency setting

O. Electrical

3. Breaker Panels shall be available to support power input from:
 - a. 120/208V three phase 4-wire plus ground
 - b. 120/240V single phase 3-wire plus ground
4. Conduit Entry:
 - a. Feeders:
 - 1) Top or upper 6" of either side
 - 2) Bottom or lower 6" of either side
 - 3) Feeders shall enter through the top or bottom according to the orientation of the enclosure.
 - 4) Feeder entry shall be nearest to the location of the feeder lugs or main breaker.
 - b. Load:
 - 1) Load wiring shall enter through the top or bottom of the enclosure through the surface nearest to the breaker sub panel
 - 2) Load wiring may also enter through left and/or right side provided a low voltage chase is not required through the same area. If class 2 chase is required, a field installable barrier panel shall be provided upon request. The side of the panel where the barrier has been installed shall not permit load wiring
 - c. Low Voltage:
 - 1) Top or upper 6" of either side
 - 2) Bottom or lower 6" of either side
 - 3) For low voltage conduit entry at the breaker end of the cabinet, conduits shall be located at the outer 3" of the top/bottom panel
5. Breaker
 - a. Bus connection type: Stab on
 - b. 1, 2, or three poles
 - c. UL489 listed
 - d. 15 amp, 20 amp, or 30 amp
 - e. 22,000 SCCR; 65,000A series rated with main breaker

- f. High inrush trip curve (matches all Sensor breakers)
 - g. Maintains trip curve through entire thermal range
 - h. Guaranteed not to trip at full load
 - i. Load lugs accept 6-14awg load wiring
 - j. Multi-conductor listed output terminal
 - k. Integral mechanically held air gap relay
 - l. Manual control of relay state using breaker handle w/o power
 - m. Integral current sensing
 - n. Integral position and trip sensing
 - o. Control and status provided by contact pads directly at bottom of the breaker case
 - p. No external wires or connections required for control or feedback
 - q. The breaker shall be capable of switching up to 30A
6. The breaker panel shall support a maximum feed size
- 1) 100 Amps at 12 circuits
 - 2) 200 Amps at 24 circuits
 - 3) 400 Amps at 48 circuits
- b. Breaker panels shall support main circuit breaker options:
 - c. Main breaker options shall be optional and available for purchase upon request
 - d. Main breakers shall be field installable
 - e. Main breakers shall be available in up to 100 Amps for 12 circuit panels, up to 200 Amps for 24 circuit panels, and up to 400A for 48 circuit panels at 120V
 - f. Series SCCR ratings apply as follows with appropriate main breaker:
 - 1) 22,000A or 64,000 at 120/208V
 - g. Main breakers shall allow the following range of wire sizes:
 - 1) Up to 300kcmil at 100A and 200A
 - 2) Up to 2x250kcmil at 400A
 - h. Main Lug input shall support up to 2x250kcmil
 - i. Breaker panel shall support a 500kcmil main lug option for 48-circuit panels
- P. Breaker remote switching ratings
- 1) Mechanical 1,000,000 cycles
 - 2) 24A Resistive 100,000 cycles
 - 3) 16A Ballast (HID) 75,000 cycles
 - 4) 15A Electronic (LED) 100,000 cycles
 - 5) 15A Tungsten 45,000 cycles
 - 6) 30FLA; 180 LRA Motor Load 50,000 cycles

- 7) Tested duty cycle: 12 operations (6 cycles) per minute
- 8) Decreasing duty cycle significantly increases switch life
- 9) Isolation: 4000V RMS
- 10) Current reporting accuracy: 5%
- 11) Latching state mechanical relay

Q. Breaker Panel Accessories

3. A low voltage 0-10V dimming option shall provide up to 24 0-10v control outputs that are linked to relay circuits within the panel. Each output shall support up to 400mA of current sink per output
4. A contact input option shall provide 24 dry contact inputs to be linked for direct or group relay control, to activate a preset, or to activate a sequence. Controller software shall allow for normally open maintained, normally closed maintained, or momentary toggle
5. A DALI control option shall provide 24 control loops of broadcast DALI control, with each loop controlling up to 64 DALI devices
6. A RideThru option shall provide short-term power backup of control electronics by automatically engaging when power is lost, and recharging when normal power is present
7. An Isolated Ground option shall provide each circuit in the panel with a ground terminal that is electrically isolated from the equipment ground
8. Main Breaker options shall be available as shown in Section E.4

R. Thermal

3. The panel shall be convection cooled. Panels that require the use of cooling fans shall not be acceptable
4. The panel shall operate safely in an environment having an ambient temperature between 32°F (0°C) and 104°F (40°C), and humidity between 5-95% (non-condensing)

1.04 INTELLIGENT BREAKER SYSTEM

K. General

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5. Breakers shall be UL489 listed and shall be labeled when delivered
6. Breaker Panels shall consist of a main enclosure with 12, 24, or 48 pole breaker subpanels, integral control electronics for low voltage terminations and provision for accessory cards
 - a. Up to two accessory cards shall be supported per breaker panel

L. Mechanical

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 - b. 12 pole (with provision to add main breaker)
 - 1) 40.25 inches high, 14.25" wide and 4" deep (with front panel attached)
 - c. 24 pole (with provision to add main breaker)
 - 1) 50.25 inches high, 14.25" wide and 4" deep (with front panel attached)
 - d. 48 pole (with provision to add main breaker)
 - 1) 64 inches high, 20" wide and 5.25" deep (with front panel attached)
6. Choice of panel covers shall be available for surface or recess mount applications. This outer panel shall ship complete with a locking door to limit access to electronics and breakers
 - a. Optional center-pin reject security screws shall be available for all accessible screws
 - b. Optional recess mount doors shall extend 1" beyond all panel edges to hide wall cut-out

7. The unit shall provide interior cover over the control electronics and accessory cards to allow access only to class 2 wiring and prevent direct access to class 1 line voltage components
8. The panel shall support up to twelve, twenty-four, or 48 single pole branch circuits
 - a. Branch circuits shall range from 15A to 30A capable of holding full rated load for minimum of three hours continuously
 - b. Two and three-pole circuits shall be supported at decreased density where each pole constitutes one of the available single-pole circuits. Mixing of circuits in any combination shall be supported
9. Breakers shall provide manual switching control while power is unavailable to the panel such that critical lighting can be set to an on state, without the need for power to the panel
10. Breaker output lugs shall accept 10-14 AWG dual conductor wire
11. Breaker output lug shall support solid or stranded 6-14 AWG class B, C, or K copper wire
12. Control wiring for DMX, station bus, and Emergency input terminations shall land on a removable headers for contractor installation

M. User Interface

3. The user interface shall contain an LCD display with button pad to include 0-9 number entry, up, down back arrow navigation and enter
4. Test shortcut button shall be available for local activation of preset, sequence and set level overrides
5. The user interface shall have a power status LED indicator (Blue), a DMX status LED indicator (Green), a network status LED indicator (Green) and an LED indicator (red) for errors
6. Interface shall allow the backlight to timeout and shall provide user editable options to shut off backlight completely as well as adjust screen contrast
7. Ethernet interface shall default to automatic IP through link local and DHCP. Upon receiving IP address, the address of the Network Interface Card (NIC) shall display in the about menu. Static address and settings shall also be possible
8. The control interface shall support a USB memory stick interface for uploads of configurations and software updates
9. The user interface shall support power input from an external Uninterruptible Power Supply (UPS) supplying 800W-2400W AC power

N. Functional

3. Panel setup shall be user programmable. The control interface shall provide the following breaker setup features (per circuit):

- a. Type (1 pole, 2 pole, or 3 pole)
 - b. Name
 - c. Circuit Number
 - d. DMX address
 - e. sACN address
 - f. Space Number
 - g. Circuit Modes
 - 1) Normal (priority and HTP based activation and dimming)
 - 2) Latch-lock
 - 3) Fluorescent
 - 4) DALI
 - h. On threshold level
 - i. Off threshold level
 - j. Include in UL924 emergency activation
 - k. Allow Manual
4. Breaker panels shall support discrete addressing of each breaker. Panels that are restricted to use of start address with sequential addressing, and cannot assign each 0-10V output control to any internal circuit shall not be acceptable
5. The panel shall be capable of switching 6 poles on or off at once, or in a user-selectable delay per breaker using a period of 0.1 to 60 seconds, in 0.1 second increments
6. An Ethernet connection shall provide advanced control of relays over streaming ACN (sACN) and transmit status, control override, and measured energy usage per branch circuit via an internal Web UI or central monitoring interface
- a. Control electronics shall report the following information per branch circuit.
 - 1) Breaker state (On/Off)
 - 2) Breaker state (Open/Closed)
 - 3) Current draw (In Amps)
 - 4) Voltage
 - 5) Energy usage
 - b. Panels that do not report this information shall not be acceptable.
7. Built-in Control shall include:
- a. Ability to record up to 16 presets in each space from the control panel, connected control stations, or timed events
 - b. Presets shall be programmable by recording current levels (as set by DMX or connected control stations), by entering levels on the control panel directly, manually selecting breaker state on each breaker, or a combination of these methods. From the control panel, stations, or timed events it shall be possible to record values for up to 16 zones per space

- c. Up to 8 spaces in a single rack for total of up to 16 spaces shall be supported per system or system subnet
 - d. Indication of an active preset shall be visible on the control panel display
 - e. One 16-step sequence per space for power up and power down routines
 - f. The panel shall have a UL924-listed contact input for use in Emergency Lighting systems. The panel shall respond to the contact input by setting included breakers to "on", while setting non-emergency breakers "off". Each breaker can be selected for activation upon contact input
 - g. Upon Data loss the system shall provide options to hold last look infinitely or hold for a configured time period set by the installing technician then fade/switch to the input of the next available priority
 - h. Control electronics shall respond directly to control stations for zone, preset, and sequence control. Systems that require secondary control systems for this functionality are not acceptable
 - i. After power loss, electronics shall be capable of holding the system in its previous state until new level data (DMX, architectural presets, sequences and zones, or local overrides) is received to make each breaker change state
8. The control of lighting and associated systems via timed and Astronomical clock controls
- a. The breaker panel shall allow the activation of presets, sequence, and zone programming of up to 50 time clock events via a built in real and astronomical time clock
 - b. System time events shall be programmable via the control panel
 - 1) Time clock events shall be assigned to system day types. Standard day types include: everyday, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday
 - 2) Time clock events shall be activated based on sunrise, sunset, time of day or periodic event
 - 3) System shall automatically compensate for regions using a fully configurable daylight saving time
 - 4) Presets shall be assigned to events at the time clock
 - c. The time clock shall support event override
 - 1) It shall be possible to override the timed event schedule from the face panel of the time clock
 - d. The time clock shall support timed event hold
 - 1) It shall be possible to hold a timed event from the face panel of the processor
 - 2) Timed event hold shall meet California Title 24 requirements
9. The panel shall receive ESTA DMX512-A control protocol. Addressing shall be set via the user interface button keypad with any circuit patched to any DMX control address
- a. 2,500V of optical isolation shall be provided between the DMX512 inputs and the control electronics as well as between control and power components

- b. The breakers shall respond to control changes (DMX or Stations) in less than 25 milliseconds. DMX512 update speed shall be 40Hz
- c. Setting changes shall be able to be made across all, some, or just one selected breaker in a single action from the face panel
- d. DMX data loss shall allow for levels/breakers to be held for ever or for a specified time before switching to a lower priority source
- e. Initial Panel setup
 - 1) The breaker panel shall automatically detect the type of breaker or dimmer installed in each location without need for manual configuration of the physical arrangement
 - 2) Quick rack setup shall be available to apply address settings across all circuits for rack number, DMX Start Address, sACN universe, and sACN start address
 - 3) Emergency Setup Menu shall provide optional delays when emergency is activated or deactivated, and option to turn off non-emergency circuits shall be available. Record function shall allow circuits that are turned on to be added to the emergency setting

O. Electrical

- 3. Breaker Panels shall be available to support power input from:
 - a. 120/208V three phase 4-wire plus ground
 - b. 120/240V single phase 3-wire plus ground
- 4. Conduit Entry:
 - a. Feeders:
 - 1) Top or upper 6" of either side
 - 2) Bottom or lower 6" of either side
 - 3) Feeders shall enter through the top or bottom according to the orientation of the enclosure.
 - 4) Feeder entry shall be nearest to the location of the feeder lugs or main breaker.
 - b. Load:
 - 1) Load wiring shall enter through the top or bottom of the enclosure through the surface nearest to the breaker sub panel
 - 2) Load wiring may also enter through left and/or right side provided a low voltage chase is not required through the same area. If class 2 chase is required, a field installable barrier panel shall be provided upon request. The side of the panel where the barrier has been installed shall not permit load wiring
 - c. Low Voltage:
 - 1) Top or upper 6" of either side
 - 2) Bottom or lower 6" of either side
 - 3) For low voltage conduit entry at the breaker end of the cabinet, conduits shall be located at the outer 3" of the top/bottom panel

5. Breaker
 - a. Bus connection type: Stab on
 - b. 1, 2, or three poles
 - c. UL489 listed
 - d. 15 amp, 20 amp, or 30 amp
 - e. 22,000 SCCR; 65,000A series rated with main breaker
 - f. High inrush trip curve (matches all Sensor breakers)
 - g. Maintains trip curve through entire thermal range
 - h. Guaranteed not to trip at full load
 - i. Load lugs accept 6-14awg load wiring
 - j. Multi-conductor listed output terminal
 - k. Integral mechanically held air gap relay
 - l. Manual control of relay state using breaker handle w/o power
 - m. Integral current sensing
 - n. Integral position and trip sensing
 - o. Control and status provided by contact pads directly at bottom of the breaker case
 - p. No external wires or connections required for control or feedback
 - q. The breaker shall be capable of switching up to 30A
6. The breaker panel shall support a maximum feed size
 - 1) 100 Amps at 12 circuits
 - 2) 200 Amps at 24 circuits
 - 3) 400 Amps at 48 circuits
 - b. Breaker panels shall support main circuit breaker options:
 - c. Main breaker options shall be optional and available for purchase upon request
 - d. Main breakers shall be field installable
 - e. Main breakers shall be available in up to 100 Amps for 12 circuit panels, up to 200 Amps for 24 circuit panels, and up to 400A for 48 circuit panels at 120V
 - f. Series SCCR ratings apply as follows with appropriate main breaker:
 - 1) 22,000A or 64,000 at 120/208V
 - g. Main breakers shall allow the following range of wire sizes:
 - 1) Up to 300kcmil at 100A and 200A
 - 2) Up to 2x250kcmil at 400A
 - h. Main Lug input shall support up to 2x250kcmil
 - i. Breaker panel shall support a 500kcmil main lug option for 48-circuit panels

P. Breaker remote switching ratings

- 1) Mechanical 1,000,000 cycles
- 2) 24A Resistive 100,000 cycles
- 3) 16A Ballast (HID) 75,000 cycles
- 4) 15A Electronic (LED) 100,000 cycles
- 5) 15A Tungsten 45,000 cycles
- 6) 30FLA; 180 LRA Motor Load 50,000 cycles
- 7) Tested duty cycle: 12 operations (6 cycles) per minute
- 8) Decreasing duty cycle significantly increases switch life
- 9) Isolation: 4000V RMS
- 10) Current reporting accuracy: 5%
- 11) Latching state mechanical relay

Q. Breaker Panel Accessories

3. A low voltage 0-10V dimming option shall provide up to 24 0-10v control outputs that are linked to relay circuits within the panel. Each output shall support up to 400mA of current sink per output
4. A contact input option shall provide 24 dry contact inputs to be linked for direct or group relay control, to activate a preset, or to activate a sequence. Controller software shall allow for normally open maintained, normally closed maintained, or momentary toggle
5. A DALI control option shall provide 24 control loops of broadcast DALI control, with each loop controlling up to 64 DALI devices
6. A RideThru option shall provide short-term power backup of control electronics by automatically engaging when power is lost, and recharging when normal power is present
7. An Isolated Ground option shall provide each circuit in the panel with a ground terminal that is electrically isolated from the equipment ground
8. Main Breaker options shall be available as shown in Section E.4

R. Thermal

3. The panel shall be convection cooled. Panels that require the use of cooling fans shall not be acceptable
4. The panel shall operate safely in an environment having an ambient temperature between 32°F (0°C) and 104°F (40°C), and humidity between 5-95% (non-condensing)

PART 2. Unison ERn Series Control Enclosures

2.17 CONTROL ENCLOSURES

- K. The control enclosure shall be the Unison ERn Series Control Enclosure as manufactured by Electronic Theatre Controls, Inc., or equal.
- L. Mechanical
 - 3. The External Processing enclosure shall be a surface mounted panel constructed of 18 gauge formed steel panels with a hinged, lockable full-height door containing an integral electrostatic air filter.
 - a. The enclosure door shall have an opening to allow limited access to the control module face panel.
 - b. Enclosures shall be convection cooled without the use of fans.
 - 4. Control Enclosures shall be sized to accept one or two Control Processors and one or two Station Power Modules, including various options and accessories.
 - a. The Control Enclosure for a single control processor (ERn2) shall support a single Station Power Supply module; The Control Enclosure for 2 control processors (ERn4) shall support a quantity of 2 modules.
 - 5. All enclosure components shall be properly treated and finished.
 - a. Exterior surfaces shall be finished in fine textured, scratch resistant, powder based epoxy paint.
 - 6. Enclosure(s) shall also be available in a 19" rack mounted (RM) version.
 - a. Rack-mounted version shall have an independent enclosure suspension kit, with a full height, locking door/cover attached to the kit.
 - b. Rack-mounted version shall have an opening to access the control module face panel, and openings to view indicators on option modules.
 - 7. Enclosure dimensions and weights (without modules) shall not exceed:
 - a. ERn2 - 15" W x 9" H, 10" D, 15 lb.
 - b. ERn2-RM - 19" W 11"H 10" D, 20 lb.
 - c. ERn4 - 15" W x 14" H x 10" D, 20 lb.
 - d. ERn4-RM - 19" W x 16" H x 10" D, 25 lb.
 - 8. Top, bottom, and side knockouts shall facilitate conduit entry.
 - 9. Enclosures shall be designed to allow easy insertion and removal of all control and option modules without the use of tools.
 - a. Supports shall be provided for precise alignment of modules into power and signal connector blocks.
 - b. With modules removed, enclosures shall provide clear front access to all power and control wire terminations.
 - 10. Option Modules
 - a. Ethernet Switch

- 1) The Control Enclosure shall support an optional 5-port Ethernet Switch, with at least 4 ports supplying Power over Ethernet (PoE).
 - 2) The Ethernet Switch module shall be 100BaseTX, auto MDI/MDIX, 802.3af PSE compliant.
 - 3) The Ethernet Switch module shall contain power, status, and activity indicators. All indicators shall be visible when the enclosure door is open for both rack and wall mounted ERn.
- b. Redundant Power Supply (RRPS)
- 1) The Control Enclosure shall support an optional redundant power supply which shall automatically provide power to the control electronics upon failure or removal of the primary power supply.
 - 2) The redundant power supply shall assert itself seamlessly without a loss of power to the control electronics.
 - 3) The redundant power supply shall seamlessly remove itself when the primary power supply is reengaged.
 - 4) The redundant power supply shall provide visible indication that it is active.
- c. Station Bus Repeaters (ERn4 only)
- 1) The Control Enclosure shall support an optional module to expand the station bus length an additional 400 meters, and the station count an additional 30 stations (60 maximum per processor/enclosure)
 - 2) Wall-mount and 19" Rack-Mount versions shall also be available to support mid-span insertion away from the Control Enclosure.
- d. Station Bus Dual Repeaters (ERn4 only)
- 1) The Control Enclosure shall support an optional module to expand the station bus length to two additional 400 meter segments (a total

of 1200 meters from a single enclosure, and the station count to 60 stations (60 maximum per processor/enclosure).

- 2) Wall-mount and 19" Rack-Mount versions shall also be available to support mid-span insertion away from the Control Enclosure.

11. Accessories

a. RideThru Option (RTO)

- 1) The Control Enclosure shall support an optional, short-term back-up power source for the control electronics.
- 2) RideThru Option (RTO) provides power for controls electronics during brief power outages or drop outs.
- 3) The short-term back-up power source shall automatically engage upon the loss of normal power, seamlessly transitioning the supply power for the control electronics power to itself.
- 4) The short-term back-up power supply shall detect the return of normal power, and seamlessly return the control electronics to normal power.
- 5) The short-term back-up power source shall support the control electronics for at least 10 seconds.

b. BatteryPack Option (BPO)

- 1) The Control Enclosure shall support an optional, long-term back-up power source for the control electronics.
- 2) The long-term back-up power source shall automatically engage upon the loss of normal power, seamlessly transitioning the supply power for the control electronics power to itself.
- 3) The long-term back-up power source shall supply power to the control electronics for at least 90 minutes.
- 4) The long-term back-up power supply shall detect the return of normal power, and seamlessly return the control electronics to normal power.
- 5) A test switch/indicator shall be available without opening the rack door or removal of any modules/components.

M. Electrical

3. External Processing enclosures shall be available in 100, 120, 230 and 240 volt, single-phase configurations.
4. External Processing enclosures shall be completely pre-wired by the manufacturer. The contractor shall provide input and control wiring.
5. External Processing enclosures shall be designed to support the following wire terminations:
 - a. AC (single phase)
 - b. Echelon link power (Belden 8471 or equivalent)
 - c. 24Vdc (2- 16AWG Wire)
 - d. DMX512A Port A (In or Out) (Belden 9729 or equivalent)
 - e. DMX512A Port B (In or Out) (Belden 9729 or equivalent)

- f. RS232 Serial In/Out (Belden 9729 or equivalent)
 - g. Unshielded Twisted Pair (UTP) Category 5 Ethernet
 - h. Contact Closure In (14AWG to 26AWG Wire)
 - i. Contact Closure Out (14AWG to 26AWG Wire)
 - 1) Contact Closure Out shall provide 1A @ 30vDC
6. Station Power Modules
- a. Station power supply modules shall provide LinkPower for at 32 stations and 1.5A@24VDC of Auxiliary (AUX) power.
 - b. Station power repeater modules shall provide LinkPower for 30 stations and 1.5A@24VDC of Auxiliary (AUX) power.
 - c. Station power module shall support over-current/short protection for LinkPower and Aux. LinkPower shall support fault detection on each leg of the balanced data bus.
7. All control wire connections shall be terminated via factory provided connectors.

N. Thermal

- 3. Ambient room temperature: 0-40°C / 32-104°F
- 4. Ambient humidity: 10-90% non-condensing

PART 3. Architectural Control Processor Modules

3.17 STATION PROCESSOR MODULES

- 1. The Station Power Module shall be the Unison Paradigm P-SPM-E Series Station Power Module as manufactured by Electronic Theatre Controls, Inc., or equal.
 - 25. The Station Power Module (SPM) assembly shall be designed for use in DRd Series or ERn Rack Enclosures.
- 2. The SPM shall convert input power into low-voltage (Class II) power with data line and a secondary auxiliary low-voltage line to energize button, button/fader, touchscreen, and interface devices for multi-scene lighting and building control.
- 3. The SPM, in conjunction with a matching Architectural Control Processor (ACP), shall support Echelon LinkPower communications with remote devices, including button, button/fader, touchscreen and interface stations, and shall interoperate with LonMARK-approved third-party devices.
 - 26. The LinkPower network shall utilize polarity-independent, low-voltage Class II twisted pair wiring, type Belden 8471 (unshielded) or Belden 8719 (shielded) or

equivalent. One # 14 AWG drain wire will be required for system not using grounded metal conduit.

27. The LinkPower network shall be topology free. Network wiring may be bus, loop, home run, star or any combination of these.
 28. Link power wiring shall permit a total wire run of 1640 ft. (500m)
 - a. Repeaters allow an additional wire run of 1640 ft. (500m)
 - b. Dual-repeaters allow two additional wire runs of 1640 ft. (500m)
 29. Link power wiring between stations shall not exceed 1313 ft. (400m).
 30. The SPM shall support auxiliary power for certain remote devices, including touchscreen and interface stations, as required by the device.
 - c. The auxiliary power network shall utilize polarity-dependent, low-voltage Class II wiring, consisting of two # 16 AWG wires.
 - d. Auxiliary wiring shall permit a total wire run of 1640 ft. (500m)
 - 1) Repeaters allow an additional wire run of 1640 ft. (500m)
 - 2) Dual-repeaters allow two additional wire runs of 1640 ft. (500m)
 - e. The SPM shall supply 1.25 amps at 24v DC continuously.
4. ACP module electronics shall be convection cooled.
5. Each SPM shall:
31. Supply power for up to 63 button and button/fader stations.
 32. Supply auxiliary power for a similar number of interface stations.
 33. Shall supply auxiliary power for up to four Touchscreen stations, when a like number of other stations are deducted from the total.
 - f. Repeaters and dual-repeaters allow two additional Touchscreens (six total) when a like number of other stations are deducted from the total.

3.18 PORTABLE TOUCHSCREEN CONTROL STATIONS

1. The Portable Touchscreen Control Stations shall be the Unison Paradigm Portable Touchscreen P-TS7-P/PE Series Control Stations as manufactured by ETC Inc., or equal.
2. General
 3. Portable Touchscreen stations shall support default and fully graphical control pages.
 4. Portable Touchscreen stations shall operate using graphic buttons, faders and other images on at least 30 separate programmable control pages.

5. Portable Touchscreen stations shall also allow programming of page pass-code, lock out and visibility levels.
6. Portable Touchscreen station shall support connection to the System using an Ethernet network with Power over Ethernet (PoE) or the Unison control station Echelon® Link power network.
7. Portable Touchscreen stations connected to the Unison control station Echelon® Link shall support location awareness to automatically load the configuration required dependent on the connection point to the system

3. Mechanical

8. Portable Touchscreen stations shall consist of a seven inch, backlit liquid crystal display (LCD) with a minimum resolution of 800 by 400 pixels and 24-bit color depth with a capacitive touch interface.
9. The Portable Touchscreen enclosure and cover shall be constructed of aluminum and finished in a black fine-texture powder coat paint
10. The enclosure shall provide a hinged cover with two positions for the Touchscreen: closed and normal operation.
11. The Portable Touchscreen shall have a protective cover for removable media ports.
12. The Echelon® Link Touchscreen shall include an attached cable with 6-pin Amphenol connector and strain relief to interface with Portable Connector Stations
 - a. Attached Cable shall be 15' in length constructed of ultra-flexible material
 - b. Extension cables up to 100' in length shall be available to extend the cable length to a maximum of 115' total length
13. The Ethernet Network Touchscreen shall include a Neutrik Ethercon Port on the rear of the touchscreen for connection to an Ethernet Network.
 - a. Unit will ship with a 10' Ethercon to RJ-45 cable
 - b. Cables with extended lengths shall be available up to 300' in length.

4. Electrical

14. Portable Touchscreens shall be powered entirely by the System network.
15. Portable Touchscreens shall connect to the System using an Ethernet network with Power over Ethernet (PoE) or the Unison control station Echelon® Link power network.
 - a. Ethernet Network
 - 1) Ethernet network shall be 10/100BaseTX, auto MDI/MDIX, 802.3af (PoE) compliant.
 - 2) Network shall utilize Unshielded Twisted Pair (UTP) Category 5, or better wiring.

- 3) PoE power consumption shall be PoE Class 2, consuming no more than 6 watts.
- b. Echelon® Link power network.
 - 1) Link power shall utilize low-voltage Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
 - 2) Touchscreen stations shall also require (2) #16 AWG stranded wires for 24Vdc operating power. 24Vdc wiring shall be topology free.
 - 3) Network wiring may be bus, loop, home run, star or any combination of these.

5. Functional

16. System

- a. The Portable Touchscreen shall support configuration upload from a Paradigm Processor as proxy
- b. The Touchscreen shall support configuration or firmware upload from local removable media
- c. It shall be possible to connect multiple Portable Touchscreen station to the system at one time

17. Setup Mode

- a. There shall be a setup display that is separate from any user-defined configuration
- b. It shall be possible to view and modify connectivity settings
- c. It shall be possible to view status information
- d. It shall be possible to view and modify LCD screen settings
- e. It shall be possible to perform Touchscreen calibration
- f. It shall be possible to view and modify audio settings
- g. The appearance of the setup display shall be standard and not editable
- h. The setup display may be invoked from within the user-defined configuration and/or physical button on the Portable Touchscreen
- i. There shall be a default protected method to invoke the setup display

18. Configurations

- a. It shall be possible to have multiple configurations stored within an LCD Station
- b. It shall be possible for Portable Touchscreen Stations connected via the Echelon® Link power network to select a configuration automatically based on the physical connection point of the touchscreen.
- c. Where multiple configurations are stored there shall be a setup menu to allow selection of a configuration.

19. Operation

- a. The Unison Paradigm Control System shall be designed to allow control of lighting and associated systems via Touchscreen controls. System shall allow the control of presets, sequences, macros and time clock events.
 - 1) System presets shall be programmable via Button, Button/Fader or Touchscreen stations, or LightDesigner software.
 - a) Presets shall have a discrete fade time, programmable from zero to 84,600 seconds with a resolution of one hundred milliseconds.
 - b) Presets shall be selectable via Touchscreen stations.
 - 2) System macros and sequences shall be programmable via LightDesigner system software.
 - a) Macro and sequence steps shall provide user selectable steps, and allow the application of conditional logic.
 - b) Macro and sequences shall be activated by button, time clock event or LightDesigner software.
 - 3) System time clock events shall be programmable via the Touchscreen, LightDesigner system software, the processor user interface, or the internal web server.
 - a) Time clock events shall be assigned to system day types. Standard day types include: anyway, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday. System shall support programming of additional custom or special day types.
 - b) Time clock events shall be activated based on sunrise, sunset, time of day or periodic event. System shall automatically compensate for regions using a fully configurable daylight saving time.
 - 4) A Color picker, supporting Hue, Saturation and Brightness (HSB) color selection shall be available for color selection of color changing fixtures and provide visual feedback of the current color produced by the associated fixture.
 - a) The color picker shall be provided with a default layout that requires no user configuration
 - b) The Color Picker shall provide RGB faders in addition to the default HSB color wheel for color selection
 - c) Color picker values shall allow for numerical value input in addition to color wheel and fader control
 - d) The color picker shall be compatible with color mixing systems that use up to seven discrete color control channels
- b. Portable Touchscreen stations shall be designed to operate standard default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the Windows-based configuration program.

- 1) Optional button functions include: preset selection, manual mode activation, record mode activation, station lockout, raise, lower, macro activation, and cue light, or room join/separate.
- 2) Optional fader functions include master control, individual channel control, fade rate control or preset master control.
- c. Portable Touchscreen stations shall allow programming of station and component electronic lockout levels via LightDesigner.
- d. It shall be possible to adjust LCD contrast and brightness.
- e. It shall be possible to program the station to dim during periods of inactivity.

3.19 TOUCHSCREEN CONTROL STATIONS

6. The Touchscreen Control Stations shall be the Unison Paradigm Touchscreen P-TS7 Series Control Stations as manufactured by ETC, Inc., or equal.

7. General

34. Touchscreen stations shall support default and fully graphical control pages.
35. The Touchscreen station shall operate using graphic buttons, faders and other images on at least 30 separate programmable control pages.
36. Touchscreen stations shall also allow programming of page pass-code, lock out and visibility levels.

8. Mechanical

37. Touchscreen stations shall consist of a seven inch, backlit liquid crystal display (LCD) with a minimum resolution of 800 by 400 pixels and 24-bit color depth with a capacitive touch interface.
38. Touchscreen bezels shall be constructed of cast aluminum finished in a fine texture powder coat.
 - a. Touchscreen shall be available in five standard colors
 - 1) Cream (RAL 9001)
 - 2) Ivory (RAL 1015)
 - 3) Gray (RAL 7001)
 - 4) Black (RAL 9004)
 - 5) Signal White (RAL 9003)
 - b. The bezel shall have no visible means of attachment.
 - c. The bezel shall allow the touchscreen to be installed and removed without the use of tools.
 - d. The bezel shall provide two working positions for the Touchscreen: service and normal operation.
39. Touchscreen shall offer optional hinged locking covers

- e. Locking covers shall be made from cast aluminum and be painted to match standard touchscreen color options
 - f. Locking covers shall allow for viewing of system status on the touchscreen through a smoked Lexan window
40. The manufacturer shall provide back boxes for all LCD stations.
- g. Flush back box for Touchscreens with or without locking covers shall be 7.94" wide x 5.33" high x 3.25" deep
 - h. Surface back box dimensions shall be 8.3" wide x 5.6" high x 2.75" deep
 - i. Surface back box for Touchscreens with locking cover dimensions shall be 10.0" wide x 6.7" high x 2.75" deep

9. Electrical

41. Touchscreens shall be powered entirely by the System network.
42. Touchscreens shall connect to the System using an Ethernet network with Power over Ethernet (PoE) or the Unison control station Echelon® Link power network.
- j. Ethernet Network
 - 1) Ethernet network shall be 10/100BaseTX, auto MDI/MDIX, 802.3af (PoE) compliant.
 - 2) Network shall utilize Unshielded Twisted Pair (UTP) Category 5, or better wiring.
 - 3) PoE power consumption shall be PoE class 2, consuming no more than 6 watts.
 - k. Echelon® Link power network.
 - 1) Link power shall utilize low-voltage Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
 - 2) Touchscreen stations shall also require (2) #16 AWG stranded wires for 24Vdc operating power. 24Vdc wiring shall be topology free.
 - 3) Network wiring may be bus, loop, home run, star or any combination of these.
 - 4) Network insulation displacement connectors shall be provided with all stations.

10. Functional

43. System
- l. The Touchscreen shall support configuration firmware upload from a Paradigm Processor as proxy
 - m. The Touchscreen shall support configuration or firmware upload from local removable media
44. Setup Mode
- n. There shall be a setup display that is separate from any user-defined configuration

- o. It shall be possible to view and modify connectivity settings
- p. It shall be possible to view status information
- q. It shall be possible to view and modify LCD screen settings
- r. It shall be possible to perform Touchscreen calibration
- s. It shall be possible to view and modify audio settings
- t. The appearance of the setup display shall be standard and not editable
- u. The setup display may be invoked from within the user-defined configuration and/or physical button on the Touchscreen
- v. There shall be a default protected method to invoke the setup display

45. Configurations

- w. It shall be possible to have multiple configurations stored within an LCD Station
- x. Where multiple configurations are stored there shall be a boot menu to allow selection of a configuration

46. Operation

- y. The Unison Paradigm Control System shall be designed to allow control of lighting and associated systems via Touchscreen controls. System shall allow the control of presets, sequences, macros and time clock events.
 - 1) System presets shall be programmable via Button, Button/Fader, Touchscreen, or LightDesigner software.
 - a) Presets shall have a discrete fade time, programmable from zero to 84,600 seconds with a resolution of one hundred milliseconds.
 - b) Presets shall be selectable via Touchscreen stations.
 - 2) System macros and sequences shall be programmable via LightDesigner system software.
 - a) Macro and sequence steps shall provide user selectable steps, and allow the application of conditional logic.
 - b) Macro and sequences shall be activated by button, time clock event or LightDesigner software.
 - 3) System time clock events shall be programmable via the Touchscreen, LightDesigner system software, the processor user interface, or the internal web server.
 - a) Time clock events shall be assigned to system day types. Standard day types include: anyway, weekday, weekend, Sunday, Monday, Tuesday, Wednesday, Thursday, Friday and Saturday. System shall support programming of additional custom or special day types.

- b) Time clock events shall be activated based on sunrise, sunset, time of day or periodic event. System shall automatically compensate for regions using a fully configurable daylight saving time.
- 4) A Color picker, supporting Hue, Saturation and Brightness (HSB) color selection shall be available for color selection of color changing fixtures and provide visual feedback of the current color produced by the associated fixture.
 - a) The color picker shall be provided with a default layout that requires no user configuration
 - b) The Color Picker shall provide RGB faders in addition to the default HSB color wheel for color selection
 - c) Color picker values shall allow for numerical value input in addition to color wheel and fader control
 - d) The color picker shall be compatible with color mixing systems that use up to seven discrete color control channels
- z. Touchscreen stations shall be designed to operate standard default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the Windows-based configuration program.
 - 1) Optional button functions include: preset selection, manual mode activation, record mode activation, station lockout, raise, lower, macro activation, and cue light, or room join/separate.
 - 2) Optional fader functions include master control, individual channel control, fade rate control or preset master control.
- aa. Touchscreen stations shall allow programming of station and component electronic lockout levels via LightDesigner.
- bb. It shall be possible to adjust LCD contrast and brightness.
- cc. It shall be possible to program the station to dim during periods of inactivity.

3.20 GENERAL NETWORK

iii. General

- 47. The Electronic Theatre Controls Net3 network shall provide data distribution over TCP/IP Ethernet networks. Data shall be layer 3 routable. Systems using proprietary formats or formats other than 10/100/100Mbit wired Ethernet or non-layer 3 routable networks shall not be accepted.
- 48. Connections shall be made between consoles, face panels, architectural processors, dimmers, Net3 Gateways, and computers over standard Ethernet distribution systems using 100BaseT, 100BaseFL, or greater wiring. All installations shall conform to established Ethernet wiring practice, and installation shall be performed by contractors

qualified to do this type of work. All wiring shall be tested at Category 5e or higher for full bandwidth operation to the appropriate IEEE standard.

49. The Lighting Control system must be supplied by a single manufacturer and must have seamless integration over Ethernet between the Entertainment and Architectural lighting control.

iv. Capacities

50. The network shall support DMX routing, patching, and prioritization for up to 63,399 universes (32,767,488 DMX addresses). Each address may be input or output from any port on any DMX gateway in the system. DMX input, routing and output shall be specifically supported on the system from multiple sources and locations up to the maximum number of gateways supported by the Ethernet topology.
51. The network shall support multiple network hosts including consoles, gateways, dimming racks, computers, file servers, printers, and architectural control processors

with discrete command lines and control. The lighting network shall support multiple venues within a system and discrete systems on the same network.

3.21 DIGITAL BUTTON AND FADER STATIONS

K. Button and Fader Stations

3. General

- a. The control station shall be the Paradigm Inspire Station Series as manufactured by ETC, Inc., or equal
- b. It shall be a remote station on a LinkConnect network that can recall presets, provide direct zone control, play macros and provide room combine actions for a control system
- c. The station shall consist of a dual function (control/ record) push-button with an integral tri-color backlight for each corresponding button and fader

4. Mechanical

- a. Control stations shall operate using one, two, four, six or eight buttons. A four button with fader station shall also be available
- b. All button stations shall be available with cream, grey, black or white decorator style faceplates
 - 1) Manufacturer's standard colors shall conform to the RAL CLASSIC Standard
- c. Stations shall have tri-color backlights for each button and fader
 - 1) Indicators shall utilize a configurable color backlight for active status
 - 2) Indicators shall utilize a configurable color backlight for inactive status to assist in locating stations in dark environments. Stations that do not support a lit inactive or deactivated state shall not be accepted
 - 3) Stations shall support an off backlight state of inactive status when required
- d. All faceplates shall be designed for flush or surface mounting and have no visible means of attachment
- e. Station faceplates shall be constructed of ABS plastic and designed based on a standard decorator style faceplate.
- f. Buttons shall be indelibly laser marked for each button function
- g. Control station electronics shall mount directly behind the faceplate. The entire assembly shall mount into a single gang back box. Back boxes for flush mounted stations shall be industry standard back boxes. The manufacturer shall supply back boxes for surface mounted stations.

5. Electrical

- a. Control station wiring shall be LinkConnect control wiring utilizing low-voltage, Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
- b. The station shall operate on class 2 voltage provided by the control system via the LinkConnect network.

- c. Station wiring must be topology free. It may be point-to-point, bus, loop, home run or any combination of these.
 - d. Wiring termination connectors shall be provided with all stations.
 - e. Control stations shall be UL/ cUL listed and CE marked and meet WEEE Compliance
6. Functional
- a. The Control System shall be designed to allow control of lighting and associated systems via Button and Fader controls.
 - 1) System presets shall be programmable via LightDesigner configuration software.
 - a) Presets shall have a discrete fade time, programmable from zero to 1,000 hours with a resolution of one millisecond.
 - 2) System macros and sequences shall be programmable via LightDesigner configuration software.
 - a) Macro and sequence steps shall provide user selectable steps, and allow the application of conditional logic.
 - b) Macro and sequences shall be activated by button, time clock event or LightDesigner software.
 - b. Control components shall be designed to operate default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the software-based configuration program.
 - 1) Optional button functions include: preset selection, manual mode activation, record mode activation, station lockout, raise, lower, macro activation, or room join/separate.
 - 2) Optional fader functions include manual master control, individual zone control, color control fade rate control or preset master control.Stations (Button and Button/Fader) shall allow programming of station and component electronic lockout levels via LightDesigner.

v. System Configuration and Monitoring

52. Network device configuration shall be via Net3 Gateway Configuration Editor (GCE) software and/or ANSI E1.17 Architecture for Control Networks (ACN).
53. Patch addresses shall support viewing and manipulation via ANSI E1.17 ACN.
 - c. The system shall permit complete user flexibility allowing the system operator to patch each DMX input address to any ANSI E1.31 streaming ACN address, and DMX output to span streaming ACN universes.
 - d. The lighting system shall support assignment of DMX offsets, truncation of DMX universes, and provide choice of DMX port prioritization.
 - e. The lighting system shall support the DD start code extension to ANSI E1.31 which provides priority per address such that multiple control sources can share universes with discrete control per address.
 - f. Lighting systems that do not support the above mentioned address patching capabilities shall not be suitable.
54. The system shall allow assignable labels for all network devices to allow easy identification by system users.
55. Each network device shall have a discrete and unique IP address provided automatically by the software. The user may edit this IP address. Systems that do not support automated IP allocation with IP collision avoidance, and systems that do not allow complete reconfiguration of the above mentioned features over ANSI E1.17 ACN shall not be acceptable.
56. All configuration data for each network device shall be held at the device and system operation shall not require continuous on-line operation of the network configuration software.
57. Lighting console operators shall be able to backup the network configurations in the lighting control console. In the event of a network device failure, the operator shall be able to apply the configuration of the failed device to a replacement device of the same type without manually reentering settings. Systems that do not support configuration backup as described above shall not be accepted.
58. Architectural and Entertainment systems connected to the same network shall be capable of arbitrating control over E1.31 Streaming ACN (sACN) level data. The system shall be capable of alternating control of individual address data between architectural and entertainment systems without intervention by the user. The user shall dictate the conditions under which system shall automatically take control. The network shall allow user override of the selected defaults. Systems which require direct user intervention to allocate control of dimmers between architectural and entertainment lighting systems shall not be accepted.
59. The Net3 network shall allow multiple DMX input sources to be prioritized on the same universe as network native sources using E1.31 Streaming ACN prioritization. Multiple DMX inputs may be assigned to the same streaming ACN address (this provides multi-source control for a particular address). Likewise, the system shall support E1.31 prioritization of multiple simultaneous network sources. Systems that cannot prioritize

multiple DMX inputs and multiple native network sources on a network shall not be deemed suitable.

60. The lighting network shall allow each DMX input address to be assigned a priority on the network allowing each DMX control level coming into the system to participate in full arbitration. Addresses with the highest priority shall have control, with lower priority addresses being ignored. Addresses assigned the same numeric priority, between 1 and 200, shall respond in highest level takes precedence (HTP) manor. The network shall require a valid DMX signal present at the input to initiate prioritization. Systems that do not allow for prioritized HTP for DMX inputs to the network shall not be allowed.

vi. Operational Features

61. Each DMX gateway shall control up to 512 DMX addresses per port, within the confines of up to 63,999 DMX universes (32,747,488 address). The specific DMX data input or output by the gateway shall be configurable by the user.
62. Duplicate outputs of DMX data (DMX splitter) and discrete outputs shall be fully supported.
63. Merging of multiple DMX input sources on a single gateway without gateway with DMX output on the same gateway shall be supported without connection to the network. The gateway shall support assignment of priority to each input source independently
64. File transmission, synchronization and access to software shall be supported.

3.22 CONTROL SYSTEM CONFIGURATION SOFTWARE

1. System Configuration

65. The Lighting Control System Configuration software shall be the Net3 Concert software as manufactured by Electronic Theatre Controls, Inc., or equal.

66. Definitions

- a. A system is more than one Net3 or RDM device
- b. A fixture is a controllable entity with one or more attributes
- c. An attribute is a parameter of control such as IP address or dimmer number
- d. A group is a selection of devices that can be stored and recalled
- e. A space is defined area where other system objects reside. A space defines the scope of Control for other objects.
- f. An indicator is a single point of feedback from the system (e.g. LED, Label on LCD)
- g. Linking is the process of associating a logical instance of a device within the configuration with a physical device discovered at runtime

67. Environment

- h. There shall be clipboard functionality (cut, copy, paste) for entire objects, settings, and text.
- i. There shall be undo and redo functionality where persistent changes are made to the System configuration (but not application settings or playback state).
- j. There shall be an auto-backup feature.
- k. The application interface shall be based around (i) a tree-view; (ii) a workspace area; (iii) a properties inspector; (iv) item selector.
- l. It shall be possible to represent data about the workspace area graphically (plan) or in spreadsheet form.
- m. Plan views shall support zoom.
- n. Plan views shall support a layout grid with user-defined spacing and color with associated snap-to-grid functionality.
- o. The properties inspector shall be used to view and modify the properties of one or multiple devices.
- p. It shall be possible to enter user-configurable names in any language supported by their operating system (e.g. encoded as UTF8).
- q. User-configurable names shall be limited to 64 display characters each.
- r. Help functionality shall be accessed from within the application.

68. System Configuration

- s. It shall be possible to create Logical Spaces that contain a subset of devices or objects from a parent logical space, or from the world view.
- t. It shall be possible to add devices by selecting a Fixture Template from the provided library.

- u. It shall be possible to work online with a live system, or offline.
- v. It shall be possible to create a system based on discovery of online devices by generating a topographical network map of all supported, online devices.
- w. It shall be possible to export system configuration data to individual device configuration files
- x. There shall be a wizard to assist with the initial setup of a system including project data entry, and network configuration.
- y. There shall be a process for linking physical and logical devices
- z. There shall be a 2-dimensional plan view that displays devices
- aa. Items displayed on the plan may be arranged using standard graphical interaction methods (e.g. drag-and-drop)
- bb. It shall be possible to import images JPEG, BMP and GIF formats as a background image to the plan view

69. Device Configuration

- cc. There shall be functionality to configure RDM devices by connection through a DMX gateway or other protocol converter.
- dd. There shall be support for configuration of Net3 and ACN based Ethernet devices.
- ee. New devices shall be added using a simple device package import, without the need for a new software version.
- ff. Device configuration shall be supported by editing properties in the property editor, or through use of a purpose built mini-editor.

70. Network

- gg. Shall display a topological view of devices connected
- hh. Can associate a device with a specific view or views
- ii. Shall report online status of all supported devices
- jj. Shall allow for configuration of network properties (IP) of devices
- kk. Shall allow for upload of configuration data to all or individual device or an entire system
- ll. Shall allow for download of configuration data from a single device or an entire system
- mm. Shall allow for download of logging data from connected devices
- nn. Shall provide for performing software upgrades to connected devices
- oo. Shall allow for discovery and linking of devices
- pp. There shall be a mode in which configuration changes are propagated to Processors as they occur without interrupting operation (live edit).

71. Reports

- qq. It shall be possible to generate tabular reports and customize their layout and appearance.
- rr. It shall be possible to print reports.
- ss. It shall be possible to export reports to file (e.g. CSV).

2. Minimum Computer Requirements

72. The software shall require the following minimum requirements:
- tt. Windows 8, Windows7 or Windows XP SP2 operating system
 - uu. 2 GHz Pentium 4 or better
 - vv. A minimum of 1 GB system memory
 - ww. A minimum of 1 GB hard drive space
 - xx. OpenGL graphics acceleration with a monitor capable of displaying at least 1024 x 768 screen resolution
 - yy. Keyboard and mouse.

3.23 DIGITAL BUTTON AND FADER STATIONS

K. Button and Fader Stations

3. General

- a. The control station shall be the Paradigm Inspire Station Series as manufactured by ETC, Inc., or equal
- b. It shall be a remote station on a LinkConnect network that can recall presets, provide direct zone control, play macros and provide room combine actions for a control system
- c. The station shall consist of a dual function (control/ record) push-button with an integral tri-color backlight for each corresponding button and fader

4. Mechanical

- a. Control stations shall operate using one, two, four, six or eight buttons. A four button with fader station shall also be available
- b. All button stations shall be available with cream, grey, black or white decorator style faceplates
 - 1) Manufacturer's standard colors shall conform to the RAL CLASSIC Standard
- c. Stations shall have tri-color backlights for each button and fader
 - 1) Indicators shall utilize a configurable color backlight for active status
 - 2) Indicators shall utilize a configurable color backlight for inactive status to assist in locating stations in dark environments. Stations that do not support a lit inactive or deactivated state shall not be accepted
 - 3) Stations shall support an off backlight state of inactive status when required
- d. All faceplates shall be designed for flush or surface mounting and have no visible means of attachment
- e. Station faceplates shall be constructed of ABS plastic and designed based on a standard decorator style faceplate.
- f. Buttons shall be indelibly laser marked for each button function

- g. Control station electronics shall mount directly behind the faceplate. The entire assembly shall mount into a single gang back box. Back boxes for flush mounted stations shall be industry standard back boxes. The manufacturer shall supply back boxes for surface mounted stations.

5. Electrical

- a. Control station wiring shall be LinkConnect control wiring utilizing low-voltage, Class II unshielded twisted pair, type Belden 8471 or equivalent, and one #14 ESD drain wire (when not installed in grounded metal conduit).
- b. The station shall operate on class 2 voltage provided by the control system via the LinkConnect network.
- c. Station wiring must be topology free. It may be point-to-point, bus, loop, home run or any combination of these.
- d. Wiring termination connectors shall be provided with all stations.
- e. Control stations shall be UL/ cUL listed and CE marked and meet WEEE Compliance

6. Functional

- a. The Control System shall be designed to allow control of lighting and associated systems via Button and Fader controls.
 - 1) System presets shall be programmable via LightDesigner configuration software.
 - a) Presets shall have a discrete fade time, programmable from zero to 1,000 hours with a resolution of one millisecond.
 - 2) System macros and sequences shall be programmable via LightDesigner configuration software.
 - a) Macro and sequence steps shall provide user selectable steps, and allow the application of conditional logic.
 - b) Macro and sequences shall be activated by button, time clock event or LightDesigner software.
- b. Control components shall be designed to operate default or custom system functions. Components shall operate default functions unless re-assigned via LightDesigner, the software-based configuration program.
 - 1) Optional button functions include: preset selection, manual mode activation, record mode activation, station lockout, raise, lower, macro activation, or room join/separate.
 - 2) Optional fader functions include manual master control, individual zone control, color control fade rate control or preset master control.Stations (Button and Button/Fader) shall allow programming of station and component electronic lockout levels via LightDesigner.

3.24 DMX ETHERNET GATEWAY – FOUR PORT

- General

73. The lighting control gateway shall be a microprocessor-based unit specifically designed to provide DMX-512 control of lighting systems and transport of RDM configuration and status messages. The gateway shall permit DMX-512 data to be encoded, routed over an Ethernet network and decoded back to DMX-512. The unit shall be a Response Mk2 4-port DMX Gateway as provided by ETC, Inc.

74. Gateways shall communicate over Ethernet directly with at least ETC, Inc.'s entertainment and architectural lighting control products and other Ethernet interfaces.

75. Connections shall be made between gateways, consoles, architectural systems, and PCs over standard Ethernet distribution systems using 10/100BaseT.

76. The gateway shall support multiple protocols including:

- a. ANSI E1.17 Architecture for Control Networks (ACN)
- b. ANSI E1.31 Streaming ACN (sACN)
- c. ANSI E1.11 USITT DMX512-A
- d. ANSI E1.20 Remote Device Management (RDM)

77. The gateway shall be tested to UL standards and labeled ETL Listed.

78. The gateway shall be RoHS Compliant (lead-free).

79. The gateway shall be CE compliant.

80. The gateway shall have a graphic OLED display and four buttons for identification (soft-labeling), configuration, status reporting and troubleshooting

- e. Labeling shall be user configurable using ANSI E1.17 Architecture for Control Network (ACN), or a purpose built software configuration tool.
- f. The OLED display shall show DMX port configuration indication as well as indicate the presence of valid signal.
- g. Gateways that do not indicate port configuration (input/output) and valid data shall not be acceptable.

81. Each gateway shall have power and data activity LEDs on the front of the gateway

- DMX Ports

82. DMX Ports shall comply with the requirements of ANSI E1.11 USITT DMX512-A standards.

83. Each DMX port shall be software or locally-configurable for either input or output functionality.

84. DMX input shall be optically-isolated from the gateway electronics.

85. DMX Port shall provide at least 500V isolation to ground and the rest of the electronics

86. Each port shall incorporate one DMX512-A Connection

h. Gateways shall be available with the following connection options: 5-pin male XLR, 5-pin female XLR, Ethercon RJ-45, or terminal strip for DMX wiring.

87. Network gateways that do not indicate input/ output port configuration or presence of valid data shall not be accepted

- Processor

88. Each gateway shall have sufficient processing power to manage up to 63,999 universes (32,767,488 addresses).

89. Maximum delay time from input to output shall not be greater than one packet time (approximately 22 mSec.).

90. A minimum DMX update rate of 40Hz shall be sustained under all conditions unless specifically configured for a slower rate for the sake of compatibility with 3rd party DMX devices.

- Mechanical

91. The Gateway shall be fabricated of 16-gauge steel, finished in fine-texture, scratch-resistant, black powder coat (RAL 9004).

92. The gateway shall support table top use

93. The gateway shall support field configuration allowing the Ethernet port to be either on the front or the rear of the unit

94. Optional accessories for rack-mount and pipe applications shall be available from the manufacturer. These accessories shall support installation by an end-user

- Power

95. Power for the gateway shall be provided over the Category 5 (or better) cable, utilizing IEEE 802.3af compliant Power over Ethernet (PoE). Power consumption using shall not be greater than 7 watts.

96. An optional low-voltage DC power input shall be available utilizing an isolated in-line power supply capable of an operating range of 12-24VDC. The Power supply shall be provided by the gateway manufacturer.

97. The gateway electronics shall be electrically isolated from the power supplied over the Category 5 (or better) cable.

- Configuration

98. The Gateway must support local or remote configuration.

99. Each gateway on the network shall be individually configurable using freely available software configuration tools. The primary configuration tool shall be Net3 Concert configuration software running on a network connected PC. The PC shall only be required for configuration, and shall not be required for normal operation of the system.

100. Each port of the DMX gateway shall control up to 512 DMX addresses, within the confines of 63,999 universes.

101. The specific DMX data input or output by the gateway shall be freely configurable by the user.

102. Duplicate outputs of DMX lines (DMX splitter) and discrete outputs shall be fully supported.

103. Multiple DMX universes may be configured with any length up to 512 total addresses. Any range of DMX input addresses shall support selection and routing to the specified sACN output.

104. Multiple sACN sources may be combined with a priority may be assigned to each source sending data to the gateway

105. All relevant routing information shall be stored in non-volatile memory at each gateway. The system shall recover from a power outage without requiring the PC to be online. Gateways that do not support non-volatile storage of data routing shall not be accepted.

- Network

106. Communications physical layer shall comply with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet specifications.

107. All network cabling shall be Category 5 (or better), conforming to TIA-568A/B, and shall be installed by a qualified network installer.

108. Data transport shall utilize the TCP/IP suite of protocols to transfer the DMX data.

109. ANSI E1.17 Architecture for Control Networks (ACN) and streaming ACN (sACN) shall be supported. Gateways that do not support ANSI E1.17 shall not be acceptable.

110. Each DMX gateway shall control up to 512 DMX addresses, per DMX port within the confines of up to 63,999 universes (32,767,488 addresses) using Streaming ACN (sACN).

- i. Any range of DMX addresses may be selected for each universe.

- j. Multiple sources shall be supported by prioritized Highest Takes Precedence (HTP with priority). Each source shall support assignment of priority to allow override of default HTP behavior.

- k. Each DMX port shall support its own universe and start address.

111. Gateways shall have built in DMX merger capability on a universe or channel-by-channel basis.

112. Gateways shall support have built in priority on a per-universe or channel-by-channel basis. Gateways that do not support prioritized merging of multiple network sources at independent priorities shall not be accepted.

- Environmental

113. The ambient operating temperature shall be 0° to 40°C (32° to 104°F).

114. The storage temperature shall be -40° to 70°C (-40° to 158°F).

115. The operating humidity shall be 5% - 95% non-condensing.

- Accessories

116. Hanging bracket kit shall allow unit to be mounted in three orientations.

I. U-Bolt or C-Clamp mounting hardware shall be available

117. One E.I.A. rack space mounting bracket kit shall support either one or two complete units and allow for up to eight ports of DMX

118. Front Access Panel kit shall allow the connectors on the rear of the gateway to be accessed from the front of an equipment rack. Options for 5-pin XLR style connectors that support DMX input or output shall be available

119. A Universal Power Supply with international plug-set shall be available. Multiple power supplies shall be able to fit in a vertically stacked power strip.

120. ETC Net3 Concert Configuration and monitoring Software

- System Requirements

121. Provide the quantity and type of gateways required, as scheduled. Gateways and software shall be as manufactured by ETC Inc. of Middleton, WI.

3.25 DMX ETHERNET GATEWAY – TWO PORT

K. General

3. The lighting control gateway shall be a microprocessor-based unit specifically designed to provide DMX-512 control of lighting systems and transport of RDM configuration and status messages. The gateway shall permit DMX-512 data to be encoded, routed over an Ethernet network and decoded back to DMX-512. The unit shall be a Response Mk2 2-port DMX Gateway as provided by ETC, Inc.
4. Gateways shall communicate over Ethernet directly with at least ETC, Inc.'s entertainment and architectural lighting control products and other Ethernet interfaces.
5. Connections shall be made between gateways, consoles, architectural systems, and PCs over standard Ethernet distribution systems using 10/100BaseT.
6. The gateway shall support multiple protocols including:
 - a. ANSI E1.17 Architecture for Control Networks (ACN)

- b. ANSI E1.31 Streaming ACN (sACN)
 - c. ANSI E1.11 USITT DMX512-A
 - d. ANSI E1.20 Remote Device Management (RDM)
- 7. The gateway shall be tested to UL standards and labeled ETL Listed.
 - 8. The gateway shall be RoHS Compliant (lead-free).
 - 9. The gateway shall be CE compliant.
 - 10. The gateway shall have a graphic OLED display and four buttons for identification (soft-labeling), configuration, status reporting and troubleshooting
 - a. Labeling shall be user configurable using ANSI E1.17 Architecture for Control Network (ACN), or a purpose built software configuration tool.
 - b. The OLED display shall show DMX port configuration indication as well as indicate the presence of valid signal.
 - c. Gateways that do not indicate port configuration (input/output) and valid data shall not be acceptable.
 - 11. Each gateway shall have power and network activity LEDs on the front of the gateway

L. DMX Ports

- 3. DMX Ports shall comply with the requirements of ANSI E1.11 USITT DMX512-A standards.
- 4. Each DMX port shall be software-configurable for either input or output functionality.
- 5. DMX input shall be optically-isolated from the gateway electronics.
- 6. DMX Port shall provide at least 500V isolation to ground and the rest of the electronics
- 7. Each port shall incorporate one DMX512-A Connection
 - a. Gateways shall be available with the following connection options: 5-pin male XLR, 5-pin female XLR, or Ethercon RJ-45, for DMX wiring.
- 8. Network gateways that do not indicate input/ output port configuration or presence of valid data shall not be accepted

M. Processor

- 3. Each gateway shall have sufficient processing power to manage up to 63,999 universes (32,767,488 addresses).
- 4. Maximum delay time from input to output shall not be greater than one packet time (approximately 22 mSec.).

5. A minimum DMX update rate of 40Hz shall be sustained under all conditions unless specifically configured for a slower rate for the sake of compatibility with 3rd party DMX devices.

N. Mechanical

3. Gateway bezels shall be constructed of cast zinc finished in a fine texture powder coat.
 - a. Gateways shall be available in four standard colors
 - 1) Cream (RAL 9001)
 - 2) Gray (RAL 7001)
 - 3) Black (RAL 9004)
 - 4) Signal White (RAL 9003)
 - b. The bezel shall have no visible means of attachment
4. Gateways shall support surface, flush and portable mounting options
 - a. Flush-mount to industry standard 2-gang back box
 - b. Surface back box dimensions shall be 7.3" wide x 4.8" high x 3.5" deep and available from the manufacturer
 - c. Portable gateway
 - 1) The portable gateway shall include a complete enclosure finished in a black or white fine texture powder coat paint
 - 2) Wiring connections shall be required for connection to the lighting system
 - a) Ethernet connection that supports standard Cat5 patch cables or Ethercon cables. Gateways that do not support the use of Ethercon cables shall not be accepted
 - b) DMX input or output connections using is 5-pin XLR or RJ45 Ethercon style connector
 - c) Optional low-voltage DC power input connection

O. Power

3. Power for the gateway shall be provided over the Category 5 (or better) cable, utilizing IEEE 802.3af compliant Power over Ethernet (PoE). Power consumption using shall not be greater than 4 watts.
4. An optional low-voltage DC power input shall also be available utilizing an isolated in-line power supply capable of an operating range of 12-24vDC. The Power supply shall be optionally provided by the gateway manufacturer.
5. The gateway electronics shall be electrically isolated from the power supplied over the Catagory5 (or better) cable.

P. Configuration

3. The Gateway must support local or remote configuration.

4. Each gateway on the network shall be individually configurable using freely available software configuration tools. The primary configuration tool shall be Net3 Concert configuration software running on a network connected PC. The PC shall only be required for configuration, and shall not be required for normal operation of the system.
5. Each DMX gateway shall control up to 512 DMX addresses, within the confines of 63,999 universes.
6. The specific DMX data input or output by the gateway shall be freely configurable by the user.
7. Duplicate outputs of DMX lines (DMX splitter) and discrete outputs shall be fully supported.
8. Multiple DMX universes may be configured with any length up to 512 total addresses. Any range of DMX input addresses shall support selection and routing to the specified sACN output.
9. Multiple sACN sources may be combined with a priority may be assigned to each source sending data to the gateway
10. All relevant routing information shall be stored in non-volatile memory at each gateway. The system shall recover from a power outage without requiring the PC to be online.

Gateways that do not support non-volatile storage of data routing shall not be accepted.

Q. Network

3. Communications physical layer shall comply with IEEE 802.3i for 10BASE-T, 802.3u for 100BASE-TX and 802.3af for Power over Ethernet specifications.
4. All network cabling shall be Category 5 (or better), conforming to TIA-568A/B, and shall be installed by a qualified network installer.
5. Data transport shall utilize the TCP/IP suite of protocols to transfer the DMX data.
6. ANSI E1.17 Architecture for Control Networks (ACN) and ANSI E1.31 streaming ACN (sACN) shall be supported. Gateways that do not support ANSI E1.17 shall not be acceptable.
7. Switches shall comply with power-over-Ethernet IEEE802.3af, unless a separate in-line power supply is provided.
8. Each DMX gateway shall control up to 512 DMX addresses, per DMX port within the confines of up to 63,999 universes (32,767,488 addresses) using Streaming ACN (sACN).
 - a. Any range of DMX addresses may be selected for each universe.
 - b. Multiple sources shall be supported by prioritized Highest Takes Precedence (HTP with priority). Each source shall support assignment of priority to allow override of default HTP behavior.
 - c. Each DMX port shall support its own universe and start address.
9. Gateways shall have built in DMX merger capability on a universe or channel-by-channel basis.
10. Gateways shall support have built in priority on a per-universe or channel-by-channel basis. Gateways that do not support prioritized merging of multiple network sources at independent priorities shall not be accepted.

R. Environmental

3. The ambient operating temperature shall be 0° to 40°C (32° to 104°F).
4. The storage temperature shall be -40° to 70°C (-40° to 158°F).
5. The operating humidity shall be 5% - 95% non-condensing.

S. Accessories

3. Hanging bracket kit shall allow gateway to be mounted using C-Clamp to U-bolt Hardware.
4. A Universal Power Supply with international plug-set shall be available. Multiple power supplies shall be able to fit in a vertically stacked power strip.

5. ETC Net3 Concert Configuration and monitoring Software

T. System Requirements

3. Provide the quantity and type of gateways required, as scheduled. Gateways and software shall be as manufactured by Electronic Theatre Controls Inc. of Middleton, WI.

3.26 DATA PLUG-IN STATIONS

K. General

3. The Plug-in Stations shall consist of the appropriate connectors required for the functional intent of the system. These stations shall be available with DMX input or output, Remote Focus Unit, Network, or architectural control connectors. Custom control connectors shall be available.

L. Connector Options

3. The following standard components shall be available for Plug-in Stations:
 - a. 5-Pin male XLR connectors for DMX input
 - b. 5-Pin female XLR connectors for DMX output
 - c. 6-Pin female XLR connectors for RFU and ETCLink connections
 - d. RJ45 connectors for Network connections - Twisted Pair
 - e. 6-Pin female DIN connectors for Unison connections
 - f. DB9 female serial connector for architectural control from a computer
4. Custom combinations and custom control connections shall be available.

M. Physical

3. Station faceplates shall be .80" aluminum, finished in fine texture, scratch-resistant black powder coat. Silk-screened graphics shall be white.
4. The station panel shall mount into an industry standard back box, depending on size and quantity of connectors. A terminal block shall be supplied for contractor terminations.

A. DMX EMERGENCY BYPASS CONTROL

- Where required to trigger special-purpose lighting presets and bypass normal lighting controls during emergency or panic situations, the bypass means shall be the DMX Emergency Bypass Controller (DEBC) as manufactured by ETC, Inc., or equal
- Functional
 - The DMX Emergency Bypass Controller shall be capable of overriding a single universe of ANSI E1.11–2008, USITT DMX512-A control signals from “Normal” to “Bypass” when a trigger signal is detected via a contact closure trigger input
 - (1) The DMX Emergency Bypass Controller shall output to a single DMX output or up to six optically-isolated DMX outputs
 - (2) The DMX Emergency Bypass Controller shall poll the bypass trigger input after a power loss and react upon start up
 - (3) The default or recorded preset shall be recalled immediately on restart if the trigger is also applied at restart
 - (4) Controllers that do not support E1.11–2008 compliant DMX communication shall not be acceptable
 - The DMX Emergency Bypass Controller shall be capable of recording a single DMX preset (snapshot) of 512 channels for recall during “Bypass” mode
 - The DMX Emergency Bypass Controller (DEBC) shall have internally accessible, labeled DIP switches for configuration of:
 - (5) DMX Record Mode
 - (a) All 512 channels (default)
 - (b) Selected channels, snapshot
 - (6) Contact input type
 - (a) Normally open (default)
 - (b) Normally closed
 - (7) Wait Time for Restore incoming DMX (bypass trigger removed)
 - (a) 0 Seconds (default)
 - (b) 10 Second Wait
 - (c) 30 Second Wait
 - (d) 10 Minute Wait
 - (8)
 - The DMX Emergency Bypass Controller shall support a single bypass input using two input modes:
 - (9) Bypass triggering shall be supported via a maintained contact input configurable for normally open (N.O.) or normally closed (N.C.) operation
 - (10) The contact input shall support +12VDC wet input to provide interface with fire alarm or secondary triggering systems. Bypass controllers that do not support a fire alarm input shall not be acceptable.

- Mechanical

- The DMX Emergency Bypass Controller (DEBC) enclosure shall be a surface mounted enclosure with a removable cover, constructed of 16-gauge, formed steel with a removable front cover
 - (11) All components shall be properly treated and finished in fine textured, scratch-resistant, powder coat paint
 - (12) DEBC enclosure shall have a minimum of four keyed mounting holes for wall attachment
 - (13) DEBC enclosure shall have a visible label stating the product name, manufacturer name, indicator functions, control functions, ratings and listings
- The DMX Emergency Bypass Controller (DEBC) enclosure shall provide discrete high and low voltage wiring compartments with voltage barrier
- The DMX Emergency Bypass Controller (DEBC) shall have a single bi-color LED indicator visible from the exterior of the enclosure
 - (14) LED shall indicate Normal state with a “green” color light
 - (a) Normal state illuminates steady green when Power and DMX are present
 - (b) LED Off indicates Power or DMX are not present
 - (15) LED shall indicate Bypass state with a “red” color light
 - (a) Bypass state includes bypass input contact trigger or ‘test’ active
- The DMX Emergency Bypass Controller (DEBC) shall have a single test button accessible from the front of the enclosure without removing any panels
 - (16) The test button shall immediately trigger bypass state for as long as it is held down, and release the bypass state immediately upon release of the button
 - (a) The test button shall be momentary only
 - (b) The test button shall be recessed to prevent accidental triggering
- The DMX Emergency Bypass Controller (DEBC) shall have a single, internally accessible button for DMX Record (snapshot) with an indicator LED for record action
 - (c) The record button shall be momentary only and held for at least 3 seconds before activation to prevent accidental recording
 - (d) The LED indicator will flash rapidly when record function is active
 - (e) The LED indicator will illuminate steady when record function is complete
- The DMX Emergency Bypass Controller (DEBC) dimensions and weights shall not exceed:
 - (17) 9” H x 11” W x 2” D,
 - (18) 8lbs (single output); 14.5lbs (multi-output)

- Electrical

- The DMX Emergency Bypass Controller shall be completely internally pre-wired by the manufacturer
- The contractor shall provide input feed and control wiring to the provided terminals
 - (19) DMX Emergency Bypass Controllers (DEBC) shall support 100 to 277 volt input power, 50/60 Hz, 150mA maximum current
- DEBC shall support labeled terminations for two 24 – 10 AWG solid or stranded power wires
- DEBC shall support one Grounding Lug for 24-14 AWG solid or stranded ground wire
- DEBC shall support labeled, socketed termination connections for DMX Input and DMX Output wiring
 - (20) Terminations shall support Belden 9729 cable or equivalent
 - (a) DMX Termination kits for Belden 9729 shall be supplied with the controller
 - (b) Optional Termination kits for Belden 1583A (or equivalent Category 5 cable) shall be available from the manufacturer
- DEBC shall support labeled, socketed termination for the bypass contact input
 - (21) Termination shall support two, 30-12 AWG low-voltage wires
 - (22) The bypass input shall support a maintained normally open (N.O.) or normally closed (N.C.) dry contact input
 - (23) A +12VDC wet contact input shall also be available for interface to fire alarm systems.
 - (24) DEBC shall support socketed DMX transceiver chips
 - (a) A spare DMX transceiver chip shall be supplied in a labeled, inactive socket
- The DMX Emergency Bypass Controller (DEBC) shall internally switch from the normal DMX input (pass through) to the bypass DMX output using electromechanical relays when triggered
 - (25) The DEBC shall have non-volatile memory for storage of a single recorded sequence of 512 channels
 - (a) The recorded sequence shall persist through power outages
 - (b) The default sequence shall have all 512 channels at “full” if no sequence is recorded
 - (26) The DEBC shall have a DMX baud rate of “Slow” (20 packets per second) for increased compatibility during bypass DMX output
- The DEBC shall be available in two versions capable of output to a single DMX line or up to six optically-isolated DMX lines
- The DMX Emergency Bypass Controller shall be UL and cUL Section 924 LISTED for interaction with similarly listed products

- Thermal

- Ambient room temperature: 0-40°C / 32-104°F
- Ambient humidity: 10-95% non-condensing

3.27 BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH (BCELTS)

K. General

3. The Branch Circuit Emergency Lighting Transfer Switch (BCELTS) shall be the SC1008 as manufactured by ETC, Inc., or equal
4. The BCELTS shall provide automatic transfer of a single branch circuit from normal to emergency power source, when normal power fails
5. The BCELTS shall transfer a lighting load branch circuit from a dimmer/ relay or secondary control output to a second power source in the event of a loss of power to the primary power source, a normal system failure, or activation of a fire alarm
6. The system shall be listed under ANSI / UL1008 Transfer Switch Equipment and comply with ANSI / NFPA 110 Standard for Emergency and Standby Power Systems, and ANSI / NFPA 70 (NEC), including Article 700, 701 and 702 safety

standards. Emergency transfer systems that do not comply with the below stated NEC articles and sections shall not be permitted

a. Satisfies requirements of the National Electrical Code (NFPA 70):

- 1) Article 700 – Emergency Systems
- 2) Article 701 – Legally Required Standby Systems
- 3) Article 702 – Optional Standby Systems
- 4) Section 518.3(C) – Assembly Occupancies
- 5) Section 520.7 – Theatres and Similar Locations
- 6) Section 540.11(C) – Motion Picture Projection Rooms

7. The BCELTS shall transfer a single circuit at 120V or 277V up to 20 Amperes in capacity

L. Transfer Switch

3. The BCELTS shall be a UL1008 transfer switch listed for Emergency Systems (NEC Articles 700 and 701; UL CCN WPWR)

- a. Transfer switches not listed under UL1008 shall not be acceptable
- b. Transfer switches listed under UL1008 for Optional Standby (NEC Article 702; UL CCN WPXT) applications only shall not be acceptable
- c. Automatic Load Control Relays (ALCR) listed under UL924 shall not be acceptable

4. The switch shall be positively latched and unaffected by voltage variations or momentary outages so that constant contact pressure is maintained and temperature rise at the contacts is minimized

5. The switch shall be electrically interlocked to ensure only one position, either Normal or Emergency, is engaged at any time

6. The switch shall be break-before-make to ensure that normal and emergency sources are never interconnected within the unit

7. Built-in fuses shall provide 10,000 Ampere Short Circuit Current Rating (SCCR) on the connected emergency circuit

8. Switch contacts shall withstand transfer without welding, with 180° phase displacement between normal and emergency power sources if both sources are energized

9. Transfer switch contacts shall be rated for mixed loads, including electric discharge lamps and tungsten filament lamps

10. Transfer switch shall be rated for a minimum of 6,000 cycles at full tungsten load

M. Control Circuitry

3. The control circuitry shall direct the operation of the transfer switch

4. A field-configurable normally closed (NC) or normally open (NO) dry contact closure input shall be provided
 - a. Up to (10) BCELTS devices may be connected to a single remote loop
5. The BCELTS shall support transfer of a 0-10V or DALI controlled circuit
 - a. Upon activation of emergency transfer the BCELTS shall break the 0-10V or DALI control circuit, driving connected 0-10V circuits to full output and DALI circuits to their default level.

N. Operation

3. Transfer to alternate emergency supply will occur when normal supply sense voltage drops below 80V when used at 120V or 277V

O. Enclosure

3. The BCELTS shall be mounted in a NEMA 1 interior type enclosure finished in fine- textured epoxy paint
4. The enclosure shall be 8.5"H x 10.5"W x 2.75"D
5. The system shall be provided with an approved overlay mounted on the front of the enclosure, stating, "BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH"
6. The enclosure shall be provided with an approved label indicating that the system is UL1008 LISTED for Emergency Systems

3.28 DMX EMERGENCY BYPASS CONTROL

- vii. Where required to trigger special-purpose lighting presets and bypass normal lighting controls during emergency or panic situations, the bypass means shall be the DMX Emergency Bypass Controller (DEBC) as manufactured by ETC, Inc., or equal

viii. Functional

122. The DMX Emergency Bypass Controller shall be capable of overriding a single universe of ANSI E1.11–2008, USITT DMX512-A control signals from "Normal" to "Bypass" when a trigger signal is detected via a contact closure trigger input
 - a. The DMX Emergency Bypass Controller shall output to a single DMX output or up to six optically-isolated DMX outputs
 - b. The DMX Emergency Bypass Controller shall poll the bypass trigger input after a power loss and react upon start up
 - c. The default or recorded preset shall be recalled immediately on restart if the trigger is also applied at restart
 - d. Controllers that do not support E1.11–2008 compliant DMX communication shall not be acceptable
123. The DMX Emergency Bypass Controller shall be capable of recording a single DMX preset (snapshot) of 512 channels for recall during "Bypass" mode

124. The DMX Emergency Bypass Controller (DEBC) shall have internally accessible, labeled DIP switches for configuration of:
 - e. DMX Record Mode
 - 1) All 512 channels (default)
 - 2) Selected channels, snapshot
 - f. Contact input type
 - 1) Normally open (default)
 - 2) Normally closed
 - g. Wait Time for Restore incoming DMX (bypass trigger removed)
 - 1) 0 Seconds (default)
 - 2) 10 Second Wait
 - 3) 30 Second Wait
 - 4) 10 Minute Wait
 - h.
125. The DMX Emergency Bypass Controller shall support a single bypass input using two input modes:
 - i. Bypass triggering shall be supported via a maintained contact input configurable for normally open (N.O.) or normally closed (N.C.) operation
 - j. The contact input shall support +12VDC wet input to provide interface with fire alarm or secondary triggering systems. Bypass controllers that do not support a fire alarm input shall not be acceptable.

ix. Mechanical

126. The DMX Emergency Bypass Controller (DEBC) enclosure shall be a surface mounted enclosure with a removable cover, constructed of 16-gauge, formed steel with a removable front cover
 - k. All components shall be properly treated and finished in fine textured, scratch-resistant, powder coat paint
 - l. DEBC enclosure shall have a minimum of four keyed mounting holes for wall attachment
 - m. DEBC enclosure shall have a visible label stating the product name, manufacturer name, indicator functions, control functions, ratings and listings
127. The DMX Emergency Bypass Controller (DEBC) enclosure shall provide discrete high and low voltage wiring compartments with voltage barrier
128. The DMX Emergency Bypass Controller (DEBC) shall have a single bi-color LED indicator visible from the exterior of the enclosure
 - n. LED shall indicate Normal state with a "green" color light
 - 1) Normal state illuminates steady green when Power and DMX are present
 - 2) LED Off indicates Power or DMX are not present

- o. LED shall indicate Bypass state with a “red” color light
 - 1) Bypass state includes bypass input contact trigger or ‘test’ active
 - 129. The DMX Emergency Bypass Controller (DEBC) shall have a single test button accessible from the front of the enclosure without removing any panels
 - p. The test button shall immediately trigger bypass state for as long as it is held down, and release the bypass state immediately upon release of the button
 - 1) The test button shall be momentary only
 - 2) The test button shall be recessed to prevent accidental triggering
 - 130. The DMX Emergency Bypass Controller (DEBC) shall have a single, internally accessible button for DMX Record (snapshot) with an indicator LED for record action
 - 3) The record button shall be momentary only and held for at least 3 seconds before activation to prevent accidental recording
 - 4) The LED indicator will flash rapidly when record function is active
 - 5) The LED indicator will illuminate steady when record function is complete
 - 131. The DMX Emergency Bypass Controller (DEBC) dimensions and weights shall not exceed:
 - q. 9” H x 11” W x 2” D,
 - r. 8lbs (single output); 14.5lbs (multi-output)
- x. Electrical
 - 132. The DMX Emergency Bypass Controller shall be completely internally pre-wired by the manufacturer
 - 133. The contractor shall provide input feed and control wiring to the provided terminals
 - s. DMX Emergency Bypass Controllers (DEBC) shall support 100 to 277 volt input power, 50/60 Hz, 150mA maximum current
 - 134. DEBC shall support labeled terminations for two 24 – 10 AWG solid or stranded power wires
 - 135. DEBC shall support one Grounding Lug for 24-14 AWG solid or stranded ground wire
 - 136. DEBC shall support labeled, socketed termination connections for DMX Input and DMX Output wiring
 - t. Terminations shall support Belden 9729 cable or equivalent
 - 1) DMX Termination kits for Belden 9729 shall be supplied with the controller
 - 2) Optional Termination kits for Belden 1583A (or equivalent Category 5 cable) shall be available from the manufacturer
 - 137. DEBC shall support labeled, socketed termination for the bypass contact input

- u. Termination shall support two, 30-12 AWG low-voltage wires
 - v. The bypass input shall support a maintained normally open (N.O.) or normally closed (N.C.) dry contact input
 - w. A +12VDC wet contact input shall also be available for interface to fire alarm systems.
 - x. DEBC shall support socketed DMX transceiver chips
 - 1) A spare DMX transceiver chip shall be supplied in a labeled, inactive socket
138. The DMX Emergency Bypass Controller (DEBC) shall internally switch from the normal DMX input (pass through) to the bypass DMX output using electromechanical relays when triggered
- y. The DEBC shall have non-volatile memory for storage of a single recorded sequence of 512 channels
 - 1) The recorded sequence shall persist through power outages
 - 2) The default sequence shall have all 512 channels at "full" if no sequence is recorded
 - z. The DEBC shall have a DMX baud rate of "Slow" (20 packets per second) for increased compatibility during bypass DMX output
139. The DEBC shall be available in two versions capable of output to a single DMX line or up to six optically-isolated DMX lines
140. The DMX Emergency Bypass Controller shall be UL and cUL Section 924 LISTED for interaction with similarly listed products
- xi. Thermal
- 141. Ambient room temperature: 0-40°C / 32-104°F
 - 142. Ambient humidity: 10-95% non-condensing.

3.29 POWER DISTRIBUTION – CONNECTOR STRIPS

- General

143. Connectors shall be available as 20A, 50A and 100A grounded stage pin, 20A twist lock and 20A “U” ground (dual rated “T-slot”); other connectors shall be available as specified

144. Internal wiring shall be sized to circuit ampacity and shall be rated at 125°C

145. Pigtails shall be three-wire type “S” jacketed cable sized for the maximum circuit ampacity

146. Pigtails with 20 amp stage pin connectors shall be terminated using 12 gauge 4 way indent crimp (with inspection window) type where the wire is inserted and crimped directly in the socket

147. Terminations shall be at one end using feed-through terminals individually labeled with corresponding circuit numbers

- a. 20 amp circuits shall use screwless tension clamp terminals listed for 20 – 8 gauge wire
- b. 50 amp circuits shall use compression terminals listed for 10 – 1 gauge wire
- c. 100 amp circuits shall use compression terminals listed for 8 – 2/0 gauge wire
- d. Terminals that place a screw directly on the wire are not acceptable

148. Connector strips shall be supplied with appropriate brackets and hardware for mounting as shown on the drawings

- e. Connector strips shall have junction brackets on 5’ centers
- f. Brackets shall be 1½” x .188” ASTM A36 steel
- g. Hardware shall be ASTM A307 grade 5

149. A low voltage distribution system shall be available to incorporate DMX, Ethernet or other protocols as specified in the connector strip. Connector strips shall utilize a voltage barrier to accommodate these systems. Low Voltage signals shall enter the connector strip via a strain relief or connector mounted in a separate low voltage terminal box at the specified end of the connector strip. Up to four low voltage cables shall be supported for each connector strip

- h. Connector strips with multiple DMX outputs from the same source shall use DMX pass through assemblies consisting of a 6” panel with the one DMX output connector, one DMX input (Pass Through) connector, one DMX pass through (Bypass) switch, and a label detailing the use of the pass through assembly
- i. The bypass switch shall be used when no DMX devices are present at that location. When activated, the DMX pass through switch shall pass DMX directly through to the next DMX panel on the strip. The pass through switch shall have a mechanical indicator to show the operator that it has or has not been engaged

150. Connector Strips shall be listed by a nationally recognized test lab (NRTL)

▪ Physical

151. Connector strips shall be 6.25" H x 3.3" D and fabricated from 18-gauge galvanized steel and finished in black fine-texture powder coat paint

j. Covers shall be fabricated from 16-gauge galvanized steel

152. Connector strips shall be available in any length specified in increments of 6" and shipped fully wired with all splicing hardware

153. Pigtails and outlets shall be spaced on 18" centers or as otherwise specified

154. Outlets shall be mounted on individual 3" panels

155. No external terminal boxes shall be required for connector strips with 28 or fewer circuits unless otherwise specified

156. Circuits shall be labeled on the connector strip with 2" lettering

k. Circuit labeling options shall include:

- 1) Circuits shall be labeled on the front side of the connector strip with white lettering on black background labels
- 2) Circuits shall be labeled on front and back sides of the connector strip with white lettering on black background labels
- 3) Circuits shall be labeled on the front side of the connector strip with engraved lamacoid labels utilizing white lettering on black background labels
- 4) Circuits shall be labeled on the front and rear sides of the connector strip with engraved lamacoid labels utilizing white lettering on black background labels
- 5) Circuits shall be labeled on one side of the connector strip using individual circuit cover plates with lettering engraved in the cover and filled with the specified color
- 6) Circuits shall be labeled using specified labeling per plans and drawings

157. Connector strips shall support optional LED indicators to indicate the presence of power at each local circuit. The indicator shall be red in color and mounted in the connector strip

- l. The LED indicator shall be mounted in the lower right corner of the outlet panel
- m. The LED indicator shall be mounted in the connector strip trough directly below the outlet panel
- n. The LED indicator shall be mounted in the center of the 3" plate directly below the circuit label for pigtail circuits

▪ Junction Boxes

158. Gridiron junction boxes shall be available to accommodate "S" type cable wiring into connector strips mounted to non-fixed locations

159. Junction Boxes shall be fabricated from 16-gauge cold rolled steel with 14 gauge end panels. They shall be finished with fine-textured, scratch-resistant, black powder coat paint. Cover(s) shall be 16-gauge cold rolled steel and hinged to allow mounting in any direction.

3.30 POWER DISTRIBUTION – OUTLET AND PIGTAIL BOXES

K. General

3. Connectors shall be available as 20A, 50A and 100A grounded stage pin, 20A twist lock and 20A "U" ground (dual rated "T-slot"); other connectors shall be available as specified
4. Pigtails shall be three-wire type "S" jacketed cable sized for the maximum circuit ampacity
5. Pigtails with 20 amp stage pin connectors shall be terminated using 12 gauge 4 way indent crimp (with inspection window) type where the wire is inserted and crimped directly in the socket
6. Terminations for pigtail connectors shall utilize feed- through terminals individually labeled with corresponding circuit numbers
 - a. 20 amp circuits shall use screwless tension clamp terminals listed for 20 – 8 gauge wire
 - b. 50 amp circuits shall use compression terminals listed for 10 – 1 gauge wire
 - c. 100 amp circuits shall use compression terminals listed for 8 – 2/0 gauge wire
 - d. Terminals that place a screw directly on the wire are not acceptable
7. Outlet and pigtail boxes shall be supplied with appropriate brackets and hardware for mounting as shown on the drawings
 - a. Standard mounting options shall include pipe or wall mounting
 - b. Brackets shall be made from ASTM A36 steel
 - c. Hardware shall be ASTM A307 grade 5
8. A low voltage distribution system shall be available to incorporate DMX, Ethernet or other protocols as specified in the power distribution box
 - a. A voltage barrier shall be used to separate the low voltage wiring for the electrical circuits
9. Power distribution equipment shall be listed by a nationally recognized test lab (NRTL)

L. Physical

3. Outlet and pigtail boxes shall be 6.25" H x 3.3" D and fabricated from 18 gauge galvanized steel and finished in black fine-texture powder coat paint
 - a. Covers shall be fabricated from 16-gauge galvanized steel
4. Outlet and pigtail boxes shall be available in any length specified in increments of 3-inches with a maximum length of up to 3-feet
5. Pigtails and outlets shall be spaced on 18" centers or as otherwise specified
6. Outlets shall be mounted on individual 3" panels
7. Circuits shall be labeled with 1.25" lettering
 - a. Circuit labeling options shall include:
 - 1) Circuits shall be labeled on the front side of the connector strip with white lettering on black background labels
 - 2) Circuits shall be labeled on front and back sides of the connector strip with white lettering on black background labels
 - 3) Circuits shall be labeled on the front side of the connector strip with engraved lamacoid labels utilizing white lettering on black background labels
 - 4) Circuits shall be labeled on the front and rear sides of the connector strip with engraved lamacoid labels utilizing white lettering on black background labels
 - 5) Circuits shall be labeled on one side of the connector strip using individual circuit cover plates with lettering engraved in the cover and filled with the specified color
 - 6) Circuits shall be labeled using specified labeling per plans and drawings
8. Outlet and pigtail boxes shall support optional LED indicators to indicate the presence of power at each local circuit. The indicator shall be red in color and mounted in outlet or pigtail box
 - a. The LED indicator shall be mounted in the lower right corner of the outlet panel
 - b. The LED indicator shall be mounted in the bottom of the outlet or pigtail box directly below the outlet panel
 - c. The LED indicator shall be mounted in the cover plate directly below the circuit label for pigtail circuits

3.31 POWER DISTRIBUTION – WALL POCKET

xii. General

160. The wall pocket shall be a wiring device designed for flush mount installation into the wall.

161. Connectors shall be available as 20A grounded stage pin, 20A twist lock and 20A "U" ground (dual rated "T-slot"); other connectors shall be available as specified.

162. Terminations shall be made at each connector by the installer contractor.

- a. 20 amp circuits shall use tension clamp terminals listed for 20 – 8-gauge wire.
- b. Terminals that place a screw directly on the wire shall not be acceptable.

163. Wall pockets shall be supplied with back box and cover plate

164. The wall pocket back box shall have provisions for an integral voltage barrier for low voltage circuits.

165. Wall pockets shall be listed by a nationally recognized test lab (nrtl).

xiii. Physical

166. Wall pocket back boxes shall be 8"H x 12"W x 6"D fabricated from 16-gauge cold rolled steel and finished in black fine-texture powder coat paint.

167. Wall pocket covers shall be constructed of .16-gauge cold rolled steel and finished in black fine-texture powder coat paint.

- c. The cover shall be constructed with integral hinges and four (4) or six (6) cable notches dependant on circuit quantity.
- d. Covers shall be attached to the back box using four (4) mounting holes and included hardware

168. Wall pocket connectors shall be mounted in a connector panel fabricated of 16-gauge steel finished in a low gloss black powder coat paint

- e. The connector plate shall be attached to the Wall Pocket back box.

169. Circuits shall be labeled on the connector strip with 9/16" lettering.

f. Circuit labeling options shall include:

- 1) Circuits shall be labeled on the front side of the connector panel with white lettering on black background labels.
- 2) Circuits shall be labeled on the front side of the connector panel with engraved lamicoïd labels utilizing white lettering on black background labels.
- 3) Circuits shall be labeled using specified labeling per plans and drawings.

Automated Lighting

3.32 WHITE-LIGHT, LIGHT EMITTING DIODE FRAMING MOVING HEAD FIXTURE

K. General

3. The fixture shall be a high-intensity white-light fixture with Cyan, Magenta, Yellow and CTO subtractive color mixing as well as framing shutters. The fixture shall be a SolaFrame 750 by High End Systems or approved equivalent.
4. All LED moving light fixtures shall be provided by a single manufacturer to ensure compatibility.
5. The fixture shall be UL 1573 listed for stage and studio use and comply with EN60598-2-17 standard per CE certification
6. The fixture shall comply with the USITT DMX-512A standard

L. Physical or Mechanical

3. The fixtures structural framing shall be constructed of rugged, 1/8" aluminum, free of burrs and pits and finished with a matte black powder coating.
4. Outer covers of head and yoke shall be constructed of ABS plastic with fine textured black surface and fastened to the head frame with quarter turn fasteners.
5. The fixture dimensions shall be
 - a. 665 mm (26.2") from base of the enclosure, to the tip of the lens baffling. Fixtures that are longer than this dimension shall not be deemed acceptable.
 - b. 445 mm (17.5") across the exterior dimensions of the yolk
 - c. The Electronics enclosure shall be 323 mm (12.7") Wide
 - d. Head length 471.5 mm (18.6 ")
 - e. Fixtures shall weigh 28.6 kg (63 lbs)
6. The fixture shall be able to be either truss mounted or set upright on a stable surface. Fixture shall be suitably designed for operation over or under mounted on a truss perpendicular to the ground as well as outrigger parallel to the ground.
7. The following shall be provided:
 - a. Shutter assembly shall be a four plane system capable of rotating +/- 30° on and fully crossing the beam on each individual shutter blade. Additionally the entire Shutter assembly must rotate +/- 45° .
 - b. The fixture must include seven (7) interchangeable rotating gobos with 30mm outside diameter and 25mm image area. Fixtures that have non-interchangeable gobo patterns shall not be deemed acceptable.
 - 1) Rotating gobo systems must be able to index to any point on the 360° positioning of the gobo.
 - 2) Rotating gobos must be interchangeable with glass and metal gobo patterns without permanent or semi-permanent modification to the wheels or cartridges. Fixtures that require adhesive application or removal for gobo interchangeability shall not be deemed acceptable.

- c. CMY (Cyan Magenta Yellow) and CTO (Color Temperature – Orange) subtractive color mixing system seven (7) interchangeable colors including red, blue, green, yellow, orange, purple, and dark blue.
- d. Lens defogging system for preventing atmospheric haze or environmental fog materials from building up and limiting output during operation. Fixtures that do not deploy lens defogging systems shall not be deemed acceptable.
- e. Fixture shall have 540 degrees of pan and 265 degrees of tilt. Pan and tilt must be controlled with 16bit control and utilize encoder sensors to guarantee correct step position.
 - 1) Fixture shall have a pan speed of 2.27s for 360 degree movement
 - 2) Fixture shall have a tilt speed of 1.31s for 180 degree of movement.
 - 3) Pan and tilt locks that stop at 0, 45, and 90 degrees for service and handling. Pan and tilt locks are not intended to be engaged during transport in pre-rigged truss.
- f. A 16 leaf iris which reduces the projection area by 83%.
- g. Frost system which softens the edges of the projection on a surface that applies evenly across the beam and allows for variation in insertion time.
- h. Automated 6-50° zooming lens system.
- i. Animation wheel that allows for continuous and uninterrupted motion in two directions and can be moved in/out of the beam.
- j. Triangular three facet prism for multiplication of breakups and images.
 - 1) Prism must be index able, and continuously rotatable in both clockwise and counterclockwise directions.
- 8. The yolk arms must have collapsible, spring loaded, handles for fixture handling and manipulation.
- 9. Power supply, cooling and electronics shall be integral to each unit.
- 10. The unit shall ship with:
 - a. 5' Neutrik True1 PowerCon™ to wire ferrule as standard
 - b. Two (2) brackets that facilitate attaching standard brackets to the fixture base via ¼ turn thumb screws.

M. Optical

- 3. The light emitting diode engine shall produce 7000K white light within +/-500K
- 4. The light engine shall be designed to create a color rendering at greater than 70 CRI
- 5. The fixture shall produce a minimum of 11,300 field lumens with all LED's at full
- 6. The unit shall provide, but not be limited to:
 - a. Low gate and beam temperature
 - b. Sharp imaging through a four-plane shutter design

c. Sharp Imaging on all gobo Planes and Iris planes

7. The unit shall provide, but not be limited to:

a. 6 through 50 degree field angles

b. High-quality pattern imaging throughout entire zoom range

c. Sharp shutter cuts without halation. Shutter systems that suffer from warping and burnout in normal use shall be deemed unacceptable.

1) No more than 1% distortion curvature on framing blades when measured in the widest possible zoom with sharp edge framing shutters. Systems that have more than 1% curvature shall be deemed unacceptable.

d. Adjustable hard and soft beam edges. Systems that fail to soften beam edges while also achieving crisp single edge when desired without blue or brown halation shall be deemed unacceptable.

N. Environmental and Agency Compliance

3. The fixture shall be ETL and cETL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.

4. The fixture shall be ETL LISTED to the UL1573 standard for stage and studio use

5. The fixture shall be rated for IP-20 dry location use.

6. When the fixture is stationary, and at full intensity, the fixture may not produce noise in excess of 33 dBA. A fixture that produces noise in excess of 33 dBA when stationary and at full intensity shall be deemed unacceptable.

a. At no time may the fixture produce noise in excess of 43 dBA.

1) All dBA numbers above are tested in a test chamber with background noise level of 18.1 dBA.

O. Thermal

3. Fixture shall be equipped with a heat pipe radiant cooling system.

4. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 50,000 hours of use

a. Fan speed will be capable of automatically adjusting based on thermal management needs.

1) Fixture will provide three fan speed modes that are selectable via DMX.

b. Thermal management shall include temperature sensors within the housing to include:

1) LED array circuit board temperatures

c. Fixture shall permit monitoring of temperature sensors via a legible LCD multi-line backlit display

d. Fixtures that do not provide active thermal monitoring, fan speed controls, and current management of LED circuits shall not be acceptable.

5. The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 45° C (113°F) maximum ambient temperature. During times of storage, the fixture shall be stored in temperatures range of -20C (0°F) to 60C (140°F)
6. The fixture shall maintain .5m (1.64 feet) distance from any flammable object
7. The fixture shall maintain a minimum of 1.5m (4.9 feet) to any lighted object.

P. Electrical

3. The fixture shall be equipped with a 100V to 240V 50/60Hz auto-sensing internal power supply
 - a. Fixture shall draw a maximum of 5.6 amps at 100V and 2.2 amps at 240 V.
4. The fixture shall support power in and thru operation
 - a. Power in shall be via Neutrik® PowerCon™ True1 input connector
 - b. Power thru shall be via Neutrik ® PowerCon™ True1 output connector
5. The fixture requires power from a non-dimmer source
6. Power supply outputs shall have self-resetting current-limiting protection
7. Power supply shall have power factor correction greater than 0.97 from 90 VAC to 265 VAC.

Q. LED Emitters

3. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
 - a. Appotronics is the sole manufacturer of approved emitter engines.
4. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
5. All LED fixtures (100% of each lot) shall undergo a minimum 12-hour burn-in test during manufacturing.
6. LED system shall comply with all relevant patents
7. Fixtures shall have PWM frequency up to 16,000hz to avoid flicker on camera

R. Calibration

3. Fixture shall be calibrated at factory to achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins
 - a. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency.

S. Color

3. The fixture shall utilize a minimum of 52 LED emitters
 4. The fixture shall be available in specialized LED arrays as outlined below:
 - a. Ultra-Brite 7000k white light engine
 - 1) White LED Engine calibrated and binned to achieve 7000k (+/- 500k).
 - a) Measured brightness of Ultra-brite 7000k engine shall be greater than 11,300 Lumens when tested in an integrating sphere.
 5. Fixture must have a subtractive color mixing system utilizing eight (8) dichroic color flags, controlled in pairs, to linearly subtract the following colors out of fixtures light output.
 - a. Cyan
 - b. Magenta
 - c. Yellow
 - d. Color Temperature – Orange
 6. Fixture must have semi trapezoidal dichroic glass color segments on a single wheel that transmit the following colors. Dichroics must be replaceable without removal or application of adhesive.
 - a. Red
 - b. Green
 - c. Blue
 - d. Yellow
 - e. Orange
 - f. Purple
 - g. Dark Blue
- T. Dimming
3. The LED system shall use 16-bit DMX control techniques for high-resolution dimming.
 4. Dimming curves shall be optimized for smooth dimming over longer timed fades.
 5. The LED system shall be digitally driven using high-speed pulse width modulation (PWM)
 6. LED control shall be compatible with broadcast equipment in the following ways:
 - a. PWM control of LED levels shall be imperceptible to video cameras and related equipment
- U. Control and User interface
3. Ethernet compatible with support for ANSI1.31 Streaming ACN and ArtNet protocols

4. Fixture must provide an internal ethernet switch that supports both active and passive data pass-through.
5. Fixtures shall be support protocol conversion from Ethernet to DMX output and also conversion from DMX input to Ethernet output.
6. The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors
7. The fixture shall be compatible with the ANSI RDM E1.20 standard
 - a. All fixture functions shall be accessible via RDM protocol for modification from suitably equipped control console
 - b. Temperature sensors within the luminaire shall be viewable in real time via RDM.
 - c. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible
8. The fixture shall be equipped with multi-line color LCD display for easy-to-read status reports and configuration changes.
 - a. Display must have a feature to battery power the menu structure when the fixture is unplugged to allow fixture settings to be adjusted, including DMX.
9. The fixture shall be equipped with a six-button user-interface
10. The fixture may offer no more than a single DMX control profile.
 - a. Fixture DMX Control Profile will have 47 channel control.

PART 1. Automated Lighting

1.17 ADDITIVE COLOR MIXING, LIGHT EMITTING DIODE MOVING HEAD FIXTURE

K. General

3. The fixture shall be a high-intensity additive color mixing fixture with Red, Green, Blue, and White LEDS. The fixture shall be a SolaPix 7 by High End Systems or approved equivalent.
4. All LED moving light fixtures shall be provided by a single manufacturer to ensure compatibility.
5. The fixture shall be UL 1573 listed for stage and studio use and comply with EN60598-2-17 standard per CE certification
6. The fixture shall comply with the USITT DMX-512A standard

L. Physical or Mechanical

3. The fixtures structural framing shall be constructed of rugged, 1/8" aluminum, free of burrs and pits and finished with a matte black powder coating.
4. Outer covers of head and yoke shall be constructed of ABS plastic with fine textured black surface and fastened to the head frame with quarter turn fasteners.
5. The fixture dimensions shall be
 - a. 406 mm (16") from base of the enclosure, to the tip of the lens baffling
 - b. 296 mm (11.6") across the exterior dimensions of the yolk
 - c. The Electronics enclosure shall be 220 mm (8.7") Wide
 - d. Head length 186 mm (7.3")
 - e. Fixtures shall weigh 9.1 kg (20.0 lb)
6. The fixture shall be able to be either truss mounted or set upright on a stable surface. Fixture shall be suitably designed for operation over or under mounted on a truss perpendicular to the ground as well as outrigged parallel to the ground.
7. The following shall be provided:
 - a. RGBW (Red Green Blue and White) additive color mixing system with electronically mixed CTO.
 - b. Individual control over each LED cell with Red, Green, Blue, and White Parameters.
 - c. An onboard LED Effects engine that allows control of four individual color segments with speed and fade control.
 - d. Fixture shall have 540 degrees of pan and 265 degrees of tilt. Pan and tilt must be controlled with 16bit control and utilize encoder sensors to guarantee correct step position.
 - 1) Fixture shall have a pan speed of 1.2s for 360 degree movement

- 2) Fixture shall have a tilt speed of 0.58s for 180 degree of movement.
 - 3) Pan and tilt locks that stop at 0, 45, and 90 degrees for service and handling. Pan and tilt locks are not intended to be engaged during transport in pre-rigged truss.
 - e. Automated 4.5 - 60° zooming lens system.
 - f. Anti-haze nano coating applied to the internal side of each lens to prevent atmospheric buildup.
 - 8. Power supply, cooling and electronics shall be integral to each unit.
 - 9. The unit shall ship with:
 - a. 5' Neutrik PowerCon™ to wire ferrule as standard
 - b. Two (2) brackets that facilitate attaching standard brackets to the fixture base via ¼ turn thumb screws.
- M. Optical
- 3. The fixture shall produce up to 5,500 field lumens with all LED's at full and at room temperature.
 - 4. The unit shall provide, but not be limited to:
 - a. Soft edge projection with a 2:1 fall off ration.
 - b. Semi-hard edge in narrow beam projection.
 - 5. The unit shall provide, but not be limited to:
 - a. 4.5 through 60 degree field angles
- N. Environmental and Agency Compliance
- 3. The fixture shall be ETL and cETL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.
 - 4. The fixture shall be ETL LISTED to the UL1573 standard for stage and studio use
 - 5. The fixture shall be rated for IP-20 dry location use.
- O. Thermal
- 3. Fixture shall be equipped with a passive radiant cooling system.
 - 4. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 20,000 hours of use
 - a. Fan speed will be capable of automatically adjusting based on thermal management needs.
 - 1) Fixture will provide two fan speed modes that are selectable via DMX.
 - 2) Fixture will also include a user adjustable continuous fan speed control, linearly selectable via DMX.

- b. Thermal management shall include multiple temperature sensors within the housing to include:
 - 1) LED array circuit board temperatures
 - 2) Power supply temperatures
 - c. Fixtures that do not provide active thermal monitoring and current management of LED circuits shall not be acceptable.
 - 5. The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 40° C (104°F) maximum ambient temperature. During times of storage, the fixture shall be stored in temperatures range of -20C (0°F) to 60C (140°F)
 - 6. The fixture shall maintain .1m (3.94 inches) distance from any flammable object
 - 7. The fixture shall maintain a minimum of 2m (6.6 feet) to any lighted object.
- P. Electrical
 - 3. The fixture shall be equipped with a 100V to 240V 50/60Hz auto-sensing internal power supply
 - a. Fixture shall draw a maximum of 4.1 amps at 100V and 1.7 amps at 240 V.
 - 4. The fixture shall support power in and thru operation
 - a. Power in shall be via Neutrik® powerCON™ TRUE1 input connector
 - 5. The fixture requires power from a non-dimmer source
 - 6. Power supply outputs shall have self-resetting current-limiting protection
- Q. LED Emitters
 - 3. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
 - a. Osram are the sole manufacture of approved emitter engines.
 - 4. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
 - 5. All LED fixtures (100% of each lot) shall undergo a minimum 12-hour burn-in test during manufacturing.
 - 6. LED system shall comply with all relevant patents
 - 7. Fixtures shall have PWM frequency of 16,000hz to avoid flicker on camera
- R. Color
 - 3. The fixture shall utilize specialized LED arrays as outlined below:
 - a. Additive Red, Green, Blue, and White LEDs in a hexagonal pattern achieving an excess of 5,600 lumens in integrating sphere testing.

4. Fixture must have an electronically calibrated CTO channel that limits the intensity of the Red, Green, Blue, and White LED channels to control the fixture color temperature output between 2800 to 8000k.

S. Dimming

3. The LED system shall use 16-bit DMX control techniques for high-resolution dimming.
4. Dimming curves shall be optimized for smooth dimming over longer timed fades.
5. The LED system shall be digitally driven using high-speed pulse width modulation (PWM)
6. LED control shall be compatible with broadcast equipment in the following ways:
 - a. PWM control of LED levels shall be imperceptible to video cameras and related equipment

T. Control and User interface

3. The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors and In and Thru 3-pin XLR connectors.
4. The fixture shall be compatible with the ANSI RDM E1.20 standard
 - a. All fixture functions shall be accessible via RDM protocol for modification from suitably equipped control console
 - b. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible
5. The fixture shall be equipped with multi-line color LCD display for easy-to-read status reports and configuration changes.
 - a. Display must have a feature to battery power the menu structure when the fixture is unplugged to allow fixture settings to be adjusted, including DMX.
6. The fixture shall be equipped with a six-button user-interface
7. The fixture must offer individual control over base and Pixel sections of fixture profile
 - a. Individual control must include separate protocols and control sources. Fixtures that cannot simultaneously control different fixture modules by an RS-485 source and an Ethernet source will not be deemed acceptable.
8. Fixture must have a user controllable effects system that generates animated effects using up to four user defined colors. Animation speed and fade control also must be user definable on the fixture.

1.18 COLOR MIXING LIGHT EMITTING DIODE MOVING HEAD SPOT FIXTURE

K. General

3. The fixture shall be an additive color-mixing high-intensity LED illuminator with DMX control of intensity, color, pan, tilt, and pattern projection. The fixture shall be a Relevé Spot by ETC or approved equivalent.
4. All LED moving light fixtures shall be provided by a single manufacturer to ensure compatibility.
5. The fixture shall be UL 1573 listed for stage and studio use and comply with EN60598-2-17 standard per CE certification.
6. The fixture shall comply with the USITT DMX-512A standard.

L. Physical or Mechanical

3. The fixture's structural framing shall be constructed of rugged, 3/32" aluminum, free of burrs, pits, and finished with non-reflective coating.
4. Outer covers of head and yoke shall be constructed of ABS plastic with fine textured black surface and fastened to the head frame with captive fasteners.
5. The fixture dimensions shall be:
 - a. 803 mm (31.6") from base of the enclosure to the tip of the lens baffling.
 - b. 477 mm (18.8") across the exterior dimensions of the yoke.
 - c. The electronics enclosure shall be 330mm (13") wide.
 - d. Head length 589 mm (23.2").
 - e. The fixture shall weigh 31.75 kg (70lbs).
6. The fixture shall be able to be either truss-mounted or set upright on a stable surface. Fixture shall be suitably designed for operation over or under mounted on a truss perpendicular to the ground as well as outrigged parallel to the ground.
7. The following shall be provided:
 - a. The fixture must include five (5) interchangeable rotating gobos. Fixtures that have non-interchangeable gobo patterns shall not be deemed acceptable.
 - 1) Interchangeable rotating gobos shall have an outside diameter of 45 mm, image diameter of 36mm, and accept 0.5mm stainless steel or 1.1mm Glass Borofloat® gobos.
 - 2) Rotating gobo systems must be able to index to any point on the 360° positioning of the gobo.
 - b. The fixture shall have 540 degrees of pan and 270 degrees of tilt. Pan and tilt must be controlled with 16 bit control and utilize absolute position encoder sensors to guarantee correct step position.
 - 1) The fixture shall have a pan speed of 3.6s for 180 degree movement.
 - 2) The fixture shall have a tilt speed of 3.0s for 180 degree of movement.
 - 3) Pan and tilt locks that stop at 0, 45, and 90 degrees for service and handling. Pan and tilt locks are not intended to be engaged during transport in pre-rigged truss.

- c. A twenty (20) leaf iris which reduces the projection area by 93%.
 - d. Frost system which softens the edges of the projection with a dual-flag surface that applies evenly across the beam and allows for variation in insertion time without reflections or uneven distribution of diffusion.
 - e. Automated 18-54° zoom and focus lens system.
 - f. Rotating fixed pattern wheel shall allow for animation in two directions and shall contain an effect pattern made up of at least six (6) unique and continuous breakup patterns. Fixtures with animation wheels that are made up of a single pattern shall not be deemed acceptable.
- 8. The yoke arms must have fixed handles for fixture handling and manipulation. Fixtures with no handles on the yoke arms shall not be deemed acceptable.
- 9. Power Supply, cooling, and driver electronics shall be integral to each fixture.
- 10. Power supply module shall be easily removable and user replaceable.
- 11. Control/UI module shall be easily removable and shall have the option for battery power to allow fixture settings to be adjusted while module is removed.
- 12. The fixture shall ship with:
 - a. 152cm / 5' Neutrik® powerCON™ to wire ferrule as standard.
 - b. Two (2) rail design clamp brackets that facilitate attaching standard hanging hardware to the fixture base.
- 13. Available options shall include but not be limited to:
 - a. Grounded stage pin, or twist-lock type-equipped power leads.
 - b. Neutrik® powerCON™ to Neutrik® powerCON™ cables for fixture power linking.
- M. Optical
 - 3. The fixture shall produce up to 6,000 field lumens with all LEDs at full and in a wide zoom angle.
 - 4. The fixture shall provide, but not be limited to:
 - a. Low gate and beam temperature.
 - b. Sharp imaging on all gobo planes and iris planes.
 - 5. The fixture shall provide, but not be limited to:
 - a. 18 through 54 degree field angles.
 - b. High-quality pattern imaging.
- N. Environmental and Agency Compliance
 - 3. The fixture shall be ETL and cETL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.

4. The fixture shall be ETL LISTED to the UL1573 standard for stage and studio use.
5. The fixture shall be rated for IP20 dry location use.

O. Thermal

3. The fixture shall be equipped with a cooling fan.
4. The fixture shall utilize advanced thermal management systems and maintain LED life to an average of 70% intensity after 35,000 hours of use.
 - a. Fan speed shall be capable of automatically adjusting based on thermal management needs.
 - 1) The fixture shall provide three fan speed modes that are selectable via DMX and RDM.
 - b. Thermal management shall include multiple temperature sensors within the housing to include:
 - 1) LED array circuit board temperatures.
 - 2) LED driver circuit board temperatures.
 - c. Fixtures that do not provide active thermal monitoring and current management of LED circuits shall not be acceptable.
5. The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 40° C (104°F) maximum ambient temperature.
6. The fixture shall have droop compensation to prevent thermal shift of color or intensity.
7. In a room at room Temperature, while in any stationary position, and at full intensity the Relevé Spot is rated at a maximum of:
 - a. Direct Control Mode : 34.6 dBA
 - b. Standard Mode: 32.3 dBA
 - c. Fixtures that exceed 35 dBA in these same environmental conditions shall not be acceptable.

P. Electrical

3. The fixture shall be equipped with a 100VAC to 240VAC 50/60Hz auto-sensing removable power supply module.
 - a. The fixture shall draw a maximum of 2.9A at 100VAC and 1.2A at 240VAC.
4. The fixture shall support power in and thru operation.
 - a. Power in shall be via Neutrik® powerCON™ input connector.
 - b. Power thru shall be via Neutrik ® powerCON™ output connector.
 - c. The fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker.
5. The fixture requires power from a non-dimmed source.

6. Power supply outputs shall have self-resetting current-limiting protection.

Q. LED Emitters

3. The fixture shall contain a minimum of four different LED colors to provide color characteristics, as described in the color section below.
4. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
 - a. The fixture shall utilize Luxeon® C LED emitters.
5. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
6. LED emitters shall be rated for nominal 35,000-hour L70 rating.
7. All LED fixtures (100% of each lot) shall undergo a minimum 12-hour burn-in test during manufacturing.
8. LED system shall comply with all relevant patents.

R. Calibration

3. The fixture shall be calibrated at factory to achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins.
 - a. Calibration data shall be stored on the control card as a permanent part of on-board operating system.
 - b. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency.
 - c. Fixtures not offering LED calibration shall not be acceptable.

S. Color

3. The fixture shall utilize a minimum of 52 LED emitters.
 - a. These emitters shall be made up of red, green, indigo, and lime.

T. Dimming

3. The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.
4. The fixture shall utilize an incandescent dimming curve.
5. Dimming curve shall be optimized for smooth dimming over longer timed fades.
6. The LED system shall be digitally driven using high-speed pulse width modulation (PWM).
7. LED control shall be compatible with broadcast equipment in the following ways:

- a. PWM control of LED levels shall be imperceptible to video cameras and related equipment.
- b. PWM shall be capable of being set via UI and RDM to either 1.2kHz or 25kHz.

U. Control and User Interface

- 3. The fixture shall be USITT DMX 512A-compatible via in and thru 5-pin XLR connectors.
- 4. The fixture shall be compatible with the ANSI RDM E1.20 standard.
 - a. All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console.
 - b. Temperature sensors within the luminaire shall be viewable in real time via RDM and UI.
 - c. Fixtures not offering RDM compatibility, feature set access, or temperature monitoring via RDM shall not be compatible.
- 5. The fixture shall be equipped with multi-line LCD display for easy-to-read status reports and configuration changes.
 - a. Display must have a feature to battery power the menu when the fixture is unplugged to allow fixture settings to be adjusted, including DMX address.
- 6. The fixture shall be equipped with a five-button user interface.
- 7. The fixture shall offer two DMX control profiles.
 - a. Direct DMX control profile shall have 24 channel control.
 - b. Simple DMX control profile shall have 20 channel control.

V. Initialization

- 3. The fixture shall be fitted with high resolution absolute position encoders on the pan and tilt axes such that initialization on power up or reset can be accomplished with zero or minimal movement of these axis.
- 4. Fixtures not offering absolute position sensors and that are required to move the pan and tilt axis home to fixed sensor positions or end stops in order to initialize shall not be acceptable.
- 5. The time to fully initialize the fixture from power on or reset shall be no more than 35 seconds.

1.17 COLOR MIXING OR WHITE-LIGHT LIGHT EMITTING DIODE PROFILE FIXTURE

K. General

- 3. The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a Source Four LED Series 2 as manufactured by Electronic Theatre Controls, Inc. or approved equal.

4. All LED fixtures shall be provided by a single manufacturer to ensure compatibility
5. The fixture shall be UL 1573 listed for stage and studio use
6. The fixture shall comply with the USITT DMX-512A standard

L. Physical

3. The unit shall be constructed of rugged, die cast aluminum, free of burrs and pits, finished in black.
4. The following shall be provided:
 - a. Lens secured with silicone shock mounts
 - b. Shutter assembly shall allow for +/-25° rotation
 - c. 20 gauge stainless steel shutters
 - d. Interchangeable lens tubes for different field angles with Teflon guides for smooth tube movement
 - e. Sturdy integral die cast gel frame holders with two accessory slots, and a top-mounted, quick release gel frame retainer
 - f. Rugged steel yoke with two mounting positions allowing 300°+ rotation of the fixture within the yoke
 - g. Positive locking, hand operated yoke clutch
 - h. Slot with sliding cover for motorized pattern devices or optional iris
5. The housing shall have a rugged black powder coat finish
 - a. White or silver/gray powder coat finishes shall be available as color options
 - b. Other powder coat color options shall be available on request
6. Power supply, cooling and electronics shall be integral to each unit.
7. The unit shall ship with:
 - a. Theatrical-style hanging yoke as standard
 - b. 5' Neutrik PowerCon™ to Edison power cable as standard
 - c. Gate diffuser
 - d. A-size pattern holder
8. Available options shall include but not be limited to:
 - a. Bare-end, Stage-Pin or Twist-lock type-equipped power leads
 - b. PowerCon to PowerCon cables for fixture power linking
 - c. Smooth Wash Diffuser for overlapping beams of light from multiple fixtures

M. Optical

3. The light beam should have a 2-to-1 center-to-edge drop-off ratio

4. The unit shall provide, but not be limited to:
 - a. Low gate and beam temperature
 - b. Sharp imaging through a three-plane shutter design
5. The unit shall provide, but not be limited to:
 - a. 5, 10, 14, 19, 26, 36, 50, 70 and 90 degree field angles
 - b. High-quality pattern imaging
 - c. Sharp shutter cuts without halation
 - d. Shutter warping and burnout in normal use shall be unacceptable
 - e. Adjustable hard and soft beam edges
6. 19, 26, 36, and 50 degree units shall have optional lens tubes available for precision, high-contrast imaging.

N. Environmental and Agency Compliance

3. The fixture shall be ETL and cETL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.
4. The fixture shall be ETL LISTED to the UL1573 standard for stage and studio use
5. The fixture shall be rated for IP-20 dry location use.

O. Thermal

3. Fixture shall be equipped with a cooling fan.
 - a. Fan speed control via a DMX channel shall be possible
 - b. Fan speed software shall permit the fixture to override DMX fan speed setting to prevent heat damage to the fixture
4. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 54,000 hours of use (Lustr) and 20,000 hours (Tungsten HD and Daylight HD)
 - a. Thermal management shall include multiple temperature sensors within the housing to include:
 - 1) LED array circuit board temperatures
 - 2) Temperature sensors placed on each individual LED color circuit
 - 3) Fixture ambient
 - 4) CPU
 - b. Fixture user shall permit monitoring of temperature sensors via a legible LCD multi-line backlit display
 - c. Fixtures that do not provide active thermal monitoring of LED circuits and other temperature readings shall not be acceptable
5. The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 40° C (104°F) maximum ambient temperature.

P. Electrical

3. The fixture shall be equipped with a 100V to 240V 50/60Hz internal power supply
4. The fixture shall support power in and thru operation
 - a. Power in shall be via Neutrik® PowerCon™ input connector
 - b. Power thru shall be via Neutrik® PowerCon™ output connector
 - c. Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker
5. The fixture requires power from a non-dim source
6. Power supply outputs shall have self-resetting current-limiting protection
7. Power supply shall have power factor correction

Q. LED Emitters

3. The fixture shall contain a minimum of four different LED colors to provide color characteristics as described in the Color Section below.
4. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
 - a. Fixture shall utilize Luxeon® Rebel™ and/or Osram OSOLON Square LED emitters
5. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
6. All LED fixtures (100% of each lot) shall undergo a minimum three-hour burn-in test during manufacturing.
7. LED system shall comply with all relevant patents
8. Fixtures shall have adjustable PWM frequency up to 25,000hz to avoid flicker on camera

R. Longevity

3. The Lustr fixture shall be provided with an LM-84 test report from a nationally recognized test lab
 - a. LM-84 results shall be no less than 54,000 hours L70 rating
4. All fixtures shall be provided with the minimum warranty:
 - a. 5 years full fixture coverage
 - b. 10 years LED coverage

S. Calibration

3. Fixture shall be calibrated at factory for achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins
 - a. Calibration data shall be stored on the LED array as a permanent part of on-board operating system
 - b. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency
 - c. Fixtures not offering LED calibration shall not be acceptable

T. Color

3. The fixture shall utilize a minimum of 60 LED emitters
4. The fixture shall be available in specialized LED arrays as outlined below:
 - a. Source Four LED Series 2 Lustr
 - 1) Red, Amber, Green, Cyan, Blue, Indigo and Lime LEDs in an array designed for broad spectrum color, light tints, and variable whites. This array shall be the Lustr array as manufactured by Electronic Theatre Controls, or approved equal
 - a) Measured brightness of the Lustr array shall be greater than 6,500 field lumens
 - b. Source Four LED Series 2 Tungsten HD
 - 1) Mint, red, orange, blue, and indigo in an array designed to provide a variable white-light adjustable from 2700K to 6500K. (Designed for highest CRI and output between 2700K and 4500K) This array shall be the Tungsten HD array as manufactured by Electronic Theatre Controls, or approved equal
 - a) Measured brightness of the Tungsten HD array shall be greater than 10,000 field lumens
 - c. Source Four LED Series 2 Daylight HD
 - 1) Mint, red, blue, and indigo in an array designed to provide a variable white-light adjustable from 2700K to 6500K. (Designed for highest CRI and output between 4000K and 6500K) This array shall be the Daylight HD array as manufactured by Electronic Theatre Controls, or approved equal
 - a) Measured brightness of the Daylight HD array shall be greater than 10,000 field lumens

U. Dimming

3. The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.
4. At least four different dimming curve options shall be accessible at the fixture's User Interface
 - a. Incandescent
 - b. Standard

- c. Linear
 - d. Quick
 - 5. Dimming curves shall be optimized for smooth dimming over longer timed fades.
 - 6. The LED system shall be digitally driven using high-speed pulse width modulation (PWM)
 - 7. LED control shall be compatible with broadcast equipment in the following ways:
 - a. PWM control of LED levels shall be imperceptible to video cameras and related equipment
 - b. PWM rates shall be adjustable by the user at the fixture if necessary to avoid any visible interference to video cameras and related equipment
- V. Control and User interface
- 3. The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors
 - 4. The fixture shall be compatible with the ANSI RDM E1.20 standard
 - a. All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console
 - b. Temperature sensors within the luminaire shall be viewable in real time via RDM
 - c. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible
 - 5. The fixture shall be equipped with multi-line LCD display for easy-to-read status reports and configuration changes
 - 6. The fixture shall be equipped with a six-button user-interface
 - 7. The fixture shall offer multiple DMX input profile options to include:
 - a. RGB - control of all individual LED colors via a three-channel profile
 - 1) Red, Green, Blue
 - b. HSI – control of all individual LED colors via a three-channel profile
 - 1) Hue, Saturation, Intensity
 - c. HSIC – control of all LED colors via a four-channel profile
 - 1) Hue, Saturation, Intensity and Color Point
 - a) Color point provides variable color temperature settings
 - d. Direct – control of each individual color channel via an independent channel
 - e. Studio – Control of the fixture in a white-light 3 channel profile
 - 1) Intensity, Color Temperature, +/- Green (Tint)

- a) Without DMX the fixture can master other Source Four LEDs and Desire fixtures that are connected via 5 pin XLR DMX cables
 - f. A variable-rate strobe channel shall be provided
- 8. The fixture shall offer three output settings
 - a. Boost mode - powers LEDs at maximum intensity and provides no compensation against LED 'droop' or intensity loss
 - b. Regulated mode – slightly restricts maximum LED intensity levels to compensate against LED droop
 - c. Protected mode – further restricts maximum LED intensity levels to compensate against LED droop and offer color consistency at highest permissible ambient temperatures (40C)
 - d. Fixtures that do not provide regulated and protected operation modes are not acceptable
- 9. The fixture shall offer additional user-definable options to including but not limited to:
 - a. Display time out options
 - b. Loss of data behavior options
 - c. White point settings
 - d. Red-shift option for tungsten dimming emulation
- 10. The fixture shall offer five Quick Set-Ups to allow user to rapidly select different combinations of the numerous user options based on the desired usage situation, to include:
 - a. General – for most situations
 - b. Stage – when emulating incandescent fixtures is desired
 - c. High Impact – when maximum output and effect is desired
 - d. XT Arch – when color consistency and architectural characteristics are desired.
 - e. Studio - when DMX or stand-alone of white light output is required with intensity, color temperature and color tint control parameters
- 11. The fixture shall offer stand-alone functionality eliminating the need for a console
 - a. Fixture shall ship with 24 preset colors accessible as a stand-alone feature
 - b. Fixture shall ship with 12 sequences accessible as a stand-alone feature
 - c. Each color and sequence can be modified by the end user
 - d. Fixtures can be linked together with standard DMX cables and controlled from designated master fixture
 - 1) Up to 32 fixtures may be linked
 - e. Fixtures in a stand-alone state shall restore to the settings present prior to power cycling, eliminating the need for reprogramming

- f. Fixtures without stand-alone operation features described above shall not be acceptable.
12. The fixture shall be capable of copying all performance settings to other fixtures of the same type via a 5 pin XLR DMX cable

Enhanced Definition Lens Tubes

- a. The product shall be an optional fixed focus lens tube with a field angle of (19° - 26° - 36° - 50°) for use with a Source Four ERS fixture body. When used as a template or gobo projector, the product shall provide enhanced image acuity, heightened contrast and minimum distortion when compared to any other fixed focus ERS fixtures.
- b. The product shall result in no loss of field lumens when compared to standard fixed focus fixtures.
- c. The product shall be retrofit-able into any new or existing Source Four ERS fixture body. The product shall be available as an accessory and not require the purchase of an entire fixture.
- d. The product shall be labeled in such a way as to easily distinguish it from standard lens tubes. The product shall not be labeled or marked in such a way as to be garish or distracting when placed in a system with other fixtures.
- e. The product shall be available in black standard with silver, white and custom colors as options.

○ COLOR MIXING LIGHT EMITTING DIODE WASH FIXTURE

W. General

3. The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a Desire D40 or D40 Studio as manufactured by Electronics Theatre Controls, Inc. or approved equal.
4. All LED fixtures shall be provided by a single manufacturer to ensure compatibility
5. The fixture shall be UL 1573 listed for stage and studio use
6. The fixture shall comply with the USITT DMX-512 A standard
7. The fixture shall be provided with the minimum warranty of 5 years full fixture coverage and 10 years LED array coverage
8. All LED emitters must have a L70 rating of no less than 50,000 hours
 - Substitutes must provide evidence of minimum L70 rating of no less than 50,000 hours via a LM-80 report on all emitters
 - LM-80 report must be provided with a LM-79 report and an in situ temperature measurement test verifying the conditions of the fixture meet the conditions of the LM-80 report
 - All tests and reports must be completed by a Nationally Recognized Testing Laboratory
 - All tests must be conducted to IES standards

X. Physical

3. The fixture shall be contained in a rugged all-metal die-cast housing, free of burrs and pits.
4. The housing shall have a rugged black powdercoat finish
 - White or silver/gray powdercoat finishes shall be available as color options
 - Other powdercoat color options shall be available on request
5. Power supply, cooling and electronics shall be integral to each unit.
6. Fixture housing shall provide two easy-access slots for secondary lenses and other accessories
 - Slots shall be equipped with locking retaining clip
7. The unit shall ship with:
 - Theatrical-style hanging yoke as standard
 - 5' power lead with Edison connector as standard
8. Available options shall include but not be limited to:
 - Yoke with floor stand conversion feature

- Bare-end, Stage-Pin or Twist-lock type-equipped power leads
- PowerCon to PowerCon cables for fixture power linking
- Multiple secondary lens options to include multiple angles in the following patterns:
 - Linear
 - Round
 - Oblong

9. Light output shall be via a round aperture

- Aperture and accessory slots shall accommodate standard 7.5" accessories such as used in other similar-sized fixtures
- Accessories available as options shall include but not be limited to:
 - Gel/diffusion frames
 - Top hats
 - Barndoors
 - Egg crate louvers
 - Concentric ring louvers
 - Multiple secondary lensing options

Y. ENVIRONMENTAL AND AGENCY COMPLIANCE

3. The fixture shall be UL and cUL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.
4. The fixture shall be UL LISTED to the UL1573 standard for stage and studio use
5. The fixture shall be rated for IP-20 dry location use.

Z. THERMAL

3. Fixture shall be totally convection cooled, requiring no cooling fan. Fixtures which require an on-board cooling fan shall not be acceptable unless pre-approved
4. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 50,000 hours of use
 - Thermal management shall include multiple temperature sensors within the housing to include:
 - LED array circuit board temperatures
 - Temperature sensors placed on each individual LED color circuit
 - Fixture ambient
 - CPU
 - Fixture user shall permit monitoring of temperature sensors via a legible LCD multi-line backlit display
 - Fixtures that do not provide active thermal monitoring of LED circuits and other temperature readings shall not be acceptable

5. The fixture shall operate in an ambient temperature range of -20°C (-4°F) minimum, to 40° C (104°F) maximum ambient temperature.

AA. ELECTRICAL

3. The fixture shall be equipped with 100V to 240V 50/60 Hz internal power supply
4. The fixture shall support power in and thru operation
 - Power in shall be via Neutrik® PowerCon™ input connector
 - Power thru shall be via Neutrik® PowerCon™ output connector
 - Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker
5. The fixture requires power from non-dim source
6. Power supply outputs shall have self-resetting current limiting protection
7. Power supply shall have power factor correction

BB. LED Emitters

3. The fixture shall contain a minimum of 5 different LED colors to provide color characteristics as described in Section G below.
4. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
 - Fixture shall utilize Luxeon® Rebel™ LED emitters
5. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
6. LED emitters should be rated for nominal 50,000 hour LED life to 70% intensity
7. All LED fixtures (100% of each lot) shall undergo a minimum eight-hour burn-in test during manufacturing.
8. LED system shall comply with all relevant patents

CC. CALIBRATION

3. Fixture shall be calibrated at factory for achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins
 - Calibration data shall be stored on the LED array as a permanent part of on-board operating system
 - All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency
 - Fixtures not offering LED calibration shall not be acceptable

DD. COLOR

3. The fixture shall utilize an minimum of 40 LED emitters
4. The fixture shall be available in specialized LED arrays as outlined below:
 - Desire D40
 - Red, Amber, Green, Cyan, Blue, Indigo and White LEDs in an array designed for broad spectrum color, light tints, and variable whites. This array shall be the Lustr+ array as manufactured by Electronic Theatre Controls, or approved equal
 - Measured brightness of the Lustr+ array shall be greater than 2900 field lumens
 - Red, Orange, Amber, Green, Cyan, Blue and Indigo LEDs in an array designed for broad spectrum deep colors. This array shall be the Vivid array as manufactured by Electronic Theatre Controls, or approved equal
 - Measured brightness of the Vivid array shall be greater than 2500 field lumens
 - Red, Orange, Amber, Green and Indigo LEDs in an array designed for extra-high brightness output in red/warm end of the spectrum. This shall be the Fire array as manufactured by Electronic Theatre Controls, or approved equal
 - Measured brightness of the Fire array shall be greater than 2500 field lumens
 - Red, Orange, Green, Cyan, Blue and Indigo LEDs in an array designed for extra-high brightness output in the blue/cool end of the spectrum. This shall be the Ice array as manufactured by Electronic Theatre Controls, or approved equal
 - Measured brightness of the Ice array shall be greater than 1800 field lumens
 - Desire D40 Studio
 - Warm White, Cool White, Red, Green, Blue and Indigo LEDs in an array designed for high-brightness variable color temperature white light output. This shall be the Studio HD array as manufactured by Electronic Theatre Controls, or approved equal
 - Measure brightness of the Studio HD array shall be greater than 3100 field lumens
 - All Warm White LEDs in an array designed for non-variable single color high-output, warm white light. This shall be the Studio Tungsten array as manufactured by Electronic Theatre Controls, or approved equal
 - Measure brightness of the Studio tungsten array shall be greater than (TBD) field lumens
 - All Cool White LEDs in an array designed for non-variable single color high-output, cool white light. This shall be the Studio Daylight array as manufactured by Electronic Theatre Controls, or approved equal
 - Measure brightness of the Studio Daylight array shall be greater than (TBD) field lumens
 -

EE. DIMMING

3. The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.
4. At least four different dimming curve options shall be accessible at the fixture's User Interface
 - Incandescent
 - Standard
 - Linear
 - Quick
5. Dimming curves shall be optimized for smooth dimming over longer timed fades.
6. The LED system shall be digitally driven using high-speed pulse width modulation (PWM)
7. LED control shall be compatible with broadcast equipment in the following ways:
 - PWM control of LED levels shall be imperceptible to video cameras and related equipment
 - PWM rates shall be adjustable by the user at the fixture if necessary to avoid any visible interference to video cameras and related equipment

FF. CONTROL AND USER INTERFACE

3. The fixture shall be USITT DMX 512A-compatible via **In** and **Thru** 5-pin XLR connectors
4. The fixture shall be compatible with the ANSI RDM E1.20 standard
 - All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console
 - Temperature sensors within the luminaire shall be viewable in real time via RDM
 - Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible
5. The fixture shall be equipped with multi-line LCD display for easy-to-read status reports and configuration changes
6. The fixture shall be equipped with a six-button user-interface
7. The fixture shall offer multiple DMX input profile options to include:
 - RGB - control of all individual LED colors via a three-channel profile
 - Red, Green, Blue
 - HSI – control of all individual LED colors via a three-channel profile
 - Hue, Saturation, Intensity

- HSIC – control of all LED colors via a four-channel profile
 - Hue, Saturation, Intensity and Color Point
 - Color point provides variable color temperature settings
 - Direct – control of each individual color channel via an independent channel
 - A variable-rate strobe channel shall be provided
8. The fixture shall offer three output settings
- Boost mode - powers LEDs at maximum intensity and provides no compensation against LED 'droop' or intensity loss
 - Regulated mode – slightly restricts maximum LED intensity levels to compensate against LED droop
 - Protected mode – further restricts maximum LED intensity levels to compensate against LED droop and offer color consistency at highest permissible ambient temperatures (40C)
 - Fixtures that do not provide regulated and protected operation modes are not acceptable
9. The fixture shall offer additional user-definable options to including but not limited to:
- Display time out options
 - Loss of data behavior options
 - White point settings
 - Red-shift option for tungsten dimming emulation
10. The fixture shall offer five Quick Set-Ups to allow user to rapidly select different combinations of the numerous user options based on the desired usage situation, to include:
- General – for most situations
 - Stage – when emulating incandescent fixtures is desired
 - High Impact – when maximum output and effect is desired
 - XT Arch – when color consistency and architectural characteristics are desired.
 - Studio - when DMX or stand-alone of white light output is required with intensity, color temperature and color tint control parameters
11. The fixture shall offer stand-alone functionality eliminating the need for a console
- Fixture shall ship with 24 preset colors accessible as a stand-alone feature
 - Fixture shall ship with 12 Sequences accessible as a stand-alone feature
 - Each color and sequence can be modified by the end user
 - Fixtures can be linked together with standard DMX cables and controlled from designated master fixture
 - Up to 32 fixtures may be linked

- Fixtures in a stand-alone state shall restore to the settings present prior to power cycling, eliminating the need for reprogramming
- Fixtures without stand-alone operation features described in a, b, c, d, and e shall not be acceptable.

1.18 ELLIPSOIDAL SPOTLIGHTS

K. General

3. The instrument shall be a Source Four ellipsoidal spotlight as manufactured by Electronic Theatre Controls, Inc., or approved equal.

L. Physical

3. The unit shall be constructed of rugged, die cast aluminum, free of burrs and pits, finished in black, high temperature epoxy paint. Tools shall not be required for either lamp alignment or cleaning the reflector or lens
4. The following shall be provided:
 - a. Integral cable clamp for power leads
 - b. Positive locking of lamp focus and independent lamp alignment controls
 - c. High impact, thermally insulated knobs and shutter handles
 - d. Reflector secured with shock mounts
 - e. Lens secured with silicone shock mounts
 - f. Shutter assembly shall allow for +/-25° rotation
 - g. 20 gauge stainless steel shutters
 - h. Insulated rear handle
 - i. Interchangeable lens tubes for different field angles with Teflon guides for smooth tube movement
 - j. Sturdy integral die cast gel frame holders with two accessory slots, and a top mounted, quick release gel frame retainer
 - k. Rugged 3/16" x 1-1/4" steel yoke with two mounting positions allowing 300°+ rotation of the fixture within the yoke
 - l. Positive locking, hand operated yoke clutch
 - m. Slot with sliding cover for motorized pattern devices or optional iris

M. Optical

3. The optical train shall combine a compact filament lamp with a precision molded borosilicate, ellipsoidal reflector and aspheric lens to produce an optimum cosine field.
4. The unit shall provide, but not be limited to:
 - a. Molded borosilicate reflector with multiple dichroic layers

- b. 95% of visible light shall be reflected while 90% of infrared light as heat shall be transmitted through the reflector
- c. Low gate and beam temperature
- d. Sharp imaging through a three plane shutter design
- e. Projector-quality, high contrast aspheric lens, with an anti-reflective coating to increase transmission

N. Performance

- 3. The unit shall be precision engineered to use an HPL lamp to deliver an even, intense field with cosine distribution.
- 4. The unit shall provide, but not be limited to:
 - a. 5, 10, 14, 19, 26, 36, 50, 70 and 90 degree field angles
 - b. High-quality pattern imaging
 - c. Sharp shutter cuts without halation
 - d. Shutter warping and burnout in normal use shall be unacceptable
 - e. Adjustable hard and soft beam edges
- 5. The unit shall be capable of utilizing ETC Dimmer Doubling technology
- 6. The unit shall be UL and cUL listed and so labeled.
- 7. 19, 26, 36, and 50 degree units shall have optional lens tubes available for precision, high-contrast imaging.

O. Lamp

- 3. The high efficiency lamp shall be an HPL lamp, which shall consist of a compact tungsten filament contained in a krypton-filled quartz envelope. The lamp shall mount axially within the reflector. The lamp base shall have an integral die cast aluminum heat sink that reduces seal temperature and ensures proper lamp alignment. The lamp socket shall be ATP 220 nickel gold plated.

xiv. Enhanced Definition Lens Tubes

- 1. The product shall be an optional fixed focus lens tube with a field angle of (19° - 26° - 36° - 50°) for use with a Source Four ERS fixture body. When used as a template or gobo projector, the product shall provide enhanced image acuity, heightened contrast and minimum distortion when compared to any other fixed focus ERS fixtures.
- 2. The product shall result in no loss of field lumens when compared to standard fixed focus fixtures.
- 3. The product shall be retrofit-able into any new or existing Source Four ERS fixture body. The product shall be

available as an accessory and not require the purchase of an entire fixture.

4. The product shall be labeled in such a way as to easily distinguish it from standard lens tubes. The product shall not be labeled or marked in such a way as to be garish or distracting when placed in a system with other fixtures.
5. The product shall be available in black standard with silver, white and custom colors as options.

○ COLOR MIXING LIGHT EMITTING DIODE CYCLORAMA FIXTURE

P. General

3. The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a ColorSource® CYC as manufactured by Electronic Theatre Controls, Inc. or approved equal.
4. All LED fixtures shall be provided by a single manufacturer to ensure compatibility
5. The fixture shall be UL 1573 listed for stage and studio use
6. The fixture shall comply with the USITT DMX512-A standard

Q. Physical

3. The fixture shall be contained in a rugged all-metal die-cast housing, free of burrs and pits.
4. The housing shall have a rugged black powder coat finish
 - White or silver/gray powder coat finishes shall be available as color options
 - Other powder coat color options shall be available on request
5. Power supply and electronics shall be integral to each unit.
6. Fixture housing shall provide built in spill control
7. Fixture shall operate directly on the ground or by hanging via yoke
8. The unit shall ship with:
 - Theatrical-style hanging yoke as standard
 - 5' power lead with Neutrik® PowerCON™ to Edison connector as standard
9. Available options shall include but not be limited to:
 - DMX input via RJ45 connector
10. Light output shall be produce an asymmetrical beam
 - Lensing shall be designed to provide smooth coverage both horizontally and vertically for seamless blending from fixture to fixture
 - With a minimum setback from the cyclorama of 2', the fixtures shall be able to achieve a 2-to-1 spacing ration and maintain smooth coverage

R. ENVIRONMENTAL AND AGENCY COMPLIANCE

3. The fixture shall be UL and cUL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.
4. The fixture shall be UL LISTED to the UL1573 standard for stage and studio use

5. The fixture shall be rated for IP-20 dry location use.

S. THERMAL

3. The fixture shall be natural convection cooled and shall not use a fan
4. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 50,000 hours of use
 - Thermal management shall include multiple temperature sensors within the housing to include:
 - The LED array
 - The control board
5. The fixture shall operate in an ambient temperature range of 0°C (32°F) minimum, to 40° C (104°F) maximum ambient temperature.

T. ELECTRICAL

3. The fixture shall be equipped with 100V to 240V 50/60 Hz internal power supply
4. The fixture shall support power in and thru operation
 - Power in shall be via Neutrik® PowerCON™ input connector
 - Power thru shall be via Neutrik® PowerCON™ output connector
 - Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker
5. The fixture requires power from non-dim source
6. Power supply shall have power factor correction

U. LED Emitters

3. The fixture shall contain 5 different LED colors to provide color characteristics as described in Section H below.
4. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.
 - Fixture shall utilize Luxeon® C™ LED emitters
5. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.
6. LED emitters should be rated for nominal 50,000 hour LED life to 70% intensity
7. LED system shall comply with all relevant patents
8. Fixtures shall have a flicker free mode that will set the LED refresh rate to 25,000 Hz for flicker free operation on camera

V. Warranty

3. The fixture shall be provided with the minimum warranty:
 - 5 years full fixture coverage
 - 10 years LED coverage

W. CALIBRATION

3. Fixture shall be calibrated at factory for achieve consistent color between fixtures built at different times and/or from different LED lots or bins
 - Calibration data shall be stored in the fixture as a permanent part of on-board operating system
 - All arrays, including replacement arrays shall be calibrated to the same standard to ensure consistency
 - Fixtures not offering LED calibration shall not be acceptable
4. Fixture shall have droop compensation to overcome thermal droop in the LEDs to maintain output levels and color point.

X. COLOR

3. The fixture shall utilize a minimum of 42 LED emitters
 - These emitters shall be made up of Red, Green, Blue, Indigo and Lime

Y. DIMMING

3. The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.
4. The dimming curve shall be optimized for smooth dimming over longer timed fades.
5. The LED system shall be digitally driven using high-speed pulse width modulation (PWM)
6. LED control shall be compatible with broadcast equipment in the following ways:
 - PWM control of LED levels shall be imperceptible to video cameras and related equipment
 - PWM rates shall be adjustable by the user via RDM to avoid any visible interference to video cameras and related equipment

Z. CONTROL AND USER INTERFACE

3. The fixture shall be USITT DMX512-A compatible via **In** and **Thru** 5-pin XLR connectors or RJ45 connectors
4. The fixture shall be compatible with the ANSI RDM E1.20 standard
 - All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console

- Temperature sensors within the luminaire shall be viewable in real time via RDM
 - Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible
5. The fixture shall be equipped with a 7-segment display for easy-to-read status and control
 6. The fixture shall be equipped with a three-button user-interface
 7. The fixture shall offer multiple control modes including but not limited to:
 - RGB
 - 5 channel (IRGBS)
 - Direct
 - Single channel
 8. The fixture shall operate in Regulated mode for droop compensation
 9. The fixture shall offer stand-alone functionality eliminating the need for a console
 - Fixture shall ship with 12 preset colors accessible as a stand-alone feature
 - Fixture shall ship with 5 Sequences accessible as a stand-alone feature
 - Each preset can be modified by the end user
 - Fixtures can be linked together with standard DMX cables and controlled from designated master fixture
 - Up to 32 fixtures may be linked
 - Fixtures in a stand-alone state shall restore to the settings present prior to power cycling, eliminating the need for reprogramming
 - Fixtures without stand-alone operation features described in a, b, c, d, and e shall not be acceptable.

BASE BID FIXTURE & LIGHTING CONTROL

QTY	DESCRIPTION
5	Source Four LED Series 2 Lustr, light engine with shutter barrel, black
5	26° EDLT lens tube, black
5	Safety Cable (30in/762mm), black
5	C-Clamp
70	LED SourceFour Series 2 Lustr
70	36° EDLT lens tube, black
70	Safety Cable (30in/762mm), black
70	C-Clamp
10	LED SourceFour Series 2 Lustr
10	50° LED-specific EDLT lens tube, black
10	Safety Cable (30in/762mm), black
10	C-Clamp

15	SourceFour 575/750 Tungsten 19, 26, 36, 50 degree (black) w/Stage Pin
15	Safety Cable (30in/762mm), black
15	HPL lamp, 575W, 115V, 2000hr (longlife)
15	C-Clamp
15	D40 Lustr+, black
15	D40/CSPAR Medium Round diffuser inframe, black
15	Safety Cable (30in/762mm), black
15	C-Clamp
16	ColorSource CYC 120V with XLR, black
16	Safety Cable (30in/762mm), black
16	C-Clamp
12	HighEnd SolaPix 7 w/ (2) 6 fixture Road Cases 12
6	HighEnd SolaFrame 750 High CRI w/Road Case 6
8	Relevé Spot, black
8	Relevé Spot road case
16	C-Clamp
	ACCESSORIES
30	5' DMX control cable
65	10' DMX control cable
25	20' DMX control cable
25	25' DMX control cable
124	powerCON female to Edison, UL 1573, 5 ft/1.5 m (replacement)
60	5' PowerCon Thru Cable powerCON female to powerCON male fixture power jumper
21	5' PowerCon TRUE1 to Edison 21
10	15' PowerCon TRUE1 Input to PowerCon Blue Output
10	15' PowerCon TRUE1 Output to PowerCon Blue Input
6	50 pound Boom Base Altman B-50
18	City Theatrical Safer Sidearm Original with 18" of ½" pipe and one sliding tee
6	City Theatrical Safer Sidearm Original with 24" of ½" pipe and two sliding tee
	CONTROL
1	ETC Gio @ 5 - 4K Console 1
2	External Touchscreen Monitors 2 ELO Touch Solutions 2201L LED Monitor
	DVI-D VGA 22" FHD MT
1	Road Case for Gio @ 5 1

UNIT PRICING

QTY	DESCRIPTION
1	Source Four LED Series 2 Lustr, light engine with shutter barrel, black
1	26° EDLT lens tube, black
1	Safety Cable (30in/762mm), black
1	C-Clamp
1	LED SourceFour Series 2 Lustr
1	36° EDLT lens tube, black
1	Safety Cable (30in/762mm), black
1	C-Clamp
1	LED SourceFour Series 2 Lustr
1	50° LED-specific EDLT lens tube, black
1	Safety Cable (30in/762mm), black
1	C-Clamp
1	SourceFour 575/750 Tungsten 19, 26, 36, 50 degree (black) w/Stage Pin
1	Safety Cable (30in/762mm), black
1	HPL lamp, 575W, 115V, 2000hr (longlife)
1	C-Clamp
1	D40 Lustr+, black
1	D40/CSPAR Medium Round diffuser inframe, black
1	Safety Cable (30in/762mm), black
1	C-Clamp
1	ColorSource CYC 120V with XLR, black
1	Safety Cable (30in/762mm), black
1	C-Clamp
1	HighEnd SolaPix 7 w/ (2) 6 fixture Road Cases 12
1	HighEnd SolaFrame 750 High CRI w/Road Case 6
1	Relevé Spot, black
1	Relevé Spot road case
1	C-Clamp
1	ACCESSORIES
1	5' DMX control cable
1	10' DMX control cable
1	20' DMX control cable
1	25' DMX control cable
1	powerCON female to Edison, UL 1573, 5 ft/1.5 m (replacement)
1	5' PowerCon Thru Cable powerCON female to powerCON male fixture power jumper
1	5' PowerCon TRUE1 to Edison 21

1	15' PowerCon TRUE1 Input to PowerCon Blue Output
1	15' PowerCon TRUE1 Output to PowerCon Blue Input
1	50 pound Boom Base Altman B-50
1	City Theatrical Safer Sidearm Original with 18" of ½" pipe and one sliding tee
1	City Theatrical Safer Sidearm Original with 24" of ½" pipe and two sliding tee

1.19 NETWORKING CUE LIGHT SYSTEM

xv. General

170. Cue lights shall be an Ethernet-based system. The cue light system shall be the CueSystem range as manufactured by Electronic Theatre Controls, Inc. or equal.

171. The system shall provide bi-directional control of up to 50 connected CueSystem devices. Output shall be distributed over a 10/100 MB Ethernet network using TCP protocols.

172. The system shall incorporate a network based device discovery utility using UDP protocols to provide fast and easy setup and configuration of all connected devices.

173. Supported Device Discovery features shall include:

- a. Discovery and Identification of CueSystem devices.
- b. Setting of Network IP address and subnet range.
- c. Viewing of device firmware version and MAC address

174. A maximum of 10,000 cues may be contained in non-volatile electronic memory and stored locally to any network connected CueSystem Control Desk or Playback Unit.

175. Direct operation of CueSystem channels shall be provided via a dedicated hardware Control Desk or a virtual desk running within the CueSystem software application.

176. Playback of pre-recorded cues shall be possible via a dedicated hardware Playback Unit or the 'live screen' running within the CueSystem software application.

177. Dedicated hardware outstations shall be provided providing synchronous display of information from the CueSystem Control Desks, Playback Unit and/or software application.

xvi. Control Desk

178. A hardware Control Desk for the purpose of manual operation of cue light channels, having the following properties:

179. Physical

d. Desktop form factor available in 3 channel variants:

- 1) 4 Channels
- 2) 8 Channels
- 3) 12 Channels

e. Rackmount form factor available in 2 channel variants:

- 1) 8 Channels
- 2) 12 Channels

- f. The Control Desk shall contain a series of buttons providing the following core functionality:
 - 1) Channel Standby – A series of red, illuminated buttons activating the red LED of the corresponding, patched cue light outstation.
 - 2) Channel Preset – A series of yellow, illuminated buttons allowing multiple channels to be preset (or grouped) and activated simultaneously via an overall master 'GO' button.
 - 3) Channel 'GO' – A series of green, illuminated buttons activating the green LED of the corresponding, patched cue light outstation.
- g. The Control Desk shall be manufactured from aluminum and finished with a fine texture, black, powder coat paint.
- h. Control Desk buttons shall operate silently and provide adequate space between buttons providing eyes-free, tactile navigation of the product.
- i. A white, wipe clean, strip shall be provided between the standby and preset buttons allowing an operator to use an appropriate pen to note channel allocation free text.
- j. Control Desks shall have overall weight and dimensions no larger than:
- k. Desktop:
 - 1) 4 Channel: 5.6 x 8.3 x 7.3 inches (145 x 210 x 185mm) 2.95lbs (1.35kgs)
 - 2) 8 Channel: 5.6 x 14.7 x 7.3 inches (145 x 375 x 185mm) 5.15lbs (2.35kgs)
 - 3) 12 Channel: 5.6 x 19.1 x 7.3 (145 x 485 x 185mm) 5.75lbs (2.60kgs)
- l. Rackmount:
 - 1) 8 Channel: 5.3 x 19.0 x 4.9 inches (135 x 485 x 125mm) 3.85lbs (1.75kgs)
 - 2) 12 Channel: 5.3 x 19.0 x 4.9 inches (135 x 485 x 125mm) 4.35lbs (2.00kgs)
- m. The rear of the Control Desk shall include the following I/O ports:
 - 1) Ethernet Port for bidirectional communication with other CueSystem devices using TCP/IP and/or UDP
 - 2) RS232 serial port for unidirectional control of CueSystem devices via externally generated serial strings
 - 3) 2 x USB ports for factory commissioning processes
 - 4) Switched and fused IEC port for connection of 100-240V AC power (required for operation)

xvii. Playback Unit

180. A hardware Playback Unit for the purpose of replaying pre-recorded cue light scenes, available as in desktop or rack-mounting variant.

181. Physical

- n. The Playback Unit shall contain a series of buttons providing the following core functionality:

- 1) 'Go' button (one on desktop, two on rack-mount) – provides single button execution of pre-recorded cues in sequential forward order.
 - 2) Back button – provides single button execution of a pre-recorded cues in reverse order.
 - 3) Cue Navigation buttons shall be provided to scroll through pre-recorded cues. One pair of buttons shall provide up/down scrolling of a single cue at a time. A second pair of buttons shall provide up/down scrolling of ten cues at a time.
 - 4) A record/update button shall be provided to allow single button updating of the active state of all cue light outstations to the current selected cue.
- o. A two-line, backlit LCD display shall be provided showing the current and next cue number along with any pre-recorded, free text information contained within the cue up to a maximum of 28 characters.
- p. The Playback Unit shall be manufactured from aluminum and finished with a fine texture, black, powder coat paint.
- q. Playback Unit buttons shall operate silently and provide adequate space between buttons providing eyes-free, tactile navigation of the product.
- r. Playback Units shall have overall weight and dimensions no larger than:
- s. Desktop:
- 1) 3.4 x 7.9 x 5.9 inches (90 x 200 x 150mm) 1.85lbs (0.85kgs)
- t. Rackmount:
- 1) 1.71 x 19.0 x 5.5 inches (45 x 485 x 140mm) 3.85lbs (1.75kgs)
- u. The rear of the Playback Unit shall include the following I/O ports:
- 1) Ethernet Port for bidirectional communication with other CueSystem devices using TCP/IP and/or UDP
 - 2) RS232 serial port for unidirectional control of CueSystem devices via externally generated serial strings
 - 3) 2 x USB ports for factory commissioning processes
 - 4) Switched and fused IEC port for connection of 100-240V AC power (required for operation)

xviii. CueSpider Outstation

182. A hardware cue light outstation for the purpose of displaying standby and 'Go' information in the form of red and green LED's. CueSpider Outstations are controlled via the CueSystem Control Desk, software application and/or Playback Unit. Three variants of the CueSpider outstation shall be made available – CueSpider, CueSpider Lite and CueSpider Large:

183. CueSpider

v. Physical

- 1) The CueSpider Outstation shall contain two LED indications/buttons providing the following core functionality:

- 2) Red Standby – provides a visual cue to the recipient to standby to receive a 'Go' command. The Red LED can be configured to flash or remain static dependent on preference. When a flashing system is configured, the Red LED shall double as an 'acknowledge' button instantly stopping the flashing action and indicating to the Stage Manager that the receiver has received the Standby command and is ready to proceed.
 - 3) Green 'Go' – provides a visual cue to the recipient to execute the prescribed cue
- w. A three-line OLED display shall be provided showing the user-definable device name, current and next cue number along with any pre-recorded, free text information contained within the cue up to a maximum of 17 characters.
 - x. The CueSpider Outstation shall be manufactured from aluminum and finished with a fine texture, black, powder coat paint.
 - y. The CueSpider Outstation buttons shall operate silently and provide adequate space between buttons providing eyes-free, tactile navigation of the product.
 - z. The CueSpider Outstation shall have overall dimensions no larger than 5 x 3.4 x 1.8 inches (127 x 86 x 46mm) and a maximum product weight of 0.6lbs (0.27kgs)
 - aa. The base of the CueSpider Outstation shall include 2 x etherCON connectors for IN/THRU connection of Ethernet data and Power over Ethernet (PoE)
 - bb. The rear chassis plate shall be removable via screws to enable manual 180-degree rotation allowing the product to be secured from the top or bottom.
 - cc. A pre-drilled 'keyhole' shall be included on the rear chassis plate of the CueSpider Outstation allowing the device to be hooked onto appropriate mounting hardware.

184. CueSpider Lite

- dd. Physical
 - 1) The CueSpider Lite Outstation shall contain two LED indications/buttons providing the following core functionality:
 - 2) Red Standby – provides a visual cue to the recipient to standby to receive a 'Go' command. The Red LED can be configured to flash or remain static dependent on preference. When a flashing system is configured, the Red LED shall double as an 'acknowledge' button instantly stopping the flashing action and indicating to the Stage Manager that the receiver has received the Standby command and is ready to proceed.
 - 3) Green 'Go' – provides a visual cue to the recipient to execute the prescribed cue
- ee. A three-line OLED display shall be provided showing the user-definable device name, current and next cue number along with any pre-recorded, free text information contained within the cue up to a maximum of 17 characters.

- ff. The CueSpider Lite Outstation shall be manufactured from aluminum and finished with a fine texture, black, powder coat paint.
- gg. The CueSpider Lite Outstation buttons shall operate silently and provide adequate space between buttons providing eyes-free, tactile navigation of the product.
- hh. The CueSpider Lite Outstation shall have overall dimensions no larger than 5 x 3.4 x 1.8 inches (127 x 86 x 46mm) and a maximum product weight of 0.55lbs (0.25kgs)
- ii. The base of the CueSpider Lite Outstation shall include 1 x etherCON connectors for connection of Ethernet data and Power over Ethernet (PoE)
- jj. The rear chassis plate shall be removable via screws to enable manual 180-degree rotation allowing the product to be secured from the top or bottom.
 - 1)
- kk. A pre-drilled 'keyhole' shall be included on the rear chassis plate of the CueSpider Outstation allowing the device to be hooked onto appropriate mounting hardware.

185. CueSpider Large

- II. Physical
 - 1) The CueSpider Large Outstation shall contain two high-visibility LED indications/buttons providing the following core functionality:
 - 2) Red Standby – provides a visual cue to the recipient to standby to receive a 'Go' command. The Red LED can be configured to flash or remain static dependent on preference.
 - 3) Green 'Go' – provides a visual cue to the recipient to execute the prescribed cue
- mm. A manual push-button user interface shall be included on the front face of the product. When the flashing red standby option is configured, the push button shall act as an 'acknowledge' feature instantly stopping the flashing action and indicating to the Stage Manager that the receiver has received the Standby command and is ready to proceed.
- nn. A three-pin female XLR connector shall be included on the lower edge of the product allowing an optional remote acknowledge button to be connected for instances where the CueSpider Large is mounted out of arms reach.
- oo. The CueSpider Large Outstation shall be manufactured from aluminum and finished with a fine texture, black, powder coat paint.
- pp. The CueSpider Large Outstation buttons shall operate silently and provide adequate space between buttons providing eyes-free, tactile navigation of the product.
- qq. The CueSpider Large Outstation shall have overall dimensions (without yoke) no larger than 4 x 7.6 x 3.3 inches (102 x 193 x 84mm) and a maximum product weight of 1.8lbs (0.82kgs)
- rr. CueSpider Large shall be provided with a metal yoke and T-bar accessory allowing the product to be installed using a third-party provided hanging clamp.

ss. The base of the CueSpider Large Outstation shall include one etherCON connector for connection of Ethernet data and Power over Ethernet (PoE)

tt. Two pre-drilled 'keyholes' shall be included on the rear chassis plate of CueSpider Large allowing the device to be hooked onto appropriate mounting hardware.

1)

xix. CueSystem Application Software

186. All CueSystem user options including patching, recording and playback features shall be configurable via a freely downloadable companion software application. The software shall provide the following features:

187. Patch

uu. A graphical user interface providing point and click functionality shall be provided to facilitate rapid association of a Control Desk channel to a connected outstation.

vv. Free text titling of control channels shall be provided allowing easy identification of outstation location and/or use. The free text title shall also be displayed in the display of a network connected outstation if present.

ww. Real time feedback of connected device status allowing operator to determine if a device is online.

xx. An outstation 'identify' feature shall be available allowing the operator to trigger a factory preset message on the screen of a network connected outstation for visual location of device.

188. Device Discovery

yy. A device discovery utility shall be provided to facilitate easy configuration of network connected CueSystem devices.

zz. Device discovery shall include an automatically populating list of available devices.

aaa. All required network configuration options shall be available within the Device Discovery utility including IP address, subnet mask and association of devices to a user specified CueSystem master controller.

189. Overview

bbb. An overview screen shall be provided allowing a user to import any JPG or PNG image file as a background.

ccc. Simple drag and drop icons symbolizing active network connected outstations shall be freely located over the top of the imported image providing a virtual layout of the connected devices.

ddd. Outstation icon graphics shall provide real-time reporting of current status of connected devices for convenient system monitoring.

190. Program

eee. Multiple virtual Control Desks may be added to the program screen providing simple partitioning of channels if required.

- fff. Cue list entry with free text naming of cues shall be provided allowing operator to use custom references
- ggg. A function to insert a new cue or delete a current cue shall be provided
- hhh. A function to renumber the entire cue stack shall be provided allowing the operator to sequentially renumber all cues in whole numbers.
- iii. No forced behavioral entry. Operator shall be free to program any combination of available channels and cue light colors.
- jjj. Updating of all changes to the designated system master controller shall be made in real-time when connected.
- kkk. A live playback screen shall be made available providing simple, clutter-free display of cue list, current and next cue information. A GO and BACK virtual button shall be provided allowing execution of stored cues.
- III. A blind preview option shall be made available providing the operator with a local preview of programmed cue data without outputting information to any connected network devices.

191. Help

- mmm. An onboard, interactive help system shall be provided
- nnn. An 'about' menu detailing firmware versions of all, currently connected CueSystem devices shall be provided.

1.20 COLOR MIXING LIGHT EMITTING DIODE RUNNING LIGHTS

xx. General

192. The fixture shall be a color-mixing high-intensity LED illuminator with DMX control of intensity and color. The fixture shall be a Desire D40 Vivid as manufactured by Electronics Theatre Controls, Inc. or approved equal.
193. All LED fixtures shall be provided by a single manufacturer to ensure compatibility
194. The fixture shall be UL 1573 listed for stage and studio use
195. The fixture shall comply with the USITT DMX-512 A standard
196. The fixture shall be provided with the minimum warranty of 5 years full fixture coverage and 10 years LED array coverage
197. All LED emitters must have a L70 rating of no less than 50,000 hours
- a. Substitutes must provide evidence of minimum L70 rating of no less than 50,000 hours via a LM-80 report on all emitters
 - 1) LM-80 report must be provided with a LM-79 report and an in situ temperature measurement test verifying the conditions of the fixture meet the conditions of the LM-80 report
 - 2) All tests and reports must be completed by a Nationally Recognized Testing Laboratory
 - 3) All tests must be conducted to IES standards

xxi. Physical

198. The fixture shall be contained in a rugged all-metal die-cast housing, free of burrs and pits.
199. The housing shall have a rugged black powdercoat finish
- b. White or silver/gray powdercoat finishes shall be available as color options
 - c. Other powdercoat color options shall be available on request
200. Power supply, cooling and electronics shall be integral to each unit.
201. Fixture housing shall provide two easy-access slots for secondary lenses and other accessories
- d. Slots shall be equipped with locking retaining clip
202. The unit shall ship with:
- e. Theatrical-style hanging yoke as standard
 - f. 5' power lead with Edison connector as standard
203. Available options shall include but not be limited to:
- g. Yoke with floor stand conversion feature

- h. Bare-end, Stage-Pin or Twist-lock type-equipped power leads
- i. PowerCon to PowerCon cables for fixture power linking
- j. Multiple secondary lens options to include multiple angles in the following patterns:
 - 1) Linear
 - 2) Round
 - 3) Oblong

204. Light output shall be via a round aperture

- k. Aperture and accessory slots shall accommodate standard 7.5" accessories such as used in other similar-sized fixtures
- l. Accessories available as options shall include but not be limited to:
 - 1) Gel/diffusion frames
 - 2) Top hats
 - 3) Barndoors
 - 4) Egg crate louvers
 - 5) Concentric ring louvers
 - 6) Multiple secondary lensing options

xxii. ENVIRONMENTAL AND AGENCY COMPLIANCE

205. The fixture shall be UL and cUL LISTED and/or CE rated, and shall be so labeled when delivered to the job site.

206. The fixture shall be UL LISTED to the UL1573 standard for stage and studio use

207. The fixture shall be rated for IP-20 dry location use.

xxiii. THERMAL

208. Fixture shall be totally convection cooled, requiring no cooling fan. Fixtures which require an on-board cooling fan shall not be acceptable unless pre-approved

209. The fixture shall utilize advanced thermal management systems to maintain LED life to an average of 70% intensity after 50,000 hours of use

- m. Thermal management shall include multiple temperature sensors within the housing to include:
 - 1) LED array circuit board temperatures
 - 2) Temperature sensors placed on each individual LED color circuit
 - 3) Fixture ambient
 - 4) CPU
- n. Fixture user shall permit monitoring of temperature sensors via a legible LCD multi-line backlit display
- o. Fixtures that do not provide active thermal monitoring of LED circuits and other temperature readings shall not be acceptable

210. The fixture shall operate in an ambient temperature range of -20°C (-4°F) minimum, to 40° C (104°F) maximum ambient temperature.

xxiv. ELECTRICAL

211. The fixture shall be equipped with 100V to 240V 50/60 Hz internal power supply

212. The fixture shall support power in and thru operation

- p. Power in shall be via Neutrik® PowerCon™ input connector
- q. Power thru shall be via Neutrik® PowerCon™ output connector
- r. Fixture power wiring and accessory power cables shall be rated to support linking of multiple fixtures up to the capacity of a 15A breaker

213. The fixture requires power from non-dim source

214. Power supply outputs shall have self-resetting current limiting protection

215. Power supply shall have power factor correction

xxv. LED Emitters

216. The fixture shall contain a minimum of 5 different LED colors to provide color characteristics as described in Section G below.

217. All LEDs used in the fixture shall be high brightness and proven quality from established and reputable LED manufacturers.

- s. Fixture shall utilize Luxeon® Rebel™ LED emitters

218. Manufacturer of LED emitters shall utilize an advanced production LED binning process to maintain color consistency.

219. LED emitters should be rated for nominal 50,000 hour LED life to 70% intensity

220. All LED fixtures (100% of each lot) shall undergo a minimum eight-hour burn-in test during manufacturing.

221. LED system shall comply with all relevant patents

xxvi. CALIBRATION

222. Fixture shall be calibrated at factory for achieve consistent color and intensity output between fixtures built at different times and/or from different LED lots or bins

- t. Calibration data shall be stored on the LED array as a permanent part of on-board operating system
- u. All arrays, including replacement arrays shall be calibrated to the same standard to insure consistency
- v. Fixtures not offering LED calibration shall not be acceptable

xxvii. COLOR

223. The fixture shall utilize an minimum of 40 LED emitters

224. The fixture shall be available in specialized LED arrays as outlined below:

w. Desire D40

1)

2) Red, Orange, Amber, Green, Cyan, Blue and Indigo LEDs in an array designed for broad spectrum deep colors. This array shall be the Vivid array as manufactured by Electronic Theatre Controls, or approved equal

a) Measured brightness of the Vivid array shall be greater than 2500 field lumens

x. Desire D40 Studio

1) Warm White, Cool White, Red, Green, Blue and Indigo LEDs in an array designed for high-brightness variable color temperature white light output. This shall be the Studio HD array as manufactured by Electronic Theatre Controls, or approved equal

a) Measure brightness of the Studio HD array shall be greater than 3100 field lumens

2) All Warm White LEDs in an array designed for non-variable single color high-output, warm white light. This shall be the Studio Tungsten array as manufactured by Electronic Theatre Controls, or approved equal

a) Measure brightness of the Studio tungsten array shall be greater than (TBD) field lumens

3) All Cool White LEDs in an array designed for non-variable single color high-output, cool white light. This shall be the Studio Daylight array as manufactured by Electronic Theatre Controls, or approved equal

a) Measure brightness of the Studio Daylight array shall be greater than (TBD) field lumens

4)

xxviii. DIMMING

225. The LED system shall use 15-bit nonlinear scaling techniques for high-resolution dimming.

226. At least four different dimming curve options shall be accessible at the fixture's User Interface

y. Incandescent

z. Standard

aa. Linear

bb. Quick

227. Dimming curves shall be optimized for smooth dimming over longer timed fades.

228. The LED system shall be digitally driven using high-speed pulse width modulation (PWM)

229. LED control shall be compatible with broadcast equipment in the following ways:

- cc. PWM control of LED levels shall be imperceptible to video cameras and related equipment
- dd. PWM rates shall be adjustable by the user at the fixture if necessary to avoid any visible interference to video cameras and related equipment

xxix. CONTROL AND USER INTERFACE

230. The fixture shall be USITT DMX 512A-compatible via In and Thru 5-pin XLR connectors

231. The fixture shall be compatible with the ANSI RDM E1.20 standard

- ee. All fixture functions shall accessible via RDM protocol for modification from suitably equipped control console
- ff. Temperature sensors within the luminaire shall be viewable in real time via RDM
- gg. Fixtures not offering RDM compatibility, feature set access or temperature monitoring via RDM shall not be compatible

232. The fixture shall be equipped with multi-line LCD display for easy-to-read status reports and configuration changes

233. The fixture shall be equipped with a six-button user-interface

234. The fixture shall offer multiple DMX input profile options to include:

- hh. RGB - control of all individual LED colors via a three-channel profile
 - 1) Red, Green, Blue
- ii. HSI – control of all individual LED colors via a three-channel profile
 - 1) Hue, Saturation, Intensity
- jj. HSIC – control of all LED colors via a four-channel profile
 - 1) Hue, Saturation, Intensity and Color Point
 - a) Color point provides variable color temperature settings
- kk. Direct – control of each individual color channel via an independent channel
- ll. A variable-rate strobe channel shall be provided

235. The fixture shall offer three output settings

- mm. Boost mode - powers LEDs at maximum intensity and provides no compensation against LED 'droop' or intensity loss
- nn. Regulated mode – slightly restricts maximum LED intensity levels to compensate against LED droop

oo. Protected mode – further restricts maximum LED intensity levels to compensate against LED droop and offer color consistency at highest permissible ambient temperatures (40C)

pp. Fixtures that do not provide regulated and protected operation modes are not acceptable

236. The fixture shall offer additional user-definable options to including but not limited to:

qq. Display time out options

rr. Loss of data behavior options

ss. White point settings

tt. Red-shift option for tungsten dimming emulation

237. The fixture shall offer five Quick Set-Ups to allow user to rapidly select different combinations of the numerous user options based on the desired usage situation, to include:

uu. General – for most situations

vv. Stage – when emulating incandescent fixtures is desired

ww. High Impact – when maximum output and effect is desired

xx. XT Arch – when color consistency and architectural characteristics are desired.

yy. Studio - when DMX or stand-alone of white light output is required with intensity, color temperature and color tint control parameters

238. The fixture shall offer stand-alone functionality eliminating the need for a console

zz. Fixture shall ship with 24 preset colors accessible as a stand-alone feature

aaa. Fixture shall ship with 12 Sequences accessible as a stand-alone feature

bbb. Each color and sequence can be modified by the end user

ccc. Fixtures can be linked together with standard DMX cables and controlled from designated master fixture

1) Up to 32 fixtures may be linked

ddd. Fixtures in a stand-alone state shall restore to the settings present prior to power cycling, eliminating the need for reprogramming

eee. Fixtures without stand-alone operation features described in a, b, c, d, and e shall not be acceptable.

fff. Fixtures without stand-alone operation features described in a, b, c, d, and e shall not be acceptable.

ggg. Provide (1) DPA-B 5' Power Cord, (1) 400L Egg Crate Louver, (1) 400PHH Half High Hat & (1) SELOM-7.5 Medium Lens (oblong field) with each of the 4 running light fixtures.

1)

a)

Index Rail Light

A. This assembly shall consist of an extruded aluminum wireway 3.375" x 4.75" icross section, and in lengths up to 10 feet, containing terminal strips at both ends for feed conduit and wire extending to medium screw sockets, as specified.

B. Index rail light housing shall be fabricated of black extruded aluminum wireway with interlocking cover sections to exceed UL 1573 standards. Housing shall be inherently rustproof.

C. The reflector shall be fabricated from 16 gauge cold rolled steel with a matte black exterior finish and a white interior finish.

D. The index rail light shall contain 125° C XLP wiring of the proper sizes and quantities to connect the individual sockets to the terminal blocks in circuits of capacity as specified.

E. The terminal blocks shall be molded barrier type with screw lugs suitable for connecting incoming wire.

F. Index Rail Lights shall be supplied with 1/4" - 20 x 1 1/2" eye bolts beginning 6" in from each end and 3' to 4' on center. Other mounting methods are available.

G. The entire assembly shall be listed and labeled by Underwriters Laboratories.

H. Index Rail Lights shall be wired in alternating circuits for blue and white LED lamp control.

I. The index strip shall be the same length as the existing locking rails.

J. (2) LED Wall box dimmers shall be provided to dim 100 – 1% for each circuit.

xxx. The Index Strip shall be supplied with 1/4" - 20 x 1 1/2" eye bolts beginning 6" in from each end and 3' to 4' on center. Other mounting methods are available.

L. The entire assembly shall be listed and labeled by Underwriters Laboratories.

Orchestra Pit EdgeLight

A. The Future Light EdgeLyte is especially designed and engineered as a safety lighting device specifically suited for demarcating changes in elevation such as stage fronts, orchestra pits, elevated platforms, steps and similar locations found around stages and similar facilities.

B. Unit shall use low voltage LED source shall be green with spacing of 12" inch on center. The unit shall be supplied with one of the following power supplies as noted on the fixture schedules; 100-240v AC with master intensity control via USITT DMX-512. Visibility of the light source shall be limited to persons standing onstage and shall not be readily visible when viewed by persons in the audience. Vertical style shall have limited side view. Units with DMX control option shall illuminate to maximum intensity in the absence of a DMX control signal.

DIMENSIONS

A. Rails runs measures .5"H x .75"W x required length. EdgeLyte is design to be installed in a groove and flush with the surface. Controllers are designed to fit in a 2 gang backbox or a custom rack panel.

Stage Work Lights

- A. Shall be IP65 Rated
- B. Shall operate at 120VAC
- C. Shall be 120 degree Beam Angle
- D. Shall be no less than 80CRI
- E. Finish shall be black
- F. Shall operate for 50,000 hours
- G. Shall be UL Listed
- H. Shall be provided with a 3 year Warranty.
- I. Shall be provided with (1) 36" parallel blade U- Plug.
- J. Unit shall be provided with C-Clamp and Safety Cable

Unit shall be rated at 200W – 18000 Lumens

PART 3. EXECUTION

3.01 CONDUIT AND WIRING

- A. General:
- B. Carefully label clearly and permanently then remove exiting branch circuits. Branch circuits are two wire only. Common neutrals not permitted
- C. Terminate wires matching dimmer numbers to the original dimmers with pressure type connections.
- D. Run wiring to new devices as specified, and connect into these devices in such a manner that the circuits are numbered within as shown in the attached schedule, and/or so that the circuits number from Stage Left to Stage Right.
- E. Wire new branch circuits with neutrals of size equal to the hot line. Branch circuits two wire only. Common neutrals not permitted
- F. Terminate wires with pressure type connections and label clearly and permanently.
- G. Run wiring to devices as specified, and connect into these devices in such a manner that the circuits are numbered within as shown in the attached schedule, and/or so that the circuits number from Stage Left to Stage Right, Downstage to Upstage, or from Top to Bottom of the respective device.
- H. Where field verification of low voltage cables runs indicate their performance may be impacted by the total length of the cable run, Electrical Contractor and Theatrical Systems Integrator shall coordinate to find a suitable alternative, such as substitution of cable or model number of product, which does not impact the specified functionality of the system.

Conduit Runs:

Conceal conduit runs, over ceilings, etc.

Permanently set items such as junction boxes, and plug boxes are to be attached directly to conduit.

The electrical contractor shall be responsible for field measurements and coordinating physical size of all equipment with the Electrical Engineering requirements of the spaces into which they are to be installed.

The electrical contractor shall install all lighting control and dimming equipment in accordance with manufacturer's approved shop drawings.

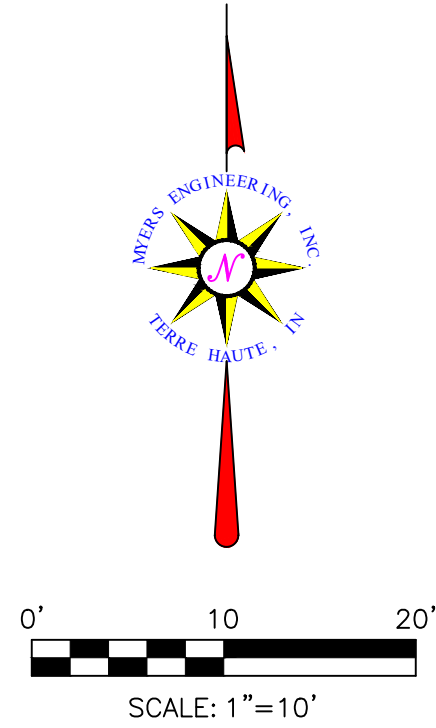
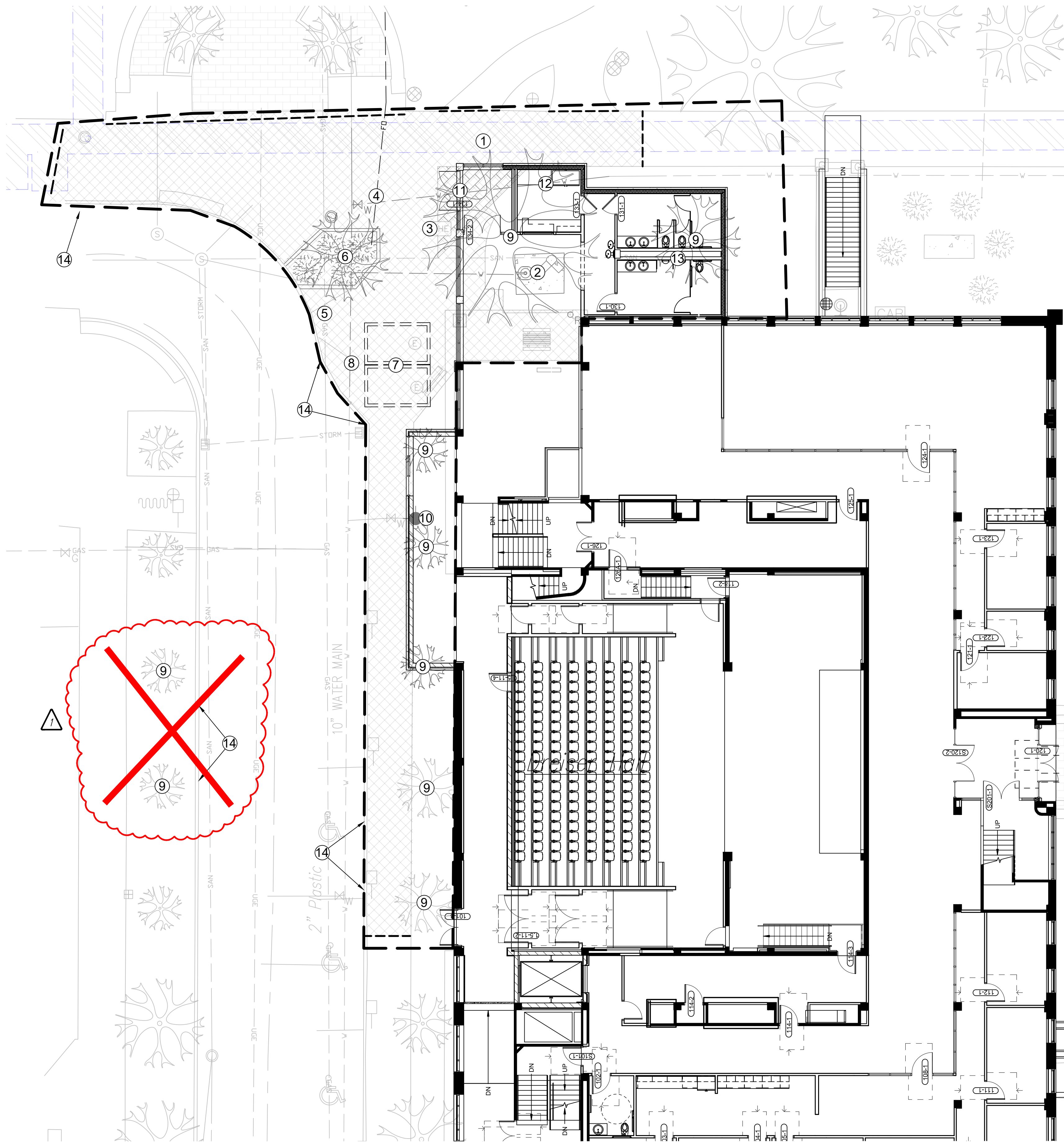
All branch load circuits shall be live tested before connecting the loads to the dimmer system load terminals.

RESPONSIBILITY MATRIX

3.02 Responsibility Matrix

- A. The Matrix spreadsheet in E-series drawings outlines the responsibilities associated with the items in this specification. Box Numbers correlate to devices shall be found on E-series Plans & Riser.

END OF SECTION 26 55 61



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
- Sawcut Concrete Sidewalk

⚠ 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.

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Terre Haute, IN 47802
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Website: www.myersengineering.com



CERTIFICATION
4/19/2020

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

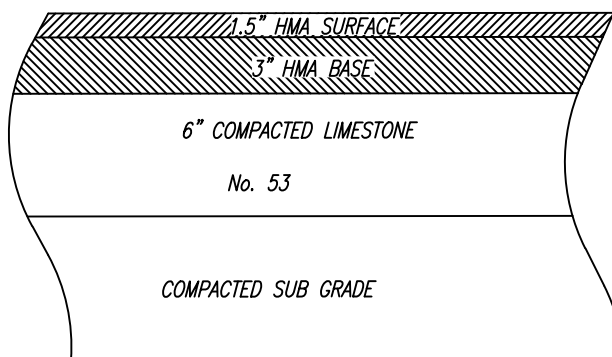
REVISION SCHEDULE		
Rev. 1	Addendum #2	June 19, 2020

Demolition Plan

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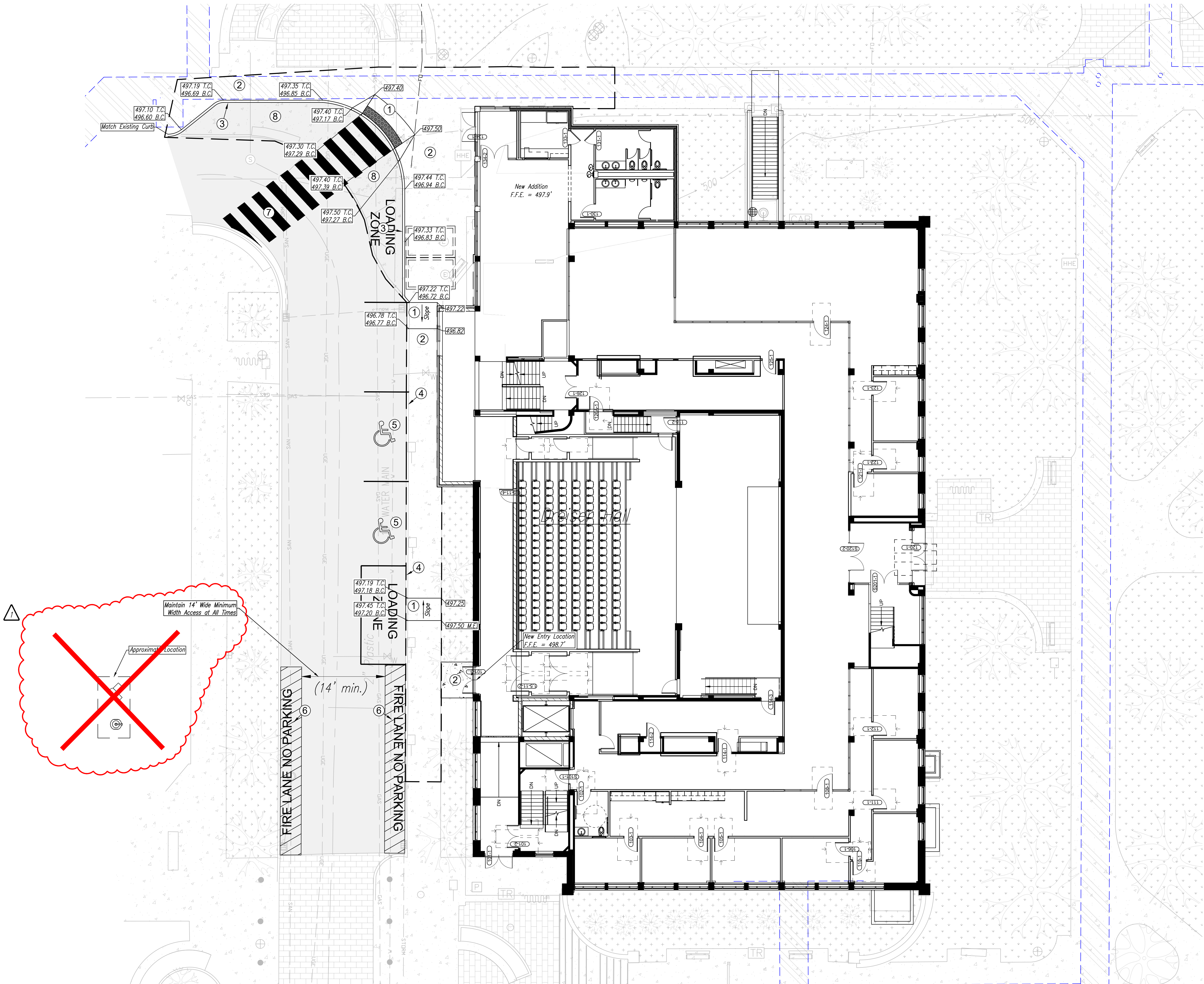
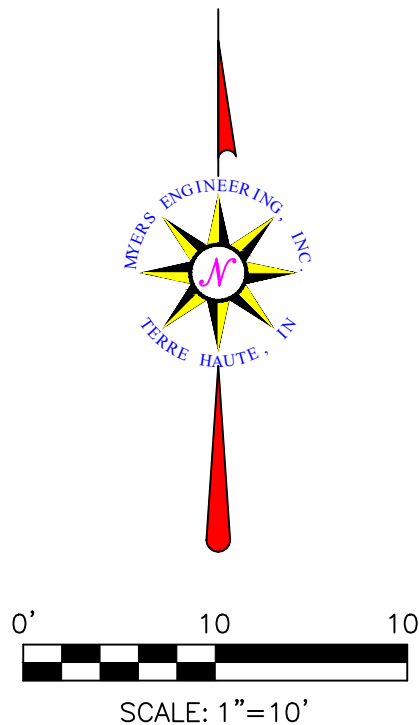
SITE LEGEND

- 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



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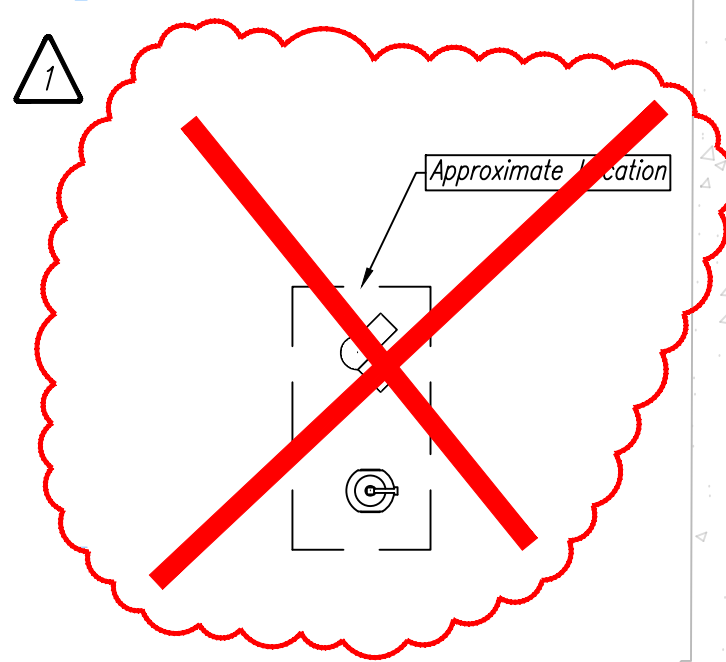
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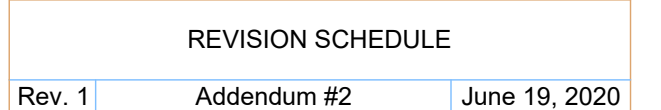
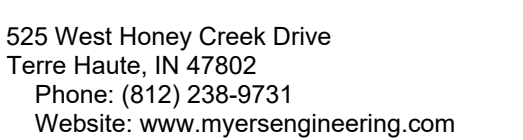
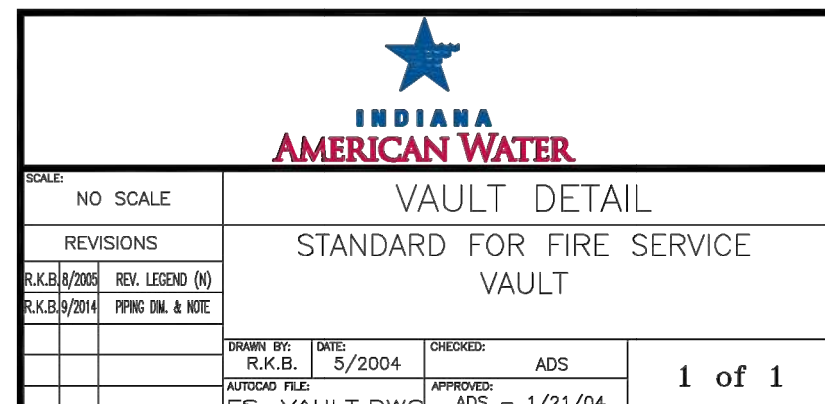
Rev. 1 Addendum #2 June 19, 2020

Site/Grading Plan

C3.00

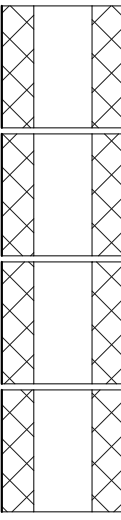
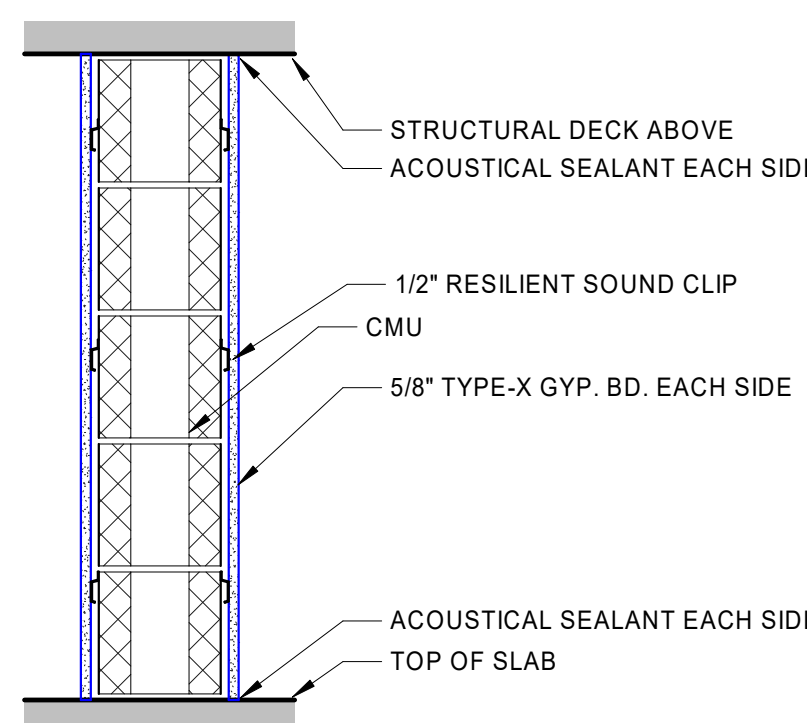
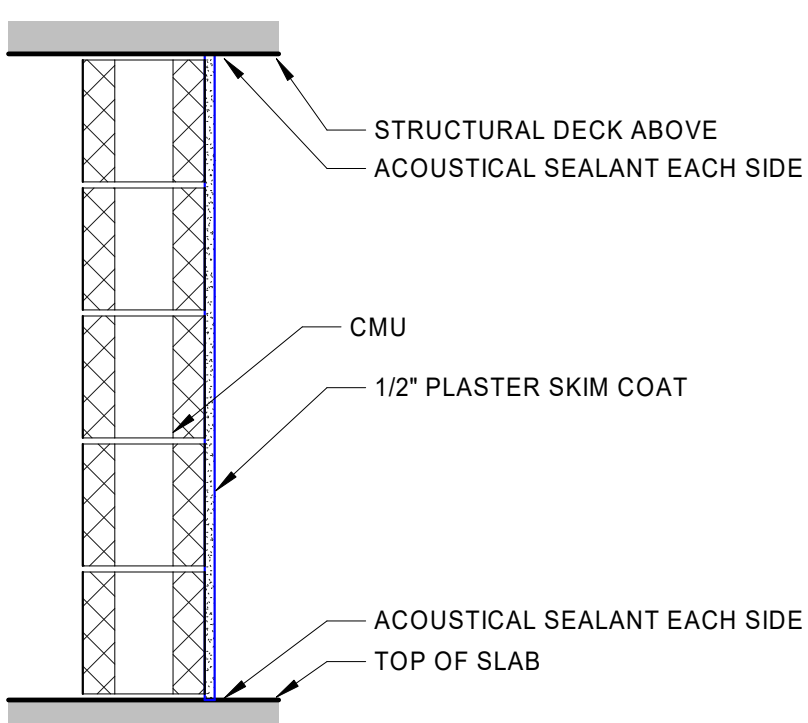
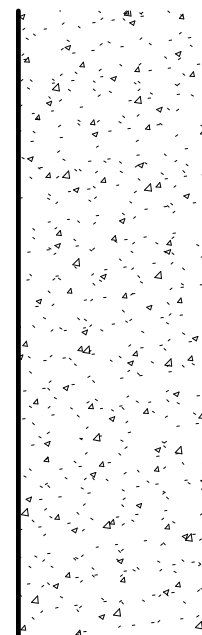
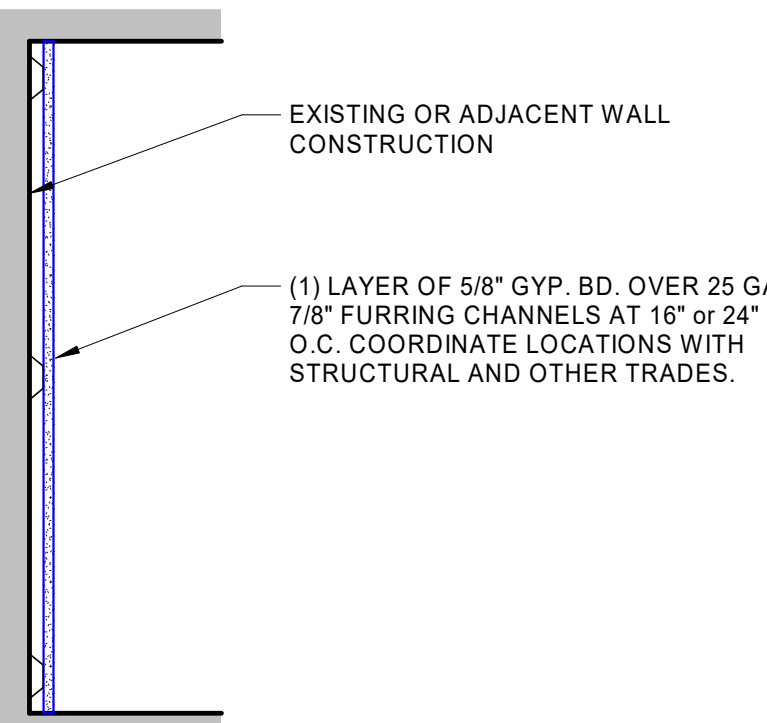
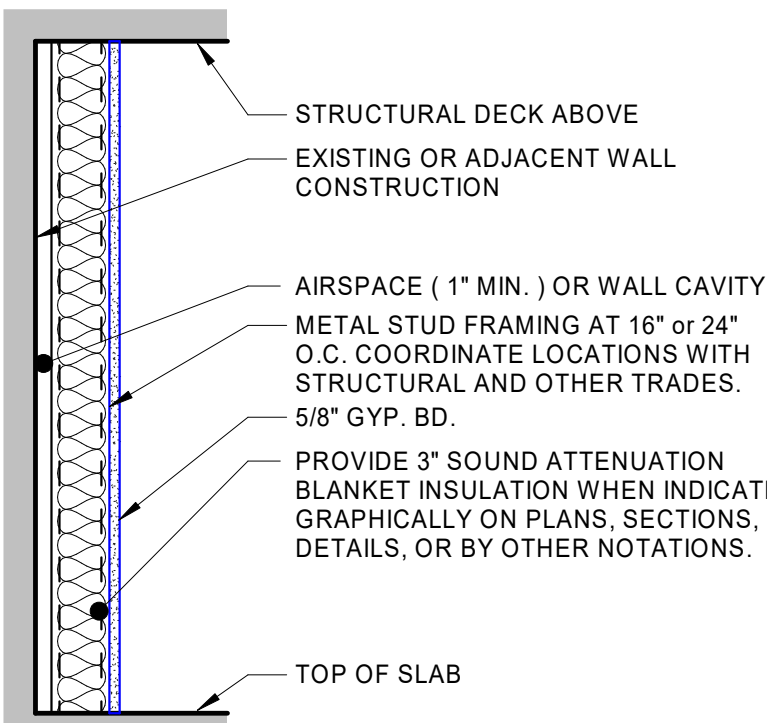
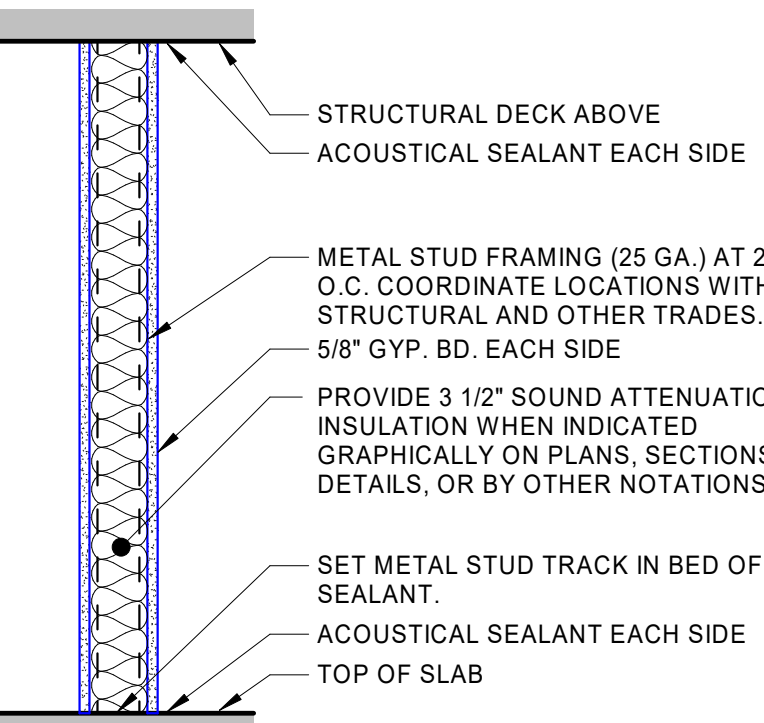
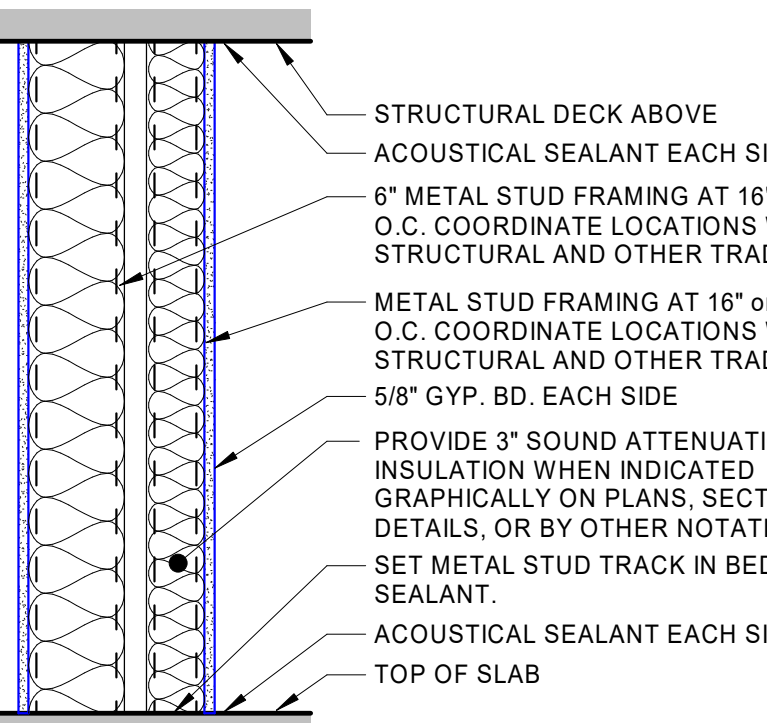
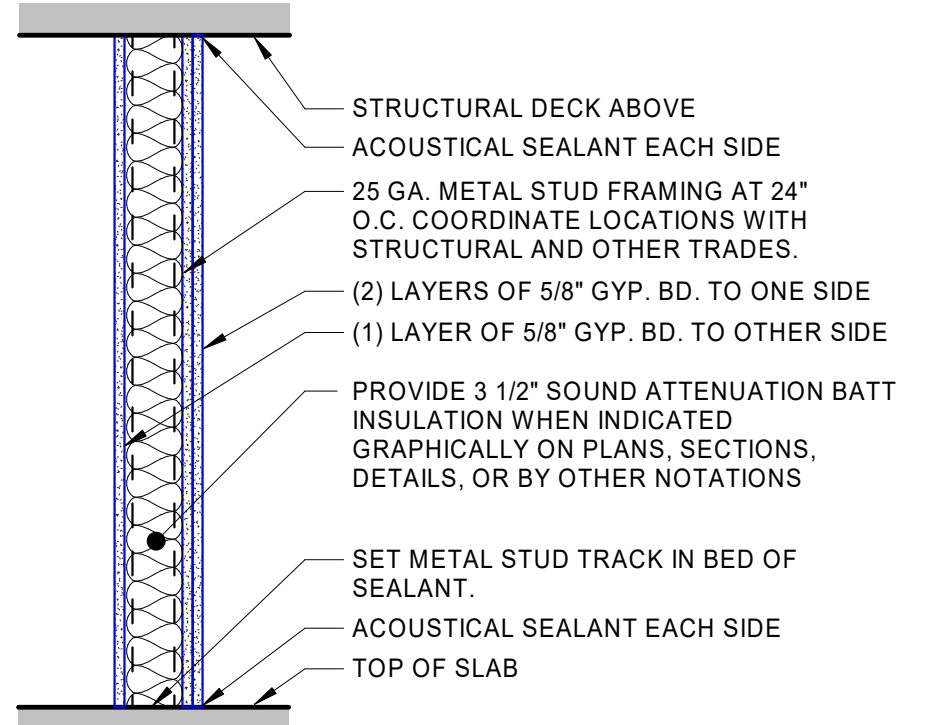
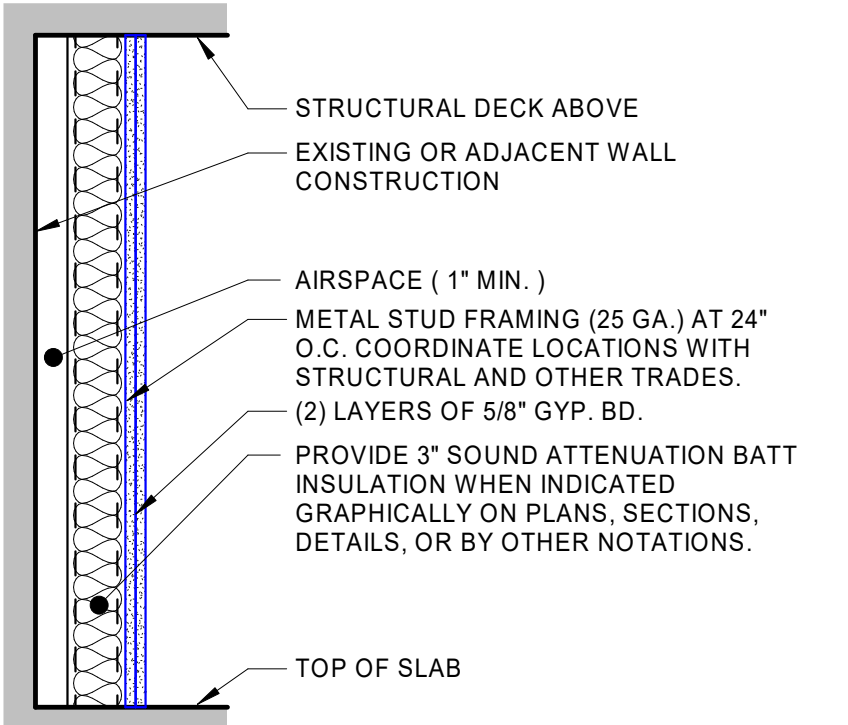
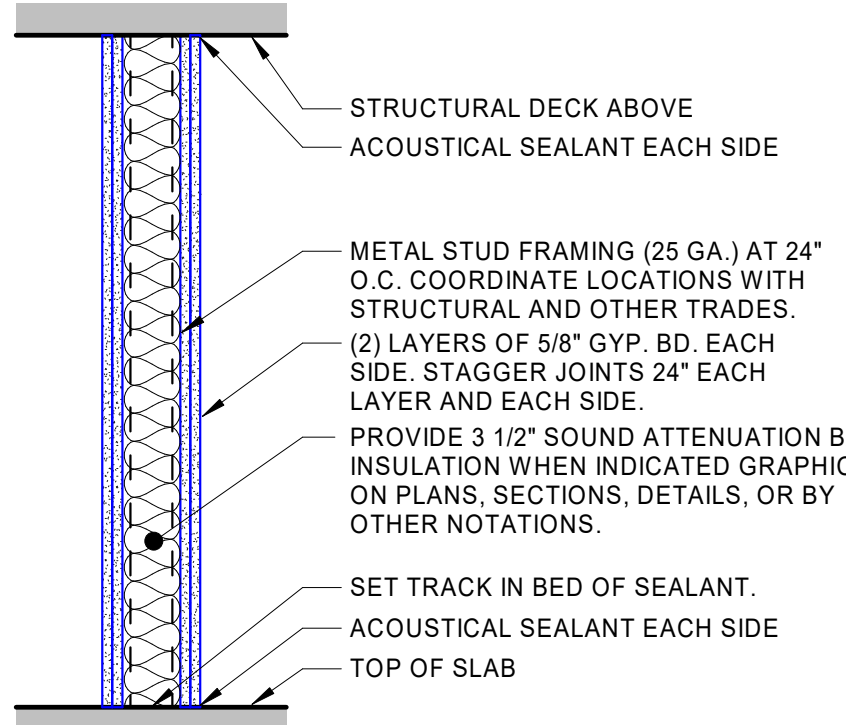


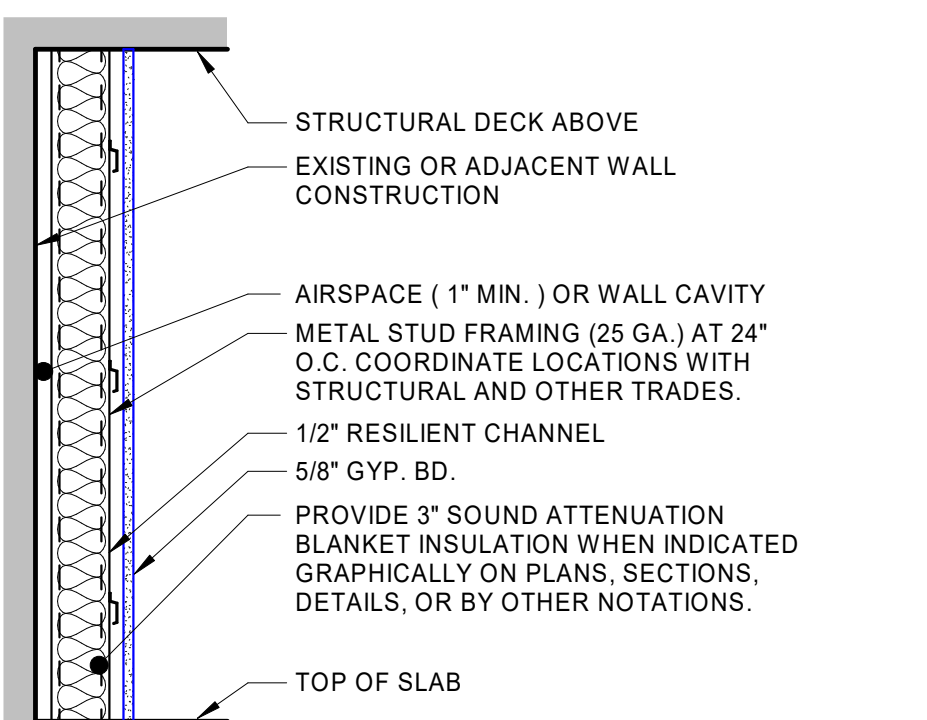
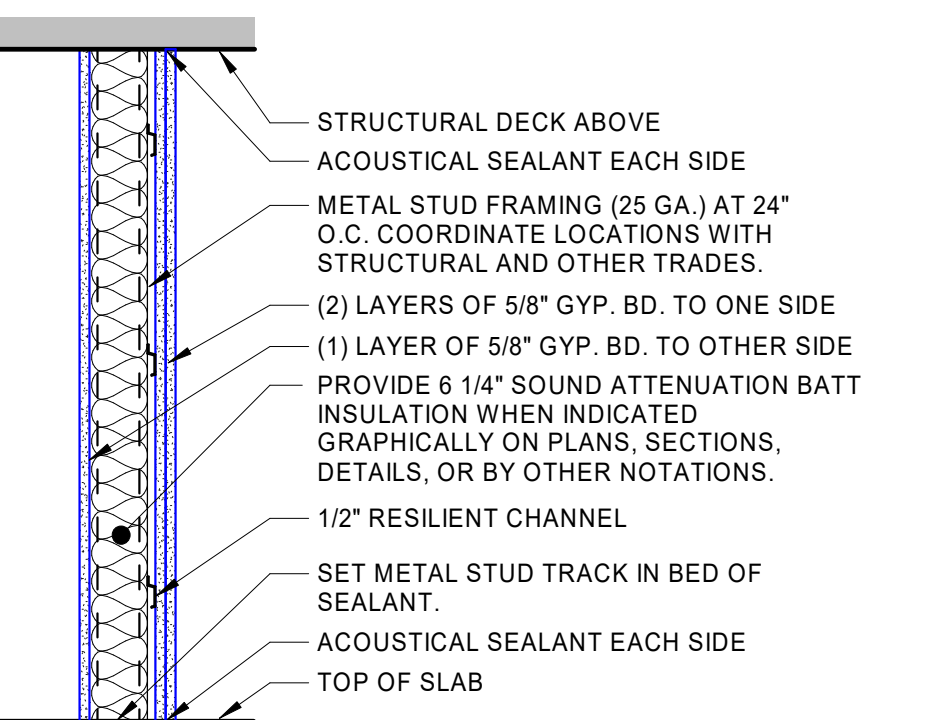
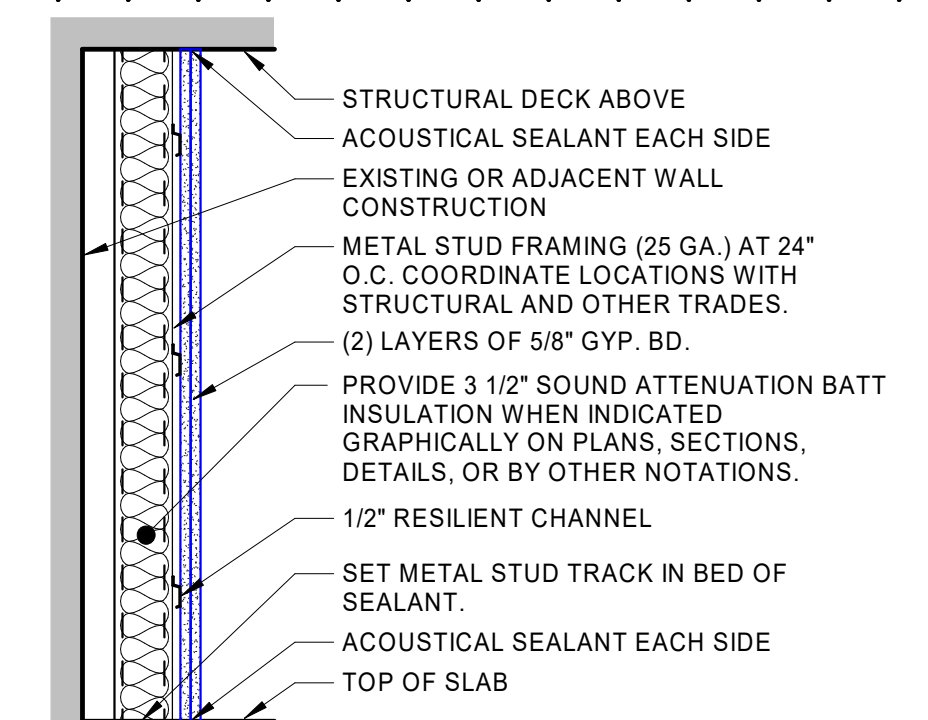
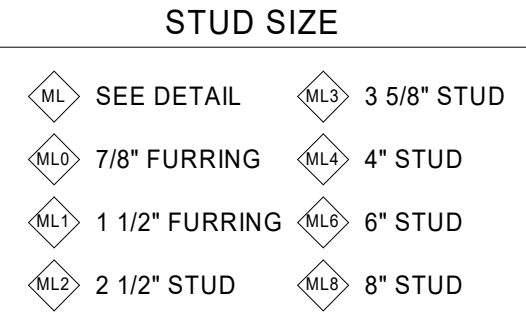
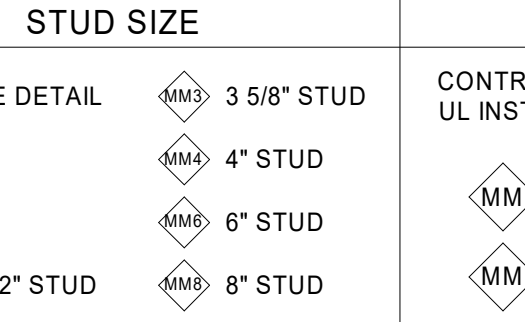
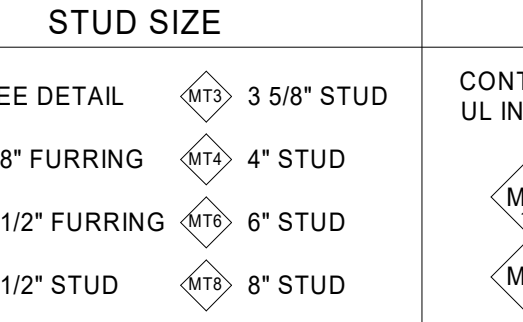
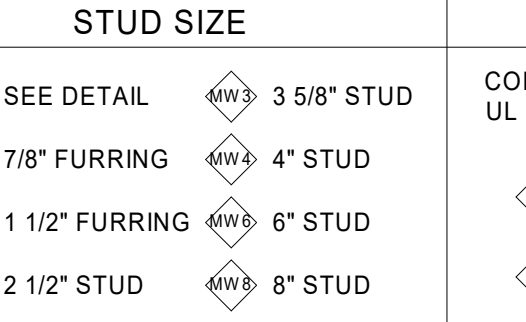


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 <p>CMU</p>		 <p>STRUCTURAL DECK ABOVE ACOUSTICAL SEALANT EACH SIDE</p> <p>1/2" RESILIENT SOUND CLIP</p> <p>CMU</p> <p>5/8" TYPE-X GYP. BD. EACH SIDE</p> <p>ACOUSTICAL SEALANT EACH SIDE</p> <p>TOP OF SLAB</p>		 <p>STRUCTURAL DECK ABOVE ACOUSTICAL SEALANT EACH SIDE</p> <p>CMU</p> <p>1/2" PLASTER SKIM COAT</p> <p>ACOUSTICAL SEALANT EACH SIDE</p> <p>TOP OF SLAB</p>		 <p>CAST-IN-PLACE CONCRETE WALL. SEE STRUCTURAL DRAWINGS.</p>																																															
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GENERAL WALL TYPE NOTES

1. PROVIDE MOISTURE RESISTANT GYP. BD. AT TOILET ROOMS, KITCHENS, JANITOR'S CLOSETS, COUNTERTOPS WITH SINKS, AND OTHER SIMILAR LOCATIONS.
2. PROVIDE CEMENT BD. IN LIEU OF GYP. BD. WHERE WALL SURFACES TO RECEIVE A TILE FINISH. SEE INTERIOR FINISH SPECIFICATIONS, SCHEDULES AND DETAILS.
3. FIRE RATED ASSEMBLIES ARE TO CONTAIN 5/8" TYPE-X GYP. BD.
4. PROVIDE FIRE-SAFING AT EXPOSED WALL CAVITIES AND AROUND ALL WALL PENETRATIONS. SEE SPECIFICATIONS.
5. SEE SPECIFICATION FOR MATERIALS INDICATED ON THE WALL TYPE LEGEND.
6. SEE INTERIOR FINISH SPECIFICATIONS, SCHEDULES, AND DETAILS FOR ADDITIONAL WALL FINISH MATERIAL REQUIREMENTS.
7. PROVIDE ADDITIONAL LAYERS OF GYP. BD., BLOCKING, OR FRAMING AS NEEDED TO ACCOUNT FOR ALIGNING OF WALL TYPES OR FLUSH CONDITIONS.
8. WALL FRAMING, SHEATHING, AND INSULATION TO EXTEND FROM TOP OF SLAB TIGHT TO UNDERSIDE OF DECK UNLESS NOTED OTHERWISE.
9. VERIFY FIRE RATINGS OF WALLS WITH BUILDING SUMMARY AND OTHER NOTATIONS THROUGHOUT THE DRAWING SET.
10. VERIFY STRUCTURAL LOAD BEARING COMPONENTS OF WALLS WITH STRUCTURAL DRAWINGS.
11. STUD CONTRACTOR TO PROVIDE IN-WALL BLOCKING FOR CONTRACTOR PROVIDED ITEMS AND FOR OWNER PROVIDED ITEMS. COORDINATE WITH OWNER.
12. PROVIDE VERTICAL AND HORIZONTAL DRAFT STOPPING IN WALLS AND WALL CAVITIES AT 10' O.C. MAXIMUM INTERVALS FOR THE FULL EXTENT OF WALL.
13. CONTRACTOR TO DETERMINE GAUGING AND RELATED ENGINEERING FOR STUDS NOT OTHERWISE ESTABLISHED IN THE STRUCTURAL DRAWINGS. CONTRACTOR TO NOTIFY ARCHITECT OF ANY DISCREPANCIES.
14. CONTRACTOR TO FULLY COMPLY WITH CONSTRUCTION REQUIREMENTS OF FIRE RATED ASSEMBLIES AS ESTABLISHED BY UL.
15. CONTRACTOR TO FULLY COMPLY WITH CONSTRUCTION REQUIREMENTS TO OBTAIN DESIGNATED STC RATINGS AS ESTABLISHED BY THE GYPSUM ASSOCIATION.
16. EACH FLOOR TRACK OF WALL ASSEMBLIES DESIGNATED WITH AN STC RATING ARE TO BE SET IN A CONTINUOUS BED OF SEALANT.
17. FIRE RESISTANCE RATED WALLS SHALL USE RATED FIRE RESISTANT FILL MATERIALS IN CONJUNCTION WITH APPROPRIATELY RATED FIRE STOPPING SYSTEM. NON-FIRE-RATED WALLS SHALL USE ACOUSTICAL SEALANT.
18. EXTERIOR WALLS AND FIRE RESISTANCE RATED WALLS SHALL USE MINERAL WOOL INSULATION. NON-RATED WALLS REQUIRING SOUND ATTENUATION SHALL USE SOUND ATTENUATION BLANKETS.
19. RETURN GYP. BD. AND INTERIOR FINISHES INTO OPENINGS IN WALLS.
20. RETURN BRICK AT EACH EXTERIOR WALL OPENING.
21. FIRE PARTITIONS OF THE SAME FIRE RATING MAY HAVE A COMMON DRAFT-STOPPED CAVITY. FIRE BARRIERS MAY NOT SHARE A COMMON CAVITY WITH OTHER ASSEMBLIES AND UNINTERRUPTED CONTINUITY OF THE FIRE BARRIER ASSEMBLY MUST BE MAINTAINED FOR THE FULL EXTENT OF THAT WALL.
22. SEE STRUCTURAL DRAWINGS FOR LOCATIONS WHERE ADDITIONAL LAYERS OF SHEATHING ARE REQUIRED.



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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

Wall Types

A0.10



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REVISION SCHEDULE		
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2	Addendum #2	6/19/2020

Wall Types

A0.11

<p>1 5/8" METAL STUD EXTEND FROM TOP OF SLAB TIGHT TO UNDERSIDE OF DECK. STUD CAVITY IS NOT TO BE EXPOSED TO ADJACENT FLOOR OR WALL CAVITIES.</p> <p>EXISTING ADJACENT WALL CONSTRUCTION</p> <p>TOP OF SLAB</p> <p>(4) LAYERS OF 5/8" GYP. BD., FIRE CAULK ALL EDGES</p> <p>EXISTING ADJACENT WALL CONSTRUCTION</p> <p>PROVIDE 1 1/2" SOUND ATTENUATION BATT INSULATION WHEN INDICATED GRAPHICALLY ON PLANS, SECTIONS, DETAILS, OR BY OTHER NOTATIONS.</p> <p>SA "B" DENOTES TO PROVIDE BATTS OF TYPE SHOWN</p>	<p>4" 20 GA. METAL C-H STUD. EXTEND FROM TOP OF SLAB TIGHT TO UNDERSIDE OF DECK. STUD CAVITY IS NOT TO BE EXPOSED TO ADJACENT FLOOR OR WALL CAVITIES.</p> <p>(1) LAYER OF 5/8" GYP. BD.</p> <p>1" CONTINUOUS GYPSUM SHAFTWALL LINER TO INTERIOR SIDE OF SHAFT.</p> <p>FIRE CAULK</p> <p>TOP OF SLAB</p> <p>EXISTING ADJACENT WALL CONSTRUCTION</p> <p>PROVIDE 1 1/2" SOUND ATTENUATION BATT INSULATION WHEN INDICATED GRAPHICALLY ON PLANS, SECTIONS, DETAILS, OR BY OTHER NOTATIONS.</p> <p>SB "B" DENOTES TO PROVIDE BATTS OF TYPE SHOWN</p>	<p>4" 20 GA. METAL C-H STUD. EXTEND FROM TOP OF SLAB TIGHT TO UNDERSIDE OF DECK. STUD CAVITY IS NOT TO BE EXPOSED TO ADJACENT FLOOR OR WALL CAVITIES.</p> <p>(2) LAYERS OF 5/8" GYP. BD.</p> <p>1" CONTINUOUS GYPSUM SHAFTWALL LINER TO INTERIOR SIDE OF SHAFT.</p> <p>FIRE CAULK</p> <p>TOP OF SLAB</p> <p>EXISTING ADJACENT WALL CONSTRUCTION</p> <p>PROVIDE 1 1/2" SOUND ATTENUATION BATT INSULATION WHEN INDICATED GRAPHICALLY ON PLANS, SECTIONS, DETAILS, OR BY OTHER NOTATIONS.</p> <p>SC "B" DENOTES TO PROVIDE BATTS OF TYPE SHOWN</p>
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<p>SA SHAFTWALL ASSEMBLY</p>	<p>SB SHAFTWALL ASSEMBLY</p>	<p>SC SHAFTWALL ASSEMBLY</p>

GENERAL DEMOLITION NOTES

1. THOROUGHLY REVIEW THE CONSTRUCTION DOCUMENT SET FOR ADDITIONAL DEMOLITION COORDINATION. VERIFY CONFLICTING ITEMS WITH THE ARCHITECT 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.

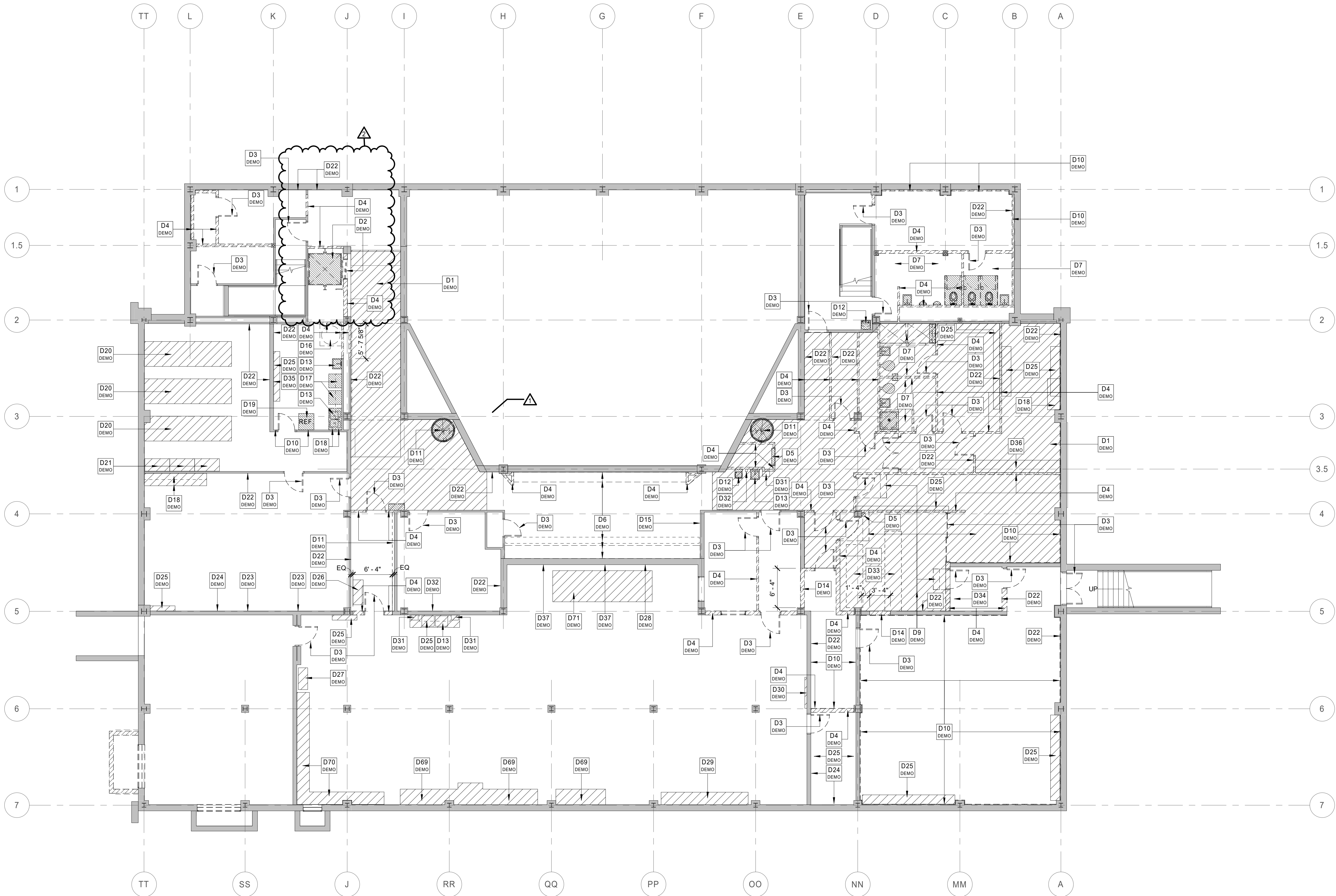
21. EXISTING 120 VOLT, 208 VOLT, AND 480 VOLT SINGLE AND 3 PHASE POWER, LIGHTING, RECEPTACLES, AND POWER TO EQUIPMENT IS TO BE REMOVED BACK TO SOURCES (PANEL BOARDS), EXCEPT ITEMS INDICATED TO REMAIN. THIS INCLUDES BUT IS NOT LIMITED TO ALL WIRING AND CONDUIT NOT REUSED. PROVIDE FOR CIRCUIT CONTINUITY 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 DEMOLITION NOTES

NO.	NOTE
D1	HATCHED AREA DENOTES APPROXIMATE EXTENTS OF CONCRETE FLOOR SLAB TO BE REMOVED. SLAB TO BE REMOVED DOWN TO SUBGRADE AND TO ALLOW FOR PREPARATION OF NEW SLAB AND/OR FOOTINGS. SEE STRUCTURAL FOR DETAILS.
D2	REMOVE ELEVATOR IN ITS ENTIRETY INCLUDING ALL ASSOCIATED EQUIPMENT, DEVICES, DOOR FRAMES, DOORS, HALL FIXTURES, ETC.
D3	REMOVE DOOR, DOOR FRAME, TRIM/CASING (IF PRESENT), AND RELATED COMPONENTS IN THEIR ENTIRETY.
D4	REMOVE WALL CONSTRUCTION IN ITS ENTIRETY, FULL HEIGHT AS INDICATED.
D5	REMOVE FIRE EXTINGUISHER AND CABINET (IF EQUIPPED WITH ONE) IN ITS ENTIRETY.
D6	REMOVE MAKEUP COUNTERTOP, BENCH, AND MIRRORS IN THEIR ENTIRETY.
D7	REMOVE ALL CONSTRUCTION (WALLS, DOORS, FIXTURES, ETC.) AND ASSOCIATED COMPONENTS WITHIN RESTROOMS COMPLETE U.N.O.
D9	REMOVE RAISED FLOOR, ASSOCIATED STEPS, AND CARPETING. SEE MEP FOR CABLING DEMORE LOCATION.
D10	REMOVE WALL FURRING DOWN TO CONCRETE MASONRY AND/OR CAST-IN-PLACE CONCRETE WALLS.
D11	REMOVE STEEL/IRON SPIRAL STAIRCASE IN ITS ENTIRETY.
D12	REMOVE DRINKING FOUNTAIN AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION.
D13	REMOVE SINK AND ALL ASSOCIATED PIPING. SEE MEP DRAWING FOR ADDITIONAL DETAILS.
D14	REMOVE PORTION OF EXISTING WALL TO RECEIVE NEW DOOR/WINDOW. SEE WINDOW/DOOR SCHEDULE FOR ROUGH OPENING.
D15	REMOVE TACK BOARD IN ITS ENTIRETY.
D16	REMOVE DYE VAT AND DYE VAT HOOD IN ITS ENTIRETY. SEE MEP DRAWINGS FOR MORE DETAILS.
D17	REMOVE WASHER AND DRYER AND ASSOCIATED PIPING. SEE MEP DRAWINGS FOR MORE DETAILS.
D18	REMOVE CABINETS (BASE, UPPER, AND COUNTERTOPS).
D19	REMOVE REFRIGERATOR AND ASSOCIATED PIPING. SEE MEP DRAWING FOR ADDITIONAL DETAILS.
D20	REMOVE EXISTING WOOD CLOTHING STORAGE RACKS IN THEIR ENTIRETY.
D21	REMOVE EXISTING STORAGE CABINETS IN THEIR ENTIRETY.
D22	REMOVE RUBBER/VINYL FLOOR BASE MATERIAL ON ALL SIDES OF ROOMS WHERE NOTED.
D23	REMOVE TACK BOARD.
D24	REMOVE PEG BOARD.
D25	REMOVE SHELVING.
D26	REMOVE DUST REMOVAL SYSTEM. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D27	REMOVE AIR COMPRESSOR AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D28	REMOVE CHALK/MARKER BOARD AND FRAME IN ITS ENTIRETY.
D29	REMOVE FLAT STORAGE UNIT IN ITS ENTIRETY.
D30	REMOVE WALL MOUNTED CLAMP STORAGE SHELVING.
D31	REMOVE PAPER TOWEL DISPENSER.
D32	REMOVE WALL MOUNTED WOOD LEDGER BOARD.
D33	ALL CONTROL ROOM FURNITURE AND ELECTRONICS TO BE MOVED BY OTHERS.
D34	REMOVE CARPETED FLOOR DOWN TO CONCRETE SLAB.
D35	REMOVE SLAT WALL.
D36	REMOVE STORAGE CABINETS.
D37	REMOVE EXISTING ALUMINUM WINDOW SYSTEMS IN THEIR ENTIRETY.
D38	REMOVE EXISTING STAGE APRON AND STEPS BACK TO FACE OF PROSCENIUM WALL. APRON TO BE REMOVED DOWN TO CONCRETE SLAB.
D39	REMOVE EXISTING STAGE FLOORING MATERIAL DOWN TO CONCRETE DECKING.
D40	REMOVE PORTION OF EXTERIOR WALL TO RECEIVE NEW DOOR OPENING. SEE DOOR SCHEDULE AND ELEVATIONS FOR ROUGH OPENING.
D41	REMOVE PORTION OF EXTERIOR WALL WHERE ADDITION IS TO BE CONSTRUCTED. THIS INCLUDES LIMESTONE CLADDED MASONRY BACKUP WALL, INTERIOR PLASTER FINISH, ETC. STRUCTURAL CONCRETE COLUMNS AND BEAMS ARE TO REMAIN UNLESS NOTED OTHERWISE. SEE ELEVATIONS FOR MORE DETAILS.
D42	REMOVE EXISTING STRUCTURAL COLUMN THAT SUPPORTS NORTHWEST CANOPY. SEE ELEVATIONS FOR MORE DETAILS.
D43	REMOVE EXISTING (1-22) THEATER SEATS IN THEIR ENTIRETY.
D44	REMOVE CAST IN PLACE CONCRETE STAIRWAY IN ITS ENTIRETY.
D45	REMOVE WOOD CHAIR RAIL ON ALL SIDES OF ROOM.
D46	REMOVE WOOD WINDOW STOOL IN ITS ENTIRETY. TYPICAL AT ALL WINDOWS.
D47	REMOVE TERRAZZO BASE AND BORDER (WHERE PRESENT) ON ALL SIDES OF ROOM.
D48	REMOVE EXISTING VCT FLOORING DOWN TO CONCRETE SLAB.
D49	REMOVE EXISTING CURTAINS AND/OR SHADES AND HANGING HARDWARE.
D50	REMOVE TICKETING WINDOWS AND CASEWORK.
D51	REMOVE EXISTING HANDRAIL AND GUARDRAIL IN AREAS INDICATED.
D52	REMOVE PIPE STORAGE SYSTEM.
D53	REMOVE TECH DESK WITHIN THEATER.
D54	REMOVE THEATRICAL CURTAIN - SALVAGE AND RETURN TO OWNER. TRACK AND HARDWARE TO REMAIN.
D55	ALTERNATE #8 - REMOVE PORTION OF STAGE FLOOR AS NECESSARY FOR STAGE LIFT. BASE BID IS FOR FLOOR STRUCTURE TO REMAIN IN PLACE.
D56	REMOVE PORTION OF FLOOR AND FLOOR STRUCTURE AS INDICATED FOR CONSTRUCTION OF ELEVATOR SHAFT.
D57	REMOVE ACCORDIAN TYPE PARTITION AND ASSOCIATED TRACK/COMPONENTS.
D58	REMOVE BUILT-IN CASEWORK.
D59	REMOVE BUILT-IN MAILBOXES.
D60	REMOVE BUILT IN DISPLAY CASE AND CASING.
D61	REMOVE PORTIONS OF TERRAZZO FLOORING AND BASE AS INDICATED. SEE TERRAZZO PLANS FOR MORE DETAILS.
D62	REMOVE ACOUSTICAL WALL PANELS.
D63	REMOVE EXISTING PREMANUFACTURED WENGER AUDIO BOOTHS IN THEIR ENTIRETY.
D64	REMOVE APPLIANCE AND SALVAGE FOR OWNER.
D65	REMOVE INTERIOR WINDOW AND FRAME IN ITS ENTIRETY.
D66	REMOVE BUILT IN WORKSTATION, COUNTERTOP, BASE CABINETS IN THEIR ENTIRETY.
D67	REMOVE MOVABLE PARTITION WALL SYSTEM IN ITS ENTIRETY.
D68	REMOVE TERRAZZO WALL PANELS IN BOUNDARY INDICATED. REMOVE DOWN TO EXISTING STEEL STUDS.
D69	DEMOLISH WOOD WORKBENCH AND SHELVING.
D70	REMOVE STEEL STORAGE SHELVING.
D71	ALTERNATE #8 - DEMOLISH PORTION OF CONCRETE SLAB AS NECESSARY TO RECEIVE NEW HYDRAULIC MATERIALS LIFT. BASE BID - NO DEMOLITION OF CONCRETE SLAB.
D72	REMOVE EXISTING FIRE CURTAIN, HARDWARE, AND HOUSING IN ITS ENTIRETY.



1 Floor Plan
Basement Demolition Plan
D1.00 1/8" = 1'-0"



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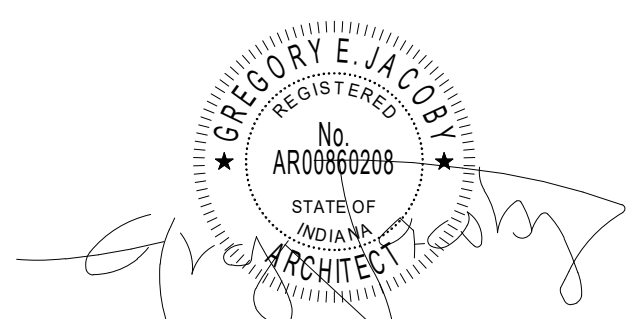
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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

Basement Demolition Plan

D1.00

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 GUIDANCE.
- 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 SIDINGS 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 MANNER THAT DOES NOT DAMAGE THE IMMEDIATELY ADJACENT EXISTING CONSTRUCTION TO REMAIN. ANY DAMAGE INCURRED DURING DEMOLITION OF 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 DEMOLITION NOTES

NO.	NOTE
D1	HATCHED AREA DENOTES APPROXIMATE EXTENTS OF CONCRETE FLOOR SLAB TO BE REMOVED. SLAB TO BE REMOVED DOWN TO SUBGRADE PRIOR TO ALLOW FOR PREPARATION OF NEW SLAB AND/OR FOOTINGS. SEE STRUCTURAL FOR DETAILS.
D2	REMOVE ELEVATOR IN ITS ENTIRETY INCLUDING ALL ASSOCIATED EQUIPMENT, DEVICES, DOOR FRAMES, DOORS, HALL FIXTURES, ETC.
D3	REMOVE DOOR, DOOR FRAME, TRIM/CASING (IF PRESENT), AND RELATED COMPONENTS IN THEIR ENTIRETY.
D4	REMOVE WALL CONSTRUCTION IN ITS ENTIRETY, FULL HEIGHT AS INDICATED.
D5	REMOVE FIRE EXTINGUISHER AND CABINET (IF EQUIPPED WITH ONE) IN ITS ENTIRETY.
D6	REMOVE MAKEUP COUNTERTOP, BENCH, AND MIRRORS IN THEIR ENTIRETY.
D7	REMOVE ALL CONSTRUCTION (WALLS, DOORS, FIXTURES ETC.) AND ASSOCIATED COMPONENTS WITHIN RESTROOMS COMPLETE U.N.O.
D9	REMOVE RAISED FLOOR, ASSOCIATED STEPS, AND CARPETING. SEE MEP FOR CABLING DEMO/RELOCATION.
D10	REMOVE WALL FURRING DOWN TO CONCRETE MASONRY AND/OR CAST-IN-PLACE CONCRETE WALLS.
D11	REMOVE STEEL/IRON SPIRAL STAIRCASE IN ITS ENTIRETY.
D12	REMOVE DRINKING FOUNTAIN AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION.
D13	REMOVE SINK AND ALL ASSOCIATED PIPING. SEE MEP DRAWING FOR ADDITIONAL DETAILS.
D14	REMOVE PORTION OF EXISTING WALL TO RECEIVE NEW DOOR/WINDOW. SEE WINDOW/DOOR SCHEDULE FOR ROUGH OPENING.
D15	REMOVE TACK BOARD IN ITS ENTIRETY.
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D22	REMOVE RUBBER/VINYL FLOOR BASE MATERIAL ON ALL SIDES OF ROOMS WHERE NOTED.
D23	REMOVE TACK BOARD.
D24	REMOVE PEG BOARD.
D25	REMOVE SHELVING.
D26	REMOVE DUST REMOVAL SYSTEM. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D27	REMOVE AIR COMPRESSOR AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D28	REMOVE CHALKMARKER BOARD AND FRAME IN ITS ENTIRETY.
D29	REMOVE FLAT STORAGE UNIT IN ITS ENTIRETY.
D30	REMOVE WALL MOUNTED CLAMP STORAGE SHELVING.
D31	REMOVE PAPER TOWEL DISPENSER.
D32	REMOVE WALL MOUNTED WOOD LEDGER BOARD.
D33	ALL CONTROL ROOM FURNITURE AND ELECTRONICS TO BE MOVED BY OTHERS.
D34	REMOVE CARPETED FLOOR DOWN TO CONCRETE SLAB.
D35	REMOVE SLAT WALL.
D36	REMOVE STORAGE CABINETS.
D37	REMOVE EXISTING ALUMINUM WINDOW SYSTEMS IN THEIR ENTIRETY.
D38	REMOVE EXISTING STAGE APRON AND STEPS BACK TO FACE OF PROSCENIUM WALL. APRON TO BE REMOVED DOWN TO CONCRETE SLAB.
D39	REMOVE EXISTING STAGE FLOORING MATERIAL DOWN TO CONCRETE DECKING.
D40	REMOVE PORTION OF EXTERIOR WALL TO RECEIVE NEW DOOR OPENING. SEE DOOR SCHEDULE AND ELEVATIONS FOR ROUGH OPENING.
D41	REMOVE PORTION OF EXTERIOR WALL WHERE ADDITION IS TO BE CONSTRUCTED. THIS INCLUDES Limestone CLADDING, MASONRY BACKUP WALL, INTERIOR PLASTER FINISH, ETC. STRUCTURAL CONCRETE COLUMNS AND BEAMS ARE TO REMAIN UNLESS NOTED OTHERWISE. SEE ELEVATIONS FOR MORE DETAILS.
D42	REMOVE EXISTING STRUCTURAL COLUMN THAT SUPPORTS NORTHWEST CANOPY. SEE ELEVATIONS FOR MORE DETAILS.
D43	REMOVE EXISTING (+224) THEATER SEATS IN THEIR ENTIRETY.
D44	REMOVE CAST IN PLACE CONCRETE STAIRWAY IN ITS ENTIRETY.
D45	REMOVE WOOD CHAIR RAIL ON ALL SIDES OF ROOM.
D46	REMOVE WOOD WINDOW STOOL IN ITS ENTIRETY. TYPICAL AT ALL WINDOWS.
D47	REMOVE TERRAZZO BASE AND BORDER (WHERE PRESENT) ON ALL SIDES OF ROOM.
D48	REMOVE EXISTING VCT FLOORING DOWN TO CONCRETE SLAB.
D49	REMOVE EXISTING CURTAINS AND/OR SHADES AND HANGING HARDWARE.
D50	REMOVE TICKETING WINDOWS AND CASEWORK.
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D52	REMOVE PIPE STORAGE SYSTEM.
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D61	REMOVE PORTIONS OF TERRAZZO FLOORING AND BASE AS INDICATED. SEE TERRAZZO PLANS FOR MORE DETAILS.
D62	REMOVE ACOUSTICAL WALL PANELS.
D63	REMOVE EXISTING PREMANUFACTURED WENGER AUDIO BOOTHS IN THEIR ENTIRETY.
D64	REMOVE APPLIANCE AND SALVAGE FOR OWNER.
D65	REMOVE INTERIOR WINDOW AND FRAME IN ITS ENTIRETY.
D66	REMOVE BUILT-IN WORKSTATION, COUNTERTOP, BASE CABINETS IN THEIR ENTIRETY.
D67	REMOVE MOVABLE PARTITION WALL SYSTEM IN ITS ENTIRETY.
D68	REMOVE TERRAZZO WALL PANEL IN BOUNDARY INDICATED. REMOVE DOWN TO EXISTING STEEL STUDS.
D69	DEMOLISH WOOD WORKBENCH AND SHELVING.
D70	REMOVE STEEL STORAGE SHELVING.
D71	ALTERNATE #8 - DEMOLISH PORTION OF CONCRETE SLAB AS NECESSARY TO RECEIVE NEW HYDRAULIC MATERIALS LIFT. BASE BID - NO DEMOLITION OF CONCRETE SLAB.
D72	REMOVE EXISTING FIRE CURTAIN, HARDWARE, AND HOUSING IN ITS ENTIRETY.

2 Floor Plan
Control Room - Demo Plan

D1.01 1/8" = 1'-0"

1 Floor Plan
1st Floor Demo Plan

D1.01 1/8" = 1'-0"



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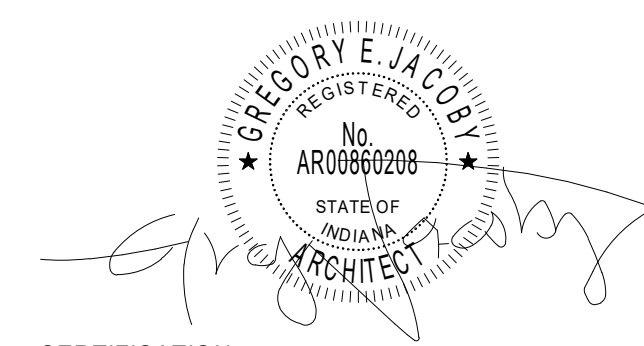
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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

1st Floor Demolition Plan

D1.01

1. THOROUGHLY REVIEW THE CONSTRUCTION DOCUMENT SET FOR ADDITIONAL DEMOLITION COORDINATION. VERIFY ALL INFORMATION WITH THE ARCHITECT PRIOR TO COMMENCEMENT OF ANY DEMOLITION WORK.	2. IF ANY MATERIAL IS ENCOUNTERED THAT IS SUSPECTED TO CONTAIN ASBESTOS DO NOT DISTURB AND IMMEDIATELY CONTACT THE OWNER FOR REMEDIATION.	3. IF ANY FLOOR MATERIALS THAT ARE INDICATED TO BE REMOVED SHALL BE REMOVED TO SOUND SUB-BASE PLUS JOIST AND ARE TO BE FREE OF GLUES, FASTENERS AND FILLERS.	4. DEMOLITION IS TO BE CONDUCTED IN A MANNER THAT DOES NOT DAMAGE THE IMMEDIATELY ADJACENT EXISTING CONSTRUCTION. ANY DAMAGE INCURRED DURING DEMOLITION TO EXISTING CONSTRUCTION TO REMAIN IS TO BE REPAIRED BACK TO ORIGINAL CONDITION AS PART OF THE CONTRACT.
2. DEMOLITION IS TO BE CLEAN, COMPLETE, AND IN A MANNER THAT IS AVAILABLE FOR REUSE OF THE EXISTING SURFACES. SEE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR DESCRIPTION OF NEW MATERIALS.	3. THE CONTRACTOR IS TO FOLLOW AND OBEY ALL FEDERAL, STATE, AND LOCAL CODES, LAWS, SAFETY REGULATIONS, AND THE HAVING CONTRACTS. THE CONTRACTOR IS TO OBTAIN ALL NECESSARY PERMITS, RELEASES, AND AUTHORIZATIONS BEFORE PERFORMING DEMOLITION.	5. FURNISH AND INSTALL TEMPORARY BARICADES AND HANDRAILS AT ALL OPENINGS DURING DEMOLITION AND CONSTRUCTION.	6. SALVAGEABLE TO BE REMOVED DOORS, EQUIPMENT, FIXTURES, ETC. ARE TO BE STOCKPILED IN A DESIGNATED AREA FOR REVIEW BY THE OWNER.
3. WHERE EXTERIOR SKIN OF THE EXISTING BUILDING IS TO BE REMOVED OR MODIFIED THE CONTRACTOR SHALL TAKE PRECAUTIONARY MEASURES TO PROTECT THE BUILDING REMAINS WEATHERTIGHT DURING DEMOLITION.	4. ALL CONTRACTORS ARE TO CONDUCT NON-STRUCTURAL EXPLORATORY DEMOLITION TO DETERMINE STRUCTURAL EFFECT ON ALL PLANNED DEMOLITION AND CONSTRUCTION OF THE STRUCTURE. ENGINEER BEFORE ANY DEMOLITION OCCURS.	6. THESE DRAWINGS WERE DEVELOPED FROM A VISUAL SURVEY OF THE EXISTING CONDITION. THE AVAILABLE ORIGINAL ARCHITECTURAL AND STRUCTURAL DRAWINGS HAVE BEEN USED FOR LOCATION OF STRUCTURAL MEMBERS. THE INFORMATION REFLECTED IN THOSE DRAWINGS DOES NOT GUARANTEE THE LOCATION OR CONDITION HAVE BEEN REPRESENTED. ALL EXISTING CONDITIONS, ELEVATIONS, AND DIMENSIONS ARE TO BE VERIFIED IN FIELD BY THE CONTRACTOR OR SUB-CONTRACTORS PRIOR TO CONSTRUCTION OR FABRICATION.	7. CAP ABANDONED CONDUITS AT POINT OF TERMINATION AND MAINTAIN ANY REQUIRED FIRE SEPARATION.
4. CONTRACTOR TO VERIFY LOCATIONS OF DUCTWORK AND PENETRATIONS THROUGH STRUCTURE. REMOVE WALLS AND ABOVE CEILING ITEMS PRIOR TO MAKING OPENING.	5. WALLS TO BE REMOVED SHALL BE REMOVED IN FULL UNLESS NOTED OTHERWISE. REMOVE TO GROUND MATERIAL, ALL FLOOR ATTACHMENTS, AND SMOOTH REMAINING ITEMS FLUSH WITH EXISTING FINISH FLOOR. PATCH AND FILL ANY VOIDS LEFT BY REMOVAL OF EXISTING WALL WITH EXISTING FINISH FLOOR.	7. THE CONTRACTOR IS TO FIELD VERIFY ALL EXISTING CONDITIONS WITH THE CONTRACT DOCUMENTS. NOTIFY THE ARCHITECT OF ANY DISCREPANCIES OR OMISSIONS BEFORE PROCEEDING WITH THE DEMOLITION.	8. 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.
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 ARE TO REMAIN TO REMAIN FLUSH WITH THE SAME MATERIAL AS THE SURROUNDING WALL.	6. FOR DOORS TO BE REMOVED THE CONTRACTOR SHALL REMOVE DOOR, DOOR FRAME, DOOR HARDWARE, ASSOCIATED ANCHORING, AND ALL ASSOCIATED TRANSOM, GLASS, SILL, AND GLAZING COMPLETE UNLESS NOTED OTHERWISE.	9. EXISTING CONSTRUCTION TO REMAIN ARE TO BE PROTECTED DURING THE DEMOLITION AND CONSTRUCTION PROCESS INCLUDING BUT NOT LIMITED TO ALL WALLS (PARTITION), CEILING, FLOORS, DOORS, FINISHES, ETC.	9. 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 THE MAIN ELECTRICAL BOILER ROOM TO REMAIN. THIS INCLUDES BUT IS NOT LIMITED TO WIRING AND CONDUIT. THE CONTRACTOR IS TO PROVIDE FOR CONTINUITY FOR ITEMS THAT REMAIN.
6. WHEN DEMOLITION CAUSES OR EXPOSES DAMAGE TO THE FLOOR SLAB, WALLS, CEILINGS, OR ROOF THE CONTRACTOR SHALL REPAIR OR REPLACE TO ORIGINAL CONDITION.			10. ALL EXISTING LOOSE AND OR FLAKING PAINT THAT IS NOT ENCAPSULATED IN A NEW FINISH IS TO BE REMOVED.

D.O.	NOTE
D1	HATCHED AREA DENOTES APPROXIMATE EXTENTS OF CONCRETE FLOOR SLAB TO BE REMOVED. SLAB TO BE REMOVED DOWN TO GROUND AND TO ALLOW FOR PREPARATION OF NEW SLAB AND/OR FOOTINGS. SEE STRUCTURAL FOR DETAILS.
D2	REMOVE ELEVATOR IN ITS ENTIRETY INCLUDING ALL ASSOCIATED EQUIPMENT, DEVICES, DOOR FRAMES, DOORS, HALL FIXTURES, ETC.
D3	REMOVE DOOR, DOOR FRAME, TRANSOM (IF PRESENT), AND RELATED COMPONENTS IN THEIR ENTIRETY.
D4	REMOVE WALL CONSTRUCTION IN ITS ENTIRETY, FULL HEIGHT AS INDICATED.
D5	REMOVE FIRE EXTINGUISHER AND CABINET (IF EQUIPPED WITH ONE) IN ITS ENTIRETY.
D6	REMOVE MAKEUP COUNTERTOP, BENCH, AND MIRRORS IN THEIR ENTIRETY.
D7	REMOVE ALL CONSTRUCTION (WALLS, DOORS, FIXTURES, ETC.) AND ASSOCIATED COMPONENTS WITHIN RESTROOMS COMPLETE U.N.O.
D8	REMOVE RAISED FLOOR, ASSOCIATED STEPS, AND CARPETING. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION.
D9	REMOVE WALL FURRING DOWN TO CONCRETE MASONRY AND/OR CAST-IN-PLACE CONCRETE WALLS.
D10	REMOVE STEEL/SPRINT STAIRCASE IN ITS ENTIRETY.
D11	REMOVE DRINKING FOUNTAIN AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION.
D12	REMOVE SINK AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D13	REMOVE PORTION OF EXISTING WALL TO RECEIVE NEW DOOR/WINDOW. SEE WINDOW/DOOR SCHEDULE FOR ROUGH OPENING.
D14	REMOVE TRACK BOARD IN ITS ENTIRETY.
D15	REMOVE DRY VAC AND DRYER WITH HOOD IN ITS ENTIRETY. SEE MEP DRAWINGS FOR MORE DETAILS.
D16	REMOVE WASHER AND DRYER AND ASSOCIATED PIPING. SEE MEP DRAWINGS FOR MORE DETAILS.
D17	REMOVE CABINETS (BASE, UPPER, AND COUNTERTOPS).
D18	REMOVE REFRIGERATOR AND ASSOCIATED PIPING. SEE MEP DRAWING FOR ADDITIONAL DETAILS.
D19	REMOVE EXISTING WOOD CLOTHING STORAGE RACKS IN THEIR ENTIRETY.
D20	REMOVE EXISTING STORAGE CLOTHES IN THEIR ENTIRETY.
D21	REMOVE EXISTING STORAGE CLOTHING IN THEIR ENTIRETY.
D22	REMOVE RUBBER/VINYL FLOOR BASE MATERIAL ON ALL SIDES OF ROOMS WHERE NOTED.
D23	REMOVE TRACK BOARD.
D24	REMOVE PEG BOARD.
D25	REMOVE SHELVING.
D26	REMOVE DUST REMOVAL SYSTEM. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D27	REMOVE AIR COMPRESSOR AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D28	REMOVE CHALKMARKER BOARD AND FRAME IN ITS ENTIRETY.
D29	REMOVE FLAT STORAGE UNIT, ITS EMBODIMENT.
D30	REMOVE WALL MOUNTED CLAMP STORAGE SHELVING.
D31	REMOVE PAPER TOWEL DISPENSER.
D32	REMOVE WALL MOUNTED WOOD LEDGER BOARD.
D33	ALL CONTROL ROOM FURNITURE AND ELECTRONICS TO BE MOVED BY OTHERS.
D34	REMOVE CARPETED FLOOR DOWN TO CONCRETE SLAB.
D35	REMOVE SLAT WALL.
D36	REMOVE STORAGE CABINETS.
D37	REMOVE EXISTING ALUMINUM WINDOW SYSTEMS IN THEIR ENTIRETY.
D38	REMOVE EXISTING STAGE, UPPER AND STEPS BACK TO FACE OF PROSCENIUM WALL. APRON TO BE REMOVED DOWN TO CONCRETE SLAB.
D39	REMOVE EXISTING STAGE FLOORING MATERIAL DOWN TO CONCRETE DECKING.
D40	REMOVE PORTION OF EXTERIOR WALL TO RECEIVE NEW DOOR OPENING. SEE DOOR SCHEDULE AND ELEVATIONS FOR ROUGH OPENING.
D41	REMOVE PORTION OF EXTERIOR WALL WHERE ADDITION IS TO BE CONSTRUCTED. THIS INCLUDES LIMESTONE CLADDING, MASONRY BACKS, WALL, INTERIOR PLASTER FINISH, ETC. STRUCTURAL CONCRETE COLUMNS AND BEAMS ARE TO REMAIN UNNOTED OTHERWISE. SEE ELEVATIONS FOR MORE DETAILS.
D42	REMOVE EXISTING STRUCTURAL COLUMN THAT SUPPORTS TRUSS/ROOF CANOPY. SEE ELEVATIONS FOR MORE DETAILS.
D43	REMOVE EXISTING (+224) THEATER SEATS IN THEIR ENTIRETY.
D44	REMOVE CAST IN PLACE CONCRETE STAIRWAY IN ITS ENTIRETY.
D45	REMOVE WOOD CHAIR RAIL ON ALL SIDES OF ROOM.
D46	REMOVE WOOD WINDOW STOOL IN ITS ENTIRETY. TYPICAL AT ALL WINDOWS.
D47	REMOVE TERRAZZO BASE AND BORDER (WHERE PRESENT) ON ALL SIDES OF ROOM.
D48	REMOVE EXISTING VCT FLOORING DOWN TO CONCRETE SLAB.
D49	REMOVE EXISTING CURTAINS AND/OR SHADES AND HANGING HARDWARE.
D50	REMOVE TICKETING WINDOWS AND COUNTERS.
D51	REMOVE EXISTING HARDWARE AND GUARDRAIL IN AREAS INDICATED.
D52	REMOVE PIPE STORAGE SYSTEM.
D53	REMOVE TECH DESK WITHIN THEATER.
D54	REMOVE THEATRICAL CURTAIN - SALVAGE AND RETURN TO OWNER. TRACK AND HARDWARE TO REMAIN.
D55	ALTERNATE #1: REMOVE PORTION OF STAGE FLOOR AS NECESSARY FOR STAGE FLAT. BASE BID IS FOR FLOOR STRUCTURE TO REMAIN IN PLACE.
D56	REMOVE PORTION OF FLOOR AND FLOOR STRUCTURE AS INDICATED FOR CONSTRUCTION OF ELEVATOR SHAFT.
D57	REMOVE ACCORDIAN TYPE PARTITION AND ASSOCIATED TRACK COMPONENTS.
D58	REMOVE BUILT-IN CANTOR.
D59	REMOVE BUILT IN MAILBOXES.
D60	REMOVE BUILT IN DISPLAY CASE AND CASING.
D61	REMOVE PORTIONS OF TERRAZZO FLOORING AND BASE AS INDICATED. SEE TERRAZZO SCHEDULE FOR MORE DETAILS.
D62	REMOVE ACOUSTICAL WALL PANELS.
D63	REMOVE EXISTING PREFABRICATED WENDER AUDIO BOOTHS IN THEIR ENTIRETY.
D64	REMOVE APPLIANCE AND SALVAGE FOR OWNER.
D65	REMOVE INTERIOR WINDOW AND FRAME IN ITS ENTIRETY.
D66	REMOVE BUILT IN WORKSTATION, COUNTERTOP, BASE CABINETS IN THEIR ENTIRETY.
D67	REMOVE MOVABLE PARTITION WALL SYSTEM IN ITS ENTIRETY.
D68	REMOVE TERRAZZO WALL PANEL IN BOUNDARY INDICATED. REMOVE DOWN TO EXISTING SLAB STUDS.
D69	DEMOLISH WOOD WORKBENCH AND SHELVING.
D70	REMOVE STEEL STORAGE SHELVING.
D71	ALTERNATE #2: DEMOLISH EXISTING CONCRETE SLAB AS NECESSARY TO RECEIVE NEW HYDRAULIC MATERIALS SLAT. BASE BID - NO DEMOLITION OF CONCRETE SLAB.
D72	REMOVE EXISTING FIRE CURTAIN, HARDWARE, AND HOUSING IN ITS ENTIRETY.

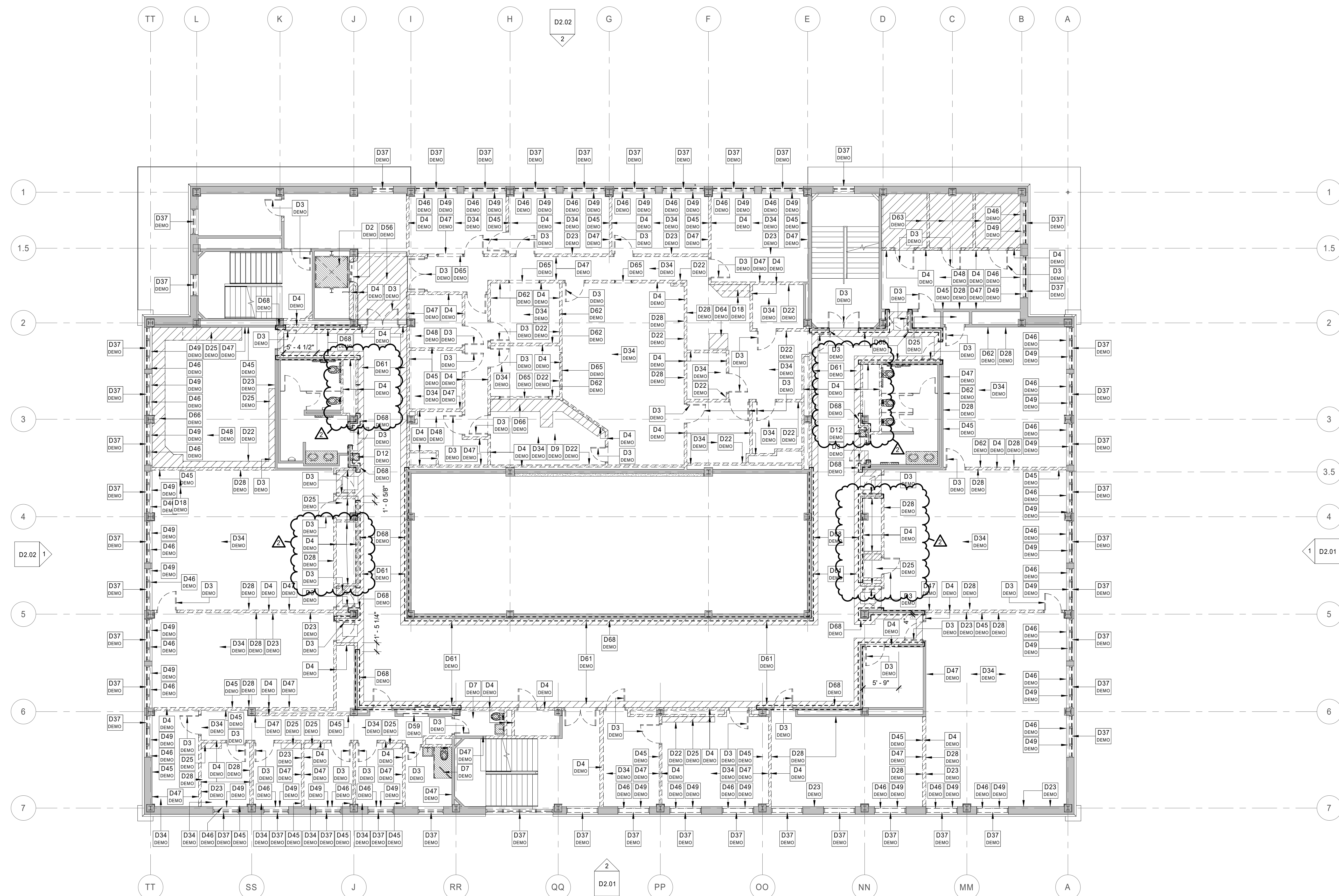
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CERTIFICATION

Indiana State University -
Dreiser Hall Renovation

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020

D1.02



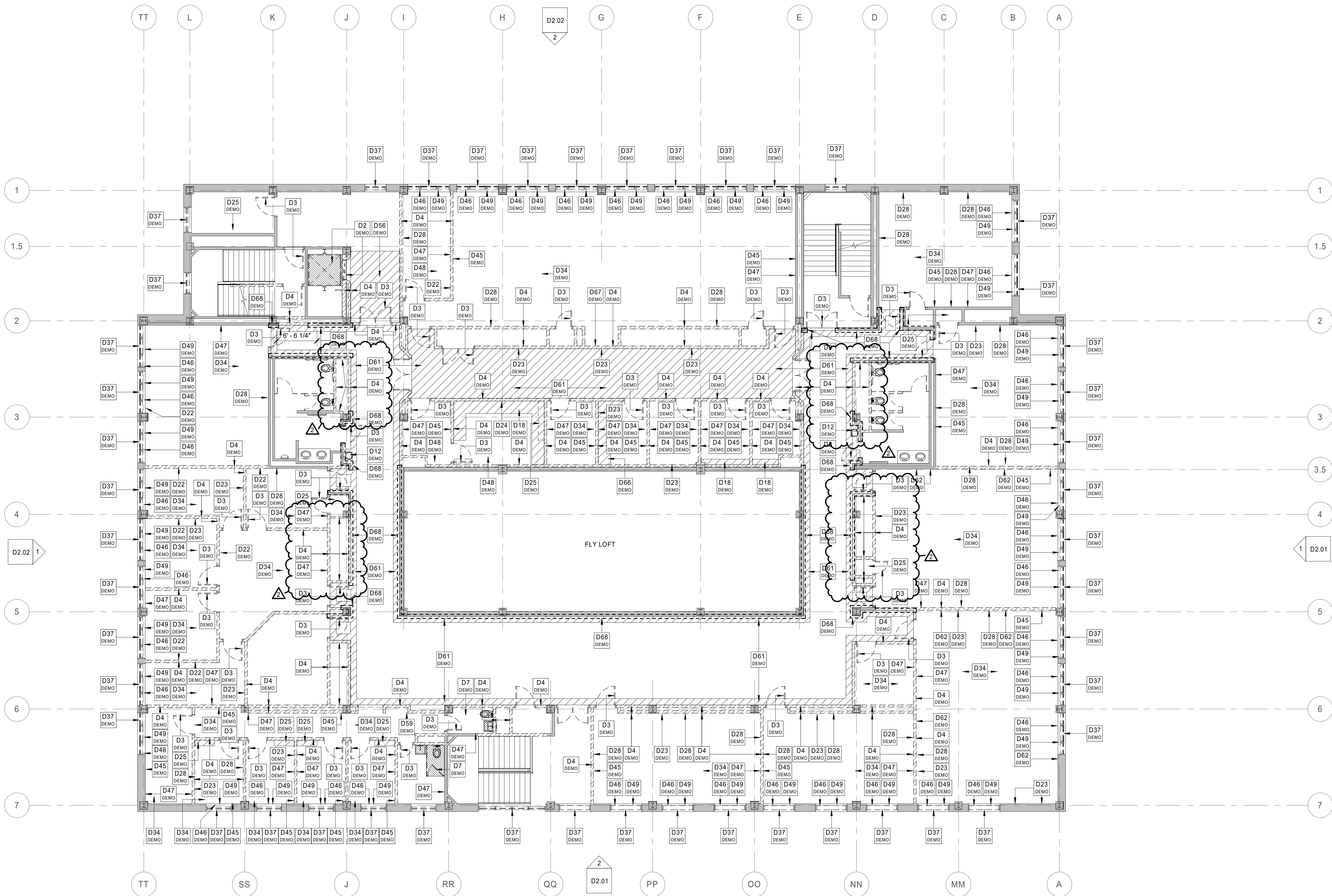
1 Floor Plan 2nd Floor Demolition Plan

GENERAL DEMOLITION NOTES

1. THOROUGHLY REVIEW THE CONSTRUCTION DOCUMENT SET FOR ADDITIONAL DEMOLITION COORDINATION. VERIFY CONFLICTING ITEMS WITH THE ARCHITECT 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 OF 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 DEMOLITION NOTES

NO.	NOTE
D1	HATCHED AREA DENOTES APPROXIMATE EXTENTS OF CONCRETE FLOOR SLAB TO BE REMOVED. SLAB TO BE REMOVED DOWN TO SUBGRADE AND TO ALLOW FOR PREPARATION OF NEW SLAB AND/OR FOOTINGS. SEE STRUCTURAL FOR DETAILS.
D2	REMOVE ELEVATOR IN ITS ENTIRETY INCLUDING ALL ASSOCIATED EQUIPMENT, DEVICES, DOOR FRAMES, DOORS, HALL FIXTURES, ETC.
D3	REMOVE DOOR, DOOR FRAME, TRIM/CASING (IF PRESENT), AND RELATED COMPONENTS IN THEIR ENTIRETY.
D4	REMOVE WALL CONSTRUCTION IN ITS ENTIRETY, FULL HEIGHT AS INDICATED.
D5	REMOVE FIRE EXTINGUISHER AND CABINET (IF EQUIPPED WITH ONE) IN ITS ENTIRETY.
D6	REMOVE MAKEUP COUNTERTOP, BENCH, AND MIRRORS IN THEIR ENTIRETY.
D7	REMOVE ALL CONSTRUCTION (WALLS, DOORS, FIXTURES ETC.) AND ASSOCIATED COMPONENTS WITHIN RESTROOMS COMPLETE U.N.O.
D9	REMOVE RAISED FLOOR, ASSOCIATED STEPS, AND CARPETING. SEE MEP FOR CABLING DEMO/RELOCATION.
D10	REMOVE WALL FURRING DOWN TO CONCRETE MASONRY AND/OR CAST-IN-PLACE CONCRETE WALLS.
D11	REMOVE STEEL/IRON SPIRAL STAIRCASE IN ITS ENTIRETY.
D12	REMOVE DRINKING FOUNTAIN AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL INFORMATION.
D13	REMOVE SINK AND ALL ASSOCIATED PIPING. SEE MEP DRAWING FOR ADDITIONAL DETAILS.
D14	REMOVE PORTION OF EXISTING WALL TO RECEIVE NEW DOOR/WINDOW. SEE WINDOW/DOOR SCHEDULE FOR ROUGH OPENING.
D15	REMOVE TACK BOARD IN ITS ENTIRETY.
D16	REMOVE DYE VAT AND DYE VAT HOOD IN ITS ENTIRETY. SEE MEP DRAWINGS FOR MORE DETAILS.
D17	REMOVE WASHER AND DRYER AND ASSOCIATED PIPING. SEE MEP DRAWINGS FOR MORE DETAILS.
D18	REMOVE CABINETS (BASE, UPPER, AND COUNTERTOPS).
D19	REMOVE REFRIGERATOR AND ASSOCIATED PIPING. SEE MEP DRAWING FOR ADDITIONAL DETAILS.
D20	REMOVE EXISTING WOOD CLOTHING STORAGE RACKS IN THEIR ENTIRETY.
D21	REMOVE EXISTING STORAGE CABINETS IN THEIR ENTIRETY.
D22	REMOVE RUBBER/VINYL FLOOR BASE MATERIAL ON ALL SIDES OF ROOMS WHERE NOTED.
D23	REMOVE TACK BOARD.
D24	REMOVE PEG BOARD.
D25	REMOVE SHELVING.
D26	REMOVE DUST REMOVAL SYSTEM. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D27	REMOVE AIR COMPRESSOR AND ALL ASSOCIATED PIPING. SEE MEP DRAWINGS FOR ADDITIONAL DETAILS.
D28	REMOVE CHALK/MARKER BOARD AND FRAME IN ITS ENTIRETY.
D29	REMOVE FLAT STORAGE UNIT IN ITS ENTIRETY.
D30	REMOVE WALL MOUNTED CLAMP STORAGE SHELVING.
D31	REMOVE PAPER TOWEL DISPENSER.
D32	REMOVE WALL MOUNTED WOOD LEDGER BOARD.
D33	ALL CONTROL ROOM FURNITURE AND ELECTRONICS TO BE MOVED BY OTHERS.
D34	REMOVE CARPETED FLOOR DOWN TO CONCRETE SLAB.
D35	REMOVE SLAT WALL.
D36	REMOVE STORAGE CABINETS.
D37	REMOVE EXISTING ALUMINUM WINDOW SYSTEMS IN THEIR ENTIRETY.
D38	REMOVE EXISTING STAGE APRON AND STEPS BACK TO FACE OF PROSCENIUM WALL. APRON TO BE REMOVED DOWN TO CONCRETE SLAB.
D39	REMOVE EXISTING STAGE FLOORING MATERIAL DOWN TO CONCRETE DECKING.
D40	REMOVE PORTION OF EXTERIOR WALL TO RECEIVE NEW DOOR OPENING. SEE DOOR SCHEDULE AND ELEVATIONS FOR ROUGH OPENING.
D41	REMOVE PORTION OF EXTERIOR WALL WHERE ADDITION IS TO BE CONSTRUCTED. THIS INCLUDES LIMESTONE CLADDING, MASONRY BACKUP WALL, INTERIOR PLASTER FINISH, ETC. STRUCTURAL CONCRETE COLUMNS AND BEAMS ARE TO REMAIN UNLESS NOTED OTHERWISE. SEE ELEVATIONS FOR MORE DETAILS.
D42	REMOVE EXISTING STRUCTURAL COLUMN THAT SUPPORTS NORTHWEST CANOPY. SEE ELEVATIONS FOR MORE DETAILS.
D43	REMOVE EXISTING (+224) THEATER SEATS IN THEIR ENTIRETY.
D44	REMOVE CAST IN PLACE CONCRETE STAIRWAY IN ITS ENTIRETY.
D45	REMOVE WOOD CHAIR RAIL ON ALL SIDES OF ROOM.
D46	REMOVE WOOD WINDOW STOOL IN ITS ENTIRETY. TYPICAL AT ALL WINDOWS.
D47	REMOVE TERRAZZO BASE AND BORDER (WHERE PRESENT) ON ALL SIDES OF ROOM.
D48	REMOVE EXISTING VCT FLOORING DOWN TO CONCRETE SLAB.
D49	REMOVE EXISTING CURTAINS AND/OR SHADES AND HANGING HARDWARE.
D50	REMOVE TICKETING WINDOWS AND CASEWORK.
D51	REMOVE EXISTING HANDRAIL AND GUARDRAIL IN AREAS INDICATED.
D52	REMOVE PIPE STORAGE SYSTEM.
D53	REMOVE TECH DESK WITHIN THEATER.
D54	REMOVE THEATRICAL CURTAIN. SALVAGE AND RETURN TO OWNER. TRACK AND HARDWARE TO REMAIN.
D55	ALTERNATE #8 - REMOVE PORTION OF STAGE FLOOR AS NECESSARY FOR STAGE LIFT. BASE BID IS FOR FLOOR STRUCTURE TO REMAIN IN PLACE.
D56	REMOVE PORTION OF FLOOR AND FLOOR STRUCTURE AS INDICATED FOR CONSTRUCTION OF ELEVATOR SHAFT.
D57	REMOVE ACCORDIAN TYPE PARTITION AND ASSOCIATED TRACK/COMPONENTS.
D58	REMOVE BUILT-IN CASEWORK.
D59	REMOVE BUILT-IN MAILBOXES.
D60	REMOVE BUILT-IN DISPLAY CASE AND CASING.
D61	REMOVE PORTIONS OF TERRAZZO FLOORING AND BASE AS INDICATED. SEE TERRAZZO PLANS FOR MORE DETAILS.
D62	REMOVE ACOUSTICAL WALL PANELS.
D63	REMOVE EXISTING PREMANUFACTURED WENGER AUDIO BOOTHS IN THEIR ENTIRETY.
D64	REMOVE APPLIANCE AND SALVAGE FOR OWNER.
D65	REMOVE INTERIOR WINDOW AND FRAME IN ITS ENTIRETY.
D66	REMOVE BUILT-IN WORKSTATION, COUNTERTOP, BASE CABINETS IN THEIR ENTIRETY.
D67	REMOVE MOVABLE PARTITION WALL SYSTEM IN ITS ENTIRETY.
D68	REMOVE TERRAZZO WALL PANEL IN BOUNDARY INDICATED. REMOVE DOWN TO EXISTING STEEL STUDS.
D69	DEMOLISH WOOD WORKBENCH AND SHELVING.
D70	REMOVE STEEL STORAGE SHELVING.
D71	ALTERNATE #8 - DEMOLISH PORTION OF CONCRETE SLAB AS NECESSARY TO RECEIVE NEW HYDRAULIC MATERIALS LIFT. BASE BID - NO DEMOLITION OF CONCRETE SLAB.
D72	REMOVE EXISTING FIRE CURTAIN, HARDWARE, AND HOUSING IN ITS ENTIRETY.



1 Floor Plan
3rd Floor - Demo Plan
1/8" = 1'-0"



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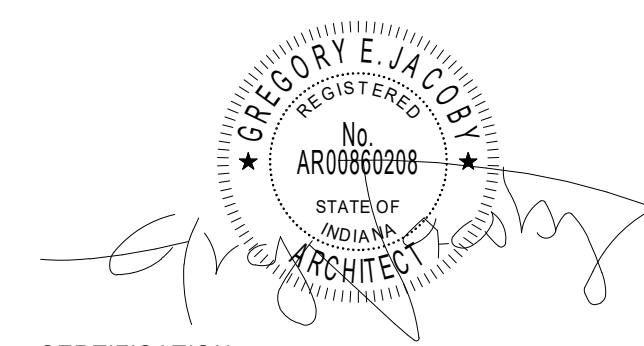
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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020

3rd Floor Demolition Plan

D1.03

A	2	ALIGN FINISH FACE OF NEW WALL WITH FINISH FACE OF EXISTING ADJACENT WALL OR COLUMN
	3	INFILL OR EXTEND WALL WITH LIKE MATERIAL(S). ALIGN FINISH WALL SURFACE(S) OF INFILL WITH FACE OF EXISTING FINISH FACE(S)
	3	WALL CENTERED ON NEW OR EXISTING COLUMN WRAP
	6	STAINLESS STEEL / GLASS RAILING SYSTEM

GENERAL PLAN NOTES

1. DO NOT SCALE DRAWINGS.
2. DIMENSIONS ARE TAKEN TO FACE OF STUD, FACE OF CONCRETE, FACE OF MASONRY, FACE OF EXISTING FINISHES, AND COLUMN LINES UNLESS SPECIFICALLY NOTED OTHERWISE. DIMENSIONS FOR STUD (OR) DIMENSIONS INDICATE FINISH SURFACE TO FINISH SURFACE SPANS BETWEEN WALLS OR FROM FINISH SURFACE OF WALL TO CENTERLINE OF ADJACENT WALL OR CENTERLINE OF PLUMBING FIXTURES.
3. 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 IDENTICAL TO OTHER DIMENSIONS OF THE SAME LENGTH THROUGHOUT THAT SPECIFIC DRAWING SHEET, BUT NOT THE SAME DESIGNATION ON OTHER DRAWING SHEETS.
4. 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 APPEARS. DIMENSIONS CALLED OUT AS EQUAL ON TWO DIFFERENT DIMENSION STRINGS ARE NOT NECESSARILY EQUAL TO EACH OTHER.
5. ALL DESIGN TEAM DRAWINGS SHALL BE USED TO LOCATE BUILDING ELEMENTS. CONTRACT THE ARCHITECT WITH CONFLICTS, DISCREPANCIES, AND OMISSIONS PRIOR TO COMMENCEMENT OF WORK. WRITTEN DISCREPANCY SUBMITTALS SHALL BE REQUIRED FROM THE CONTRACTOR REGARDING SUCH ITEMS.
6. STRUCTURAL, MECHANICAL, ELECTRICAL, PLUMBING, LOW VOLTAGE AND FOOD SERVICE ELEMENTS ARE SHOWN FOR REFERENCE ONLY. VERIFY EACH ELEMENT WITH THE ASSOCIATED ENGINEER'S DRAWINGS TO COORDINATE CONFLICTS WITH THE ARCHITECT.
7. FLOORS SHALL SLOPE TO FLOOR DRAINS. SLOPES SHALL COMPLY WITH ADA ACCESSIBILITY GUIDELINES.
8. WALL FRAMING, INSULATION, SHEATHING, AND FINISHES SHALL EXTEND FROM THE TOP OF SLAB TIGHT TO THE BOTTOM OF THE TOP OF FINISH. FINISHES SHALL BE OTHERWISE. PARTIAL HEIGHT WALLS ARE NOTED WITH TOP OF WALL ELEVATIONS.
9. REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
10. STUD WALL CONTRACTOR SHALL PROVIDE N-WALL BLOCKING FOR WALL MOUNTED OWNER PROVIDED AND CONTRACTOR PROVIDED ITEMS REPRESENTED WITHIN THE DRAWINGS AND SPECIFICATIONS.
11. GENERAL CONTRACTOR TO PROVIDE BACKER ROD AND SEALANT OF A TYPE APPROPRIATE TO EACH CONDITION, BEHIND THE MATERIALS WITHIN SIMILAR AREAS THROUGHOUT THE INTERIOR AND EXTERIOR OF THE BUILDING. (COLORS TO BE SELECTED BY ARCHITECT)
12. EACH EXTERIOR STUD WALL ACROSS THE ENTIRETY OF THE BUILDING IS TO RECEIVE A MINIMUM R-19 BATT INSULATION.
13. SEE STRUCTURAL DRAWINGS FOR INFORMATION VERTICAL AND HORIZONTAL.
14. IT IS THE GENERAL DESIGN INTENT THAT ALL NEW WALLS AND EXISTING WALLS OF FACE OF EXISTING ADJACENT WALL CONSTRUCTION.



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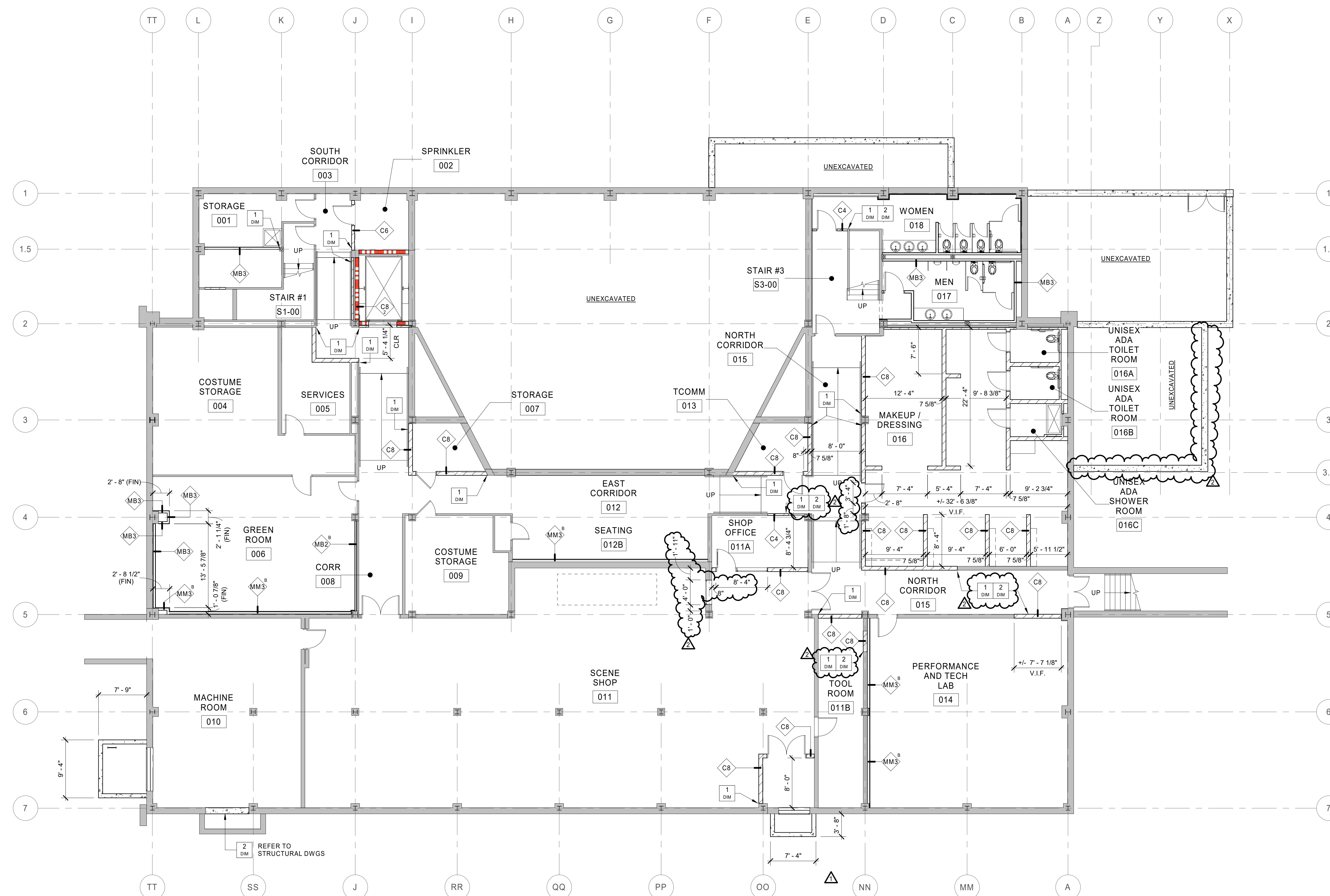
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1 Floor Plan
Basement - Dimension Plan

SYMBOL LEGEND

CODED NOTES OF VARYING
TYPES: SEE SCHEDULES ON THIS
SHEET

101 DOOR TAG: SEE SHEET A8-SERIES
DRAWINGS

 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

CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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

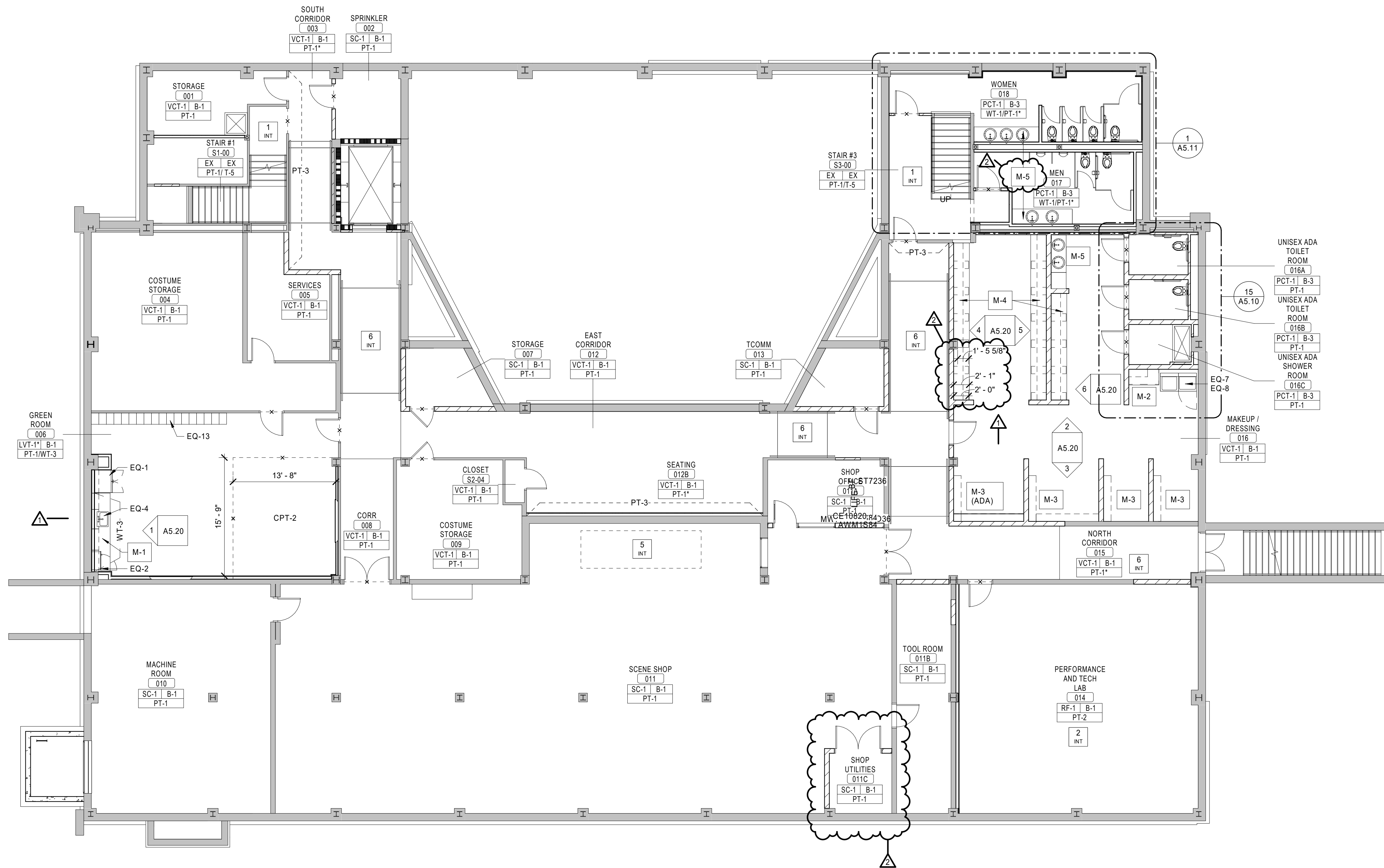
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

Basement Dimension Plan

A1.00A

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1 Finish Plans
Basement - Finish Plan
A1.00C 1/8" = 1'-0"

GENERAL FINISH NOTES

1. REFER TO FINISH PLAN, ROOM FINISH SCHEDULE, INTERIOR ELEVATIONS, AND REFLECTED CEILING PLANS FOR FINISH INFORMATION.
2. MATERIAL INFORMATION IS GIVEN WHEREVER POSSIBLE ON THE INTERIOR SHEETS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT SO THAT THE CORRECT MATERIAL IS INSTALLED.
3. REFER TO THE SPECIFICATIONS FOR EACH MATERIAL SELECTION.
4. ALL MATERIALS ARE TO BE INSTALLED USING THE MANUFACTURER'S RECOMMENDED ADHESIVES.
5. GYP. BD. WALLS AND SOFFITS TO RECEIVE A LEVEL FOUR (4) FINISH UNLESS NOTED OTHERWISE.
6. WALLS ARE TO BE PAINTED [PT-1] UNLESS NOTED OTHERWISE.
7. GYP. BD. BULKHEADS AND CEILINGS ARE TO BE PAINTED [PT-7] UNLESS NOTED OTHERWISE.
8. BULKHEADS, SOFFITS, AND FUR-DOWNS ARE TO BE FINISHED WITH THE SAME MATERIAL AND/OR COLOR ON ALL FACES AS SPECIFIED UNLESS NOTED OTHERWISE.
9. THERE SHALL NOT BE PAINT CONDITIONS THAT OCCUR CAUSING FINISH OR COLOR TO CHANGE ON AN OUTSIDE CORNER UNLESS NOTED OTHERWISE. IF THIS CONDITION OCCURS BRING THIS TO THE ARCHITECT'S ATTENTION IMMEDIATELY.
10. INTERIOR EXPOSED STEEL OR CONCRETE STRUCTURAL COLUMNS AND FRAMING ARE TO BE PAINTED UNLESS OTHERWISE NOTED. ARCHITECT TO SELECT COLOR FROM MANUFACTURER'S FULL RANGE.
11. FIRE RESISTANT RATED INTUMESCENT PAINT FINISH EXPOSED WITHIN A ROOM IS TO HAVE A SMOOTH FINISH AND RECEIVE A FINAL PAINT COLOR SELECTED BY THE ARCHITECT.
12. EXPOSED CMU, WHICH DOES NOT HAVE A SPECIAL FINISH, INTEGRAL COLOR OR DECORATIVE FACE, IS TO BE PAINTED UNLESS NOTED OTHERWISE.
13. WALL GRILLES, CEILING DIFFUSERS, AND FIRE EXTINGUISHER CABINETS ARE TO BE FINISHED IN THE SAME MATERIAL AS THE ADJACENT WALL MATERIAL.
14. METAL TRIM PIECE TO OCCUR AT ALL TILED WALL OUTSIDE CORNERS.
15. PROVIDE FRP AT SINKS IN JANITOR CLOSETS FROM FLOOR TO 6" ABOVE FAUCETS AND ON ADJACENT WALLS.
16. TRANSITIONS, REDUCER STRIPS, AND THRESHOLDS TO BE LOCATED AT CENTERLINE OF DOOR WHEN IN CLOSED POSITION. SEE DETAILS ON TRANSITIONS ON PAGE A5.20.
17. ALIGN FLOORING TRANSITIONS WITH FINISH BASE EXCEPT AT DOORS UNLESS NOTED OTHERWISE.
18. FLOORING MATERIAL SHALL BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION. TRANSITIONS, IF NEEDED, ARE ALSO TO BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION.
19. CARPET SEAMS TO BE LOCATED AT CENTERLINE OF DOOR IN CLOSED POSITION.
20. CARPET TILE INSTALLATION NOTED IN FINISH LEGEND ON PAGE A5.02.
21. FLOORING TO BE INSTALLED PERPENDICULAR TO ROOM WALLS UNLESS NOTED OTHERWISE.
22. RUBBER TRANSITIONS AND METAL TRANSITIONS TO OCCUR BETWEEN DIFFERENT MATERIALS AND ARE TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF PRODUCTS.
23. PROVIDE CRACK ISOLATION MEMBRANE AT ALL CERAMIC FLOORING. FLOORING CONTRACTOR TO COORDINATE WITH SPECIFICATIONS.
24. WALL AND FLOOR GROUT COLORS TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL COLOR RANGE.
25. GROUT WIDTHS TO BE MANUFACTURER'S RECOMMENDED MINIMUM WIDTH UNLESS NOTED OTHERWISE.
26. REQUIRED FLOORING UNDERLAYMENTS ARE TO BE PROVIDED AND INSTALLED BY THE FLOORING CONTRACTOR.
27. TERRAZZO STRIPS SHOULD BE AT ALL BREAKS OR SAW CUTS IN SUPPORTING SLAB. ARCHITECT'S APPROVAL NEEDED BEFORE FABRICATION.

CODED INTERIOR NOTES

NO.	NOTE
1	REFERENCE TERRAZZO PLANS
2	THEATER CURTAIN ON TRACK TO GO AROUND ENTIRE ROOM. SEE SPECIFICATIONS.
3	CASEWORK IS EXISTING TO REMAIN
4	ELECTRONIC EQUIPMENT WRACKS ARE EXISTING TO REMAIN
5	EQUIPMENT, STAGE LIFT. SEE SPECIFICATIONS.
6	RAMP
7	PAINTED MASONITE. USE MANUFACTURER'S RECOMMENDED FINISH FOR HIGH TRAFFIC AREAS.
8	WHITE BOARD, CLARUS - FLOAT - 4' X 8' - PURE WHITE T-TRAY AND MAGNETIC. INSTALL: 3'-0" AFF TO BOTTOM OF BOARD. BOARDS MUST BE CENTERED ON WALL.

SYMBOL LEGEND

1 INT	CODED NOTE: SEE SCHEDULE ON THIS SHEET
PT-1	MATERIAL FINISH NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
M-1	MILLWORK NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
EQ-1	EQUIPMENT NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
- X -	TRANSITION LOCATION MARKER. SHOWS TRANSITION BETWEEN FLOOR MATERIAL. SEE DETAILS ON PAGE A5.20.
ROOM NAME 101 Floor: 1 Base: Wall Finish:	ROOM TAG WITH FINISHES. (*) INDICATES MORE THAN ONE FINISH IN THAT AREA. SEE PLAN/NOTES FOR DETAILS. FLOORING (F) REFERENCE TERRAZZO PLANS.



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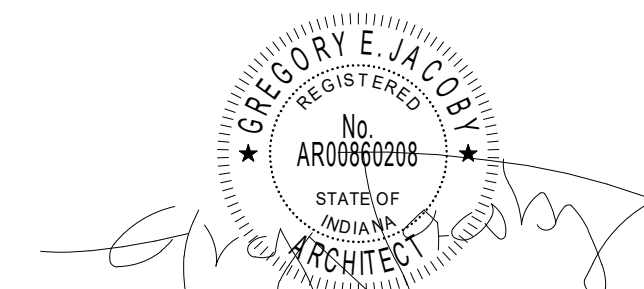
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CERTIFICATION

Construction Documents

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Terre Haute, Indiana 47809

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

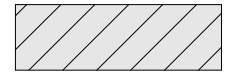

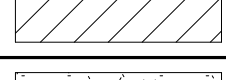
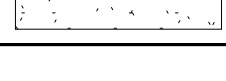
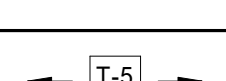
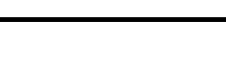
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

Basement Finish Plan

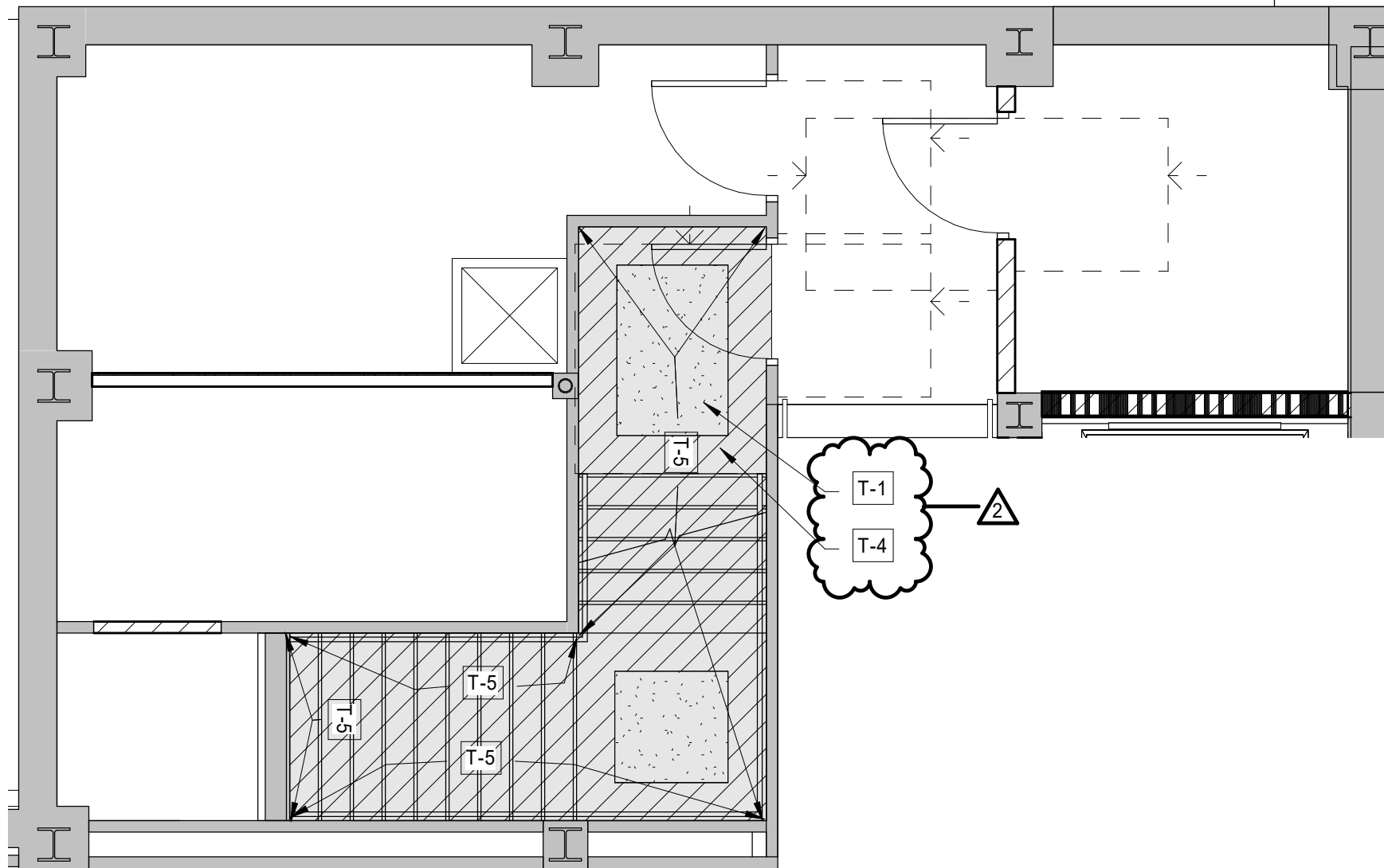
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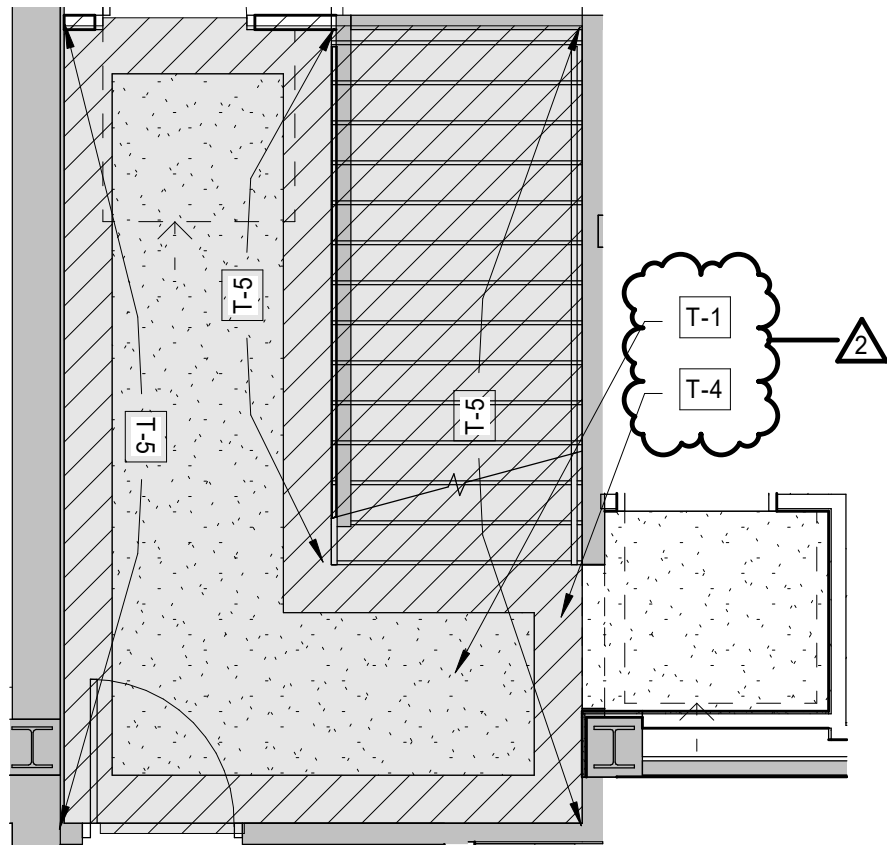
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TERRAZZO LEGEND		
HATCH PATTERN	DESCRIPTION	COMMENTS
	T-4: EXISTING BORDER (MAROON)	CLEAN, PATCH AND REPAIR AS NEEDED.
	T-1: EXISTING FIELD (CREAM)	CLEAN, PATCH AND REPAIR AS NEEDED.
	T-3: NEW BORDER, COLOR TO BE SELECTED BY ARCHITECT. DIVIDER STRIPS TO MATCH EXISTING PATTERN AND COLOR.	
	T-2: NEW FIELD, COLOR TO SELECTED BY ARCHITECT. DIVIDER STRIPS TO MATCH EXISTING FIELD PATTERN AND COLOR.	
	NEW DIVIDER STRIP WHERE EXISTING PATTERN CAN NOT BE MATCHED.	
	EXISTING TERRAZZO WALL PANEL TO REMAIN.	CLEAN, PATCH AND REPAIR AS NEEDED.

GENERAL FINISH NOTES	
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2 Floor Plan
Basement - Terrazzo Plan 2
A1.00D 1/4" = 1'-0"



1 Floor Plan
Basement - Terrazzo Plan 1
A1.00D 1/4" = 1'-0"



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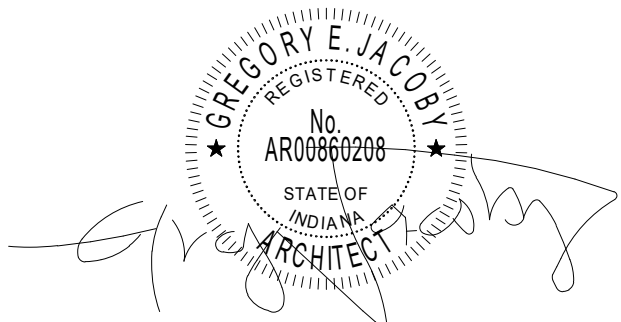
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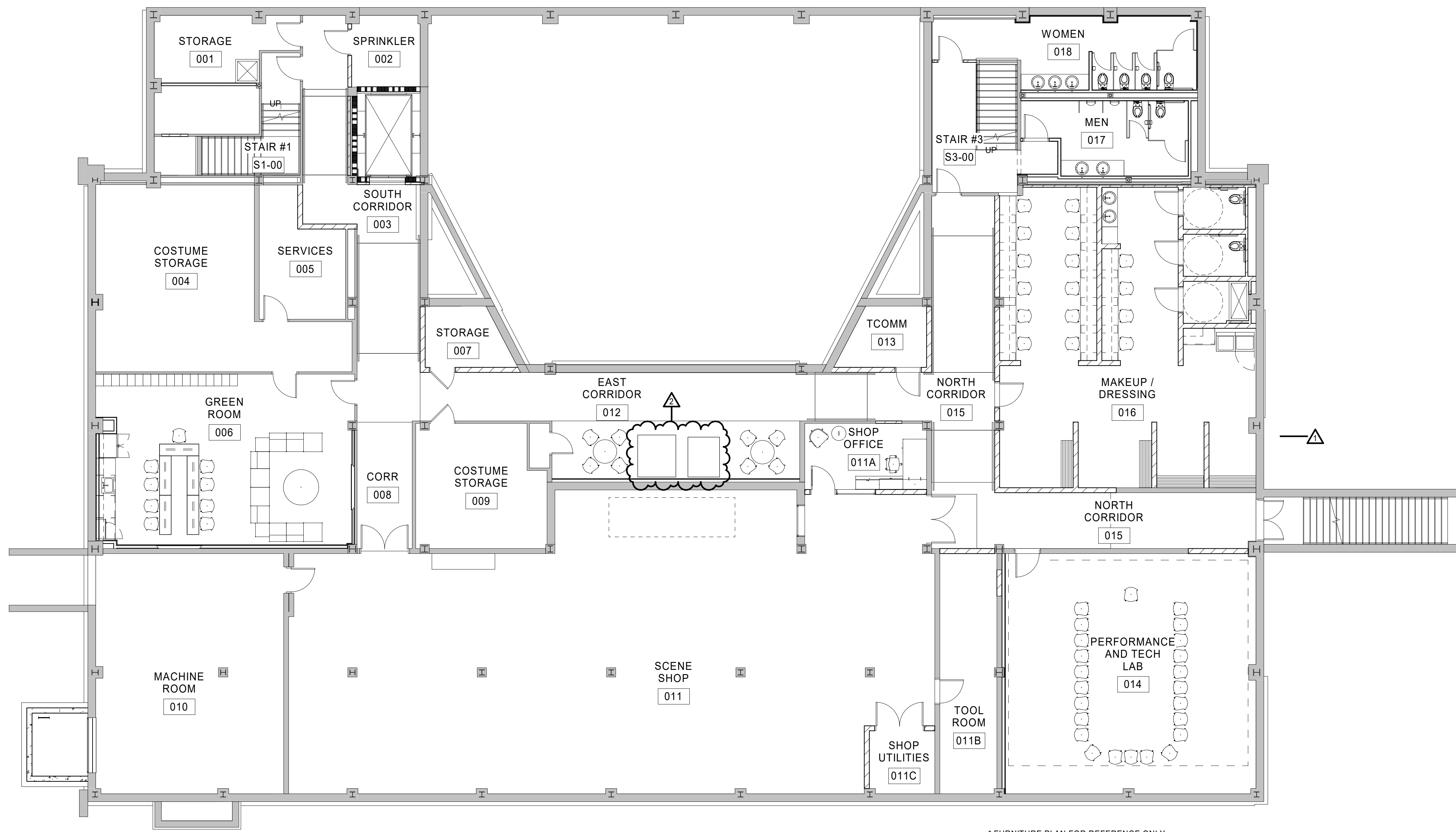
Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: Author
Checked By: Checker
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020

Basement Terrazzo Plan

A1.00D



* FURNITURE PLAN FOR REFERENCE ONLY



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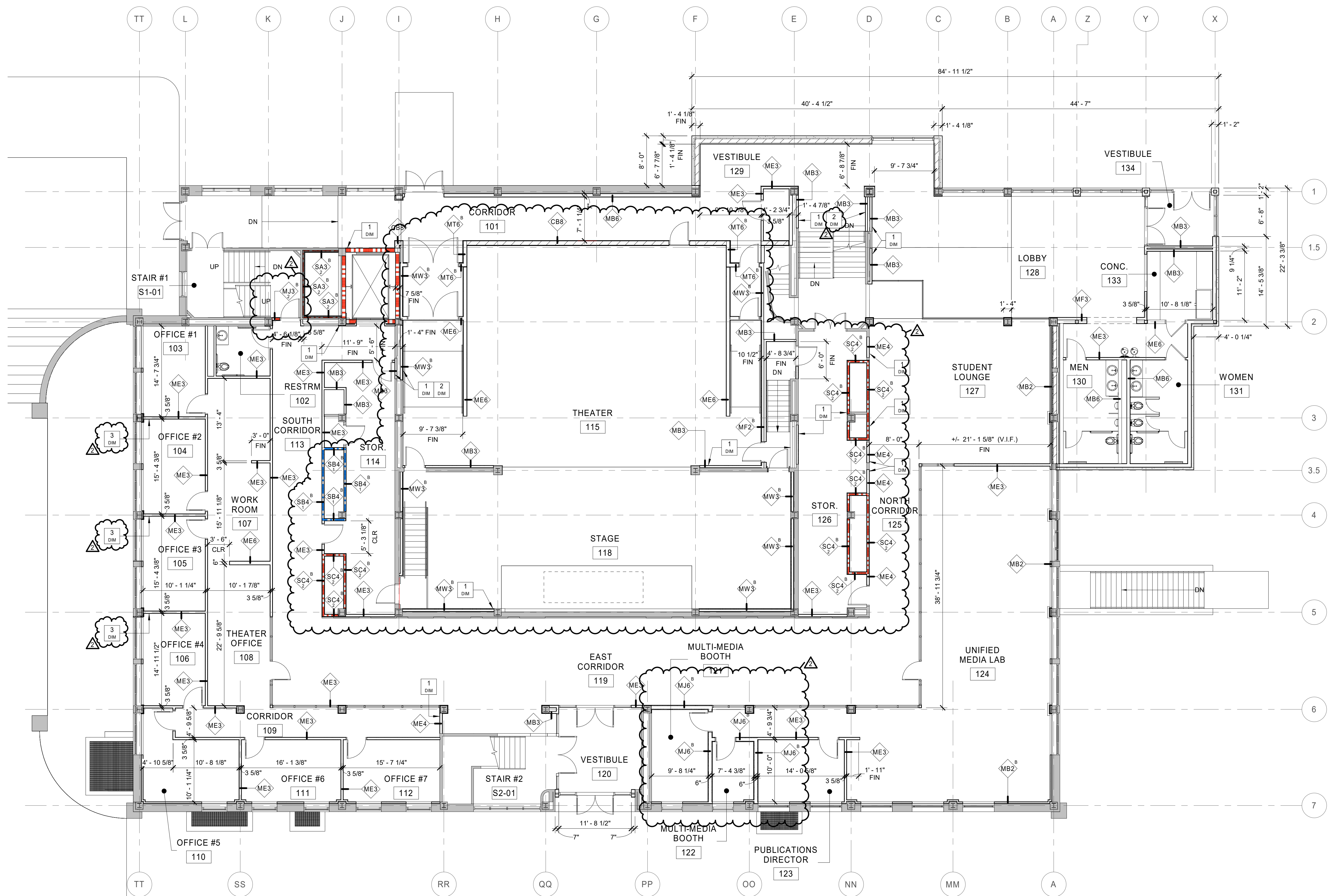
Basement Furniture Plan

A1.00E

CODED BUILDING DIMENSION NOTES	
NO.	NOTE
1	ALIGN FINISH FACE OF NEW WALL WITH FINISH FACE OF EXISTING ADJACENT WALL OR COLUMN
2	INFILL OR EXTEND WALL WITH LIKE MATERIAL(S). ALIGN FINISH WALL SURFACE(S) OF INFILL WITH FACE OF EXISTING FINISH FACE(S)
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6	STAINLESS STEEL / GLASS RAILING SYSTEM

GENERAL PLAN NOTES

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- 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.
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- 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.



1 Floor Plan
1st Floor - Dimension Plan

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



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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

1st Floor Dimension Plan

A1.01A

GENERAL FINISH NOTES

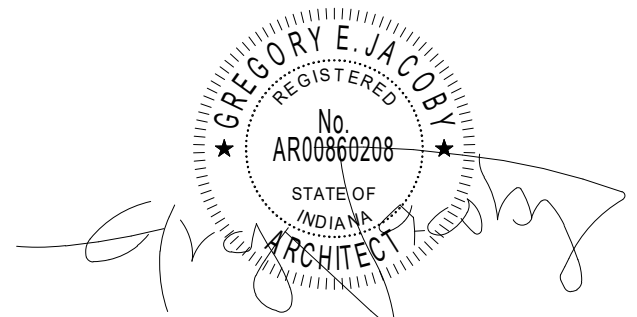
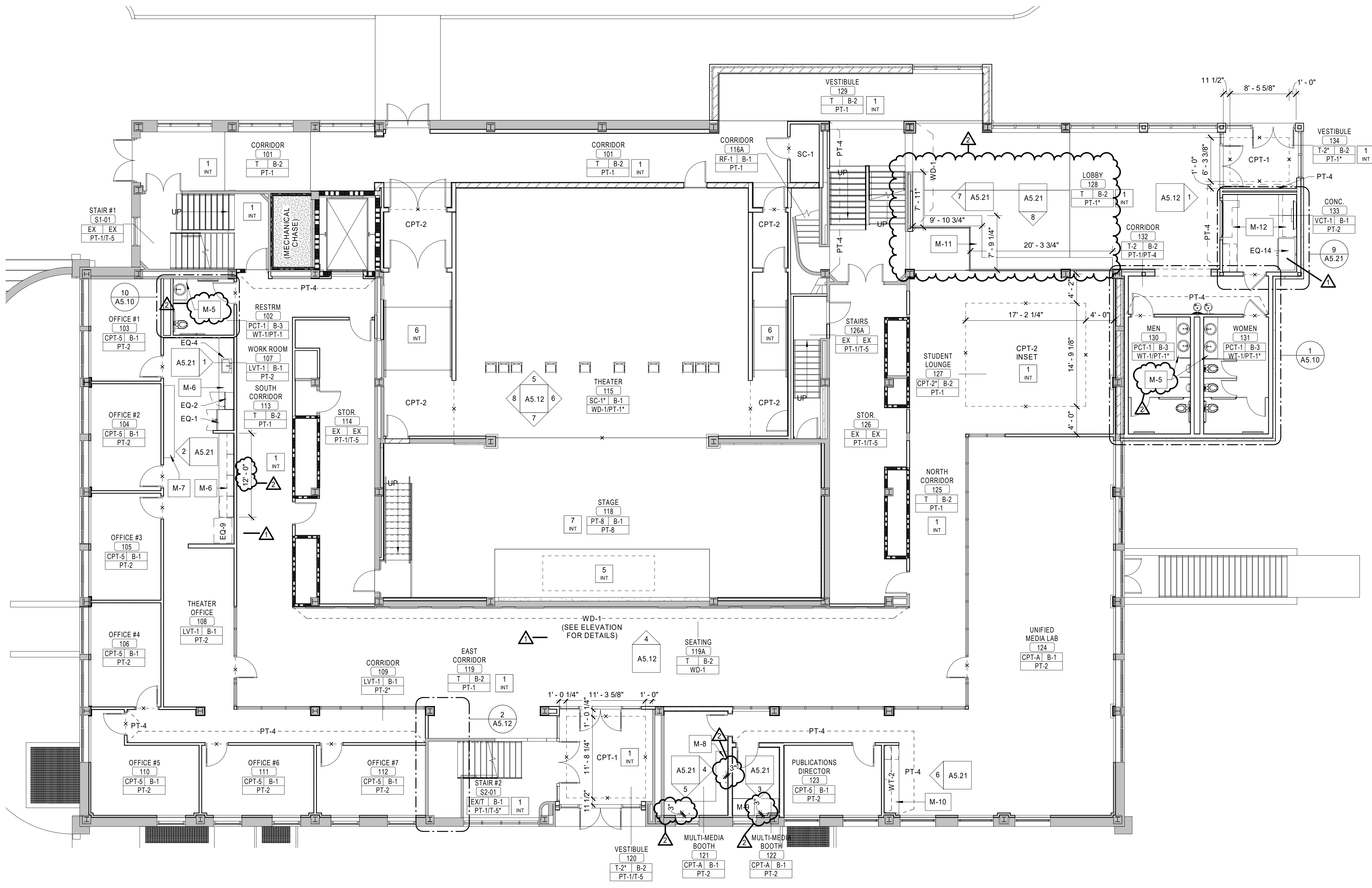
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2. MATERIAL INFORMATION IS GIVEN WHEREVER POSSIBLE ON THE INTERIOR SHEETS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT SO THAT THE CORRECT MATERIAL IS INSTALLED.
3. REFER TO THE SPECIFICATIONS FOR EACH MATERIAL SELECTION.
4. ALL MATERIALS ARE TO BE INSTALLED USING THE MANUFACTURER'S RECOMMENDED ADHESIVES.
5. GYP. BD. WALLS AND SOFFITS TO RECEIVE A LEVEL FOUR (4) FINISH UNLESS NOTED OTHERWISE.
6. WALLS ARE TO BE PAINTED [PT-1] UNLESS NOTED OTHERWISE.
7. GYP. BD. BULKHEADS AND CEILINGS ARE TO BE PAINTED [PT-7] UNLESS NOTED OTHERWISE.
8. BULKHEADS, SOFFITS, AND FUR-DOWNS ARE TO BE FINISHED WITH THE SAME MATERIAL AND/OR COLOR ON ALL FACES AS SPECIFIED UNLESS NOTED OTHERWISE.
9. THERE SHALL NOT BE PAINT CONDITIONS THAT OCCUR CAUSING FINISH OR COLOR TO CHANGE ON AN OUTSIDE CORNER UNLESS NOTED OTHERWISE. IF THIS CONDITION OCCURS BRING THIS TO THE ARCHITECT'S ATTENTION IMMEDIATELY.
10. INTERIOR EXPOSED STEEL OR CONCRETE STRUCTURAL COLUMNS AND FRAMING ARE TO BE PAINTED UNLESS OTHERWISE NOTED. ARCHITECT TO SELECT COLOR FROM MANUFACTURER'S FULL RANGE.
11. FIRE RESISTANT RATED INTUMESCENT PAINT FINISH EXPOSED WITHIN A ROOM IS TO HAVE A SMOOTH FINISH AND RECEIVE A FINAL PAINT COLOR SELECTED BY THE ARCHITECT.
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15. PROVIDE FRP AT SINKS IN JANITOR CLOSETS FROM FLOOR TO 6" ABOVE FAUCETS AND ON ADJACENT WALLS.
16. TRANSITIONS, REDUCER STRIPS, AND THRESHOLDS TO BE LOCATED AT CENTERLINE OF DOOR WHEN IN CLOSED POSITION. SEE DETAILS ON TRANSITIONS ON PAGE A5.20.
17. ALIGN FLOORING TRANSITIONS WITH FINISH BASE EXCEPT AT DOORS UNLESS NOTED OTHERWISE.
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20. CARPET TILE INSTALLATION NOTED IN FINISH LEGEND ON PAGE A5.02.
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23. PROVIDE CRACK ISOLATION MEMBRANE AT ALL CERAMIC FLOORING. FLOORING CONTRACTOR TO COORDINATE WITH SPECIFICATIONS.
24. WALL AND FLOOR GROUT COLORS TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL COLOR RANGE.
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27. TERRAZZO STRIPS SHOULD BE AT ALL BREAKS OR SAW CUTS IN SUPPORTING SLAB. ARCHITECT'S APPROVAL NEEDED BEFORE FABRICATION.

CODED INTERIOR NOTES

NO.	NOTE
1	REFERENCE TERRAZZO PLANS
2	THEATER CURTAIN ON TRACK TO GO AROUND ENTIRE ROOM. SEE SPECIFICATIONS.
3	CASEWORK IS EXISTING TO REMAIN
4	ELECTRONIC EQUIPMENT WRACKS ARE EXISTING TO REMAIN
5	EQUIPMENT, STAGE LIFT. SEE SPECIFICATIONS.
6	RAMP
7	PAINTED MASONITE. USE MANUFACTURER'S RECOMMENDED FINISH FOR HIGH TRAFFIC AREAS.
8	WHITE BOARD: CLARUS - FLOAT - 4' X 8' - PURE WHITE, T-RAY AND MAGNETIC. INSTALL 3" AFF TO BOTTOM OF BOARD. BOARDS MUST BE CENTERED ON WALL.

SYMBOL LEGEND

1 INT	CODED NOTE: SEE SCHEDULE ON THIS SHEET
PT-1	MATERIAL FINISH NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
M-1	MILLWORK NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
EQ-1	EQUIPMENT NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
-X-	TRANSITION LOCATION MARKER. SHOWS TRANSITION BETWEEN FLOOR MATERIAL. SEE DETAILS ON PAGE A5.20.
ROOM NAME [] Floor / Base Wall Finish	ROOM TAG WITH FINISHES. (*) INDICATES MORE THAN ONE FINISH IN THAT AREA. SEE PLAN/NOTES FOR DETAILS. FLOORING (F) REFERENCE TERRAZZO PLANS



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Rev. #	Revision Description	Issue Date
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1st Floor Finish Plan

A1.01C

CODED FF&E NOTE	
NO.	NOTE



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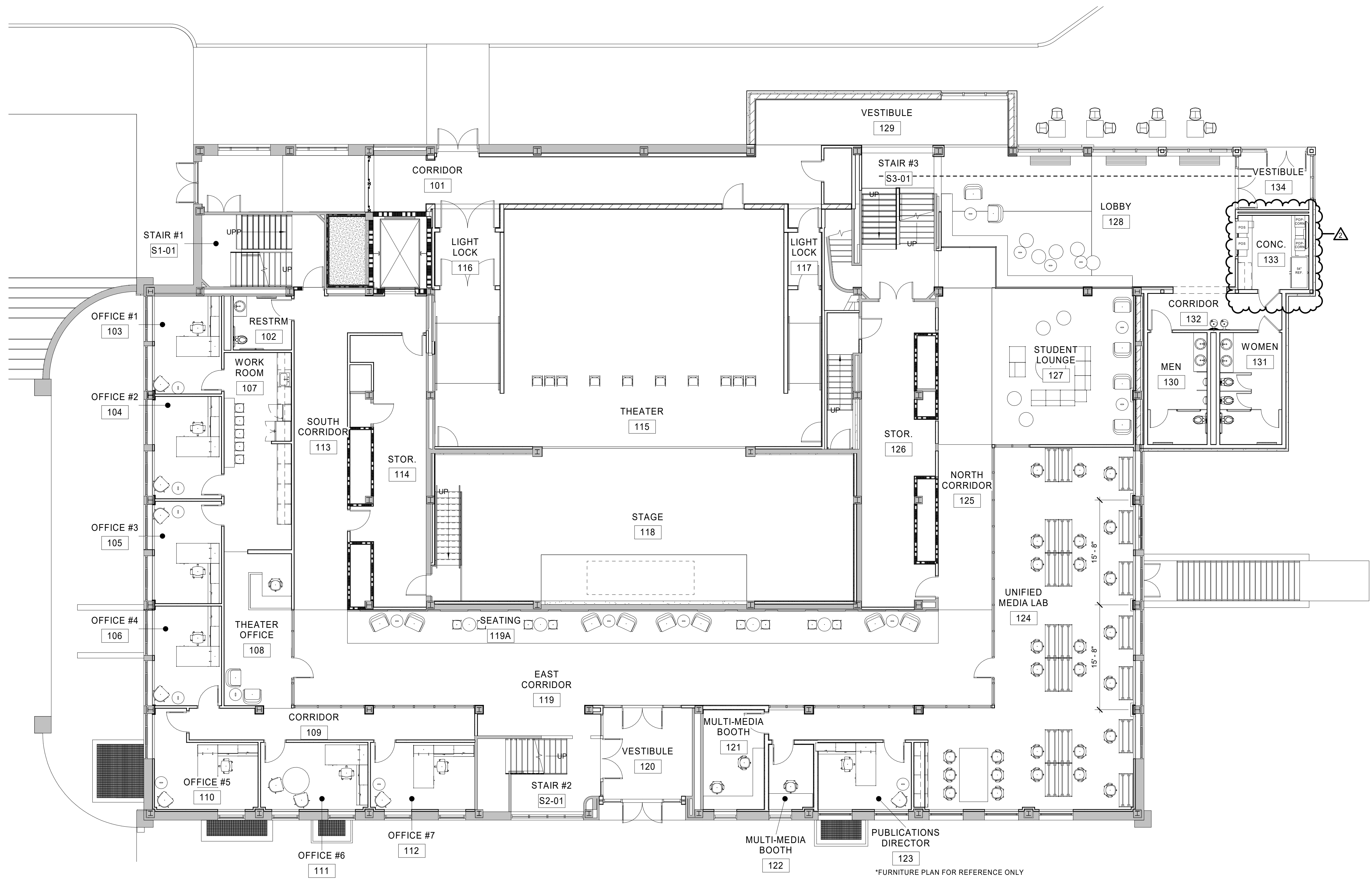
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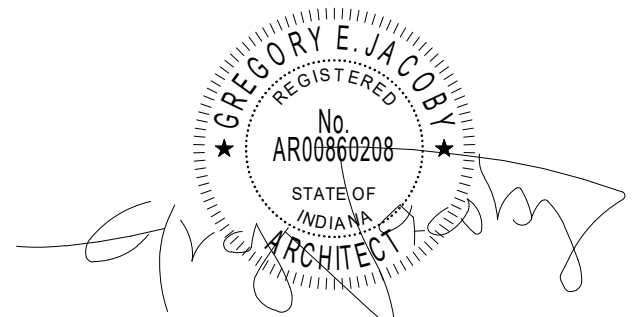


1

1st Floor - Furniture Plan

A1.01E

1/8" = 1'-0"



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

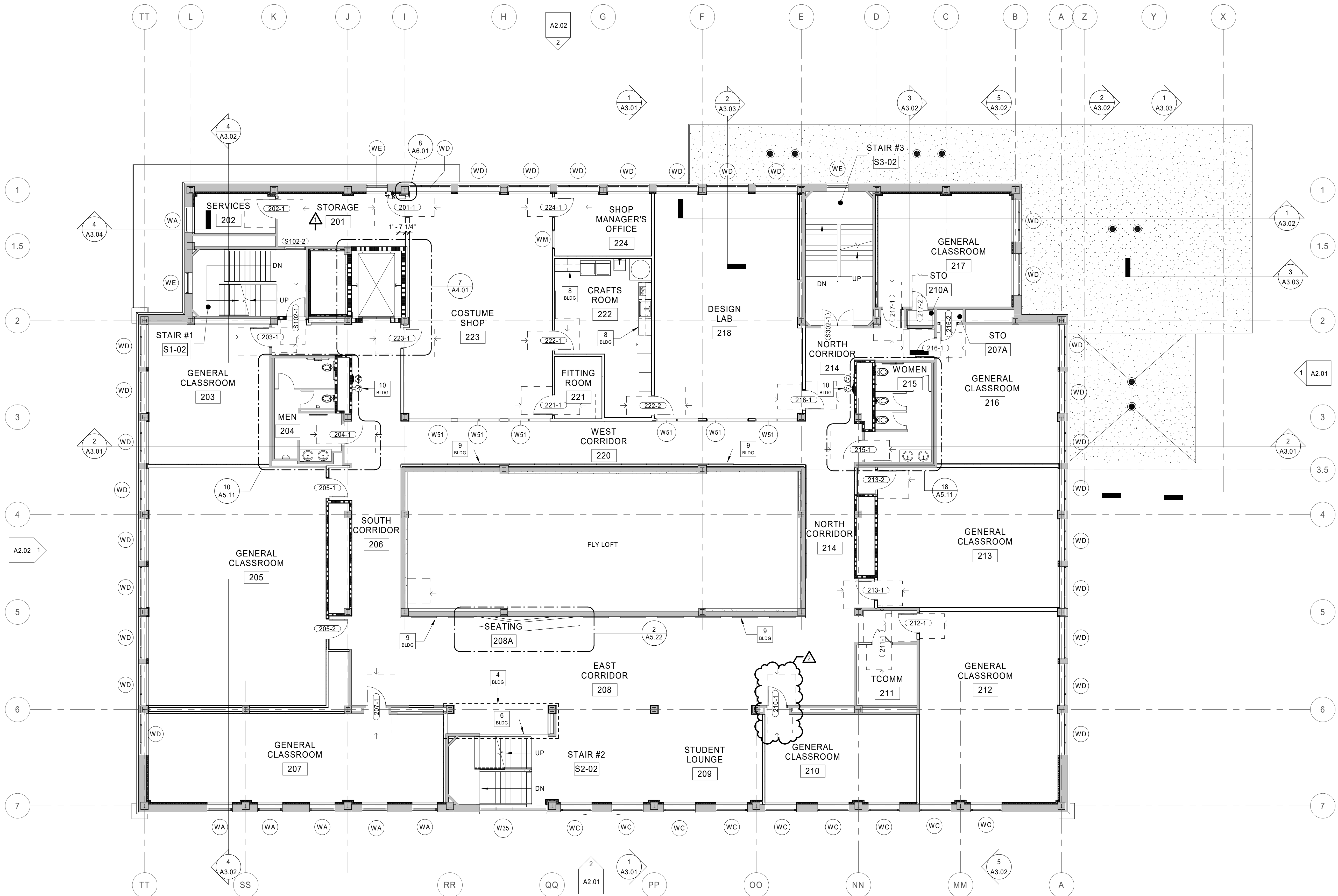
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REVISION SCHEDULE		
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2	Addendum #2	6/19/2020

1st Floor Furniture Plan

A1.01E

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1 Floor Plan
2nd Floor Plan
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	
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
7	BUILT IN BENCH SEATING - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
8	
9	WOOD WALL PANEL SYSTEM - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
10	DRINKING FOUNTAINS - REFER TO PLUMBING DRAWINGS
11	RELOCATED EXISTING FURNISHINGS / EQUIPMENT

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 LATCH/HINGE 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 CHIMNEY AND CAST-IN-PLACE WALLS.
- IT IS THE GENERAL DESIGN INTENT THAT ALL NEW WALLS ALIGN WITH THE FACE OF EXISTING ADJACENT WALL CONSTRUCTION.



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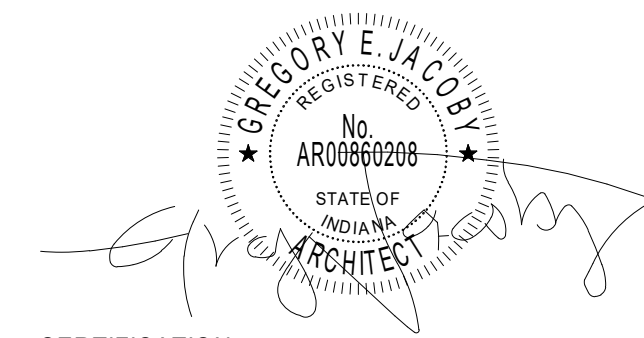
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SYMBOL LEGEND

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

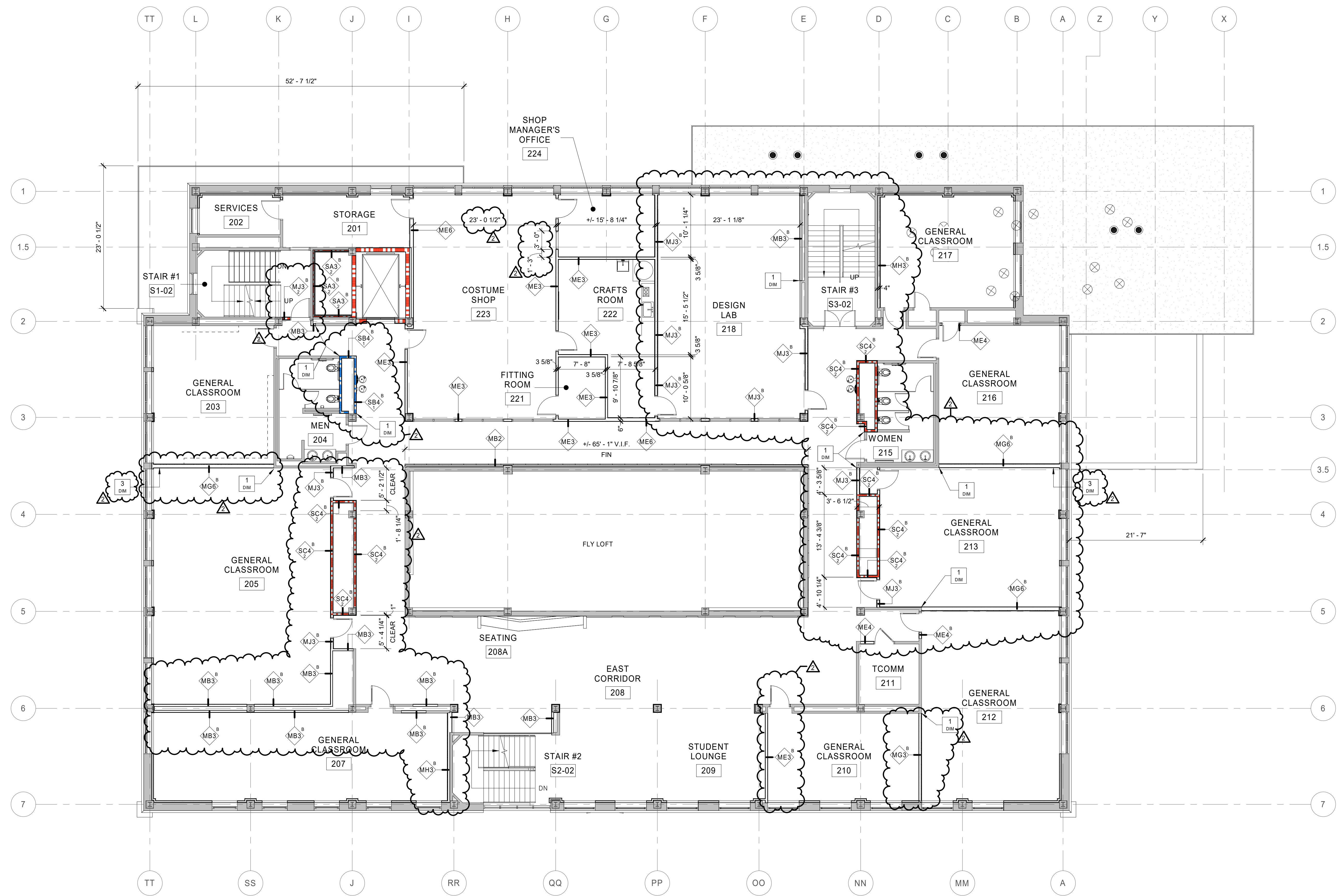
WINDOW TAG: SEE A8-SERIES DRAWINGS

2nd Floor Plan

A1.02

CODED BUILDING DIMENSION NOTES	
NO.	NOTE
1	ALIGN FINISH FACE OF NEW WALL WITH FINISH FACE OF EXISTING ADJACENT WALL OR COLUMN
2	INFILL OR EXTEND WALL WITH LIKE MATERIAL(S). ALIGN FINISH WALL SURFACE(S) OF INFILL WITH FACE OF EXISTING FINISH FACE(S)
3	WALL CENTERED ON NEW OR EXISTING COLUMN WRAP
6	STAINLESS STEEL / GLASS RAILING SYSTEM

GENERAL PLAN NOTES	
1.	DO NOT SCALE DRAWINGS.
2.	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 LATCH/HINGE OF ADJACENT DOOR OR CENTERLINE OF PLUMBING FIXTURES.
3.	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.
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7.	FLOORS SHALL SLOPE TO FLOOR DRAINS. SLOPES SHALL COMPLY WITH ADA ACCESSIBILITY GUIDELINES.
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9.	REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
10.	STUD WALL CONTRACTOR SHALL PROVIDE IN-WALL BLOCKING FOR WALL MOUNTED OWNER PROVIDED AND CONTRACTOR PROVIDED ITEMS REPRESENTED WITHIN THE DRAWINGS AND SPECIFICATIONS.
11.	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)
12.	EACH EXTERIOR STUD WALL ACROSS THE ENTIRETY OF THE BUILDING IS TO RECEIVE A MINIMUM R-19 BATT INSULATION.
13.	SEE STRUCTURAL DRAWINGS FOR INFORMATION REGARDING CMU AND CAST-IN-PLACE WALLS.
14.	IT IS THE GENERAL DESIGN INTENT THAT ALL NEW WALLS ALIGN WITH THE FACE OF EXISTING ADJACENT WALL CONSTRUCTION.



1 Floor Plan
2nd Floor - Dimension Plan
A1.02A 1/8" = 1'-0"

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



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2nd Floor Dimension Plan

A1.02A

GENERAL FINISH NOTES

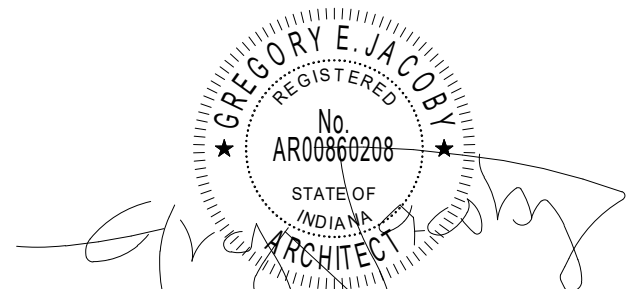
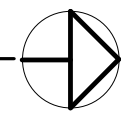
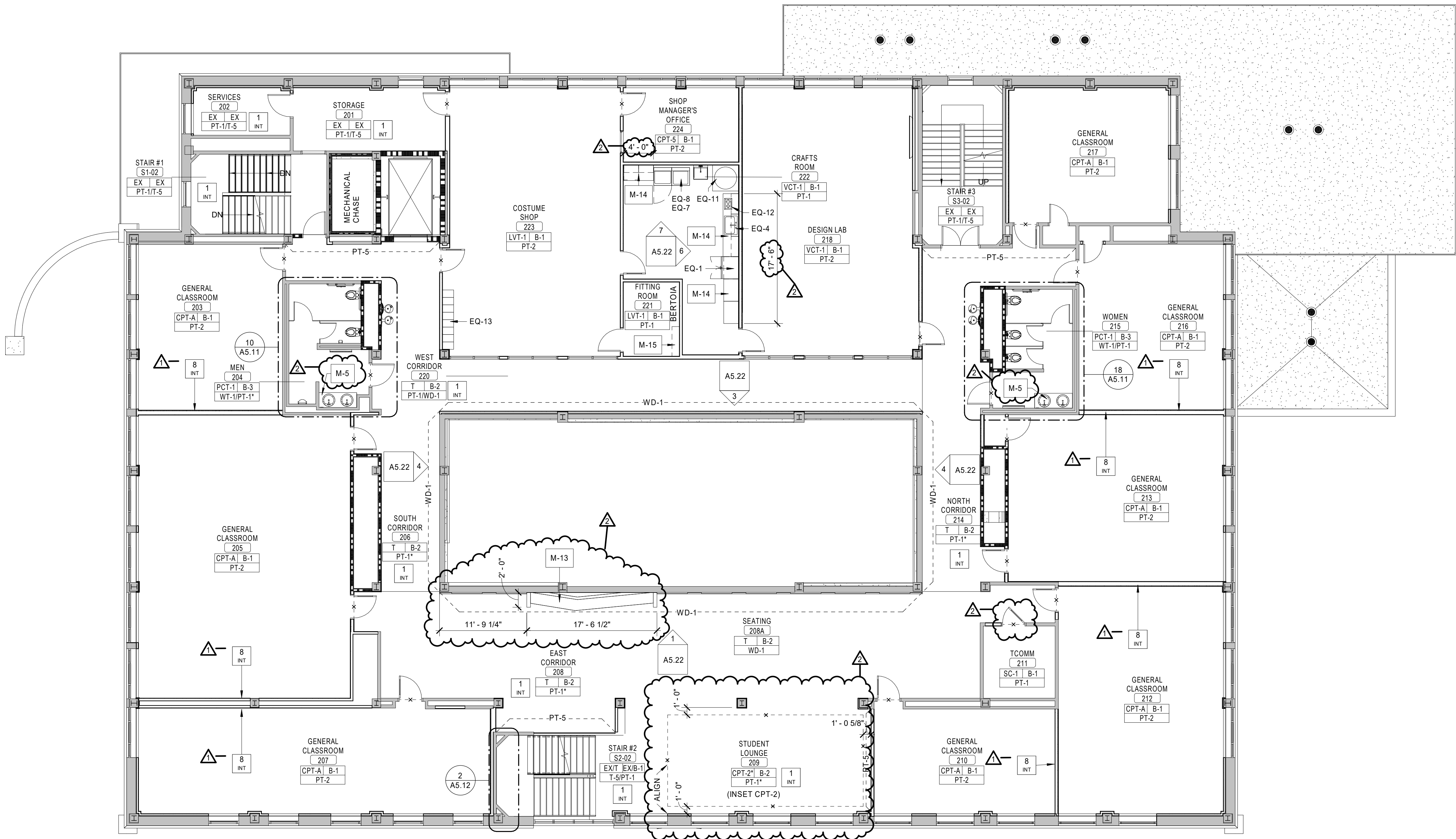
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CODING INTERIOR NOTES

NO.	NOTE
1	REFERENCE TERRAZZO PLANS.
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3	CASEWORK IS EXISTING TO REMAIN.
4	ELECTRONIC EQUIPMENT WRACKS ARE EXISTING TO REMAIN.
5	EQUIPMENT, STAGE LIFT. SEE SPECIFICATIONS.
6	RAMP.
7	PAINTED MASONRY. USE MANUFACTURER'S RECOMMENDED FINISH FOR HIGH TRAFFIC AREAS.
8	WHITE BOARD: CLARUS - FLOAT - 4' X 8' - PURE WHITE, T-TRAY AND MAGNETIC. INSTALL: 3'-0" AFF TO BOTTOM OF BOARD. BOARDS MUST BE CENTERED ON WALL.

SYMBOL LEGEND

1 INT	CODING NOTE: SEE SCHEDULE ON THIS SHEET
PT-1	MATERIAL FINISH NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
M-1	MILLWORK NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
EQ-1	EQUIPMENT NOTE. SEE SHEET A5.02 OF DRAWINGS FOR DETAIL.
---	TRANSITION LOCATION MARKER, SHOWS TRANSITION BETWEEN FLOOR MATERIAL. SEE DETAILS ON PAGE A5.20.
ROOM NAME	ROOM TAG WITH FINISHES. (1) INDICATES MORE THAN ONE FINISH IN THAT AREA. SEE PLAN/NOTES FOR DETAILS. FLOORING (F) REFERENCE TERRAZZO PLANS.
Floor	
Base	
Wall Finish	



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

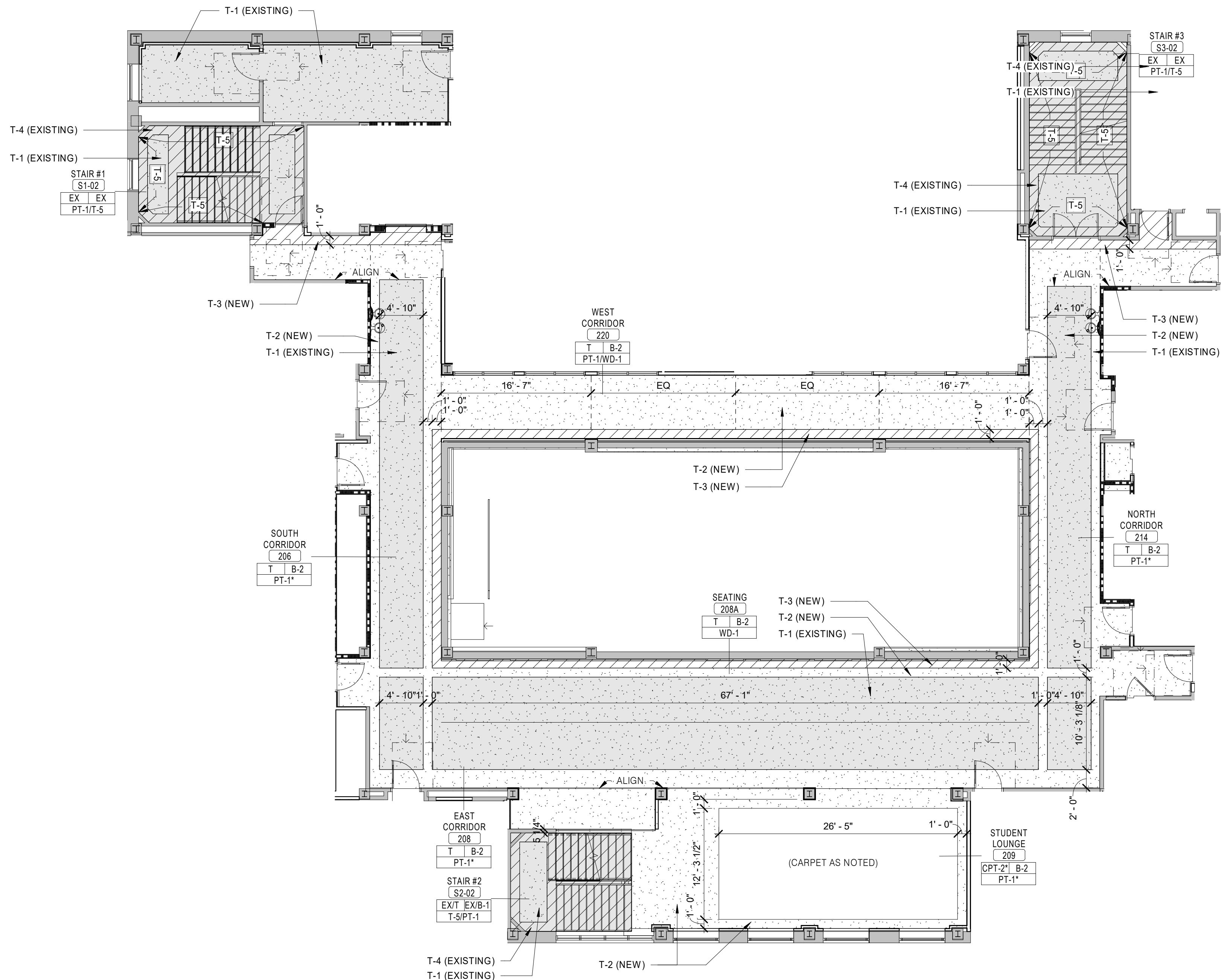
Terre Haute, Indiana 47809

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

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

2nd Floor Finish Plan

A1.02C



1

Finish Plans

2nd Floor - Terrazzo Plan

A1.02D

1" = 1'-0"

TERRAZZO LEGEND		
HATCH PATTERN	DESCRIPTION	COMMENTS
	T-4: EXISTING BORDER (MAROON)	CLEAN, PATCH AND REPAIR AS NEEDED.
	T-1: EXISTING FIELD (CREAM)	CLEAN, PATCH AND REPAIR AS NEEDED.
	T-3: NEW BORDER, COLOR TO BE SELECTED BY ARCHITECT. DIVIDER STRIPS TO MATCH EXISTING PATTERN AND COLOR.	
	T-2: NEW FIELD, COLOR TO SELECTED BY ARCHITECT. DIVIDER STRIPS TO MATCH EXISTING FIELD PATTERN AND COLOR.	
	NEW DIVIDER STRIP WHERE EXISTING PATTERN CAN NOT BE MATCHED.	
	EXISTING TERRAZZO WALL PANEL TO REMAIN.	CLEAN, PATCH AND REPAIR AS NEEDED.

- GENERAL FINISH NOTES
1. REFER TO FINISH PLAN, ROOM FINISH SCHEDULE, INTERIOR ELEVATIONS, AND REFLECTED CEILING PLANS FOR FINISH INFORMATION.

2. MATERIAL INFORMATION IS GIVEN WHEREVER POSSIBLE ON THE INTERIOR SHEETS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT SO THAT THE CORRECT MATERIAL IS INSTALLED.

3. REFER TO THE SPECIFICATIONS FOR EACH MATERIAL SELECTION.

4. ALL MATERIALS ARE TO BE INSTALLED USING THE MANUFACTURER'S RECOMMENDED ADHESIVES.

5. GYP. BD. WALLS AND SOFFITS TO RECEIVE A LEVEL FOUR (4) FINISH UNLESS NOTED OTHERWISE.

6. WALLS ARE TO BE PAINTED [PT-1] UNLESS NOTED OTHERWISE.

7. GYP. BD. BULKHEADS AND CEILINGS ARE TO BE PAINTED [PT-7] UNLESS NOTED OTHERWISE.

8. BULKHEADS, SOFFITS, AND FUR-DOWNS ARE TO BE FINISHED WITH THE SAME MATERIAL AND/OR COLOR ON ALL FACES AS SPECIFIED UNLESS NOTED OTHERWISE.

9. THERE SHALL NOT BE PAINT CONDITIONS THAT OCCUR CAUSING FINISH OR COLOR TO CHANGE ON AN OUTSIDE CORNER UNLESS NOTED OTHERWISE. IF THIS CONDITION OCCURS BRING THIS TO THE ARCHITECT'S ATTENTION IMMEDIATELY.

10. INTERIOR EXPOSED STEEL OR CONCRETE STRUCTURAL COLUMNS AND FRAMING ARE TO BE PAINTED UNLESS OTHERWISE NOTED. ARCHITECT TO SELECT COLOR FROM MANUFACTURER'S FULL RANGE.

11. FIRE RESISTANT RATED INTUMESCENT PAINT FINISH EXPOSED WITHIN A ROOM IS TO HAVE A SMOOTH FINISH AND RECEIVE A FINAL PAINT COLOR SELECTED BY THE ARCHITECT.

12. EXPOSED CMU, WHICH DOES NOT HAVE A SPECIAL FINISH, INTEGRAL COLOR OR DECORATIVE FACE, IS TO BE PAINTED ULESS NOTED OTHERWISE.

13. WALL GRILLES, CEILING DIFFUSERS, AND FIRE EXTINGUISHER CABINETS ARE TO BE FINISHED IN THE SAME MATERIAL AS THE ADJACENT WALL MATERIAL.

14. METAL TRIM PIECE TO OCCUR AT ALL TILED WALL OUTSIDE CORNERS.

15. PROVIDE FRP AT SINKS IN JANITOR CLOSETS FROM FLOOR TO 6" ABOVE FAUCETS AND ON ADJACENT WALLS.

16. TRANSITIONS, REDUCER STRIPS, AND THRESHOLDS TO BE LOCATED AT CENTERLINE OF DOOR WHEN IN CLOSED POSITION. SEE DETAILS ON TRANSITIONS ON PAGE A5.20.

17. ALIGN FLOORING TRANSITIONS WITH FINISH BASE EXCEPT AT DOORS UNLESS NOTED OTHERWISE.

18. FLOORING MATERIAL SHALL BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION. TRANSITIONS, IF NEEDED, ARE ALSO TO BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION.

19. CARPET SEAMS TO BE LOCATED AT CENTERLINE OF DOOR IN CLOSED POSITION.

20. CARPET TILE INSTALLATION NOTED IN FINISH LEGEND ON PAGE A5.02.

21. FLOORING TO BE INSTALLED PERPENDICULAR TO ROOM WALLS UNLESS NOTED OTHERWISE.

22. RUBBER TRANSITIONS AND METAL TRANSITIONS TO OCCUR BETWEEN DIFFERENT MATERIALS AND ARE TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF PRODUCTS.

23. PROVIDE CRACK ISOLATION MEMBRANE AT ALL CERAMIC FLOORING. FLOORING CONTRACTOR TO COORDINATE WITH SPECIFICATIONS.

24. WALL AND FLOOR GROUT COLORS TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL COLOR RANGE.

25. GROUT WIDTHS TO BE MANUFACTURER'S RECOMMENDED MINIMUM WIDTH UNLESS NOTED OTHERWISE.

26. REQUIRED FLOORING UNDERLAYMENTS ARE TO BE PROVIDED AND INSTALLED BY THE FLOORING CONTRACTOR.

27. TERRAZZO STRIPS SHOULD BE AT ALL BREAKS OR SAW CUTS IN SUPPORTING SLAB. ARCHITECTS APPROVAL NEEDED BEFORE FABRICATION.



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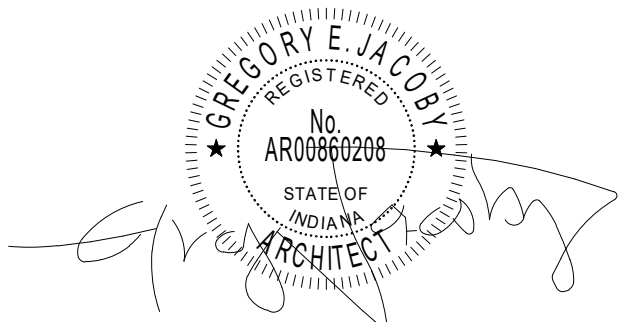
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Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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REVISION SCHEDULE		
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2	Addendum #2	6/19/2020

2nd Floor Terrazzo Plan

A1.02D

CODED FF&E NOTE	
NO.	NOTE



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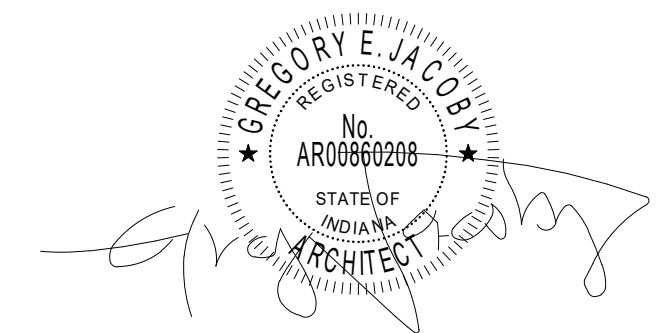
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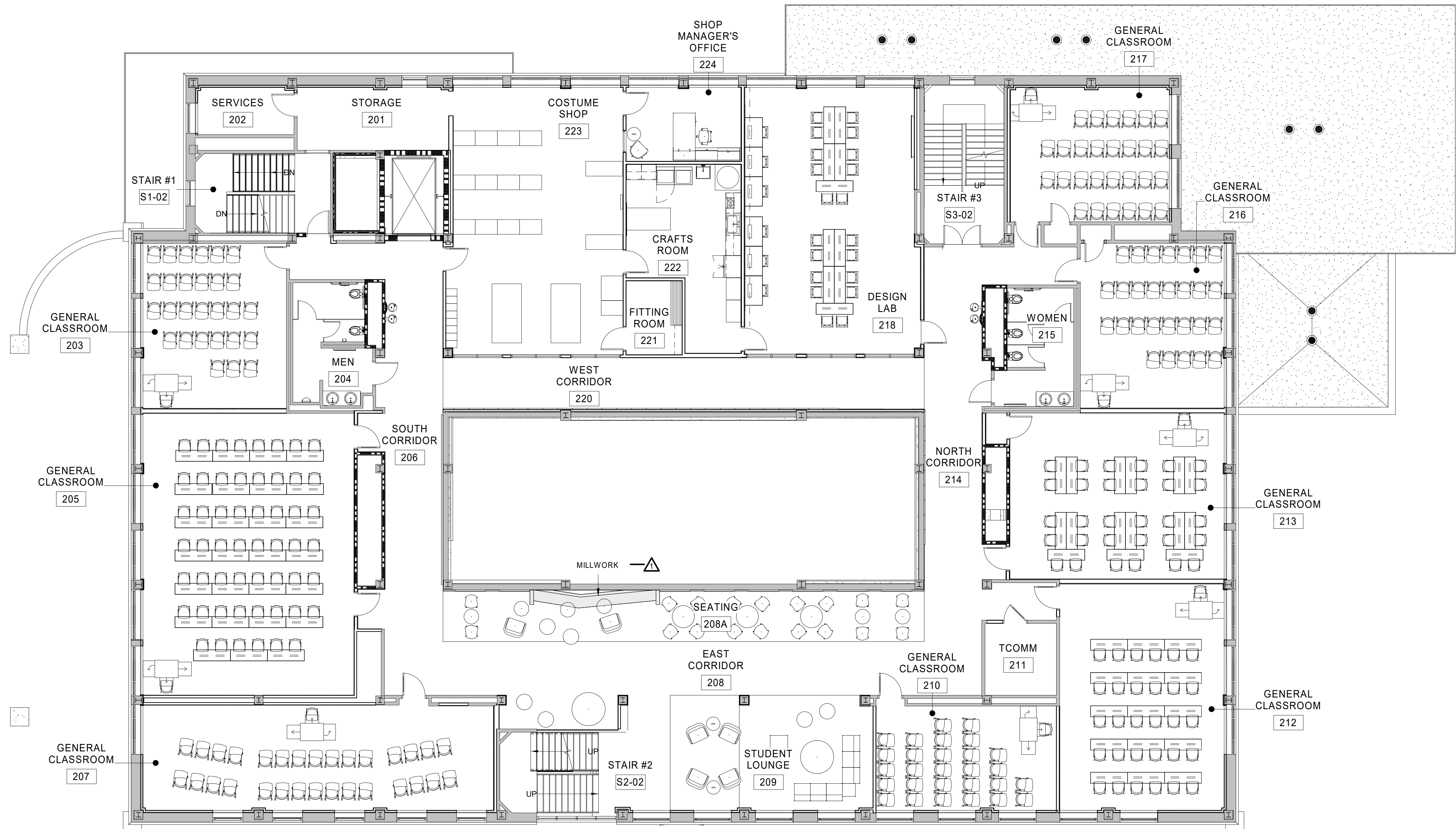
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2nd Floor Furniture Plan

A1.02E



*FURNITURE PLAN FOR REFERENCE ONLY

1

A1.02E

1" = 1'-0"

2nd Floor - Furniture Plan

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CODED BUILDING DIMENSION NOTES	
NO.	NOTE
1	ALIGN FINISH FACE OF NEW WALL WITH FINISH FACE OF EXISTING ADJACENT WALL OR COLUMN
2	INFILL OR EXTEND WALL WITH LIKE MATERIAL(S). ALIGN FINISH WALL SURFACE(S) OF INFILL WITH FACE OF EXISTING FINISH FACE(S)
3	WALL CENTERED ON NEW OR EXISTING COLUMN WRAP
6	STAINLESS STEEL / GLASS RAILING SYSTEM

GENERAL PLAN NOTES	
1.	DO NOT SCALE DRAWINGS.
2.	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 LATCH/HINGE OF ADJACENT DOOR OR CENTERLINE OF PLUMBING FIXTURES.
3.	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.
4.	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.
5.	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.
6.	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.
7.	FLOORS SHALL SLOPE TO FLOOR DRAINS. SLOPES SHALL COMPLY WITH ADA ACCESSIBILITY GUIDELINES.
8.	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.
9.	REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
10.	STUD WALL CONTRACTOR SHALL PROVIDE IN-WALL BLOCKING FOR WALL MOUNTED OWNER PROVIDED AND CONTRACTOR PROVIDED ITEMS REPRESENTED WITHIN THE DRAWINGS AND SPECIFICATIONS.
11.	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)
12.	EACH EXTERIOR STUD WALL ACROSS THE ENTIRETY OF THE BUILDING IS TO RECEIVE A MINIMUM R-19 BATT INSULATION.
13.	SEE STRUCTURAL DRAWINGS FOR INFORMATION REGARDING CMU AND CAST-IN-PLACE WALLS.
14.	IT IS THE GENERAL DESIGN INTENT THAT ALL NEW WALLS ALIGN WITH THE FACE OF EXISTING ADJACENT WALL CONSTRUCTION.



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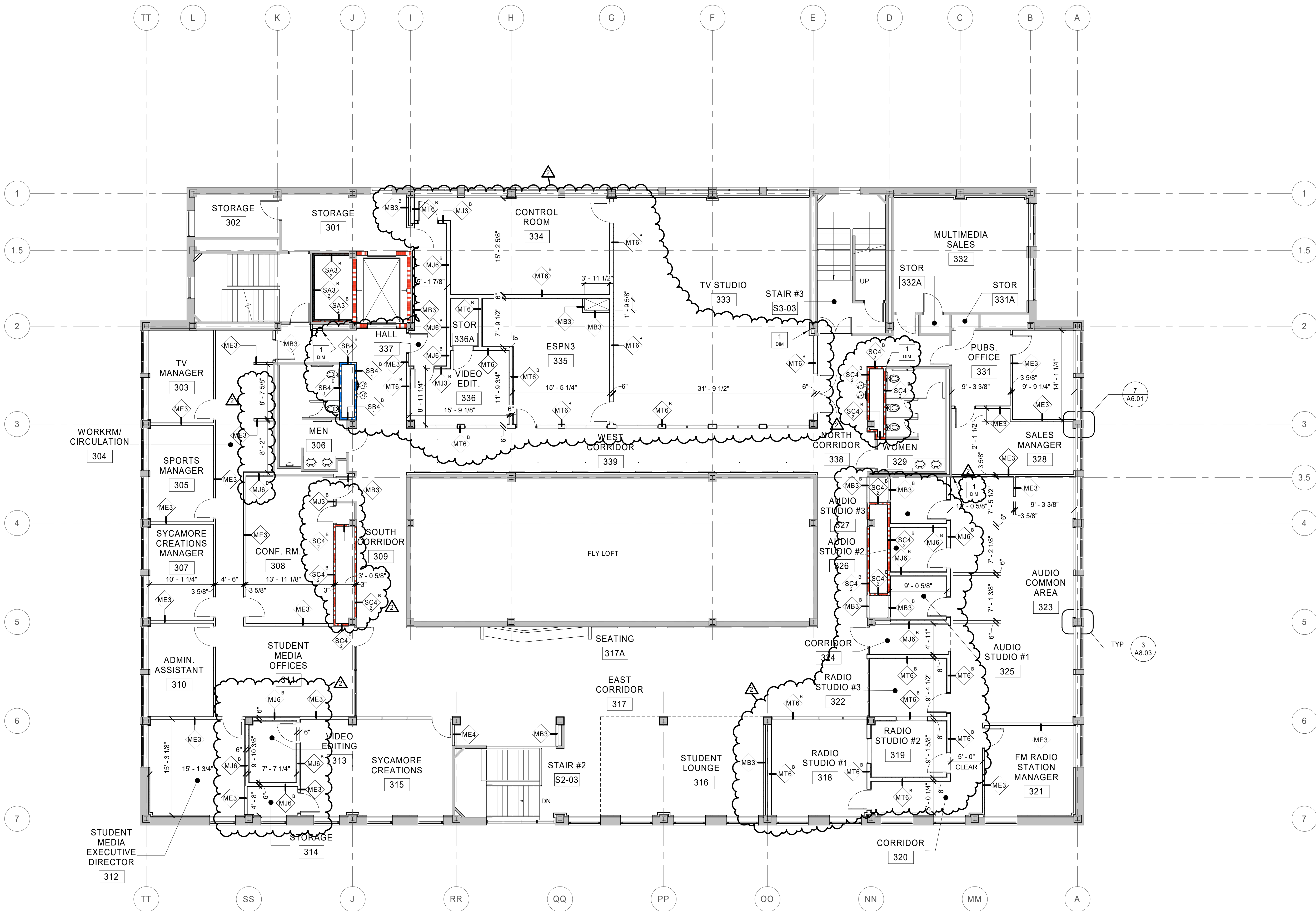
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3rd Floor Dimension Plan

A1.03A



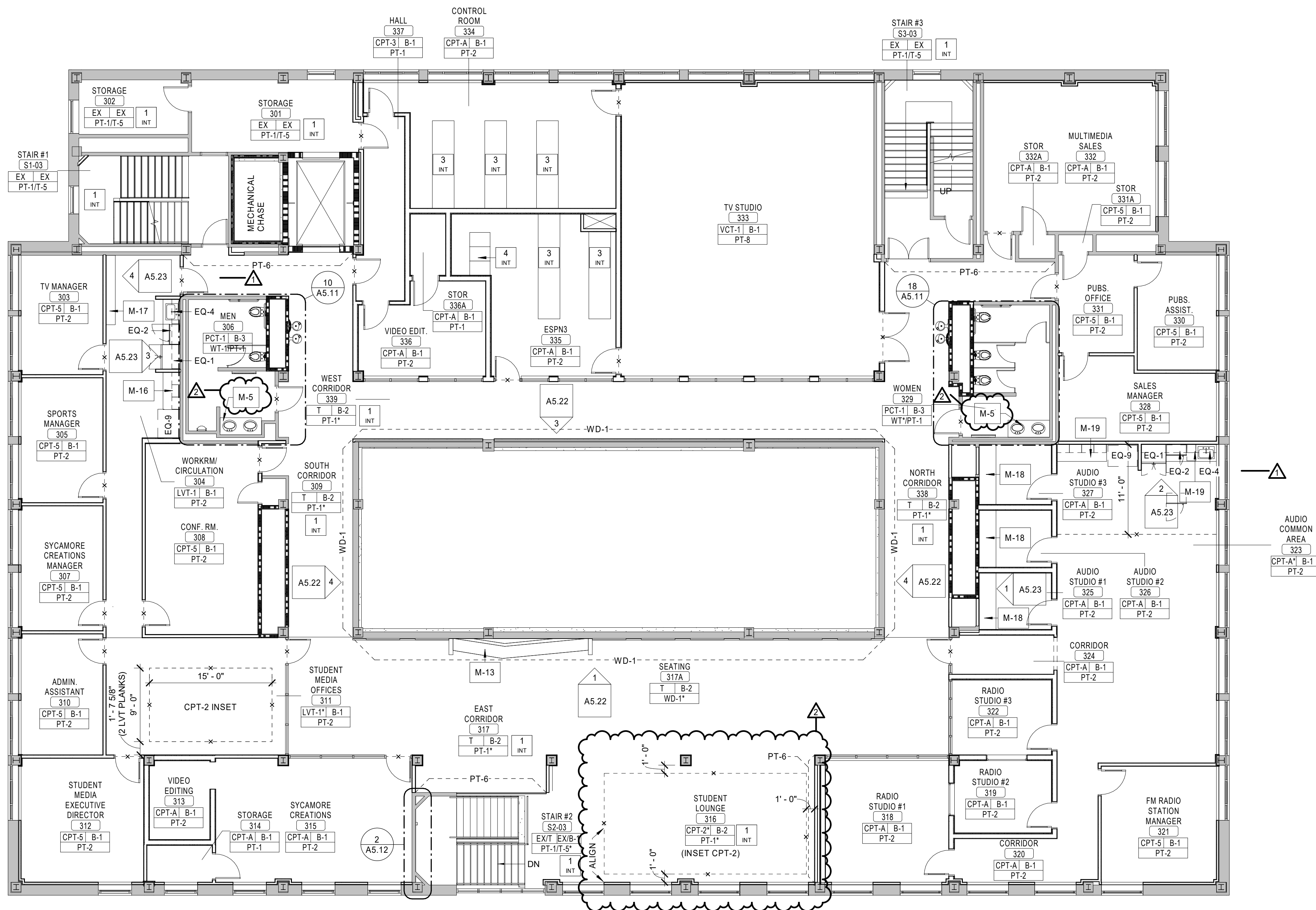
1 Floor Plan
TV Studio Column Detail
A1.03A 1/8" = 1'-0"

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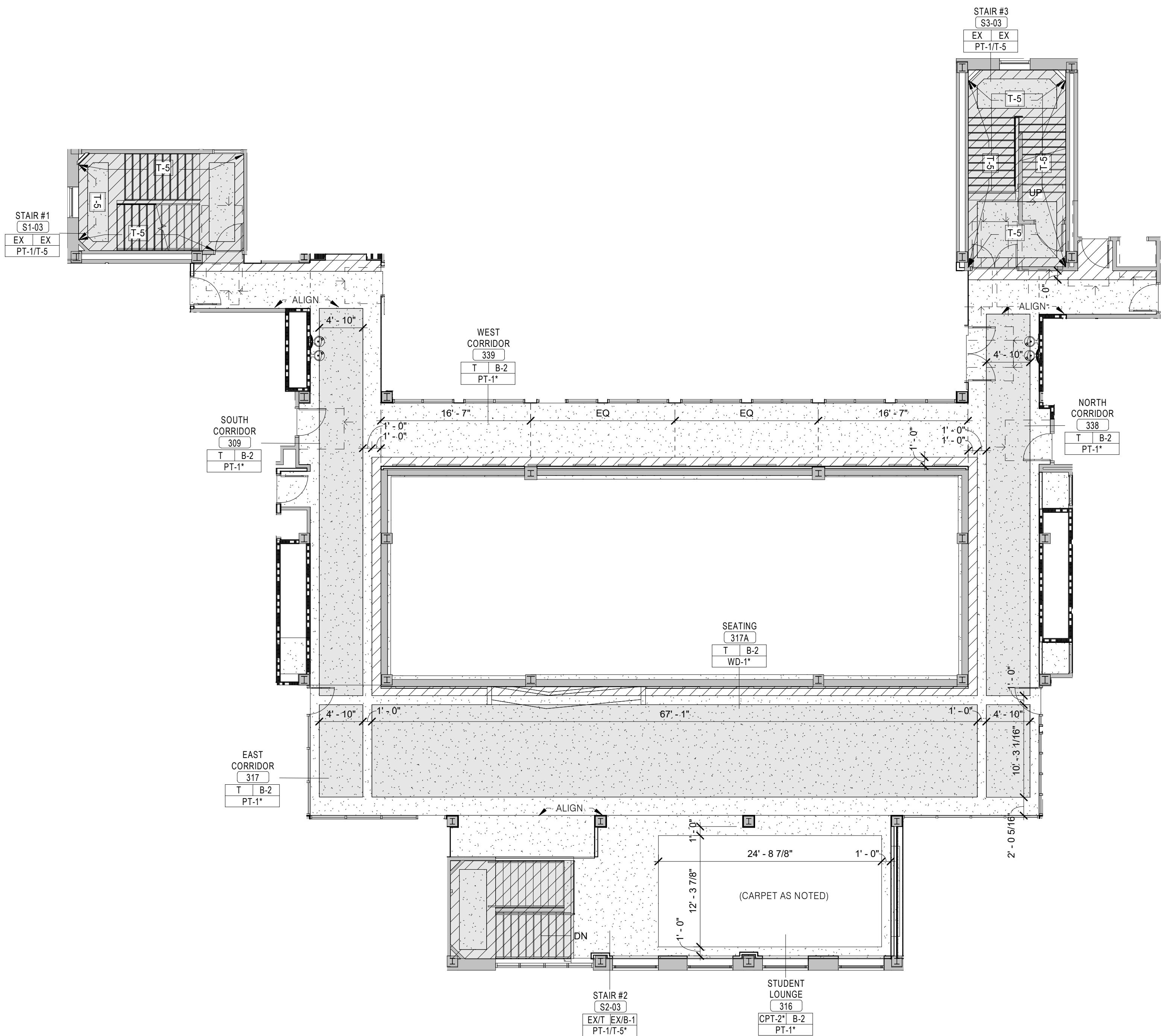
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GENERAL FINISH NOTES

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5. GYP. BD. WALLS AND SOFFITS TO RECEIVE A LEVEL FOUR (4) FINISH UNLESS NOTED OTHERWISE.
6. WALLS ARE TO BE PAINTED [PT-1] UNLESS NOTED OTHERWISE.
7. GYP. BD. BULKHEADS AND CEILINGS ARE TO BE PAINTED [PT-7] UNLESS NOTED OTHERWISE.
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9. THERE SHALL NOT BE PAINT CONDITIONS THAT OCCUR CAUSING FINISH OR COLOR TO CHANGE ON AN OUTSIDE CORNER UNLESS NOTED OTHERWISE. IF THIS CONDITION OCCURS BRING THIS TO THE ARCHITECT'S ATTENTION IMMEDIATELY.
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16. TRANSITIONS, REDUCER STRIPS, AND THRESHOLDS TO BE LOCATED AT CENTERLINE OF DOOR WHEN IN CLOSED POSITION. SEE DETAILS ON TRANSITIONS ON PAGE A5.20.
17. ALIGN FLOORING TRANSITIONS WITH FINISH BASE EXCEPT AT DOORS UNLESS NOTED OTHERWISE.
18. FLOORING MATERIAL SHALL BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION. TRANSITIONS, IF NEEDED, ARE ALSO TO BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION.
19. CARPET SEAMS TO BE LOCATED AT CENTERLINE OF DOOR IN CLOSED POSITION.
20. CARPET TILE INSTALLATION NOTED IN FINISH LEGEND ON PAGE A5.02.
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1 Floor Plan
3rd Floor - Terrazzo Plan
A1.03D 1/8" = 1'-0"

TERRAZZO LEGEND		
HATCH PATTERN	DESCRIPTION	COMMENTS
	T-4: EXISTING BORDER (MAROON)	CLEAN, PATCH AND REPAIR AS NEEDED.
	T-1: EXISTING FIELD (CREAM)	CLEAN, PATCH AND REPAIR AS NEEDED.
	T-3: NEW BORDER, COLOR TO BE SELECTED BY ARCHITECT. DIVIDER STRIPS TO MATCH EXISTING PATTERN AND COLOR.	
	T-2: NEW FIELD, COLOR TO BE SELECTED BY ARCHITECT. DIVIDER STRIPS TO MATCH EXISTING FIELD PATTERN AND COLOR.	
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	EXISTING TERRAZZO WALL PANEL TO REMAIN.	CLEAN, PATCH AND REPAIR AS NEEDED.

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3rd Floor Terrazzo Plan

A1.03D

CODED FF&E NOTE	
NO.	NOTE



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200 North 7th Street
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VS Engineering
Structural Engineer

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RE Dimond
MEP Engineer

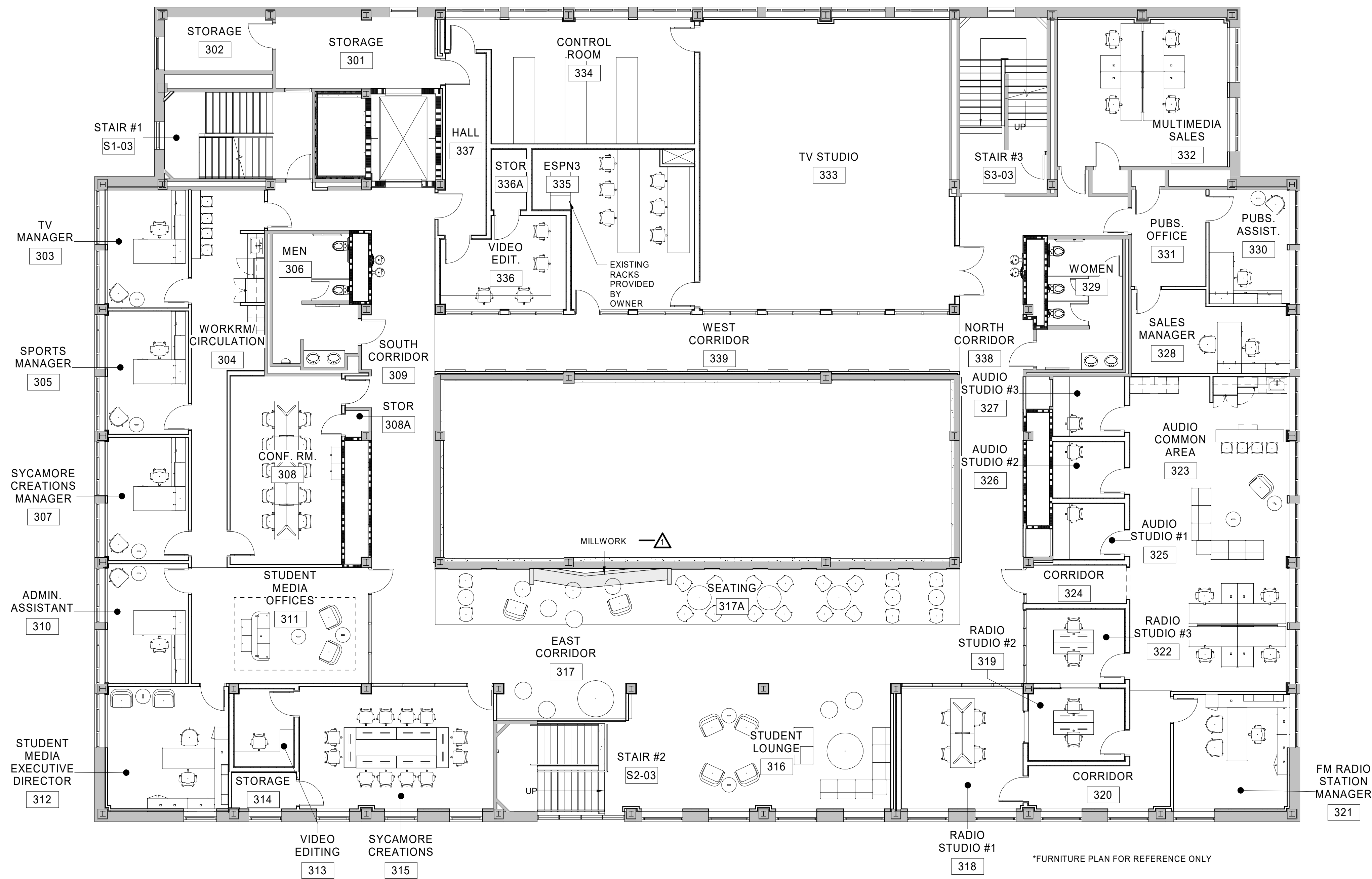
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Website: www.redimond.com

Design 27
Acoustical Engineer

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Myers Engineering, Inc.
Civil Engineer

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*FURNITURE PLAN FOR REFERENCE ONLY



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

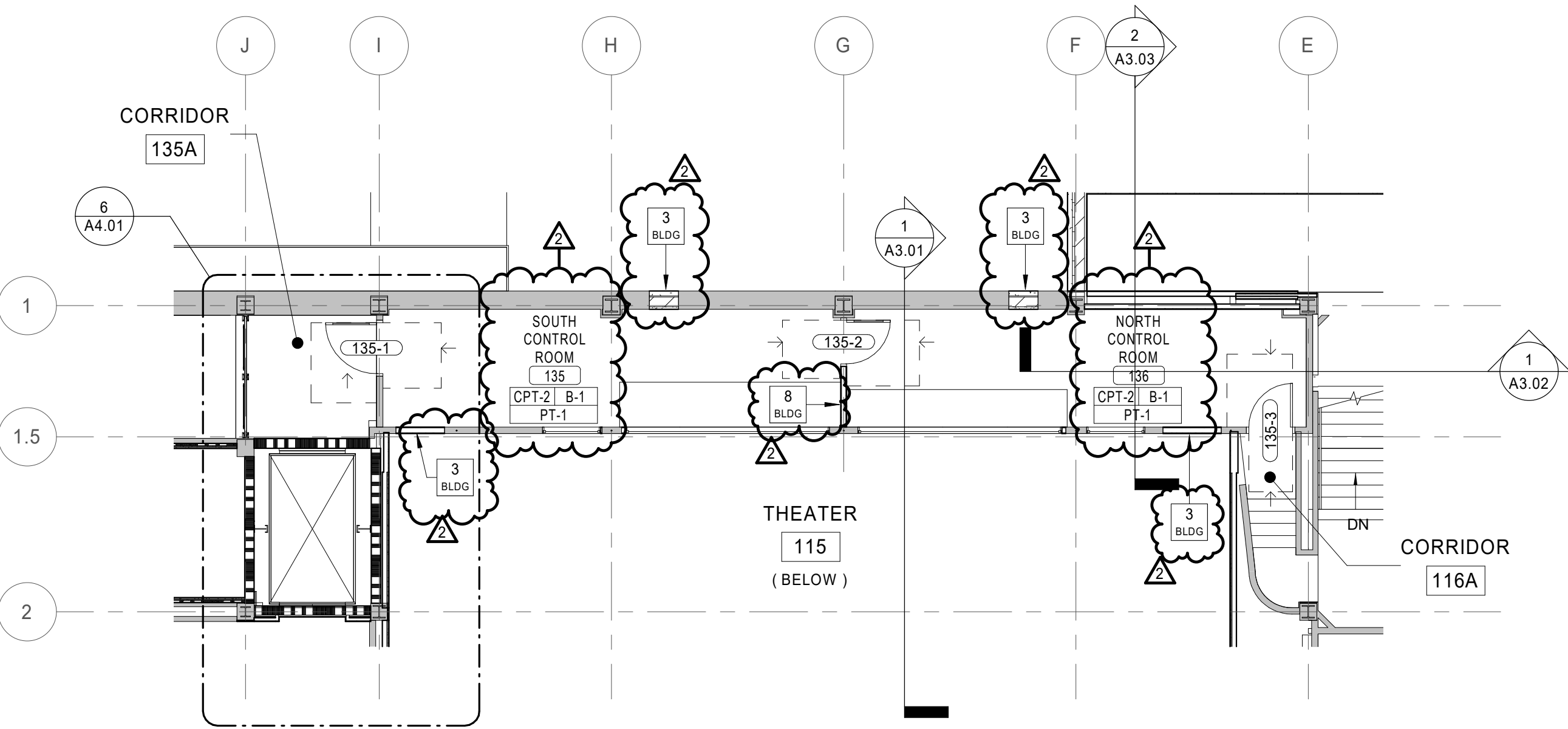
3rd Floor Furniture Plan

A1.03E

REVISION SCHEDULE		
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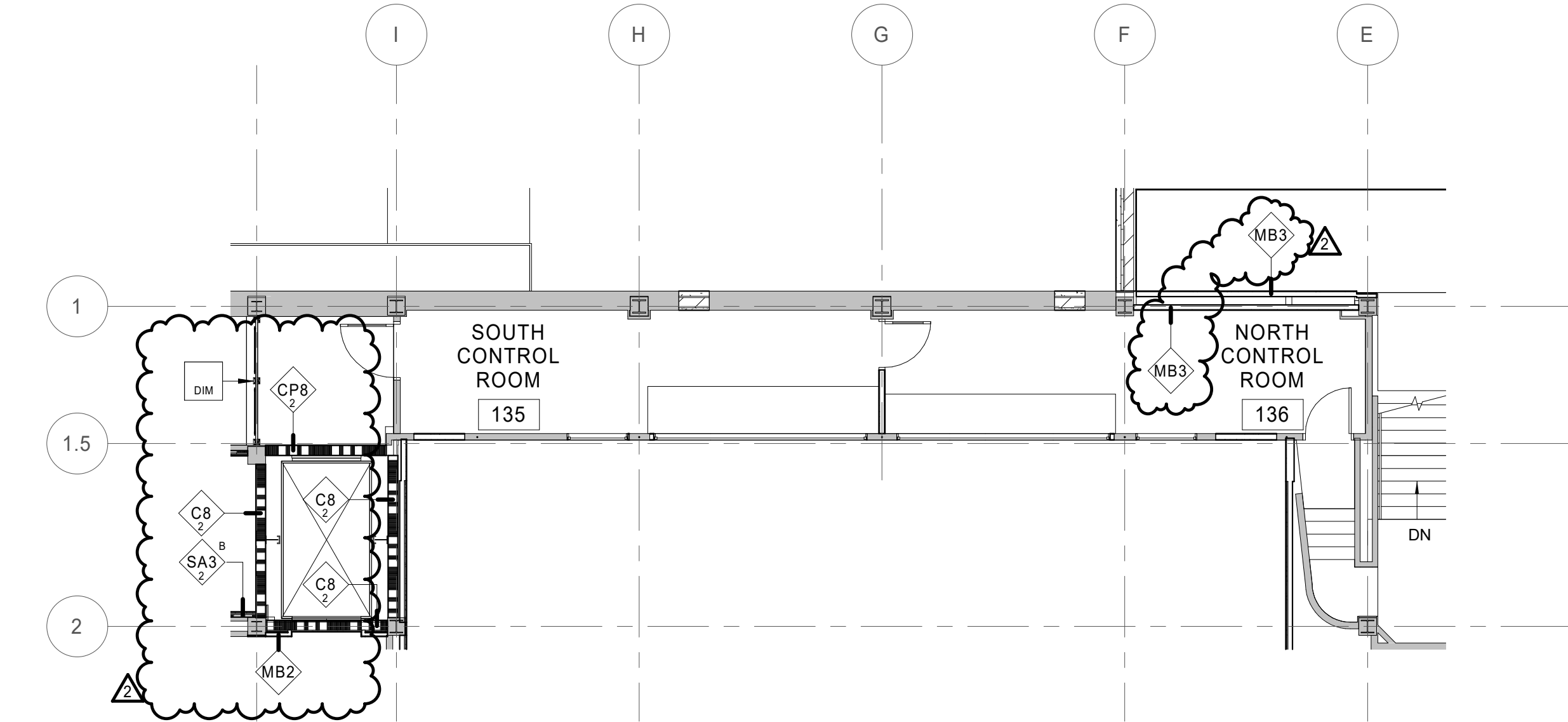
GENERAL PLAN NOTES

- 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.



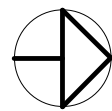
CODED BUILDING NOTES	
NO.	NOTE
1	EXISTING TERRAZZO STAIR - CLEAN, REPAIR AND POLISH TERRAZZO PER PROJECT SPECIFICATIONS. CLEAN, REPAIR AND POLISH ALL HANDRAILS AND ALL ASSOCIATED COMPONENTS (POSTS, BRACKETS, ETC.) PER PROJECT SPECIFICATIONS
2	ALTERNATE #8 - NEW HYDRAULIC MATERIALS LIFT. LIFT TO BE RECESSED 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	
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 S/A4.02
7	BUILT IN BENCH SEATING - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
8	
9	WOOD WALL PANEL SYSTEM - REFER TO FINISH PLANS FOR ADDITIONAL INFORMATION
10	DRINKING FOUNTAINS - REFER TO PLUMBING DRAWINGS
11	RELOCATED EXISTING FURNISHINGS / EQUIPMENT

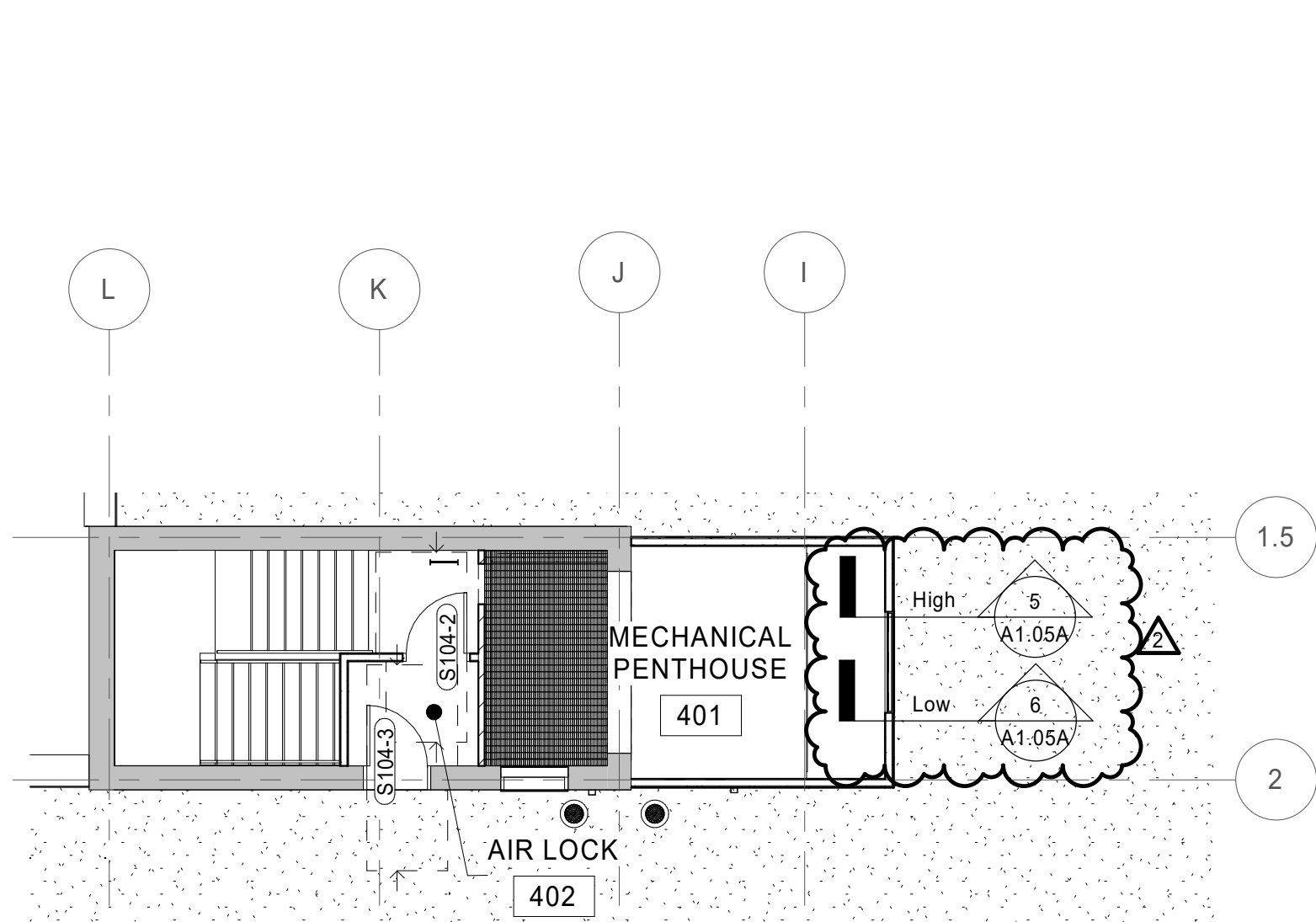
1 Floor Plan
Control Room - New
A1.04 1/8" = 1'-0"



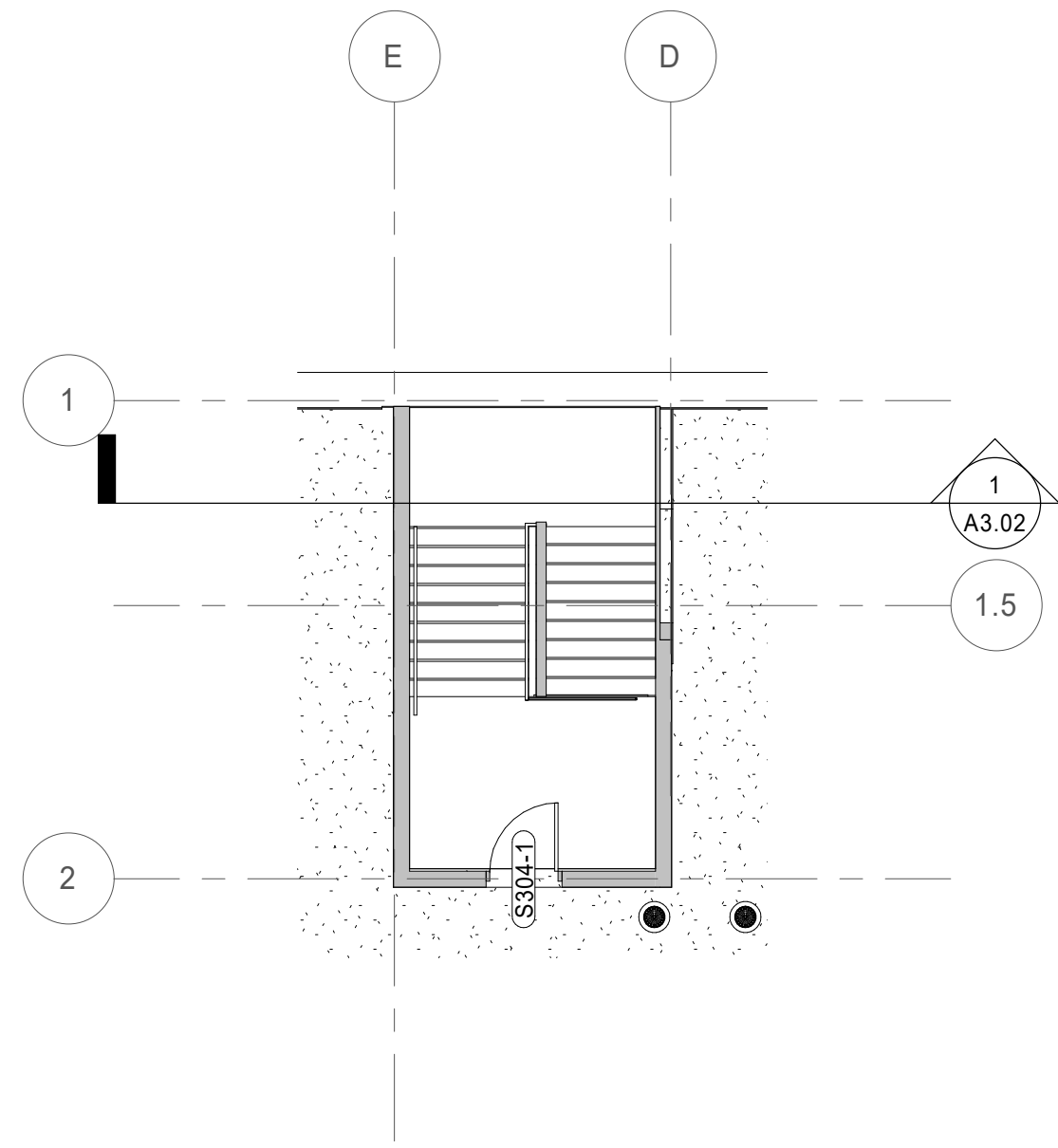
CODED BUILDING DIMENSION NOTES	
NO.	NOTE
1	ALIGN FINISH FACE OF NEW WALL WITH FINISH FACE OF EXISTING ADJACENT WALL OR COLUMN
2	INFILL OR EXTEND WALL WITH LIKE MATERIAL(S). ALIGN FINISH WALL SURFACE(S) OF INFILL WITH FACE OF EXISTING FINISH FACE(S)
3	WALL CENTERED ON NEW OR EXISTING COLUMN WRAP

2 Floor Plan
Control Room - Dimension Plan
A1.04 1/8" = 1'-0"

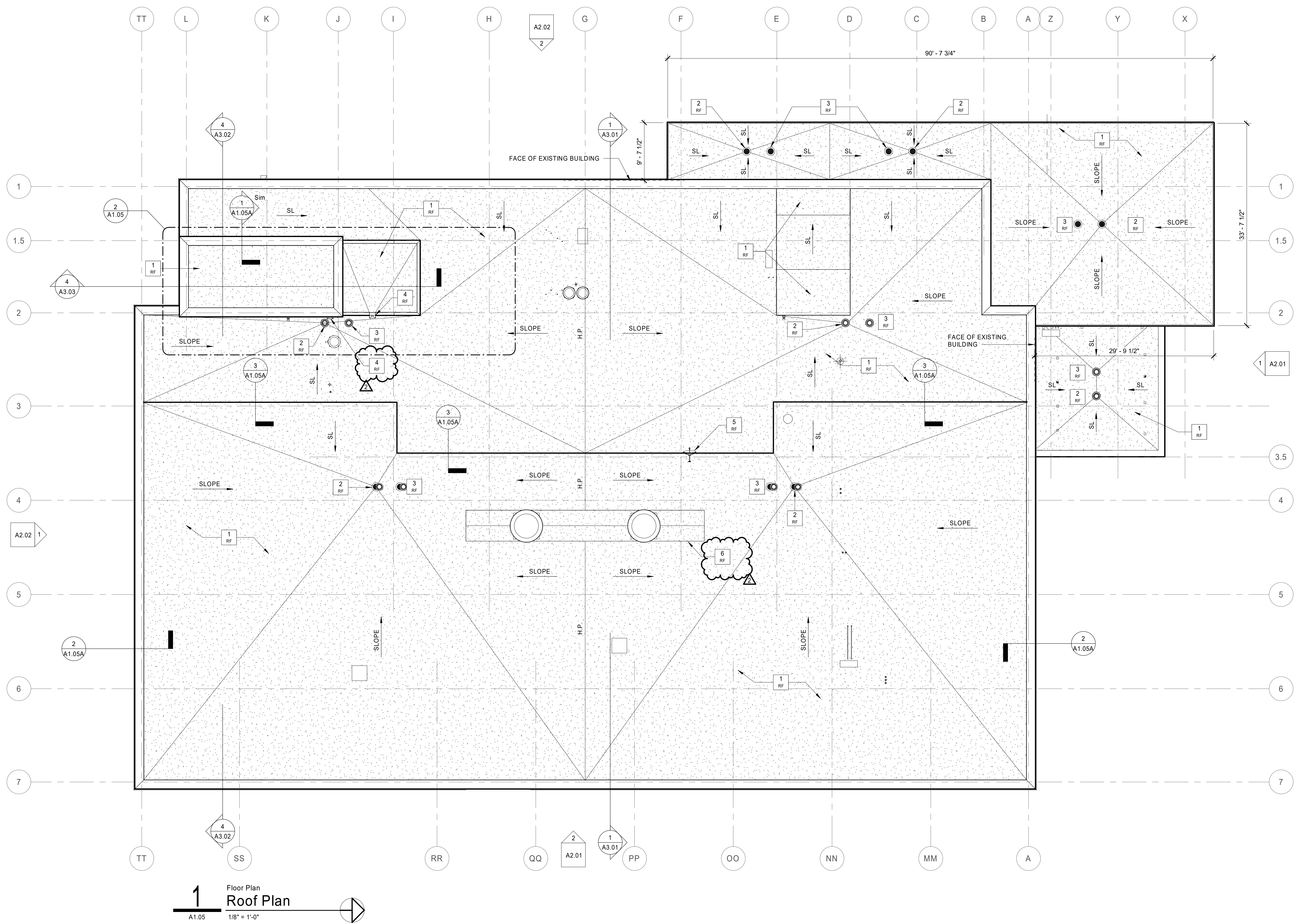




2 Floor Plan
Partial Lower Roof Plan
A1.05 1/8" = 1'-0"



3 Floor Plan
Partial Lower Roof Plan
A1.05 1/8" = 1'-0"



1 Floor Plan
Roof Plan
A1.05 1/8" = 1'-0"

GENERAL ROOF NOTES

- DO NOT SCALE DRAWINGS.
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- ROOFS SHALL SLOPE TO ROOF DRAINS.
- REFER TO SPECIFICATIONS FOR EACH ITEM REPRESENTED WITHIN THE DRAWING SET.
- CONTRACTOR TO PROVIDE SEALANT (COLORS TO BE SELECTED BY ARCHITECT) BETWEEN DISSIMILAR MATERIALS.
- NOT ALL MEP ROOF TOP ITEMS AND EQUIPMENT ARE REPRESENTED ON THE ARCHITECTURAL DRAWINGS. SEE MEP DRAWINGS FOR ADDITIONAL EQUIPMENT, COMPONENTS, AND DETAILING.

CODED ROOF NOTES

NO.	NOTE
1	NEW MEMBRANE ROOFING SYSTEM OVER TAPERED RIGID INSULATION
2	ROOF DRAIN - REFER TO PLUMBING DRAWINGS
3	OVERFLOW ROOF DRAIN - REFER TO PLUMBING DRAWINGS
4	NEW THROUGH WALL ROOF SCUPPER WITH LEADER AND DOWNSPOUT
5	RADIO TOWER AND ANTENNAS TO REMAIN
6	EXISTING PENTHOUSE / SMOKE VENT TO REMAIN

SYMBOL LEGEND

CODED NOTES OF VARYING TYPES: SEE SCHEDULES ON THIS SHEET

MATERIAL FINISH NOTE: SEE A6-SERIES OF DRAWINGS AND SPECIFICATIONS

WINDOW TAG: SEE A8-SERIES DRAWINGS



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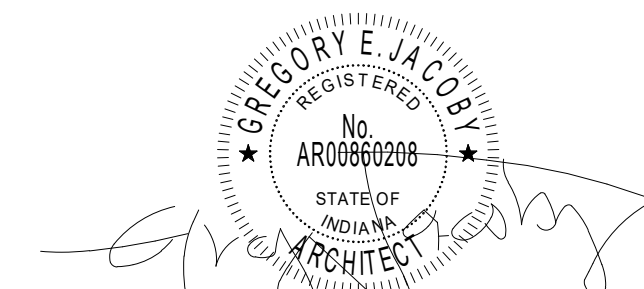
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Dreiser Hall Renovation

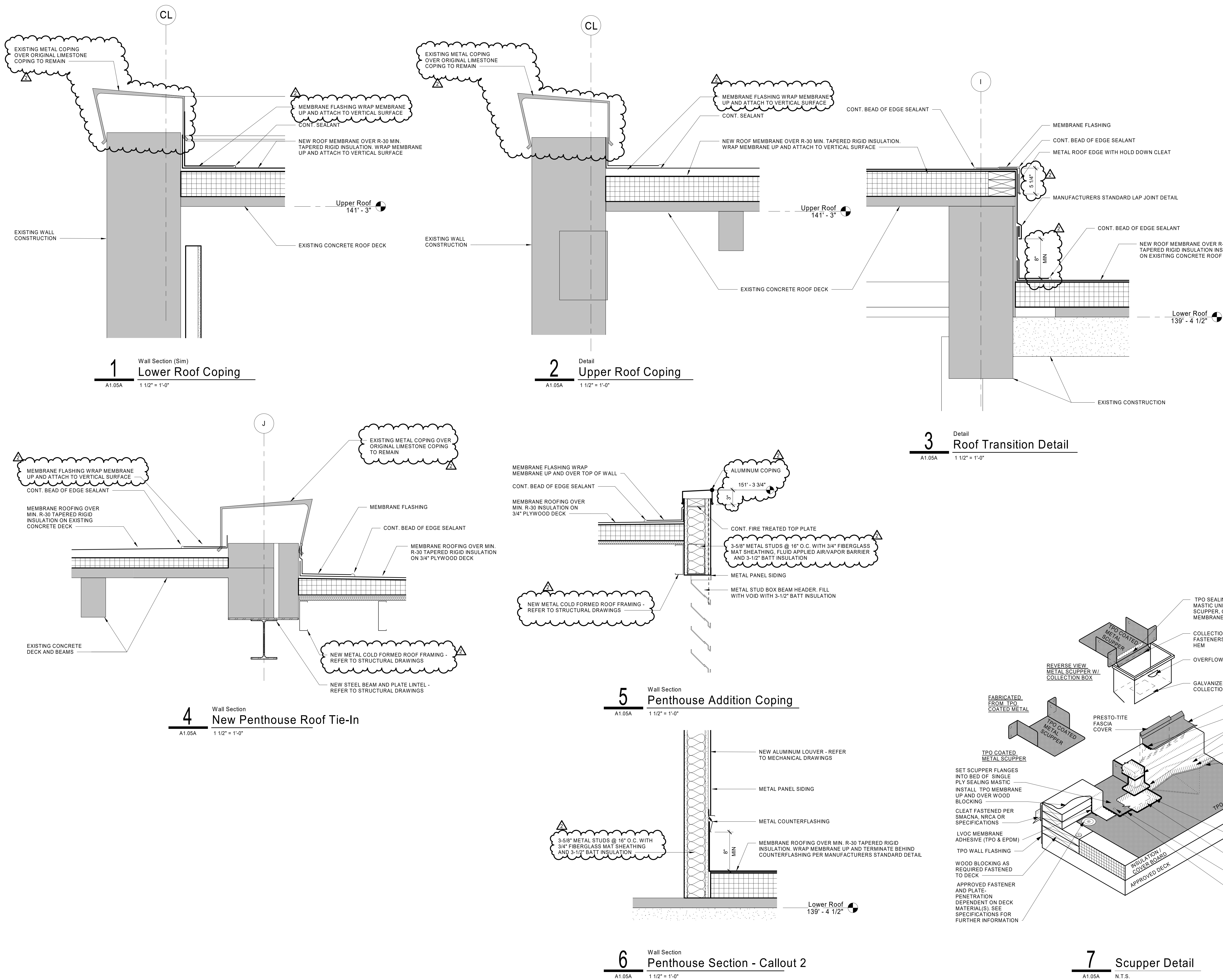
Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: J. Starneri
Checked By: Checker
Scale: See Drawing
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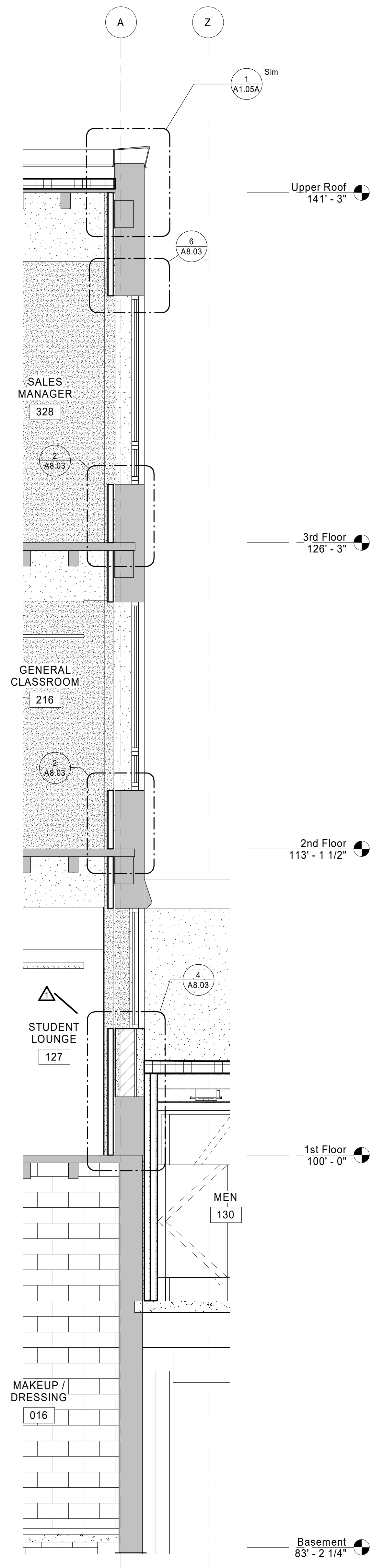
Roof Plans

A1.05

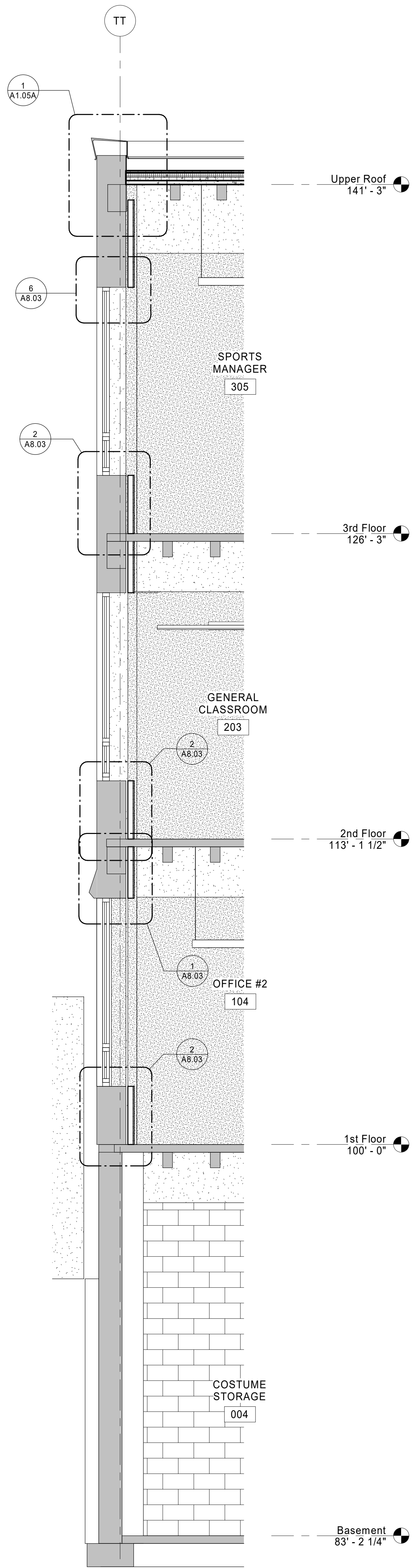


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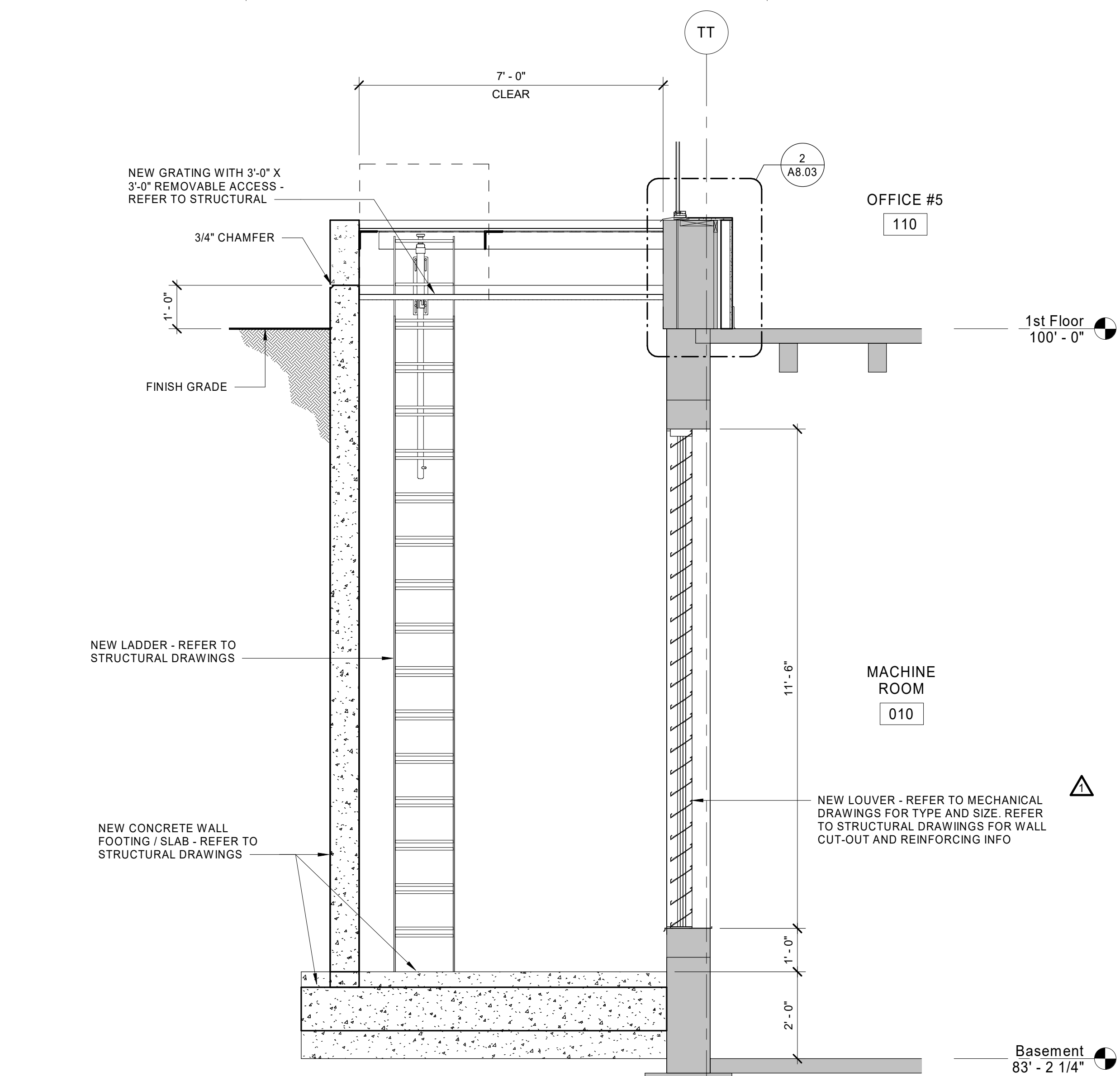
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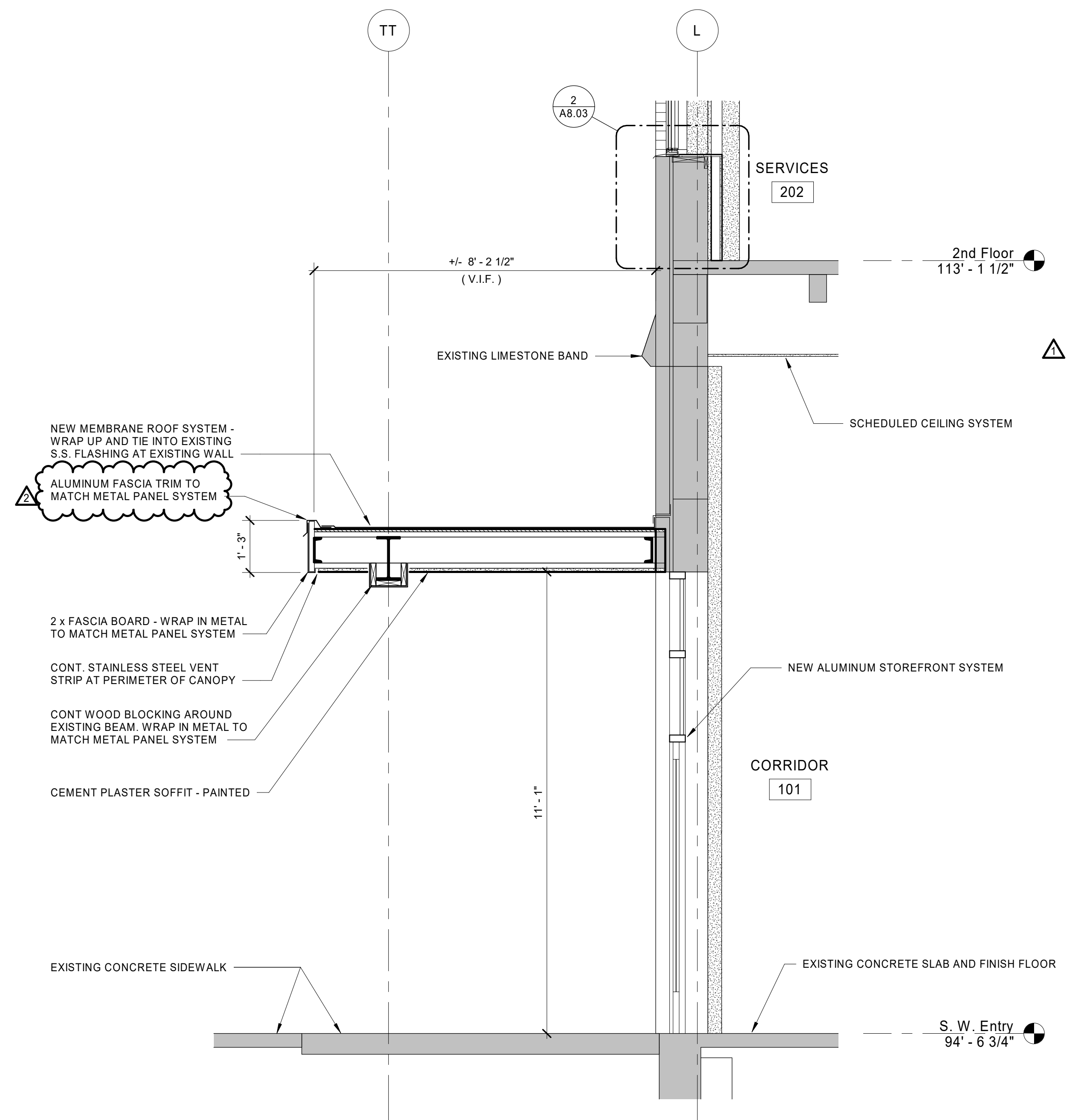
1 Wall Section
North Wall
A3.04 3/8" = 1'-0"



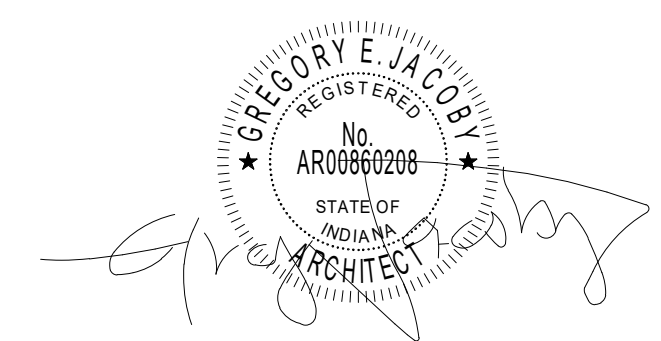
2 Wall Section
South Wall
A3.04 3/8" = 1'-0"



3 Wall Section
South Areaway Section
A3.04 1/2" = 1'-0"



4 Wall Section
Southwest Canopy Section
A3.04 1/2" = 1'-0"



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Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

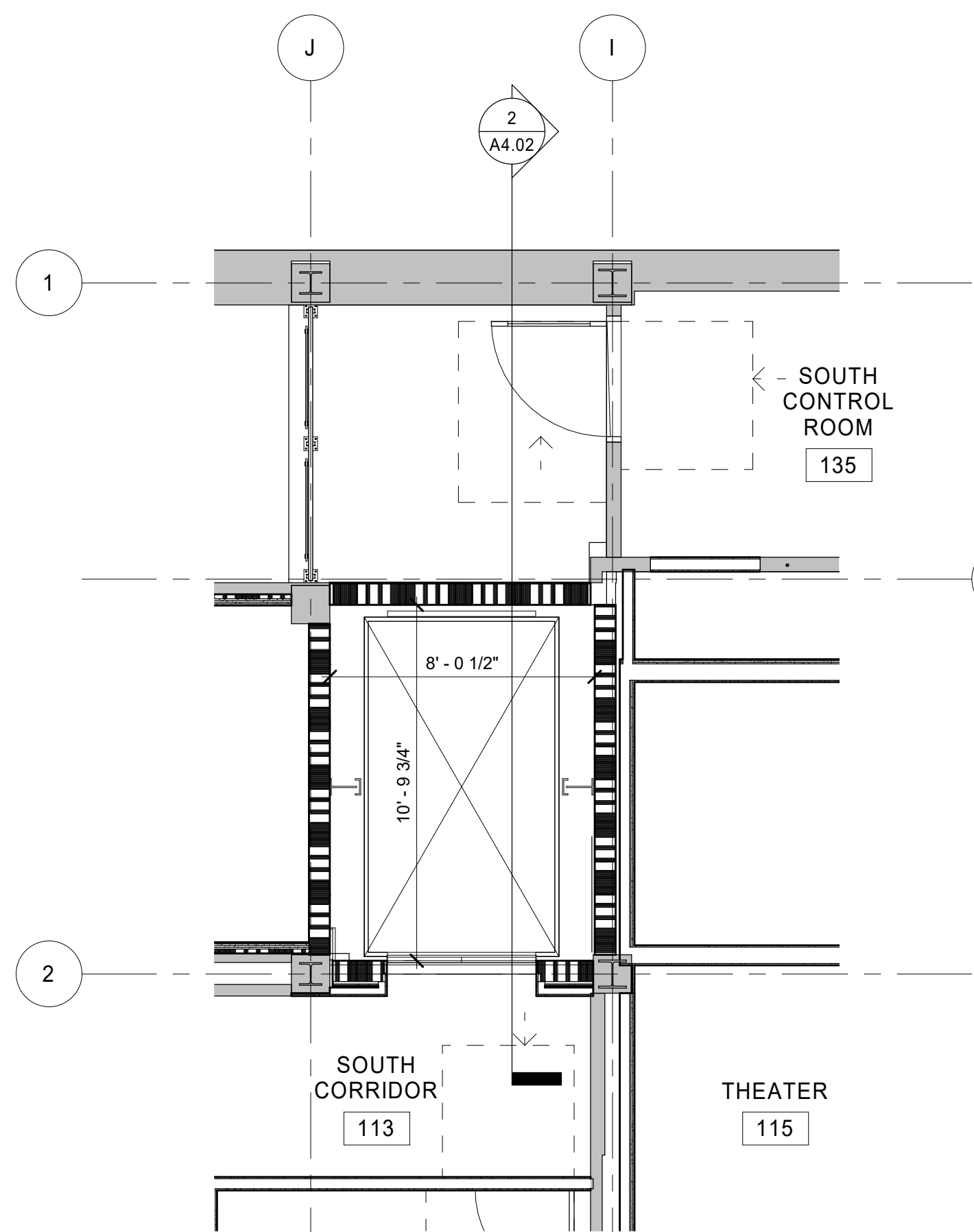
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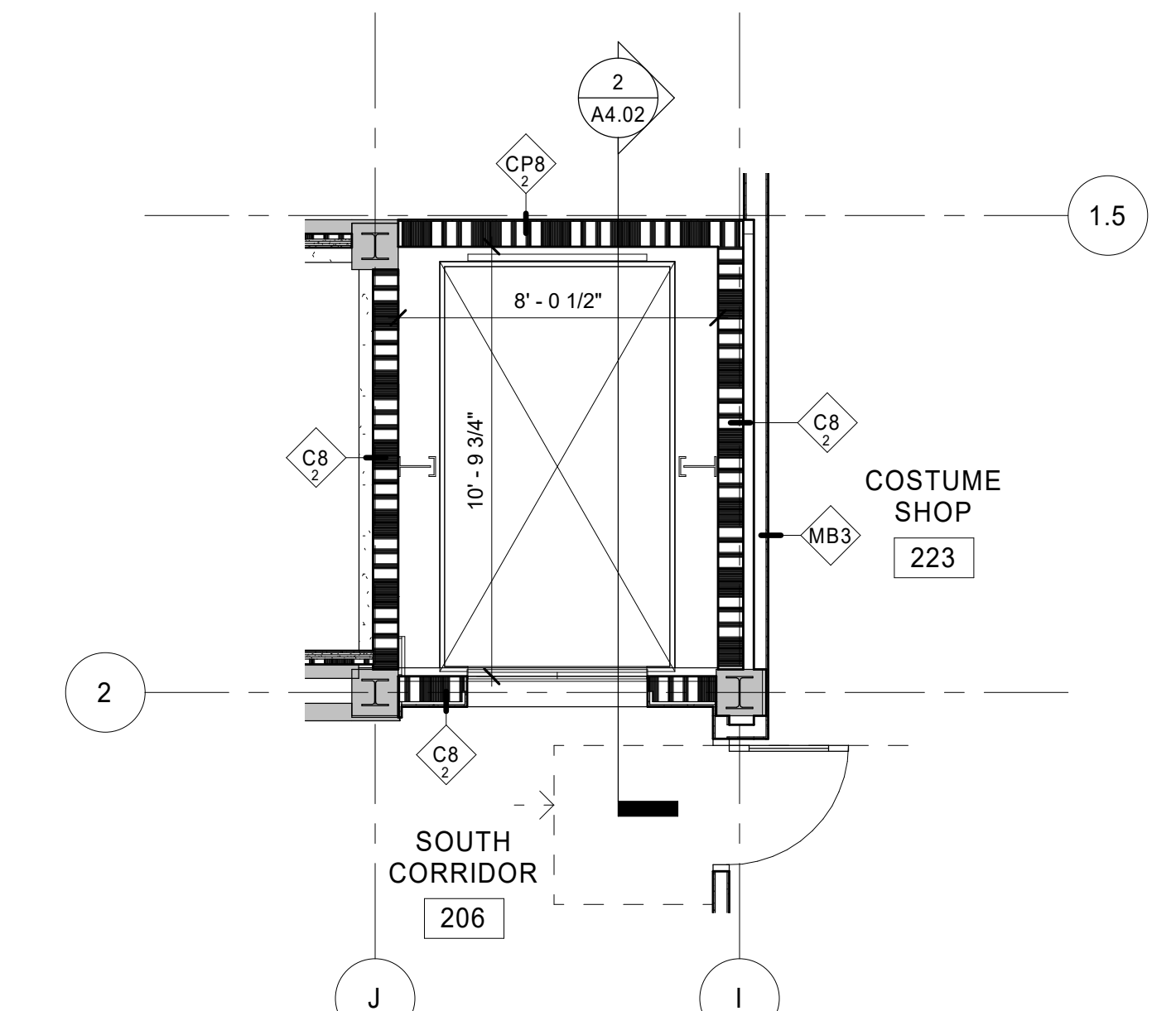
Wall Sections

A3.04

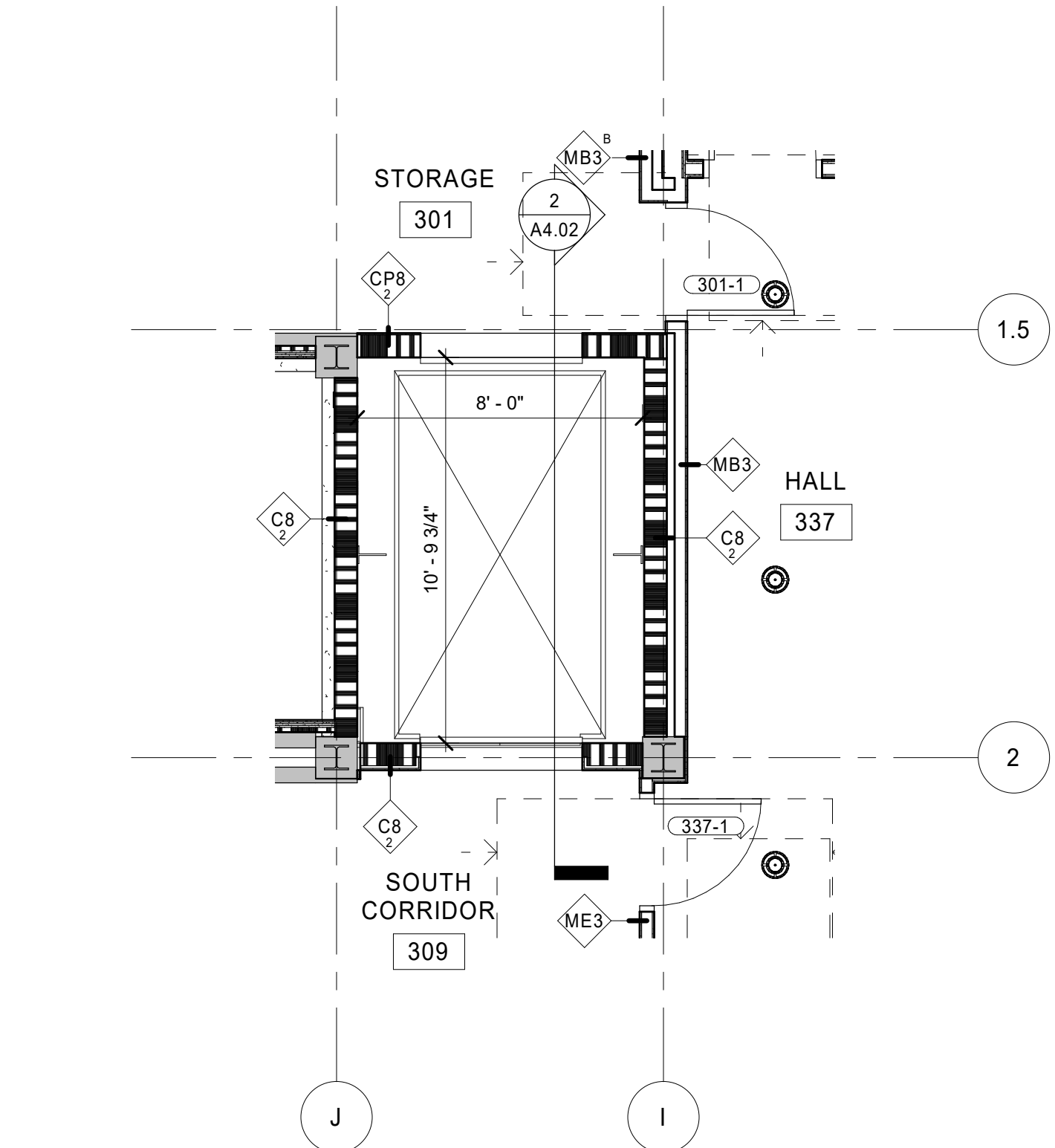
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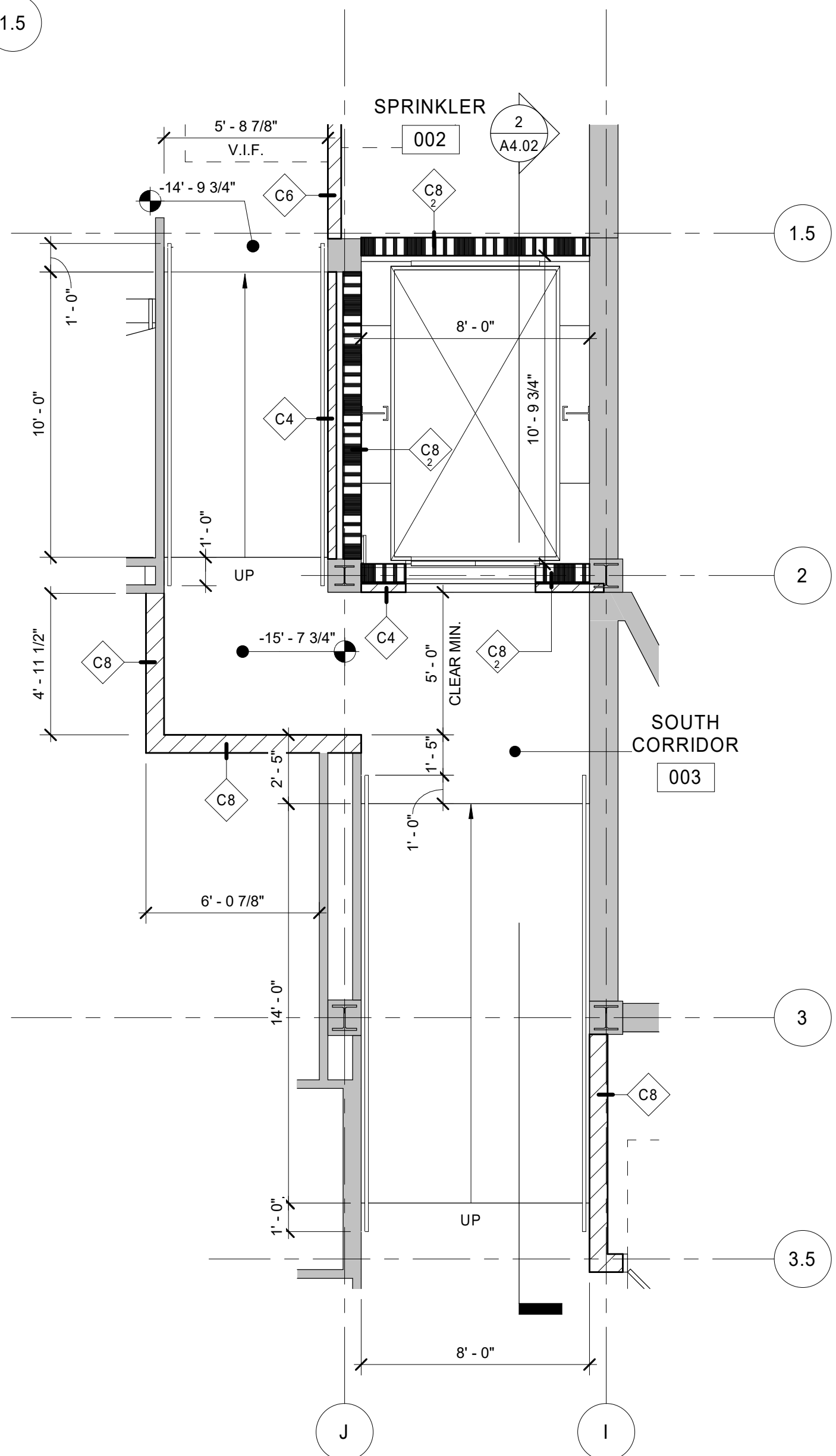
6 Floor Plan
Elevator - Control Room Level
A4.01 1/4" = 1'-0"



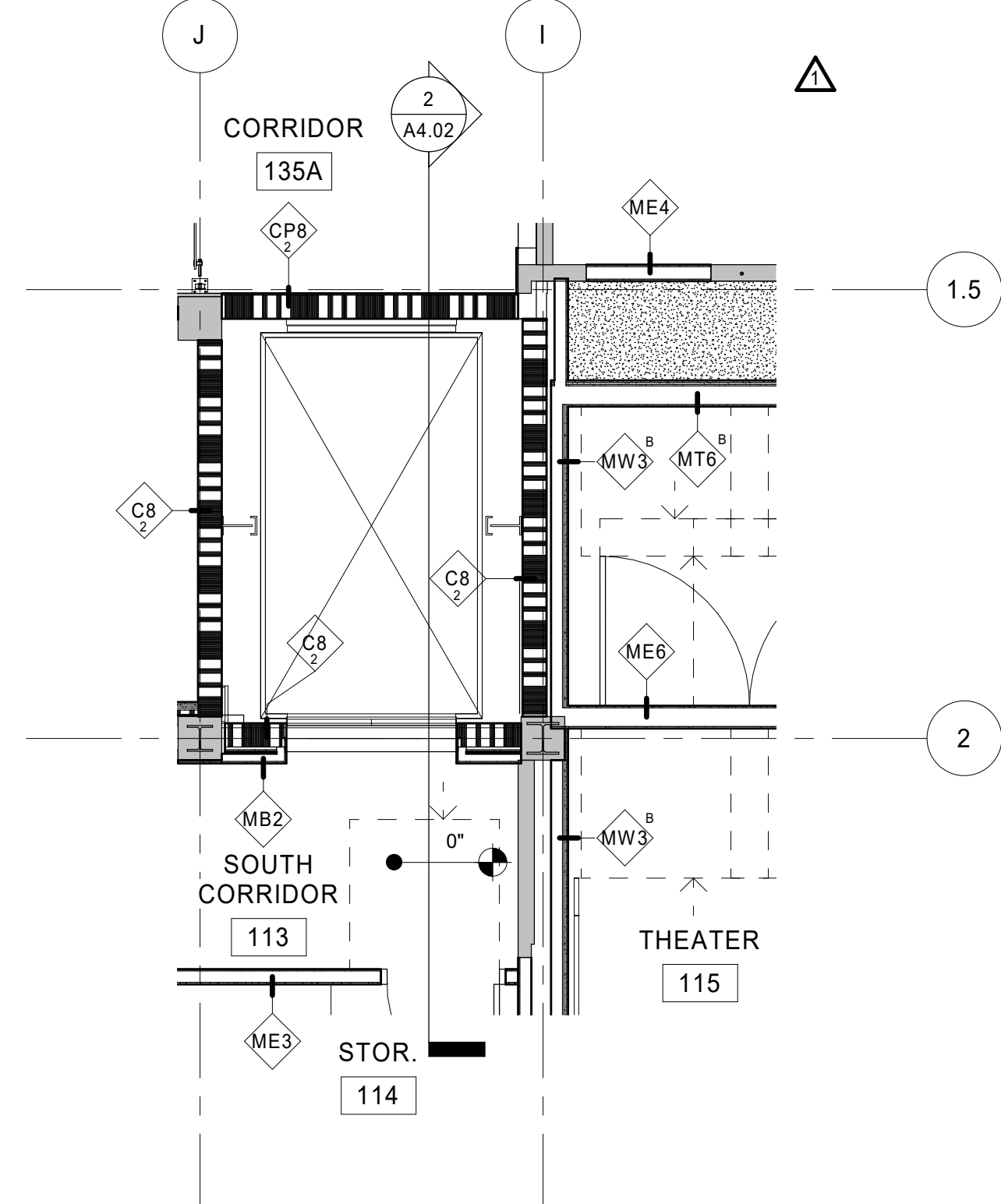
7 Floor Plan
Elevator - 2nd Floor
A4.01 1/4" = 1'-0"



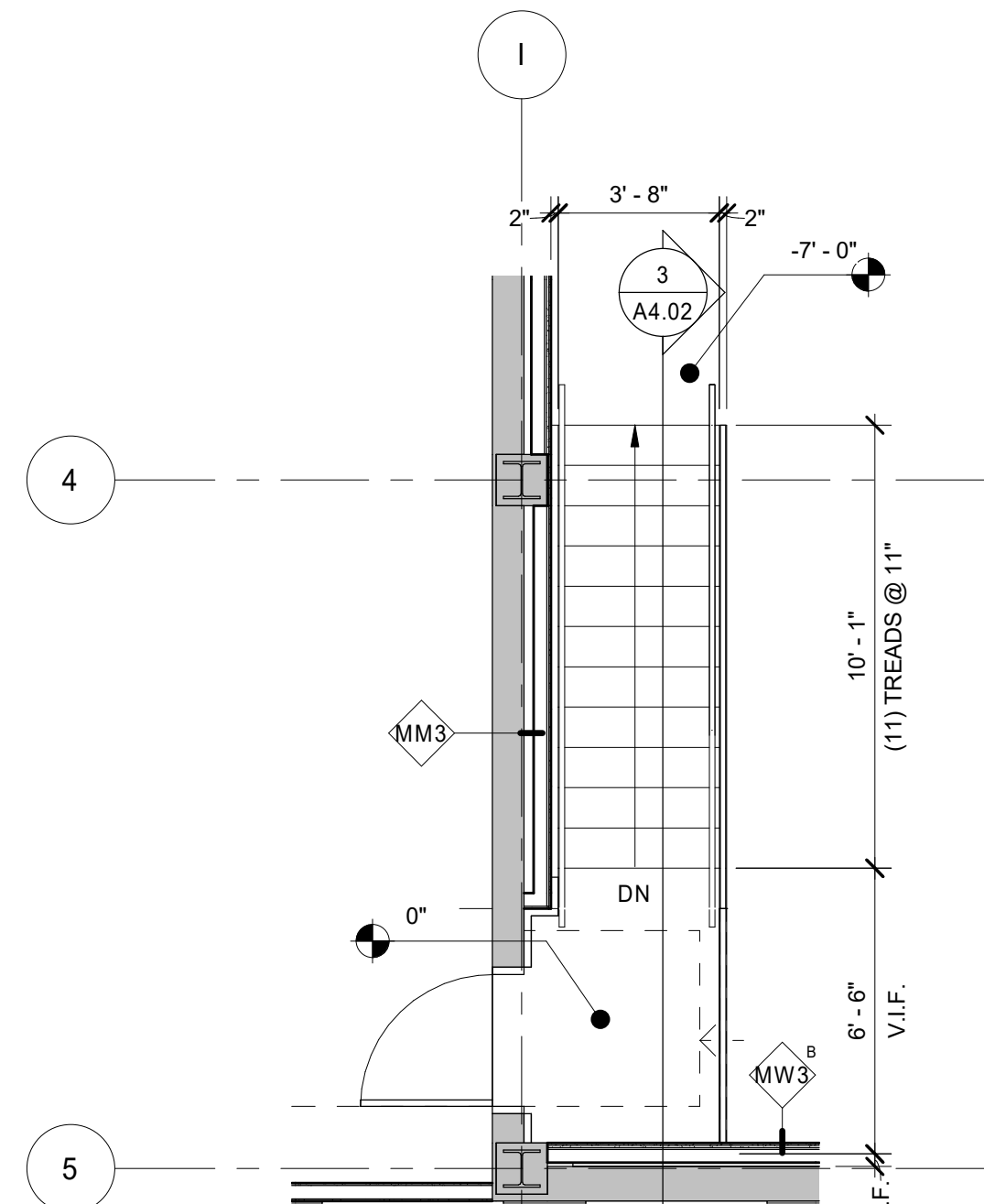
8 Floor Plan
Elevator - 3rd Floor
A4.01 1/4" = 1'-0"



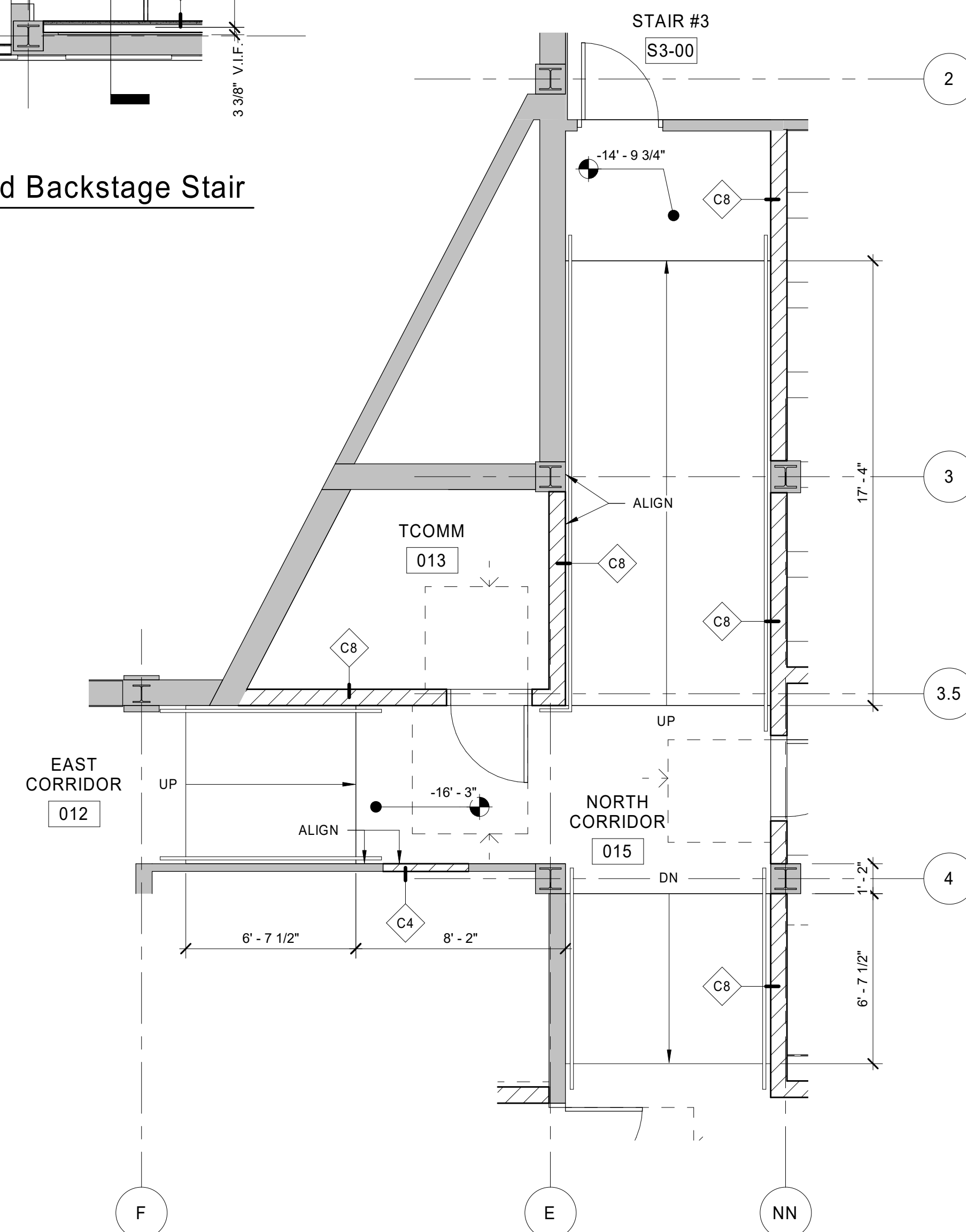
4 Floor Plan
Ramp / Elev - Basement
A4.01 1/4" = 1'-0"



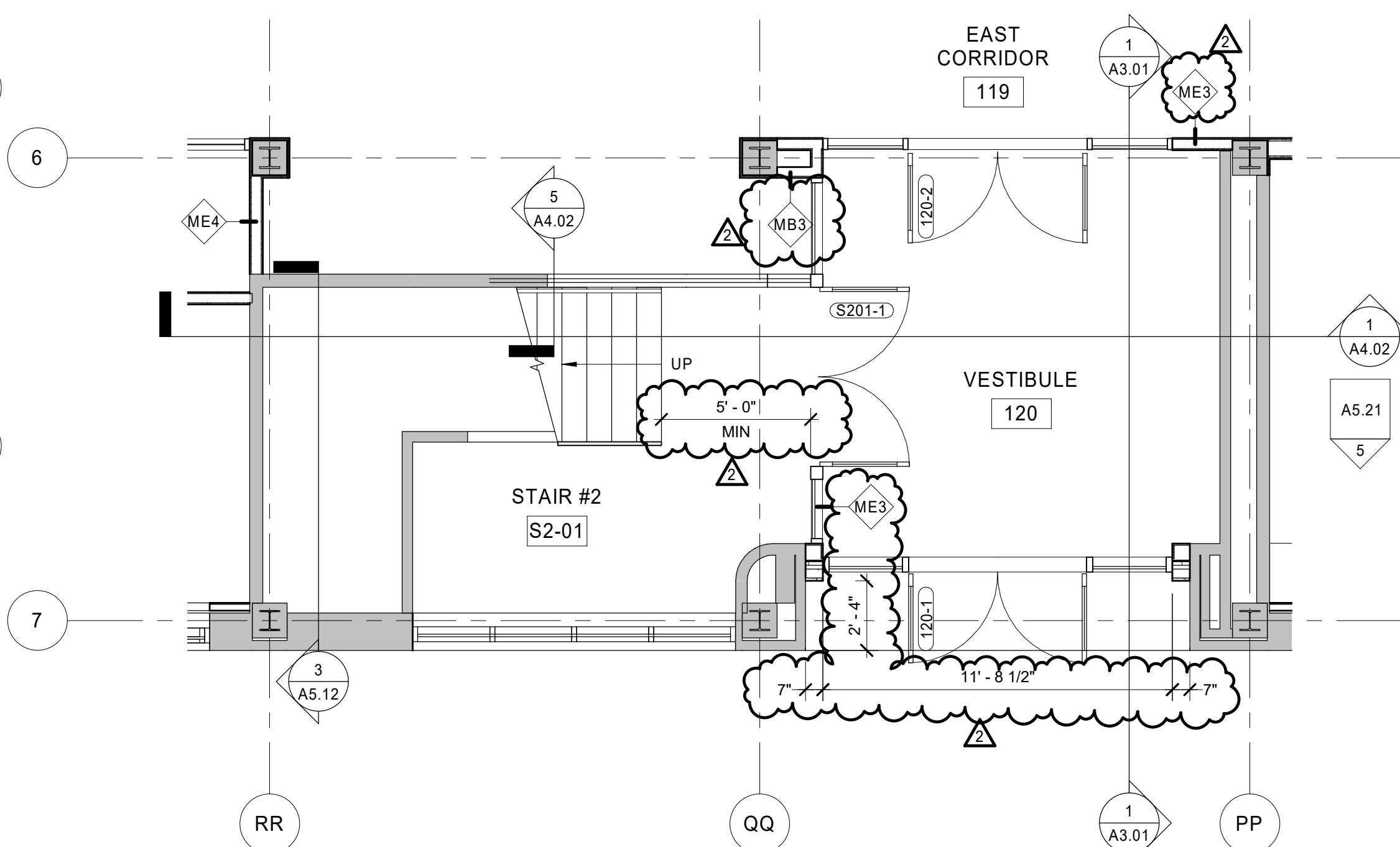
5 Floor Plan
Elevator -1st Floor and Auditorium Levels
A4.01 1/4" = 1'-0"



1 Floor Plan
Enlarged Backstage Stair
A4.01 1/4" = 1'-0"



2 Floor Plan
North Ramps - Bsmt
A4.01 1/4" = 1'-0"



3 Floor Plan
Entry Vestibule / Stair
A4.01 1/4" = 1'-0"

GENERAL STAIR NOTES

1. PROVIDE CONCRETE FILLED METAL PAN STAIR SYSTEM BETWEEN EACH FLOOR LEVEL UNLESS NOTED OTHERWISE.
2. PAINT STEEL COMPONENTS OF STAIR UNLESS FINISH IS NOTED OTHERWISE. COLOR TO BE SELECTED BY ARCHITECT.
3. STEPS WITHIN A RUN OF STAIRS ARE TO BE A 7" MAX. RISER AND AN 11" MAX. TREAD.
4. STEPS ARE TO HAVE A 1" MAX. NOSING.
5. PROVIDE MANUFACTURER STANDARD HANDRAILS AND GUARDRAILS WHICH COMPLY WITH GOVERNING CODES.
6. PROVIDE GUARDRAILS ON THE OPEN SIDES OF STAIR RUNS. AN OPEN SIDE IS ANY GAP WIDER THAN 2" THAT HAS A VERTICAL FALL GREATER THAN 30" AND DOES NOT ALREADY HAVE A GUARD STRUCTURE AT LEAST 42" HIGH FROM THE NOSE OF THE TREAD.
7. WALL STUD FRAMING CONTRACTOR TO PROVIDE IN-WALL BLOCKING FOR WALL MOUNTED HAND RAILS.
8. SEE GENERAL RAILING NOTES.

GENERAL RAILING NOTES

1. STAIR HANDRAILS ARE TO EXTEND 12" PAST THE TOP RISER AT 36" ABOVE FINISH FLOOR IN THE DIRECTION OF TRAVEL AND EXTEND A LENGTH EQUIVALENT TO THE DEPTH OF ONE TREAD BEYOND THE BOTTOM RISER IN THE DIRECTION OF TRAVEL FOLLOWING THE SLOPE OF THE STAIR UNLESS THE HANDRAIL IS CONTINUOUS WITH THE HANDRAIL OF AN ADJACENT RUN OF STAIRS.
2. RAMP HANDRAILS ARE TO EXTEND 12" PAST THE TOP AND BOTTOM TERMINUS OF THE RAMP AT 36" ABOVE FINISH FLOOR IN THE DIRECTION OF TRAVEL UNLESS THE HANDRAIL IS CONTINUOUS WITH THE HANDRAIL OF AN ADJACENT RUN OF RAMP.
3. HANDRAILS SHALL RETURN TO A WALL, GUARD OR THE WALKING SURFACE OR SHALL BE CONTINUOUS TO THE HANDRAIL OF AN ADJACENT STAIR OR RAMP RUN. CONFIRM WITH THE ARCHITECT HOW EACH HANDRAIL IS TO RETURN PRIOR TO FABRICATION.
4. RAILINGS SHALL COMPLY WITH APPLICABLE OPENING LIMITATIONS REQUIRED BY GOVERNING CODES.
5. GRIND AND FINISH ALL WELDED JOINTS SMOOTH.
6. NON-CIRCULAR HANDRAILS AND THE TOP RAIL OF GUARDRAILS WHICH ARE NON-CIRCULAR SHALL HAVE A MINIMUM EDGE RADIUS OF .01" AT EACH EDGE.
7. COLORS FOR EACH PAINTED RAILING SYSTEM IS TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD FULL RANGE UNLESS NOTED OTHERWISE.
8. HANDRAILS ARE TO BE LOCATED ON EACH SIDE OF A STAIR AND RAMP.
9. GUARDRAILS WITH HANDRAILS ARE TO BE LOCATED ALONG EACH SIDE OF A STAIR THAT IS NOT IMMEDIATELY ADJACENT TO A WALL OF AT LEAST 42" IN HEIGHT FROM THE NOSING OF A TREAD.
10. EACH HANDRAIL AND EACH GUARDRAIL SHALL RESIST A LOAD OF 50 POUNDS PER LINEAR FOOT APPLIED IN ANY DIRECTION AT THE TOP AND TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE BUILDING STRUCTURE.
11. EACH HANDRAIL AND EACH GUARDRAIL SHALL RESIST A SINGLE CONCENTRATED LOAD OF 200 POUNDS APPLIED IN ANY DIRECTION AT ANY POINT ALONG THE TOP AND BE ABLE TO TRANSFER THIS LOAD THROUGH THE SUPPORTS TO THE BUILDING STRUCTURE. THIS LOAD NEED NOT BE ASSUMED TO ACT CONCURRENTLY WITH THE LOADS SPECIFIED IN GENERAL RAILING NOTE No. 10.



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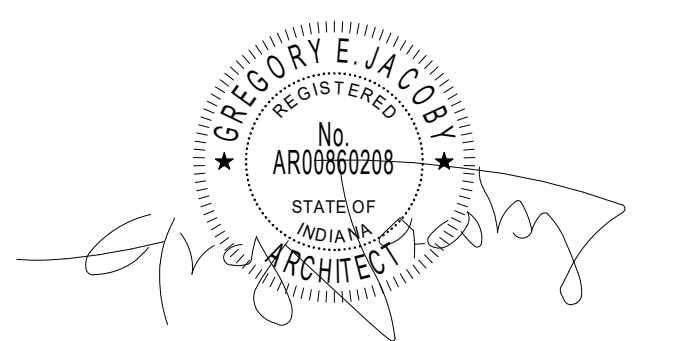
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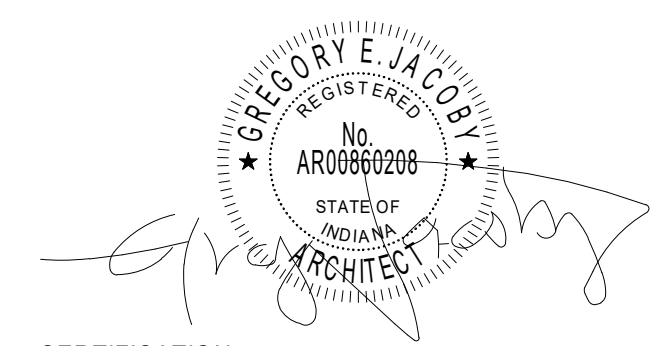
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Vertical Circulation

A4.01



CERTIFICATION

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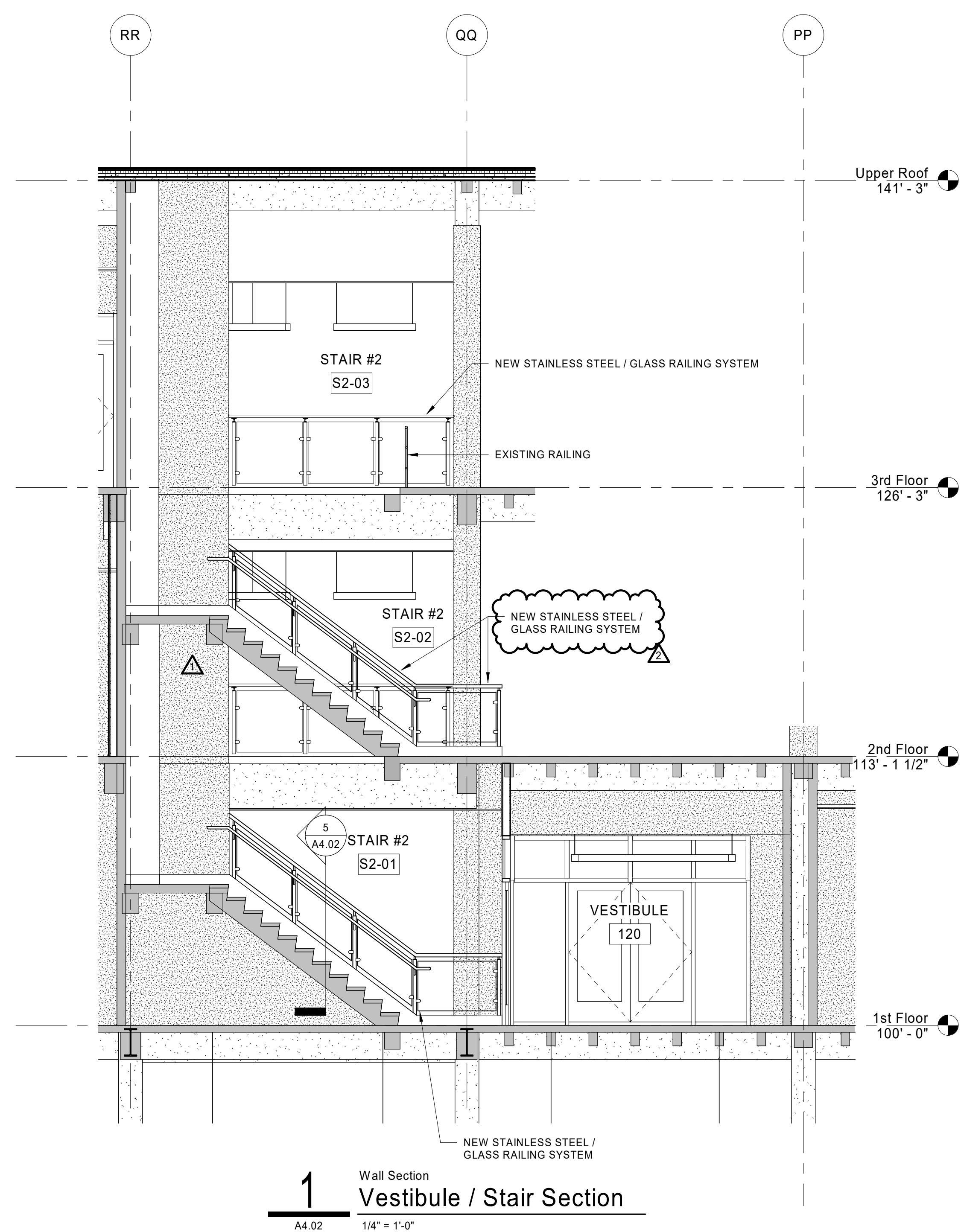
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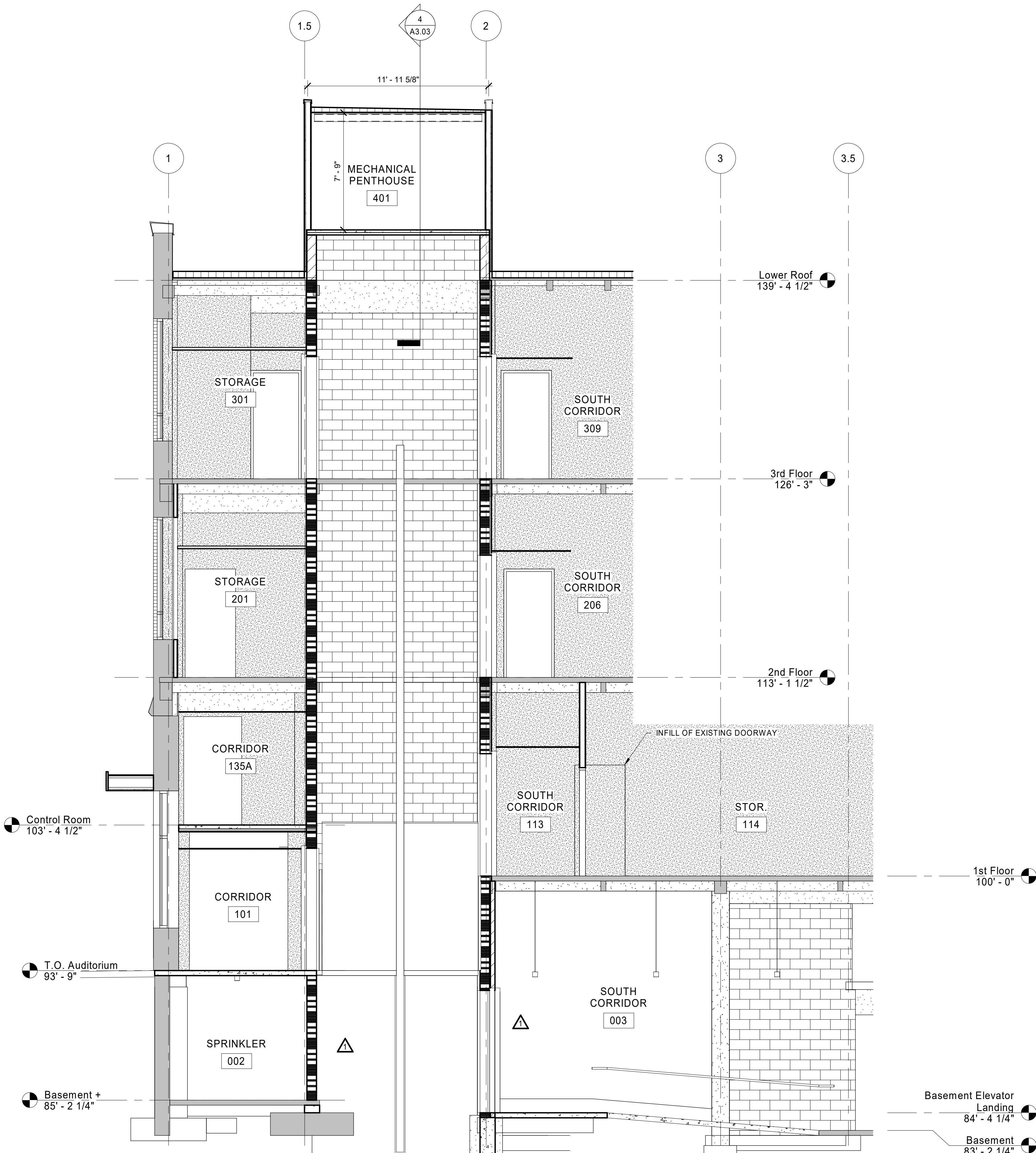
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Vertical Circulation Sections
and Details

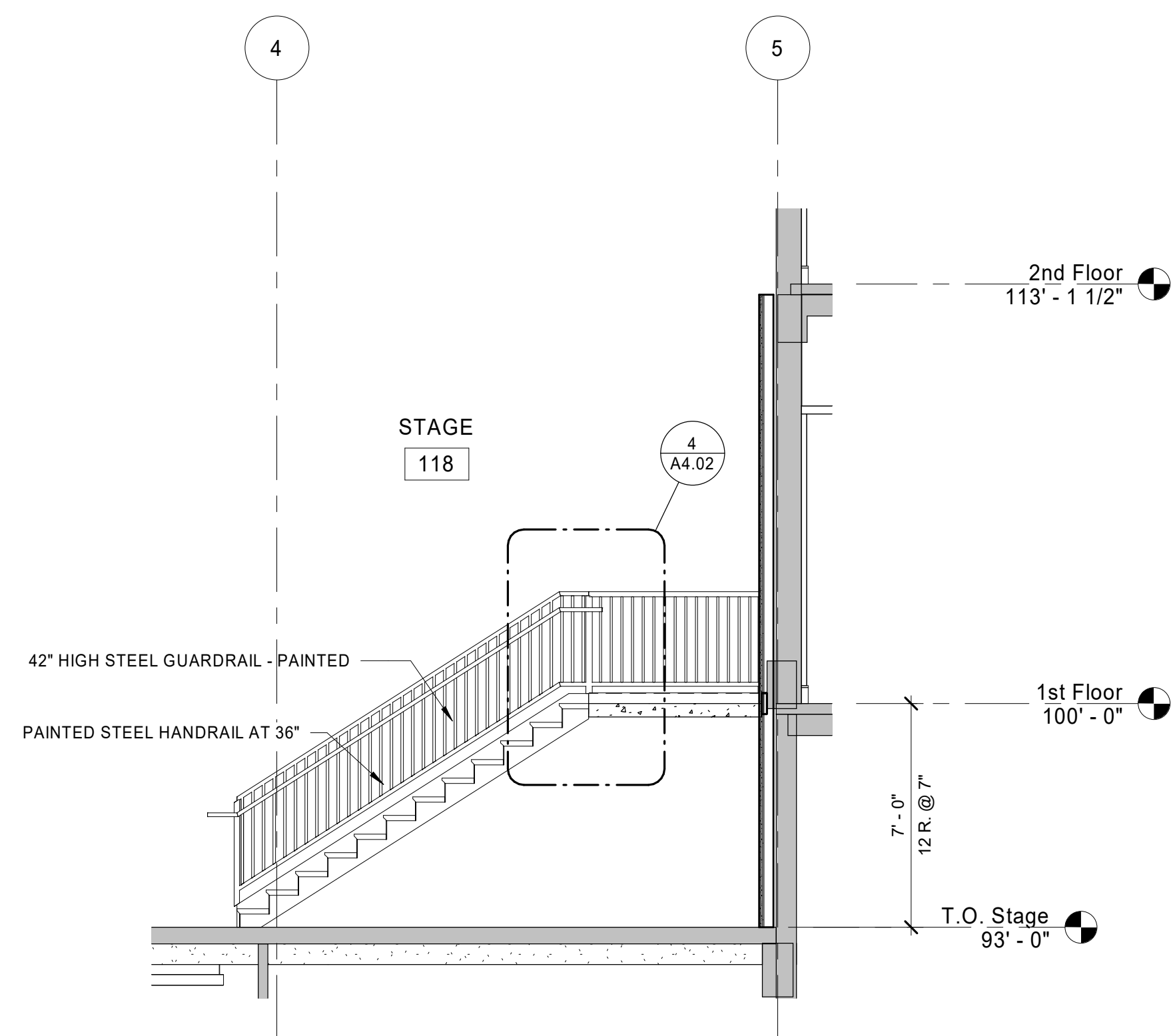
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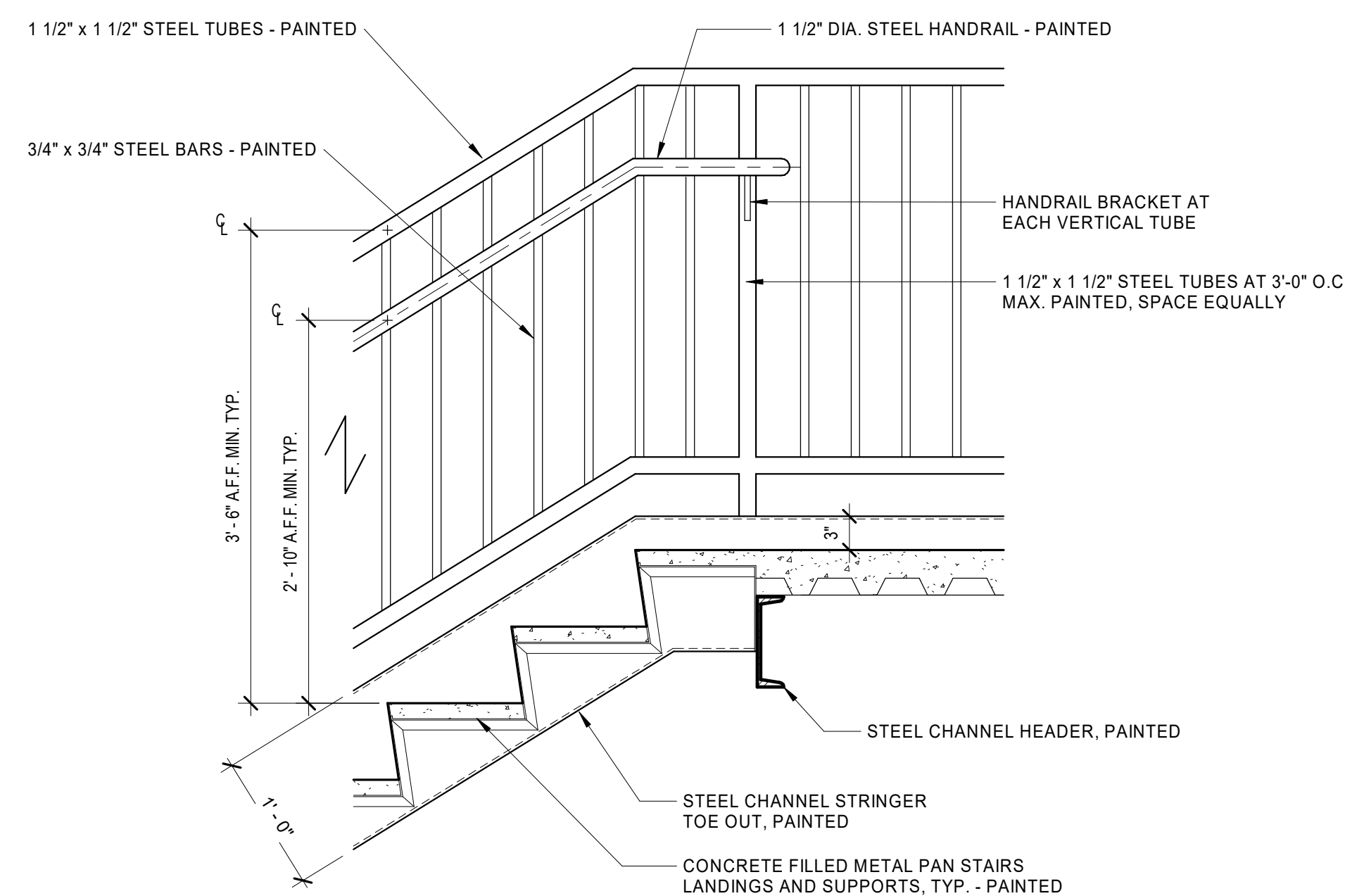
1 Wall Section
Vestibule / Stair Section
A4.02 1/4" = 1'-0"



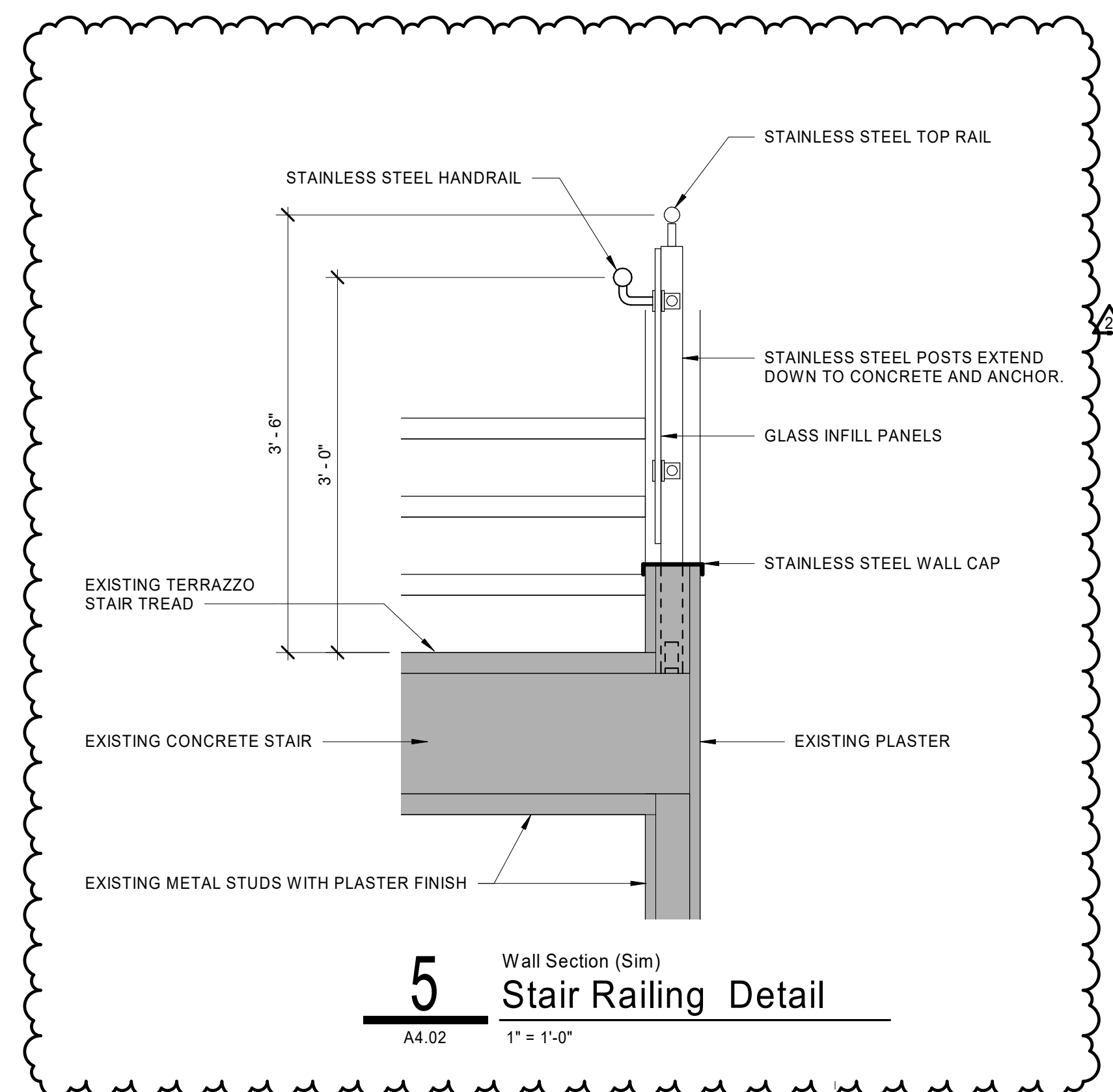
2 Wall Section
Elevator Section
A4.02 1/4" = 1'-0"



3 Wall Section
Backstage Stair Section
A4.02 1/4" = 1'-0"



4 STAIR DETAILS
Stair Landing Railing
A4.02 1" = 1'-0"



5 Wall Section (Sim)
Stair Railing Detail
A4.02 1" = 1'-0"

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EQUIPMENT LEGEND						
CODE	DESCRIPTION	MANUFACTURER	MODEL	COLOR	SIZE	COMMENTS
EQ-1	FREESTANDING REFRIGERATOR / FREEZER W/ ICE	BASIS OF DESIGN: FRIGIDAIRE	BASIS OF DESIGN: COUNTER-DEPTH FRENCH DOOR FGHG2368TF	STAINLESS STEEL	36"W x 70"H x 28.5"D	OWNER PROVIDED, OWNER INSTALLED.
EQ-2	COUNTERTOP MICROWAVE			STAINLESS STEEL		OWNER PROVIDED, OWNER INSTALLED.
EQ-3	DISHWASHER	BASIS OF DESIGN: ASKO	BASIS OF DESIGN: ASKO DB852IS	STAINLESS STEEL	24"W x 32 1/16"H x 22"D	ADA HEIGHT. CONTRACTOR PROVIDED, CONTRACTOR INSTALLED.
EQ-4	GARBAGE DISPOSAL	BASIS OF DESIGN: INSINKERATOR	BASIS OF DESIGN: CONTRACTOR 333 DISPOSAL	BLACK ENAMEL	12 5/8"H	COORD. PLACEMENT WITHIN CAB. FOR ADA COMPLIANCE. CONTRACTOR PROVIDED, CONTRACTOR INSTALLED.
EQ-5	COFFEE MAKER	-	-	-	-	REQ'S WATER LINE CONNECTION. OWNER PROVIDED, OWNER INSTALLED.
EQ-6	BOTTLE FILLER	-	-	-	-	REQ'S WATER LINE CONNECTION. OWNER PROVIDED, OWNER INSTALLED.
EQ-7	WASHER	-	-	-	-	OWNER PROVIDED, OWNER INSTALLED.
EQ-8	ELECTRIC DRYER	-	-	-	-	OWNER PROVIDED, OWNER INSTALLED.
EQ-9	PRINTER / COPIER (FREESTANDING)	-	-	-	-	OWNER PROVIDED, OWNER INSTALLED.
EQ-10	PRINTER / COPIER (COUNTERTOP)	-	-	-	-	OWNER PROVIDED, OWNER INSTALLED.
EQ-11	DYE VAT (FREESTANDING)	-	-	-	-	OWNER PROVIDED, OWNER INSTALLED.
EQ-12	INDUCTION COOKTOP	BASIS OF DESIGN: GE APPLIANCES	BASIS OF DESIGN: GE PROFILE. 30" BUILT-IN TOUCH CONTROL INDUCTION CKTP. PHP9030DJBB	-	-	CONTRACTOR PROVIDED, CONTRACTOR INSTALLED.
EQ-13	LOCKER	AMERICAN LOCKERS	PERSONAL LOCKERS, 1224	STAINLESS STEEL	ASSEMBLE 3 HIGH	CONTRACTOR PROVIDED, CONTRACTOR INSTALLED.
EQ-14	COMMERCIAL REFRIGERATOR	-	-	-	-	OWNER PROVIDED, OWNER INSTALLED.

MILLWORK LEGEND			
CODE	DESCRIPTION	LOCATION, ROOM #	REF DRAWING # / PAGE
M-1	CABINETRY W/ SINK, UPPER STORAGE, EQUIPMENT AS NOTED.	GREEN ROOM, 006	1/A5.20
M-2	CABINETRY W/ UPPER STORAGE	MAKEUP/DRESSING, 019	2/A5.20
M-3	WOOD SHELF WITH HANGING ROD.	MAKEUP/DRESSING, 019	3/A5.20
M-4	SEATED HEIGHT COUNTERTOP WITH UNDER COUNTER STORAGE	MAKEUP/DRESSING, 019	4, 5, 6 / A5.20
M-5	LAVATORY	MAKEUP/DRESSING, 019, ALL RESTROOMS IN PLANS	6 / A5.20, 4, 8/A5.11, 14/A5.10, 3, 9/A5.10, 13, 21/A5.11
M-6	CABINETRY W/ SINK, UPPER STORAGE, EQUIPMENT AS NOTED.	WORK ROOM, 107	1/A5.21
M-7	COUNTER HEIGHT WORKSURFACE.	WORK ROOM, 107	2/A5.21
M-8	SEATED HEIGHT COUNTER W/ STORAGE UNDERNEATH.	MUTIMEDIA BOOTH, 121	4, 5/A5.21
M-9	SEATED HEIGHT COUNTER W/ STORAGE UNDERNEATH.	MUTIMEDIA BOOTH, 122	3/A5.21
M-10	CABINETRY W/ UPPER STORAGE	UNIFIED MEDIA LAB, 124	6/A5.21
M-11	LOBBY BANQUETTE	LOBBY	7, 8/A5.21
M-12	COUNTER W/ UPPER + BASE STORAGE	CONC., 133	9, 10, 11/A5.21
M-13	CORR. BANQUETTE	SEATING, 208A, SEATING, 317A	1, 3/A5.22
M-14	CABINETRY W/ SINK, UPPER STORAGE, EQUIPMENT AS NOTED.	CRAFT ROOM, 222	5, 6/A5.22
M-15	WOOD SHELF WITH HANGING ROD.	FITTING ROOM, 221	3/A5.20
M-16	CABINETRY W/ SINK, UPPER STORAGE, EQUIPMENT AS NOTED.	WORKRM/ CIRCULATION, 304	3/A5.23
M-17	BARSTOOL HEIGHT COUNTER.	WORKRM/ CIRCULATION, 304	4/A5.23
M-18	SEATED HEIGHT WORKSURFACE	AUDIO STUDIO #1, 325; AUDIO STUDIO #2, 326; AUDIO STUDIO #3, 327	1/A5.23
M-19	CABINETRY, UPPER STORAGE, EQUIPMENT AS NOTED.	AUDIO COMMON AREA, 323	2/A5.23

MATERIAL FINISH LEGEND						
CODE	DESCRIPTION	MANUFACTURER	PATTERN	COLOR	SIZE	COMMENTS
B-1	RUBBER COVE BASE	JOHNSONITE	COVE	63 BURNT UMBER B	4" H	TYPICAL BASE THROUGHOUT.
B-2	TERRAZZO COVE BASE	SANTAROSSA	COVE	CUSTOM COLOR - TO BE SELECTED BY ARCHITECT.	6" H	
B-3	PORCELAIN COVE BASE	AMERICAN OLEAN	CONCRETE CHIC - COVE BASE	ELEGANT GRAY	12" X 6"	GROUT: MAPEI 107+IRON. MUST REACH MANUFACTURER'S MIN. WIDTH REQUIREMENT. MUST BE SEALED. USE COVE BASE OUTER CORNER WHERE NEEDED.
CPT-1	WALK-OFF CARPET	BENTLEY	ROUGH IDEA SHEAR - 8RN24	OUTLINE 800115	24" X 24"	INSTALLATION - MONOLITHIC. BACKING: AFFIRMA.
CPT-2	ACCENT MODULAR CARPET	ATLAS/MASLAND	T7994 FOAM	99405 RICH	12" X 36"	INSTALLATION - VERTICAL ASHLAR.
CPT-3	CLASSROOM MODULAR CARPET	SHAW CONTRACT	CAMPUS COMMONS	CHROME 23515	24" X 24"	INSTALLATION - QUARTER TURNED. SEE CARPET LEGEND BELOW.
CPT-4	CLASSROOM MODULAR CARPET	SHAW CONTRACT	CAMPUS QUAD	CYAN CHROME 23515	24" X 24"	INSTALLATION - QUARTER TURNED. SEE CARPET LEGEND BELOW.
CPT-5	MODULAR CARPET	SHAW CONTRACT	CAMPUS COMMONS	BEAM 23580	24" X 24"	INSTALLATION - QUARTER TURNED.
EX	EXISTING MATERIAL					EXISTING MATERIAL TO REMAIN, CLEAN/REPAIR AS NEEDED.
FAB-1	UPHOLSTERY	KNOLL TEXTILES	PRAIRIE K1925	17 STERLING		
FAB-2	UPHOLSTERY	STINSON	TOUCH BASE	65451 CREME		
LVT-1	LUXURY VINYL TILE	INTERFACE	NATURAL WOODGRAINS	A00212 CEDAR	25cm X 1m	INSTALLATION - VARIABLE ASHLAR.
PCT-1	PORCELAIN TILE	AMERICAN OLEAN	CONCRETE CHIC	ELEGANT GRAY	12" X 24"	GROUT: MAPEI 107+IRON. MUST REACH MANUFACTURER'S MIN. WIDTH REQUIREMENT. MUST BE SEALED. INSTALLATION: STAGGERED BRICK.
PL-1	PLASTIC LAMINATE	WILSONART	NATURAL RECON	7996-38		FINE VELVET FINISH.
PL-2	PLASTIC LAMINATE	FORMICA	INFINITI	TERRIL STANDARD FINISH		
PT-1	TYPICAL PAINT	SHERWIN WILLIAMS	EG-SHEL, SEE COMMENTS	SW 7551 - GREEK VILLA		USE MANUFACTURER'S RECOMMENDED PAINT FINISH WHEN APPLYING TO CMU BLOCK WALL.
PT-2	TYPICAL PAINT	SHERWIN WILLIAMS	EG-SHEL	SW 7672 - KNITTING NEEDLES		
PT-3	ACCENT PAINT	SHERWIN WILLIAMS	EG-SHEL	SW 6642 RHUMBA ORANGE		
PT-4	ACCENT PAINT	SHERWIN WILLIAMS	EG-SHEL	SW 9176 - DRESS BLUES		
PT-5	ACCENT PAINT	SHERWIN WILLIAMS	EG-SHEL	SW 6795 - MAJOR BLUE		
PT-6	ACCENT PAINT	SHERWIN WILLIAMS	EG-SHEL	SW 6779 - LIQUID BLUE		
PT-7	CEILING PAINT	SHERWIN WILLIAMS	FLAT	SW 7007 - CEILING BRIGHT WHITE		
PT-8	BLACK PAINT	SHERWIN WILLIAMS	SEE SPECIFICATIONS	SW 6258 - TRICORN BLACK		
RF-1	PERFORMANCE FLOOR	TARKETT SPORTS FLOORING	DANCE FLOOR - CUSHIONED VINYL	BLACK		
SC-1	SEALED CONCRETE					REPAIR EXISTING CONCRETE AS NEEDED. SEE SPECIFICATIONS.
SS-1	SOLID SURFACE COUNTERTOP	DALTILE - ONE QUARTZ SURFACE	CARRARA GIOIA	NQ63; POLISHED	3/4" THICKNESS	COUNTERTOPS TO HAVE A SQUARE EDGE
SS-2	SOLID SURFACE COUNTERTOP	CAESARSTONE	CLASSICO COLLECTION	4120 RAVEN	3/4" THICKNESS	COUNTERTOPS TO HAVE A SQUARE EDGE
T-1	(EXISTING) TERRAZZO, FIELD	(EXISTING)	(EXISTING)	CREAM	(EXISTING)	EXISTING TERRAZZO TO REMAIN. PATCH, REPAIR, AND CLEAN AS NEEDED.
T-2	(NEW) TERRAZZO, ACCENT	SANTAROSSA		WHITE	MATCH EXISTING TERRAZZO THICKNESS	ARCHITECT TO SELECT CUSTOM COLOR.
T-3	(NEW) TERRAZZO, BORDER	SANTAROSSA		BLACK	MATCH EXISTING TERRAZZO THICKNESS	ARCHITECT TO SELECT CUSTOM COLOR.
T-4	(EXISTING) TERRAZZO, BORDER	(EXISTING)	(EXISTING)	RED	(EXISTING)	EXISTING TERRAZZO TO REMAIN. PATCH, REPAIR, AND CLEAN AS NEEDED.
T-5	(EXISTING) TERRAZZO, WALL PANEL	(EXISTING)	(EXISTING)	CREAM	(EXISTING)	EXISTING TERRAZZO TO REMAIN. PATCH, REPAIR, AND CLEAN AS NEEDED.
VCT-1	VINYL TILE	ARMSTRONG FLOORING	STRIATIONS BBT DIAMOND 10 TECHNOLOGY	ATMOSPHERE, Z3610	12" X 24"	INSTALLATION - ASHLAR.
WC-1	CUSTOM DIGITAL WALL COVERING	MDC	DIGITAL WALL COVERING	VINYL WALLCOVERING	SEE ELEVATIONS, NEEDS FIELD VERIFIED	SEE ELEVATION AND DETAILS ON 3/A5.12.
WD-1	WOOD FINISH	MILLWORKER	WHITE OAK, QUARTERED	HONEY FINISH		MATCH ARCHITECTURAL SAMPLE AND PROVIDE SAMPLES TO ARCHITECT FOR APPROVAL.
WP-1	PERFORATED WOOD PANEL	KINETICS	SERENO - ACOUSTICAL WOOD COLLECTION	MATCH WD-1	SEE ELEVATIONS	INSTALLED WITH Z-CLIPS.
WP-2	SOLID WOOD PANEL	KINETICS	SERENO - ACOUSTICAL WOOD COLLECTION	MATCH WD-1	SEE ELEVATIONS	INSTALLED WITH Z-CLIPS.
WT-1	WALL TILE - RESTROOM	CROSSVILLE	RETROACTIVE 2.0	ROYAL NAVY, PATTERN, POLISH, UNPOLISHED	4" X 12"	GROUT: MAPEI 107+IRON. MUST REACH MANUFACTURER'S MIN. WIDTH REQUIREMENT. MUST BE SEALED. SCHLUTER CAP - QUADEC-E, STAINLESS STEEL.
WT-2	STUDENT WORKROOM BACKSPLASH	NEMO TILE	RAZOR 3/4" X 4" STACKS	STAINLESS STEEL	12" X 12" SHEET	GROUT: MAPEI 10+BLACK. MUST REACH MANUFACTURER'S MIN. WIDTH REQUIREMENT. MUST BE SEALED. SCHLUTER CAP - QUADEC-E, STAINLESS STEEL.
WT-3	FACULTY WORKROOM BACKSPLASH	LANDMARK CERAMICS	BRICK WORLD SOHO	BLACK	3" X 12"	GROUT: MAPEI 107+IRON. MUST REACH MANUFACTURER'S MIN. WIDTH REQUIREMENT. MUST BE SEALED. SCHLUTER CAP - QUADEC-E, STAINLESS STEEL.
CARPET LEGEND						
CPT-A	MODULAR CARPET COMBINATION	SHAW CONTRACT	CARPETS		24" X 24"	INSTALLATION: RANDOM INSTALL. COLORS DO NOT FOLLOW A PATTERN.
			RATIO			
			CPT-3: CAMPUS COMMONS CPT-4: CAMPUS QUAD			
HARDWARE LEGEND						
HW-1	CABINET PULLS	RICHELIEU	CONTEMPORARY ALUMINUM EDGE PULL - 9898	BRUSHED BLACK	LENGTH: 2 3/4"	SEE MILLWORK ELEVATIONS AND DETAILS.

GENERAL FINISH NOTES

- REFER TO FINISH PLAN, ROOM FINISH SCHEDULE, INTERIOR ELEVATIONS, AND REFLECTED CEILING PLANS FOR FINISH INFORMATION.
- MATERIAL INFORMATION IS GIVEN WHEREVER POSSIBLE ON THE INTERIOR SHEETS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO BRING ANY DISCREPANCIES TO THE ATTENTION OF THE ARCHITECT SO THAT THE CORRECT MATERIAL IS INSTALLED.
- REFER TO THE SPECIFICATIONS FOR EACH MATERIAL SELECTION.
- ALL MATERIALS ARE TO BE INSTALLED USING THE MANUFACTURER'S RECOMMENDED ADHESIVES.
- GYP. BD. WALLS AND SOFFITS TO RECEIVE A LEVEL FOUR (4) FINISH UNLESS NOTED OTHERWISE.
- WALLS ARE TO BE PAINTED **[PT-1]** UNLESS NOTED OTHERWISE.
- GYP. BD. BULKHEADS AND CEILINGS ARE TO BE PAINTED **[PT-7]** UNLESS NOTED OTHERWISE.
- BULKHEADS, SOFFITS, AND FUR-DOWNS ARE TO BE FINISHED WITH THE SAME MATERIAL AND/OR COLOR ON ALL FACES AS SPECIFIED UNLESS NOTED OTHERWISE.
- THERE SHALL NOT BE PAINT CONDITIONS THAT OCCUR CAUSING FINISH OR COLOR TO CHANGE ON AN OUTSIDE CORNER UNLESS NOTED OTHERWISE. IF THIS CONDITION OCCURS BRING THIS TO THE ARCHITECT'S ATTENTION IMMEDIATELY.
- INTERIOR EXPOSED STEEL OR CONCRETE STRUCTURAL COLUMNS AND FRAMING ARE TO BE PAINTED UNLESS OTHERWISE NOTED. ARCHITECT TO SELECT COLOR FROM MANUFACTURER'S FULL RANGE.
- FIRE RESISTANT RATED INTUMESCENT PAINT FINISH EXPOSED WITHIN A ROOM IS TO HAVE A SMOOTH FINISH AND RECEIVE A FINAL PAINT COLOR SELECTED BY THE ARCHITECT.
- EXPOSED CMU, WHICH DOES NOT HAVE A SPECIAL FINISH, INTEGRAL COLOR OR DECORATIVE FACE, IS TO BE PAINTED ULESS NOTED OTHERWISE.
- WALL GRILLES, CEILING DIFFUSERS, AND FIRE EXTINGUISHER CABINETS ARE TO BE FINISHED IN THE SAME MATERIAL AS THE ADJACENT WALL MATERIAL.
- METAL TRIM PIECE TO OCCUR AT ALL TILED WALL OUTSIDE CORNERS.
- PROVIDE FRP AT SINKS IN JANITOR CLOSETS FROM FLOOR TO 6" ABOVE FAUCETS AND ON ADJACENT WALLS.
- TRANSITIONS, REDUCER STRIPS, AND THRESHOLDS TO BE LOCATED AT CENTERLINE OF DOOR WHEN IN CLOSED POSITION. SEE DETAILS ON TRANSITIONS ON PAGE A5.20.
- ALIGN FLOORING TRANSITIONS WITH FINISH BASE EXCEPT AT DOORS UNLESS NOTED OTHERWISE.
- FLOORING MATERIAL SHALL BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION. TRANSITIONS, IF NEEDED, ARE ALSO TO BE CENTERED UNDER THE DOOR IN THE CLOSED POSITION.
- CARPET SEAMS TO BE LOCATED AT CENTERLINE OF DOOR IN CLOSED POSITION.
- CARPET TILE INSTALLATION NOTED IN FINISH LEGEND ON PAGE A5.02.
- FLOORING TO BE INSTALLED PERPENDICULAR TO ROOM WALLS UNLESS NOTED OTHERWISE.
- RUBBER TRANSITIONS AND METAL TRANSITIONS TO OCCUR BETWEEN DIFFERENT MATERIALS AND ARE TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE OF PRODUCTS.
- PROVIDE CRACK ISOLATION MEMBRANE AT ALL CERAMIC FLOORING. FLOORING CONTRACTOR TO COORDINATE WITH SPECIFICATIONS.
- WALL AND FLOOR GROUT COLORS TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL COLOR RANGE.
- GROUT WIDTHS TO BE MANUFACTURER'S RECOMMENDED MINIMUM WIDTH UNLESS NOTED OTHERWISE.
- REQUIRED FLOORING UNDERLAYMENTS ARE TO BE PROVIDED AND INSTALLED BY THE FLOORING CONTRACTOR.
- TERRAZZO STRIPS SHOULD BE AT ALL BREAKS OR SAW CUTS IN SUPPORTING SLAB. ARCHITECTS APPROVAL NEEDED BEFORE FABRICATION.



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RE Dimond
MEP Engineer

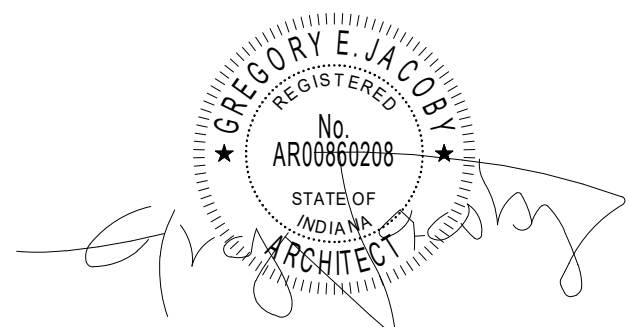
732 North Capitol Avenue
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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: A. Mattingly
Checked By: Checker
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

Material Finish & Equipment
Legend

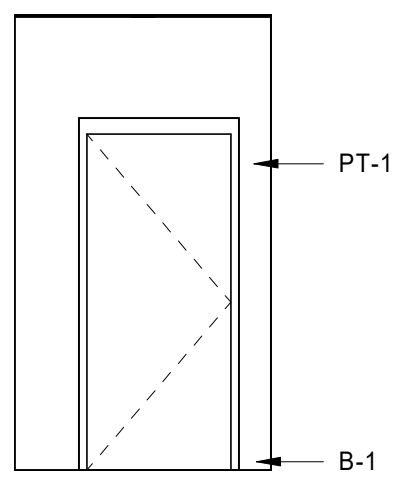
A5.02

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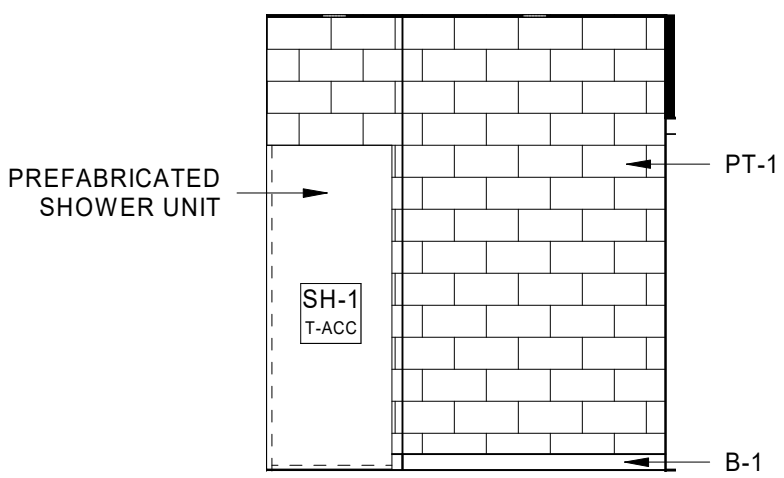
23 Interior Elevation
ADA Shower - 4

A5.10 1/4" = 1'-0"



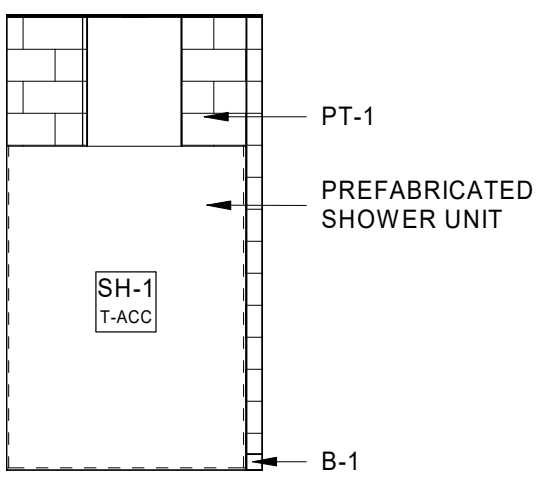
22 Interior Elevation
ADA Shower - 3

A5.10 1/4" = 1'-0"



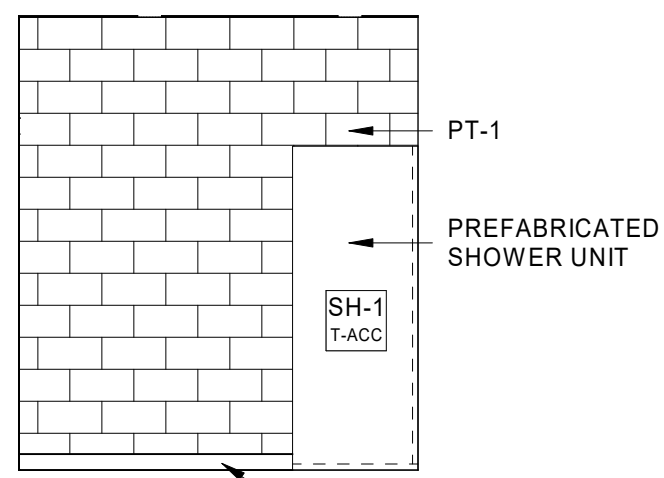
21 Interior Elevation
ADA Shower - 2

A5.10 1/4" = 1'-0"



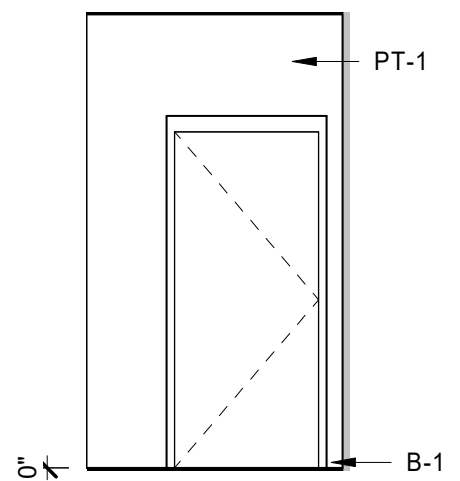
20 Interior Elevation
ADA Shower - 1

A5.10 1/4" = 1'-0"



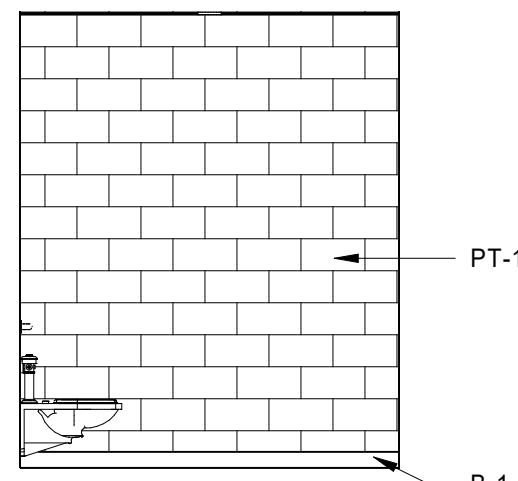
19 Interior Elevation
Toilet Rm - 4

A5.10 1/4" = 1'-0"



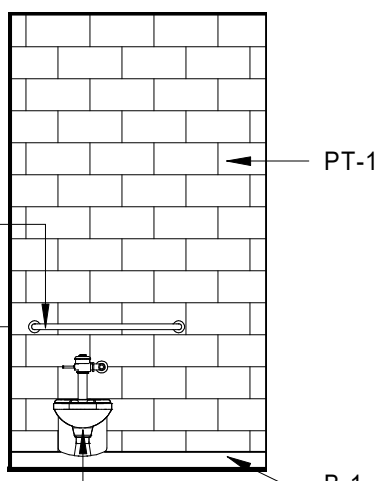
18 Interior Elevation
Toilet Rm - 3

A5.10 1/4" = 1'-0"



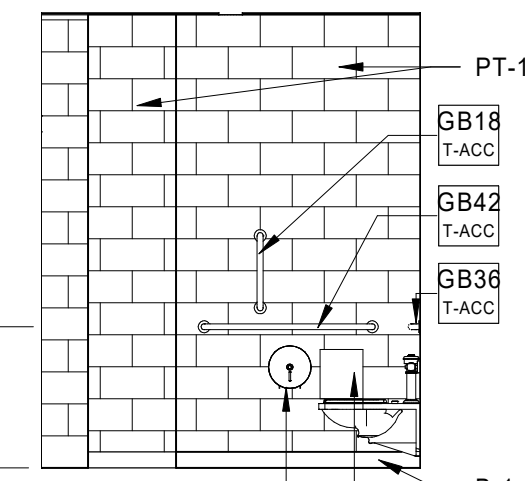
17 Interior Elevation
Toilet Rm - 2

A5.10 1/4" = 1'-0"



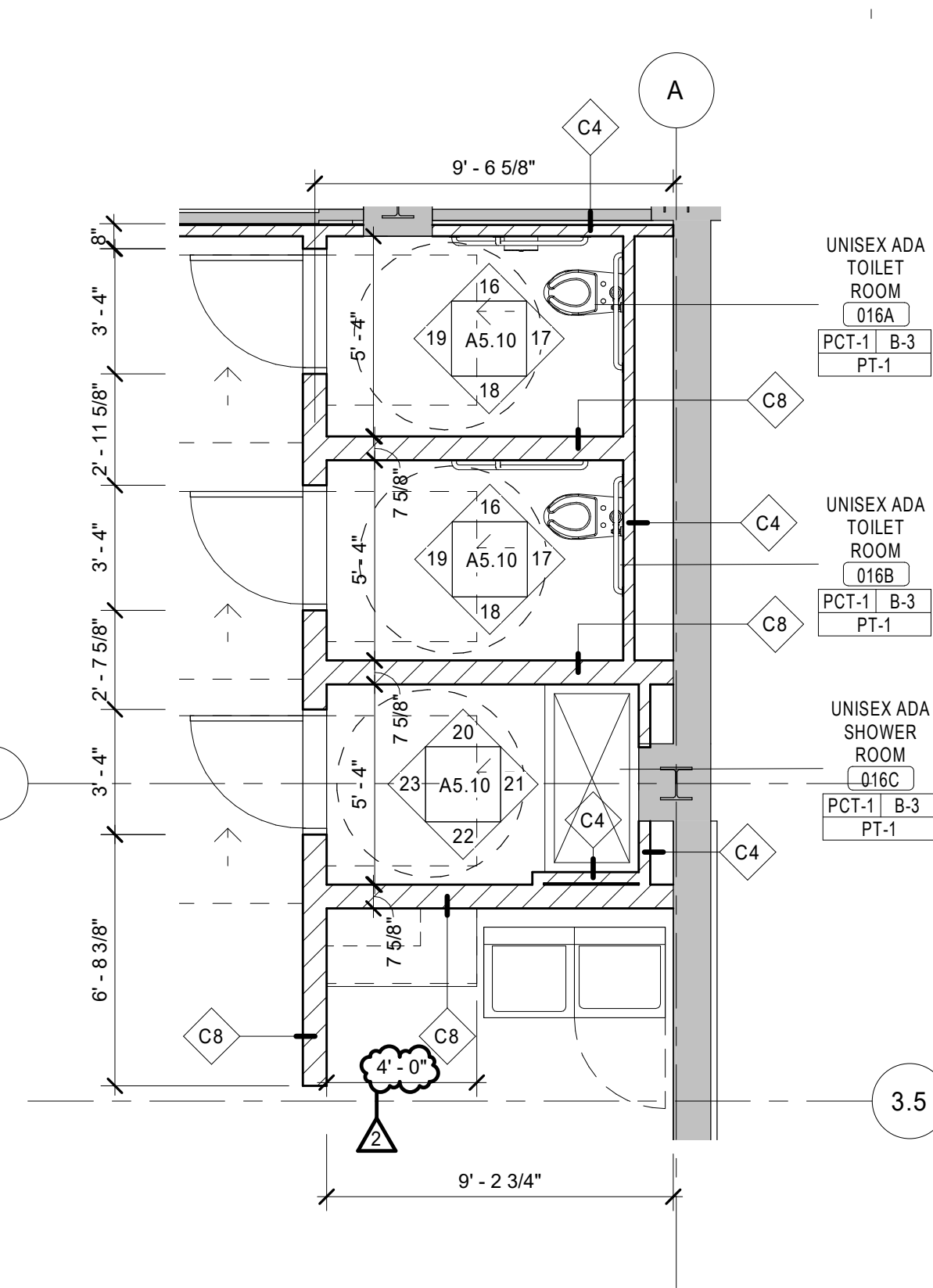
16 Interior Elevation
Toilet Rm - 1

A5.10 1/4" = 1'-0"



15 Floor Plan
Basement Shower Rooms

A5.10 1/4" = 1'-0"

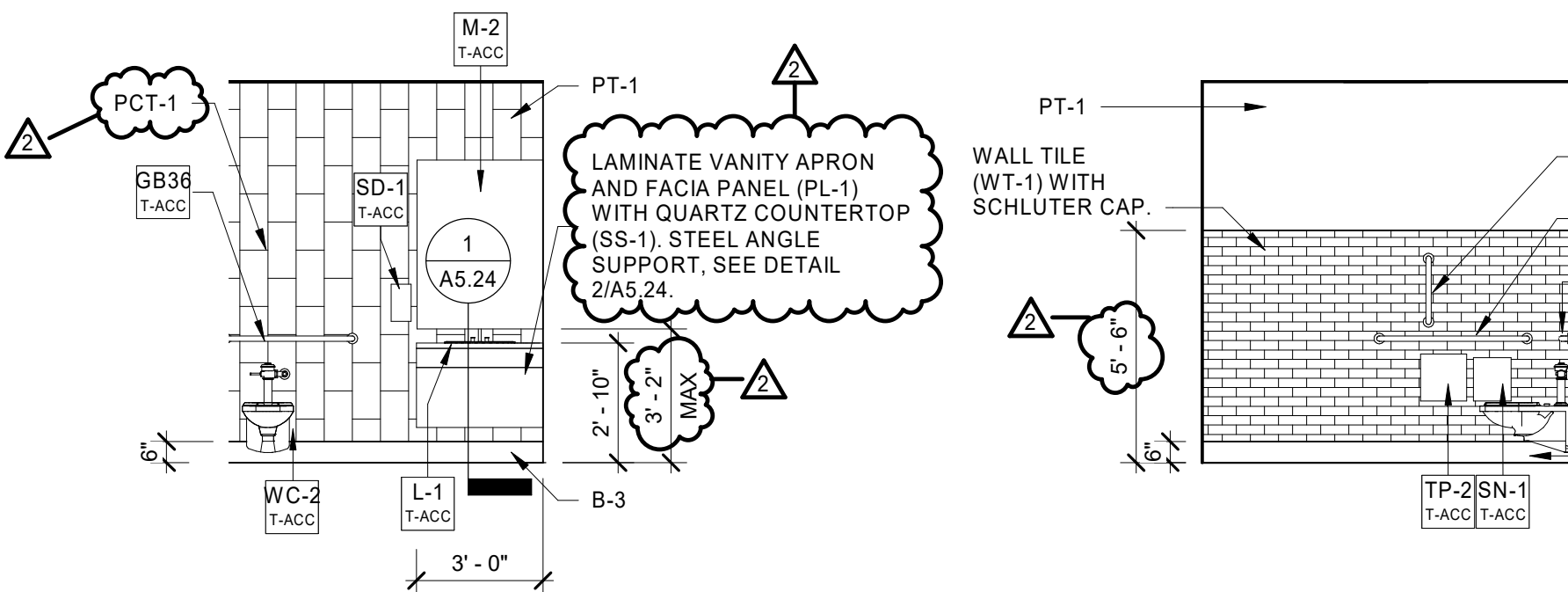


*** REFER TO PAGE A0.20 - ADA FOR ADA MOUNTING HEIGHTS AND INSTALLATION REQUIREMENTS.**

CODED TOILET ACC. NOTES	
NO.	NOTE
CS-1	CHANGING STATION, BASIS OF DESIGN: KOALA BEAR - KB110-SSWH.
GB18	18" GRAB BAR, BASIS OF DESIGN: BOBRICK - B-5806.
GB36	36" GRAB BAR, BASIS OF DESIGN: BOBRICK - B-5806.
GB42	42" GRAB BAR, BASIS OF DESIGN: BOBRICK - B-5806.
L-1	UNDERMOUNT LAVATORY - ADA.
M-1	66" X 40" MIRROR WITH J CHANNEL, CONCEALED MOUNTING.
M-2	48" X 36" MIRROR WITH J CHANNEL, CONCEALED MOUNTING.
M-3	96" X 36" MIRROR WITH J CHANNEL, CONCEALED MOUNTING.
M-4	60" X 40" MIRROR WITH J CHANNEL, CONCEALED MOUNTING.
PA-1	FLOOR MOUNTED PARTITION, BASIS OF DESIGN: GLOBAL STEEL PRODUCTS - PAINTED PARTITION, ARCHITECT TO SELECT FROM MANUFACTURER'S FULL RANGE.
PT-1	PAPER TOWEL DISPENSER, ISU STANDARD, SEE SPECIFICATIONS.
SD-1	SOAP DISPENSER MOUNTED TO MIRROR, ISU STANDARD, SEE SPECIFICATIONS.
SH-1	PREFABRICATED SHOWER UNIT - ADA.
SN-1	SANITARY NAPKIN DISPOSAL, ISU STANDARD, SEE SPECIFICATIONS.
TP-1	TOILET PAPER HOLDER, ISU STANDARD TWIN ROLL JUMBO, SEE SPECIFICATIONS.
TP-2	TOILET PAPER HOLDER, ISU STANDARD SINGLE ROLL JUMBO, SEE SPECIFICATIONS.
UR-1	URINAL - ADA.
UR-2	URINAL.
US-1	URINAL PARTITION, BASIS OF DESIGN: GLOBAL STEEL PRODUCTS - PAINTED PARTITION, ARCHITECT TO SELECT FROM MANUFACTURER'S FULL RANGE.
WC-1	WATER CLOSET - WALL HUNG.
WC-2	WATER CLOSET - WALL HUNG, ADA.
WR-1	WASTE RECEPTACLE, ISU STANDARD, SEE SPECIFICATIONS.

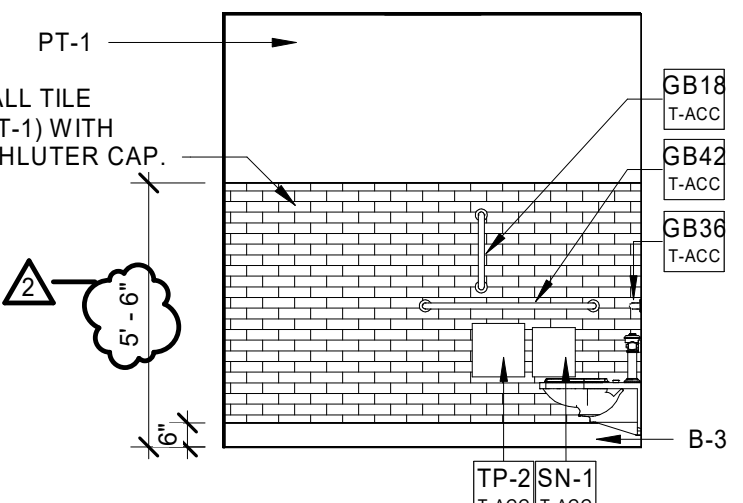
14 Interior Elevation
Restroom 102 - 4

A5.10 1/4" = 1'-0"



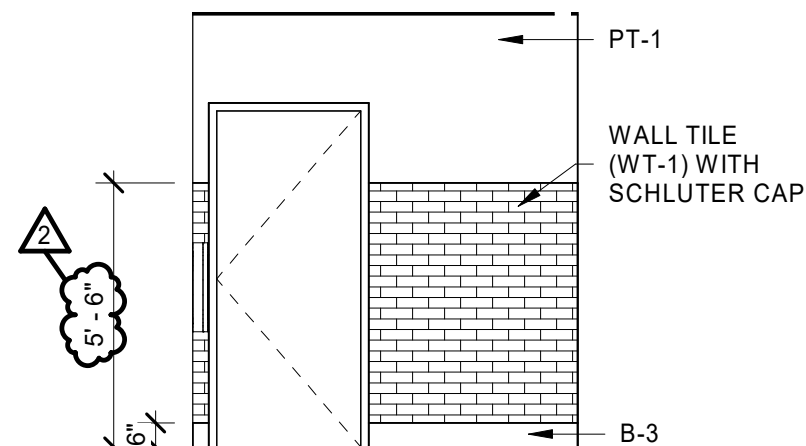
13 Interior Elevation
Restroom 102 - 3

A5.10 1/4" = 1'-0"



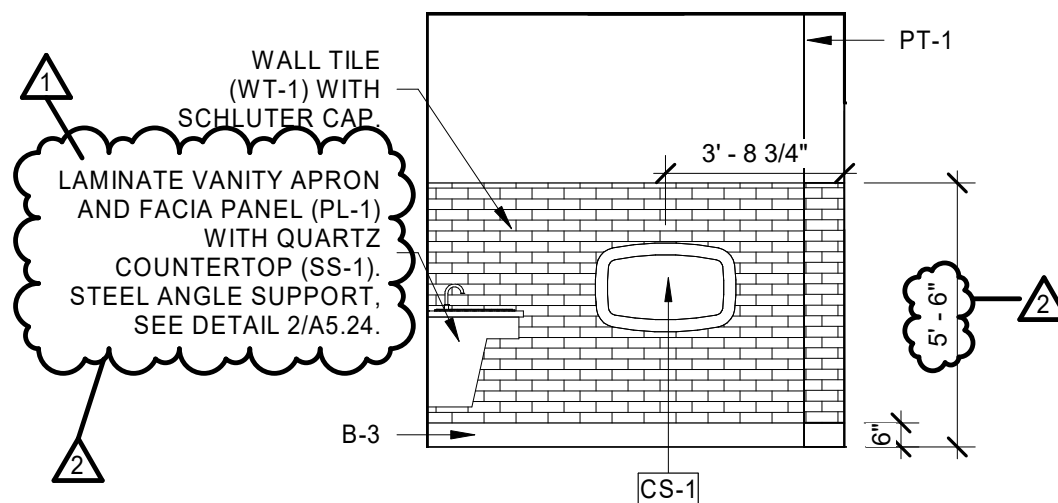
12 Interior Elevation
Restroom 102 - 2

A5.10 1/4" = 1'-0"



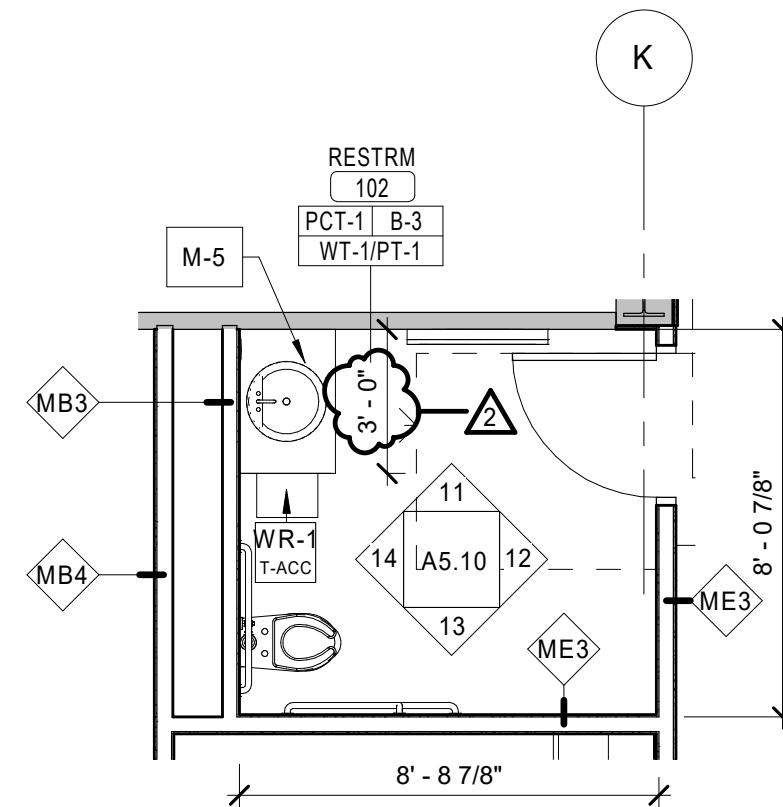
11 Interior Elevation
Restroom 102 - 1

A5.10 1/4" = 1'-0"



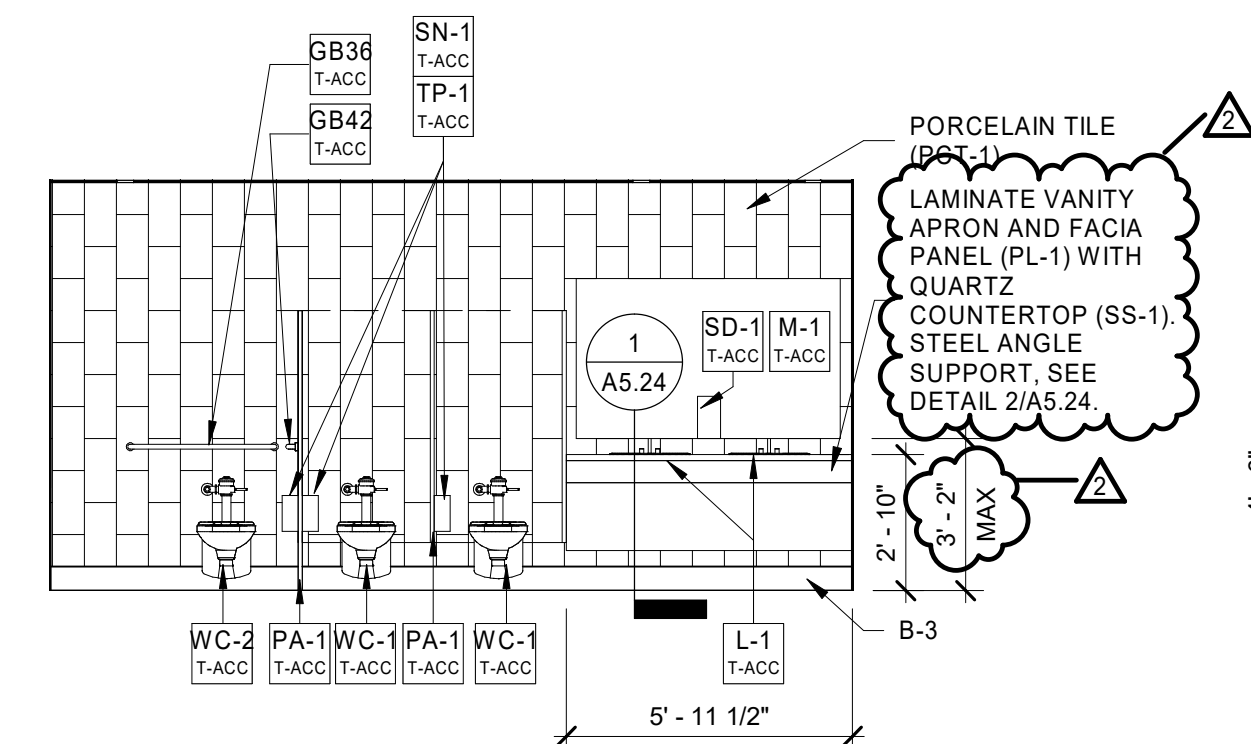
10 Floor Plan
1st Floor - Restroom 102

A5.10 1/4" = 1'-0"



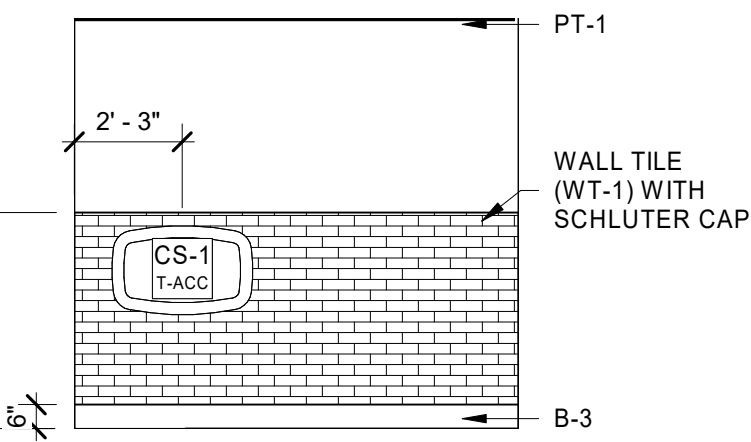
9 Interior Elevation
Restroom 131 - 4

A5.10 1/4" = 1'-0"



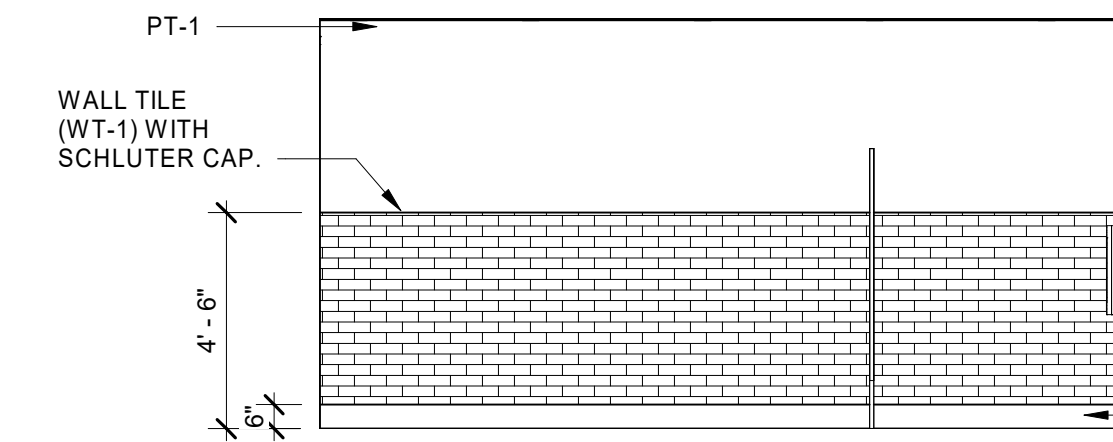
8 Interior Elevation
Restroom 131 - 3

A5.10 1/4" = 1'-0"



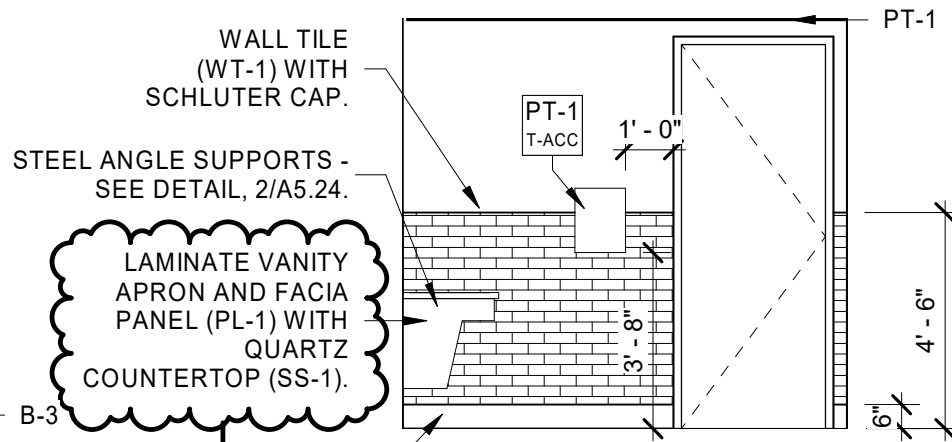
7 Interior Elevation
Restroom 131 - 2

A5.10 1/4" = 1'-0"



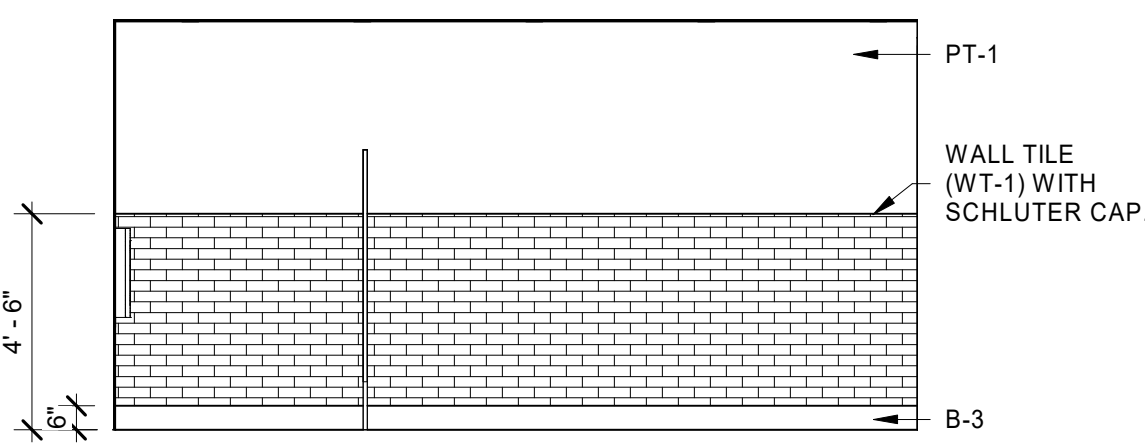
6 Interior Elevation
Restroom 131 - 1

A5.10 1/4" = 1'-0"



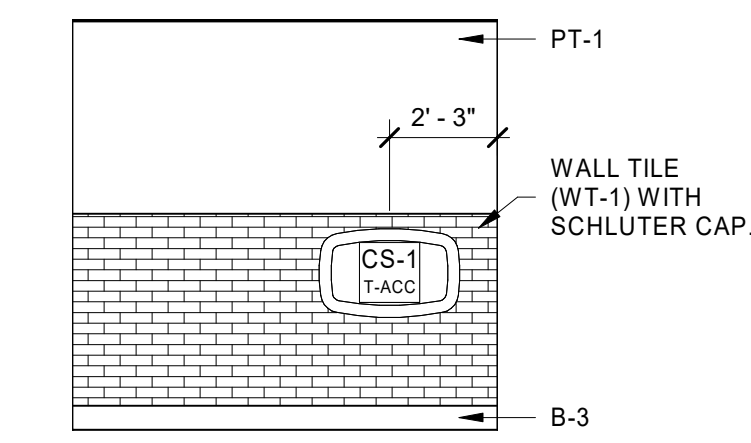
5 Interior Elevation
Restroom 130 - 4

A5.10 1/4" = 1'-0"



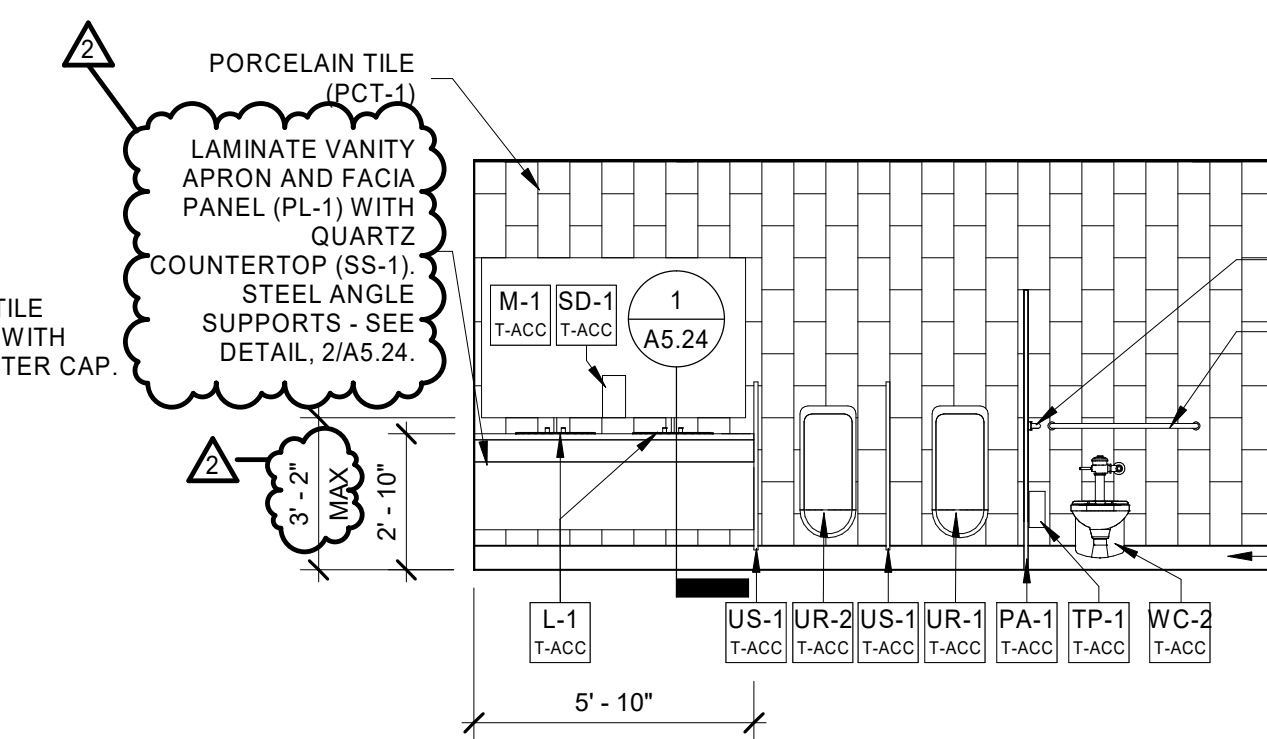
4 Interior Elevation
Restroom 130 - 3

A5.10 1/4" = 1'-0"



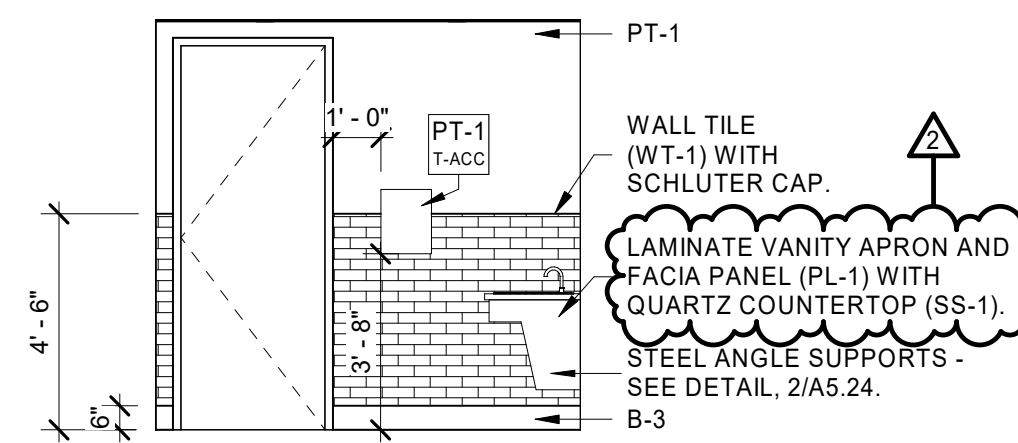
3 Interior Elevation
Restroom 130 - 2

A5.10 1/4" = 1'-0"



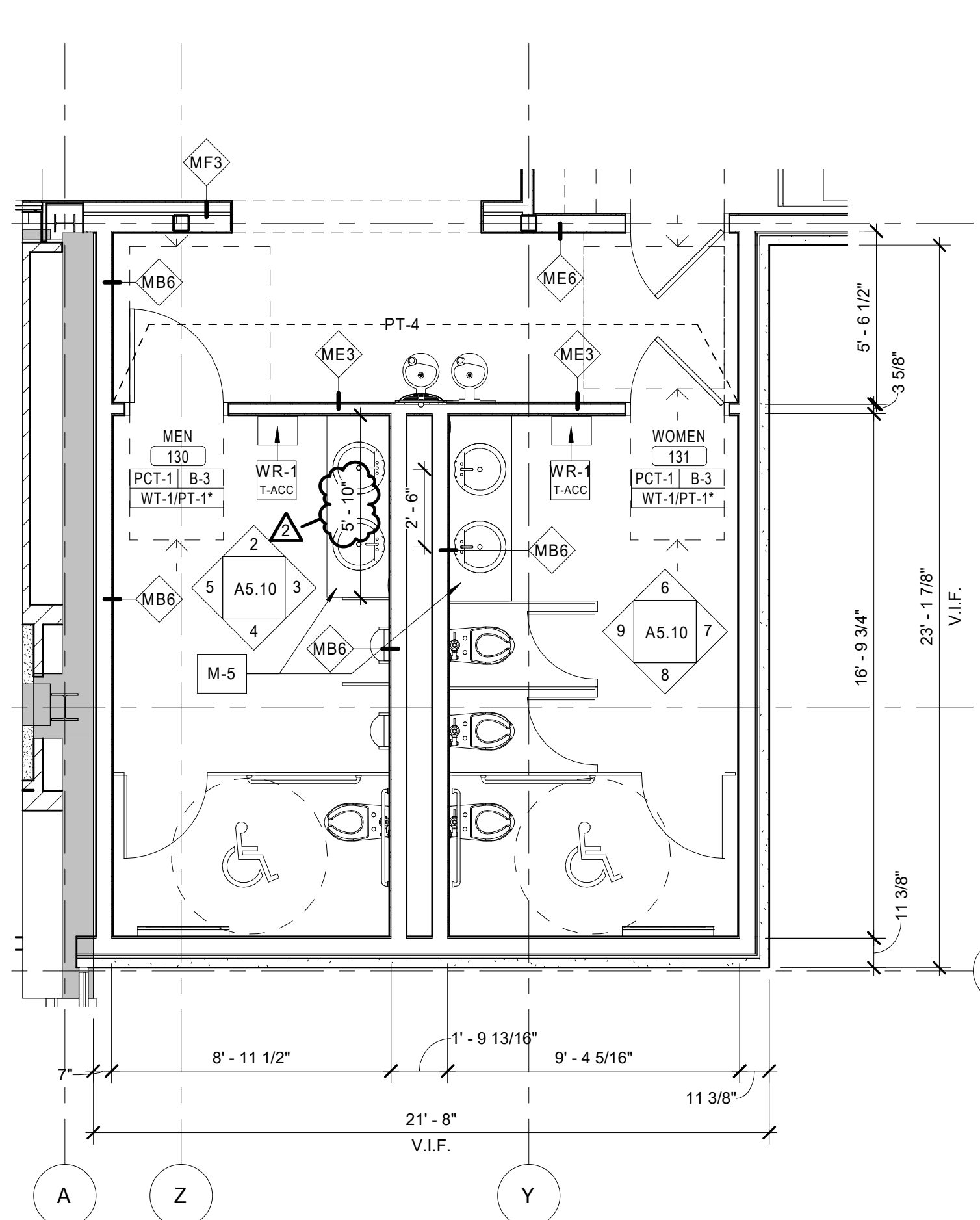
2 Interior Elevation
Restroom 130 - 1

A5.10 1/4" = 1'-0"



1 Floor Plan
Lobby Restrooms

A5.10 1/4" = 1'-0"



browning day

626 North Illinois Street
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MEP Engineer

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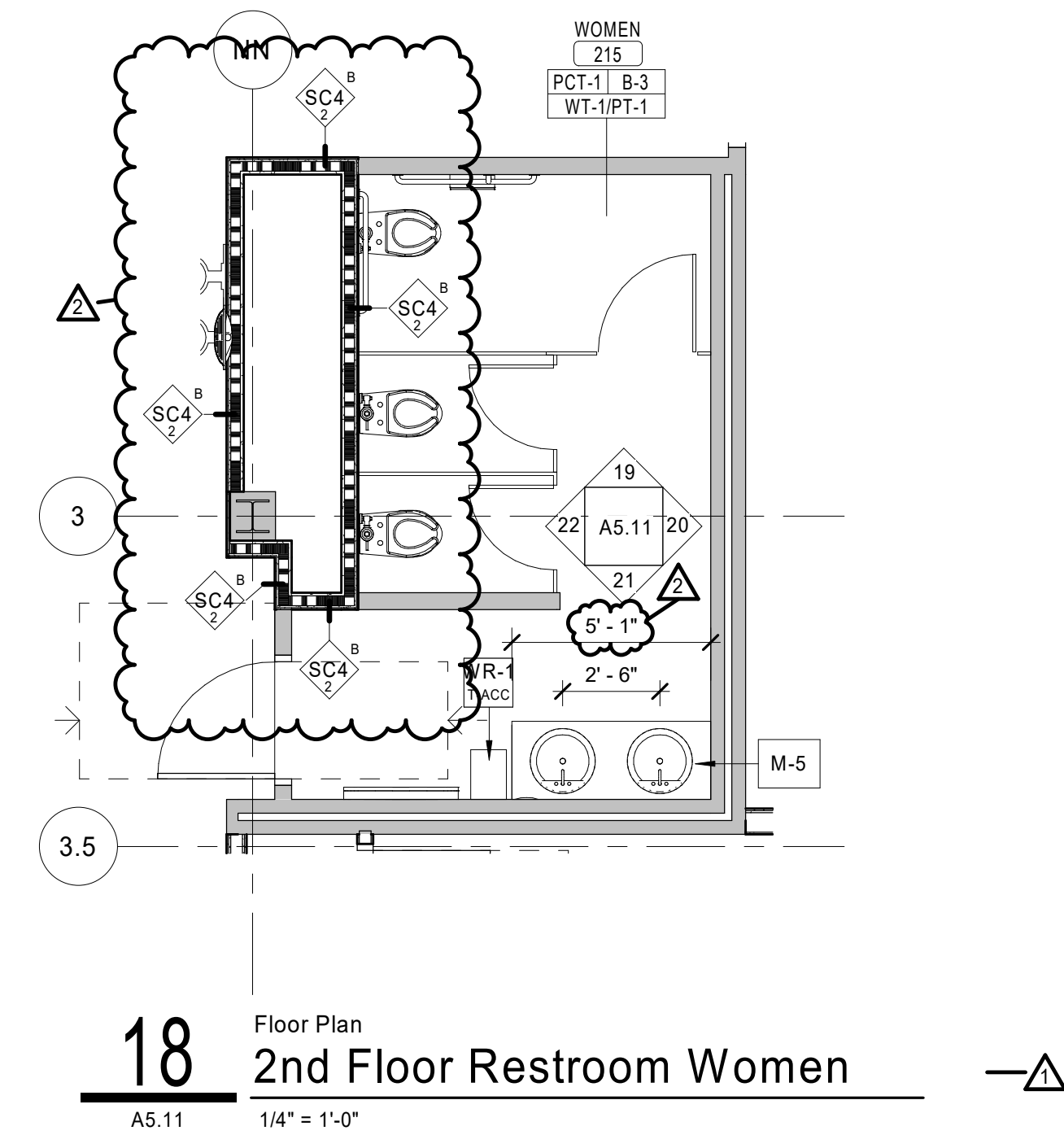
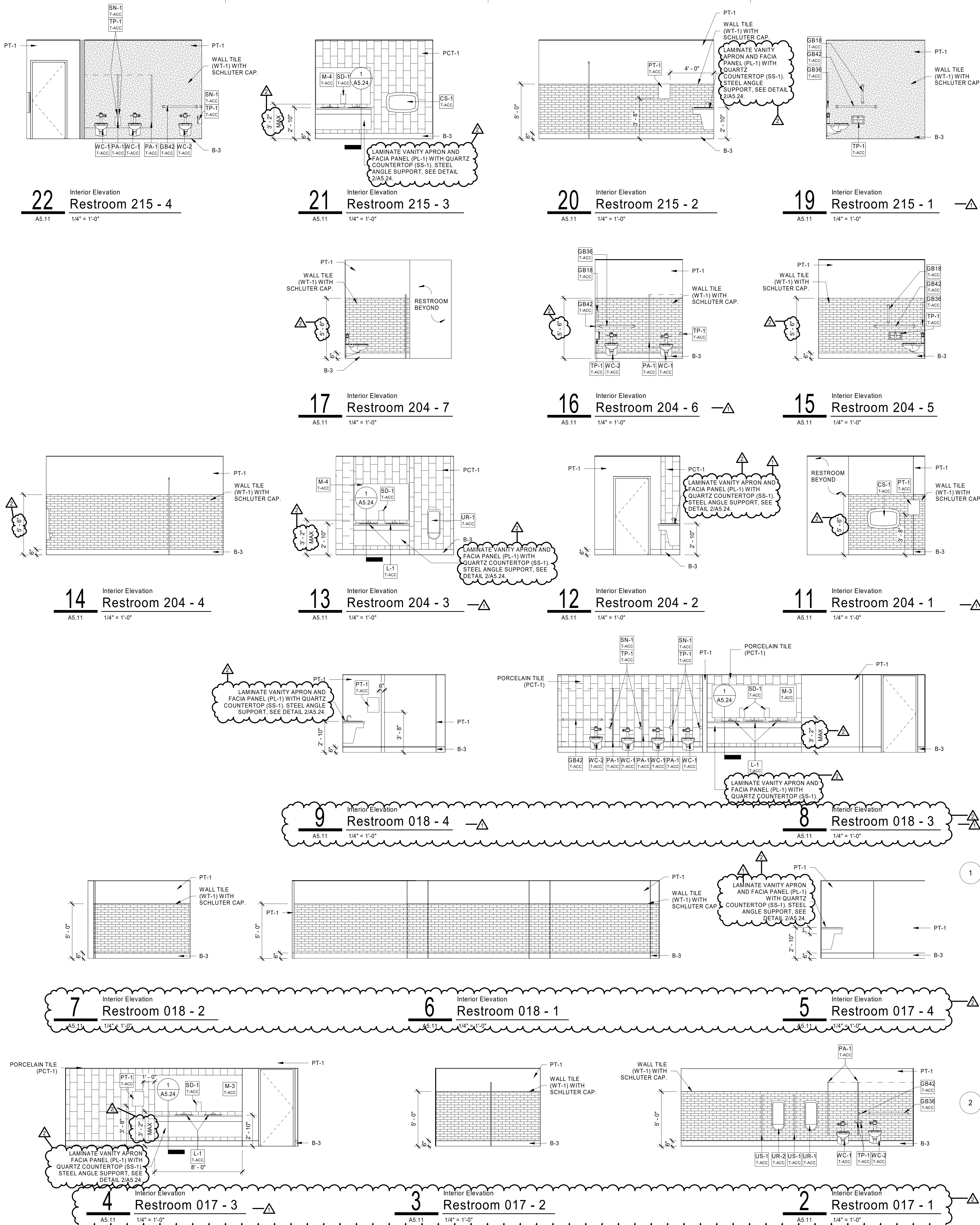
Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: A. Mattingly
Checked By: Checker
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

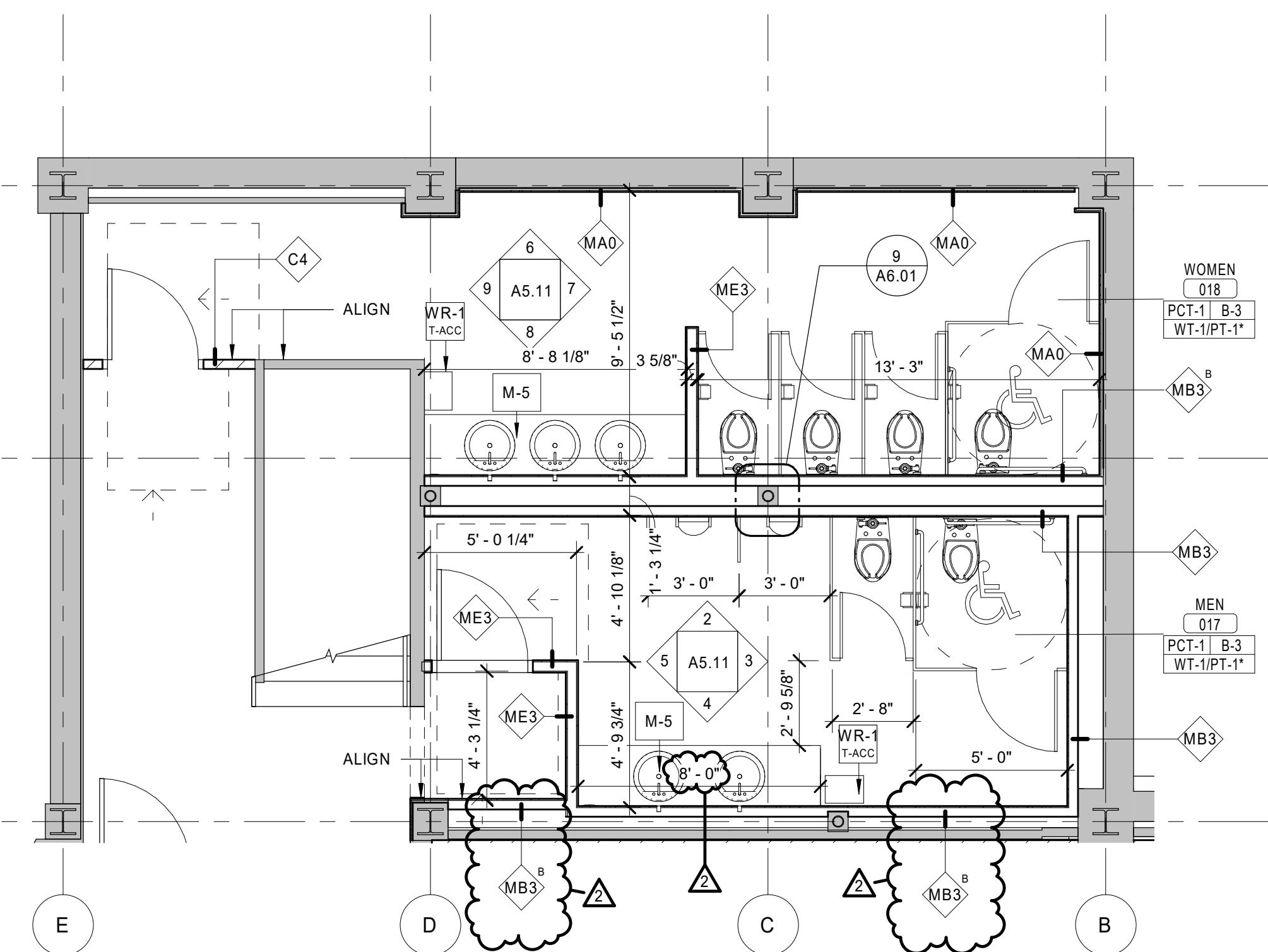
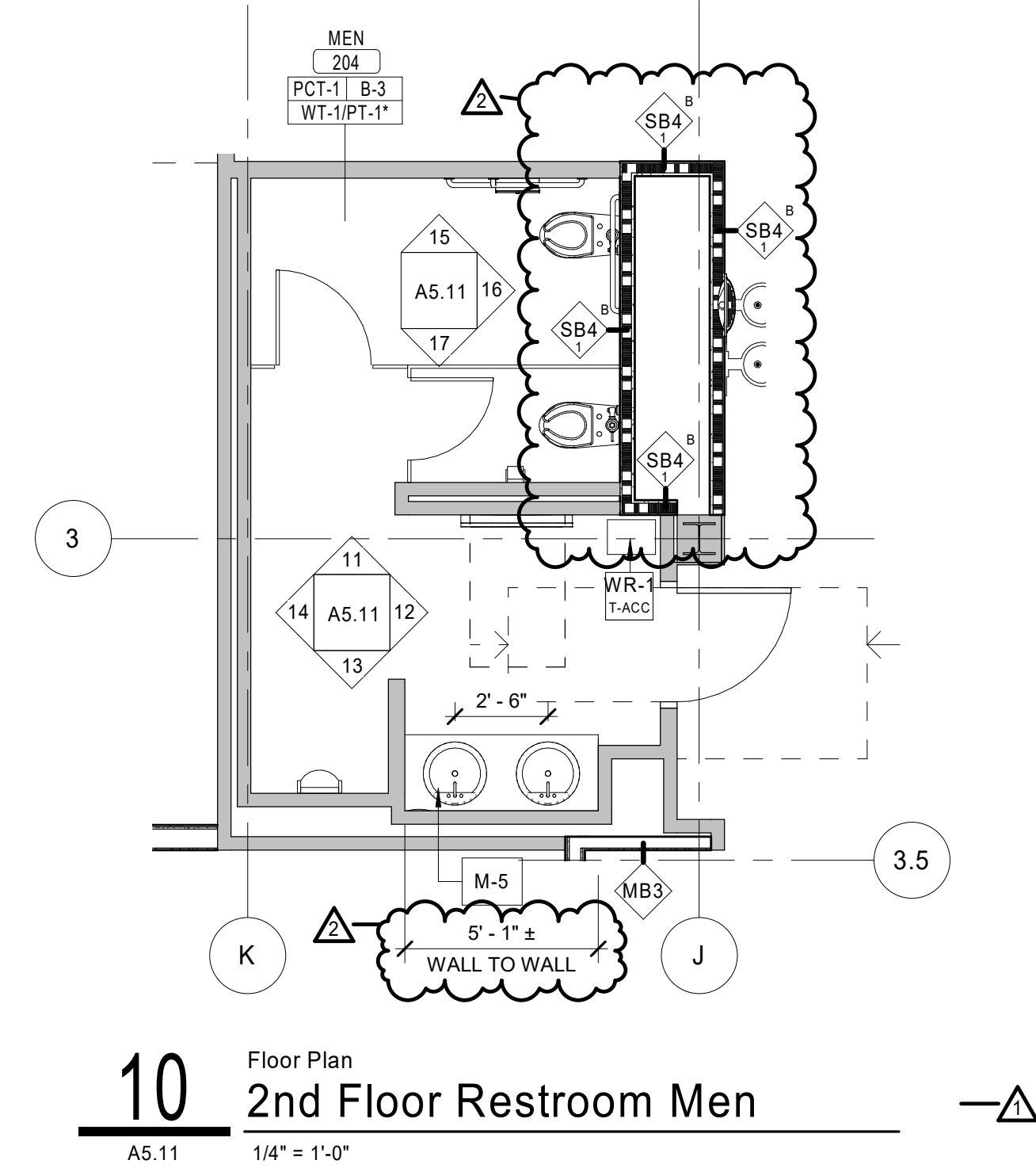
Enlarged Plans & Elevations
- Restrooms

A5.10



CODED TOILET ACC. NOTES	
NO.	NOTE
CS-1	CHANGING STATION, BASIS OF DESIGN: KOALA BEAR - KB110-SSWM.
GB18	18" GRAB BAR, BASIS OF DESIGN: BOBRICK - B-5806.
GB36	36" GRAB BAR, BASIS OF DESIGN: BOBRICK - B-5806.
GB42	42" GRAB BAR, BASIS OF DESIGN: BOBRICK - B-5806.
M-1	UNDERMOUNT LAVATORY - ADA.
M-2	66" X 36" MIRROR WITH J CHANNEL, CONCEALED MOUNTING.
M-3	96" X 36" MIRROR WITH J CHANNEL, CONCEALED MOUNTING.
M-4	60" X 40" MIRROR WITH J CHANNEL, CONCEALED MOUNTING.
PA-1	FLOOR MOUNTED PARTITION, BASIS OF DESIGN: GLOBAL STEEL PRODUCTS - PAINTED PARTITION, ARCHITECT TO SELECT FROM MANUFACTURER'S FULL RANGE.
PT-1	PAPER TOWEL DISPENSER, ISU STANDARD, SEE SPECIFICATIONS.
SD-1	SOAP DISPENSER MOUNTED TO MIRROR, ISU STANDARD, SEE SPECIFICATIONS.
SH-1	PREFABRICATED SHOWER UNIT - ADA.
SN-1	SANITARY NAPKIN DISPOSAL, ISU STANDARD, SEE SPECIFICATIONS.
TP-1	TOILET PAPER HOLDER, ISU STANDARD TWIN ROLL JUMMO, SEE SPECIFICATIONS.
TP-2	TOILET PAPER HOLDER, ISU STANDARD SINGLE ROLL JUMMO, SEE SPECIFICATIONS.
UR-1	URINAL - ADA.
UR-2	URINAL.
US-1	URINAL PARTITION, BASIS OF DESIGN: GLOBAL STEEL PRODUCTS - PAINTED PARTITION, ARCHITECT TO SELECT FROM MANUFACTURER'S FULL RANGE.
WC-1	WATER CLOSET - WALL HUNG, ADA.
WC-2	WATER CLOSET - WALL HUNG, ADA.
WR-1	WASTE RECEPTACLE, ISU STANDARD, SEE SPECIFICATIONS.

* REFER TO PAGE A0.20 - ADA FOR ADA MOUNTING HEIGHTS AND INSTALLATION REQUIREMENTS.



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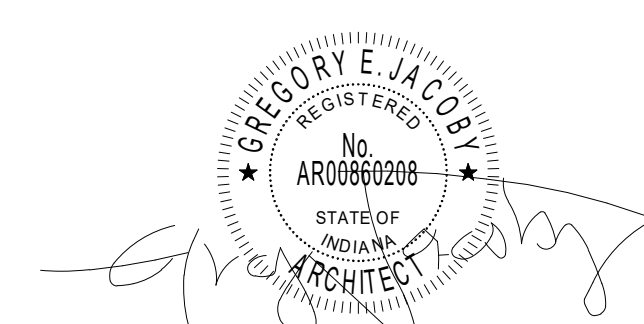
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Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

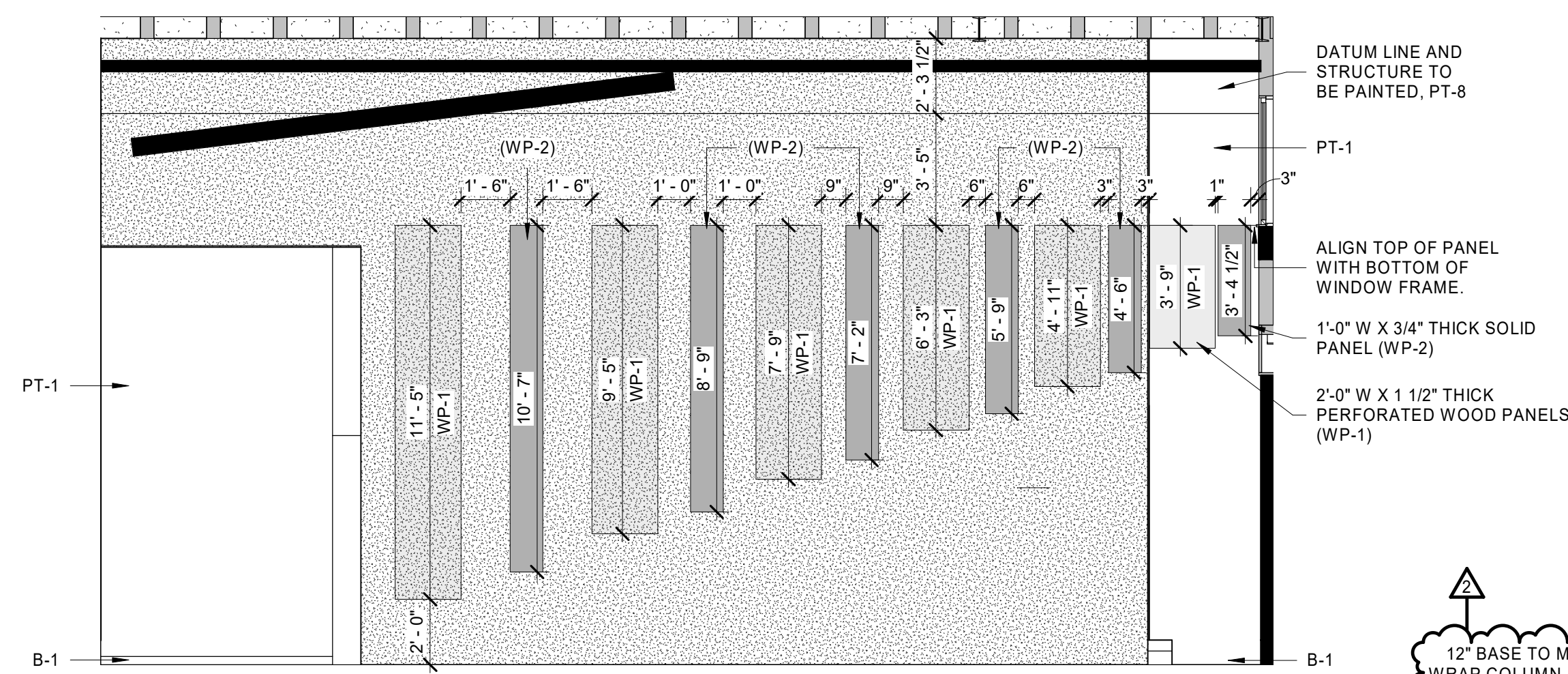
Project No.: 19A052
Drawn By: A. Mattingly
Checked By: Checker
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

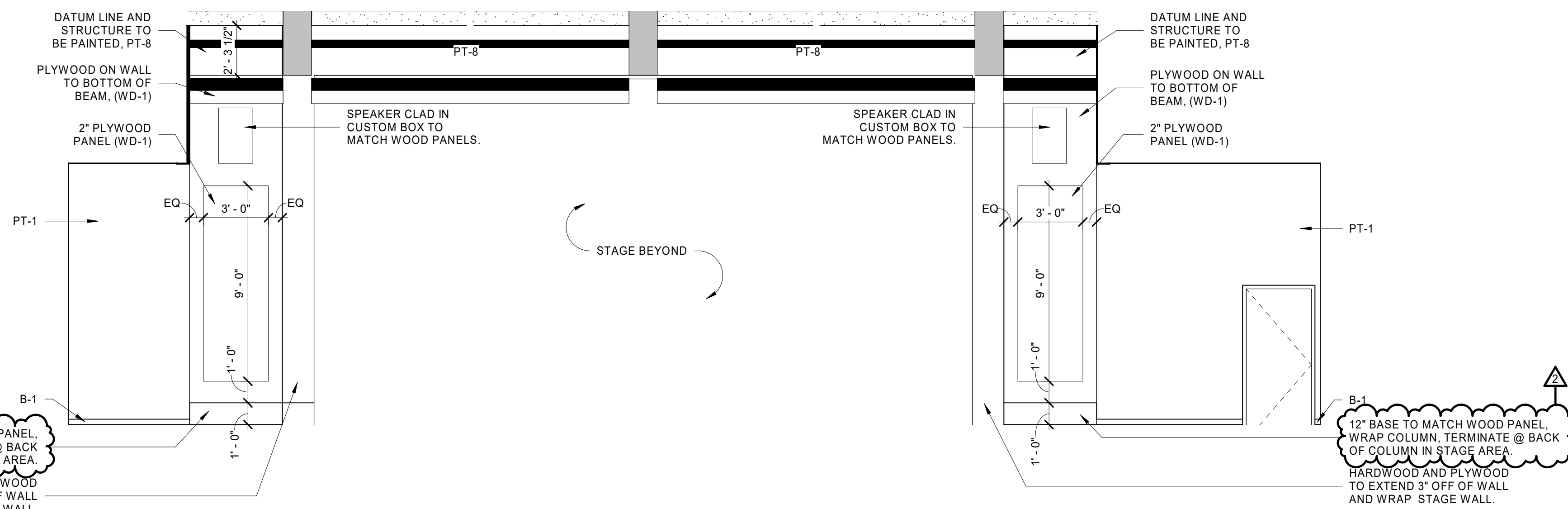
Enlarged Plans & Elevations
- Restrooms

A5.11

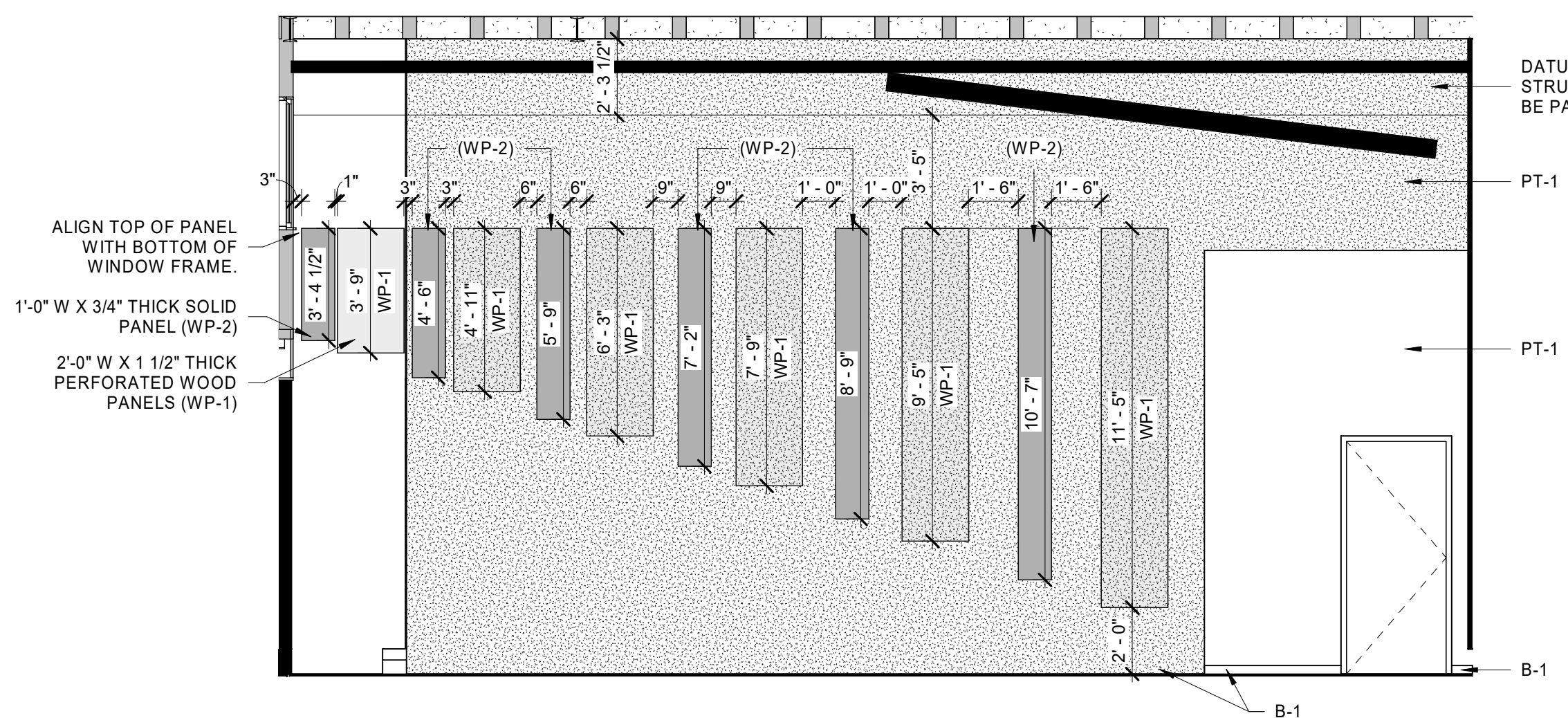
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
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2	Addendum #2	6/19/2020



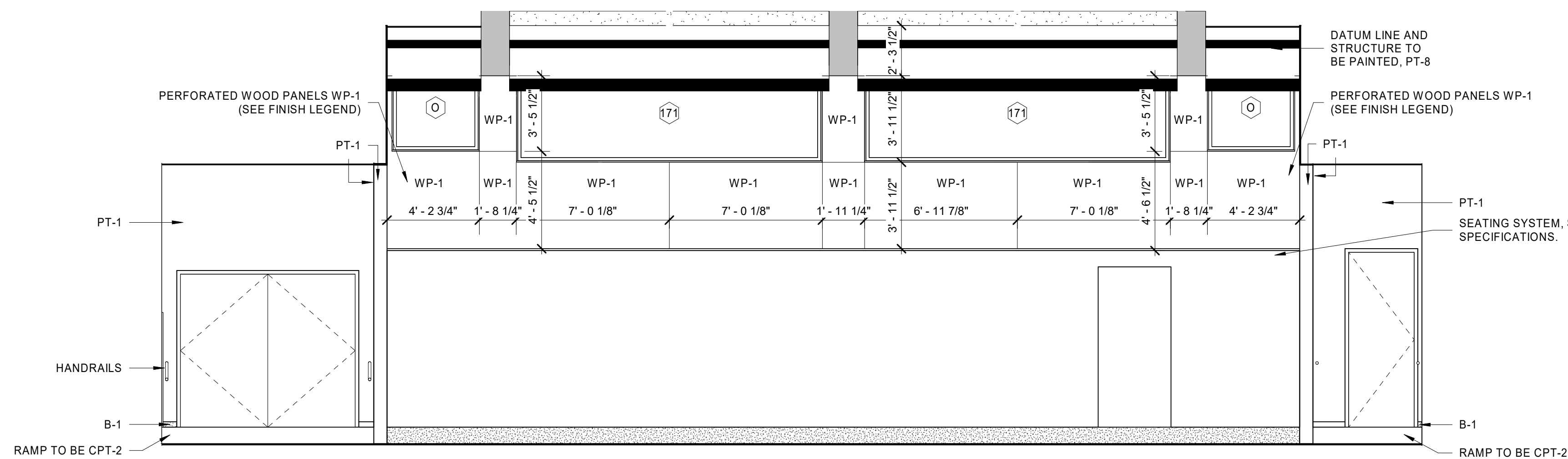
8 Interior Elevation
Theater - 4
A5.12 1/4" = 1'-0"



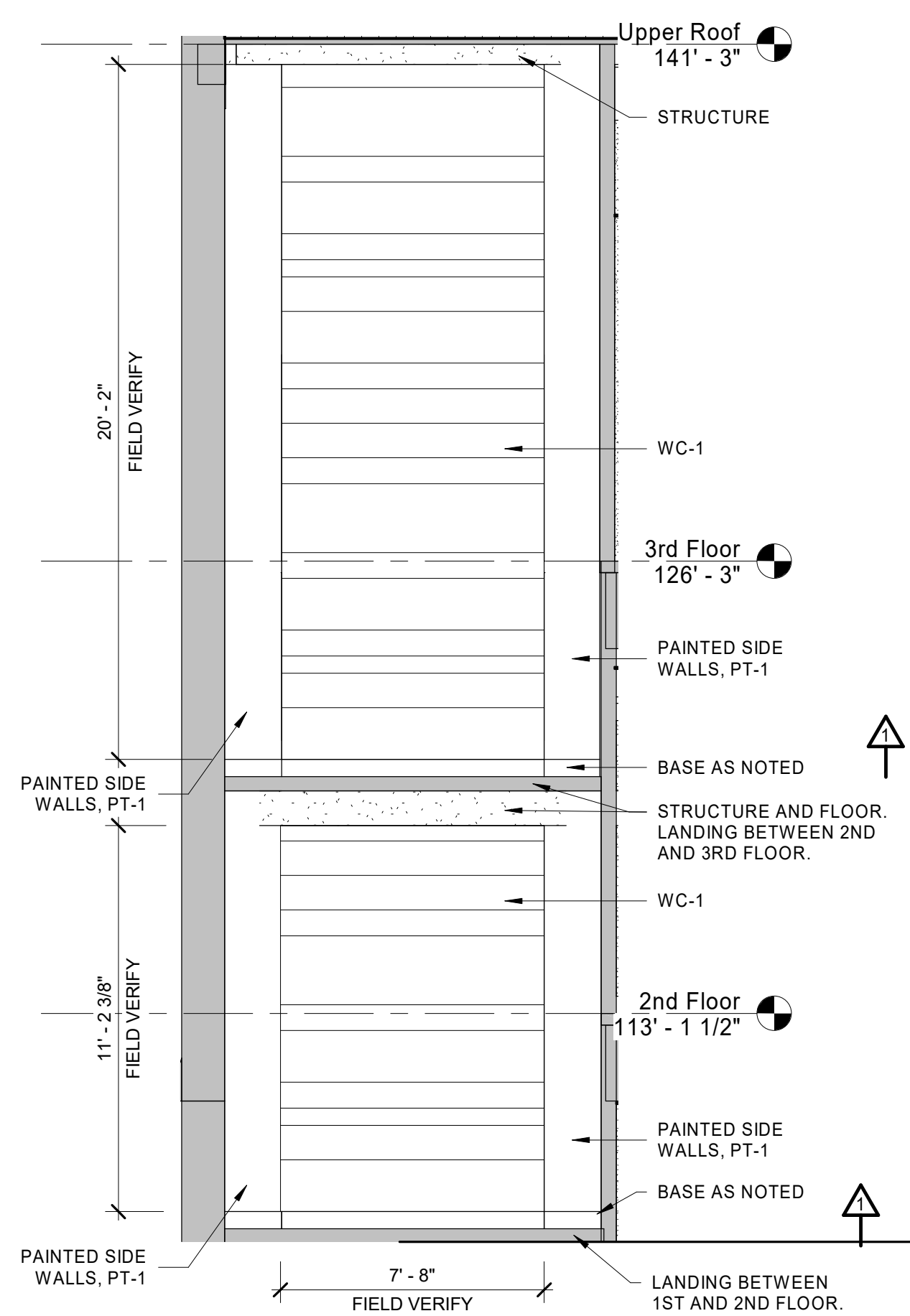
7 Interior Elevation
Theater - 3
A5.12 1/4" = 1'-0"



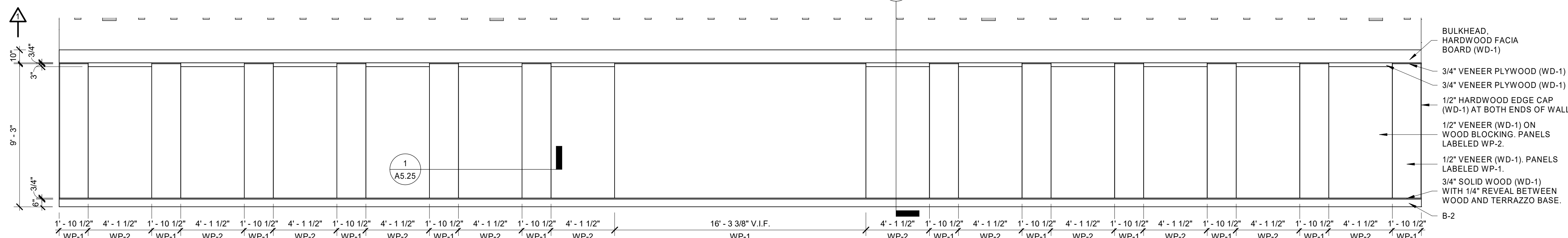
6 Interior Elevation
Theater - 2
A5.12 1/4" = 1'-0"



5 Interior Elevation
Theater - 1
A5.12 1/4" = 1'-0"

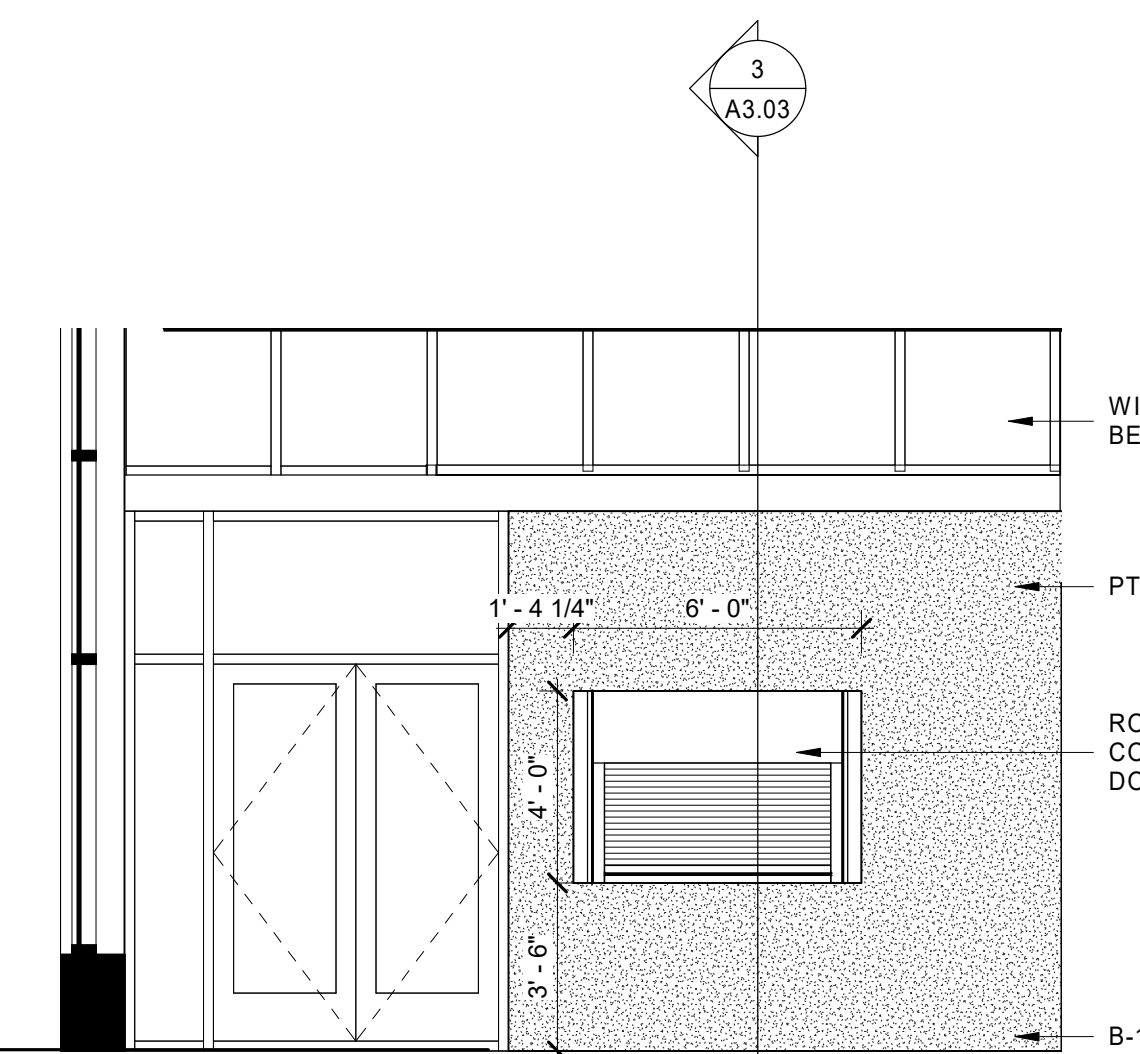


3 Wall Section
Stairwell - Accent Wall
A5.12 1/4" = 1'-0"



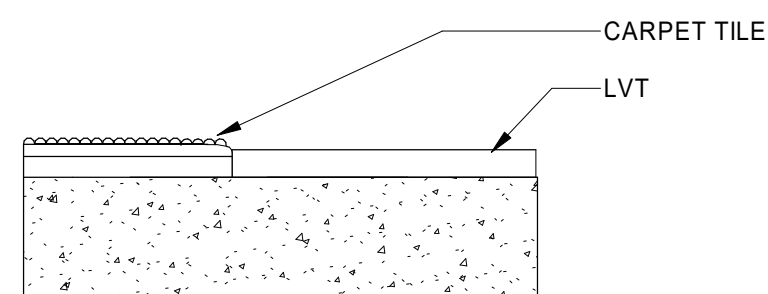
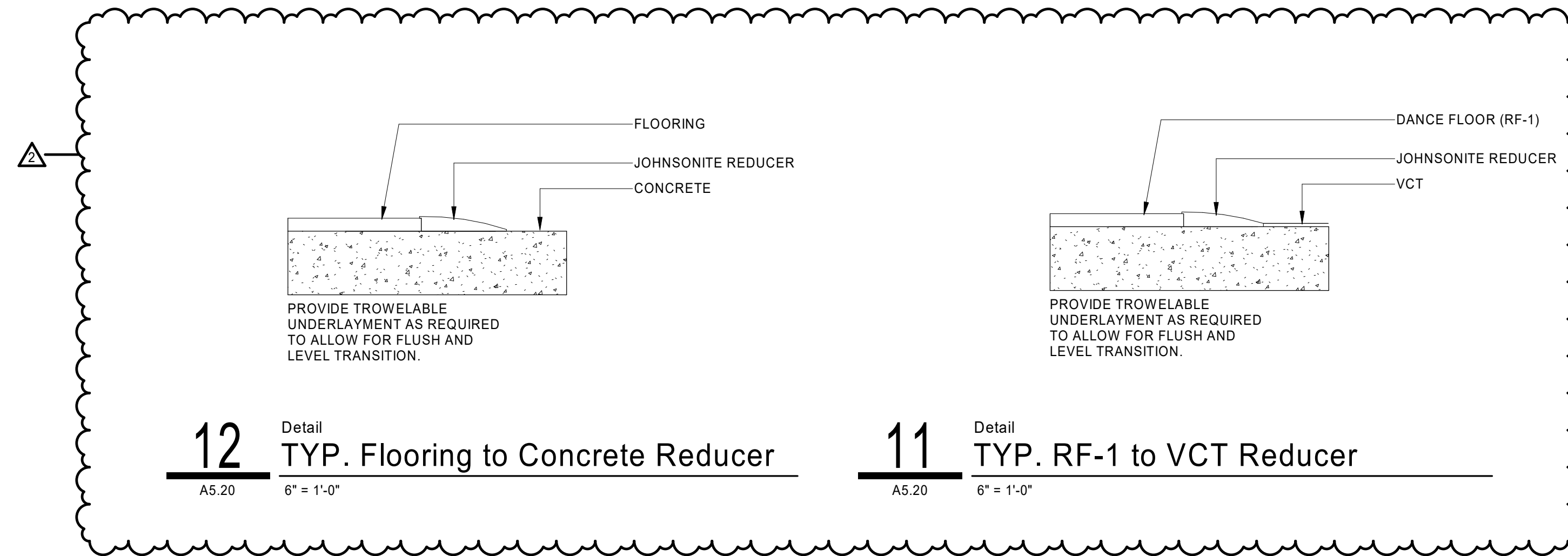
2 Floor Plan
Stair #2 - Accent Wall
A5.12 1/4" = 1'-0"

4 Interior Elevation
1st Floor - East Corridor Wall
A5.12 1/4" = 1'-0"

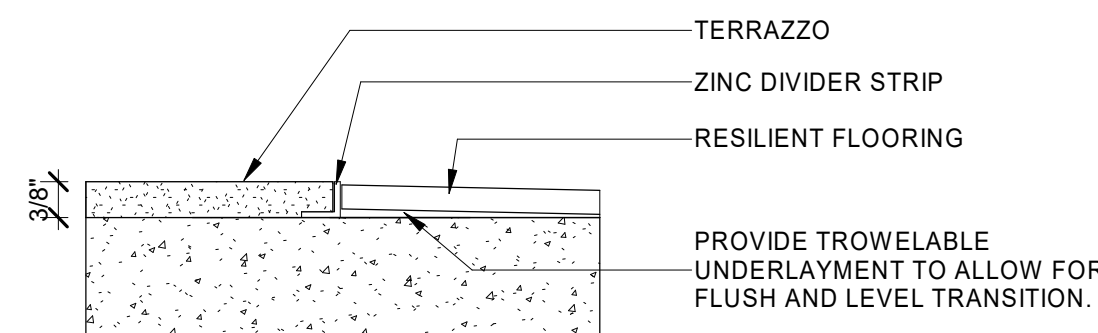


3 Interior Elevation
Conc. 133
A5.12 1/4" = 1'-0"

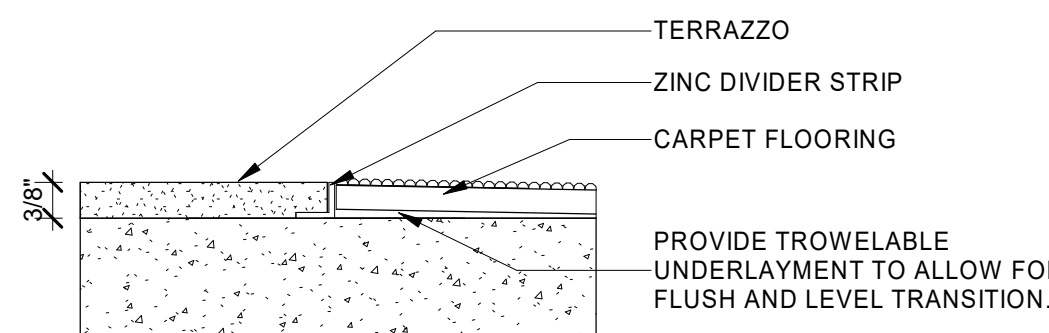
REVISION SCHEDULE		
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1	Addendum #1	6/12/2020
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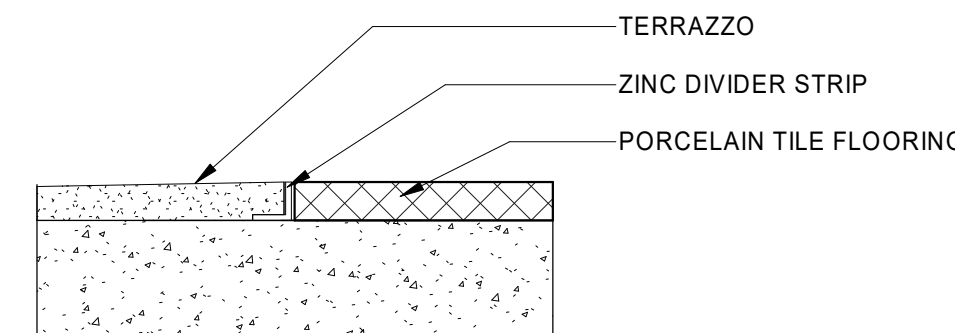
10 Detail
Carpet Tile to LVT Transition
A5.20 6" = 1'-0"



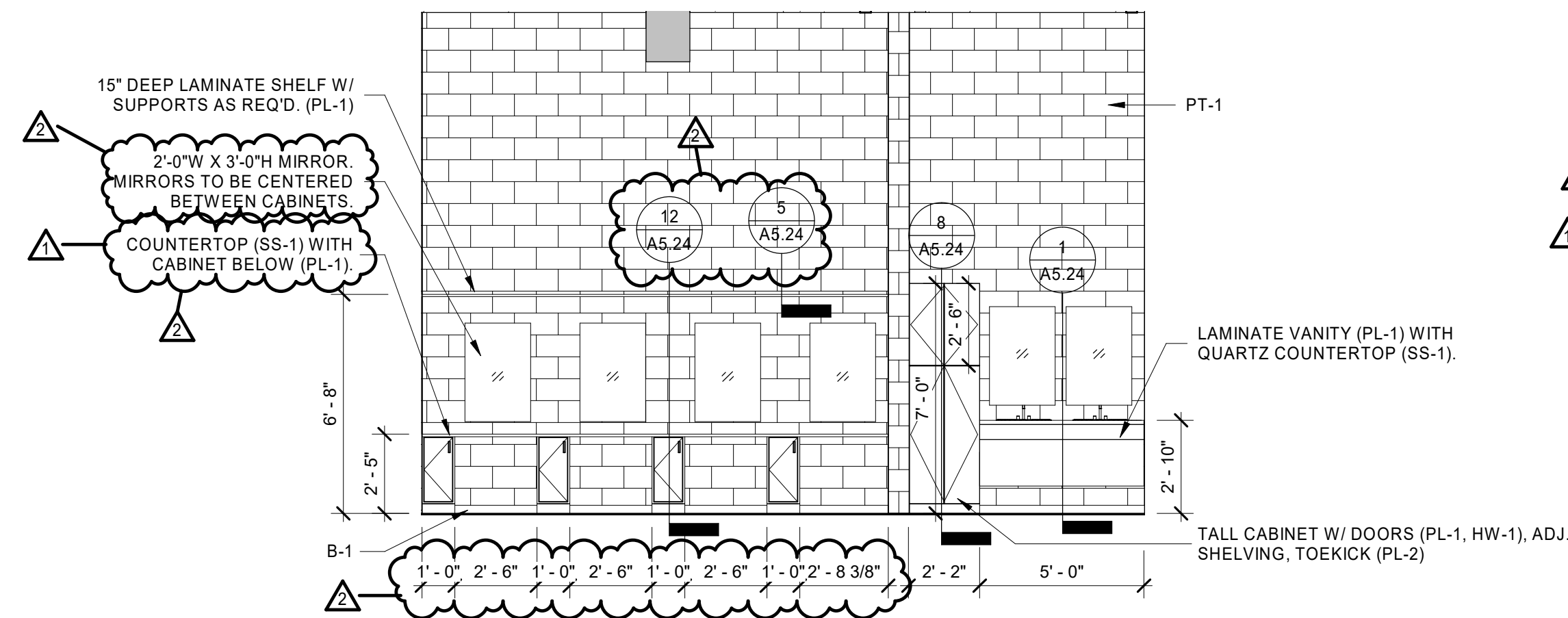
9 Detail
Terrazzo to Resilient Flooring Transition
A5.20 6" = 1'-0"



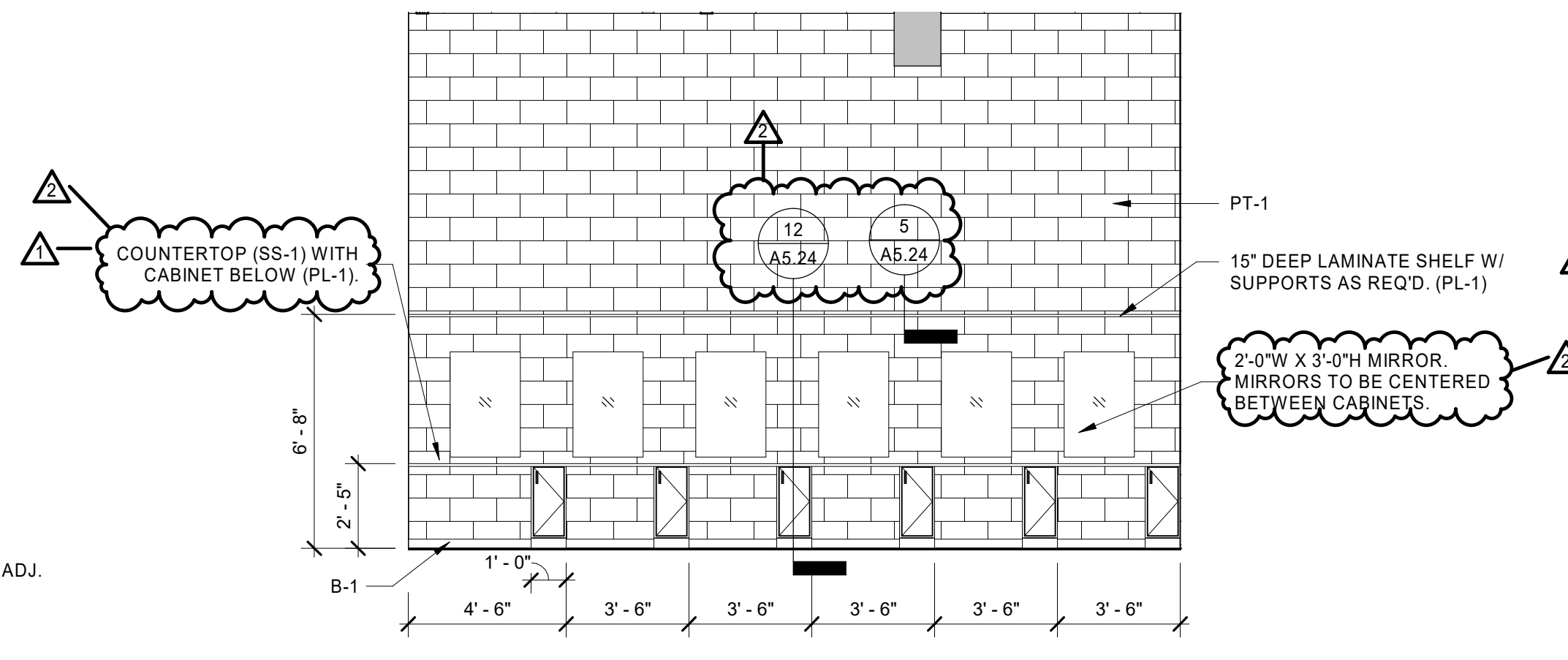
8 Detail
Terrazzo to Carpet Transition
A5.20 6" = 1'-0"



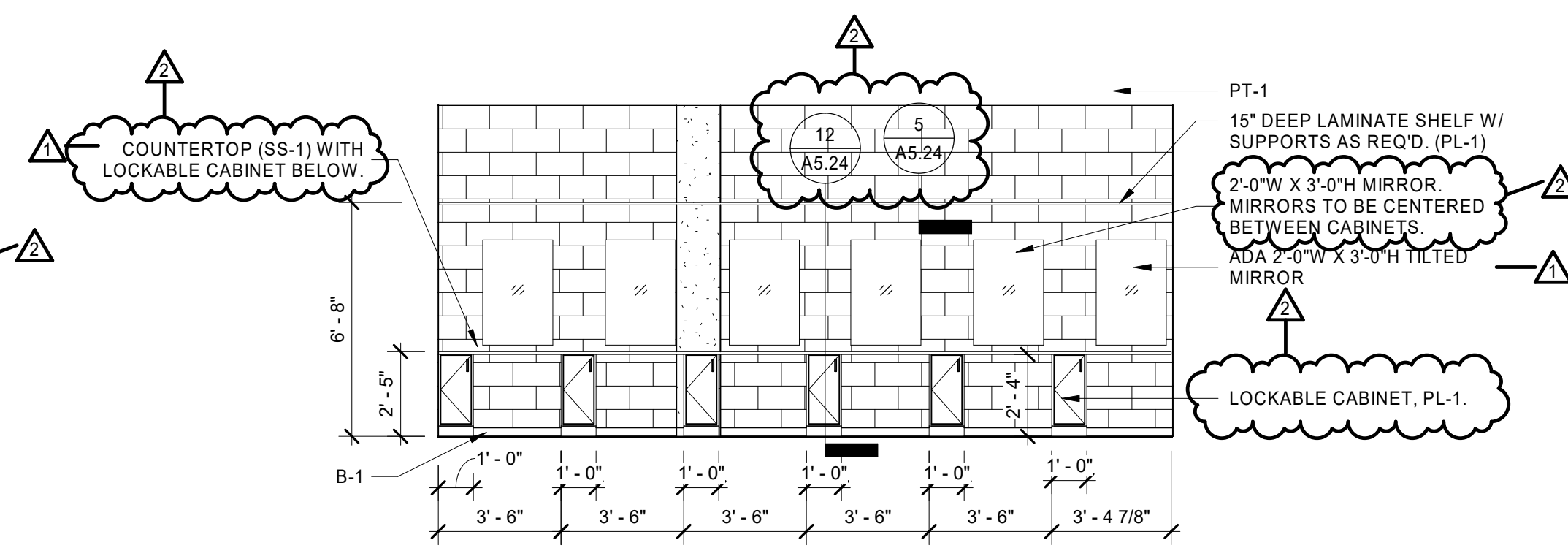
7 Detail
Terrazzo to Porcelain Transition
A5.20 6" = 1'-0"



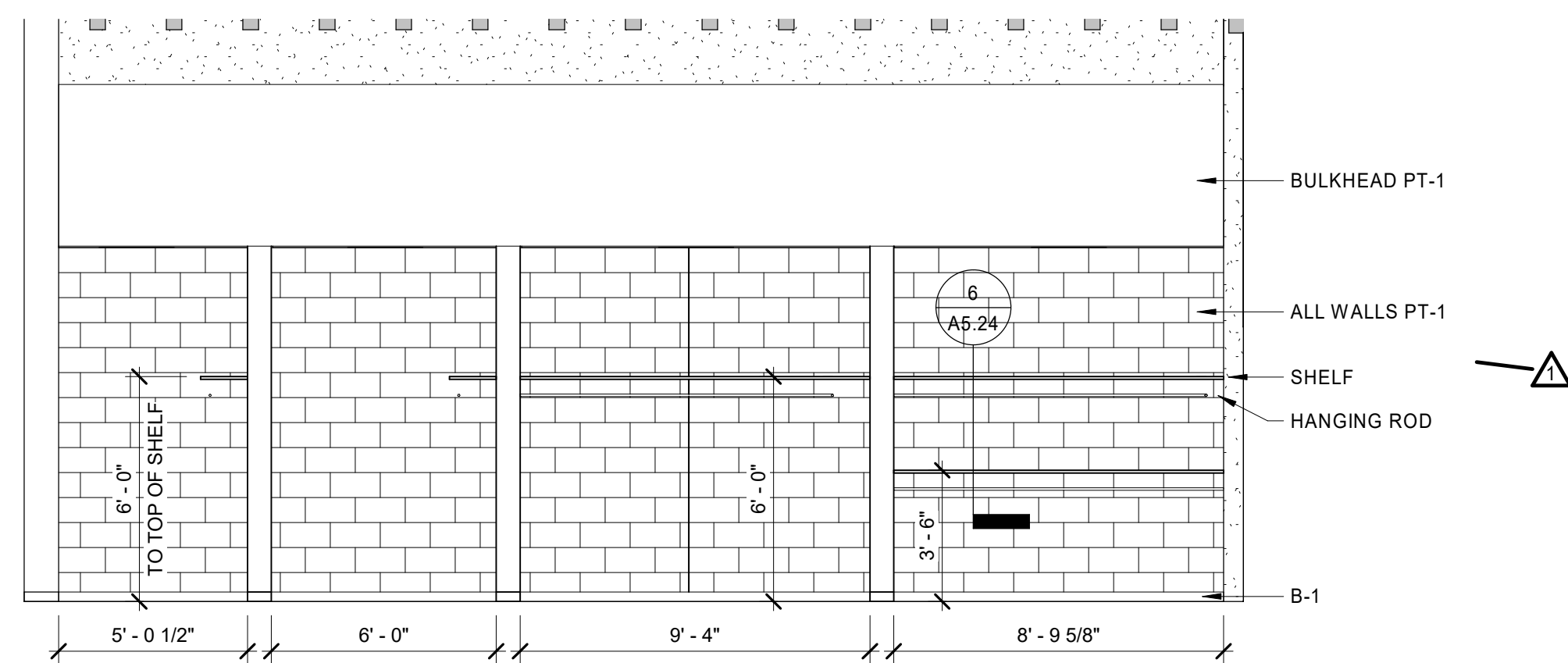
6 Interior Elevation
M-4/M-5 - Makeup 3
A5.20 1/4" = 1'-0"



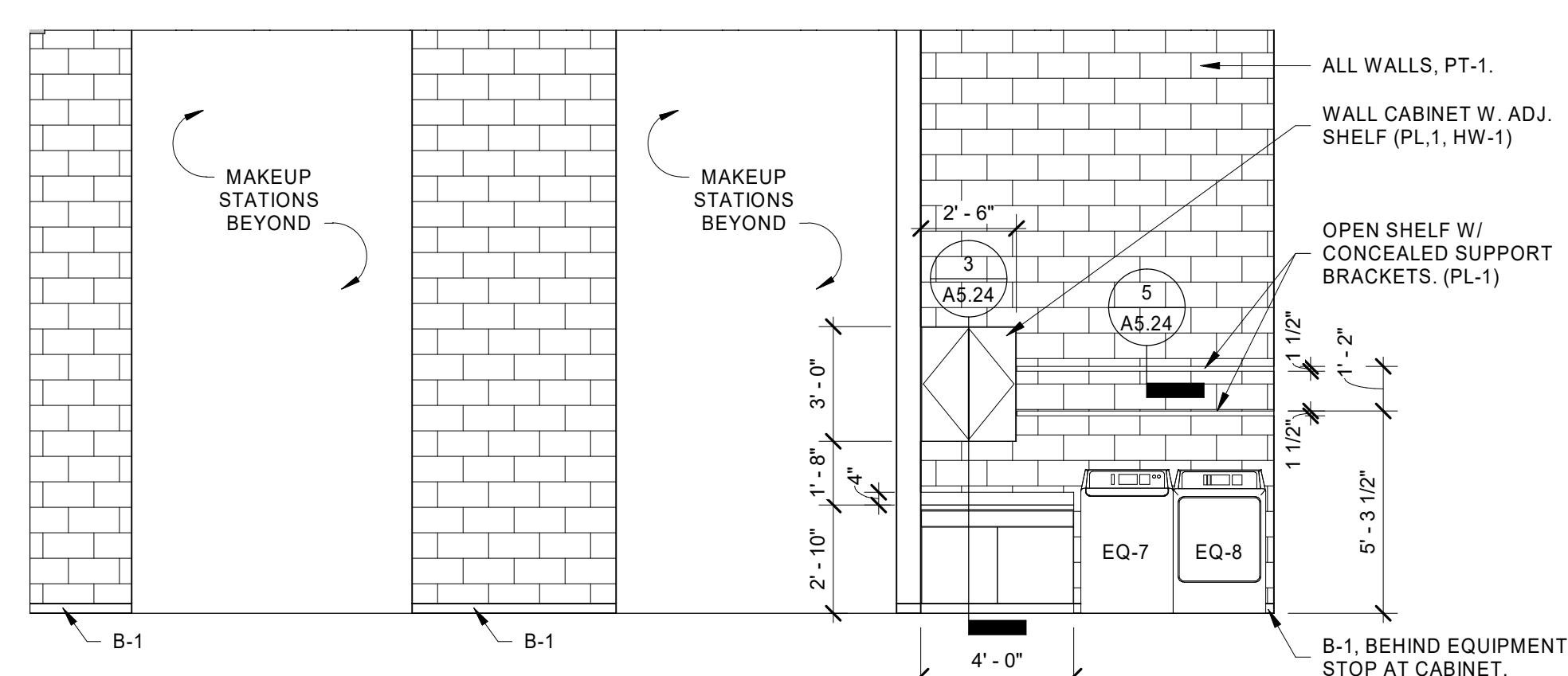
5 Interior Elevation
M-4 - Makeup 2
A5.20 1/4" = 1'-0"



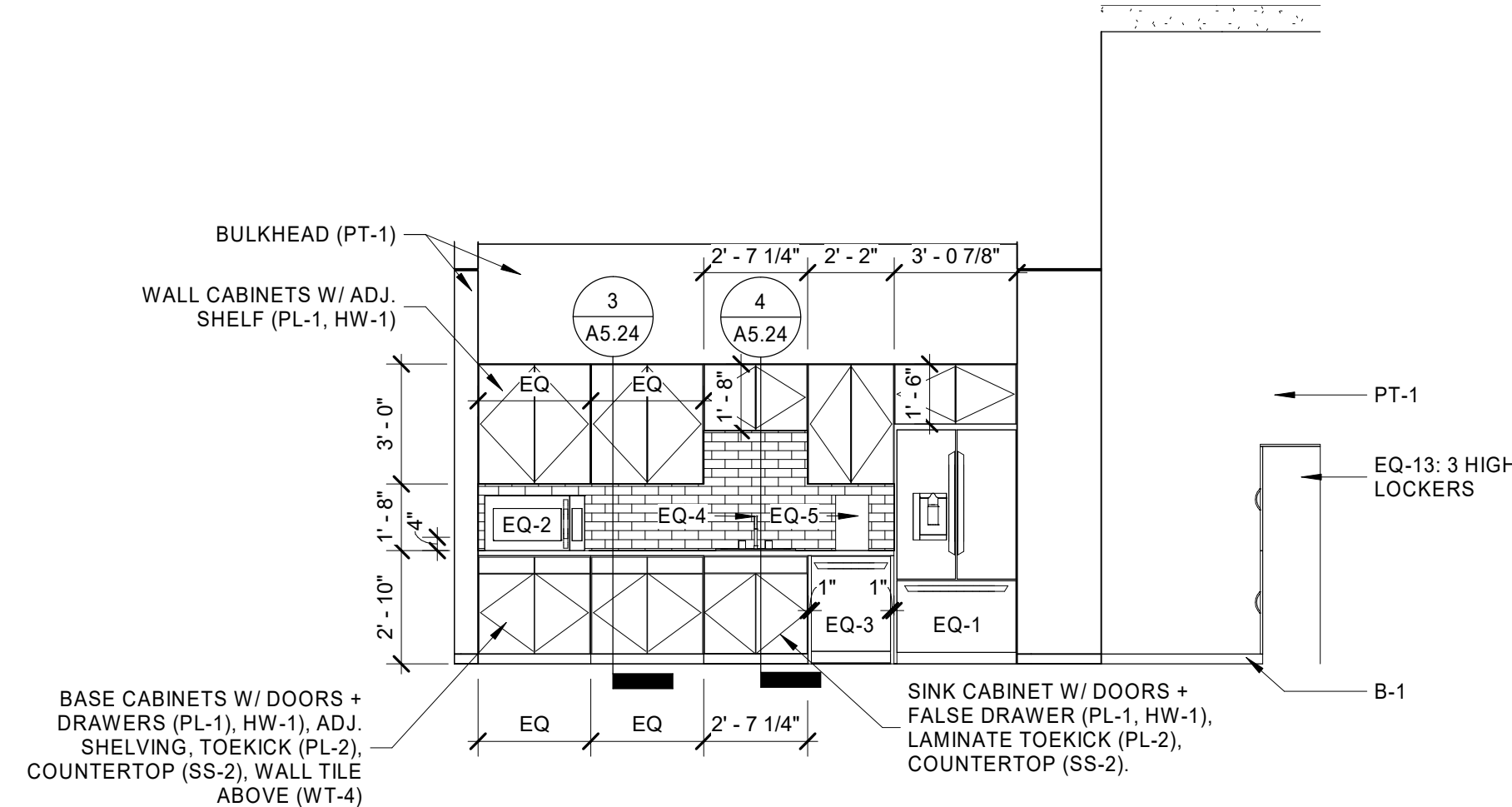
4 Interior Elevation
M-4 - Makeup 1
A5.20 1/4" = 1'-0"

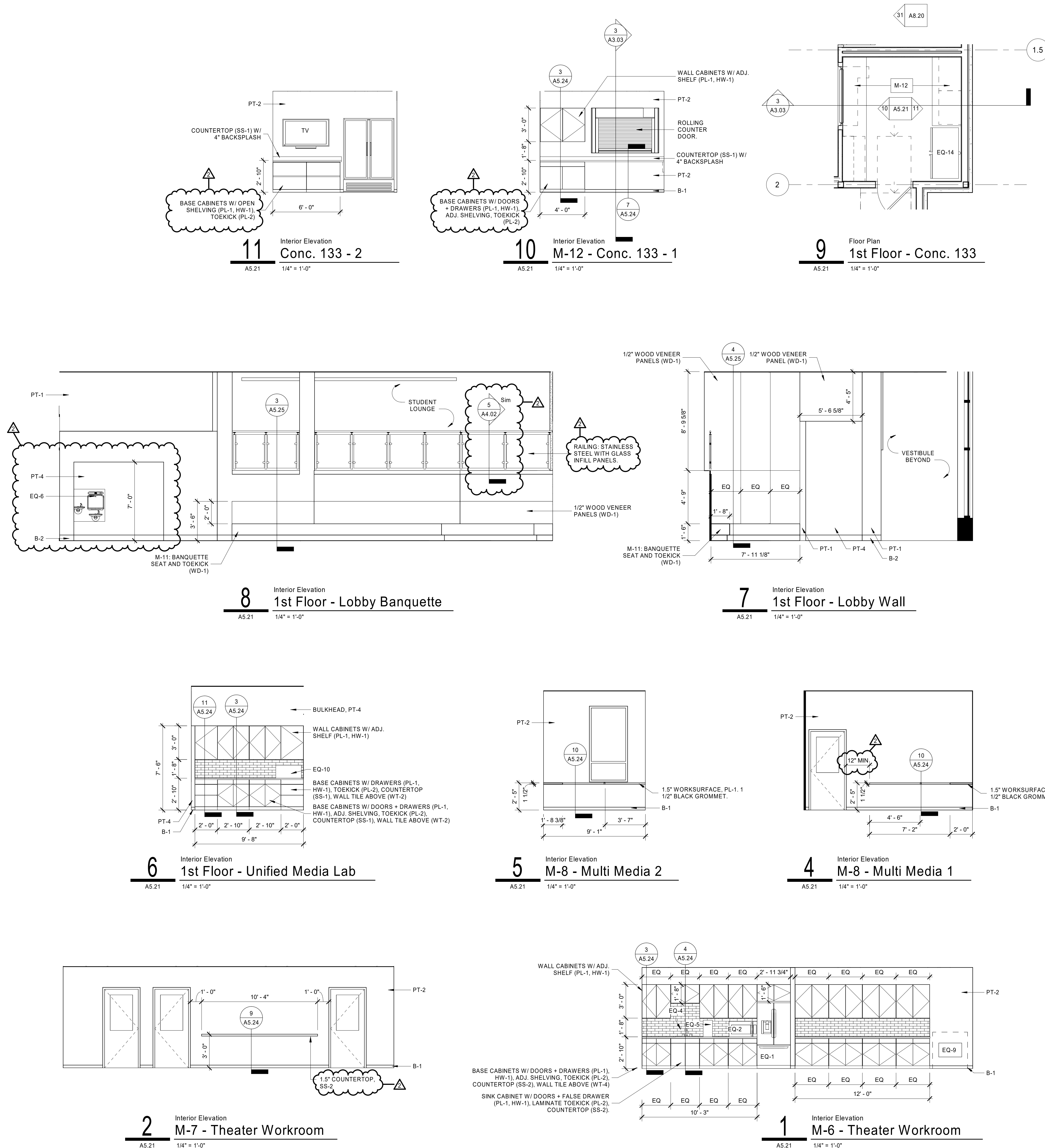


3 Interior Elevation
M-3 - Dressing Room
A5.20 1/4" = 1'-0"

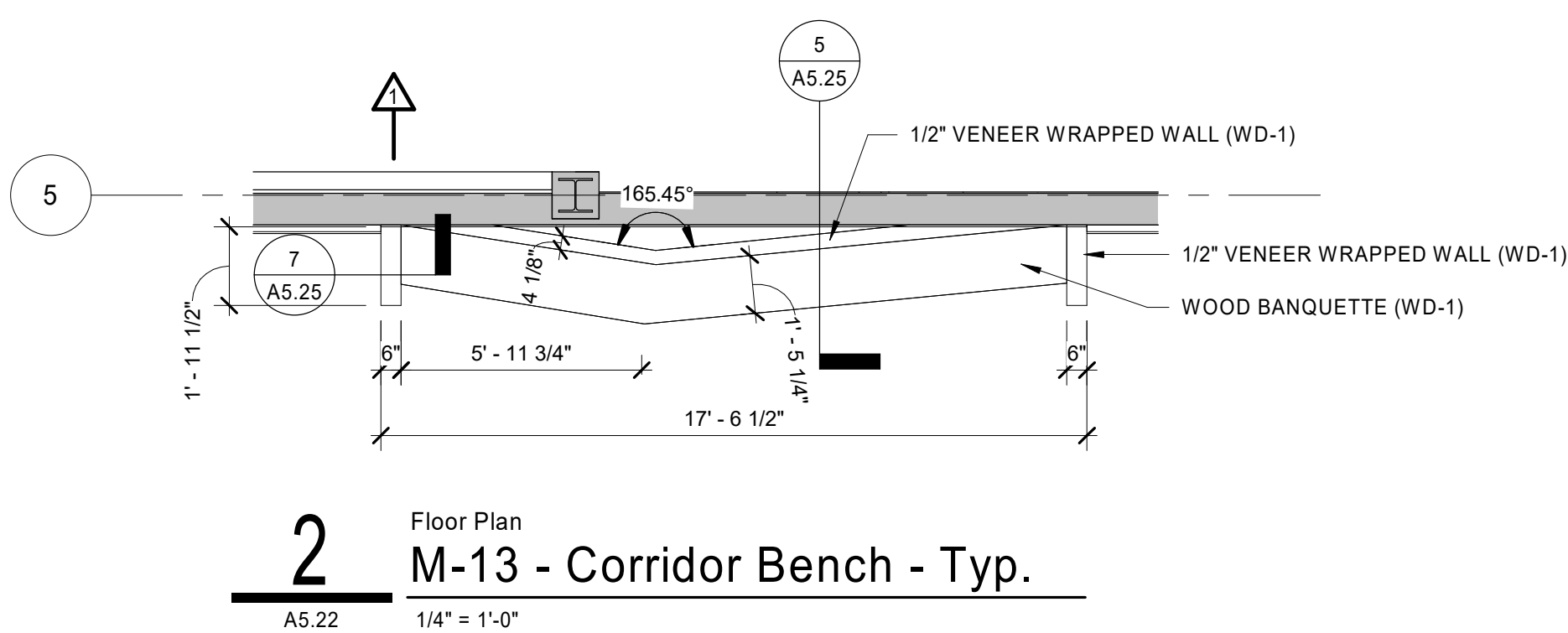
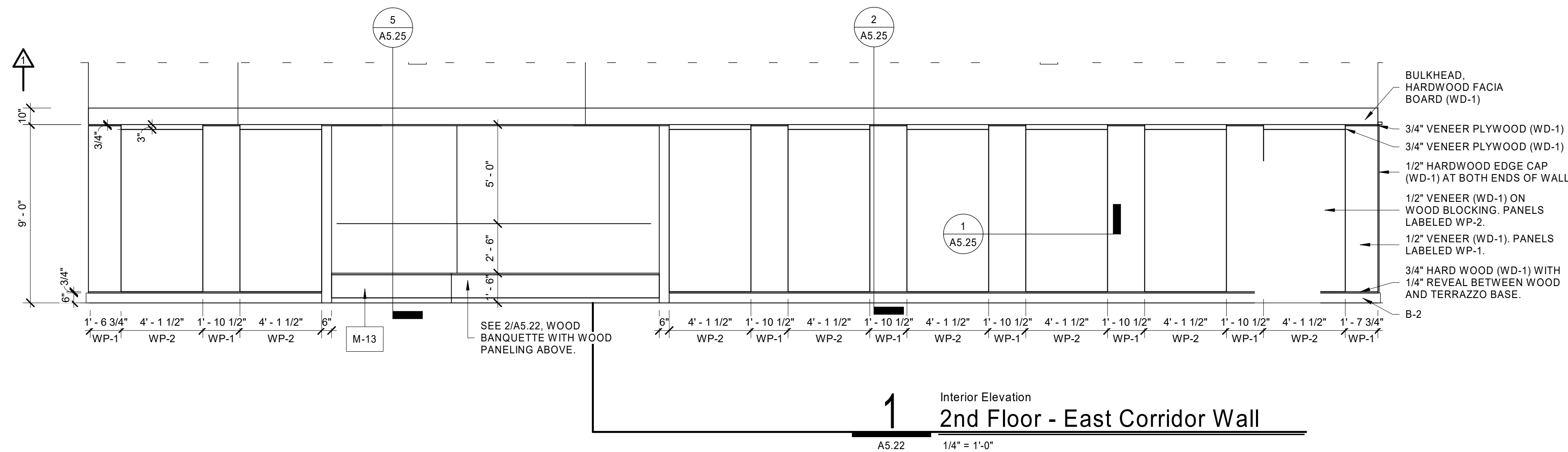
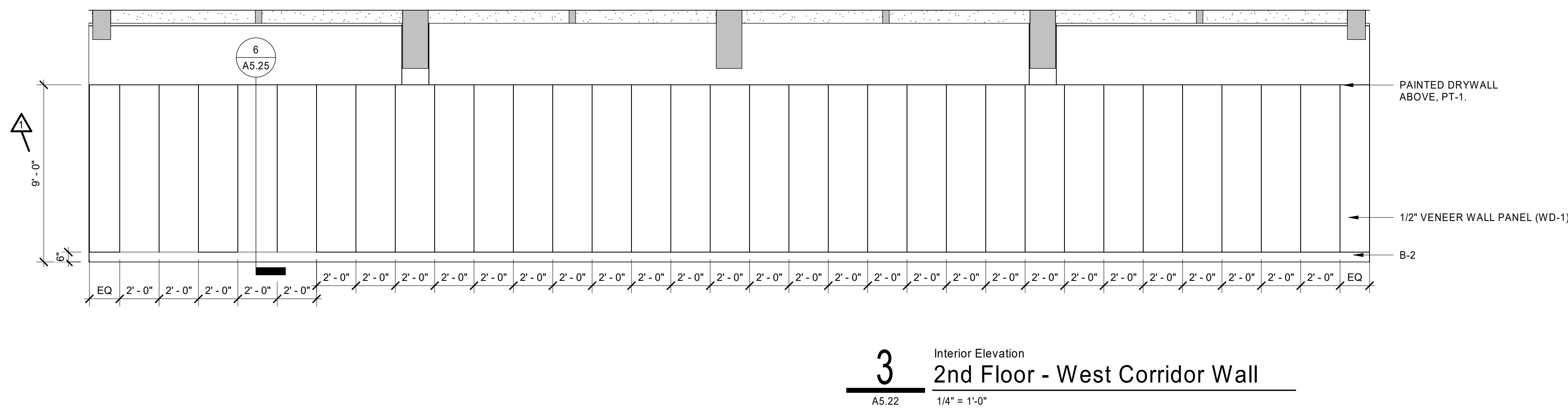
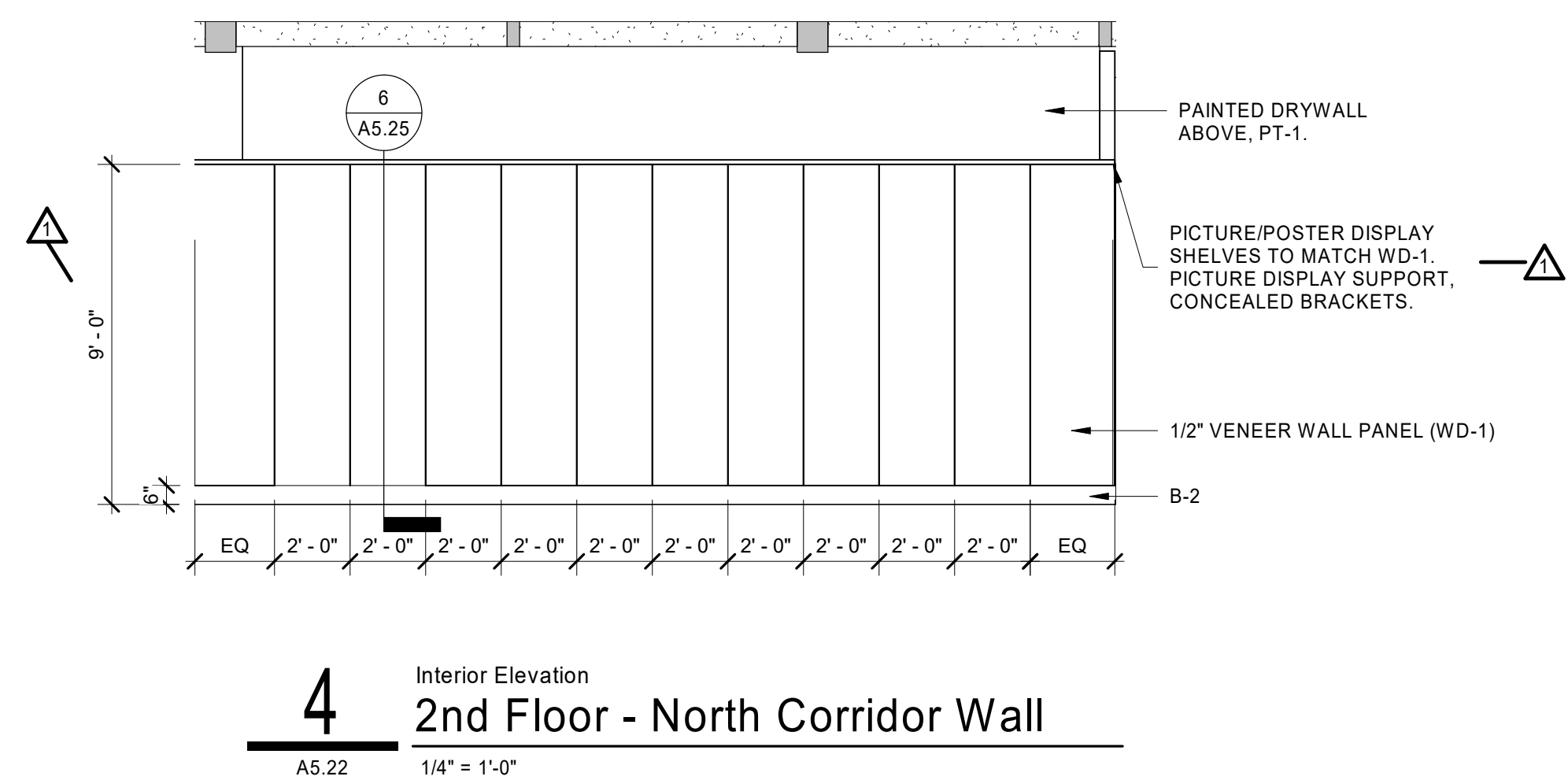
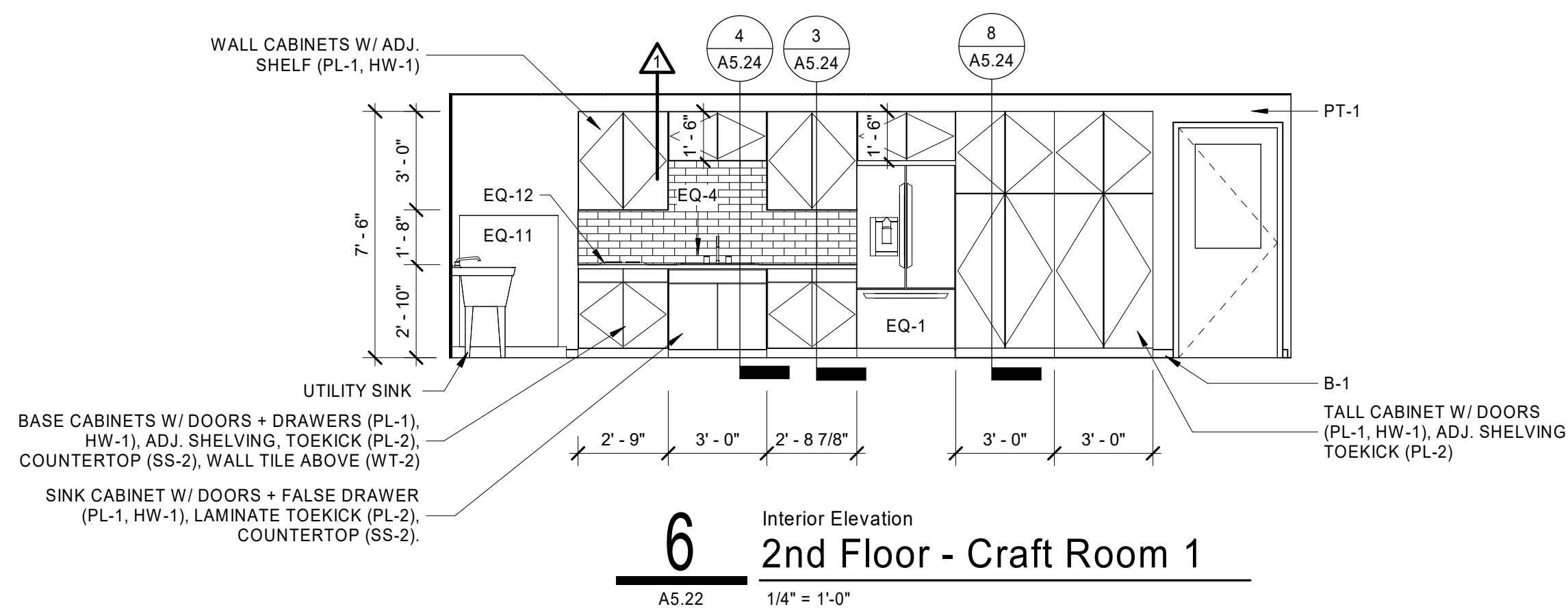
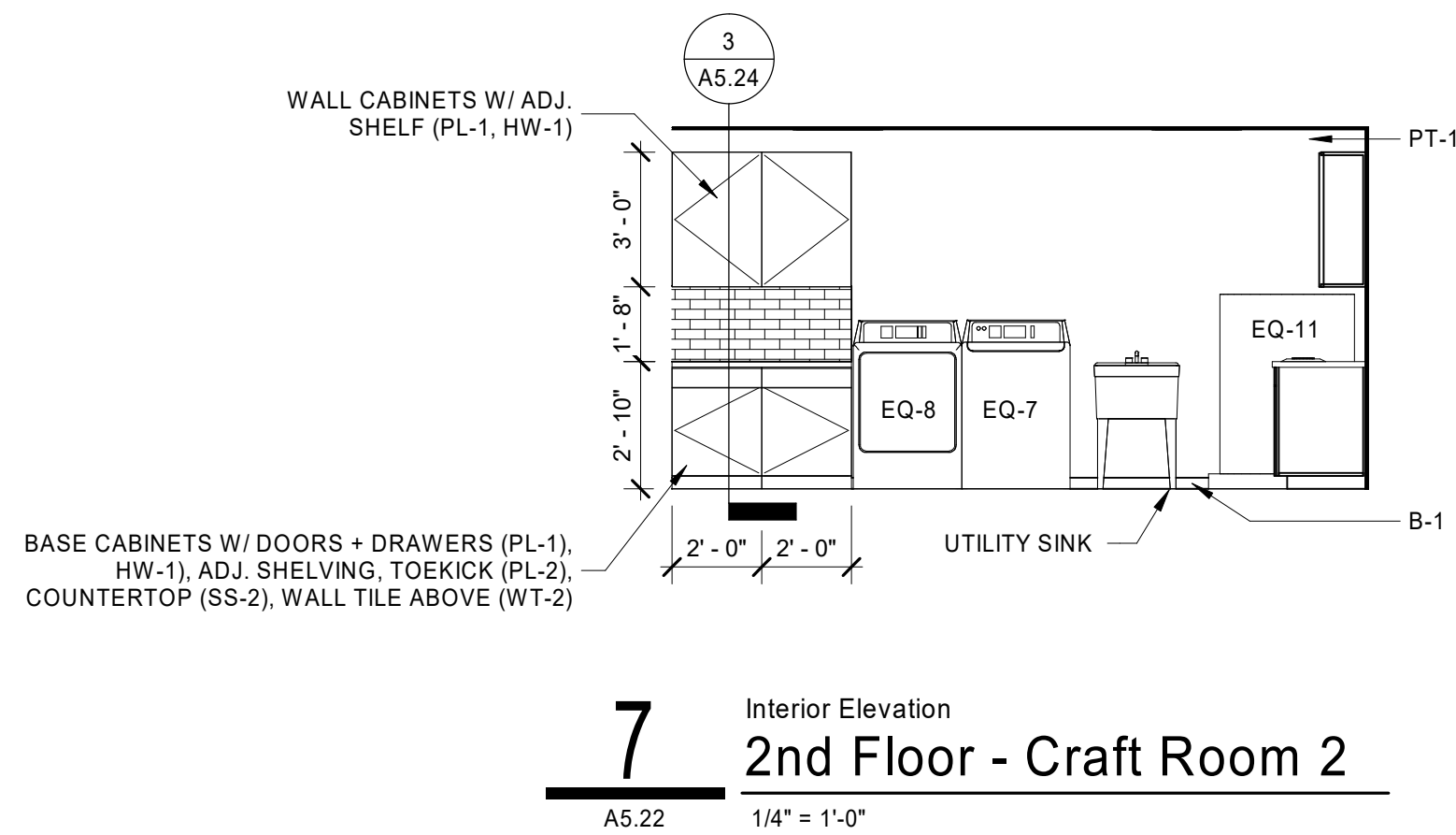


2 Interior Elevation
M-2 - Dressing Room
A5.20 1/4" = 1'-0"





REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020



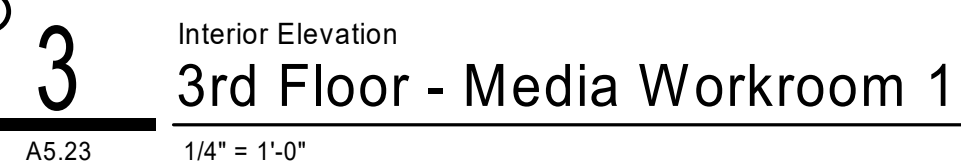
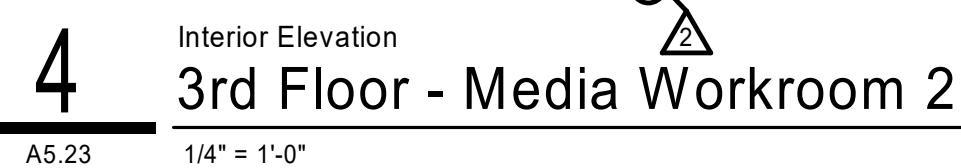
200 North 7th Street
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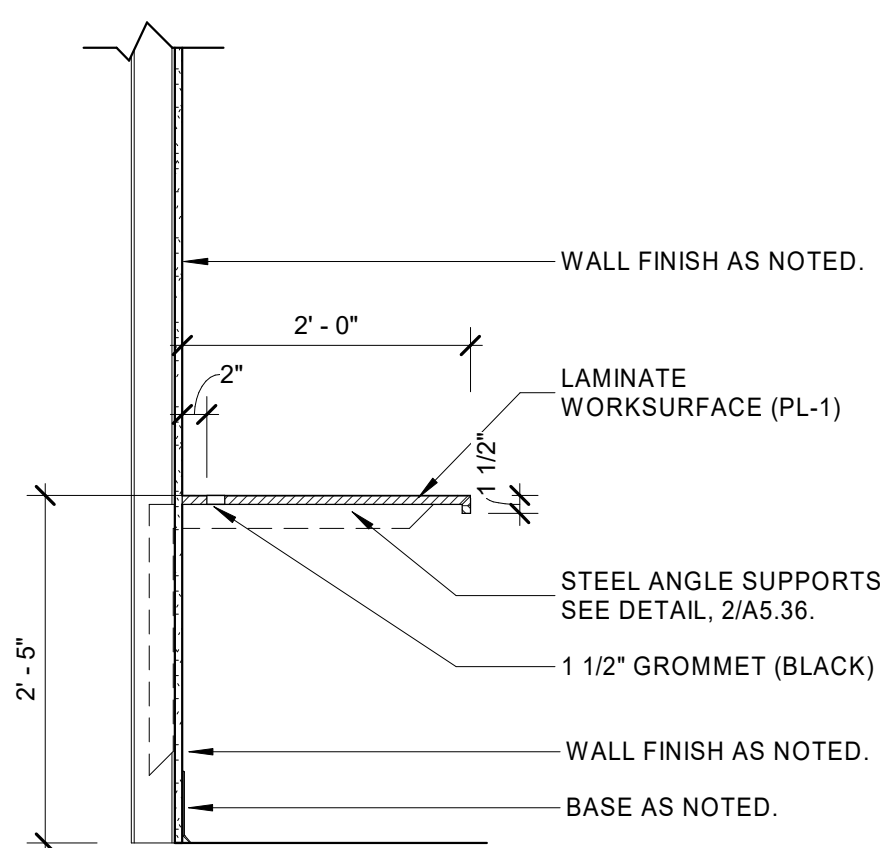
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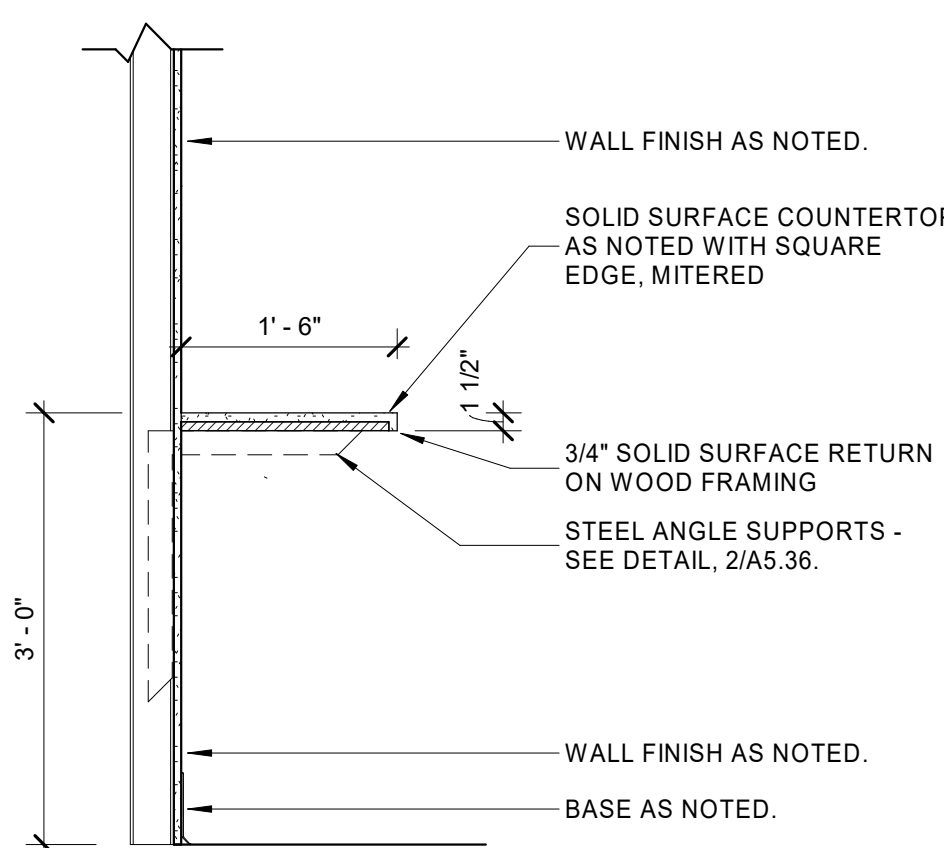
Project No.: 19A052

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

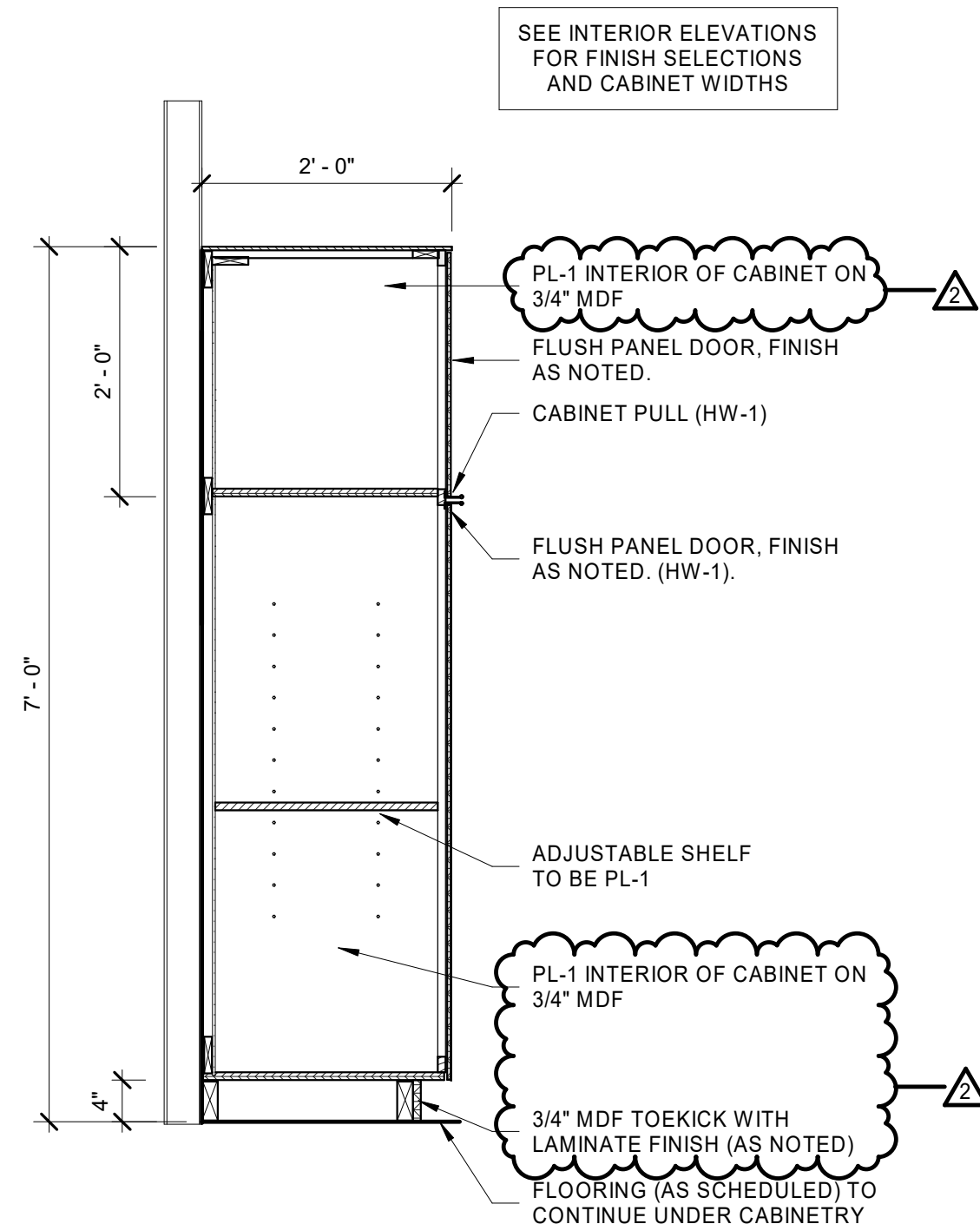
A5.23



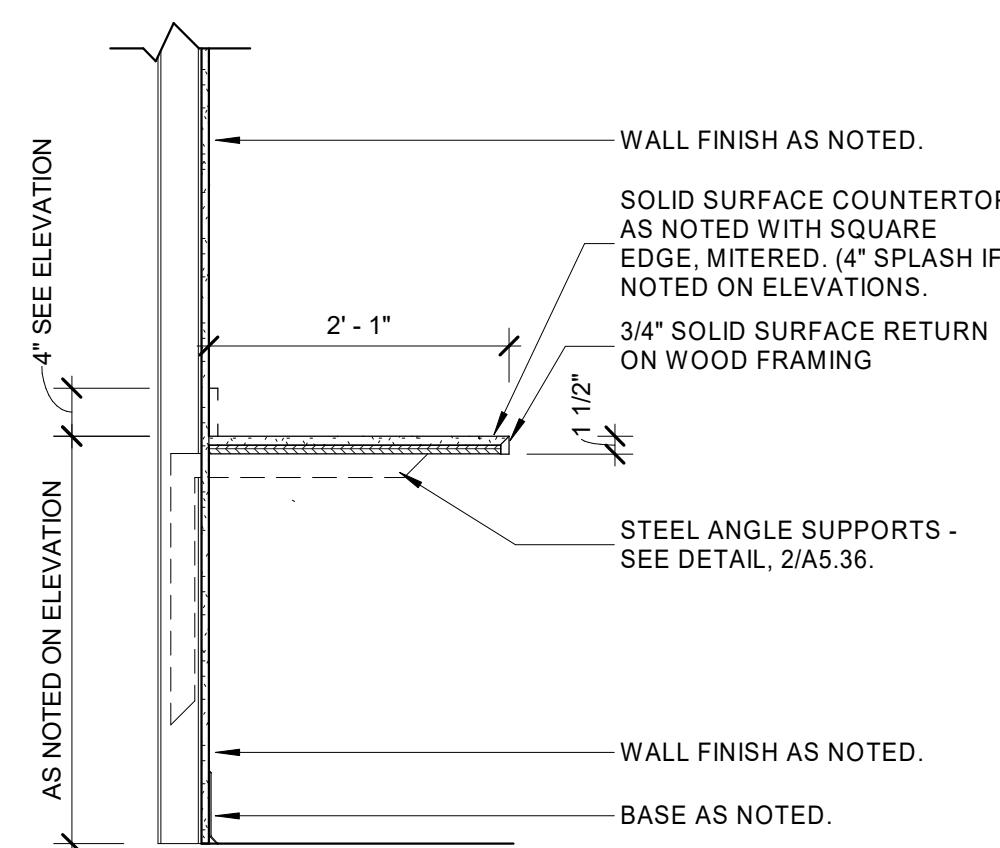
10 Detail
Floating Work Surface - 2
A5.24 3/4" = 1'-0"



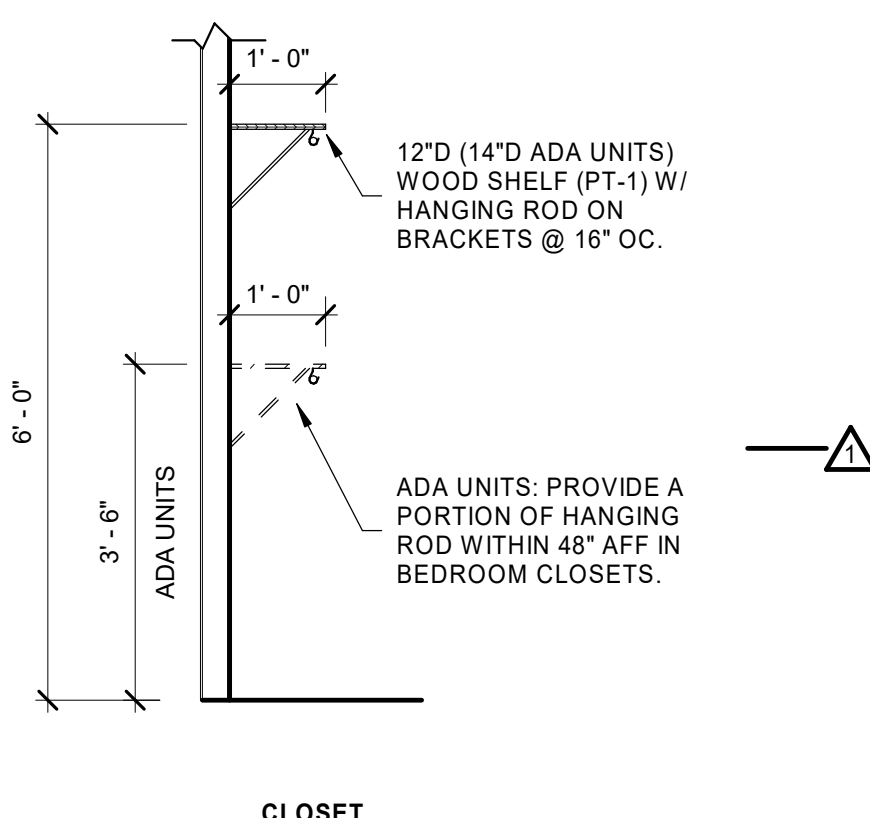
9 Detail
Floating Work Surface - 1
A5.24 3/4" = 1'-0"



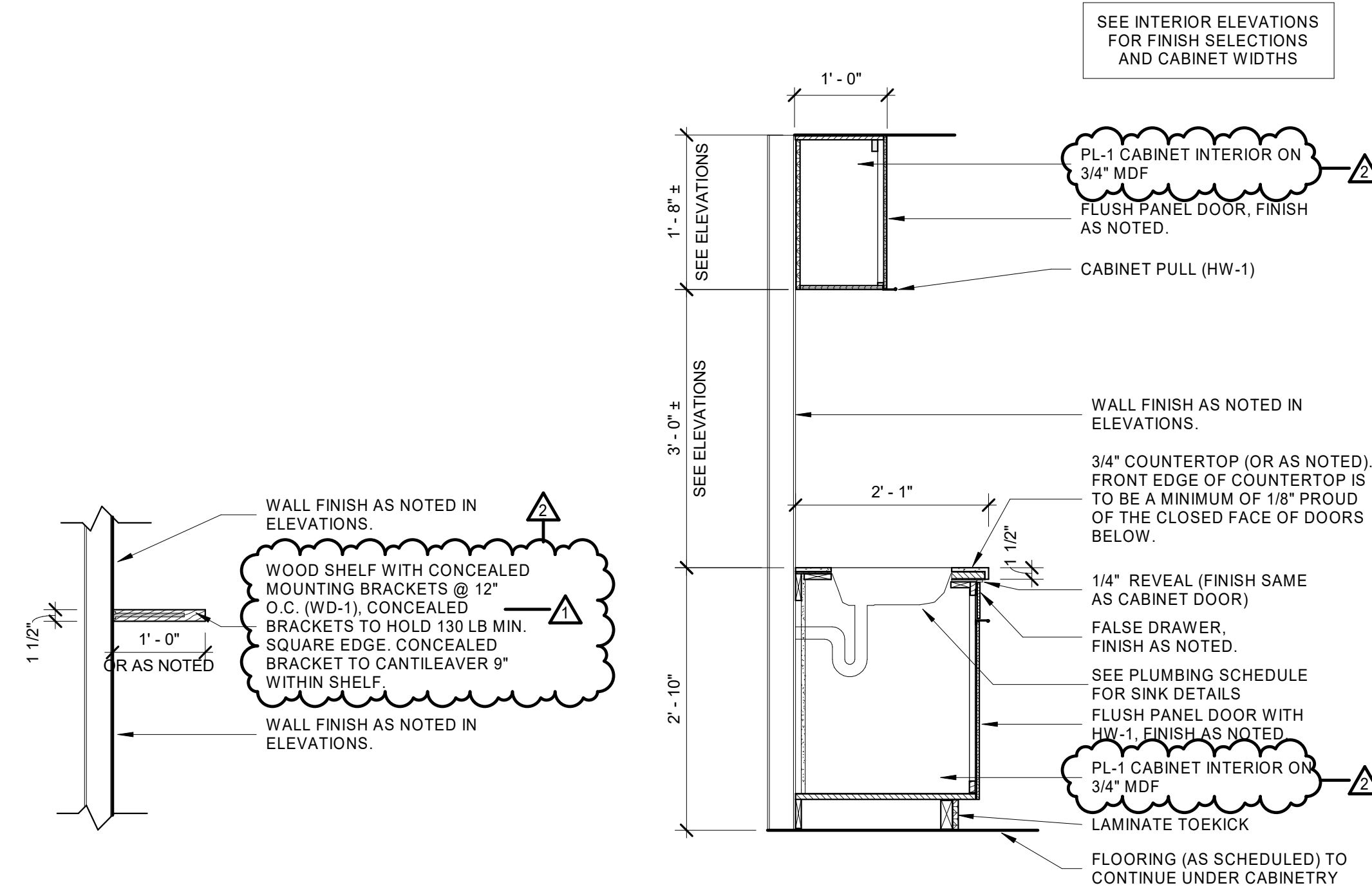
8 Detail
Tall Cabinet
A5.24 3/4" = 1'-0"



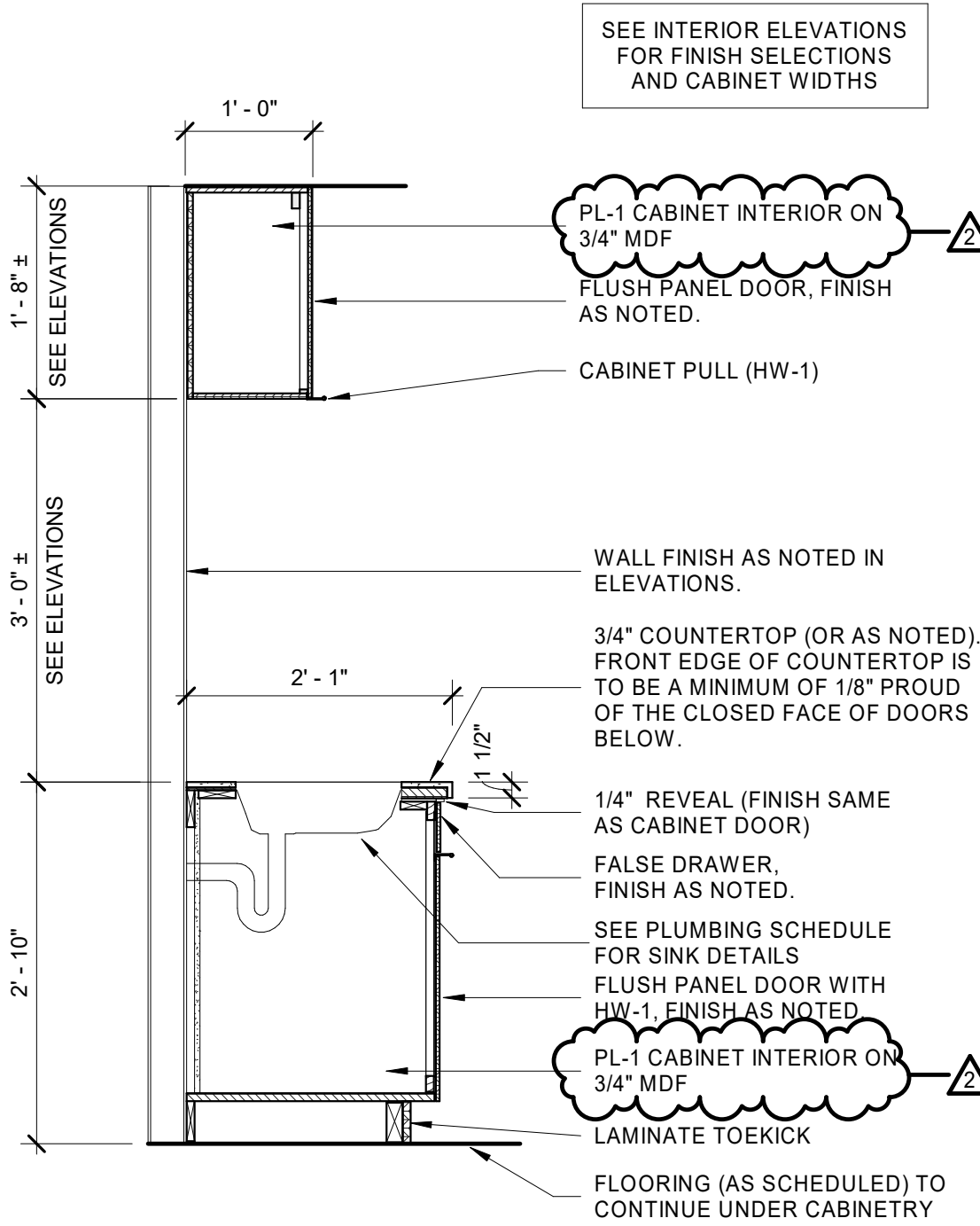
7 Detail
Typ. Floating Countertop
A5.24 3/4" = 1'-0"



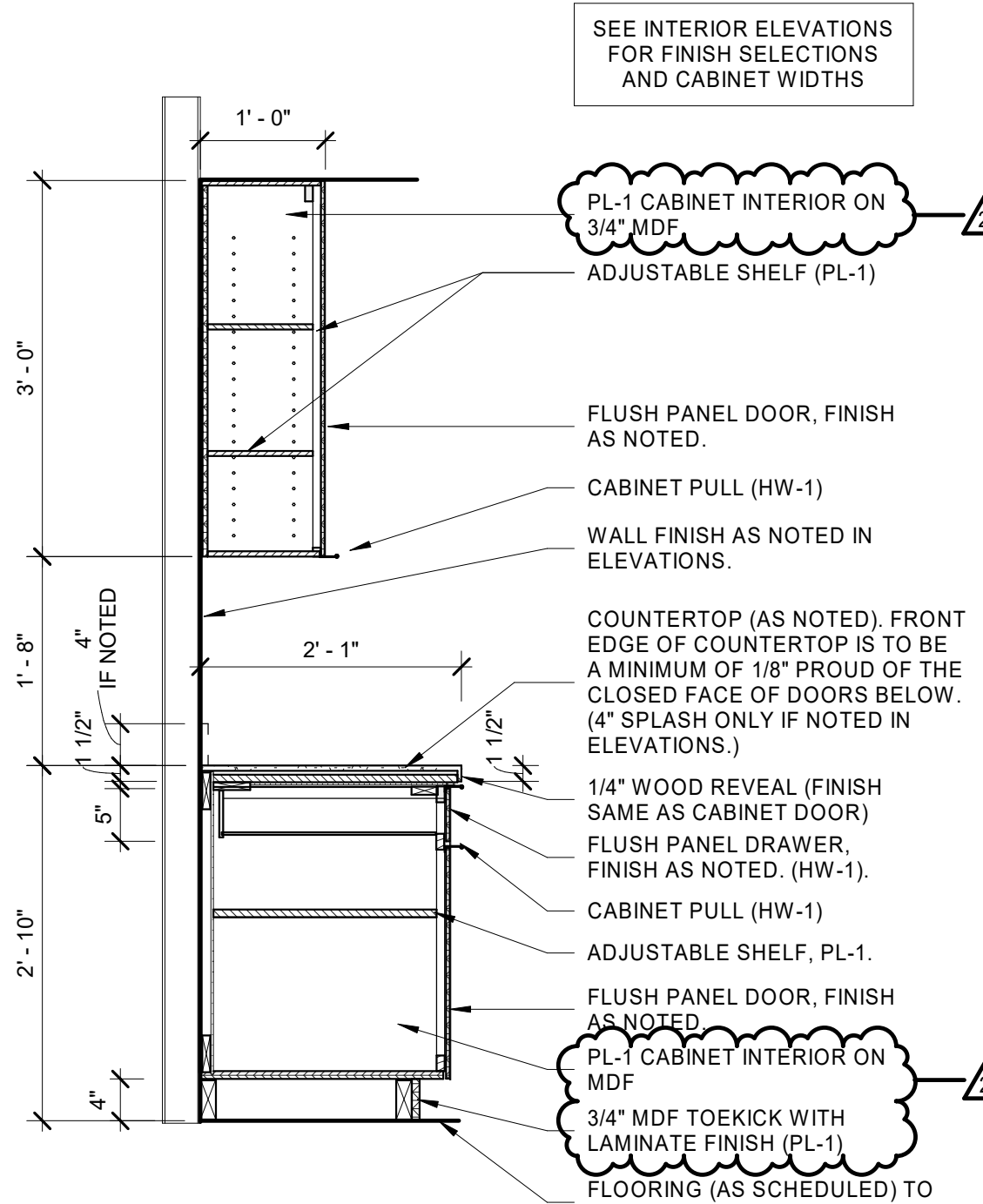
6 Mounting Detail
Shelves - Closet w/rod
A5.24 1/2" = 1'-0"



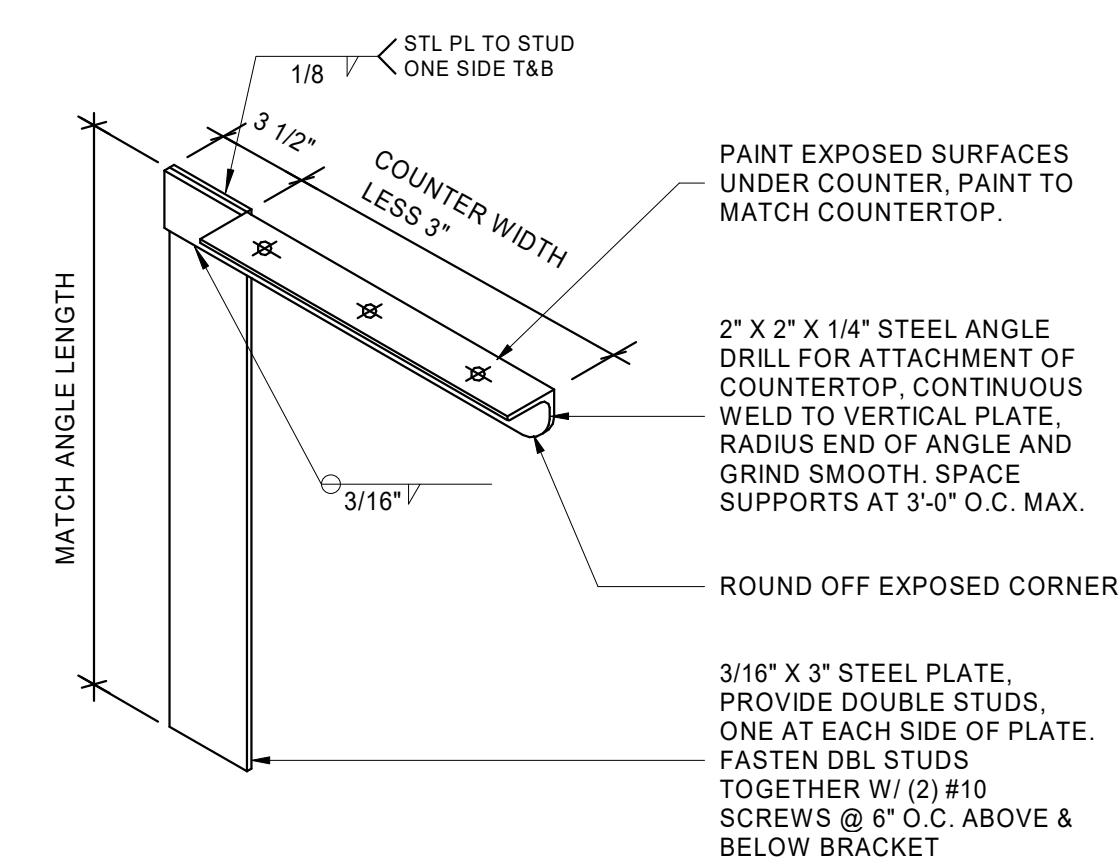
5 Detail
Floating Wall Shelf
A5.24 3/4" = 1'-0"



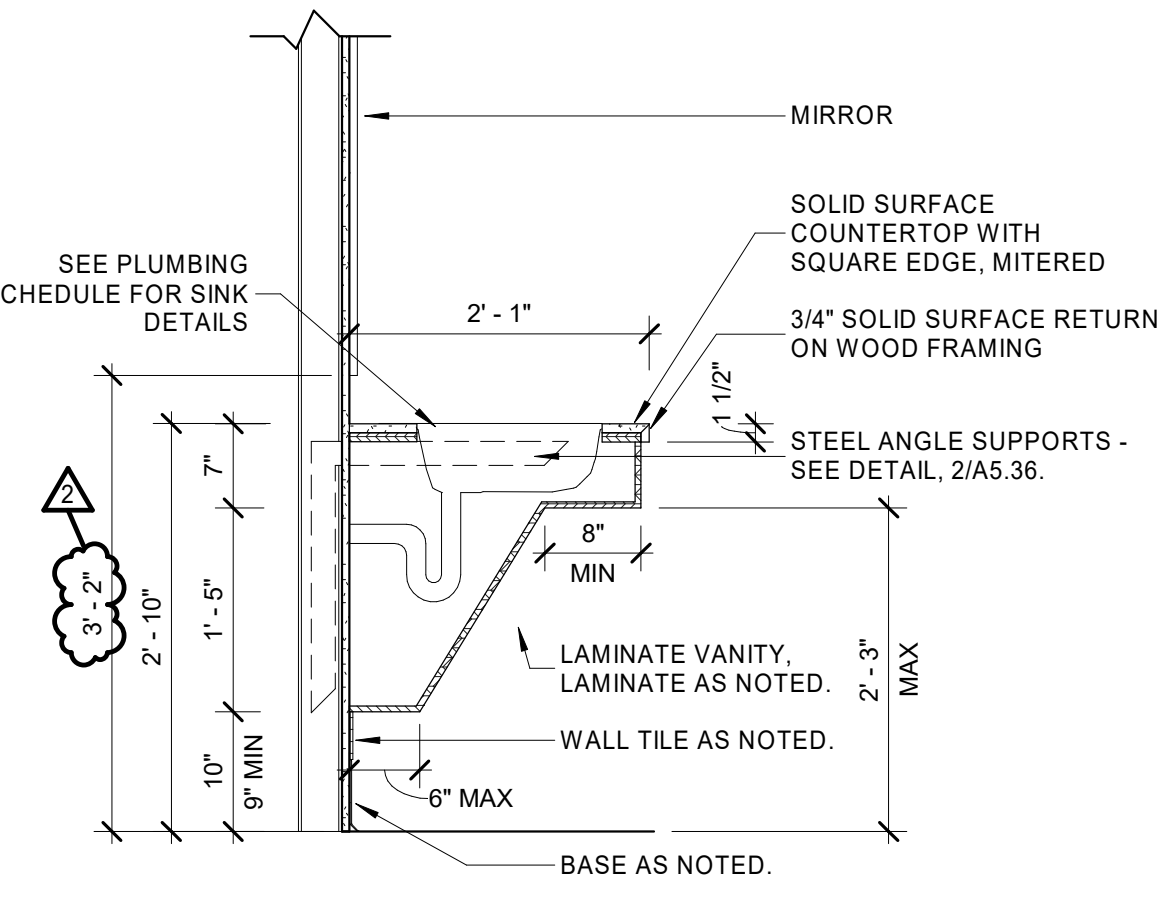
4 Detail
Base Cabinet - Sink
A5.24 3/4" = 1'-0"



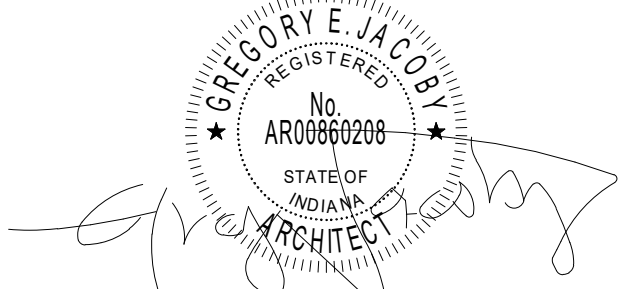
3 Detail
Typ. Base + Wall Cabinet
A5.24 3/4" = 1'-0"



2 Detail
Counter Bracket
A5.24 3" = 1'-0"



1 Detail
Typ. Vanity Counter
A5.24 3/4" = 1'-0"



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Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: Author
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Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
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Interior Details

A5.24

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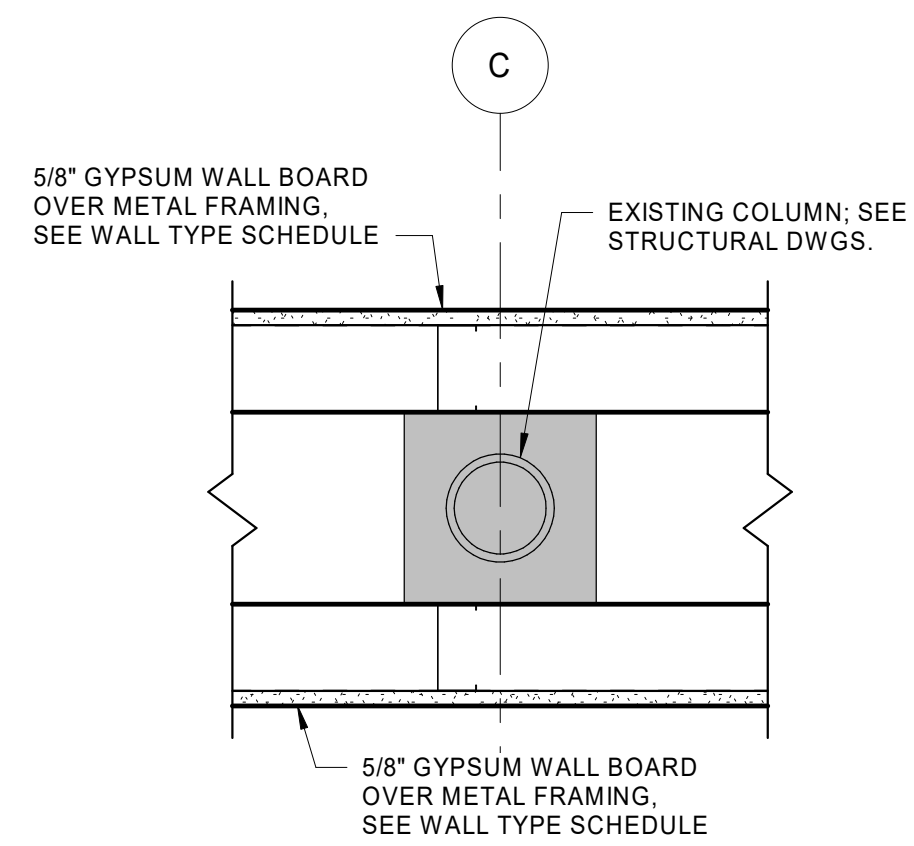
Terre Haute, Indiana 47809

Project No.: 19A052
 Drawn By: Author
 Checked By: Checker
 Scale: See Drawing
 Issue Date: June 5, 2019

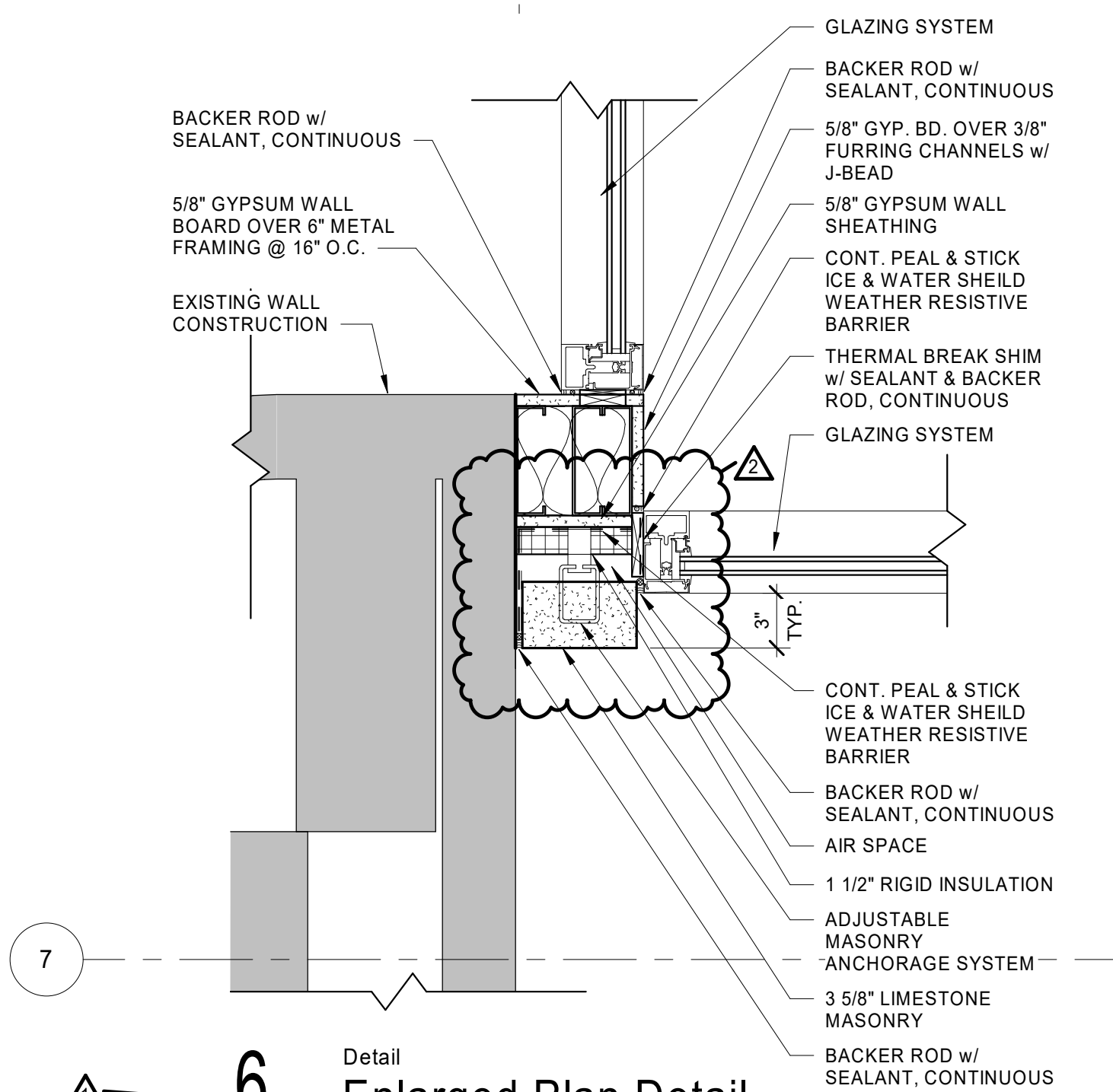
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Interior Details

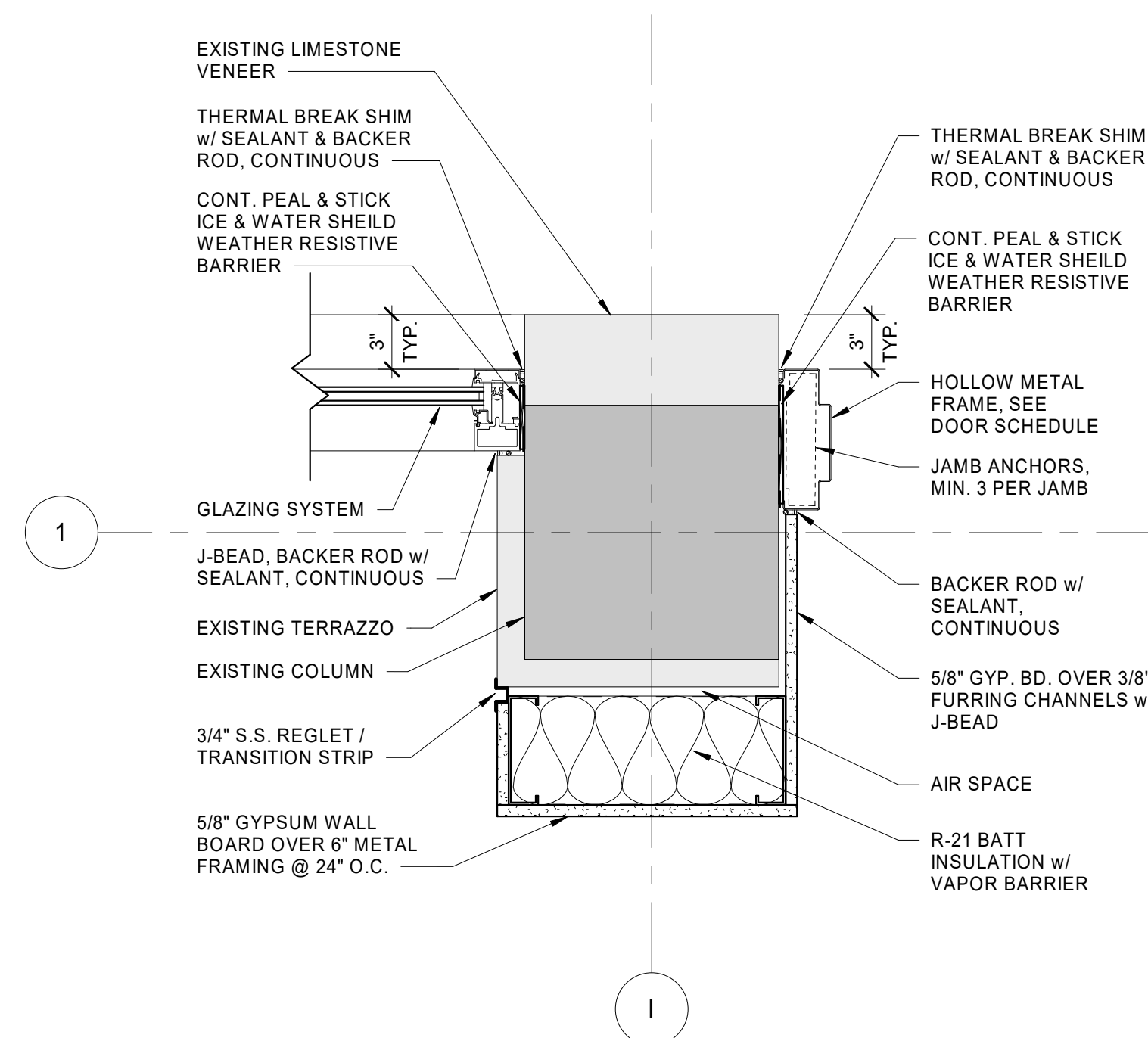
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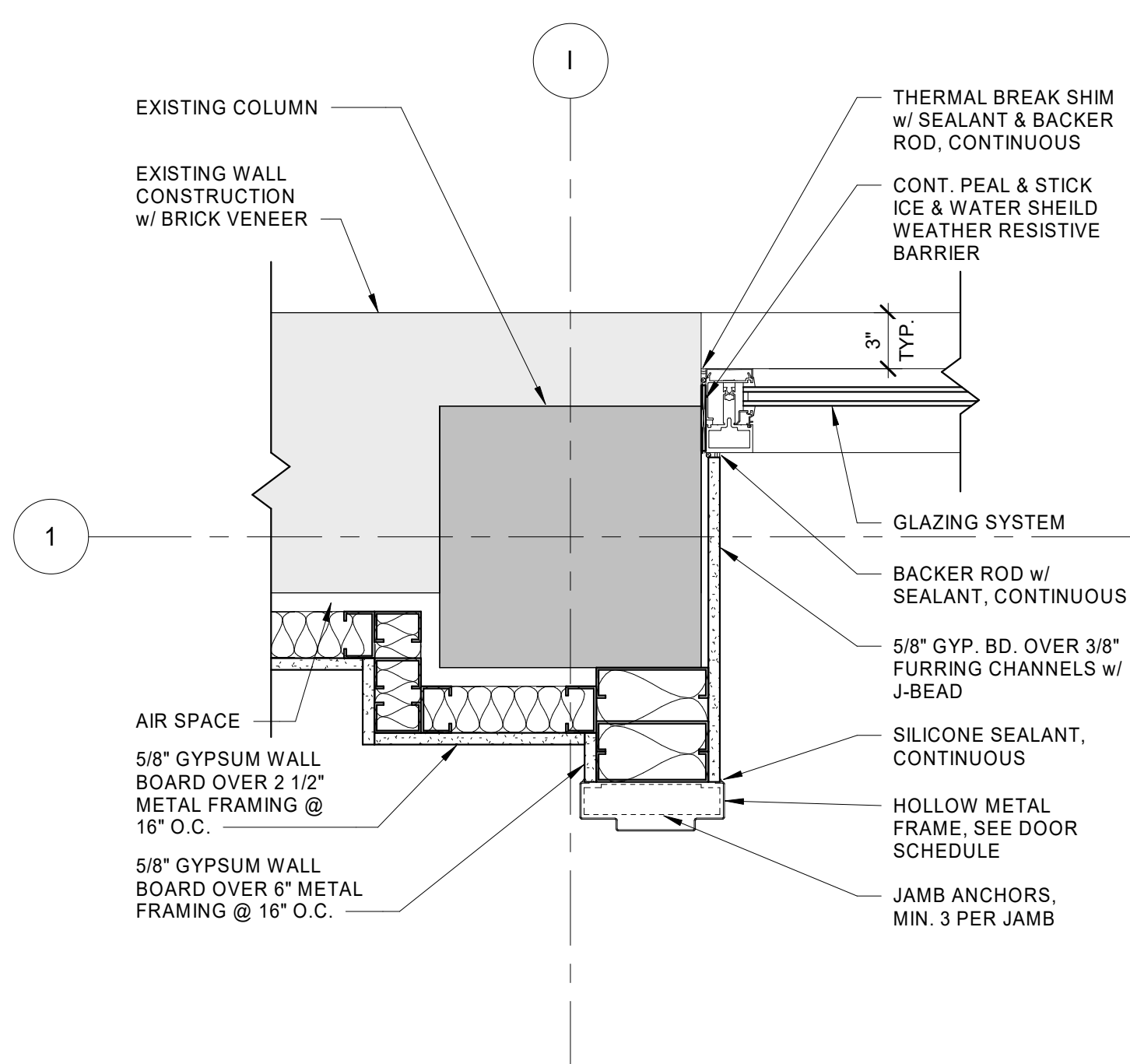
9 Floor Plan
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



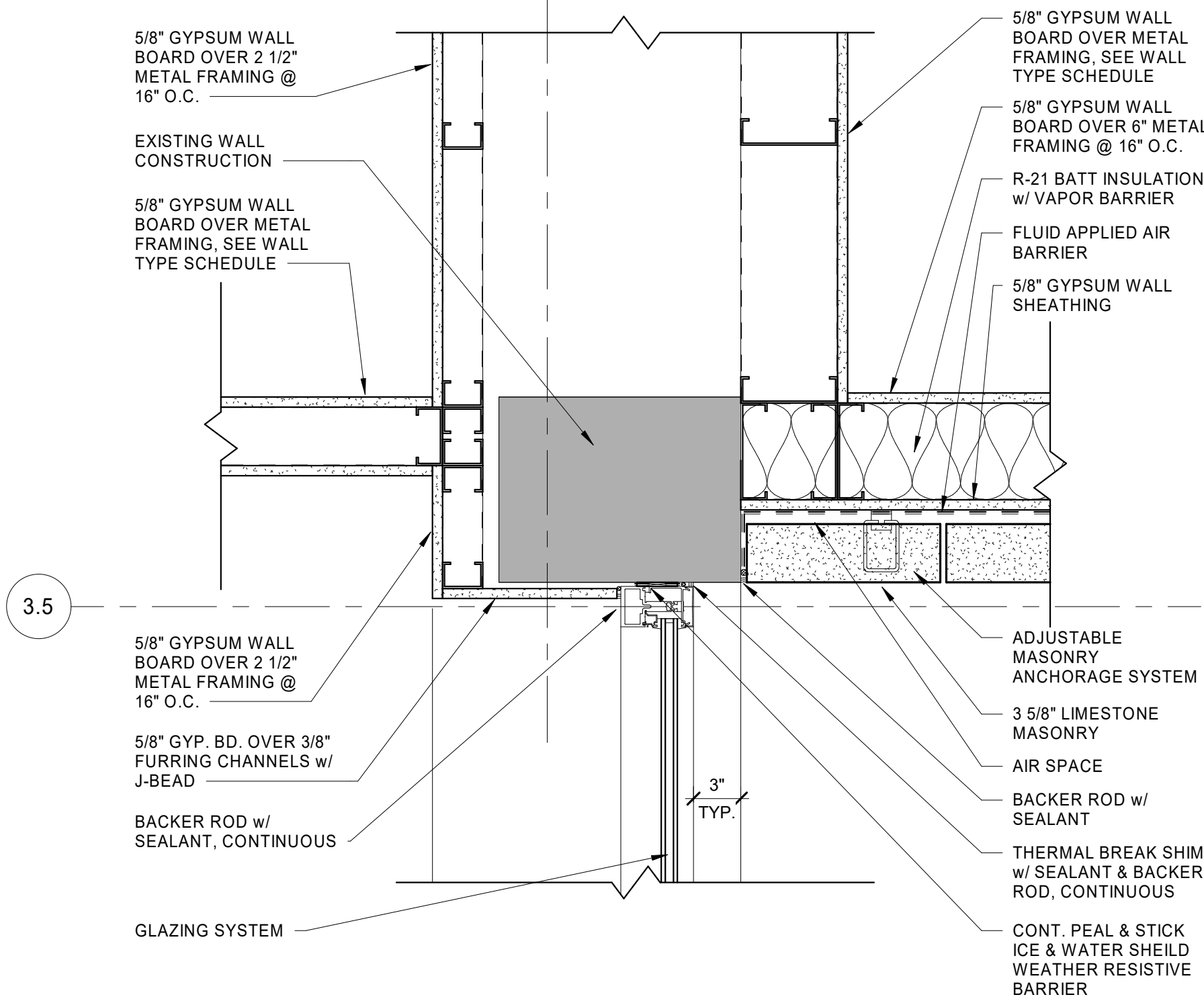
6 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



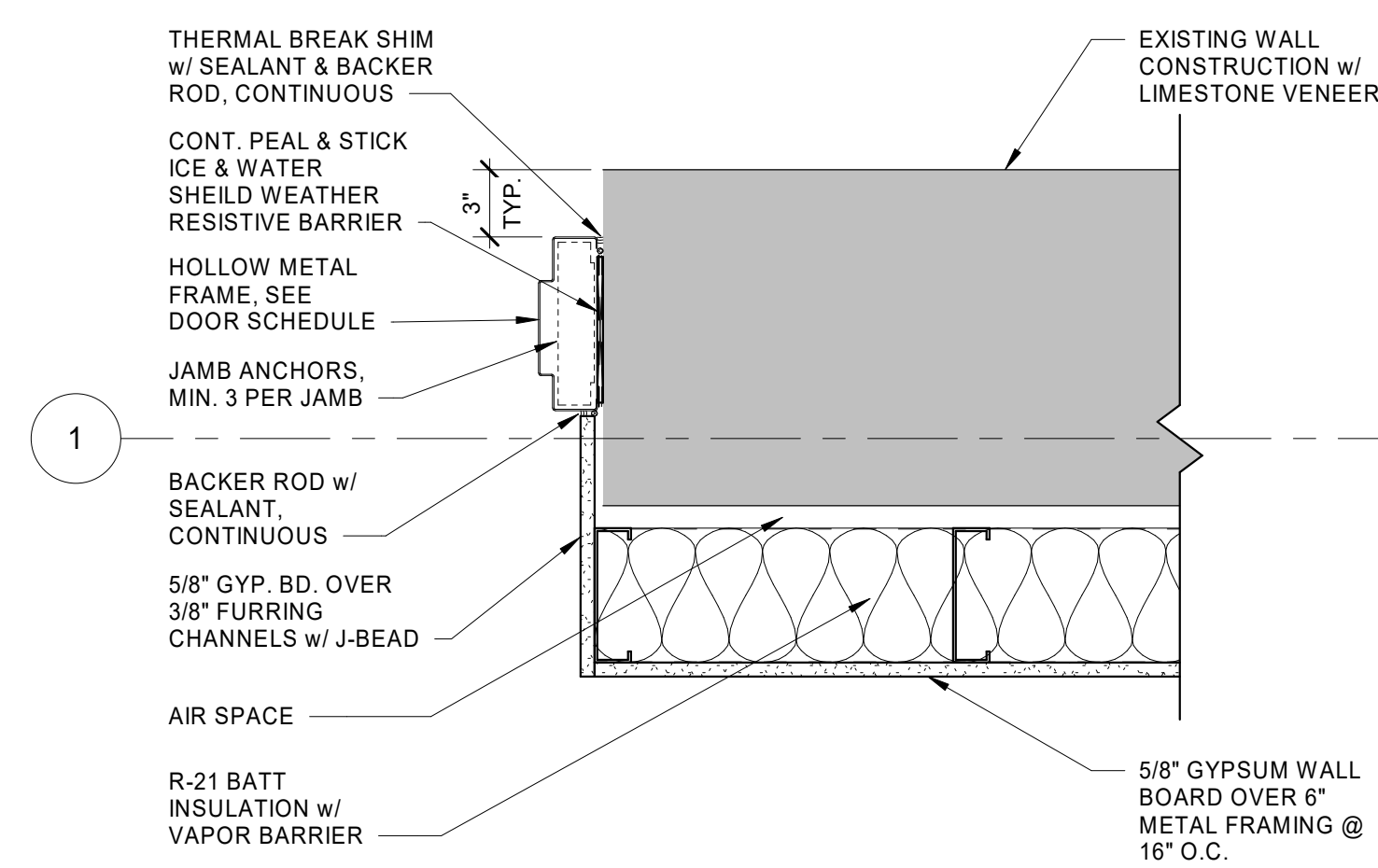
3 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



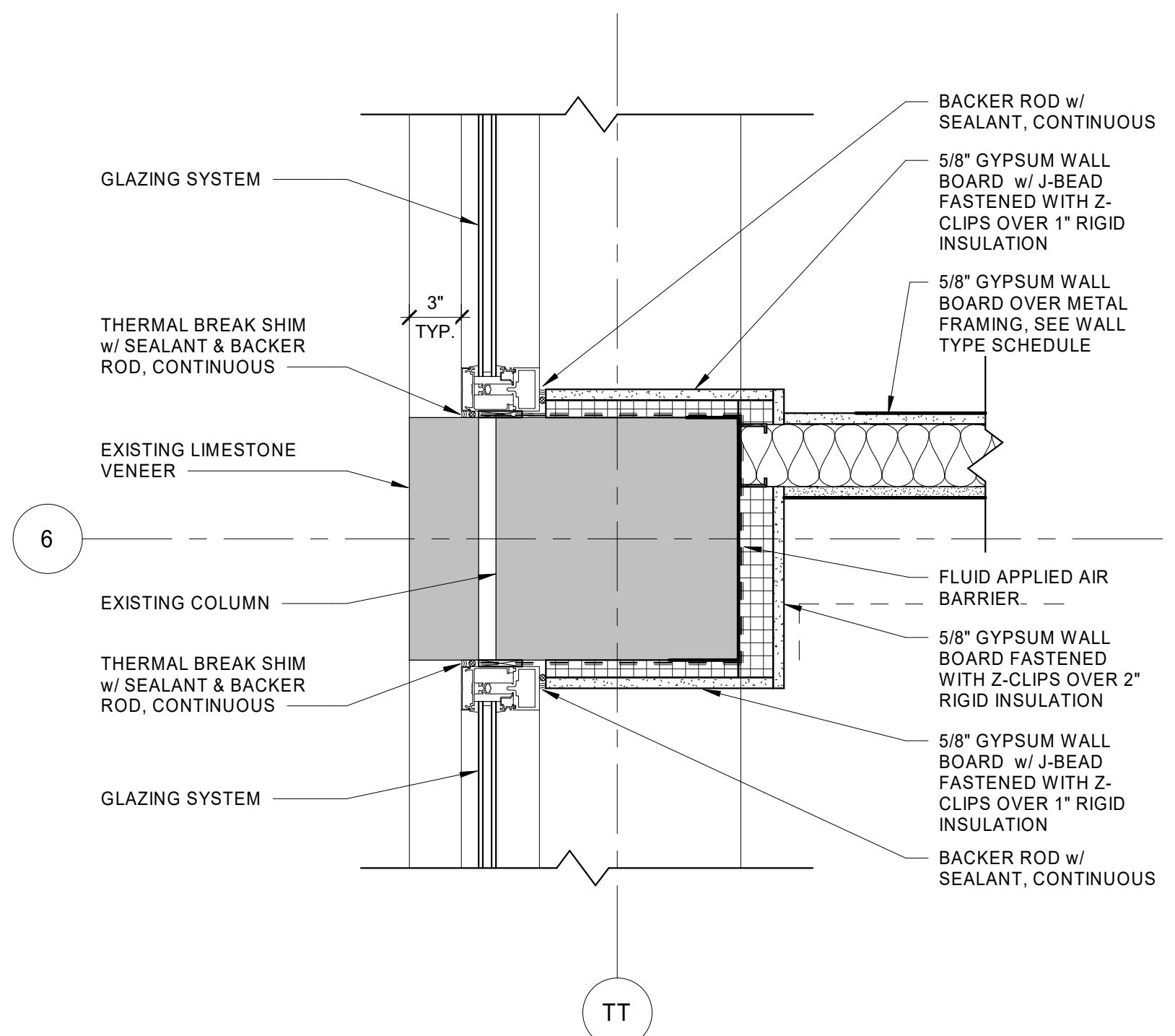
8 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



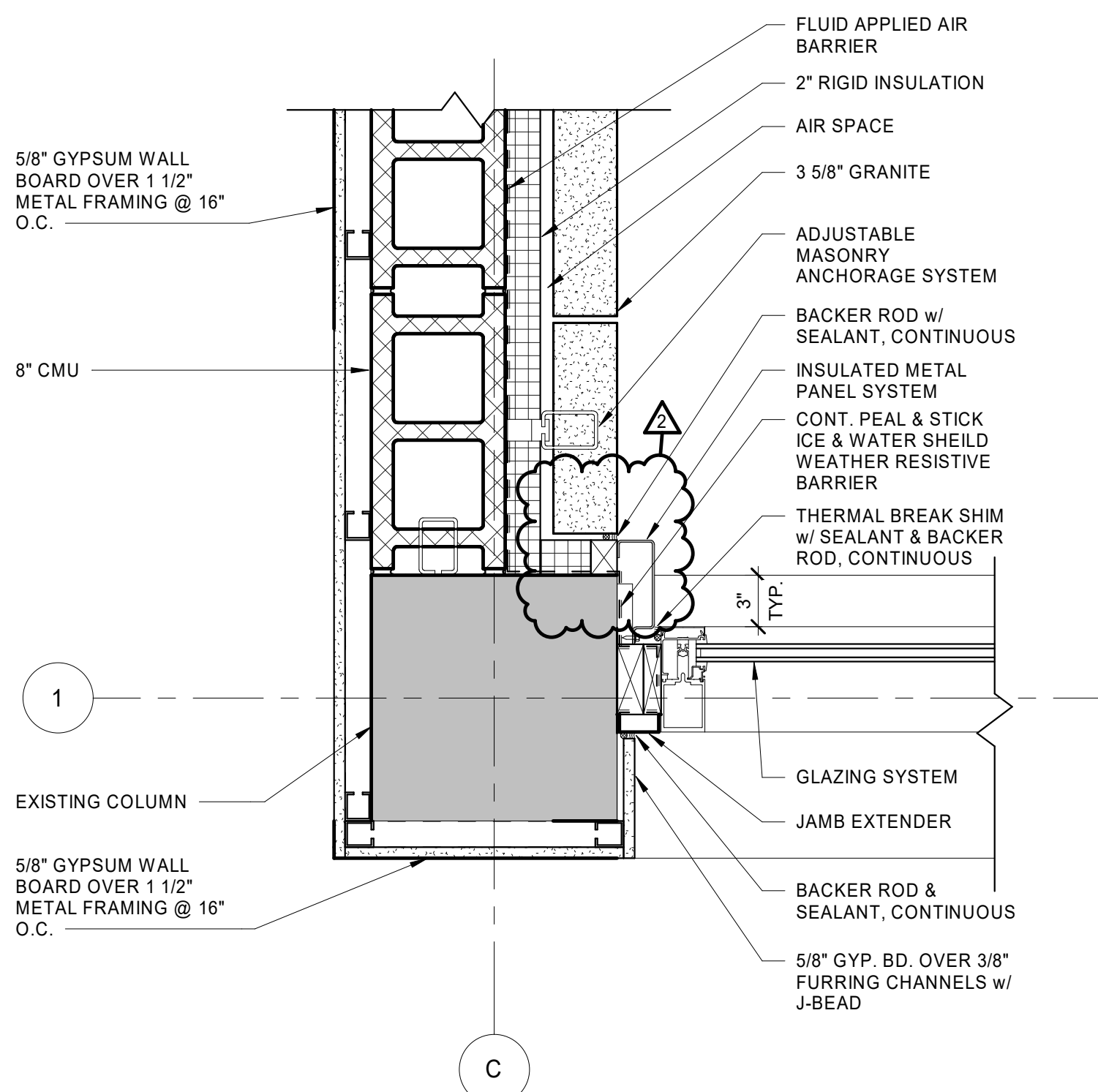
5 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



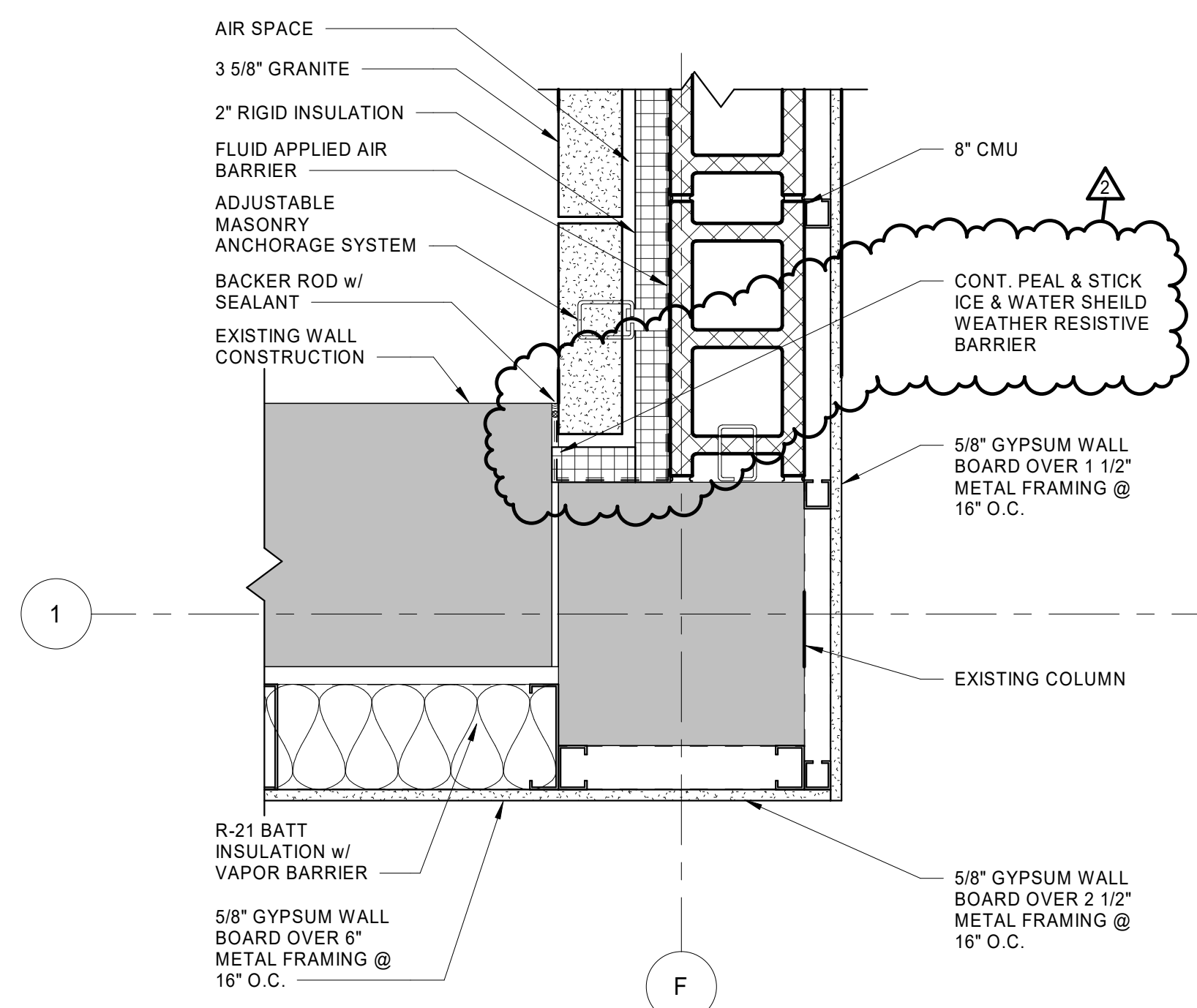
2 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



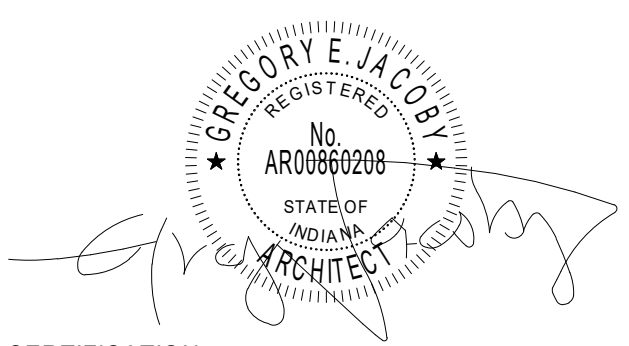
7 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



4 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



1 Detail
Enlarged Plan Detail
A6.01 1 1/2" = 1'-0"



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Indiana State University -
Dreiser Hall Renovation

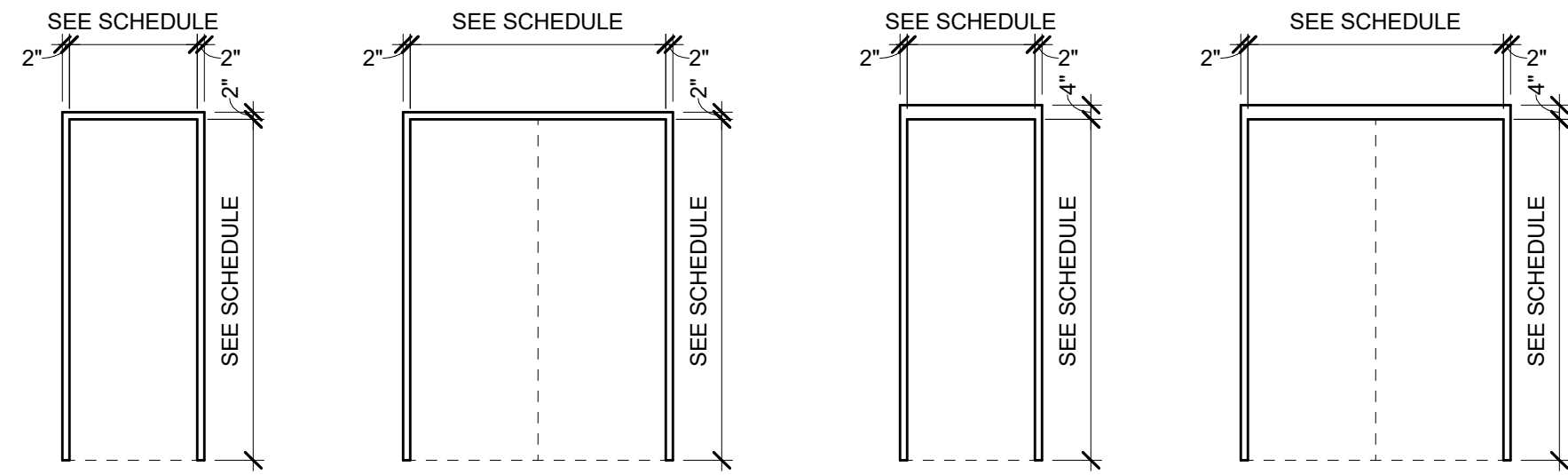
Terre Haute, Indiana 47809

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

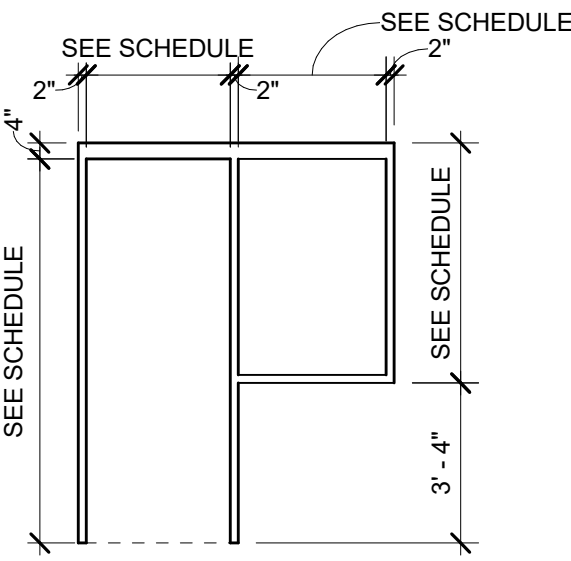
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

Details

A6.01



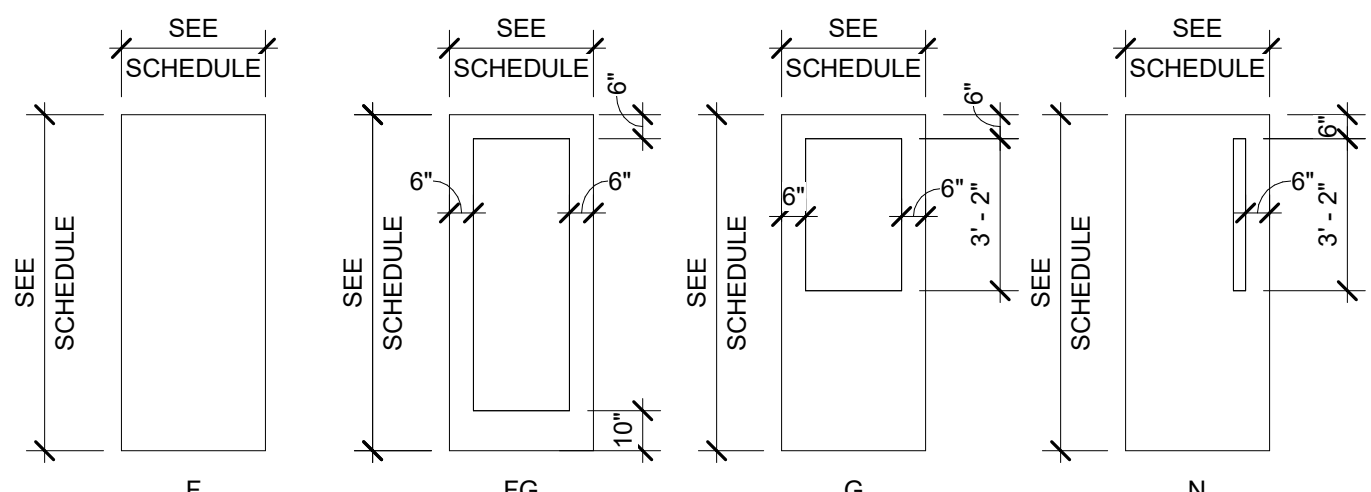
F1 F2 F3 F4



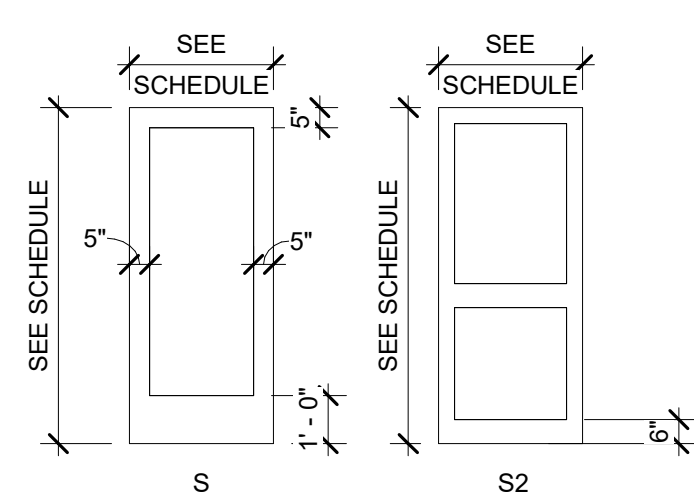
F5

1 Door Frame Elevation

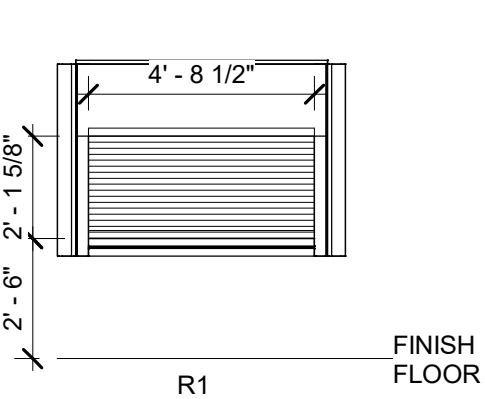
A8.01 1/4" = 1'-0"



STOREFRONT / CURTAINWALL PANELS



ROLLING DOOR

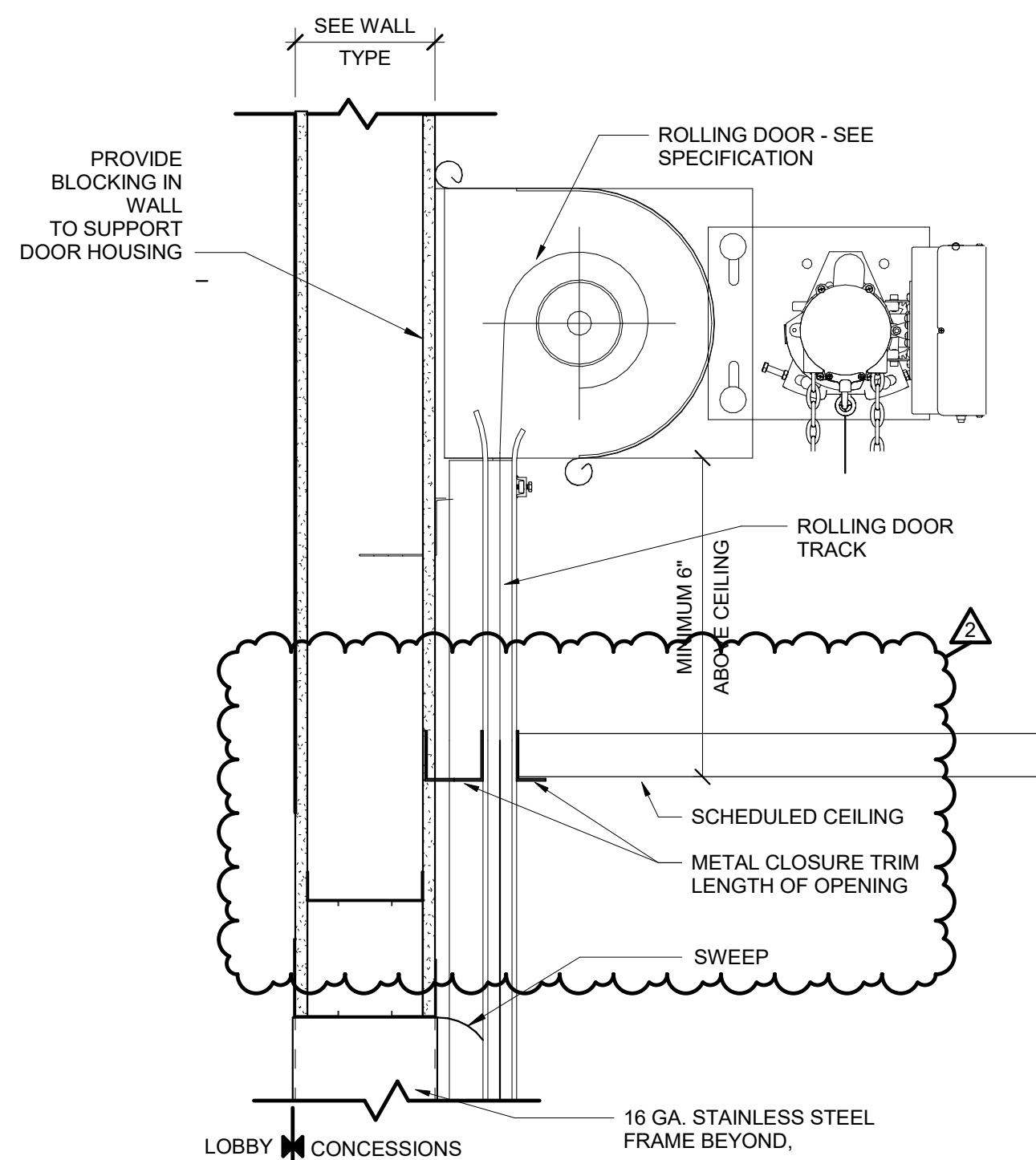


FINISH FLOOR

Door Panel Elevations

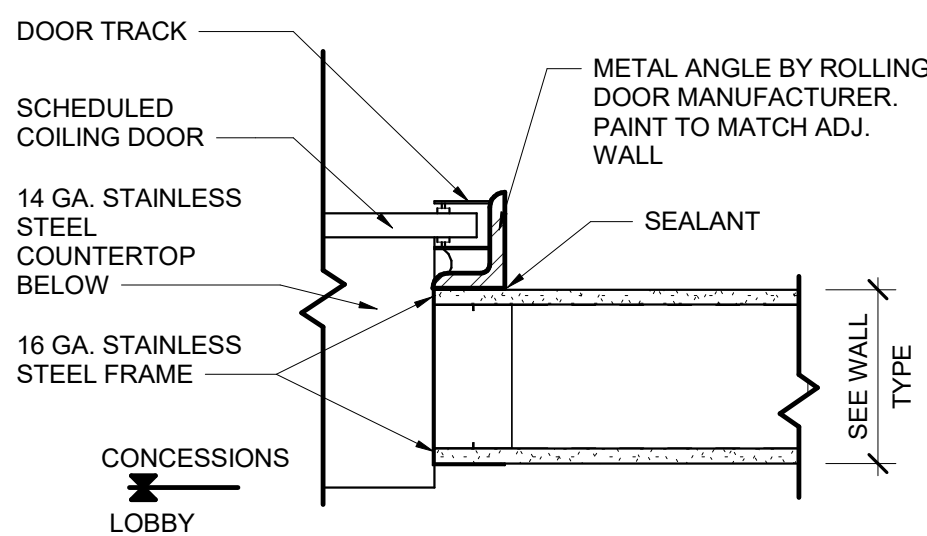
1/4" = 1'-0"

DOOR SCHEDULE																							
		OPENING			PANEL			PANEL 1			PANEL 2			FRAME		DETAILS				Fire Rating	Hardware Set	Elec.	Comments
Mark	Room Name	Width	Height	Config	Material	Finish	Thick.	Elev.	Width	Elev.	Width	Elev.	Material	Finish	Head	Jamb	Sill						
Basement																							
001-1	STORAGE	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			15.0			
002-1	SOUTH CORRIDOR	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			15.0			
005-1	SERVICES	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			20.0			
006-1	GREEN ROOM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			20.0			
006-2	GREEN ROOM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			21.0			
007-1	STORAGE	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			16.0			
009-1	COSTUME STORAGE	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			16.0			
010-2	MACHINE ROOM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			15.0			
011-1	CORR	6'-0"	7'-0"	PAIR	HM	PT	1 3/4"	F	3'-0"	F	3'-0"		F4	HM	PT	H2	J2	S2		10.0			
011-2	NORTH CORRIDOR	6'-0"	7'-0"	PAIR	HM	PT	1 3/4"	F	3'-0"	F	3'-0"		F4	HM	PT	H2	J2	S2		10.0			
011A-1	SHOP OFFICE	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	G	3'-0"				F3	HM	PT	H1	J1			19.0			
011B-1	TOOL ROOM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			24.0			
011C-1	SHOP UTILITIES	6'-0"	7'-0"	PAIR	HM	PT	1 3/4"	F	3'-0"	F	3'-0"		F4	HM	PT	H1	J1			11.0			
012C-1	CLOSET	2'-8"	7'-0"	SINGLE	HM	PT	1 3/4"	F	2'-8"				F3	HM	PT	H2	J2			29.0			
013-1	TCOMM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			16.0			
014-1	PERFORMANCE AND TECH LAB	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			23.0			
015-1	NORTH CORRIDOR	5'-0"	7'-0"	PAIR	HM	PT	1 3/4"	F	2'-6"	F	2'-6"		F4	HM	PT	H2	J2	S2		1.0			
016-1	MAKEUP / DRESSING	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			24.0			
016A-1	UNISEX ADA TOILET ROOM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			26.0			
016B-1	UNISEX ADA TOILET ROOM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			27.0			
016C-1	UNISEX ADA SHOWER ROOM	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			27.0			
017-1	MEN	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			33.0			
018-1	WOMEN	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			33.0			
S100-1	STAIR #1	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			120 min. 8.0			
S300-1	STAIR #3	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			120 min. 8.0			
1st Floor																							
101-1	STORAGE	6'-0"	7'-0"	PAIR	ALUM	ALUM	1 3/4"	S	3'-0"	S	3'-0"		ALUM	ALUM	SEE A8.20	SEE A8.20	SEE A8.20			2.0			
101-2	STORAGE	5'-0"	7'-0"	PAIR	HM	PT	1 3/4"	F	2'-6"	F	2'-6"		F4	HM	PT	H2	J2			120 min. 5.0			
101-3	CORRIDOR	6'-0"	8'-0"	PAIR	HM	PT	1 3/4"	F	3'-0"	F	3'-0"		F4	HM	PT	H2	J2	S2		1.0			
101-4	CORRIDOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F3	HM	PT	H1	J1			16.0			
101A-1	CORRIDOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			14.0			
102-1	RESTRM	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			28.0			
103-1	OFFICE #1	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
104-1	OFFICE #2	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
105-1	OFFICE #3	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
106-1	OFFICE #4	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
110-1	OFFICE #5	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
111-1	OFFICE #6	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
112-1	OFFICE #7	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
114-1	STOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			15.0			
114-2	STOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			14.0			
114-3	STOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2	S2		25.0			
115-1	THEATER	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			17.0			
116-1	LIGHT LOCK	8'-0"	7'-0"	PAIR	WD	STAIN	1 3/4"	F	4'-0"	F	4'-0"		F2	HM	PT	H3	J3	S2 SIM		4.0			
116-2	LIGHT LOCK	8'-0"	7'-0"	PAIR	WD	STAIN	1 3/4"	F	4'-0"	F	4'-0"		F2	HM	PT	H3	J3			6.0			
117-1	LIGHT LOCK	3'-0"	8'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3	S2 SIM		7.0			
117-2	LIGHT LOCK	3'-0"	8'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3	S2 SIM		10.0			
118-1	STAGE	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2			23.0			
118-2	STAGE	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F3	HM	PT	H2	J2	S2		10.0			
120-1	VESTIBULE	5'-11 1/2"	6'-9 1/4"	PAIR	ALUM	ALUM	1 3/4"	S	2'-11 3/4"	S	2'-11 3/4"		ALUM	ALUM	SEE A8.20	SEE A8.20	SEE A8.20			2.0			
120-2	EAST CORRIDOR	6'-0"	6'-9 3/4"	PAIR	ALUM	ALUM	1 3/4"	S	3'-0"	S	3'-0"		ALUM	ALUM	SEE A8.20	SEE A8.20	SEE A8.20			2.0			
121-1	MULTI-MEDIA BOOTH	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3	S2 SIM		22.0			
122-1	MULTI-MEDIA BOOTH	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3	S2 SIM		22.0			
123-1	PUBLICATIONS DIRECTOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H3	J3			19.0			
124-1	EAST CORRIDOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 1/2"	FG	3'-0"				ALUM	ALUM	SEE A8.20	SEE A8.20	SEE A8.20			24.0			
125-1	STOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			15.0			
126-1	STOR	5'-0"	7'-0"	PAIR	WD	STAIN	1 3/4"	F	2'-6"	F	2'-6"		F4	HM	PT	H3	J3			12.0			
126A-1	STOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F3	HM	PT	H3	J3			9.0			
130-1	MEN	3'-0"	8'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			33.0			
131-1	WOMEN	3'-0"	8'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			33.0			
133-1	CONC.	3'-0"	8'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			20.0			
133-2	CONC.	6'-0"	4'-0"	SINGLE	STL	MFRGR							R1	HM	MFRGR	H5	J5	S5		34.0			
134-2	VESTIBULE	5'-11 1/4"	7'-10 1/4"	PAIR	ALUM	ALUM	1 3/4"	S	2'-11 5/8"	S	2'-11 5/8"		ALUM	ALUM	SEE A8.20	SEE A8.20	SEE A8.20			2.0			
134-5	STOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			15.0			
135-1	SOUTH CONTROL ROOM	3'-6"	7'-0"	SINGLE	WD	STAIN	1 3/4"	G	3'-6"				F1	HM	PT	H2	J2			14.0			
135-2	NORTH CONTROL ROOM	3'-0"	6'-3"	SINGLE	WD	STAIN	1 3/4"	G	3'-0"				F1	HM	PT	H2	J2			15.0			
135-3	CORRIDOR	3'-0"	7'-0"	SINGLE	WD	STAIN	1 3/4"	F	3'-0"				F1	HM	PT	H2	J2			15.0			
S101-1	STAIR #1	3'-0"	7'-0"	SINGLE	HM	PT	1 3/4"	F	3'-0"				F1	HM	PT	H3	J3			120 min. 8.0			
S104-5		0"	0"	SINGLE	WD	STAIN	1 1/2"	FG	0"				ALUM	ALUM									



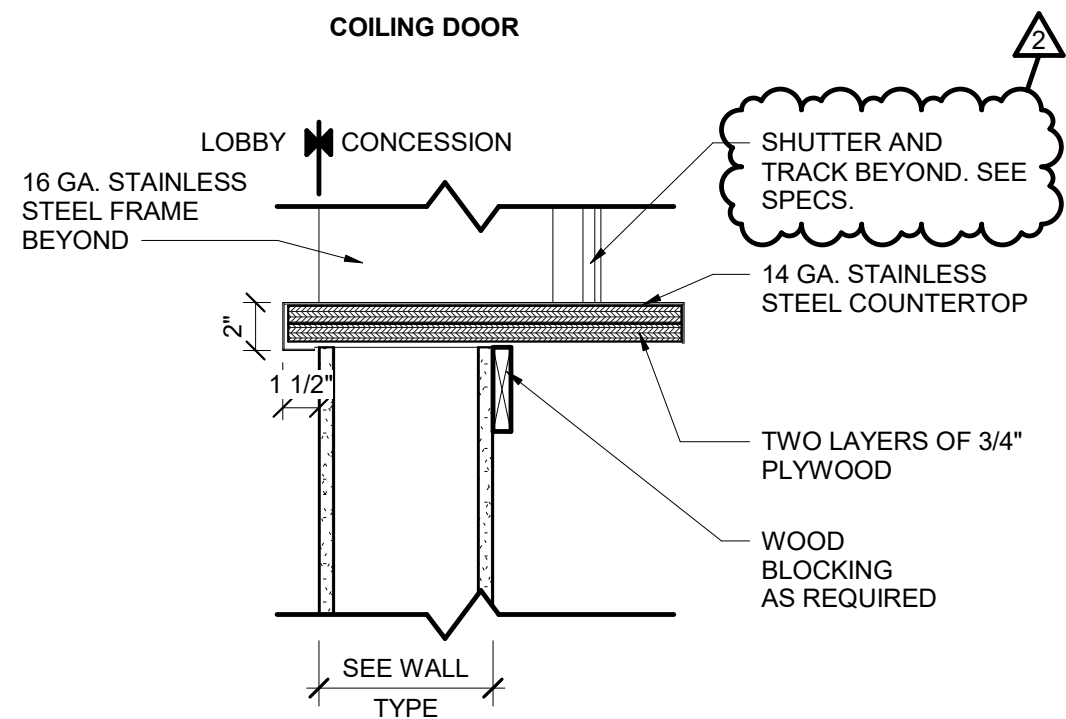
H5

COILING DOOR



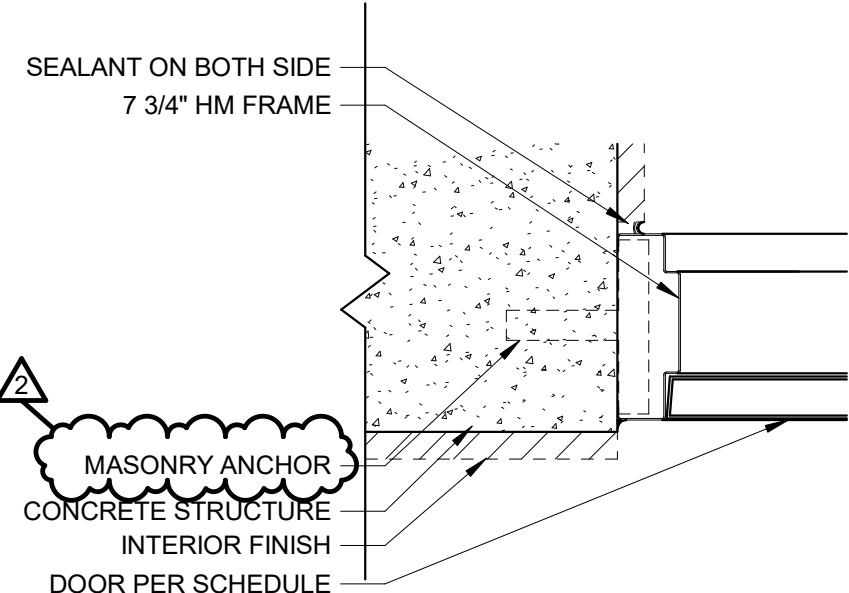
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COILING DOOR

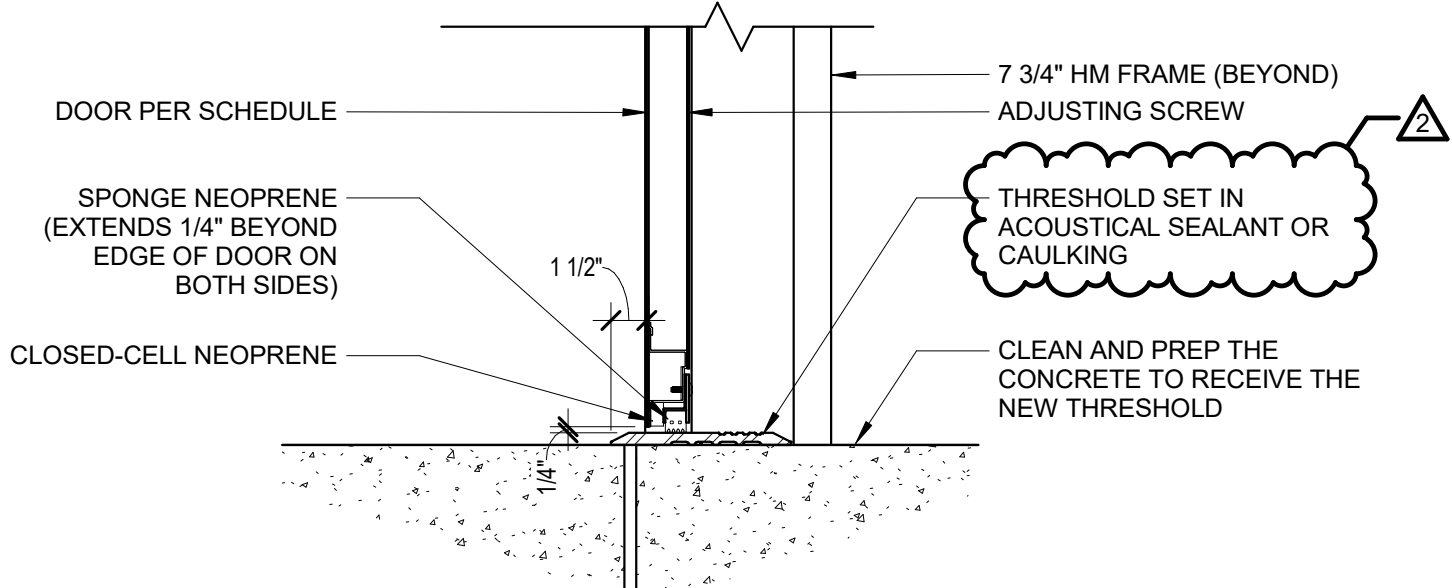


S5

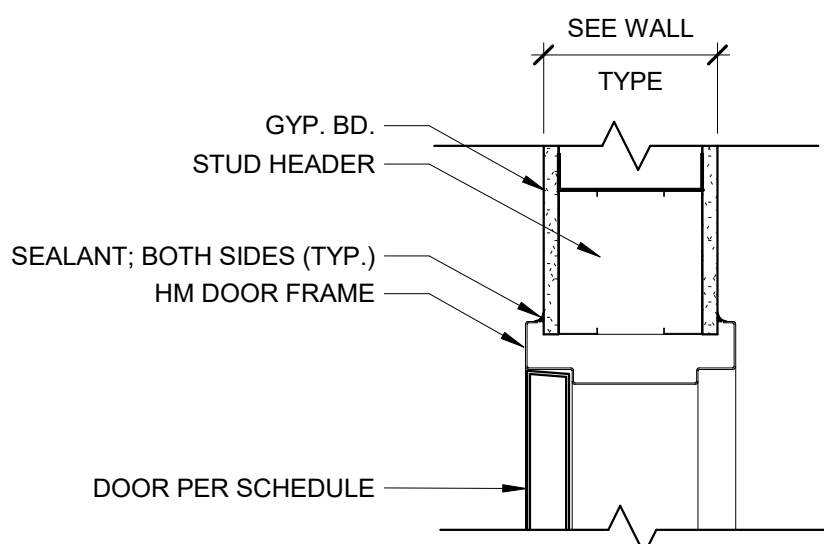
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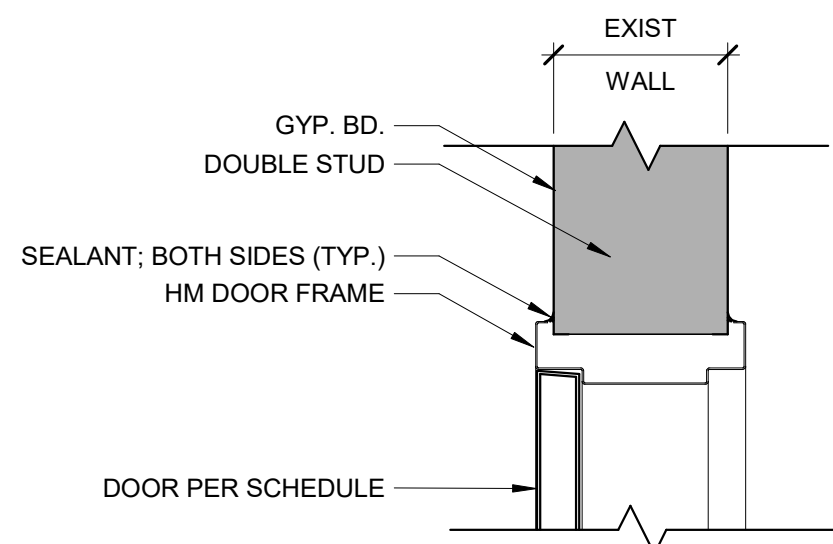
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S4

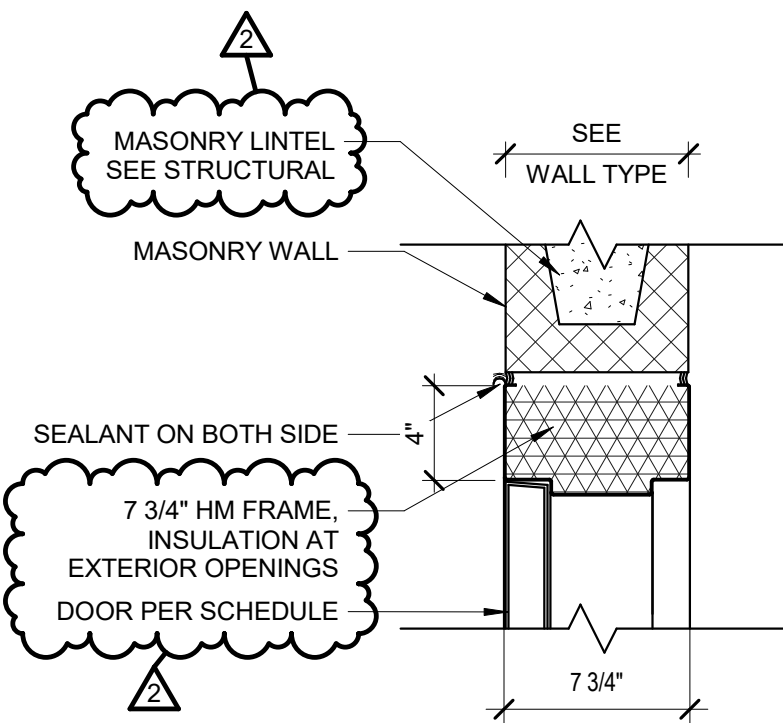


H3

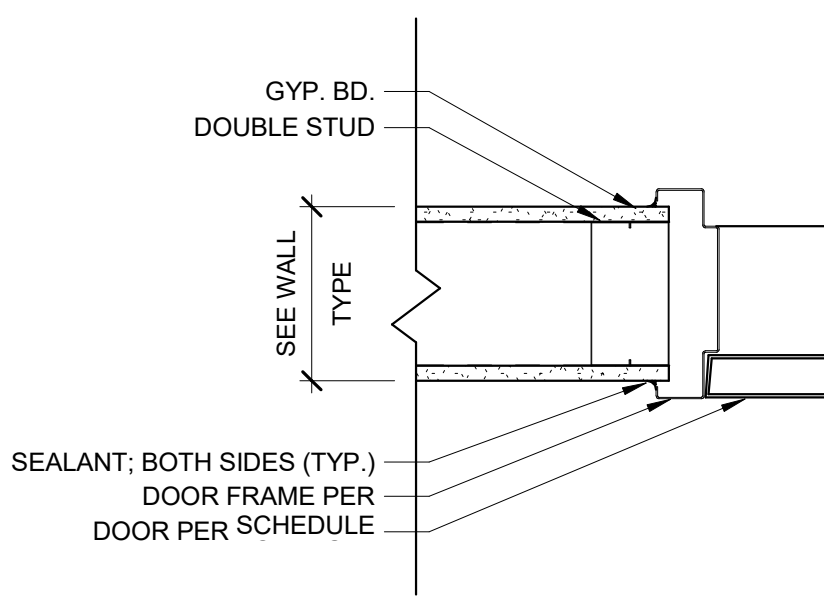


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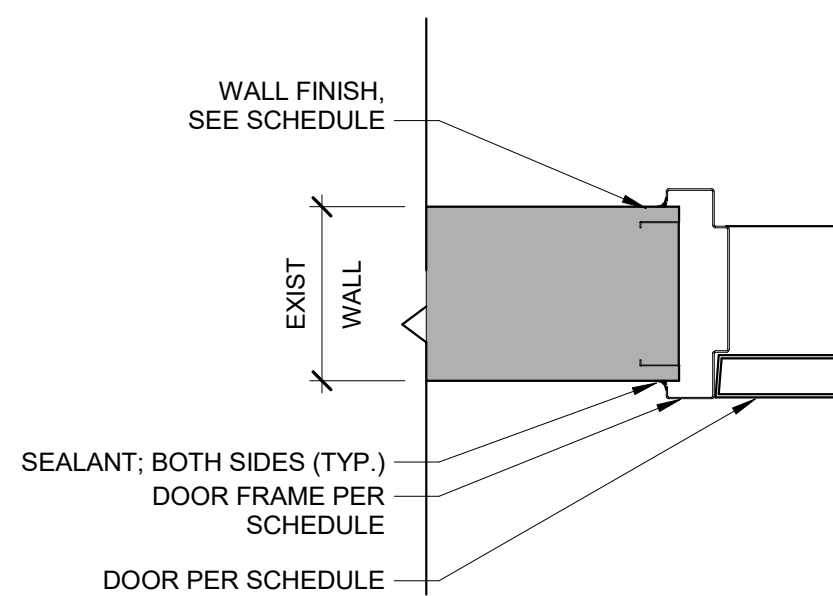
EXISTING WALL



H1

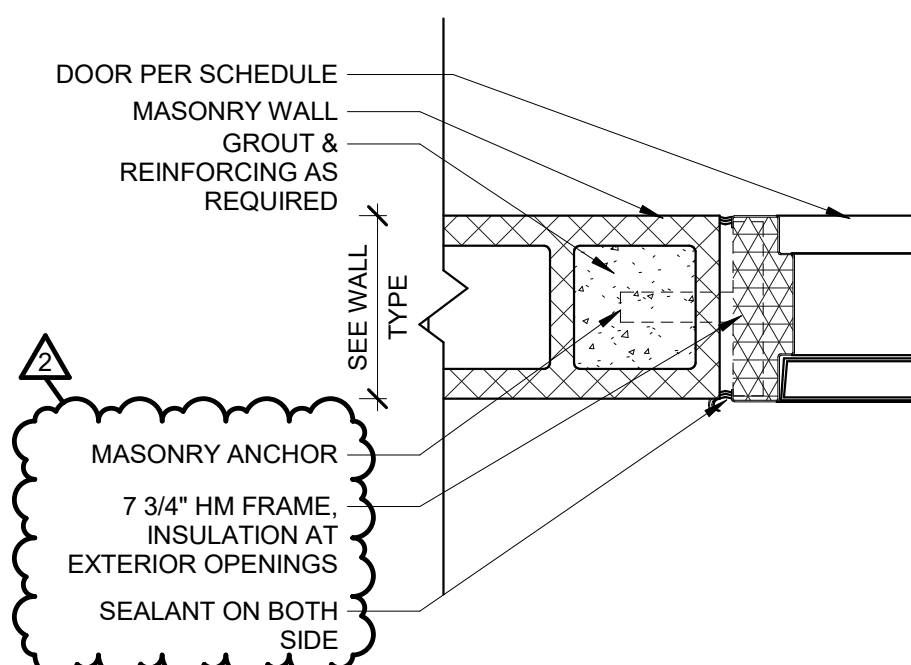


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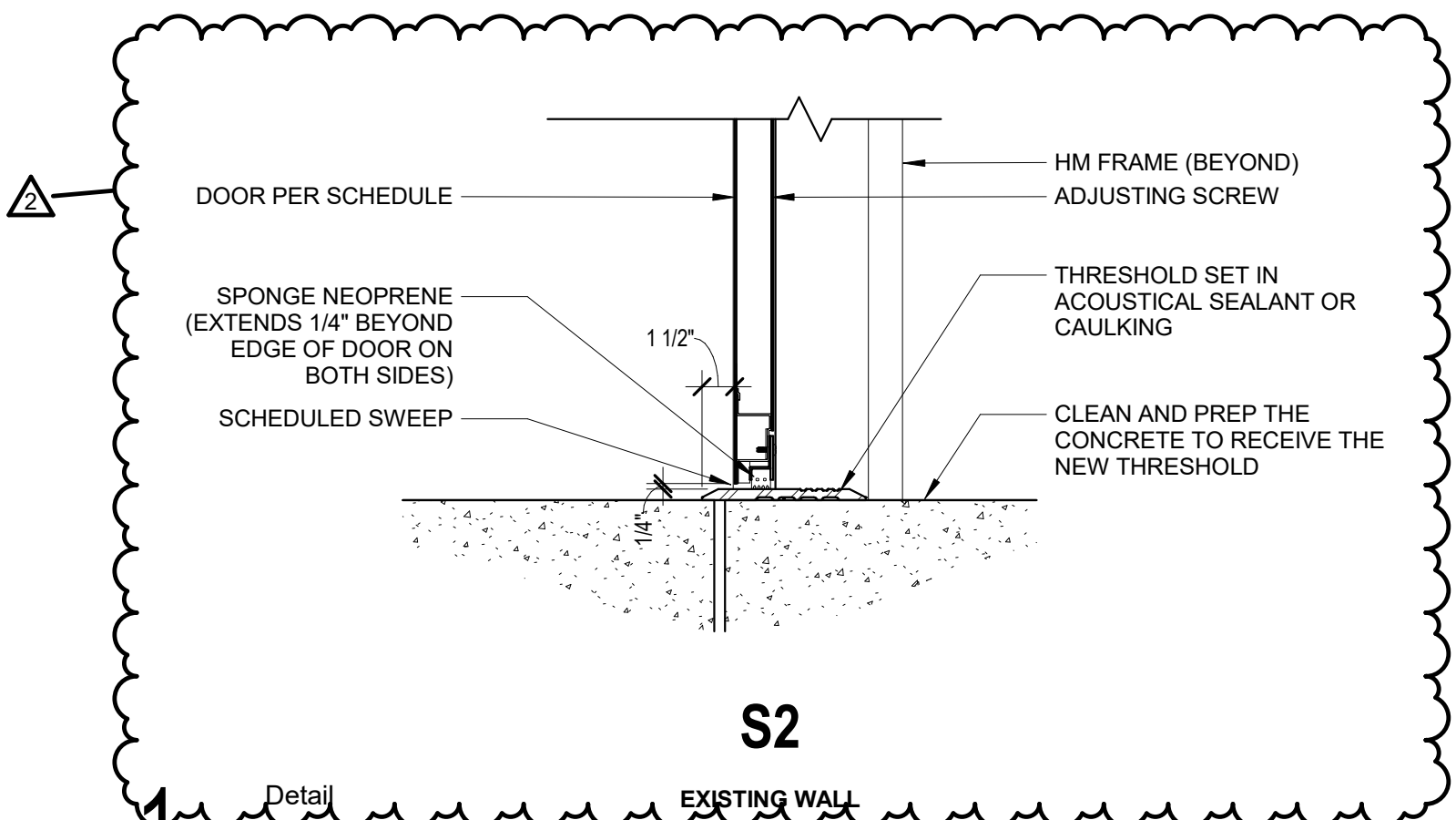


J2

EXISTING WALL



J1

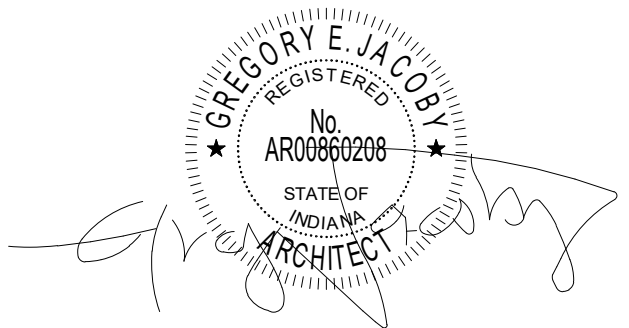


S2

EXISTING WALL

Door Details

A8.02 1 1/2\"/>



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

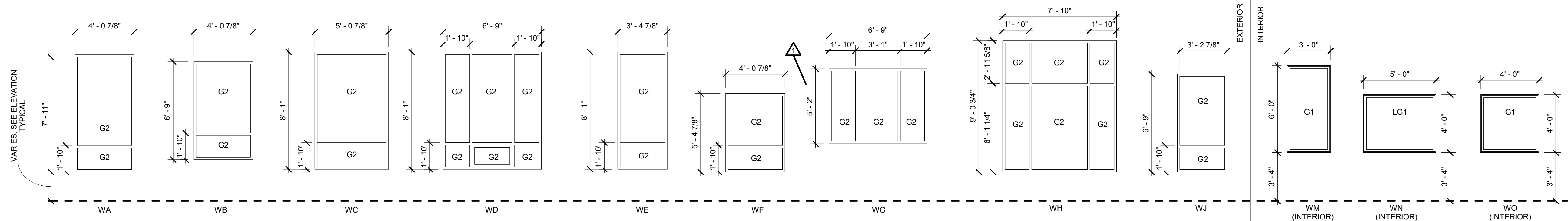
Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: J. Starnett/BJZ
Checked By: Checker
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020

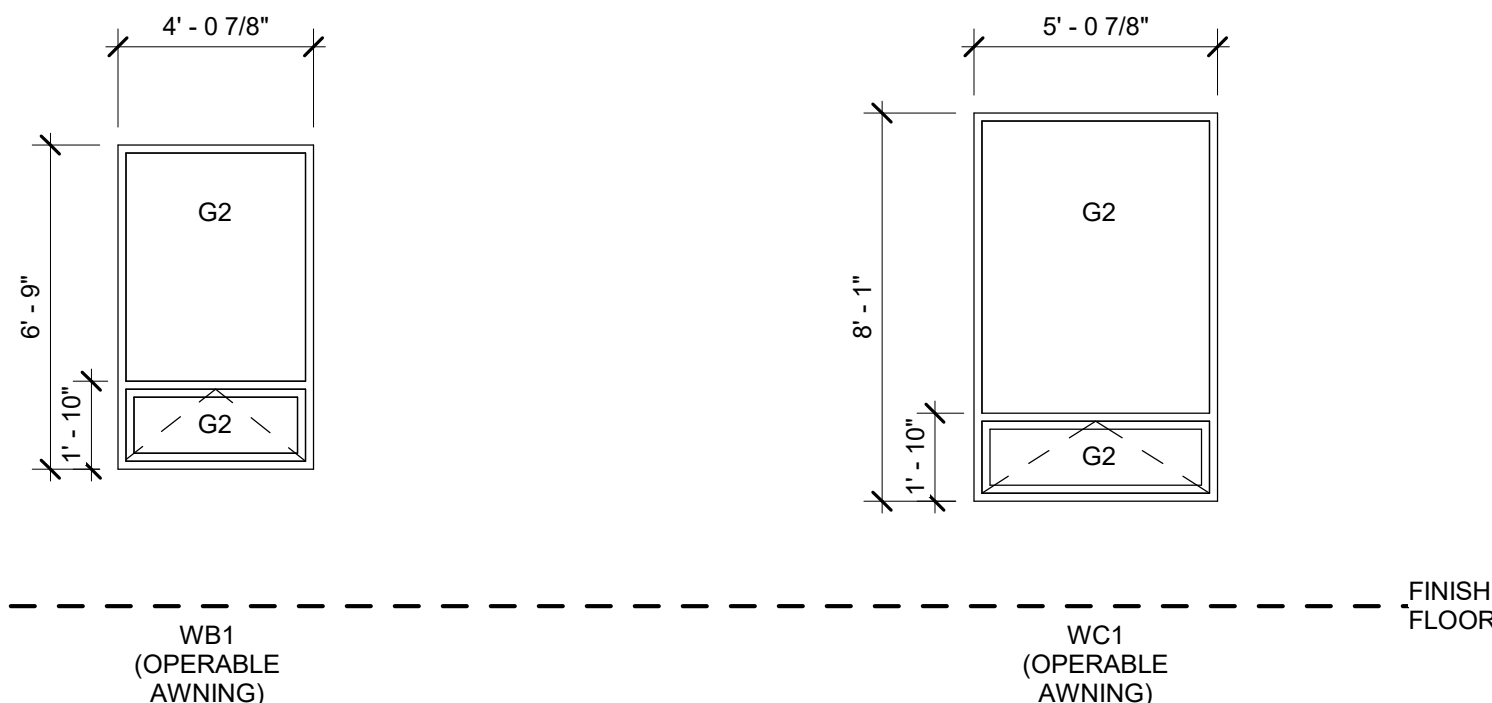
Door Details

A8.02



Legend
Window Elevations - Base Bid

1/4" = 1'-0"



Legend
Window Elevations - Alternate

1/4" = 1'-0"

FRAMED WINDOW NOTES

1. WINDOW SYSTEMS ARE TO BE THERMALLY BROKEN.
2. ARCHITECT TO APPROVE GLASS SAMPLES PRIOR TO FABRICATION.
3. ALL GLAZING IS G-2 UNLESS NOTED OTHERWISE.
4. WINDOWS ARE TO BE CLEAR ANNOXIDIZED FINISH UNLESS NOTED OTHERWISE. ARCHITECT TO APPROVE FINISH SAMPLES PRIOR TO FABRICATION.
5. AT EXISTING OPENINGS TO RECEIVE NEW WINDOWS, WINDOW CONTRACTOR TO VERIFY INTEGRITY OF EXISTING MATERIALS PRIOR TO INSTALLATION.
6. WINDOW CONTRACTOR IS TO FIELD VERIFY EACH AS-BUILT R.O. DIMENSION PRIOR TO FABRICATION.
7. PROVIDE FRAME EXTENSION CLOSURES AT VENEER CAVITIES. FIELD VERIFY DEPTH.

GLASS SCHEDULE

G1	1/4" CLEAR GLASS	1 2
G2	1" INSULATED CLEAR GLASS WITH LOW-E ON #2 SURFACE	E 1 2 3 4
G3	ALUMINUM FRAMED DOORS CLEAR LAMINATED GLASS WITH LOW-E.	E 1 2 3 4
S1	1" INSULATED SPANDREL GLASS. PROVIDE LIGHT GREY COATING ON #4 SURFACE.	E 1 2 3 4
LG1	1/4" CLEAR LAMINATED GLASS WITH INTERLAYER - SEE SPECIFICATIONS	E 1 2 3 4

(T) THE SUFFIX (T) DENOTES THAT THE INDICATED DAYLIGHT OPENING IS TO BE MANUFACTURED WITH TEMPERED GLAZING.

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) 237-3173
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

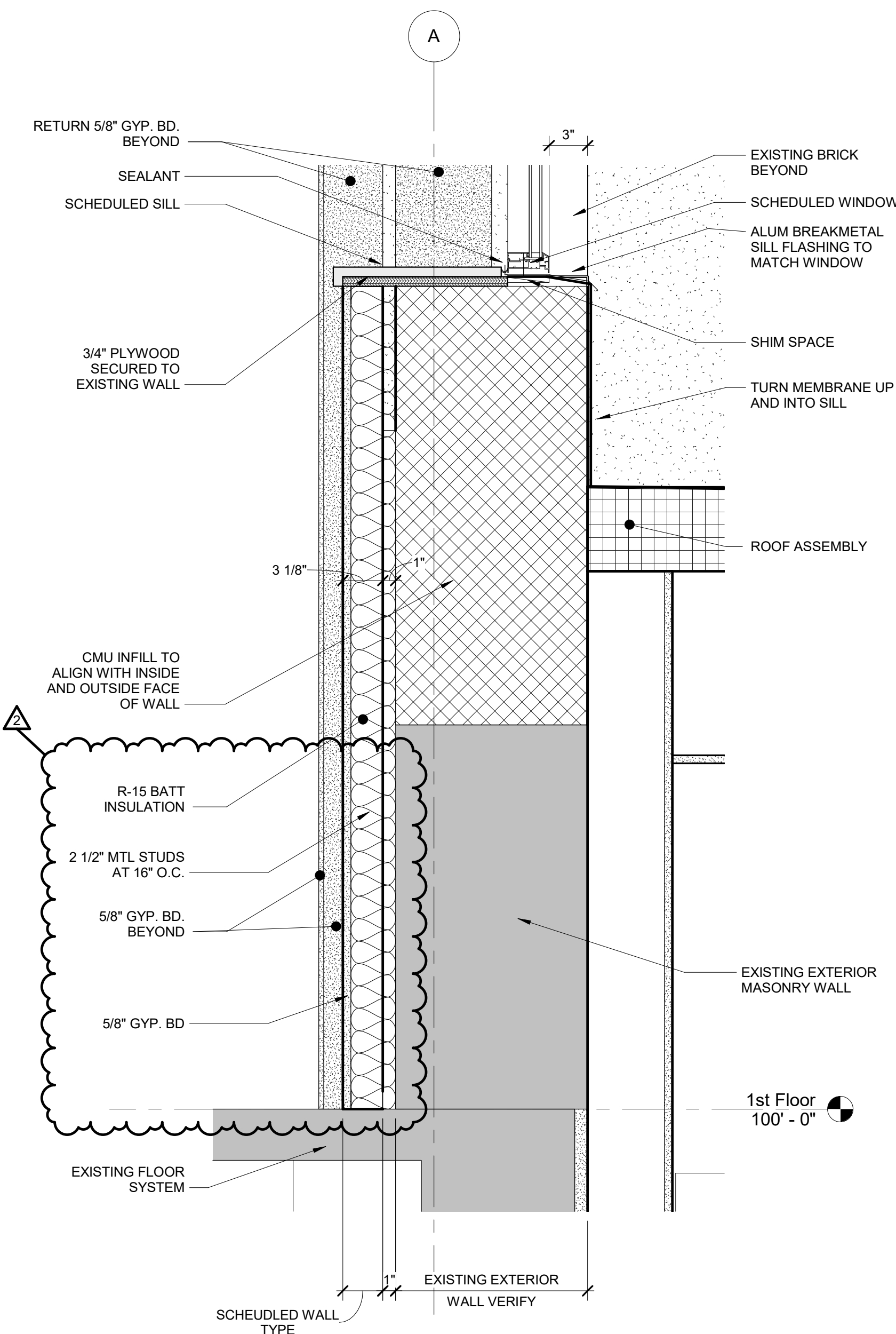
732 North Capitol Avenue
Indianapolis, IN 46204
Phone: (317) 634-4672
Website: www.redimond.com

Design 27
Acoustical Engineer

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

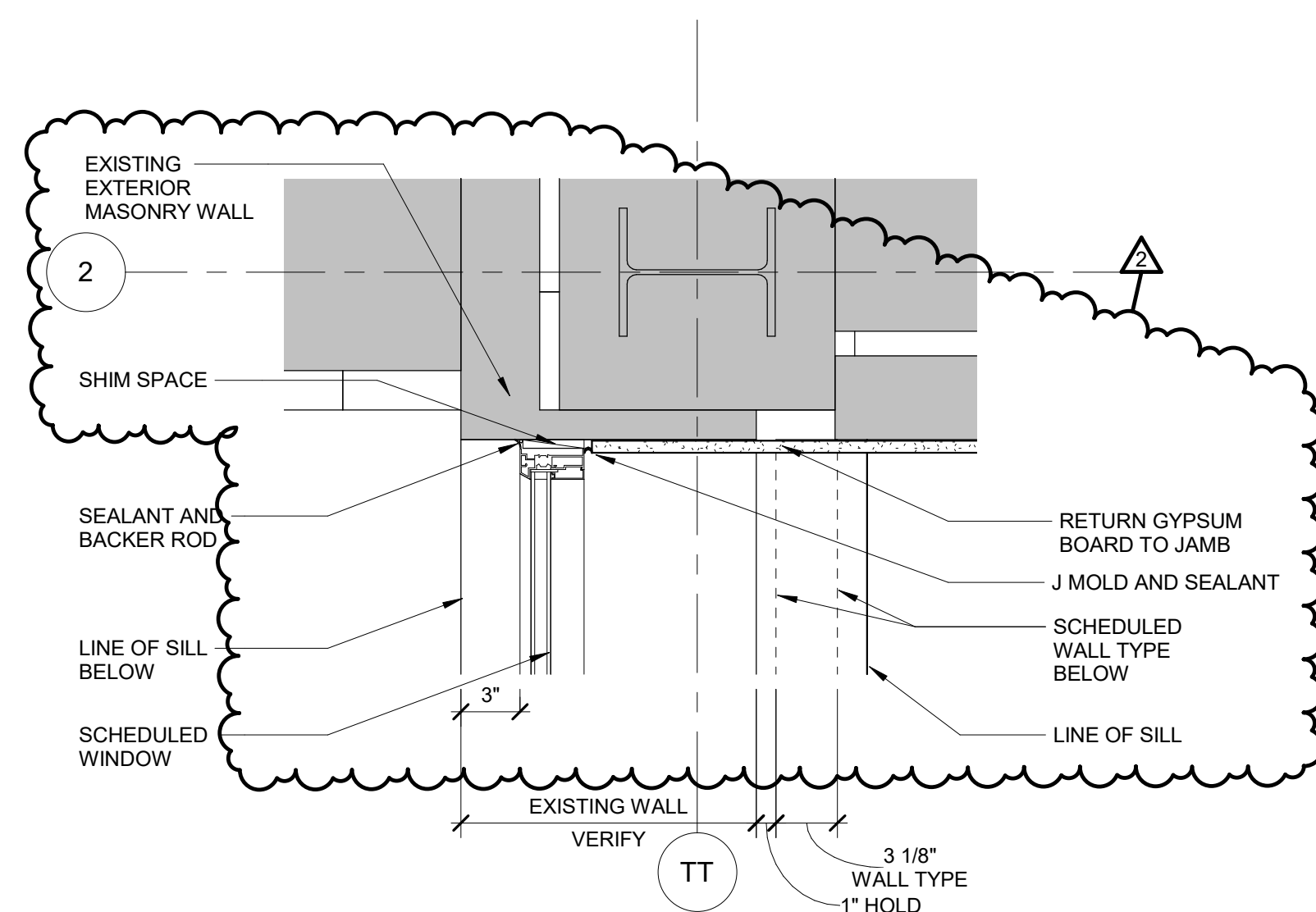
Myers Engineering, Inc.
Civil Engineer

525 West Honey Creek Drive
Terre Haute, IN 47802
Phone: (812) 236-9731
Website: www.myersengineering.com



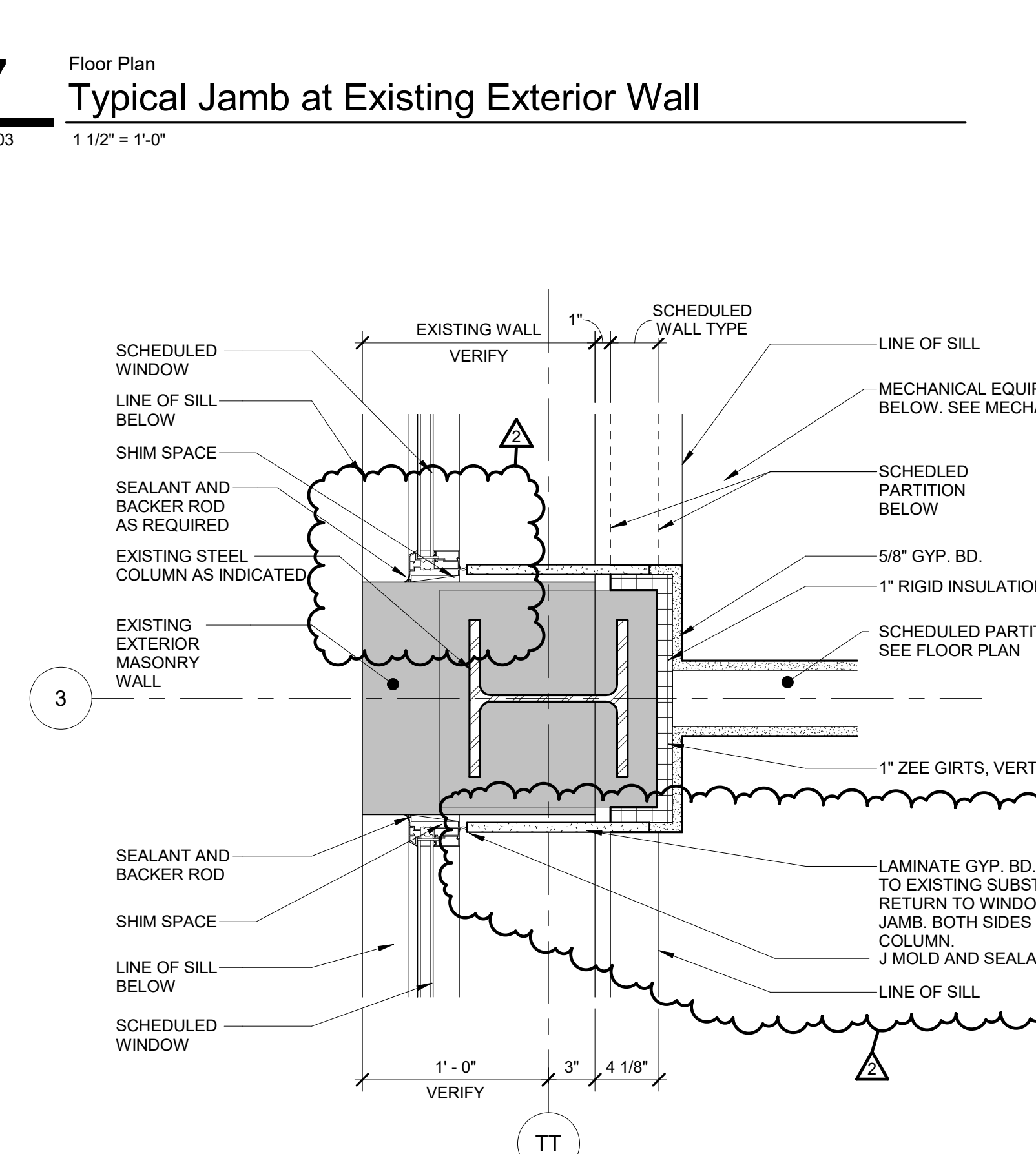
4 Wall Section
Window Sill at Addition

A8.03 1 1/2" = 1'-0"



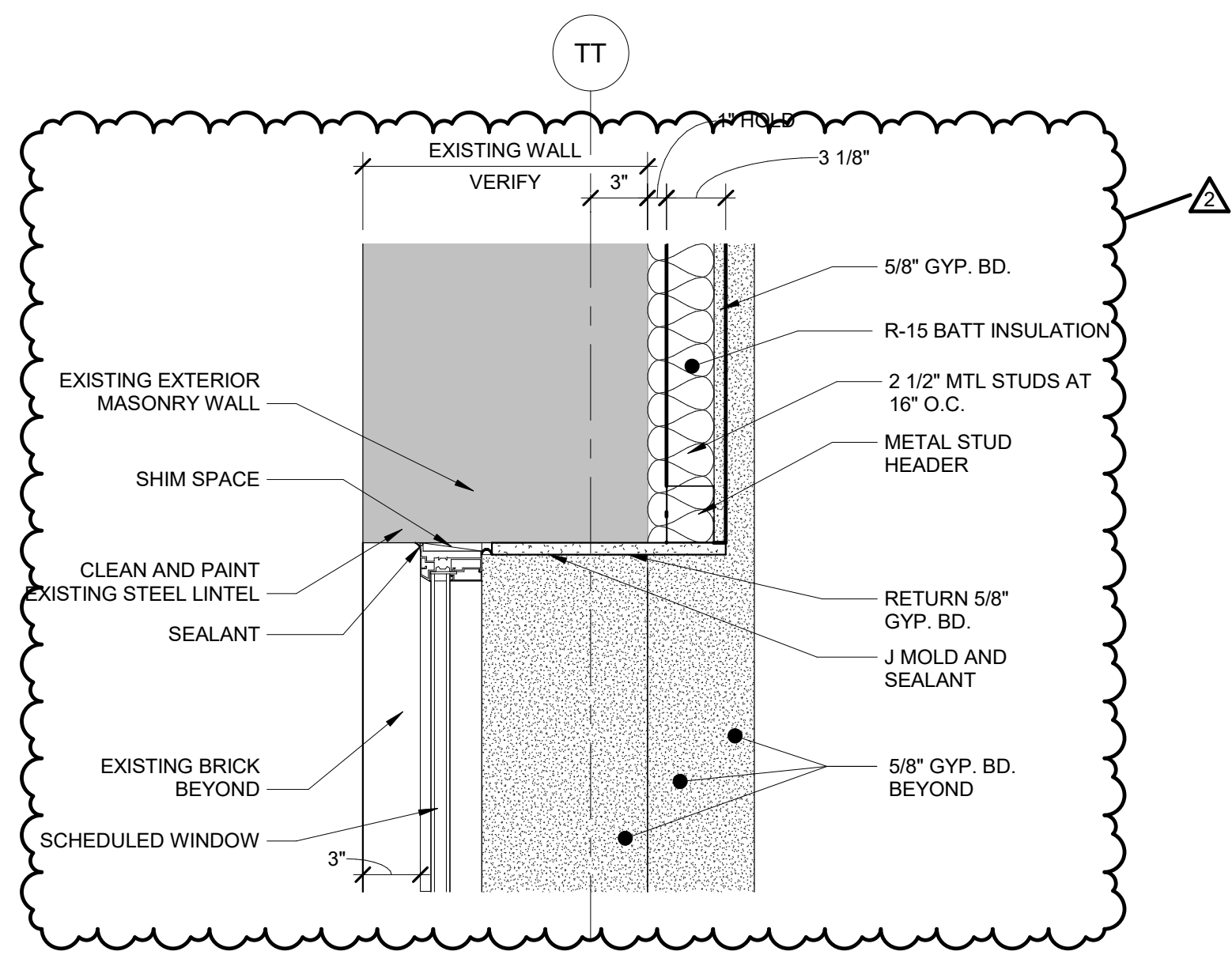
7 Floor Plan
Typical Jamb at Existing Exterior Wall

A8.03 1 1/2" = 1'-0"



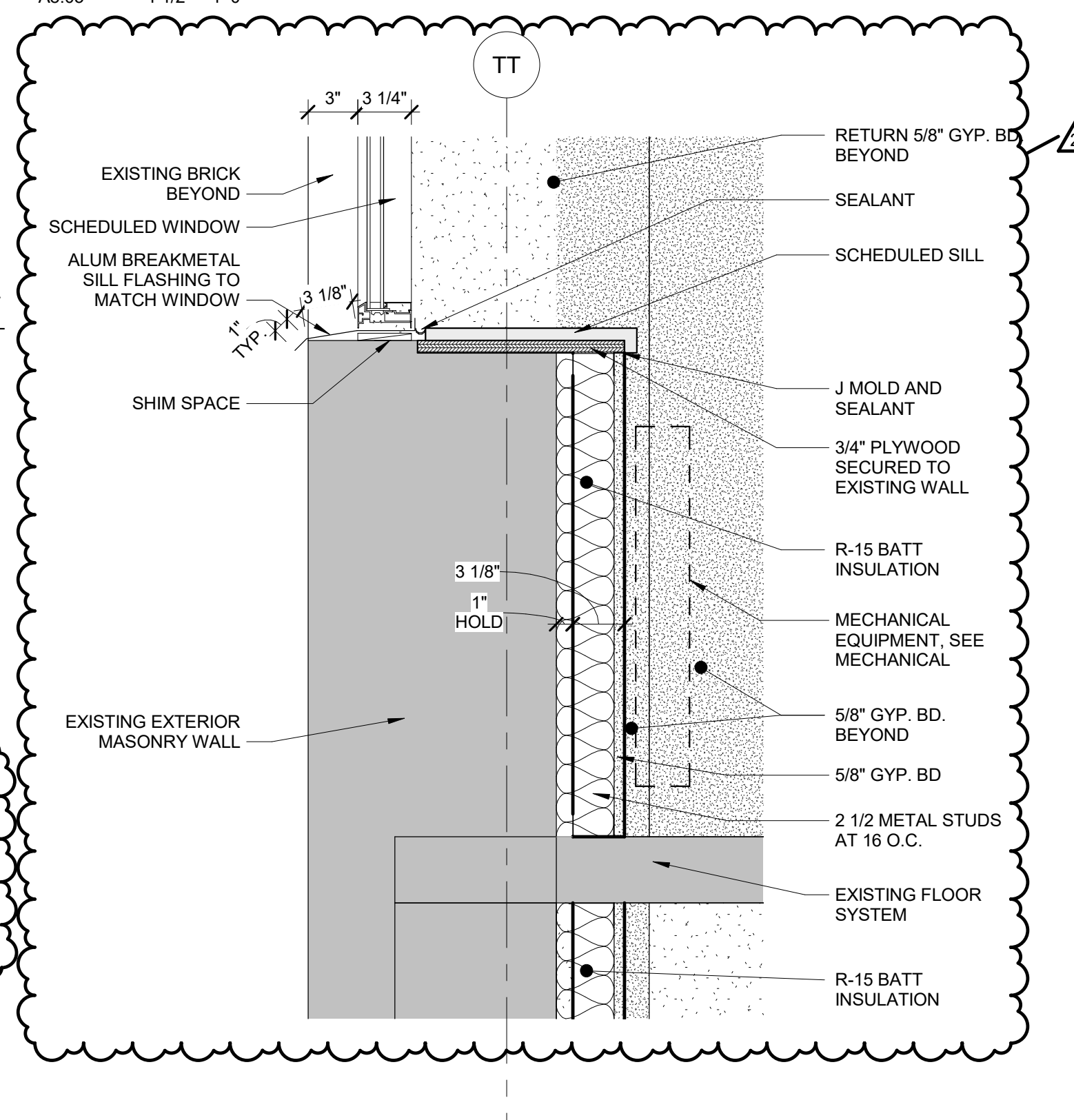
3 Floor Plan
Typical Intermediate Jamb at Existing Exterior Wall

A8.03 1 1/2" = 1'-0"



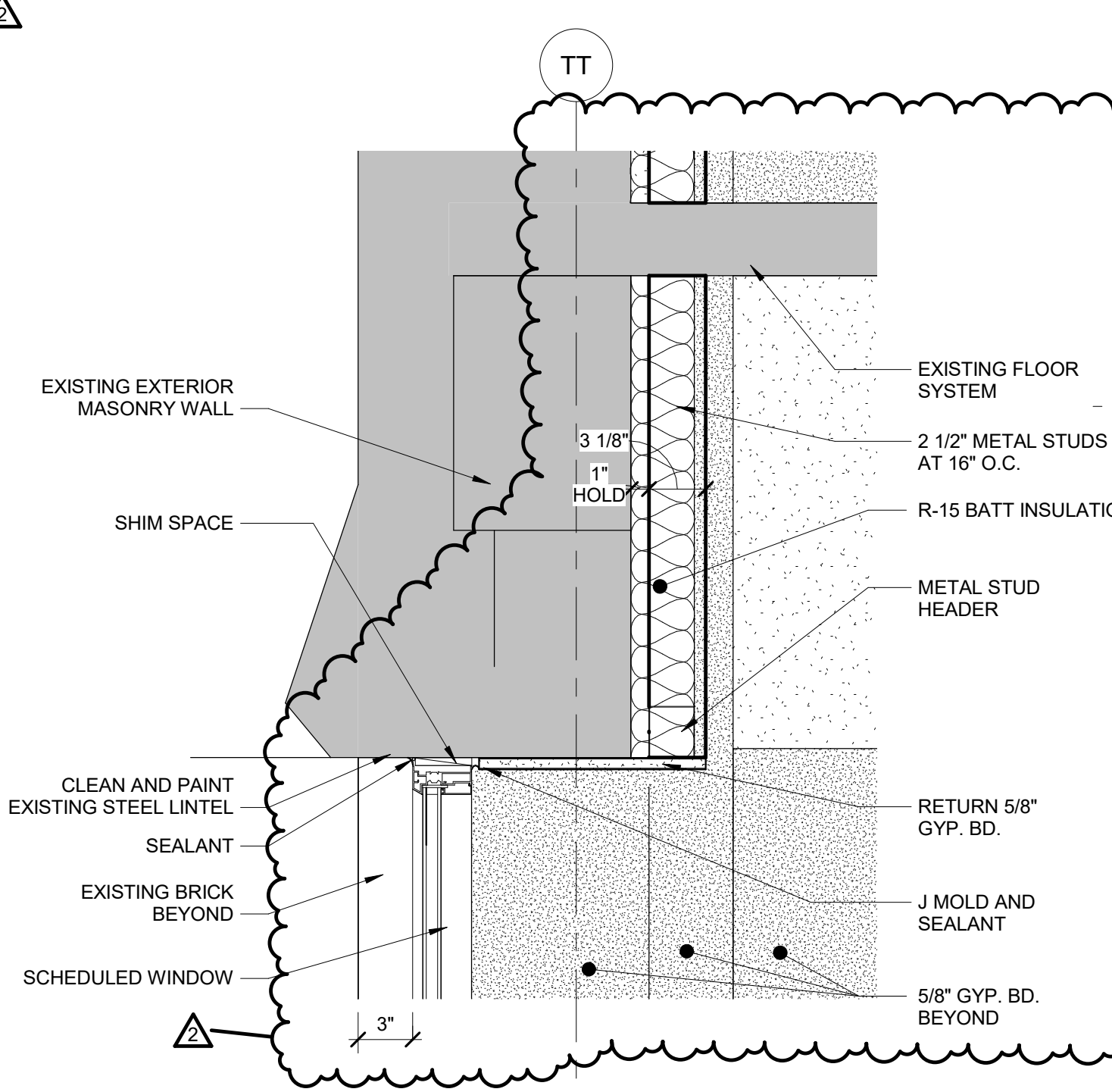
6 Wall Section
Typical Head at Existing Exterior Wall

A8.03 1 1/2" = 1'-0"



2 Wall Section
Typical Sill at Existing Exterior Wall

A8.03 1 1/2" = 1'-0"



1 Wall Section
Exist Window 1stFlr Head Detail

A8.03 1 1/2" = 1'-0"



CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

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Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
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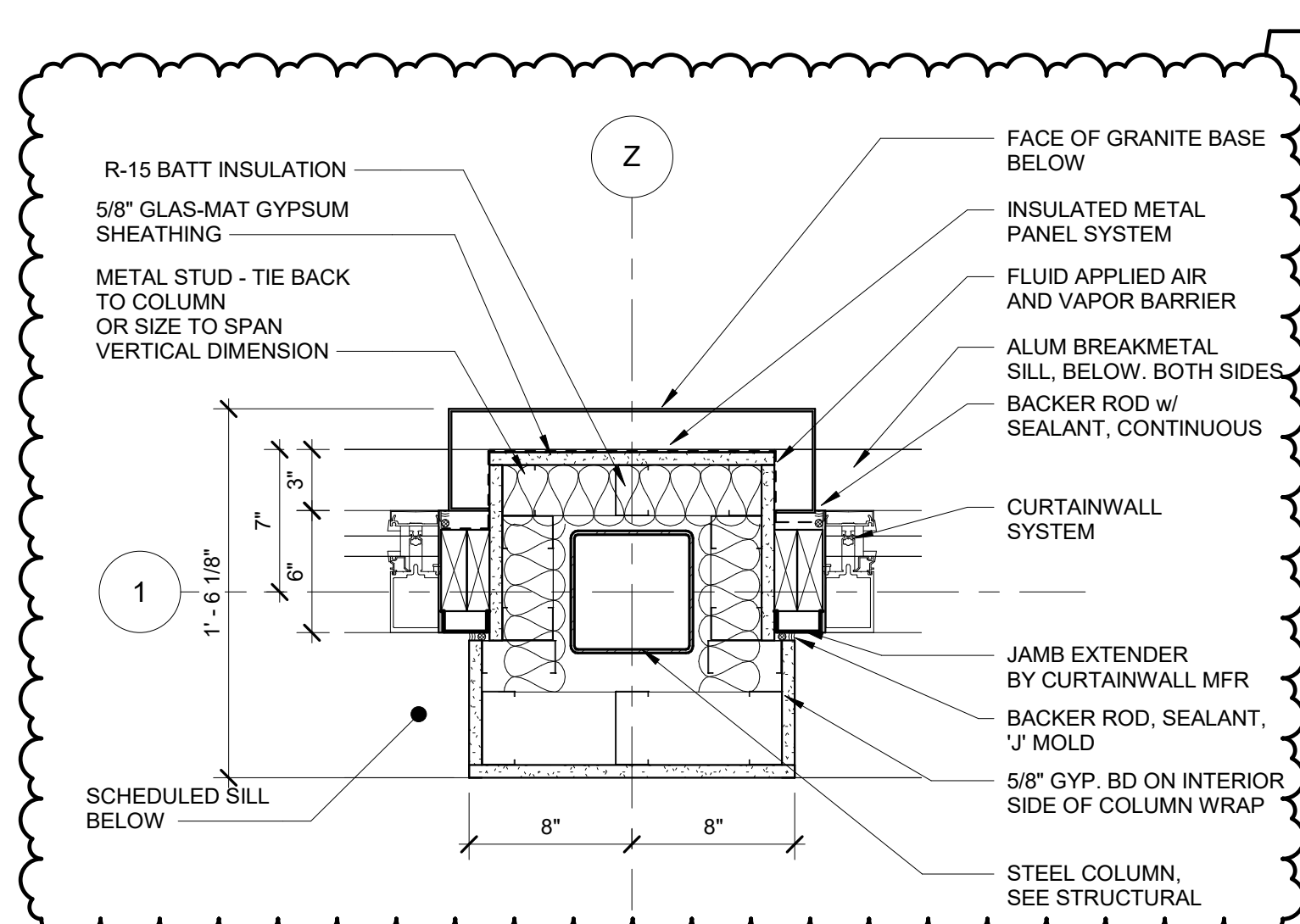
Window Elevation and
Details

A8.03

\\sadm1.local\UEM\Users\Share\Browns\Documents\19052_USU Drisner Hall_r11b CENTRAL_browns\adsk.rvt
6/19/2020 12:38:19 PM

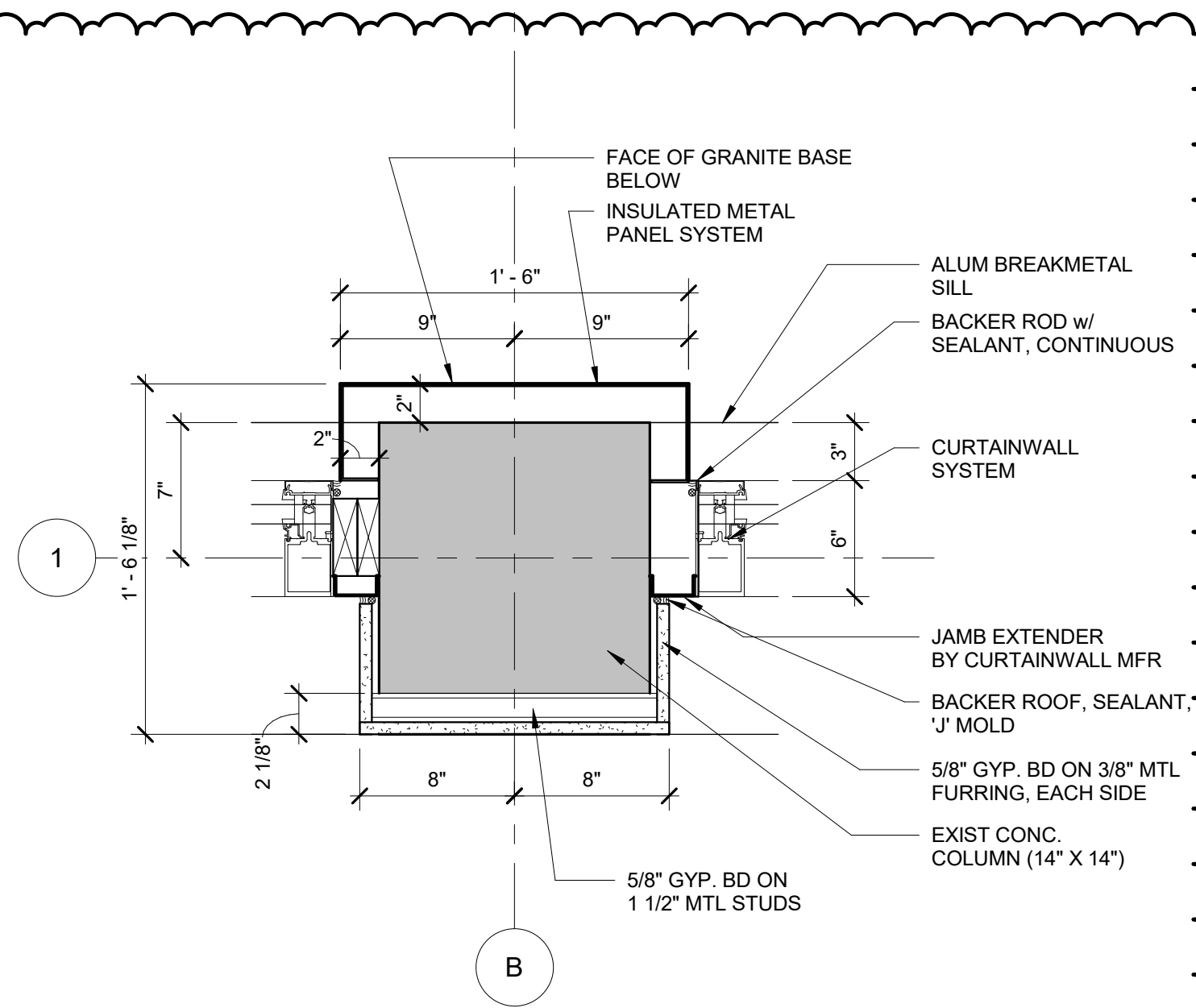
12 Floor Plan SFJ4A (Curtainwall Jamb)

A8.20 1 1/2" = 1'-0"



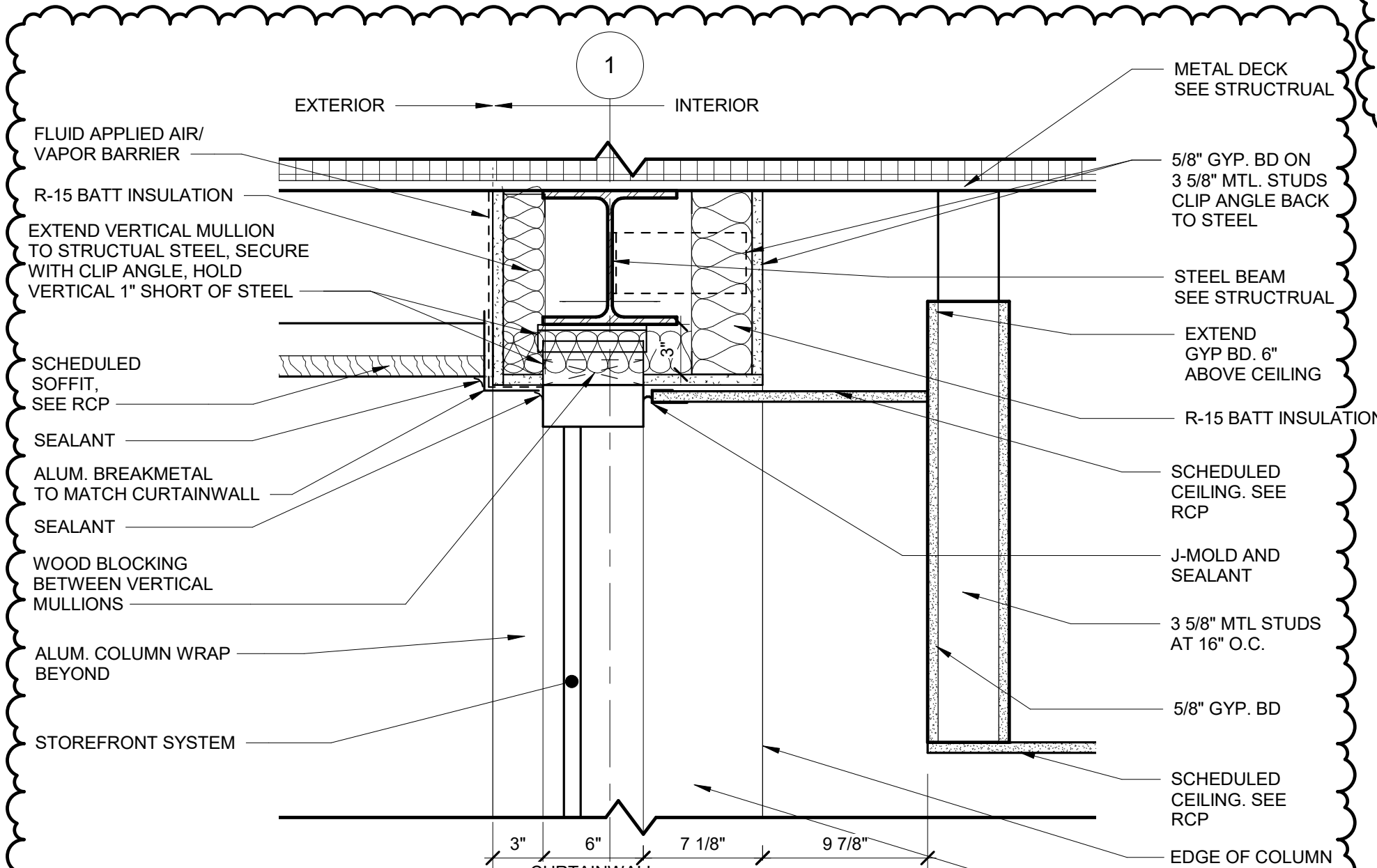
11 Floor Plan SFJ4 (Curtainwall Jamb)

A8.20 1 1/2" = 1'-0"



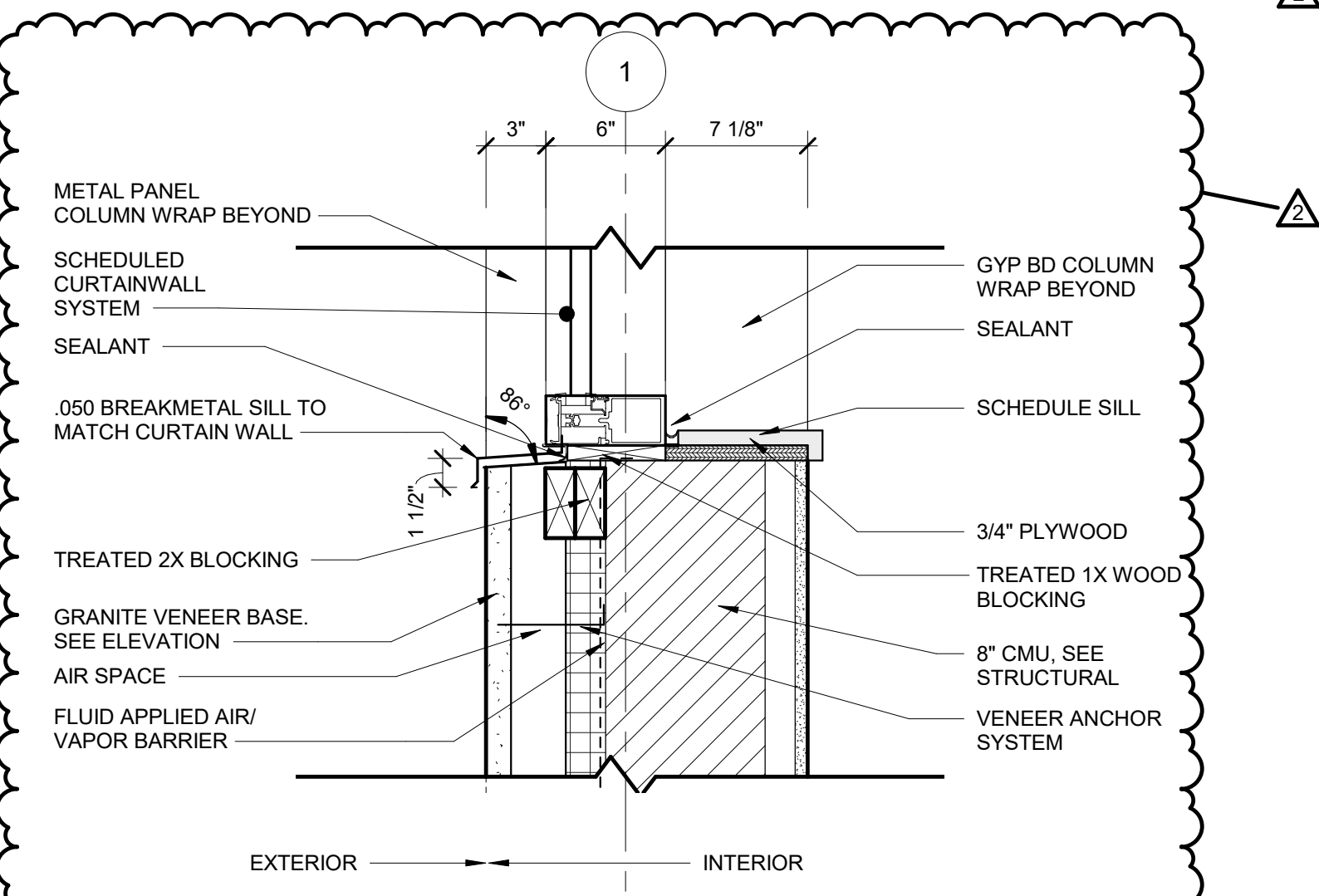
8 Wall Section SFH4 (Curtainwall Head)

A8.20 1 1/2" = 1'-0"

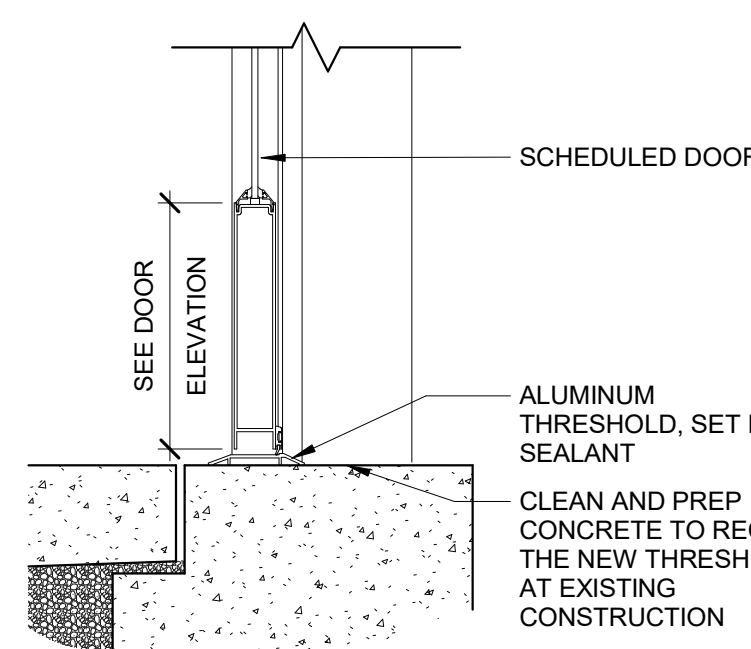


4 Wall Section SFS4 (Curtainwall Sill)

A8.20 1 1/2" = 1'-0"



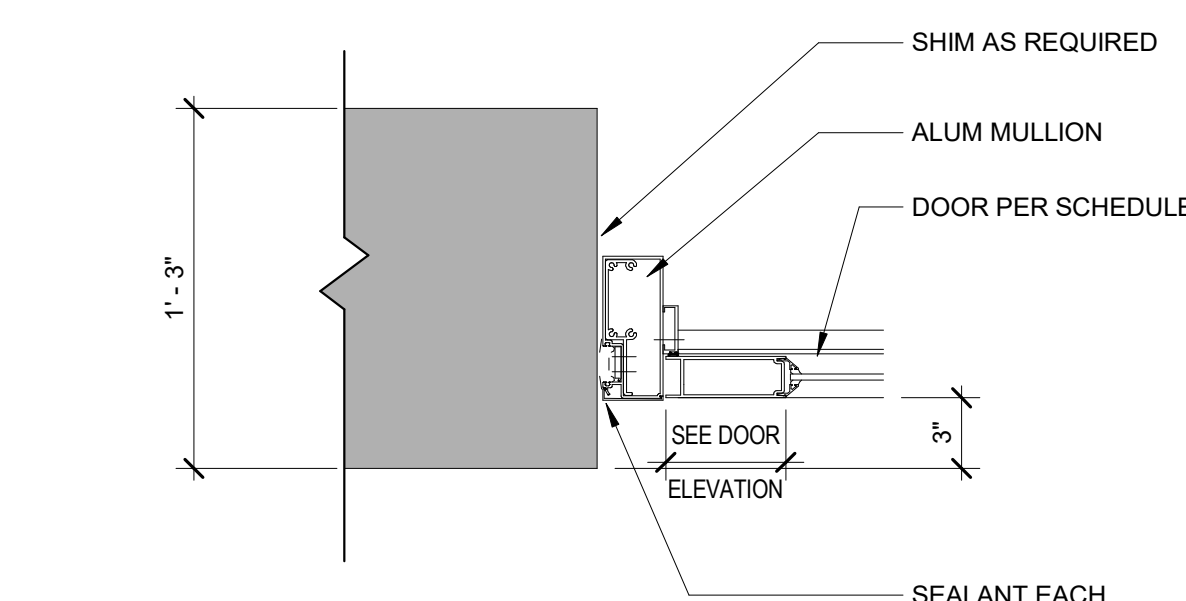
SFJ1



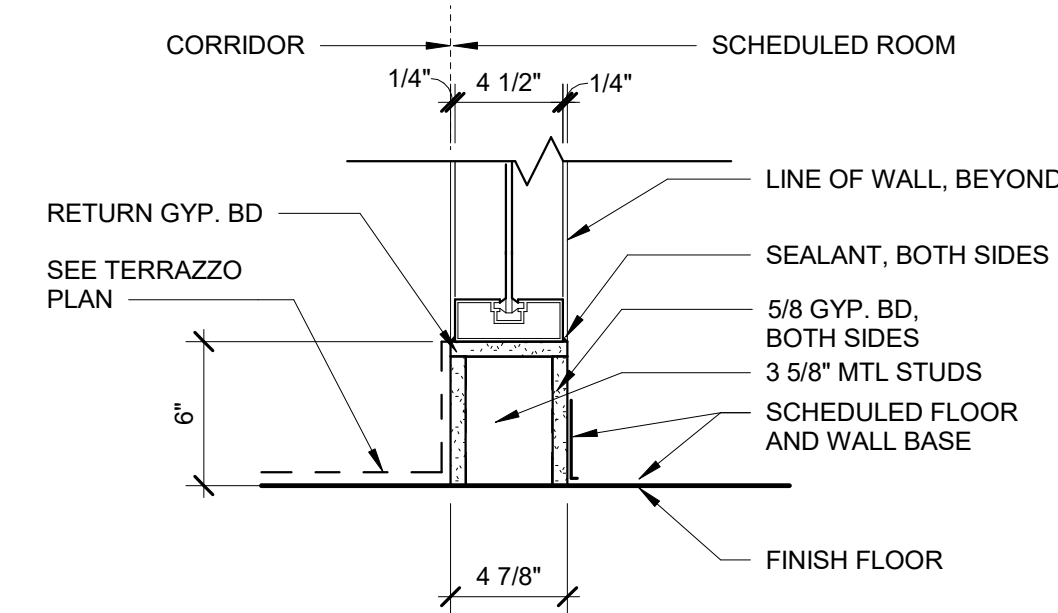
SFS1 Detail Curtainwall and Storefront Details

A8.20 1 1/2" = 1'-0"

SFJ2 EXISTING EXTERIOR WALL

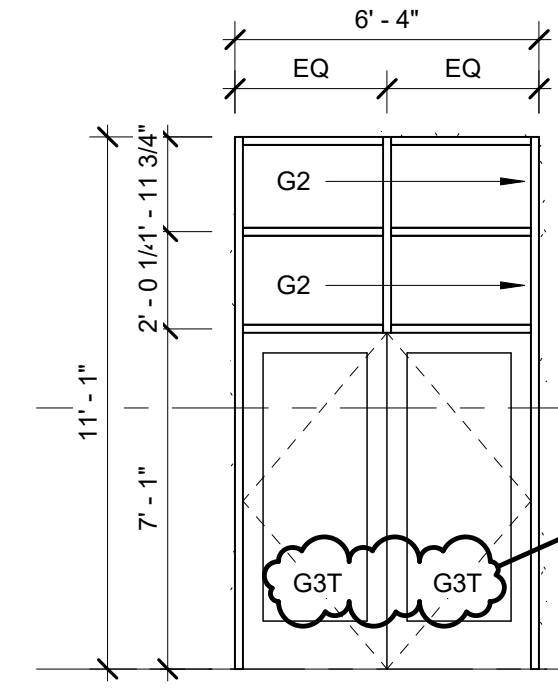


SFS3A TYPICAL INTERIOR WALL AT FLOOR



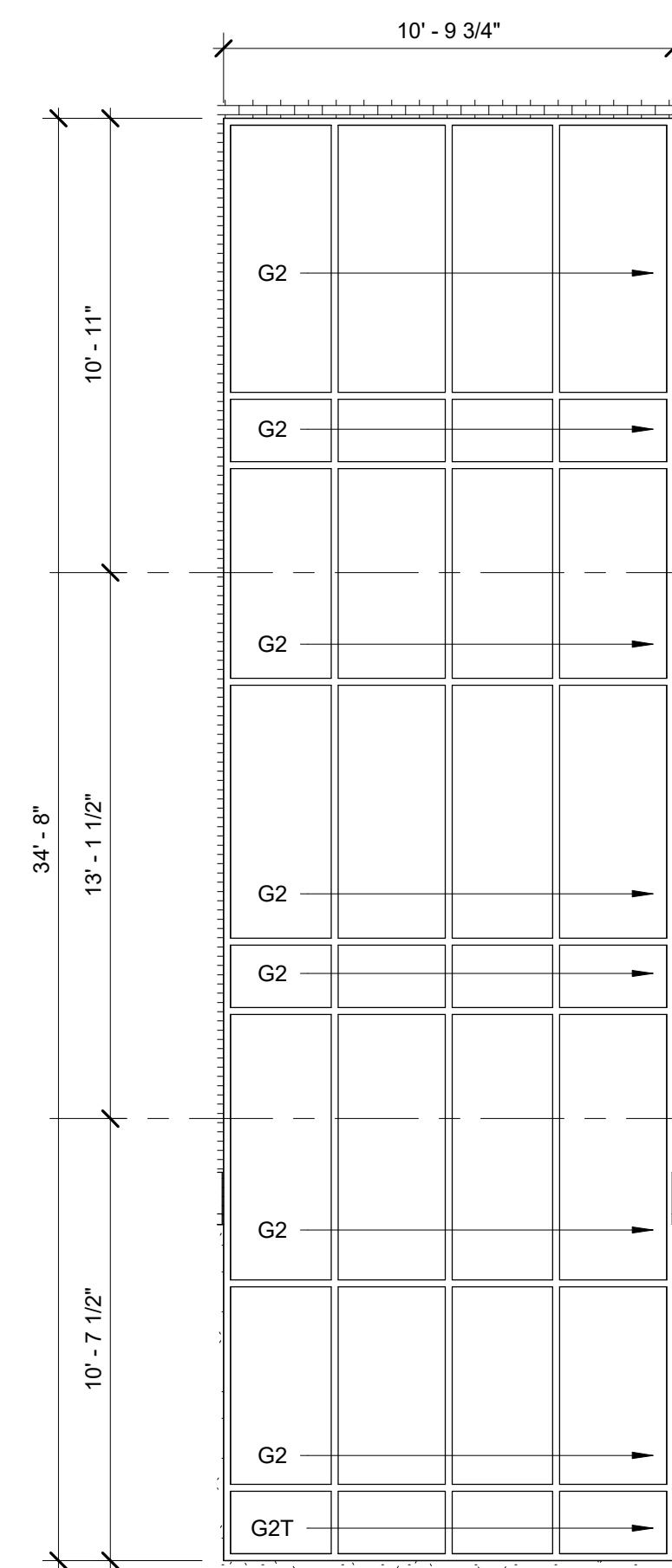
Ext Curtainwall 37 (W. Elev)

W37



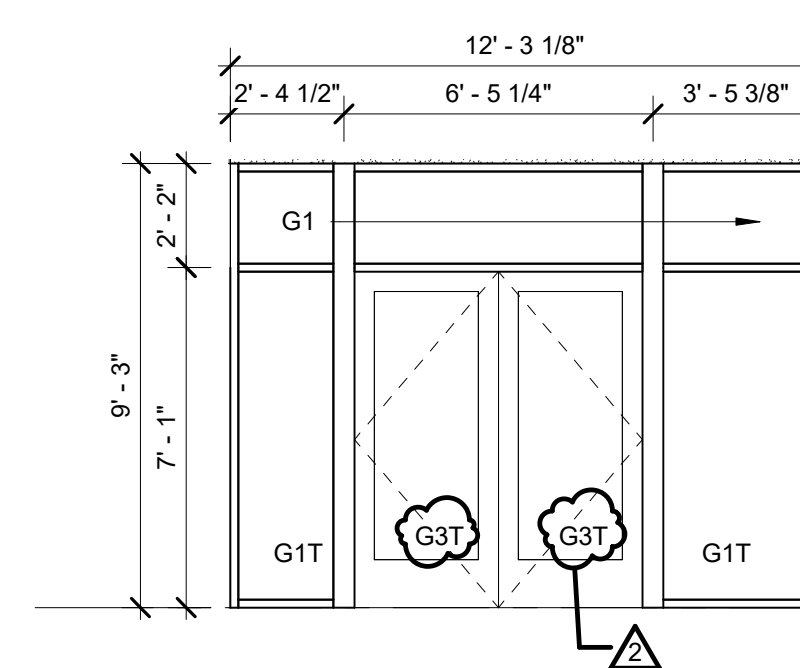
Ext Storefront 36 (S Elev)

W36



Ext Curtainwall 35 (E. Elev)

W35

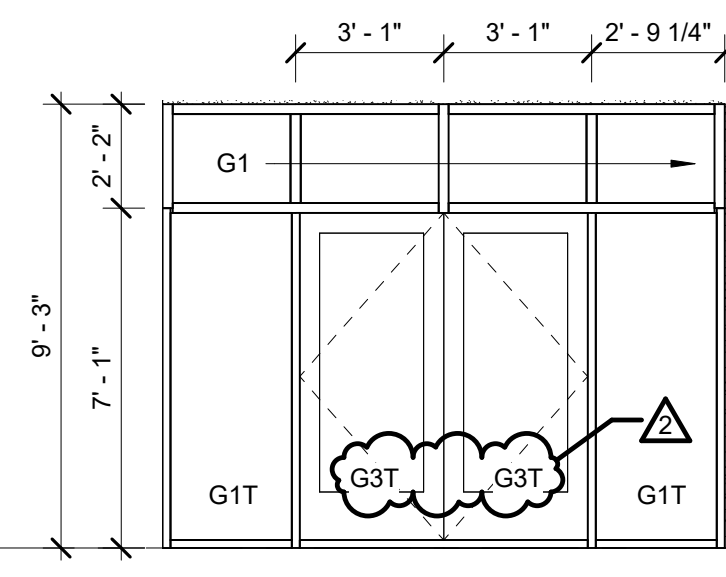


Ext Storefront 34 (E Elev Vest2)

W34

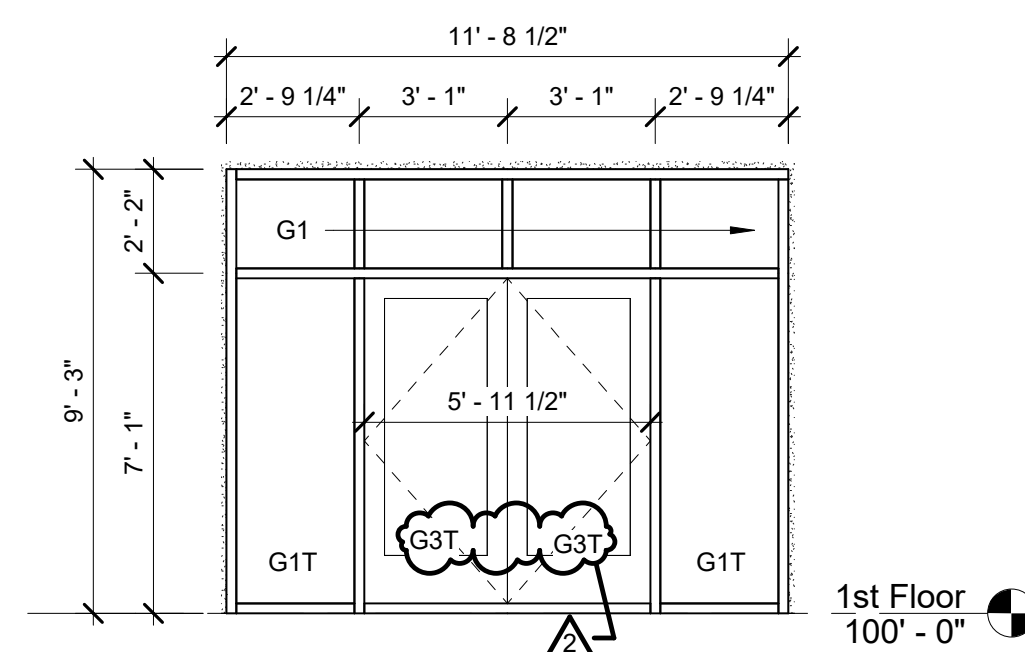
Ext Storefront 33 (E Elev Vest)

W33



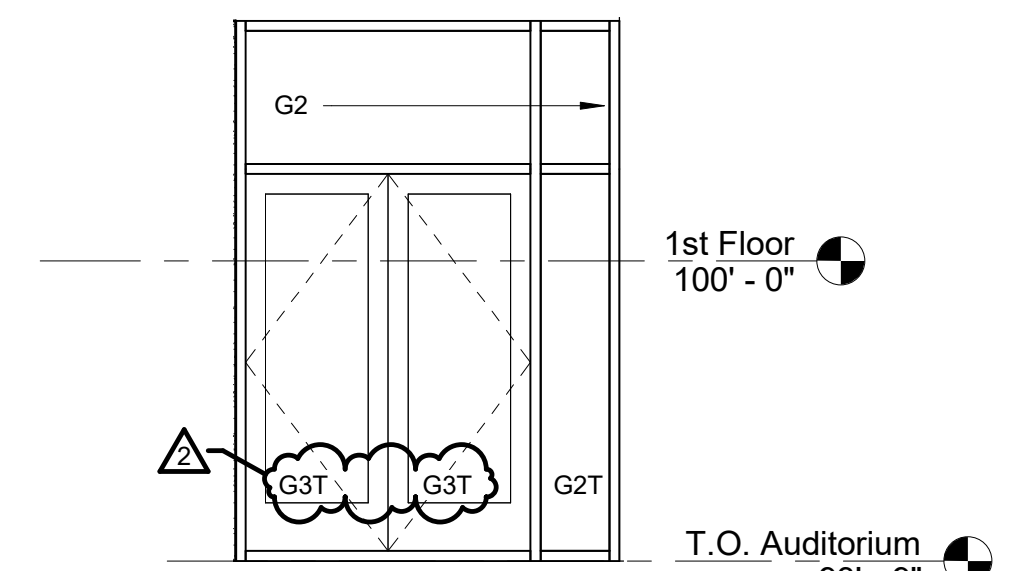
Ext Storefront 32 (E Elev)

W32



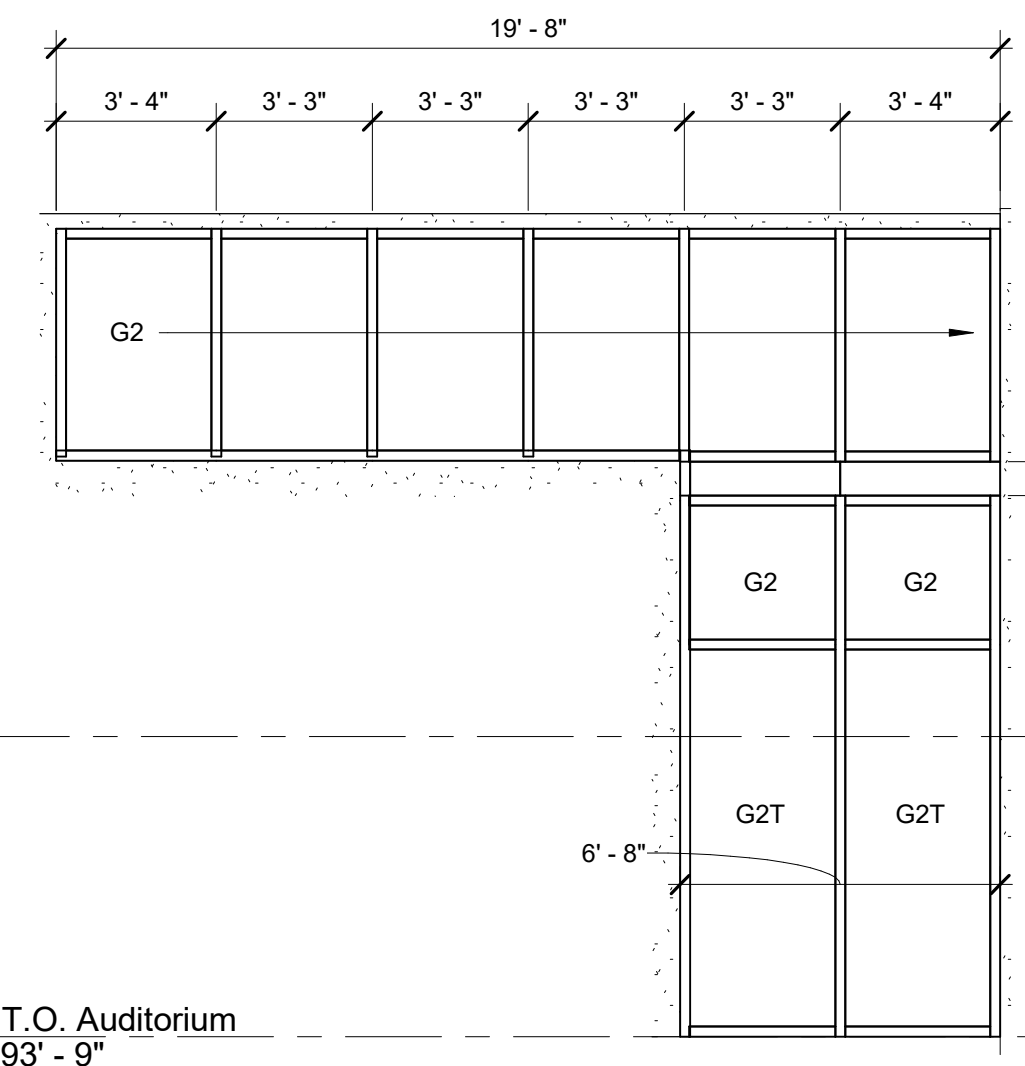
Ext Storefront 31 (N Elev)

W31



Ext Storefront 30 (N Elev)

W30



GENERAL STOREFRONT AND CURTAINWALL NOTES

1. EXTERIOR FRAME SYSTEMS ARE TO BE THERMALLY BROKEN.
2. INTERIOR FRAME SYSTEMS NEED NOT BE THERMALLY BROKEN.
3. STOREFRONT SYSTEM MULLION PROFILE IS 2" X 4 1/2" UNLESS NOTED OTHERWISE.
4. CURTAIN WALL SYSTEM MULLION PROFILE IS 2 1/2" X 6" (MINIMUM) UNLESS NOTED OTHERWISE.
5. ARCHITECT TO APPROVE GLASS SAMPLES PRIOR TO FABRICATION.
6. WINDOW MULLIONS ARE TO BE CLEAR ANNOZIDED FINISH UNLESS NOTED OTHERWISE. ARCHITECT TO APPROVE FINISH SAMPLES PRIOR TO FABRICATION.
7. WINDOW CONTRACTOR IS TO FIELD VERIFY EACH AS-BUILT WINDOW FOR DISTORTION PRIOR TO FABRICATION.
8. AT EXISTING OPENINGS TO RECEIVE NEW FRAME SYSTEM, WINDOW CONTRACTOR TO VERIFY INTEGRITY OF EXISTING MATERIALS PRIOR TO INSTALLATION.
9. WINDOW CALC. JOINT AT ROUGH OPENING NOT TO EXCEED 1/2".

GLASS SCHEDULE

G1	1/4" CLEAR GLASS	1 2
G2	1" INSULATED CLEAR GLASS WITH LOW-E ON #2 SURFACE	1 2 3 4
G3	ALUMINUM FRAMED DOORS CLEAR LAMINATED GLASS WITH LOW-E.	1 2 3 4
S1	1" INSULATED SPANDREL GLASS. PROVIDE LIGHT GREY COATING ON #4 SURFACE.	1 2 3 4
LG1	1/4" CLEAR LAMINATED GLASS WITH INTERLAYER - SEE SPECIFICATIONS	1 2 3 4
(T) THE SUFFIX (T) DENOTES THAT THE INDICATED DAYLIGHT OPENING IS TO BE MANUFACTURED WITH TEMPERED GLAZING		

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RE Dimond
MEP Engineer

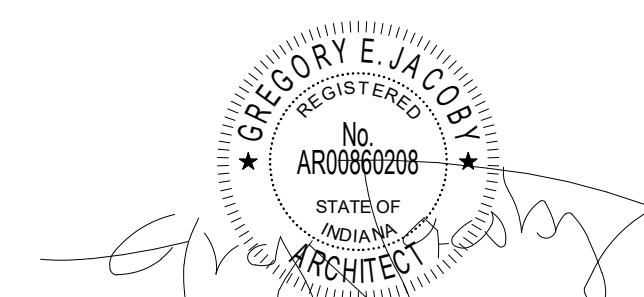
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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

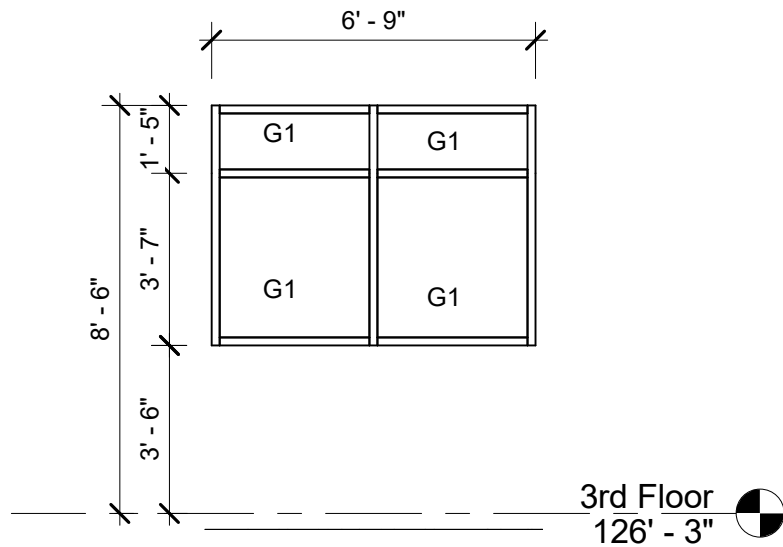
Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: BJZ
Checked By: Checker
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

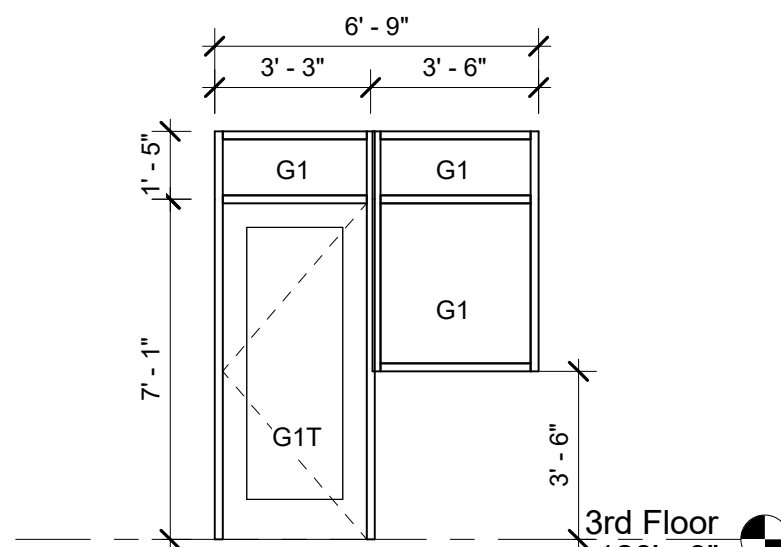
Exterior Storefront
Elevations and Details

A8.20



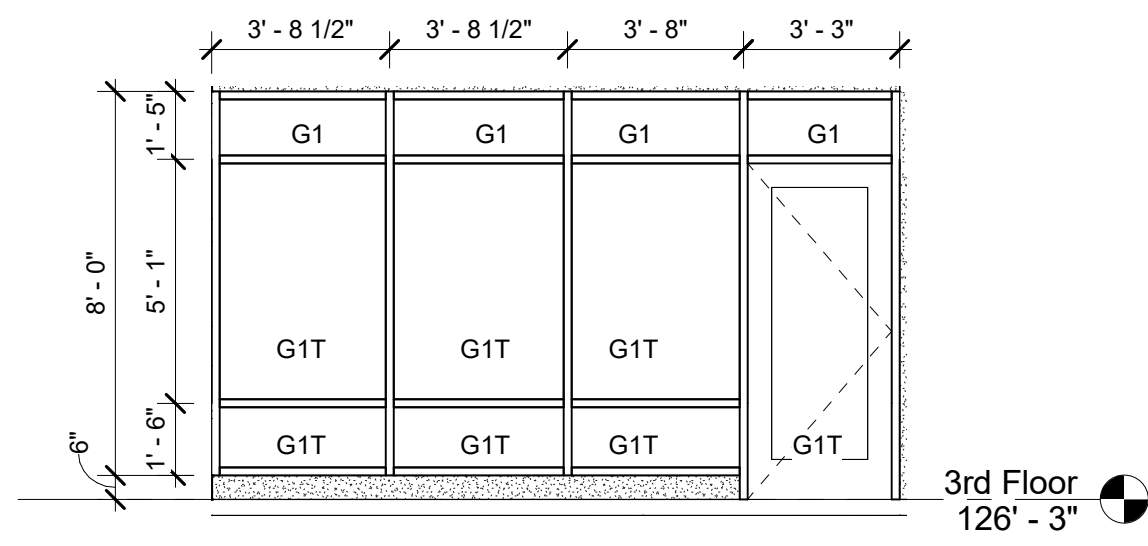
Int Storefront 66

W15



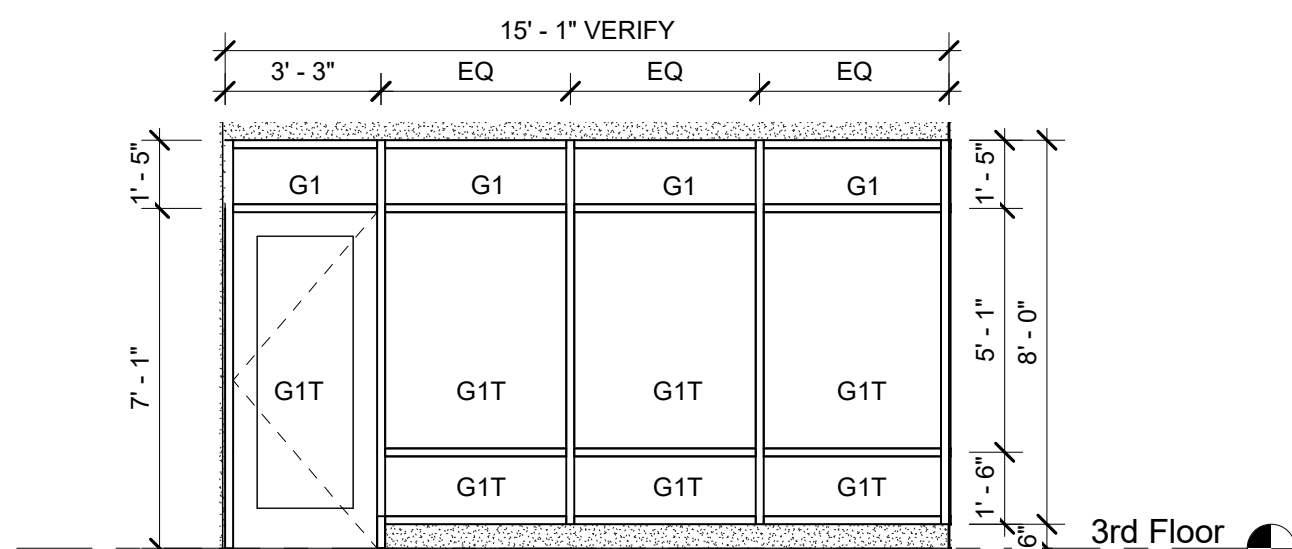
Int Storefront 65

W65



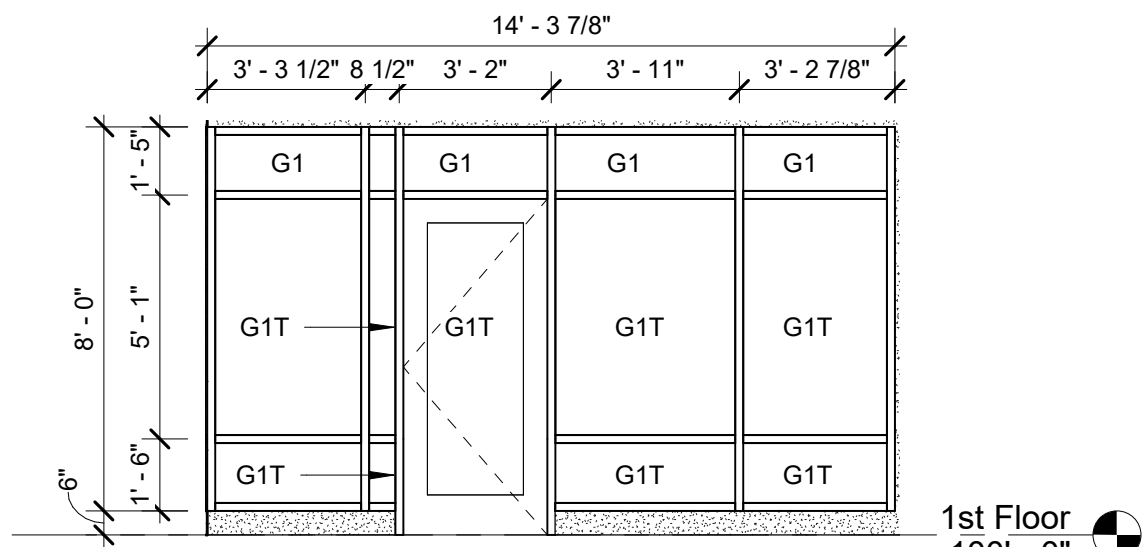
Int Storefront 64

W64



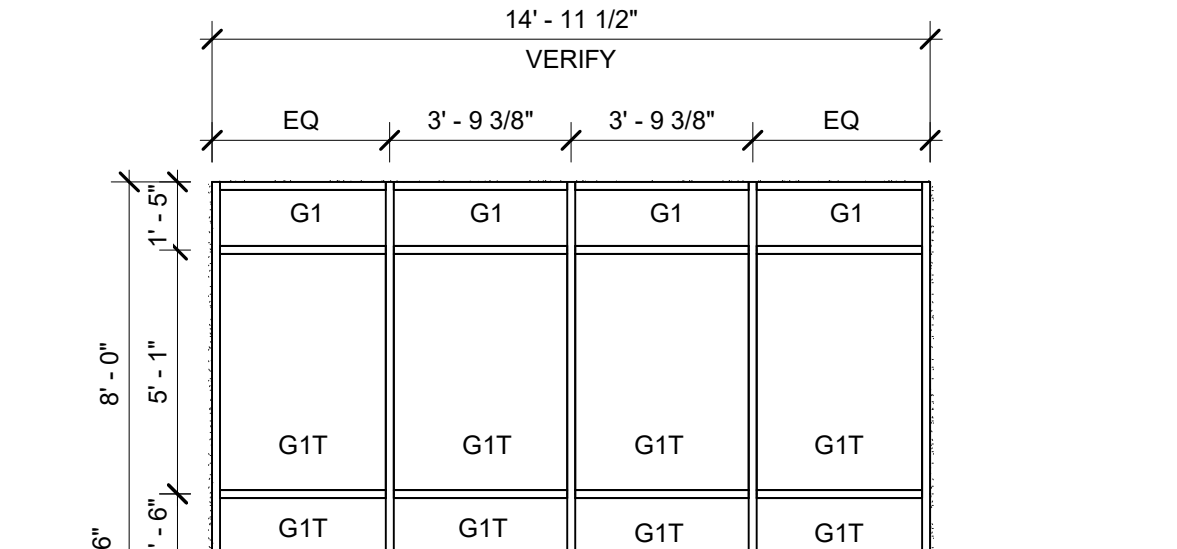
Int Storefront 63

W63



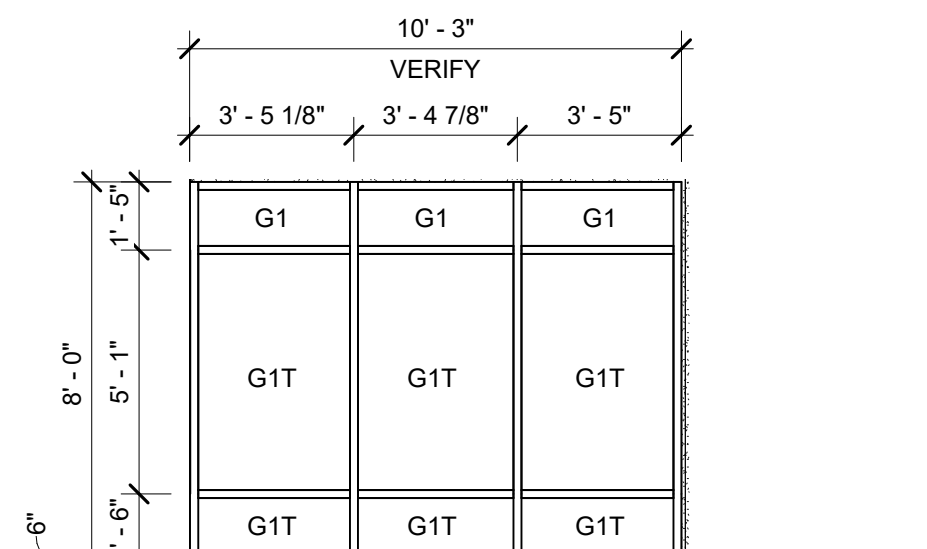
Int Storefront 48

W48



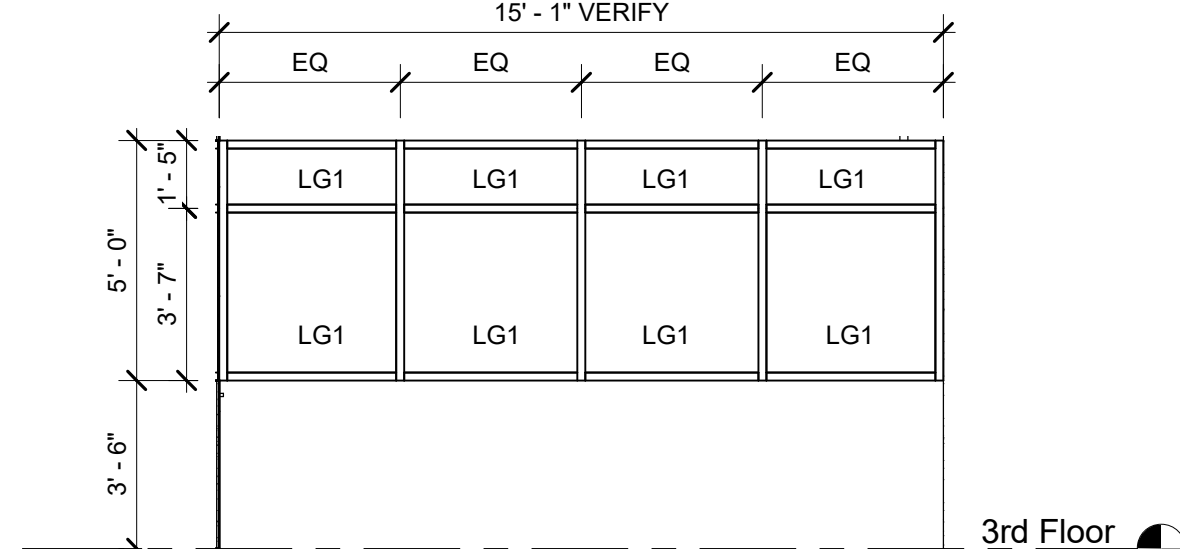
Int Storefront 44

W44



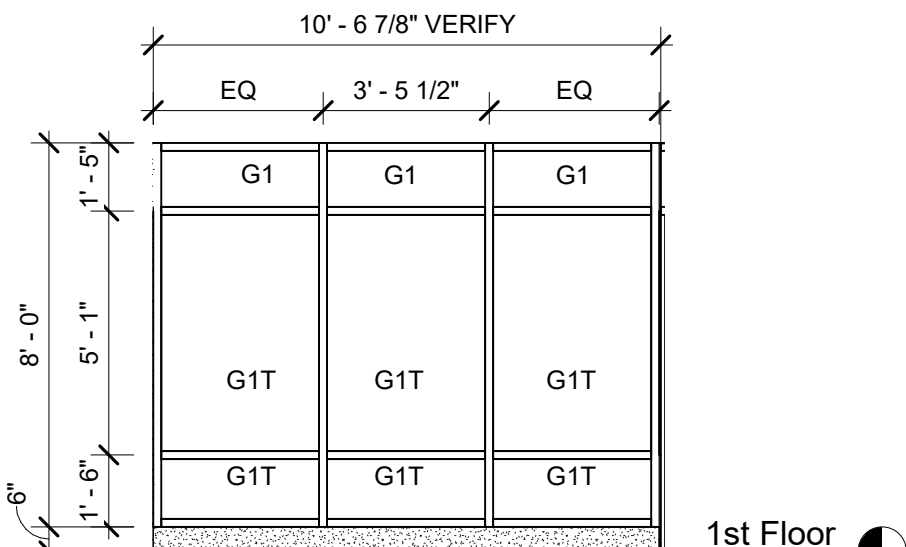
Int Storefront 43

W43



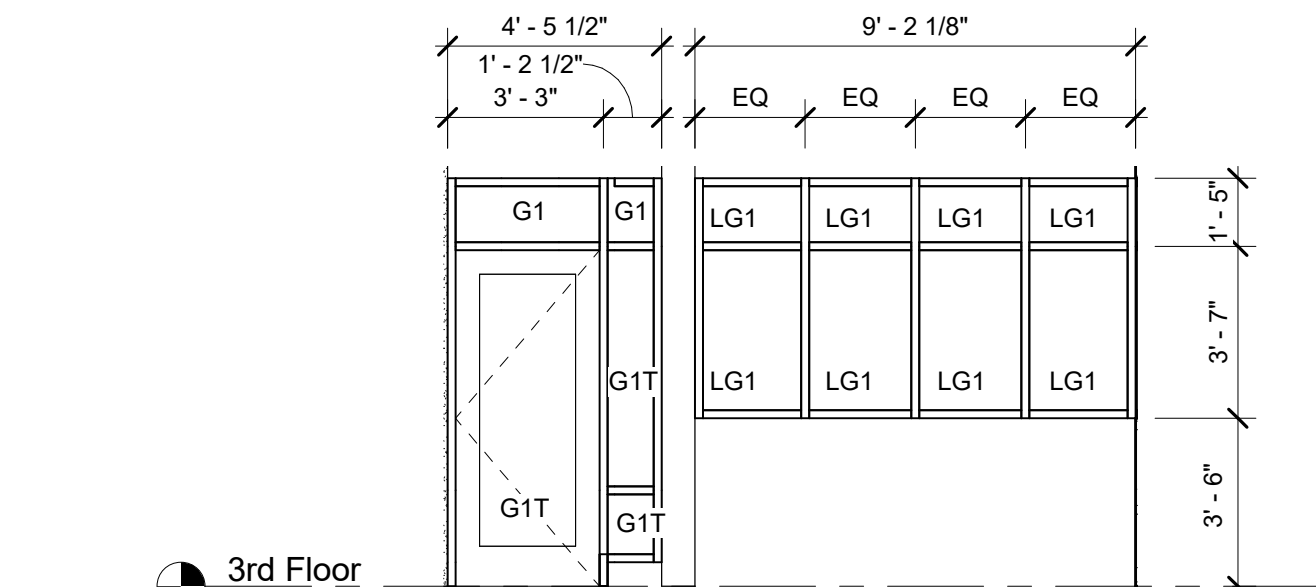
Int Storefront 62

W62



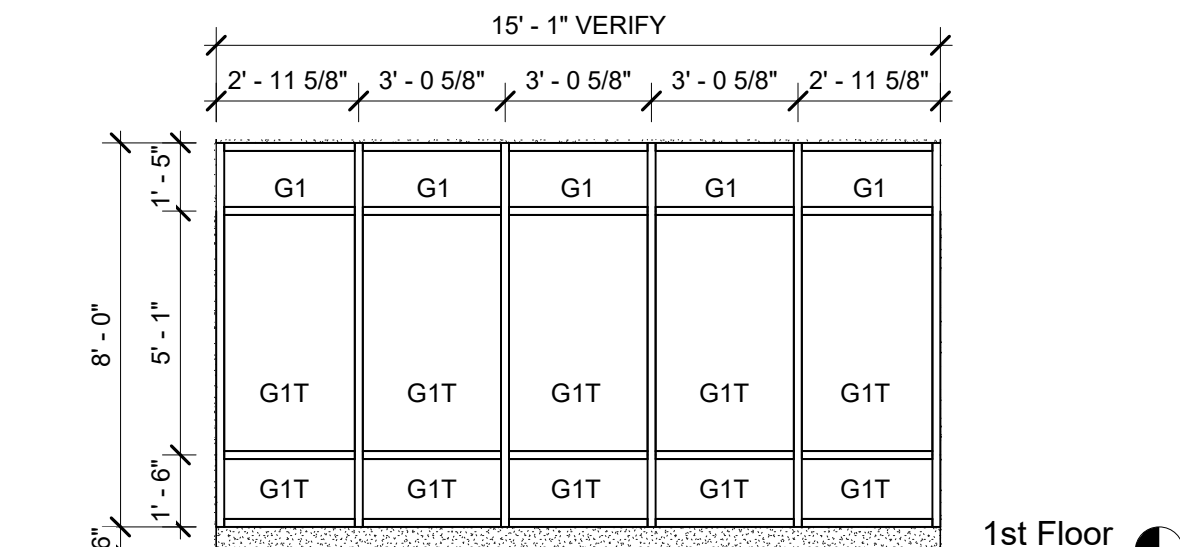
Int Storefront 47

W47



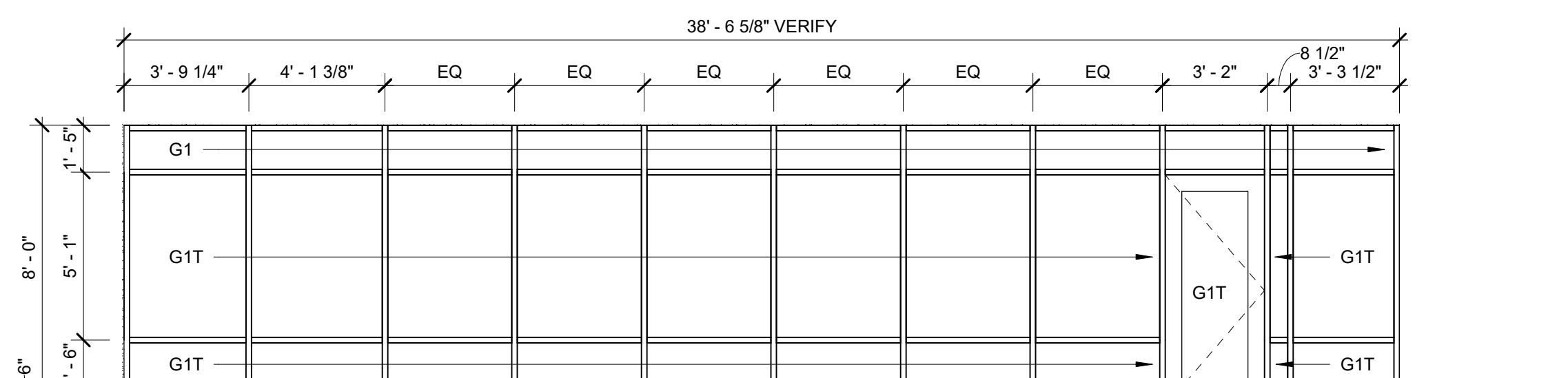
Int Storefront 61 (2nd)

W61



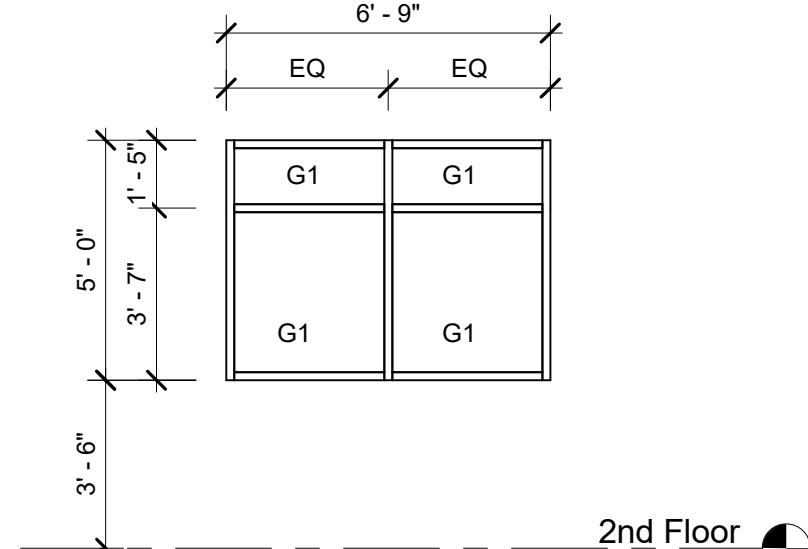
Int Storefront 46

W46



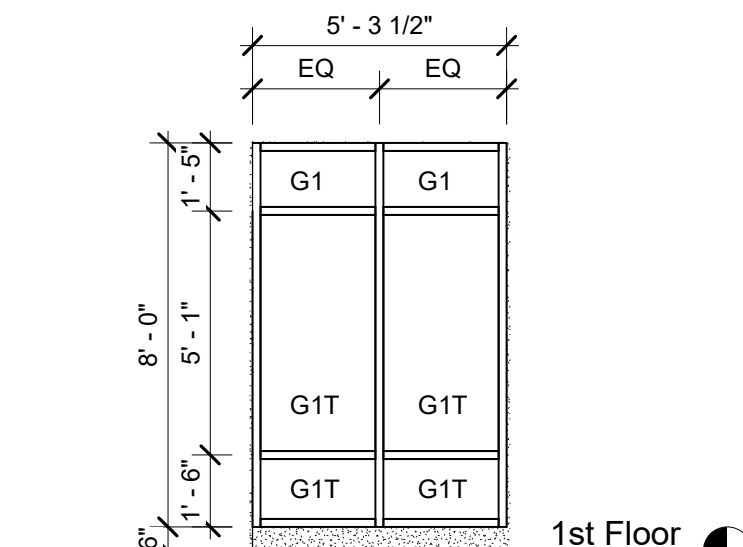
Int Storefront 42

W42



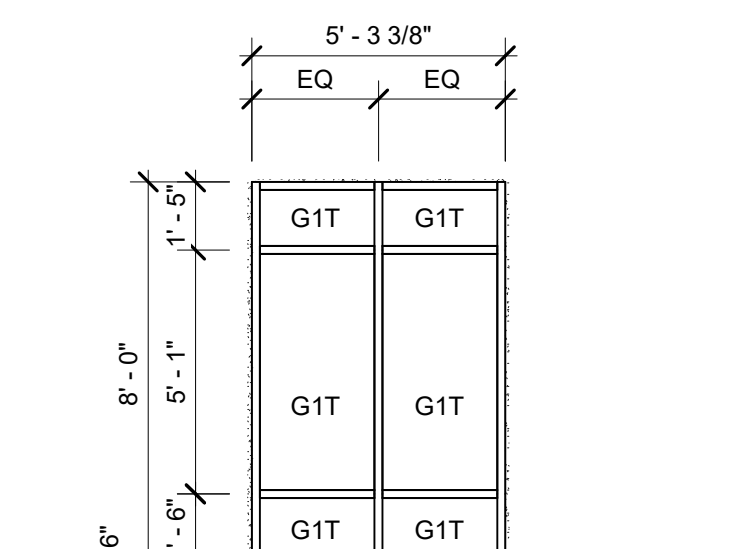
Int Storefront 51 (2nd)

W51



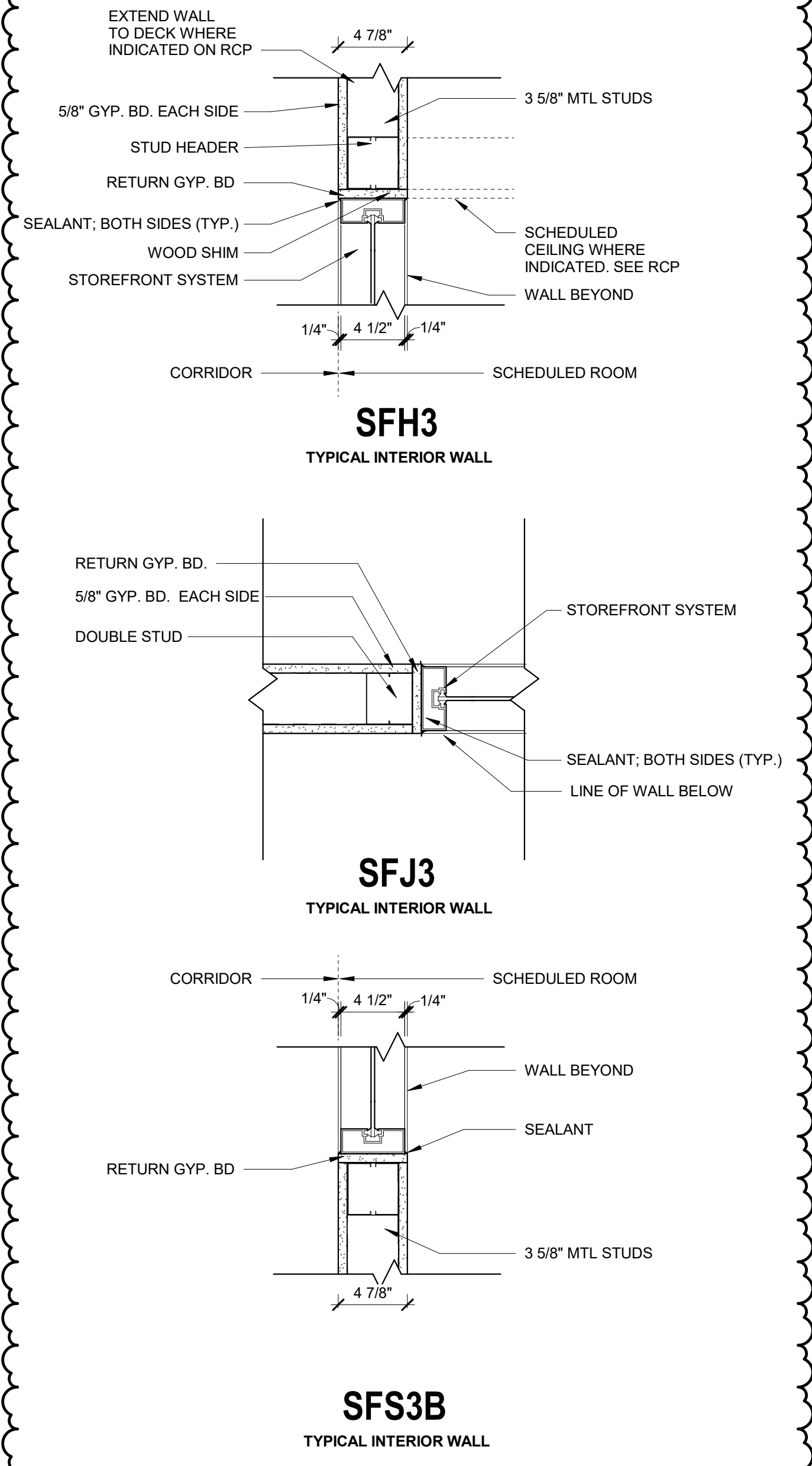
Int Storefront 45

W45



Int Storefront 41 (1st)

W41



GENERAL STOREFRONT AND CURTAINWALL NOTES

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6. WINDOW MULLIONS ARE TO BE CLEAR ANNOZIDED FINISH UNLESS NOTED OTHERWISE. ARCHITECT TO APPROVE FINISH SAMPLES PRIOR TO FABRICATION.
7. WINDOW CONTRACTOR IS TO FIELD VERIFY EACH AS-BUILT P.O. DIMENSION OF EXISTING PRIOR TO FABRICATION.
8. AT EXISTING OPENINGS TO RECEIVE NEW FRAME SYSTEM WINDOW CONTRACTOR TO VERIFY INTEGRITY OF EXISTING MATERIALS PRIOR TO INSTALLATION.
9. WINDOW CAULK JOINT AT ROUGH OPENING NOT TO EXCEED 1/2".

GLASS SCHEDULE

G1	1/4" CLEAR GLASS	1 2
G2	1" INSULATED CLEAR GLASS WITH LOW-E ON #2 SURFACE	E 1 2 3 4
G3	ALUMINUM FRAMED DOORS CLEAR LAMINATED GLASS WITH LOW-E	E 1 2 3 4
S1	1" INSULATED SPANDREL GLASS. PROVIDE LIGHT GREY COATING ON #4 SURFACE.	E 1 2 3 4
LG1	1/4" CLEAR LAMINATED GLASS WITH INTERLAYER - SEE SPECIFICATIONS	E 1 2 3 4
(T) THE SUFFIX (T) DENOTES THAT THE INDICATED DAYLIGHT OPENING IS TO BE MANUFACTURED WITH TEMPERED GLAZING.		

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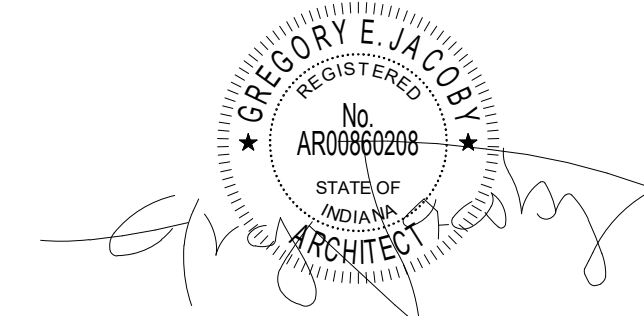
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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: BJZ
Checked By: Checker
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #1	6/12/2020
2	Addendum #2	6/19/2020

Interior Storefront Elevations
and Details

A8.31

GENERAL

- THE PROJECT SPECIFICATIONS SHALL BE PART OF THE CONTRACT DOCUMENTS.
- ANY REFERENCE TO STRUCTURAL ENGINEER SHALL REFER TO THE INDIANA LICENSED PROFESSIONAL IN RESPONSIBLE CHARGE OF THE STRUCTURAL WORK TO BE DONE. THE STRUCTURAL DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS.
- UNLESS NOTED OR SHOWN OTHERWISE, ALL PHASES OF WORK ARE TO CONFORM TO THE MINIMUM STANDARDS OF THE INDIANA BUILDING CODE (LATEST EDITION), RELATED INTERNATIONAL BUILDING CODE STANDARDS (LATEST EDITION), AND ANY A.S.T.M. SPECIFICATIONS WHICH THESE STANDARDS ARE BASED. WHERE CONFLICT BETWEEN BUILDING CODES AND SPECIFICATIONS OCCUR, THE MOST STRINGENT REQUIREMENTS SHALL GOVERN.
- QUALITY OF CONSTRUCTION REQUIRED, PERFORMANCE LEVELS OF WORKMANSHIP, MANUFACTURING AND INDUSTRY STANDARDS, STRENGTH AND PHYSICAL REQUIREMENTS OF MATERIALS, CONFORMANCE TO CODES AND REGULATIONS, GUARANTEES AND OTHER PROJECT REQUIREMENTS ARE SPECIFIED IN THE PROJECT MANUAL.
- PERFORM ALL WORK IN COORDINATION WITH ALL DRAWINGS AND INFORMATION RELATED TO STRUCTURAL WORK. ANY CHANGES TO THE EQUIPMENT REQUIRING CHANGES TO THE STRUCTURAL SYSTEMS SHALL BE REDESIGNED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF INDIANA AT NO COST TO THE OWNER AND SUBMITTED TO THE ENGINEER. SUBMITTAL SHALL BE ACKNOWLEDGED IN WRITING BEFORE BEGINNING CONSTRUCTION.
- ALL DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALE SHOWN ON PLANS, SECTIONS AND DETAILS. DRAWINGS SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES.
- NOTES AND DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS.
- THE STRUCTURAL DRAWINGS SHOW ONLY THE BASIC STRUCTURAL REQUIREMENTS. REFER TO ARCHITECTURAL, CIVIL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR NON-STRUCTURAL ITEMS, SUCH AS:
 - SIZE AND LOCATION OF ALL OPENINGS.
 - SIZE AND LOCATION OF ALL CONCRETE CURBS, WALKS, ROOF AND FLOOR DRAINS, SLOPES, DERESSED SLAB AREAS, ETC.
 - FLOOR, ROOF AND WALL FINISHES.
 - DIMENSIONS WHICH ARE NOT SHOWN ON STRUCTURAL DRAWINGS.
- THE STRUCTURAL CONTRACT DOCUMENTS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS NOTED OTHERWISE, THEY DO NOT INDICATE THE METHOD OF CONSTRUCTION.
- IT IS SOLELY THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES, BUT IS NOT LIMITED TO, THE ADDITION OF WHATEVER TEMPORARY BRACING, GUYS OR TIE-DOWNS MAY BE NECESSARY. SUCH MATERIAL SHALL BE REMOVED AND SHALL REMAIN THE PROPERTY OF THE CONTRACTOR AFTER COMPLETION OF THE PROJECT.
- FACILITIES HAVE BEEN DESIGNED FOR DESIGN LOADS SHOWN OR SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FACILITIES SUBJECT TO CONSTRUCTION LOADS EXCEEDING THE DESIGN LOADS AND SHALL NOTIFY THE ENGINEER OF ANY SUCH ADDITIONAL LOADS.
- ALL DIMENSIONS AND ELEVATIONS NOTED THUS ("") ON STRUCTURES SHOWN ON THE STRUCTURAL DRAWINGS SHALL BE VERIFIED BY THE CONTRACTOR IN THE FIELD OR WITH THE EQUIPMENT MANUFACTURER AND SHALL CONFORM TO THOSE SHOWN ON OTHER DRAWINGS.
- CONSTRUCTION MATERIALS SHALL BE SPREAD OUT IF PLACED ON FRAMED FLOORS OR ROOF. LOAD SHALL NOT EXCEED DESIGN LIVE LOAD FOR EACH PARTICULAR LEVEL. WHEN WEIGHT OF MATERIALS OR EQUIPMENT MAY EXCEED DESIGN LOAD, STRUCTURAL SYSTEMS SHALL BE SHORED.
- WHERE NO CONSTRUCTION DETAILS ARE SHOWN OR NOTED FOR ANY PART OF THE WORK, THE DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK.

DESIGN BASIS

DESIGN LOADS BASED ON THE 2014 INDIANA BUILDING CODE (2012 INTERNATIONAL BUILDING CODE WITH LATEST INDIANA AMENDMENTS) AND (IF APPLICABLE) IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE SPECIFICATIONS (LATEST EDITION) AND ITS SUBSEQUENT INTERIMS.

GRAVITY LOADS:

- SELF WEIGHT OF CONCRETE, PANELING, GRATING OR STRUCTURAL FRAMING MEMBERS
- SOIL
 - CLEAN, GRANULAR FILL TOTAL UNIT WEIGHT, PCF - 125
 - ON-SITE SOILS TOTAL UNIT WEIGHT, PCF - 130

LIVE LOADS:

- FLOOR LIVE LOADS: SEE PLANS
- ROOF LIVE LOADS: SEE PLANS

SNOW LOAD:

- ROOF SNOW LOAD
 - GROUND SNOW LOAD 20 PSF
 - FLAT ROOF SNOW LOAD 19 PSF (W/ RAIN-ON-SNOW SURCHARGE)
 - SNOW EXPOSURE FACTOR 0.9
 - THERMAL FACTOR 1.0
 - SNOW IMPORTANCE FACTOR 1.1

LATERAL LOADS:

- SEISMIC
 - SPECTRAL RESPONSE ACCELERATIONS $S_s = 0.262$ g
 - SPECTRAL RESPONSE ACCELERATIONS $S_1 = 0.115$ g
 - SPECTRAL RESPONSE COEFFICIENT $S_{DS} = 0.209$ g
 - SPECTRAL RESPONSE COEFFICIENT $S_{D1} = 0.129$ g
 - SEISMIC COEFFICIENTS $F_a = 1.2, F_v = 1.685$
 - SITE CLASS C - "VERY DENSE SOIL AND SOFT ROCK"
 - IMPORTANCE FACTOR 1.25
 - RISK CATEGORY III
 - SEISMIC DESIGN CATEGORY B
 - DESIGN BASE SHEAR 0.052kW
 - RESPONSE MOD. FACTOR R 5.0
 - SEISMIC-FORCE-RESISTING SYSTEM AT (TABLE 12.2-1, ASCE 7)
 - EQUIVALENT LATERAL FORCE
- WIND
 - NOMINAL DESIGN WIND SPEED 90 MPH
 - ULTIMATE DESIGN WIND SPEED 120 MPH
 - 1-SEC GUST (V_S) 115 MPH
 - EXPOSURE "B" CLOSELY SPACED OBSTRUCTIONS
 - IMPORTANCE FACTOR 1.0
 - INTERNAL PRESSURE COEFFICIENT 0.18
 - RISK CATEGORY III (SEE SPECIFICATIONS)
 - COMPONENTS AND CLADDING (SEE SPECIFICATIONS)
- SOIL BACKFILL LATERAL DESIGN INFORMATION (NON-ROTATING)
 - CLEAN, GRANULAR FILL
 - AT REST PRESSURE COEFFICIENT $K_a = 0.45$
 - ACTIVE PRESSURE COEFFICIENT $K_a = 0.30$
 - PASSIVE COEFFICIENT $K_p = 3.2$
 - COEFFICIENT OF FRICTION 0.45
 - ON-SITE SOILS
 - AT REST PRESSURE COEFFICIENT $K_a = 0.50$
 - ACTIVE PRESSURE COEFFICIENT $K_a = 0.33$
 - PASSIVE COEFFICIENT $K_p = 3.0$
 - COEFFICIENT OF FRICTION 0.40

STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL CONFORM TO THE AISC "SPECIFICATIONS FOR DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" LATEST EDITION.
- MATERIALS
 - W-SHAPES AND WT-SHAPES ASTM A992
 - CHANNELS ASTM A36
 - TUBE SECTIONS ASTM A500 GRADE B
 - ANGLES, PLATES AND BARS ASTM A36
 - ANCHOR RODS ASTM F1554 SECT. S1 S1.2.1, GRADE 36
 - THREADED RODS ASTM A36
 - TYP. STEEL CONN. BOLTS ASTM A325
 - MISCELLANEOUS BOLTS ASTM A307
 - WASHERS, OTHER ASTM F436
 - HEAVY-HEX NUTS ASTM A563 OR ASTM A194, GRADE 2H
- BURNING OF HOLES IS NOT ALLOWED.
- BOLTS AND BOLTED CONNECTIONS SHALL CONFORM TO THE REQUIREMENTS OF "SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS" PER RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS (RCSC).
- ALL BOLTS SHALL BE 3/4 INCH DIAMETER A325 UNLESS OTHERWISE NOTED. ALL HOLES 13/16 INCH DIAMETER FOR 3/4 INCH DIAMETER BOLTS UNLESS OTHERWISE NOTED. BOLT HOLES SHALL BE 1/16" LARGER IN DIAMETER THAN NOMINAL SIZE OF BOLT USED, UNLESS NOTED OTHERWISE. ANCHOR BOLT HOLES SHALL CONFORM TO TABLE 2.3 FROM DG-1 OR MEET HOLE SIZE AS SPECIFIED IN CONNECTION DETAILS.
- THE STRUCTURAL STEEL FABRICATOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO FABRICATION.
- STRUCTURAL STEEL SHALL BE DELIVERED TO THE JOB SITE FREE OF EXCESSIVE RUST, MILL SCALE, GREASE, ETC.
- OPENING SHALL NOT BE PLACED IN STEEL MEMBERS UNLESS SPECIFICALLY DETAILED.

WELDING

- ALL WELDING SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF THE AMERICAN WELDING SOCIETY CODE D1.1. (LATEST EDITION).
- QUALIFIED AND CERTIFIED WELDERS SHALL BE USED FOR ALL WELDING. WELDING TO BE PERFORMED IN THE SHOP OF A STATE LICENSED FABRICATOR. ALL WELDING TO CONFORM TO THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE A.W.S. D1.1.
- ALL WELDING SHALL BE DONE BY THE SHIELDED ARC PROCESS USING APPROVED ELECTRODES PER A.W.S. SPECIFICATIONS E70XX (LOW HYDROGEN ELECTRODES).
- ALL WELDS SHALL HAVE A WELD CONTROLLED SEQUENCE AND TECHNIQUE IN ORDER TO MINIMIZE SHRINKAGE, STRESSES AND DISTORTION.
- ALL ELECTRODES FILLER MATERIAL SHALL BE A MINIMUM OF E70XX. FOR WELDING SYMBOLS WITH NO LENGTH DIMENSION GIVEN, THE WELDING SHALL BE CONTINUOUS WITH DUE CARE TO AVOID CRACKS IN DIRECTION. NO INTERMITTENT WELDS SHALL BE PERMITTED, UNLESS OTHERWISE NOTED.
- WELDED CONNECTIONS SHALL CONFORM TO THE LATEST REVISED CODE THE AMERICAN WELDING SOCIETY, AWS D1.
- WELDING OF REINFORCING BARS TO BE IN ACCORDANCE WITH A.W.S. D1.4. REINFORCING STEEL TO BE WELDED SHALL HAVE A CARBON EQUIVALENT (CE) OF 0.75. SPECIAL INSPECTION IS REQUIRED.
- WELDING OF SHEET METAL SHALL BE IN ACCORDANCE WITH A.W.S. D1.3.
- INSPECTION OF WELDING SHALL CONFORM TO I.B.C. REQUIREMENTS (CHAPTER 17). SPECIAL INSPECTION IS REQUIRED FOR ALL FIELD WELDING.
- ALL SHOP AND FIELD WELDING OF MOMENT CONNECTIONS OR MOMENT RESISTING FRAMES, AND ALL COLUMN SPICE WELDS, SHALL BE TESTED AS PER I.B.C.

ALUMINUM

- ALL ALUMINUM SHALL BE NEW AND CONFORM TO THE APPLICABLE ASTM SPECIFICATIONS AS REGISTERED WITH "THE ALUMINUM ASSOCIATION". FOR THE ALLOYS LISTED BELOW:
 - STRUCTURAL SHAPES AND PLATES ALLOY 6061-T6
 - WELDING FILLER ALLOY 5356
 - BOLTS - STAINLESS STEEL TYPE ANSI TYPE 304 OR 316
 - ANCHOR BOLTS - STAINLESS STEEL ANSI TYPE 304 OR 316
 - EXPANSION BOLTS - STAINLESS STEEL ANSI TYPE 304 OR 316
- BEAM CONNECTION SHALL BE PROVIDED TO SUPPORT THE TOTAL ALLOWABLE UNIFORM LOAD CAPACITY OF THE BEAM FOR THE SPAN AND ALLOW INDICATED.
- WHERE ALUMINUM COMES IN CONTACT WITH CONCRETE OR OTHER DISSIMILAR MATERIALS, BACK PAINT ALUMINUM AS PER PAINT SPECIFICATIONS.

CAST-IN-PLACE CONCRETE

- CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 4,000 POUNDS PER SQUARE INCH (PSI). TYPICALLY CONCRETE CURING REQUIRED FOR 10 DAYS (10N).
- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH "THE BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE" ACI 318. TOLERANCES SHALL BE IN ACCORDANCE WITH ACI 347, SECTION 3.3.1, TOLERANCES FOR REINFORCED CONCRETE BUILDINGS.
 - STRUCTURAL SHAPES AND PLATES ALLOY 6061-T6
 - WELDING FILLER ALLOY 5356
 - BOLTS - STAINLESS STEEL TYPE ANSI TYPE 304 OR 316
 - ANCHOR BOLTS - STAINLESS STEEL ANSI TYPE 304 OR 316
 - EXPANSION BOLTS - STAINLESS STEEL ANSI TYPE 304 OR 316
- THE MAXIMUM SIZE AGGREGATE IN FOUNDATION AND MASS CONCRETE WORK SHALL BE 1 INCH. THE MAXIMUM SIZE AGGREGATE IN SLABS ON GRADE, WALLS, AND ALL OTHER CONCRETE SHALL BE 3/4" INCH.
- CEMENT SHALL CONFORM TO ASTM C-150. CEMENT SHALL BE ONE OF THE FOLLOWING OPTIONS:
 - TYPE I NORMAL
 - WITH TRICALCIUM ALUMINATE (C3A) CONTENT < 8%
 - TYPE II MODERATE SULFATE RESISTANCE
 - TYPE III HIGH EARLY STRENGTH
 - TYPE IV LOW HEAT OF HYDRATION
 - TYPE V HIGH SULFATE RESISTANCE
- AGGREGATES FOR NORMAL WEIGHT SHALL CONFORM TO ASTM C-33.
- ADMITTUES AND COLORS (EXCEPT AS NOTED HEREIN) SHALL NOT BE USED UNLESS SUBSTANTIATING DATA IS SUBMITTED TO AND ACCEPTED BY THE ENGINEER AND ARCHITECT OF RECORD.
- CONCRETE MIXES SHALL BE DESIGNED BY A QUALIFIED TESTING LABORATORY. THE MIX DESIGNS SHALL CONFORM TO I.B.C. SEC. 1905. UNLESS OTHERWISE NOTED.
- NON-STRUCTURAL STEEL EMBEDDED IN CONCRETE SHALL BE GALVANIZED OR PAINTED. ALL DAMAGED GALVANIZED AREAS SHALL BE REPAIRED PRIOR TO EMBEDMENT.
- PROVIDE ADDITIONAL DIAGONAL BARS AT CORNERS OF WALL, FLOOR, AND ROOF OPENINGS AND INSIDE CORNERS OF FLOORS AS SHOWN HEREIN THE CONTRACT DOCUMENTS.
- READY MIXED CONCRETE SHALL CONFORM TO (ASTM C-94).
- PLACEMENT OF CONCRETE SHALL CONFORM TO ACI 304. CLEAN AND ROUGHEN TO 1/4" AMPLITUDE FOR ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED.
- ALL STRUCTURAL CONCRETE SHALL HAVE A SMOOTH FORM FINISH USING METAL FORMS OR BB PLYFORM. CLASS I, EXT.-A.P.A. PLYWOOD.
- ALL SLABS SHALL HAVE A TROWELED FINISH EXCEPT AS NOTED ON THE DRAWINGS.
- ALL REINFORCING STEEL, ANCHOR BOLTS, DOWELS AND INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE.
- NO CLAY BRICK OR POROUS MATERIAL SHALL BE USED TO SUPPORT FOUNDATION STEEL OFF THE GROUND. CONCRETE "DOBBIES" ARE ACCEPTABLE.
- CONTRACTOR SHALL REVIEW ALL DRAWINGS FOR SIZE AND LOCATION OF EMBEDDED ITEMS, SLEEVES, SLAB DEPRESSIONS, AND OPENINGS REQUIRED. EMBEDDED ITEMS SHALL BE FURNISHED AND INSTALLED PRIOR TO PLACEMENT OF CONCRETE.
- CONTRACTOR SHALL PROVIDE 3/4 INCH CHAMFER USING WOOD CHAMFER STRIPS ON ALL EXPOSED CONCRETE CORNERS.
- CONSTRUCTION JOINTS REQUIRED BY THE ENGINEER ARE SHOWN ON THE DRAWINGS. ADDITIONAL CONSTRUCTION JOINTS SHALL BE PROVIDED AS OUTLINED IN SPECIFICATIONS. REINFORCEMENT SHALL BE CONTINUOUS ACROSS CONSTRUCTION JOINTS. SUBMIT ALL CONSTRUCTION JOINT LOCATIONS WITH REINFORCING STEEL SHOP DRAWINGS.
- CALCIUM CHLORIDE SHALL NOT BE ALLOWED NOR SHALL ANY ADMIXTURE CONTAINING CALCIUM CHLORIDE BE ALLOWED THAT RESULTS IN A TOTAL CONCRETE MIX IN WHICH THE PRESENCE OF CHLORIDE IONS EXCEED 0.10 PERCENT BY WEIGHT OF CEMENT.
- FLY ASH SHALL NOT EXCEED 20 PERCENT BY WEIGHT OF THE CEMENT PLUS FLY ASH.
- SLEEVE PLUMBING OPENINGS IN SLABS WITH NON-CORROSIVE SLEEVE BEFORE PLACING CONCRETE AND BEND REINFORCING AROUND SLEEVES.

REINFORCING STEEL

- ALL REINFORCING STEEL SHALL BE PLACED IN CONFORMANCE WITH THE I.B.C., AND THE "MANUAL OF STANDARD PRACTICE" BY THE C.R.S.I. OR AS MODIFIED BY THE CONSTRUCTION DOCUMENTS.
- ALL REINFORCING DETAILS SHALL CONFORM TO "DETAILS AND DETAILING OF CONCRETE REINFORCEMENT", ACI 315, UNLESS DETAILED OTHERWISE ON THE STRUCTURAL DRAWINGS.
- ALL REINFORCING STEEL SHALL BE NEW DOMESTIC DEFORMED BILLET STEEL CONFORMING TO ASTM A-615 GRADE 60, EXCEPT #3 BARS MAY BE GRADE 40.
- WELDING OF REINFORCING STEEL IS NOT ALLOWED.
- ALL REINFORCING BAR BENDS SHALL BE MADE COOL, UNLESS OTHERWISE PERMITTED BY THE BUILDING OFFICIAL.
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A-185, AND SHALL BE LAPPED 1 SPACE AND 12" MINIMUM.
- DOWELS BETWEEN FOOTINGS AND WALLS OR COLUMNS SHALL BE LAPPED WITH THE SAME GRADE, SIZE, SPACING AND NUMBER AS THE VERTICAL REINFORCEMENT, RESPECTIVELY.
- REINFORCING SPLICES SHALL BE MADE AS INDICATED ON THE DRAWINGS.
- PROVIDE #3 SPACER TIES AT 2'-6" ON CENTER IN ALL BEAMS AND FOOTINGS TO SECURE REINFORCING BARS IN PLACE, UNLESS OTHERWISE NOTED.
- PIPING AND CONDUIT SHALL BE SO FABRICATED AND INSTALLED THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED. ACI #6.3.12
- CLEARANCES FOR REINFORCING STEEL SHALL CONFORM

TYPICAL REINFORCING BAR CLEARANCE TABLE

CONCRETE CAST AGAINST EARTH 3"

SURFACES EXPOSED TO EARTH OR WEATHER 3"

SURFACES NOT EXPOSED TO LIQUID, EARTH OR WEATHER 2"

FOUNDATIONS

- THE REPORT OF GEOTECHNICAL ENGINEERING INVESTIGATION IS INCLUDED AS A PART OF THESE NOTES. THE CONTRACTOR SHALL BECOME FAMILIAR WITH THE SOILS INFORMATION IN THE REPORT BEFORE BEGINNING CONSTRUCTION. THE REPORT HAS BEEN PREPARED BY:
PATRIOT ENGINEERING AND ENVIRONMENTAL, INC.
PATRIOT PROJECT NO. 20-0345-026, DATED MAY 13, 2020
- ALLOWABLE SOIL BEARING PRESSURES AND SOILS INFORMATION:
 - SHALLOW FOOTING SYSTEM PER PATRIOT SOILS REPORT PROPOSED DEPTH OF 2'-FEET (PLAN EL 91'-FT.) BELOW LOWEST ADJACENT CEILING (UON).

DESIGN SOIL PRESSURE:
FOOTING TYPE: NET ALLOWABLE BEARING PRESSURE

FOUNDATION AT OR ABOVE A DEPTH OF 2 FEET
SPREAD FOOTING 2,500 PSF
CONTINUOUS FOOTING 2,500 PSF

FOUNDATION BELOW A DEPTH OF 12 FEET (PLAN EL 81'-FT. ±)
MAT FOUNDATION 10,000 PSF

SLAB-ON-GRADE:
MODULUS OF SUBGRADE REACTION (k_{cs}) 250 pci

NOTIFY THE ENGINEER AS SOON AS POSSIBLE OF ANY UNUSUAL SOIL CONDITIONS OR SOIL CONDITIONS IN VARIANCE WITH TEST BORINGS, SUCH AS UNEXPECTED SPRING OR SEEPAGE WATER, MATERIAL DIFFERING FROM TEST BORINGS, OR SOIL OF QUESTIONABLE BEARING CAPACITY.

SET FOUNDATIONS AT ELEVATIONS SHOWN. THE CONTRACTOR SHALL VERIFY WITH THE ENGINEER THAT EACH FOOTING PLACED IS BEARING ON DESIGN MATERIAL.

FOOTINGS SHALL REST ON UNDISTURBED SOIL OR COMPACTED SELECT OR CONCRETE FILL.

LEVELS OF BACKFILL AGAINST CONCRETE WALLS SHALL NOT DIFFER BY MORE THAN 2'-0" ON EITHER SIDE OF WALLS UNLESS ADEQUATELY BRACED OR ALL FLOOR FRAMING IS IN PLACE UP TO AND INCLUDING GRADE LEVEL SLABS.

SOIL REMOVAL AND RECOMPACTION SHALL BE DONE PER SOILS REPORT RECOMMENDATIONS UNDER GEOTECHNICAL ENGINEER'S SUPERVISION AND INSPECTION.

NO PIPES OR DUCTS SHALL BE PLACED IN SLABS OR WALLS UNLESS SPECIFICALLY DETAILED OR APPROVED BY THE ENGINEER.

FOR ALL DIMENSIONS OF, CURBS, SLAB DEPRESSIONS, STEPS, FLOOR DRAINS, FLOOR SINKS, TRENCHES, UNDERFLOOR DUCTS AND CONDUITS, SEE ARCHITECTURAL, MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. TRENCH BACKFILL AS PER GEOTECHNICAL REPORT REQUIREMENTS.

ALL WALLS RETAINING EARTH SHALL DRAIN TO DAYLIGHT OR OTHER DRAINAGE.

ALL ABANDONED FOOTINGS, UTILITIES, ETC., THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.

THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN AREAS TO BE EXCAVATED BEFORE BEGINNING EXCAVATION. EXERCISE EXTREME CAUTION IN EXCAVATING AND TRENCHING. DAMAGE CAUSED AS A RESULT OF FAILING TO EXCAVATE UTILITIES LOCATED IN THE AREA SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

THE CONTRACTOR SHALL PROVIDE FOR THE DESIGN, APPROVALS, PERMITS, INSTALLATION AND MONITORING OF ALL CRIBBING, SHEATHING AND SHORING REQUIRED TO SAFELY RETAINING TEMPORARY EXCAVATIONS.

ALL PLANTERS IN CLOSE PROXIMITY TO THE STRUCTURE SHALL HAVE ADEQUATE DRAINAGE OF SURFACE WATER TO PREVENT SATURATION OF SOIL UNDER FOUNDATION.

MASONRY SHALL BE TYPE S PER ASTM C270. GROUT SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS OF 2500 PSI.

PROVIDE VERTICAL REINFORCEMENT WITH MATCHING DOWELS AS SHOWN

REINFORCEMENT LAP SPICE AND EMBEDMENT LENGTHS ARE BASED ON A MINIMUM MASONRY COMPRESSIVE STRENGTH OF 1500 PSI AND 6000 PSI FOR REINFORCEMENT (WITH NO EPOXY COATING).

REINFORCEMENT LAP SPICE, EMBEDMENT LENGTH AND STANDARD HOOKS TABLE IS BASED ON A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4000 PSI AND 6000 PSI REINFORCEMENT (WITH NO EPOXY COATING).

ALL LAPS SPLICES SHALL BE CLASS B SPLICES.

THE MINIMUM LAP LENGTH FOR COLUMN PEDESTALS STRAIGHT EMBEDMENTS ARE BASED ON A 3 BAR DIAMETER MINIMUM CENTER TO CENTER BAR SPACING AND A 2 INCH BAR COVER. IF THE SPLICE AND/OR EMBEDMENT DOES NOT CONFORM TO THESE REQUIREMENTS, THEN CONTRACTOR SHALL APPLY APPROPRIATE FACTORS IN COMPLIANCE WITH ACI 318 WITH PRIOR APPROVAL BY ENGINEER.

THE MINIMUM LAP LENGTH FOR SLABS, WALLS, AND STRAIGHT EMBEDMENTS ARE BASED ON A 6 INCH BAR SPACING AND A 2 INCH BAR COVER. IF THE LAP CONDITION DOES NOT CONFORM TO THESE REQUIREMENTS, THEN USE BEAM LAP LENGTHS, OR COMPLY WITH LAP REQUIREMENTS OF ACI 318 WITH APPROVAL BY ENGINEER.

20 BAR ARE DEFINED AS ALL HORIZONTAL BARS, WITH 12" OR MORE OF FRESH CONCRETE BENEATH. WHERE SPLICES ARE REQUIRED BETWEEN BARS OF DIFFERENT SIZES, THE LAP LENGTH SHALL BE NO LESS THAN THE EMBEDMENT LENGTH OF THE LARGER BAR OR THE LAP LENGTH OF THE SMALLER BAR, WHICHEVER IS GREATER.

SYMBOLS

	STEEL		UNDISTURBED SOIL
	BRICK		ROCK
	CMU		COMPACT STRUCTURAL FILL
	CONCRETE		MUDMAT
	GROUT		SELECT FILL
	PLANK GRATING		GENERAL FILL
	WOOD (DIMENSIONAL)		GRATING

ABBREVIATIONS

ADDL	ADDITIONAL	EQ	EQUAL	NTS	NOT TO SCALE
ADJ	ADJUSTABLE	EQUIP	EQUIPMENT	OC	ON CENTER
ADH	ADHESIVE	EXIST	EXISTING	OPNG	OPENING
ALT	ALTERNATE	EXP	EXPANSION	OPP	OPPOSITE
ALUM	ALUMINUM	EXT	EXTERIOR	OD	OUTSIDE DIAMETER
ASTM	AMERICAN SOCIETY FOR TESTING MATERIALS	FJ	EXPANSION JOINT	OH	OVERHEAD
		FF	FAR FACE	PL	PLATE
ANR	ANCHOR	FRP	FIBERGLASS REINFORCED	PLB	PLUMBING
AB	ANCHOR BOLT		PLASTIC	PSF	POUNDS PER SQUARE FOOT
&	AND	FIN	FINISH	PSI	POUNDS PER SQUARE INCH
A	ARCHITECTURAL	FLR	FLOOR	PRCST	PRECAST
B	BEARING	FLOOR	FLOOR CLEAN OUT	PPHCS	PRECAST PRESTRESSED
B PL	BASE PLATE	FD	FLOOR DRAIN		HOLLOW CORE SLAB
BM	BOTTOM	FGT	FOOT	R	RADIUS
BGR	BEARING	FT	FOOTING	REIN	REINFORCING
BT PL	BENT PLATE	FDTN	FOUNDATION	REQD	REQUIRED
BTUM	BITUMINOUS	GAGE	GAGE	REQMTS	REQUIREMENTS
BLK	BLOCK	GALV	GALVANIZED	R	RISER
BOT	BOTTOM	GR	GRADE	RM	ROOM
B/	BOTTOM OF	GRG	GRATING	RO	ROOF DRAIN
BLDG	BUILDING	GYP BD	GYPSUM BOARD	RO	ROUGH OPENING
BL	BUILDING LINE	HVAC	HEATING, VENTILATION, AND AIR CONDITIONING	SCHED	SCHEDULE
BRP	BUILDING REFERENCE POINT			SHT	SHEET
CSTG	CASTING	HS	HIGH STRENGTH	SLBB	SHORT LEG BACK-TO-BACK
CTR	CENTER	HT	HEIGHT	SLV	SHORT LEG VERTICAL
CL	CENTERLINE	HHP	HIGH H POINT	SM	SIMILAR
C TO C	CENTER TO CENTER	HP	HIGH POINT	SPL	SPACES OR SPACING
CLR	CLEAR	HORIZ	HORIZONTAL	SQ	SQUARE
CLSM	CONTROLLED LOW STRENGTH MATERIAL	ID	INSIDE DIAMETER	SF	SQUARE FEET
COL	COLUMN	IF	INSIDE FACE	STD	STANDARD
CONC	CONCRETE	INSUL	INSULATION	SST	STAINLESS STEEL
CMU	CONCRETE MASONRY UNIT	INT	INTERIOR	STA	STATION
CON	CONCRETE	INV	INVERT	STL	STEEL
CONSTR	CONSTRUCTION	JT	JOINT	JST	JST STEEL JOIST
CJ	CONSTRUCTION JOINT	K	KIP (1000 POUNDS)	STIR	STIRRUP
CONT	CONTINUOUS	LT WT	LIGHT WEIGHT	STRUCT	STRUCTURAL
DL	DEAD LOAD	LL	LIVE LOAD	SUPPT	SUPPORT
DEMO	DEMOLITION	LBRG	LOAD BEARING	SYMM	SYMMETRICAL
DIM	DIMENSION	L	LONG	TEMP	TEMPORARY
DIST	DISTANCE	LONG	LONGITUDINAL	THK	THICKNESS
DOWL	DOWEL	LLBB	LONG LEG BACK-TO-BACK	T&B	TOP AND BOTTOM
DIM	DIMENSION	LLH	LONG LEG HORIZONTAL	T	TOP OF
DOWL	DOWEL	LLV	LONG LEG VERTICAL	TOP	TOP OF MASONRY
DOWL	DOWEL	LPT	LOW POINT	TOP	TOP OF STEEL
EA	EACH END	LB	POUNDS	T	TREAD
E	EACH END	MANUF	MANUFACTURE	TYP	TYPICAL
EE	EACH FACE	MARK	MARK	UON	UNLESS OTHERWISE NOTED
EF	EACH FACE	MAS	MASONRY	VERT	VERTICAL
ES	EACH SIDE	MAX	MAXIMUM	WS	WATER STOP
EW	EACH WAY	MECH	MECHANICAL	WT	WEIGHT
ELEC	ELECTRICAL	MIDDLE	MIDDLE	WTF	WELDED WIRE FABRIC
ELEVATION	ELEVATION	MIN	MINIMUM	W	WITH
EMB	EMBEDDED	NF	NEAR FACE	W/O	WITHOUT
EMB	EMBEDMENT	NLBRG	NON-LOAD BEARING	WP	WORK POINT
		NA	NOT APPLICABLE		

LAP SPICE AND EMBEDMENT LENGTH TABLE

STRAIGHT	90° HOOK	135° HOOK

REINFORCEMENT LAP SPLICE, EMBEDMENT LENGTH AND STANDARD HOOKS													
BAR SIZE	MIN LAP LENGTHS				MIN EMBEDMENT LENGTHS					W/ STD HOOKS	MIN STD HOOKS		
	FOR COLUMN PEDESTALS ^A		FOR SLAB AND WALLS ^B		FOR COLUMN PEDESTALS ^A		FOR SLABS AND WALLS ^B		90°		135°		
	CLASS B		CLASS B						A OR G		A OR G	H	
	TOP ^C	OTHERS	TOP ^C	OTHERS	TOP ^C	OTHERS	TOP ^C	OTHERS	A OR G		A OR G	H	
#3	25	19	16	16	19	15	12	12	5	6	4	2 1/2	
#4	33	25	20	16	25	19	15	12	7	8	4 1/2	3	
#5	41	31	25	19	31	24	19	15	9	10	5 1/2	3 3/4	
#6	49	37	29	23	37	29	23	18	10	12	8	4 1/2	
#7	71	54	43	33	54	42	33	25	12	14	9	4 1/4	
#8	81	62	49	37	62	48	37	29	14	16	10 1/2	6	
#9	91	70	60	46	70	54	46	36	15	19	-	-	
#10	102	79	74	57	79	61	57	44	17	22	-	-	
#11	114	87	89	69	87	67	68	53	19	24	-	-	

REINFORCEMENT LAP SPICE, EMBEDMENT LENGTH AND STANDARD HOOKS TABLE IS BASED ON A MINIMUM CONCRETE COMPRESSIVE STRENGTH OF 4000 PSI AND 6000 PSI REINFORCEMENT (WITH NO EPOXY COATING).

ALL LAPS SPLICES SHALL BE CLASS B SPLICES.

THE MINIMUM LAP LENGTH FOR COLUMN PEDESTALS STRAIGHT EMBEDMENTS ARE BASED ON A 3 BAR DIAMETER MINIMUM CENTER TO CENTER BAR SPACING AND A 2 INCH BAR COVER. IF THE SPLICE AND/OR EMBEDMENT DOES NOT CONFORM TO THESE REQUIREMENTS, THEN CONTRACTOR SHALL APPLY APPROPRIATE FACTORS IN COMPLIANCE WITH ACI 318 WITH PRIOR APPROVAL BY ENGINEER.

THE MINIMUM LAP LENGTH FOR SLABS, WALLS, AND STRAIGHT EMBEDMENTS ARE BASED ON A 6 INCH BAR SPACING AND A 2 INCH BAR COVER. IF THE LAP CONDITION DOES NOT CONFORM TO THESE REQUIREMENTS, THEN USE BEAM LAP LENGTHS, OR COMPLY WITH LAP REQUIREMENTS OF ACI 318 WITH APPROVAL BY ENGINEER.

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Indiana State University
Owner

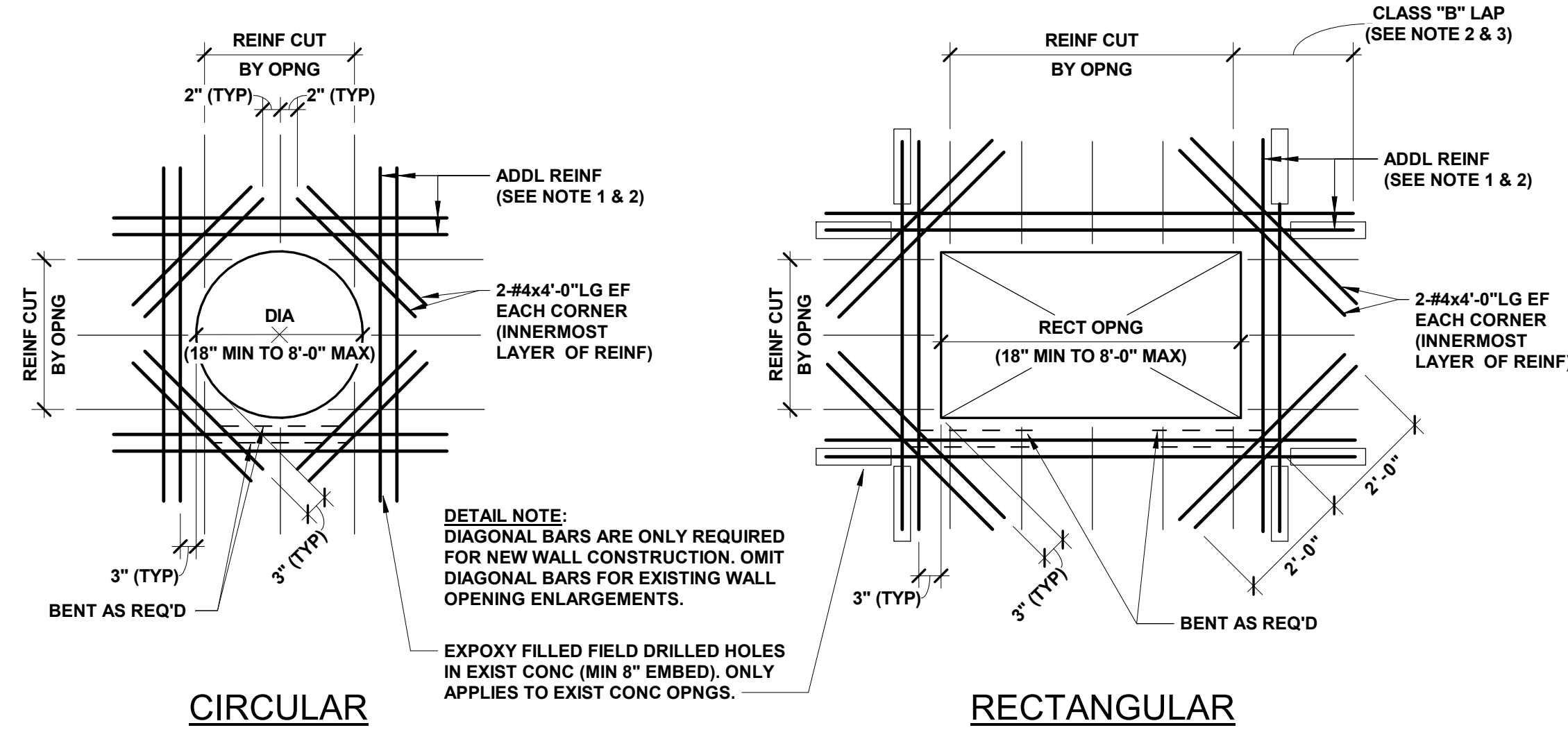
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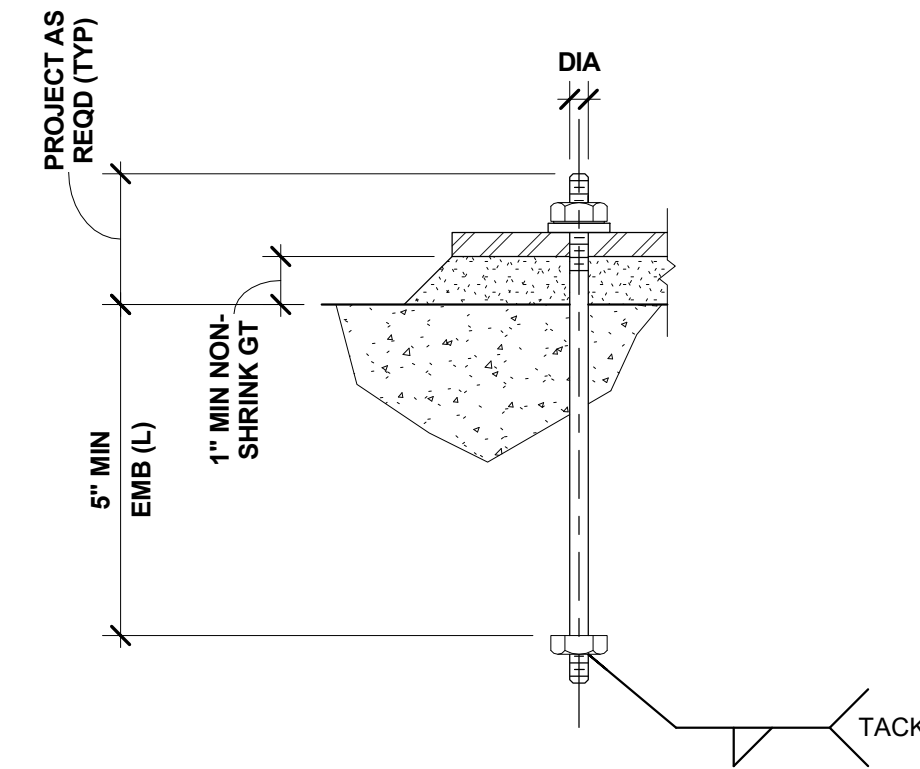
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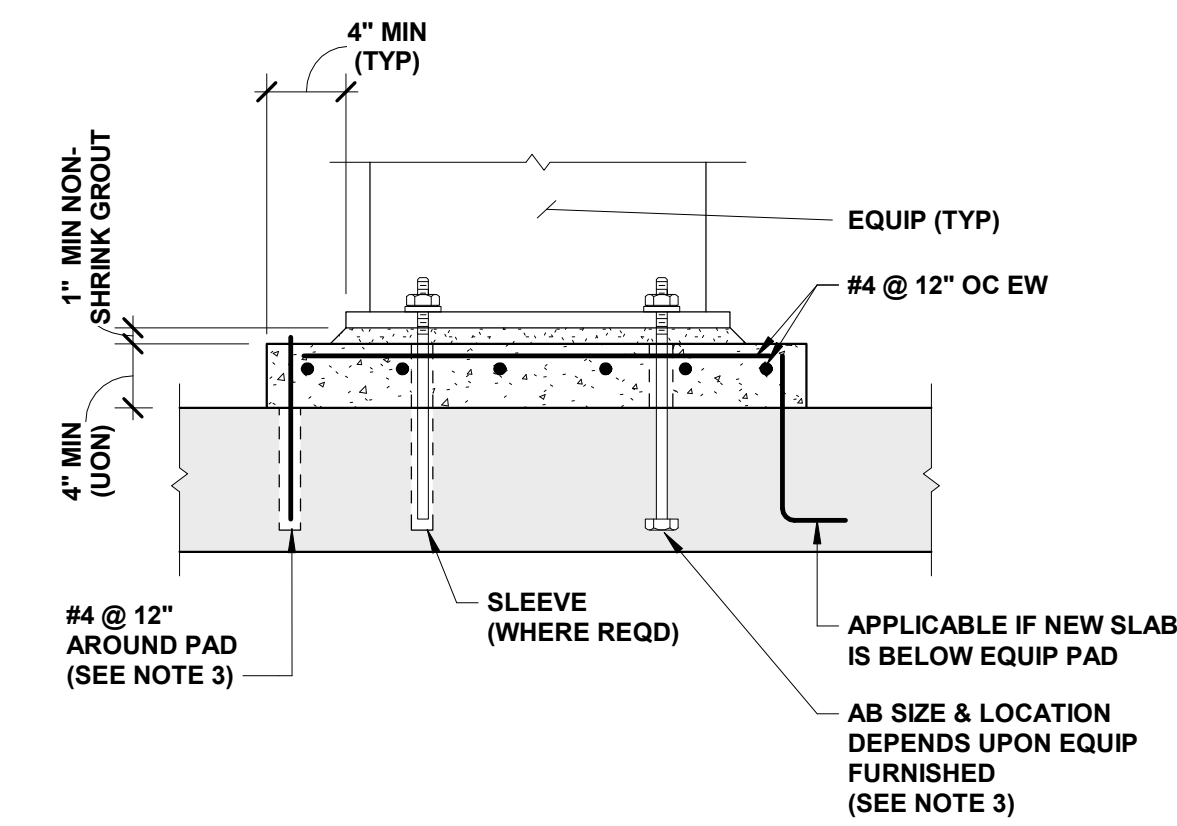
NOTES:

1. PROVIDE ADDITIONAL REINFORCEMENT AT ALL OPENINGS, ACCESS HATCHES, PIPE PENETRATIONS, ETC. EQUAL IN AREA TO TYPICAL REINFORCEMENT CUT BY OPENING IN EACH DIRECTION. ADDITIONAL REINFORCEMENT TO MATCH SIZE OF TYPICAL REINFORCEMENT (MIN 2 BARS ES AND EF) AND PLACED BETWEEN TYPICAL REINFORCEMENT @ 3" SPACING ON EACH SIDE OF OPENING
2. PROVIDE MATCHING DOWELS WHERE REQUIRED TO PROVIDE CLASS "B" LAP WITH ADDITIONAL REINFORCEMENT. (WHERE LAPPING OF ADDITIONAL REINFORCEMENT FROM ADJACENT OPENINGS OCCUR, ADDITIONAL REINFORCEMENT SHALL BE COMBINED).
3. IF A WALL OR BEAM IS ADJACENT TO THE OPENING, THE ADDITIONAL REINFORCEMENT ON THAT SIDE OF THE OPENING CAN BE OMITTED.



NOTES:

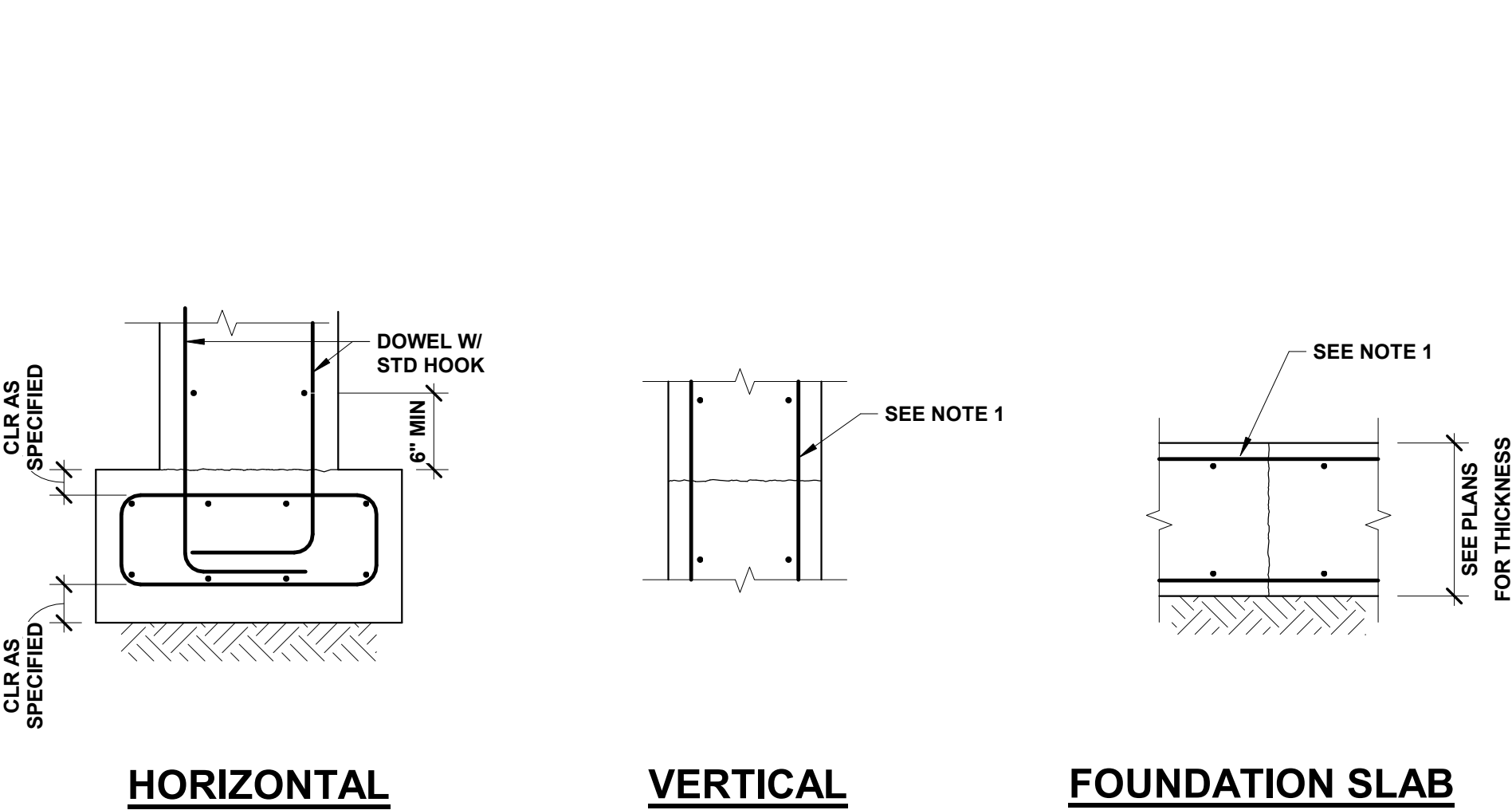
1. REFER TO SPECIFICATIONS OR CONTRACT DRAWING DETAILS FOR ANCHOR BOLT EMBEDMENT DEPTH REQUIREMENTS. ANCHOR BOLT DIAMETER SHALL BE AS SHOWN OR AS REQUIRED BY EQUIPMENT MANUFACTURER.
2. REFER TO SPECIFICATIONS, CONTRACT DRAWING DETAILS OR MANUFACTURER'S DETAILS FOR ANCHOR BOLT MATERIAL REQUIREMENTS.



NOTES:

1. PROVIDE TYPICAL 4" MINIMUM CONCRETE SUPPORT PAD FOR ALL EQUIPMENT UON.
2. COORDINATE LOCATION AND SIZE OF PADS WITH MEP DRAWINGS AND MANUFACTURERS CERTIFIED DRAWINGS.
3. FOR EXISTING SLABS, DRILL HOLE DIAMETER AND DEPTH IN EXISTING SLAB PER MANUFACTURER'S REQUIREMENTS FOR ADHESIVE ANCHORAGE SYSTEM USED.

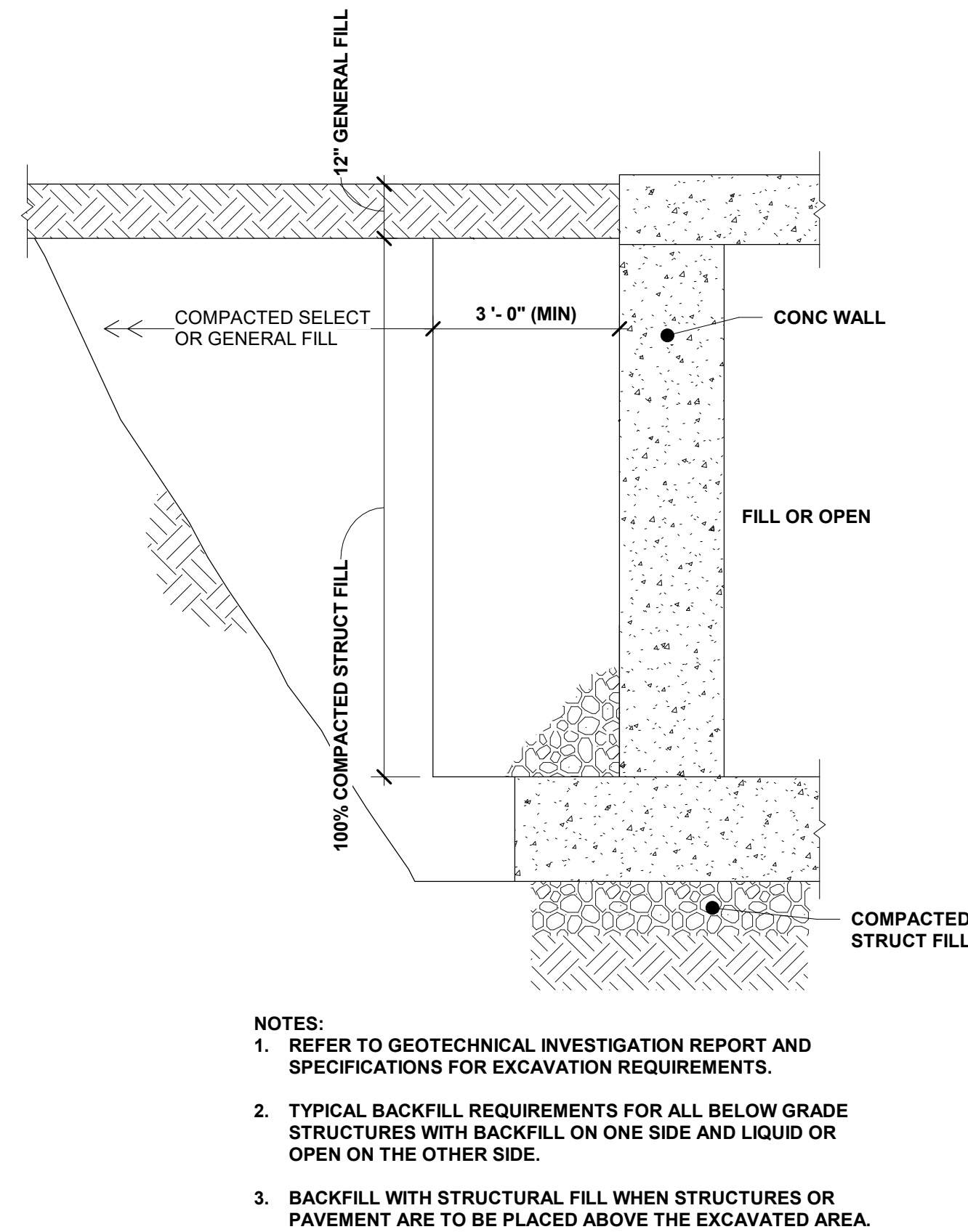
1 TYPICAL REINFORCING AROUND OPENING IN WALL AND SLAB



NOTES:

1. CONTINUE ALL REINFORCEMENT BARS THRU JOINTS.
2. ROUGHEN CJ AS SPECIFIED.
3. PROVIDE CLASS "B" LAP ON OUTSIDE FACE DOWEL (UON).
4. REFER TO SPECIFICATIONS FOR CONSTRUCTION JOINT SPACING.

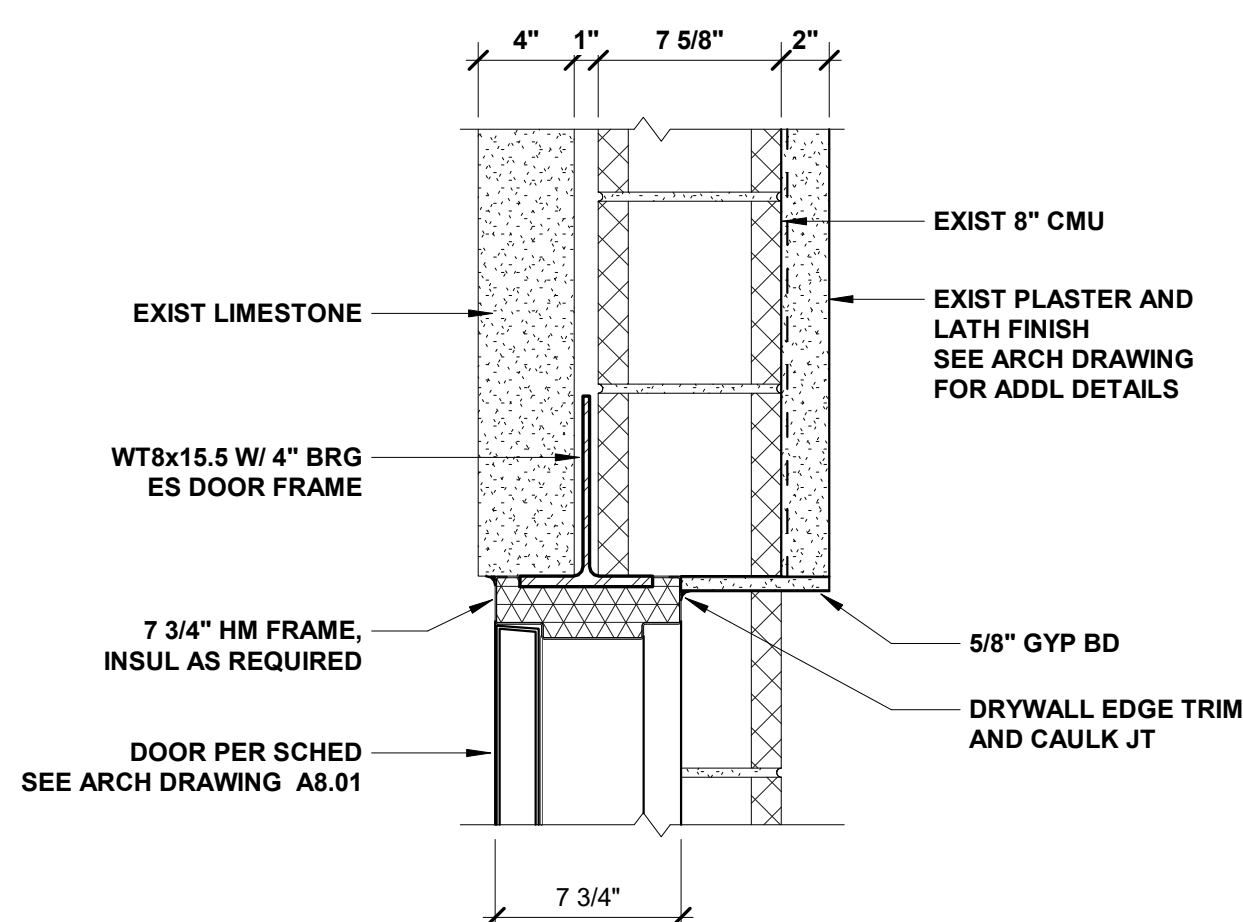
2 TYPICAL ANCHOR BOLT DETAIL



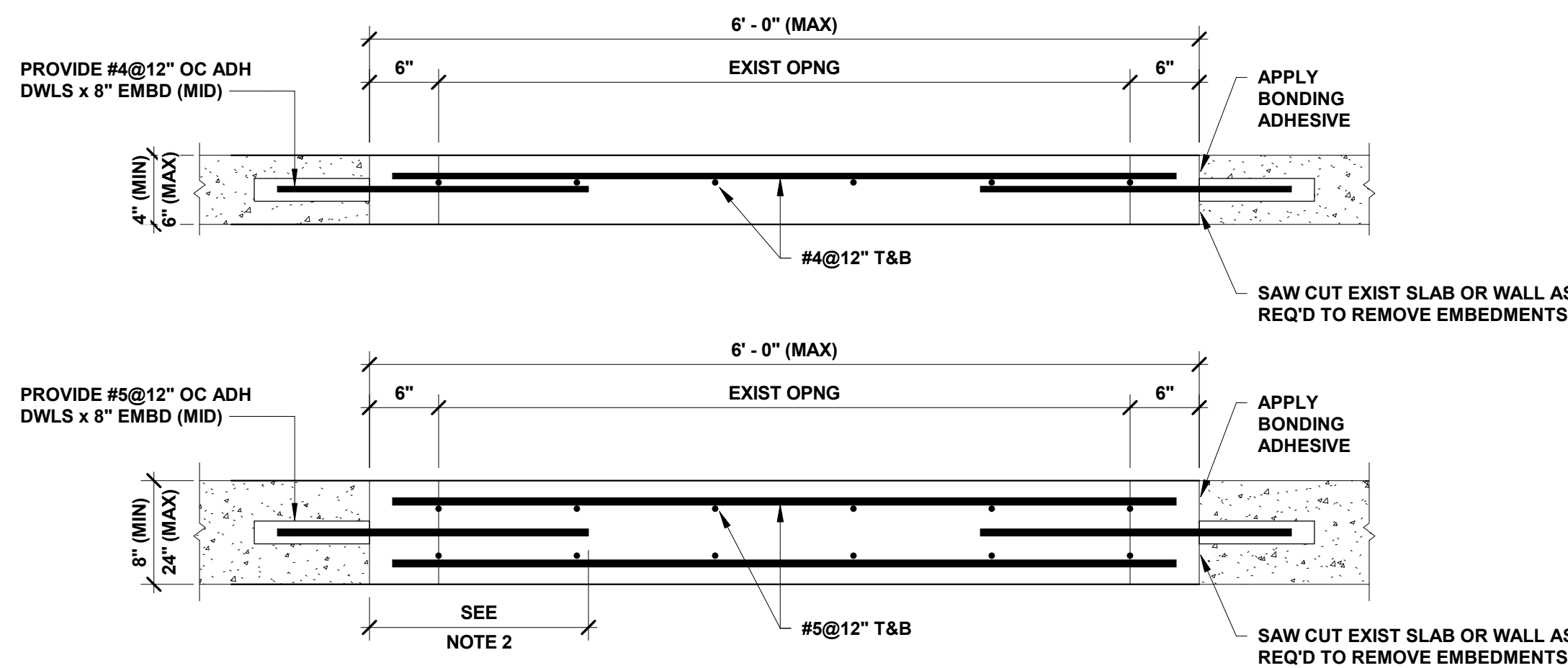
NOTES:

1. REFER TO GEOTECHNICAL INVESTIGATION REPORT AND SPECIFICATIONS FOR EXCAVATION REQUIREMENTS.
2. TYPICAL BACKFILL REQUIREMENTS FOR ALL BELOW GRADE STRUCTURES WITH BACKFILL ON ONE SIDE AND LIQUID OR OPEN ON THE OTHER SIDE.
3. BACKFILL WITH STRUCTURAL FILL WHEN STRUCTURES OR PAVEMENT ARE TO BE PLACED ABOVE THE EXCAVATED AREA.

4 TYPICAL CONSTRUCTION JOINT DETAIL



5 TYPICAL CONCRETE WALL BACKFILL DETAIL



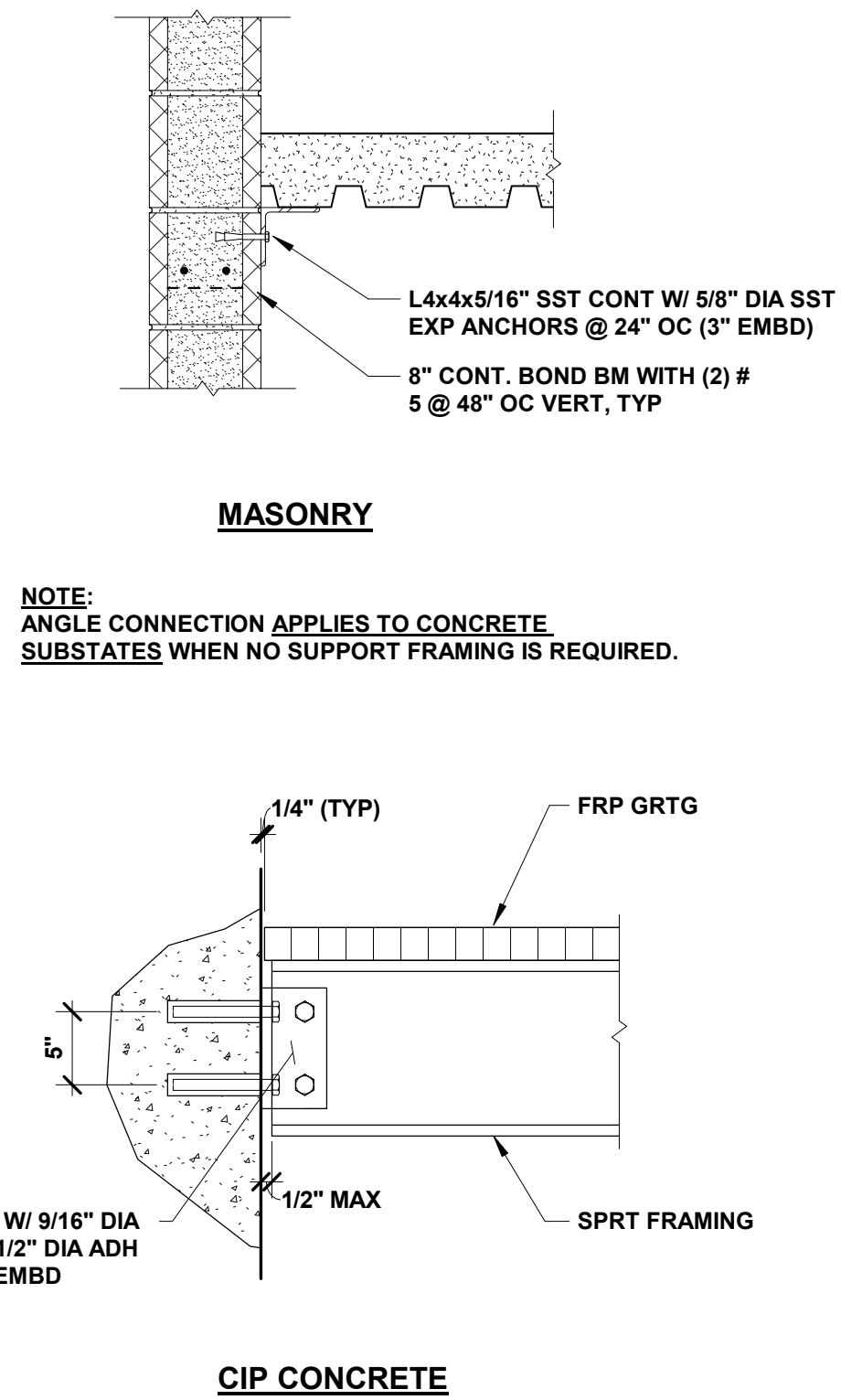
NOTES:

1. TYPICAL DETAILS FOR EXISTING SLAB, WALL, AND ROOF OPENINGS AT VARIOUS THICKNESSES.
2. REINFORCING BAR EMBEDMENT LENGTH (MIN).
3. MAXIMUM 300 PSF SERVICE LOAD ON OPENING (TYP).
4. DON'T CUT THROUGH ANY EXIST BEAMS, JOISTS, OR COLUMNS TO INSTALL DETAIL WHERE APPLICABLE. CONSULT STRUCTURAL ENGINEER IF FIELD CONDITIONS VARY FROM DETAILS.
5. IF CLOSURE IS CIRCULAR, PLACE EMBED BAR ON RADIAL PATTERN AROUND OPNG @ SAME SPACING AS SHOWN ABOVE.

7 TYP LINTEL



8 TYPICAL OPENING CLOSURE DETAIL AT CONCRETE WALL, SLAB, OR ROOF



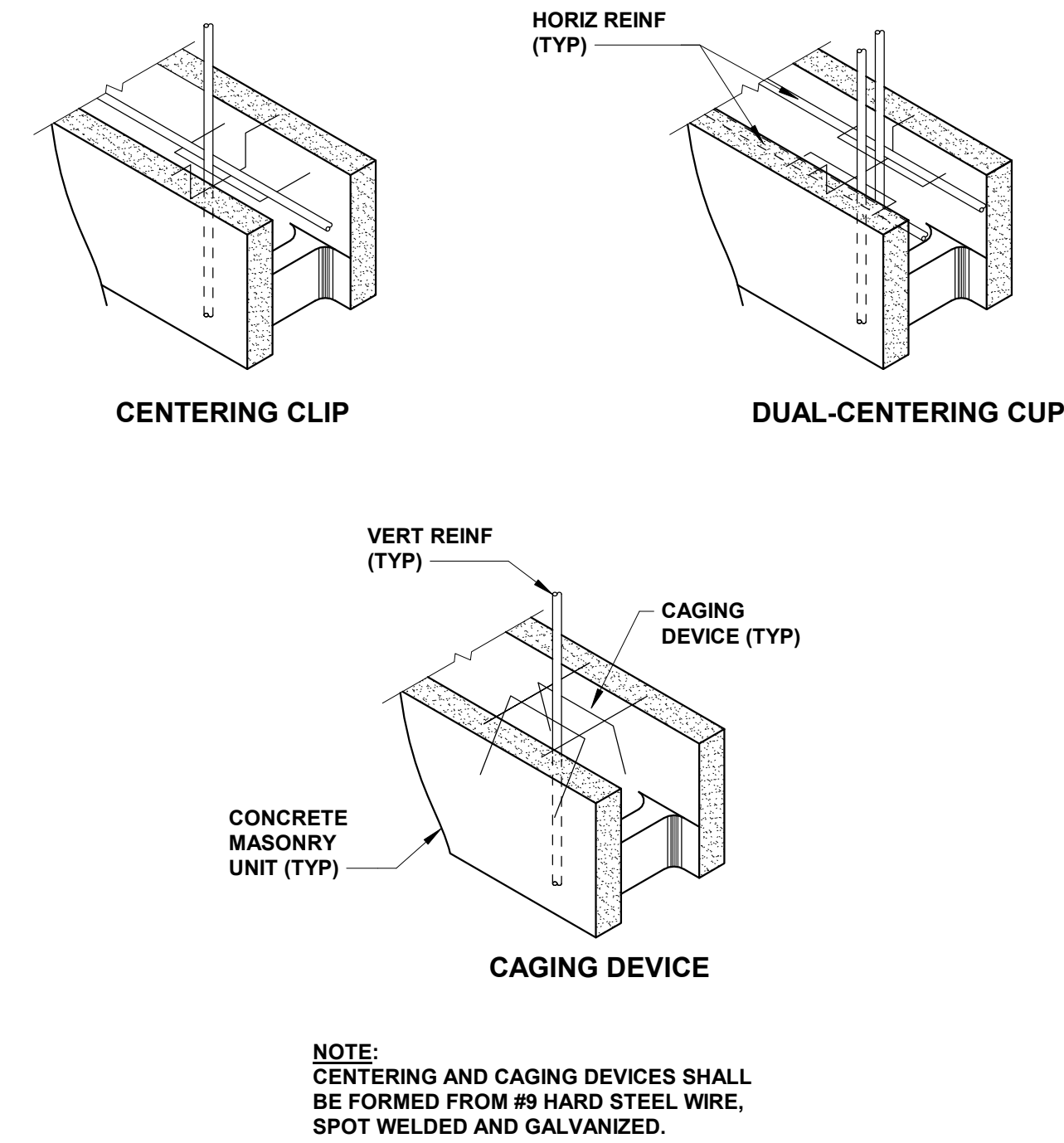
MASONRY

NOTE:
ANGLE CONNECTION APPLIES TO CONCRETE
SUBSTATES WHEN NO SUPPORT FRAMING IS REQUIRED.

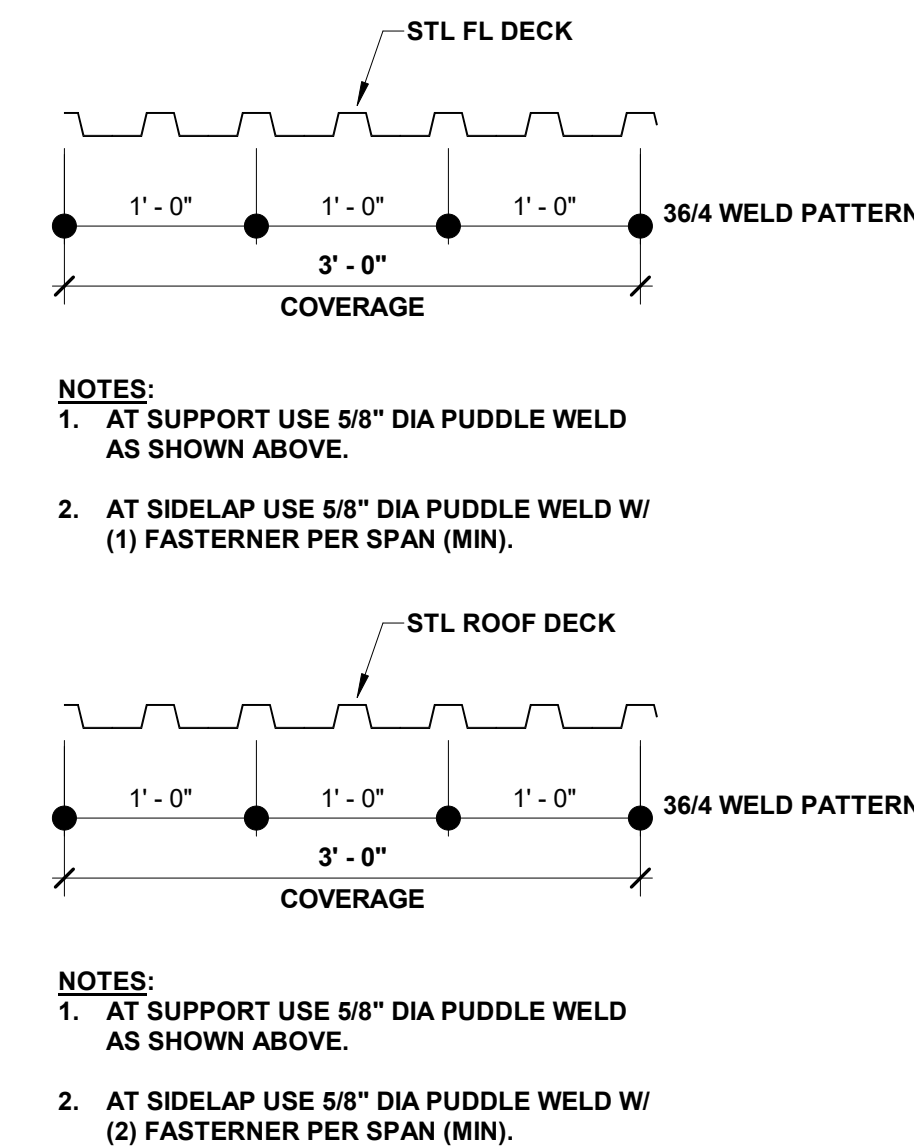
CIP CONCRETE

1 1/2" = 1'-0"

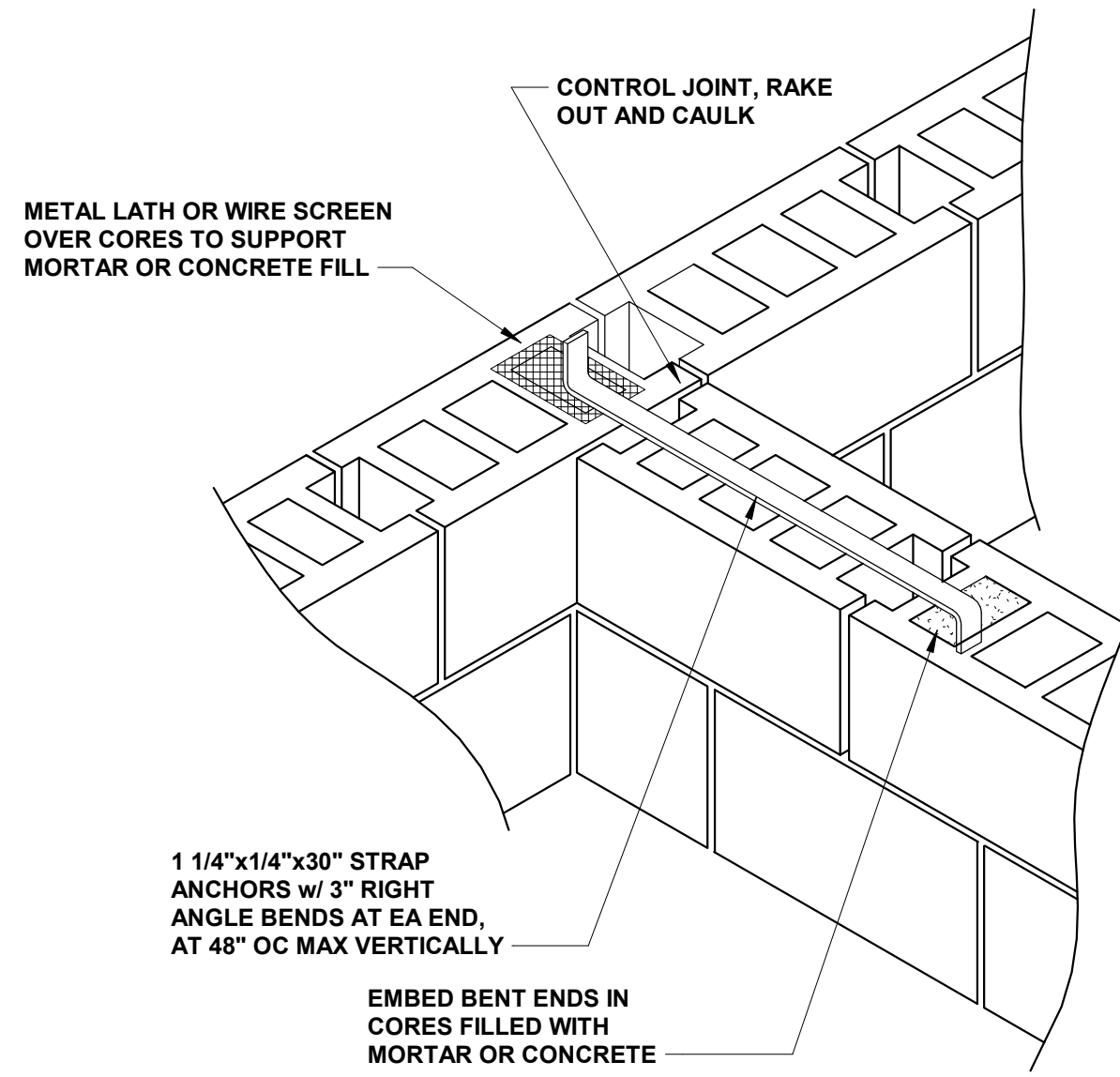
1" = 1'-0"



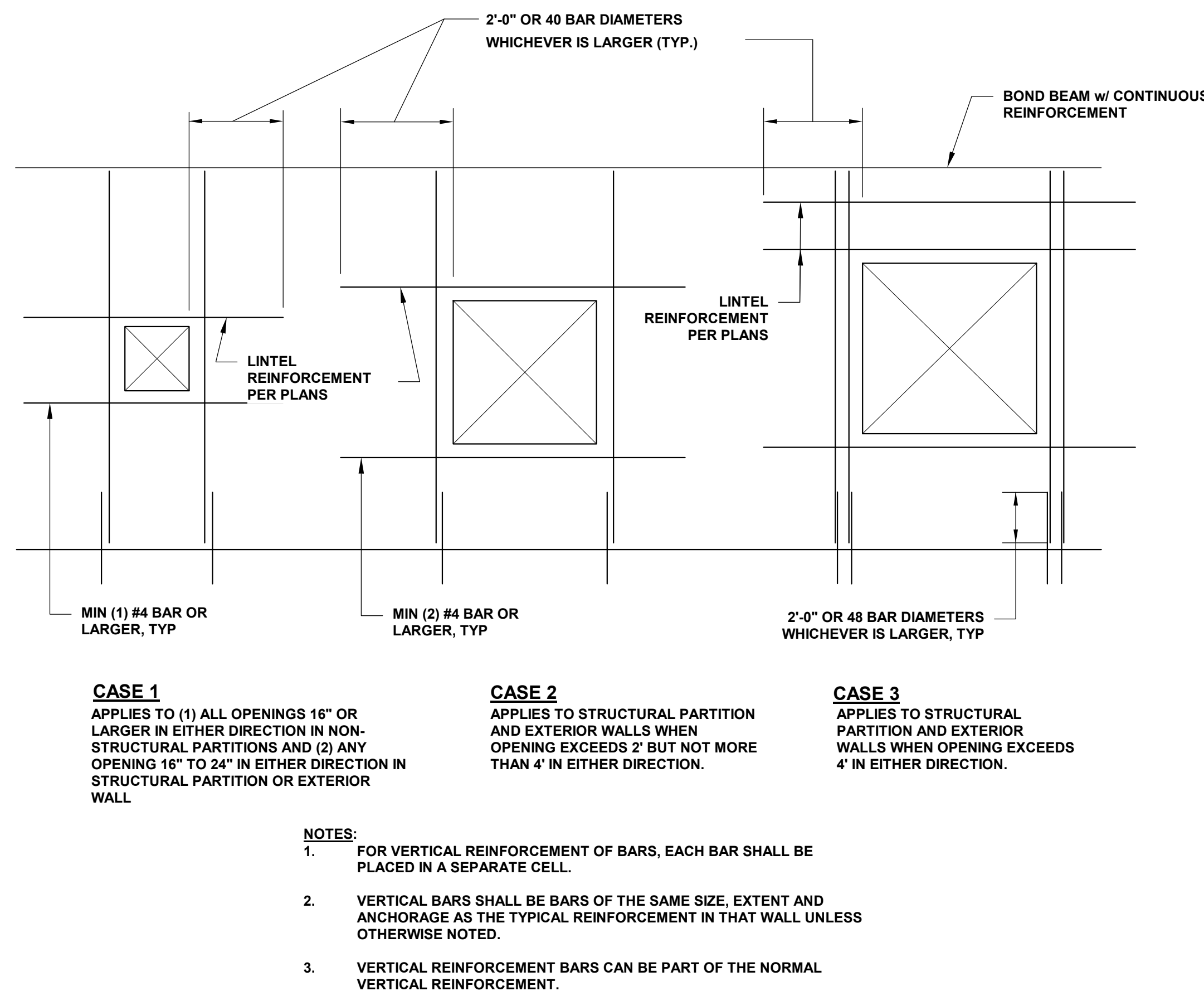
3 Detail
CENTERING AND CAGING DEVICES
S0.03 1" = 1'-0"



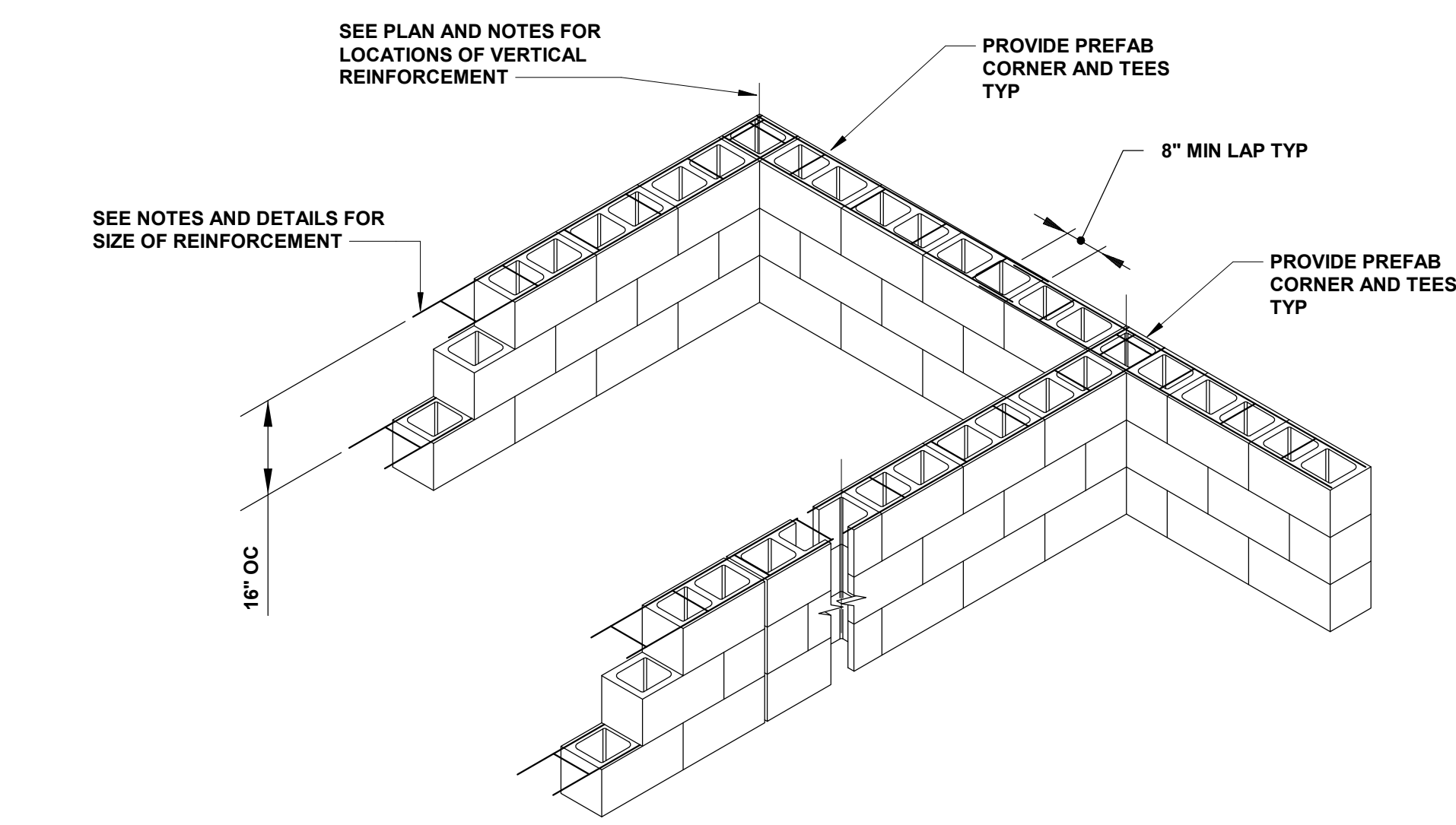
6 Detail
TYPICAL DECK FASTENER LAYOUT
S0.03 1" = 1'-0"



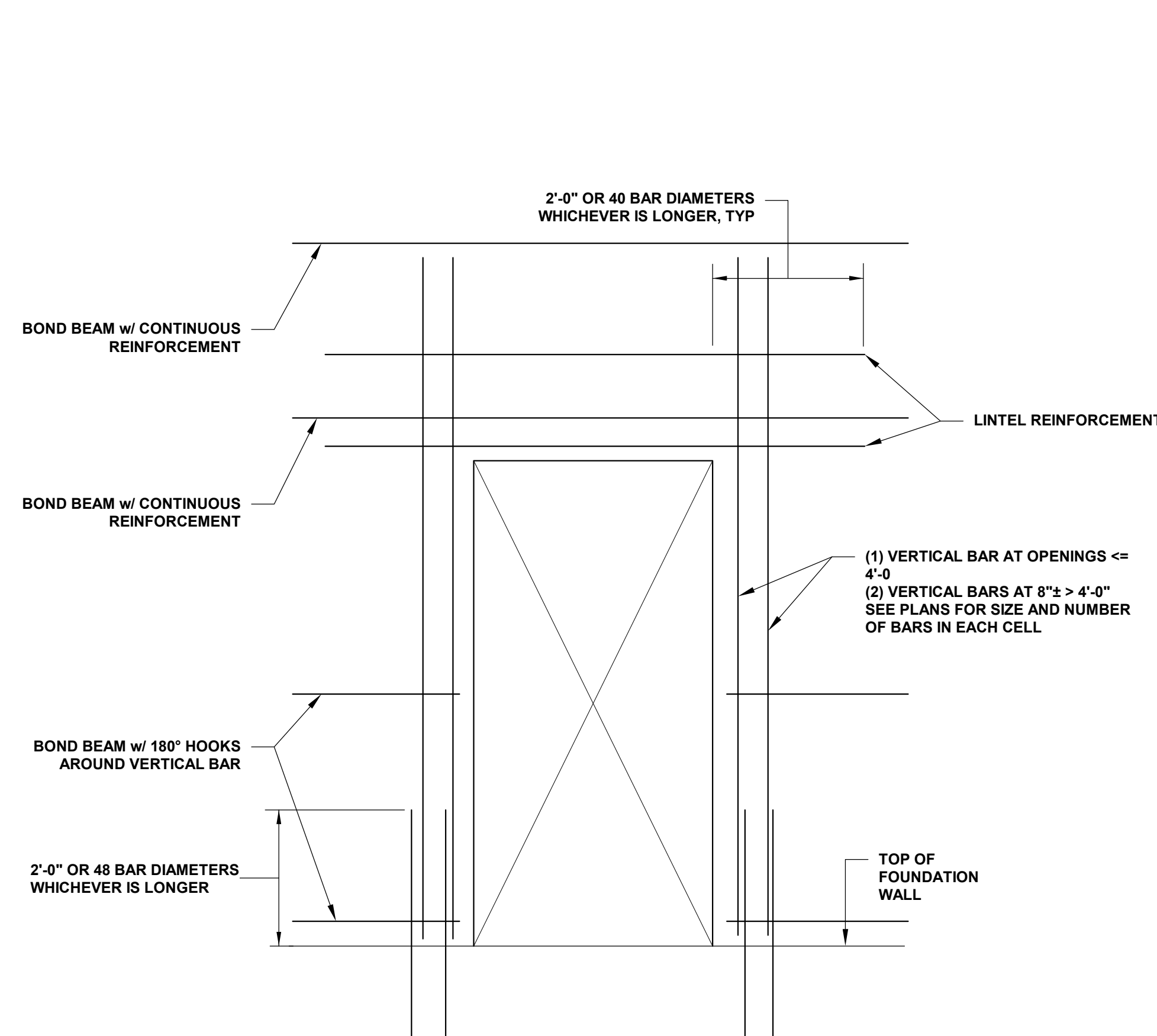
2 Detail
WALL TO WALL ANCHORAGE AT INTERSECTION OF WALLS
S0.03 1" = 1'-0"



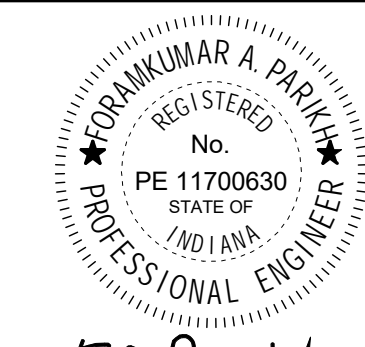
5 Detail
REINFORCEMENT AROUND WALL OPENINGS IN CMU
S0.03 1" = 1'-0"



1 Detail
TYPICAL JOINT REINFORCEMENT DETAIL
S0.03 NTS



4 Detail
REINFORCEMENT AROUND DOOR OPENING IN CMU
S0.03 1" = 1'-0"



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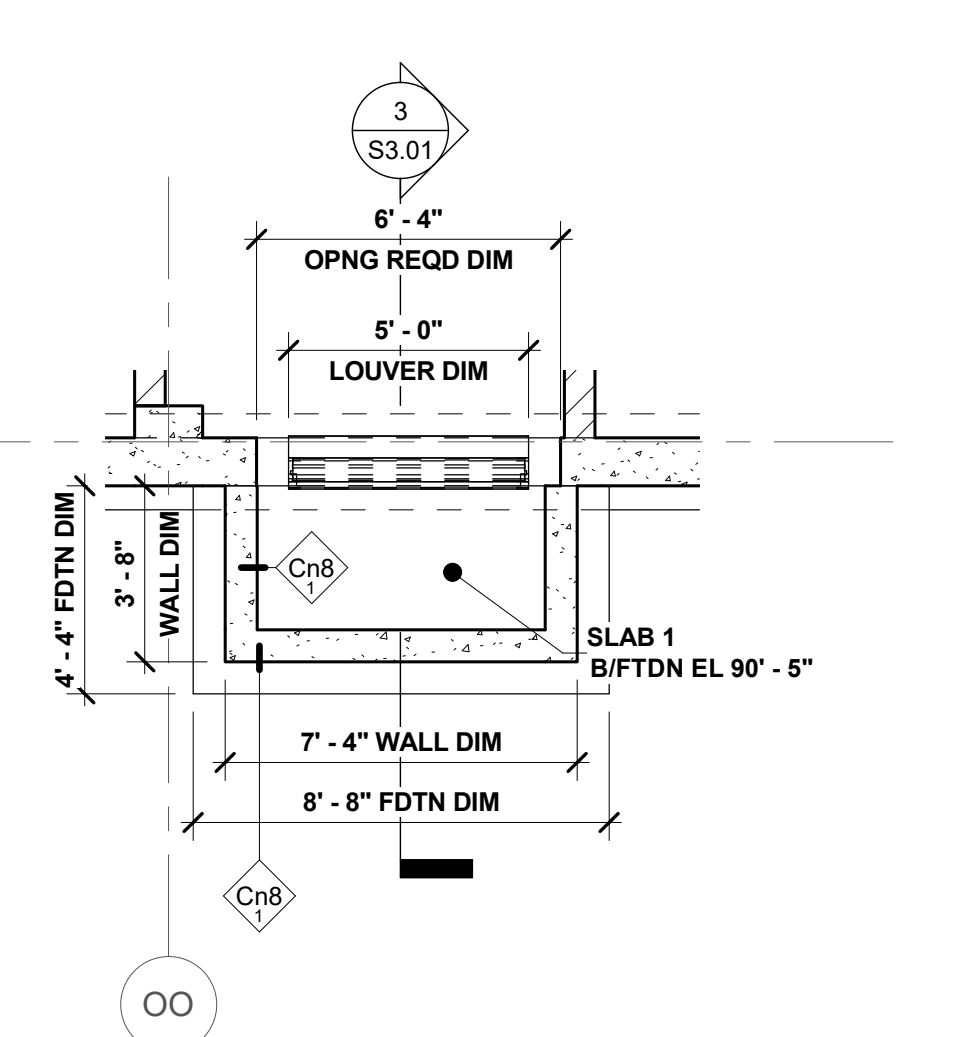
Construction Documents

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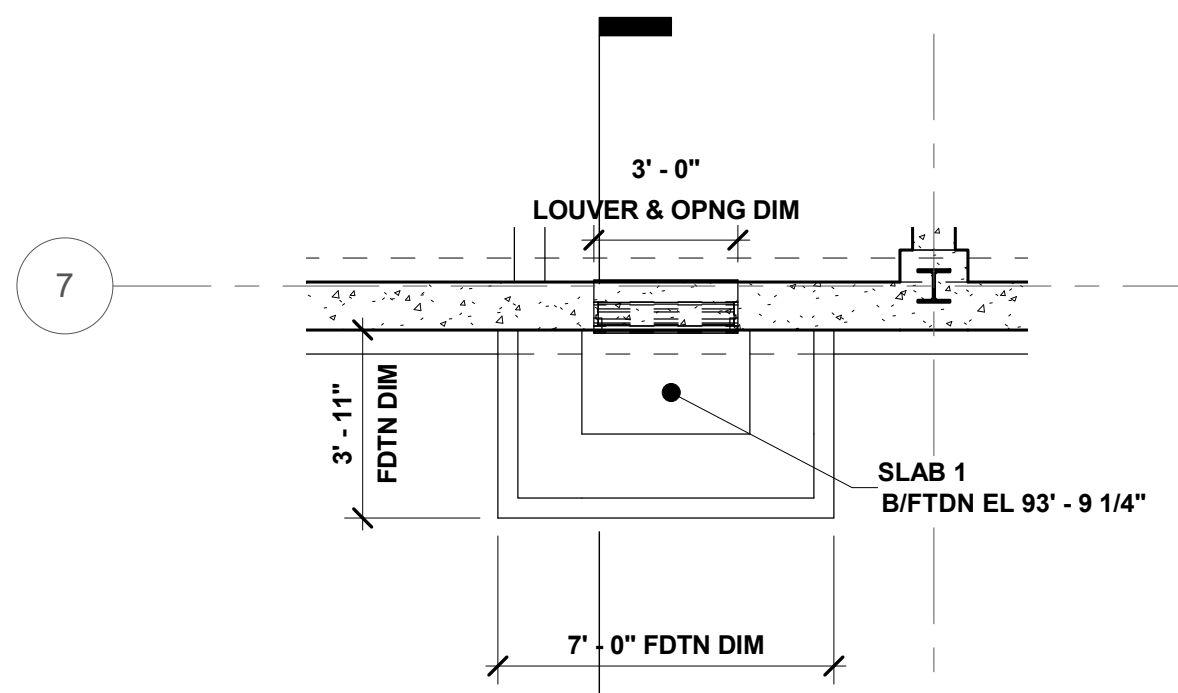
Project No.: 19A052
Drawn By: J. Hand
Checked By: F. Parikh
Scale: See Drawing
Issue Date: June 5, 2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020



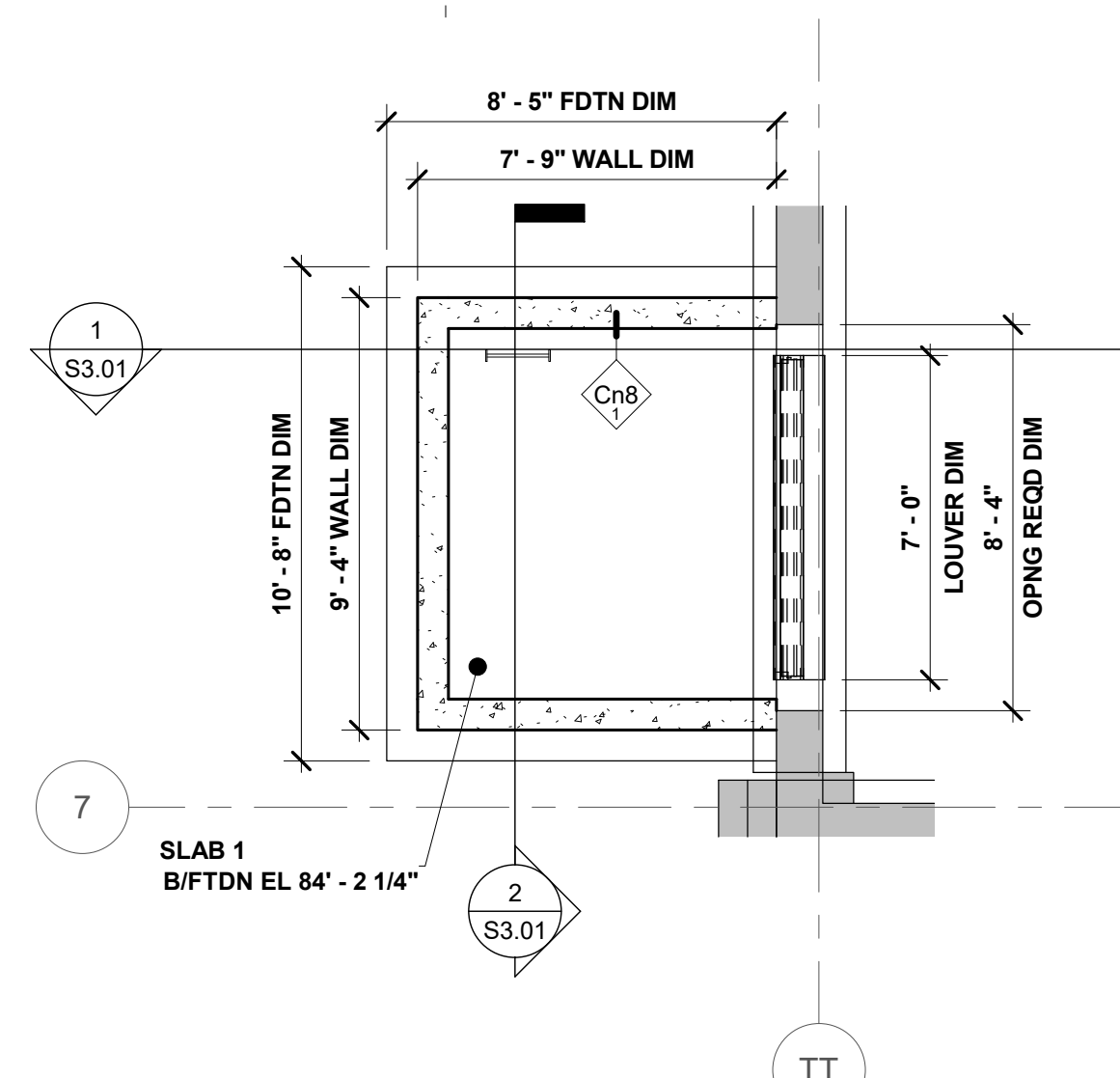
4 Structural Plan
Louver Pit - East 1

S1.00 1/4" = 1'-0"



5 Structural Plan
Louver Pit - East 2

S1.00 1/4" = 1'-0"

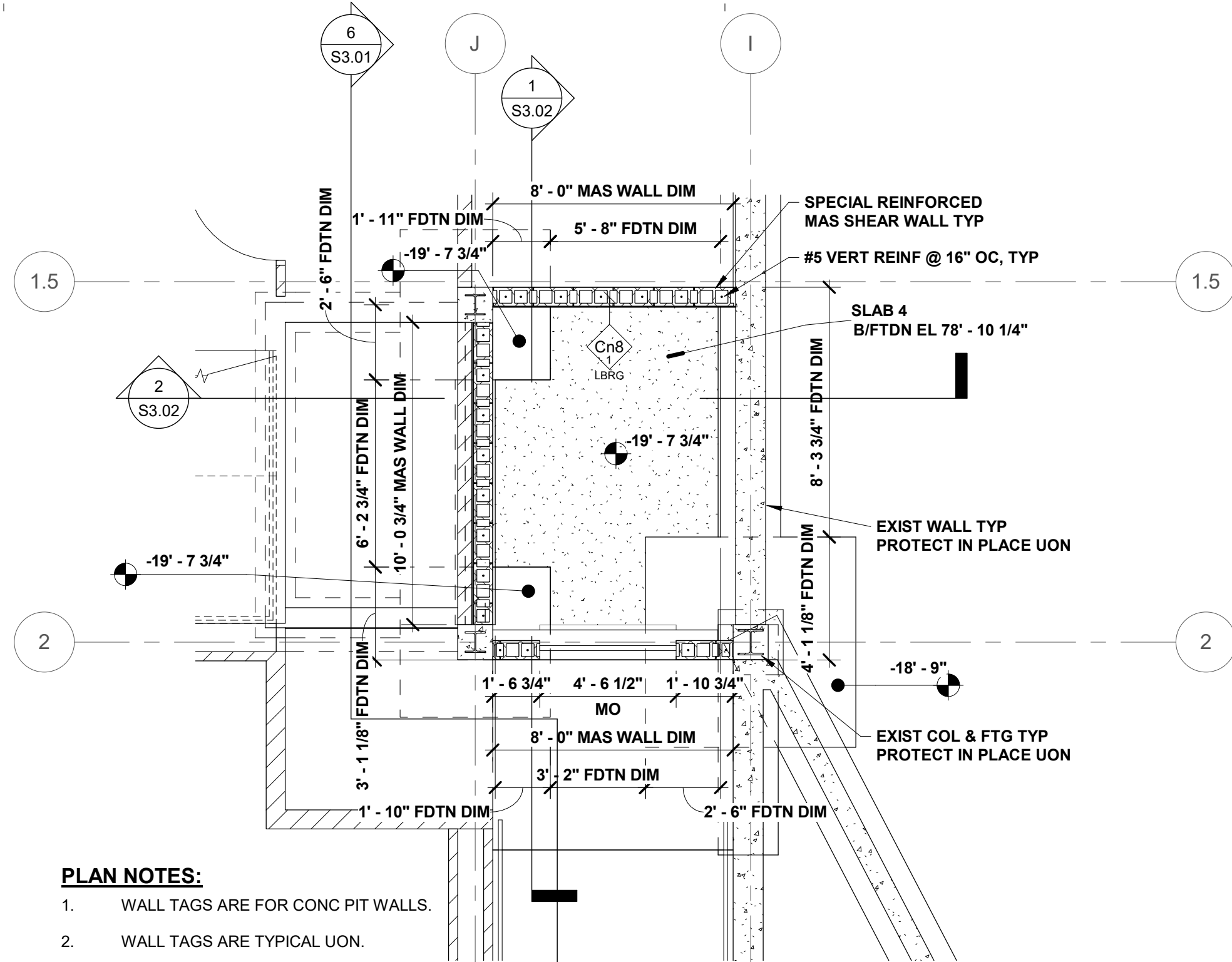


3 Structural Plan
Louver Pit - South

S1.00 1/4" = 1'-0"

STRUCTURAL NOTES
LOUVER PITS

1. SEE MECH DRAWINGS FOR ADDITIONAL DETAILS.
2. SEE S3.01 FOR WALL REINF DETAILS.
3. WALL TAGS ARE TYPICAL UON.

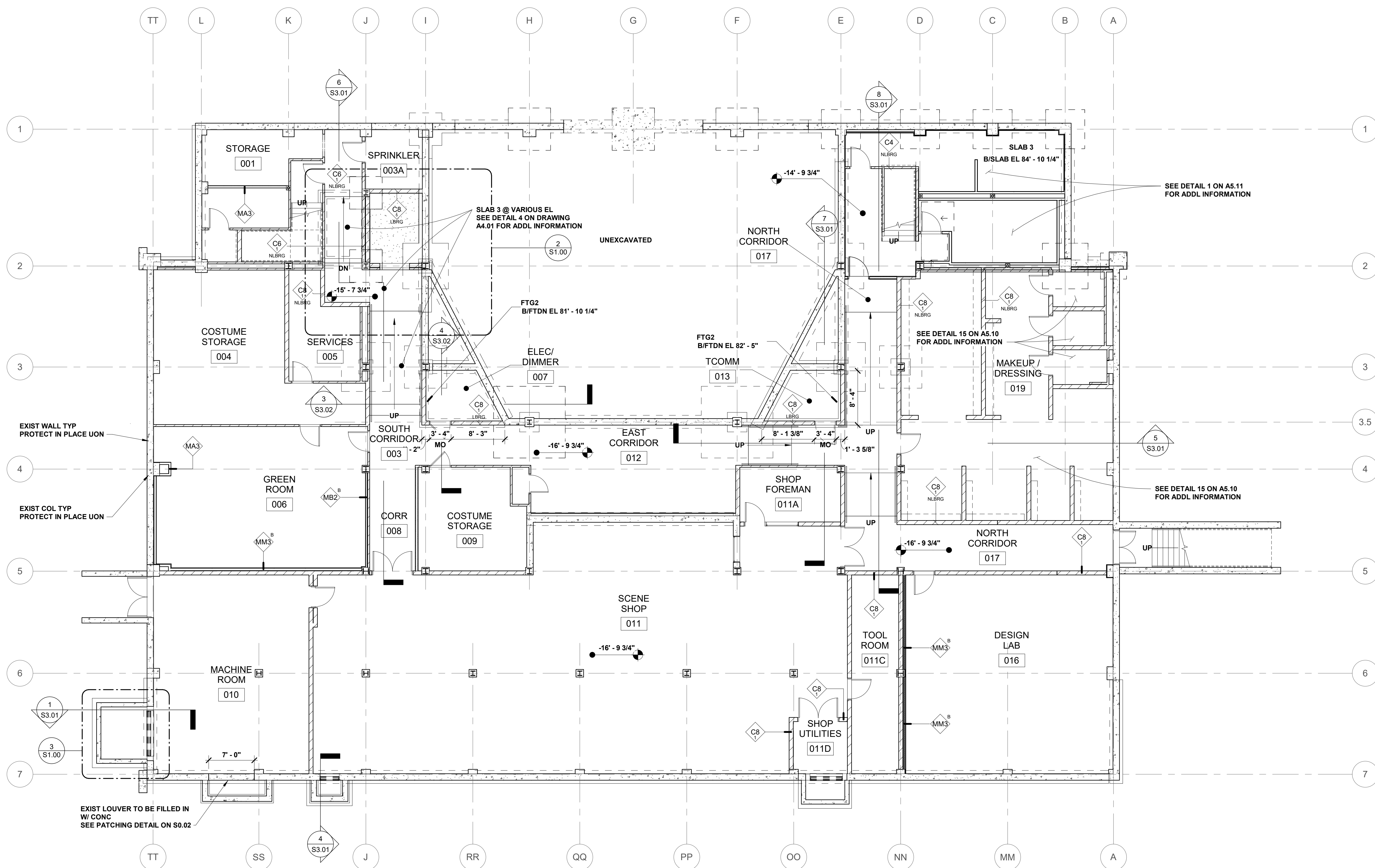


PLAN NOTES:

- WALL TAGS ARE FOR CONC PIT WALLS.
- WALL TAGS ARE TYPICAL UON.

2 Structural Plan
Elevator - Pit Foundation

S1.00 1/4" = 1'-0"



1 Structural Plan
Basement - Plan EL 83'-2 1/4"

S1.00 1/8" = 1'-0"

SYMBOL LEGEND

101 DOOR TAG: SEE SHEET A8-SERIES DRAWINGS

WV LBRG or NLRG WALL TAG: SEE SHEET A0.10 and A0.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.

STRUCTURAL NOTES
BASEMENT

1. FIELD VERIFY ALL DIMENSIONS.
2. SEE D1.00 FOR ALL REMAINING DEMOLITIONS ITEMS.
3. WALLS MARKED FOR STRUCTURAL USAGE UON.
4. SEE S0.03 & SPECIFICATIONS FOR MASONRY CONSTRUCTION.
5. CMU SHALL HAVE NO EXPANSION OR CONTROL JOINTS.
6. NOT ALL EXISTING FOUNDATIONS ARE SHOWN, ONLY SHOWN IF THERE IS POTENTIAL FOR CONFLICT.
7. SEE A1.00 & A1.00A DRAWINGS FOR ADDL ROOM, DOOR, & DIMENSIONAL INFORMATION.
8. ALL NEW INTERIOR NON-LOAD BEARING WALL WILL BE REINFORCED W/ #5 @ 32" OC UON. CONT BOND BM REQ'D @ T/ & B/WALL IF MAS DOESN'T CLOSE FLUSH WITH EXIST BM, FILL IN WITH PLATE OR ANGLE CONNECTED TO BOTH BOND BM AND EXIST CONC BM.
9. ALL NEW INTERIOR NON-LOAD BEARING METAL STUD WALLS WILL BE FRAMED W/ STUDS @ 24" OC UON.

GENERAL STRUCTURAL NOTES

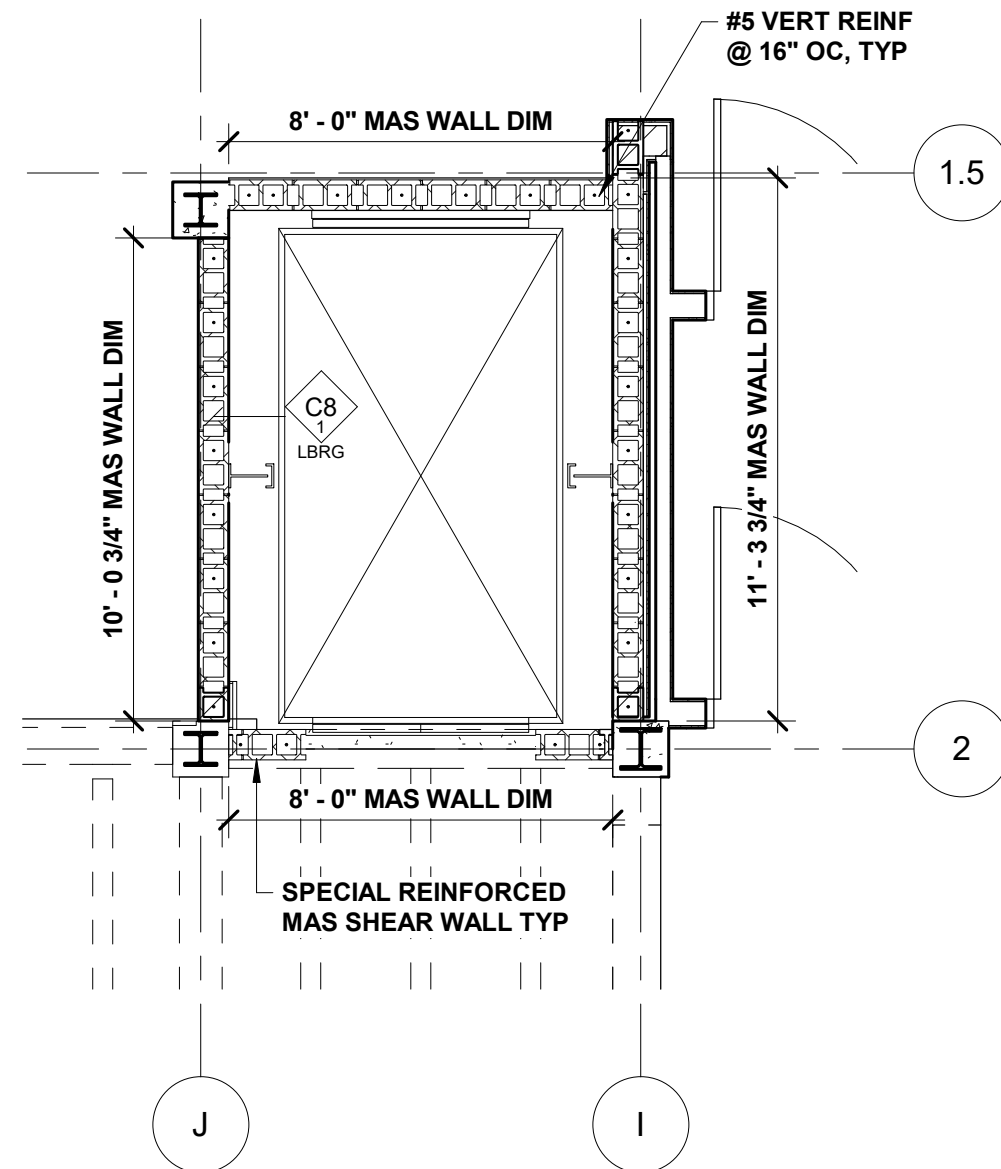
1. DO NOT SCALE DRAWINGS.
2. FOR GENERAL NOTES AND TYPICAL DETAILS SEE S0.01 TO S0.03 DRAWINGS.
3. FOR ADDITIONAL BUILDING INFORMATION SEE DRAWINGS FROM DIVISIONS A, D, M, E, T, P, & FP.

Str. Basement Floor Plan

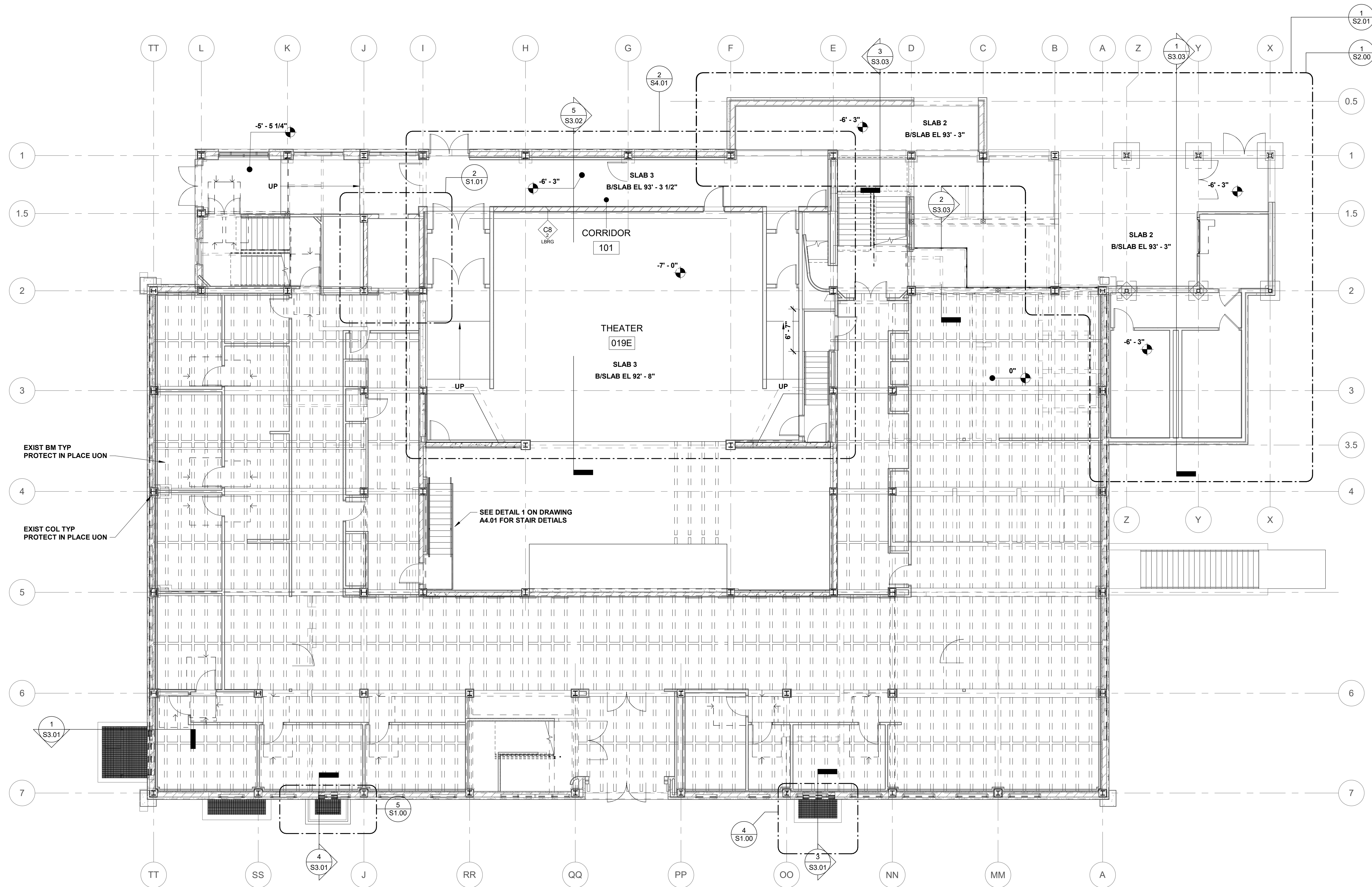
S1.00

STRUCTURAL NOTES
ELEVATOR 1ST FLR

1. FIELD VERIFY ALL DIMENSIONS.
2. SEE S0.03 & SPECIFICATIONS FOR MASONRY CONSTRUCTION.
3. ALL CMU WALLS ARE SPECIAL REINFORCED MASONRY SHEAR WALLS. CONT BOND BM REQ'D @ T & B/WALL IF MAS DOESN'T CLOSE FLUSH WITH EXIST BM, FILL IN WITH PLATE OR ANGLE CONNECTED TO BOTH BOND BM AND EXIST CONC BM.
4. CMU SHALL HAVE NO EXPANSION OR CONTROL JOINTS.
5. SEE A8.01 FOR ELEVATOR DOOR INFORMATION.



2 Structural Plan
Elevator - 1st Floor
S1.01 1/4" = 1'-0"



1 Structural Plan
1st Floor - Plan EL 100'-0"
S1.01 1/8" = 1'-0"

SYMBOL LEGEND

- 101 DOOR TAG: SEE SHEET A8-SERIES DRAWINGS
- WALL TAG: SEE SHEET A0.10 and A0.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.

STRUCTURAL NOTES
1ST FLOOR

1. FIELD VERIFY ALL DIMENSIONS.
2. SEE S4.01 FOR AUDITORIUM FOUNDATION PLAN.
3. SEE D1.01 FOR ALL REMAINING DEMOLITIONS ITEMS.
4. AFTER COMPLETION OF DEMOLITION OF EXIST AUDITORIUM FLOOR SLAB & ADJACENT HALLWAY SLAB AS SHOWN ON D1.01, COORDINATE WITH ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO EXCAVATION FOR WALL FOUNDATION.
5. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND BRACING TO MINIMIZE SETTLEMENT OF EXISTING STRUCTURE DURING UNLOADING AND RELOADING OF FOUNDATIONS.
6. FLOOR DESIGN LL
a. AUDITORIUM SLAB = 100 PSF
b. LOBBY ADDITION SLABS = 100 PSF
c. ELSEWHERE = 40 PSF
7. ALL INTERIOR WALLS ARE NON-LOAD BEARING UON.
8. SEE S0.03 & SPECIFICATIONS FOR MASONRY CONSTRUCTION.
9. CMU SHALL HAVE NO EXPANSION OR CONTROL JOINTS.
10. NOT ALL EXISTING FOUNDATIONS ARE SHOWN, ONLY SHOWN IF THERE IS POTENTIAL FOR CONFLICT.
11. SEE A1.01 & A1.01A DRAWINGS FOR ADDL ROOM, DOOR, & DIMENSIONAL INFORMATION.
12. ALL NEW INTERIOR NON-LOAD BEARING WALL WILL BE REINFORCED W/ #5 @ 32" OC UON.
13. ALL NEW INTERIOR NON-LOAD BEARING METAL STUD WALLS WILL BE FRAMED W/ STUDS @ 24" OC 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.



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Checked By: F. Parikh
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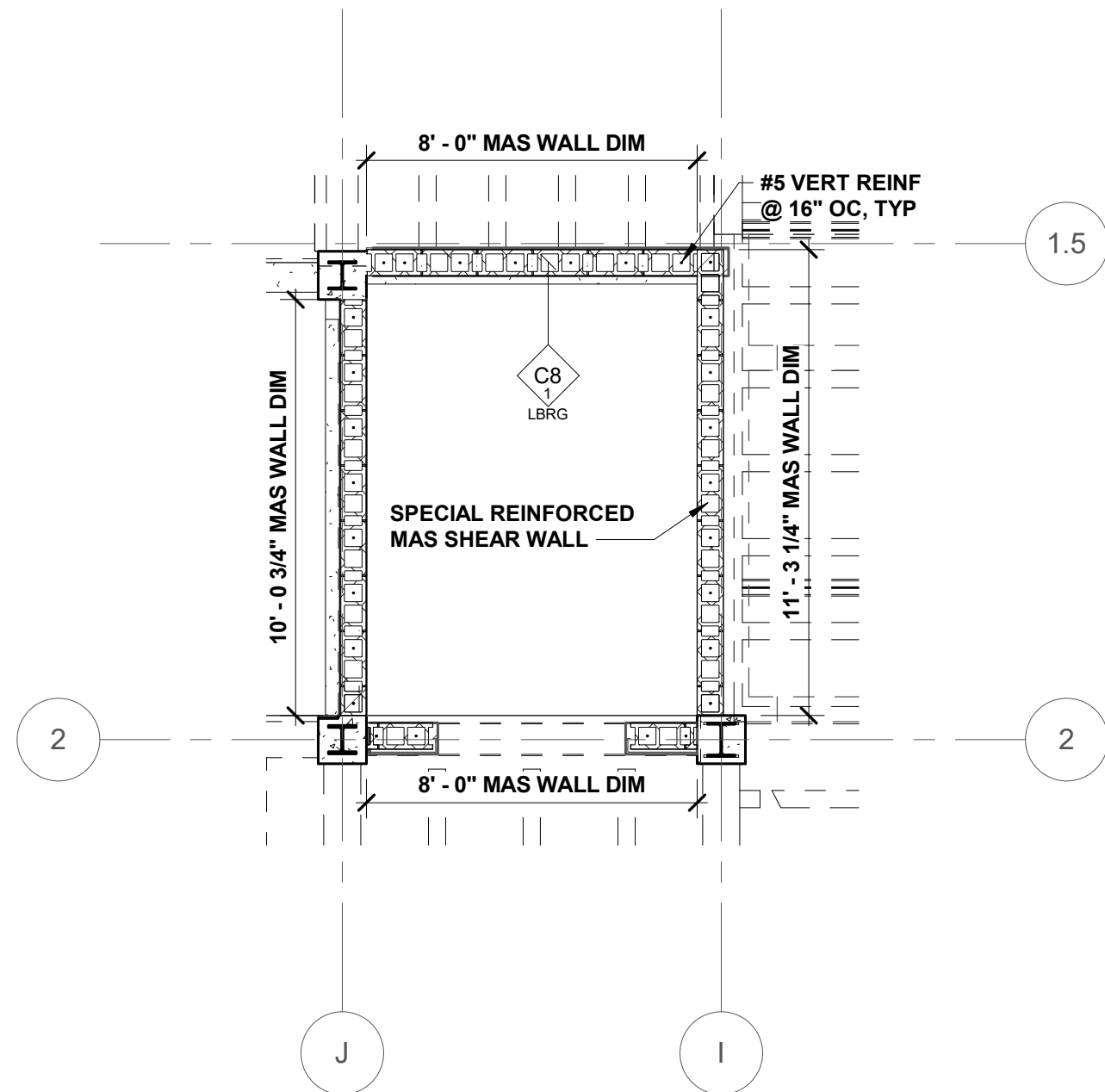
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Str. 1st Floor Plan

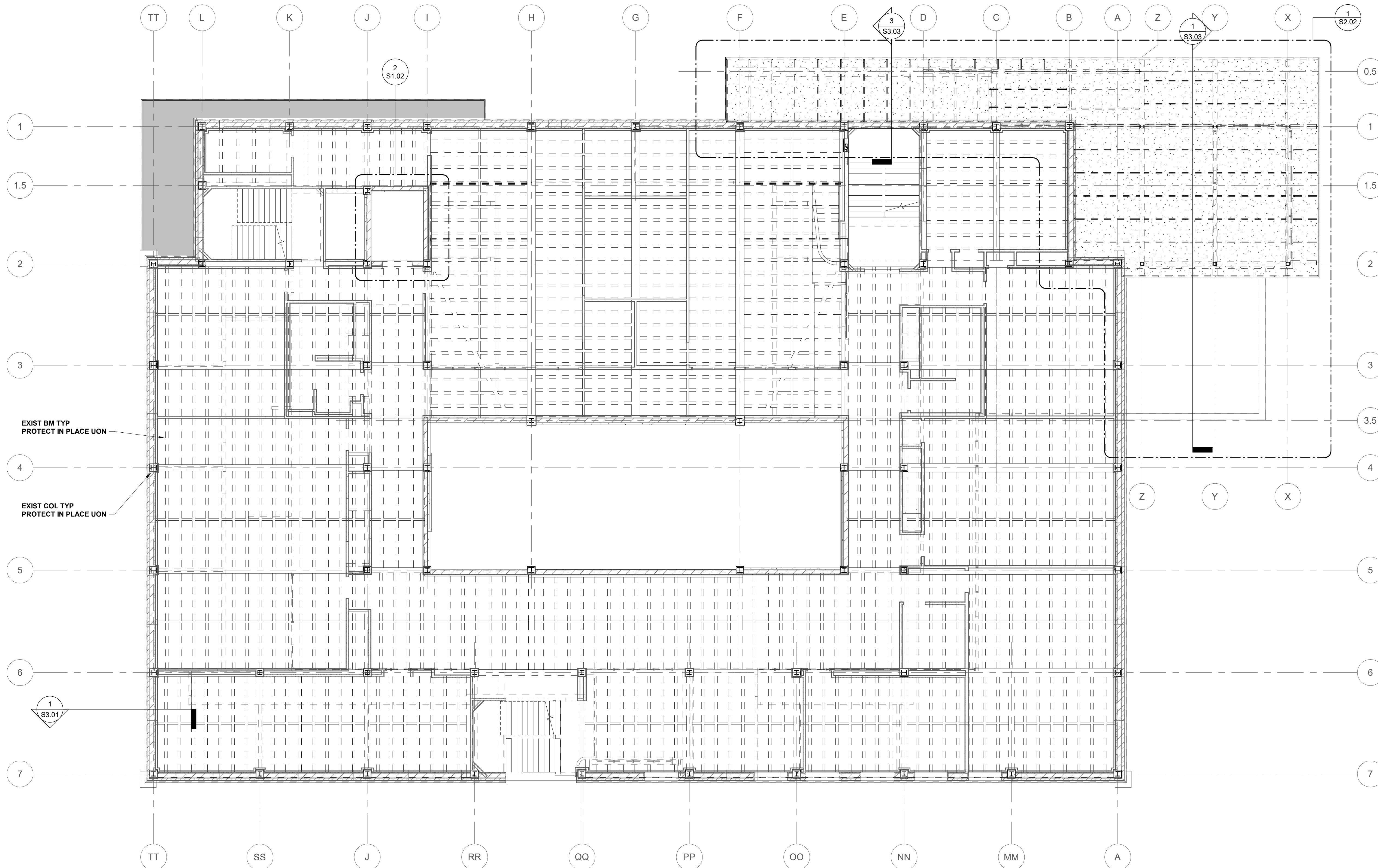
S1.01

STRUCTURAL NOTES
ELEVATOR 2ND FLR

1. FIELD VERIFY ALL DIMENSIONS.
2. SEE S0.03 & SPECIFICATIONS FOR MASONRY CONSTRUCTION.
3. ALL CMU WALLS ARE SPECIAL REINFORCED MASONRY SHEAR WALLS. CONT BOND BM REQ'D @ T & B/WALL IF MAS DOESN'T CLOSE FLUSH WITH EXIST BM. FILL IN WITH PLATE OR ANGLE CONNECTED TO BOTH BOND BM AND EXIST CONC BM.
4. CMU SHALL HAVE NO EXPANSION OR CONTROL JOINTS.
5. SEE A8.01 FOR ELEVATOR DOOR INFORMATION.



2 Structural Plan
Elevator - 2nd Floor
S1.02 1/4" = 1'-0"



SYMBOL LEGEND

- 101 DOOR TAG: SEE SHEET A8-SERIES DRAWINGS
- WV WALL TAG: SEE SHEET A0.10 and A0.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.

STRUCTURAL NOTES
2ND FLOOR

1. FIELD VERIFY ALL DIMENSIONS.
2. SEE D1.02 FOR ALL REMAINING DEMOLITIONS ITEMS.
3. ROOF DESIGN LL = 20 PSF
4. ROOF DESIGN SL = 19 PSF (W RAIN-ON-SNOW SURCHARGE)
5. ALL INTERIOR WALLS ARE NON-LOAD BEARING UON.
6. SEE A1.02 & A1.02A DRAWINGS FOR ADDL ROOM, DOOR, & DIMENSIONAL INFORMATION.
7. ALL NEW INTERIOR NON-LOAD BEARING WALL WILL BE REINFORCED W/ #5 @ 32" OC UON.
8. ALL NEW INTERIOR NON-LOAD BEARING METAL STUD WALLS WILL BE FRAMED W/ STUDS @ 24" OC 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.

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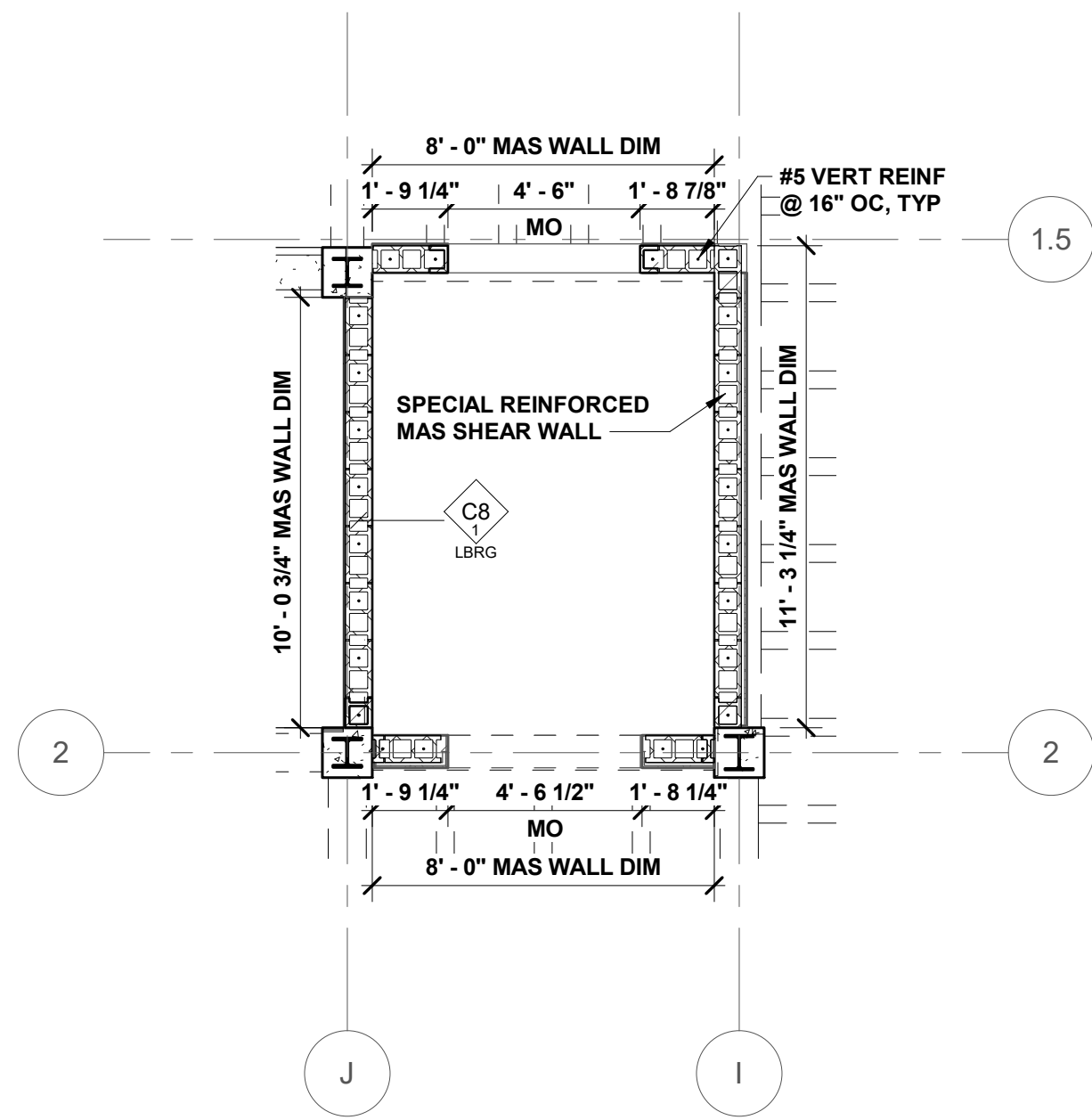
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Str. 2nd Floor Plan

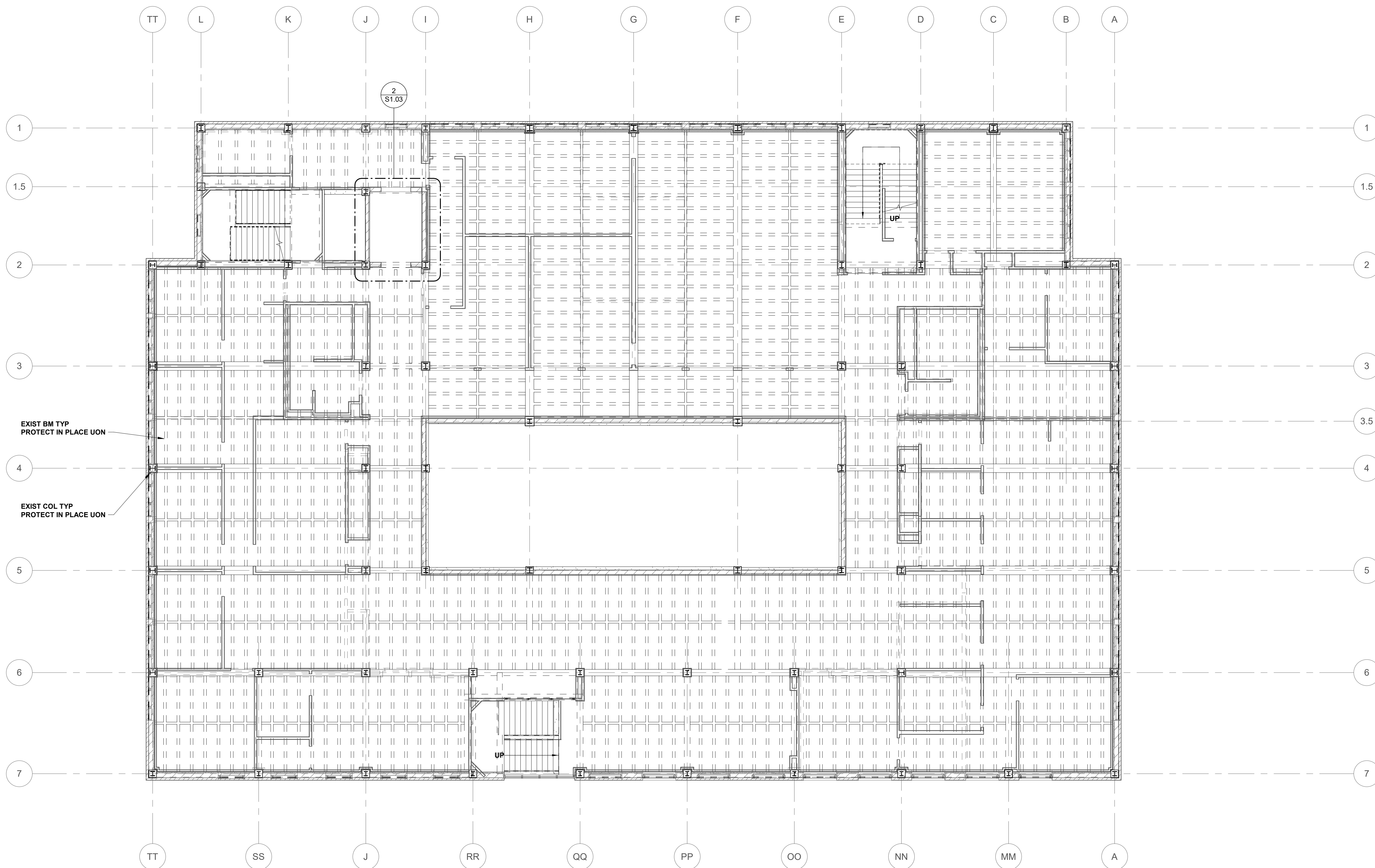
S1.02

STRUCTURAL NOTES
ELEVATOR 3RD FLR

1. FIELD VERIFY ALL DIMENSIONS.
2. SEE S0.03 & SPECIFICATIONS FOR MASONRY CONSTRUCTION.
3. ALL CMU WALLS ARE SPECIAL REINFORCED MASONRY SHEAR WALLS. CONT BOND BM REQ'D @ T/ & B/WALL. IF MAS DOESN'T CLOSE FLUSH WITH EXIST BM, FILL IN WITH PLATE OR ANGLE CONNECTED TO BOTH BOND BM AND EXIST CONC BM.
4. CMU SHALL HAVE NO EXPANSION OR CONTROL JOINTS.
5. SEE A8.01 FOR ELEVATOR DOOR INFORMATION.



2 Structural Plan
Elevator - 3rd Floor
S1.03 1/4" = 1'-0"



1 Structural Plan
3rd Floor - Plan EL 126'-3"
S1.03 1/8" = 1'-0"

SYMBOL LEGEND

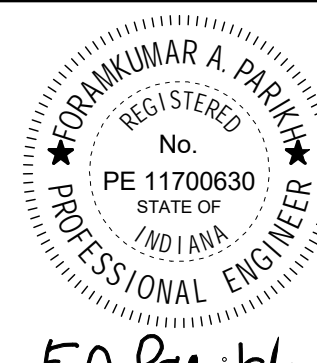
- 101 DOOR TAG: SEE SHEET A8-SERIES DRAWINGS
- WALL TAG: SEE SHEET A0.10 and A0.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.

STRUCTURAL NOTES
3RD FLOOR

1. FIELD VERIFY ALL DIMENSIONS.
2. SEE D1.03 FOR ALL REMAINING DEMOLITIONS ITEMS.
3. ALL INTERIOR WALLS ARE NON-LOAD BEARING UON.
4. SEE A1.03 & A1.03A DRAWINGS FOR ADDL ROOM, DOOR, & DIMENSIONAL INFORMATION.
5. ALL NEW INTERIOR NON-LOAD BEARING WALL WILL BE REINFORCED W/ #5 @ 32" OC UON.
6. ALL NEW INTERIOR NON-LOAD BEARING METAL STUD WALLS WILL BE FRAMED W/ STUDS @ 24" OC 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.



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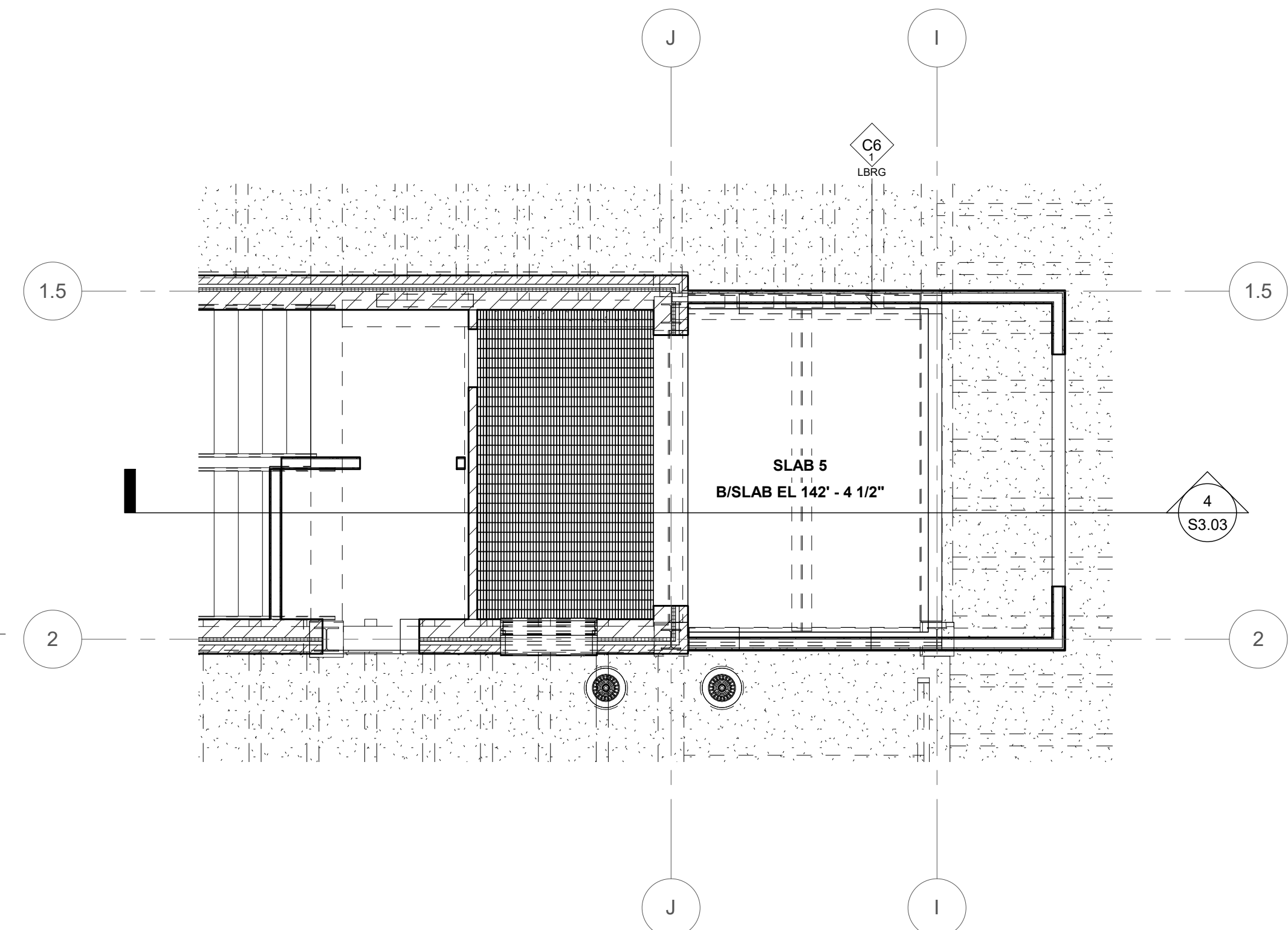
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Checked By: F. Parikh
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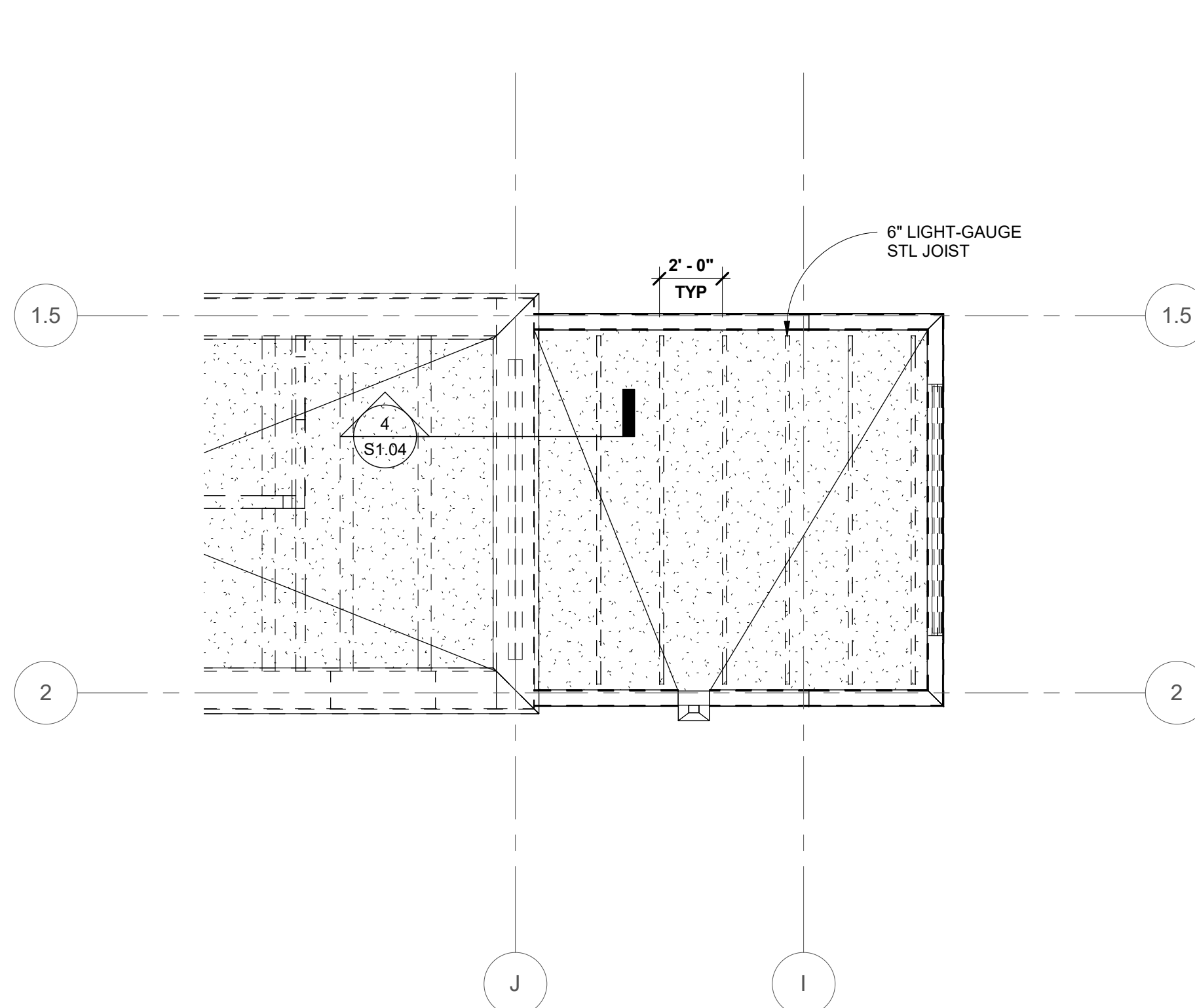
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Str. 3rd Floor Plan

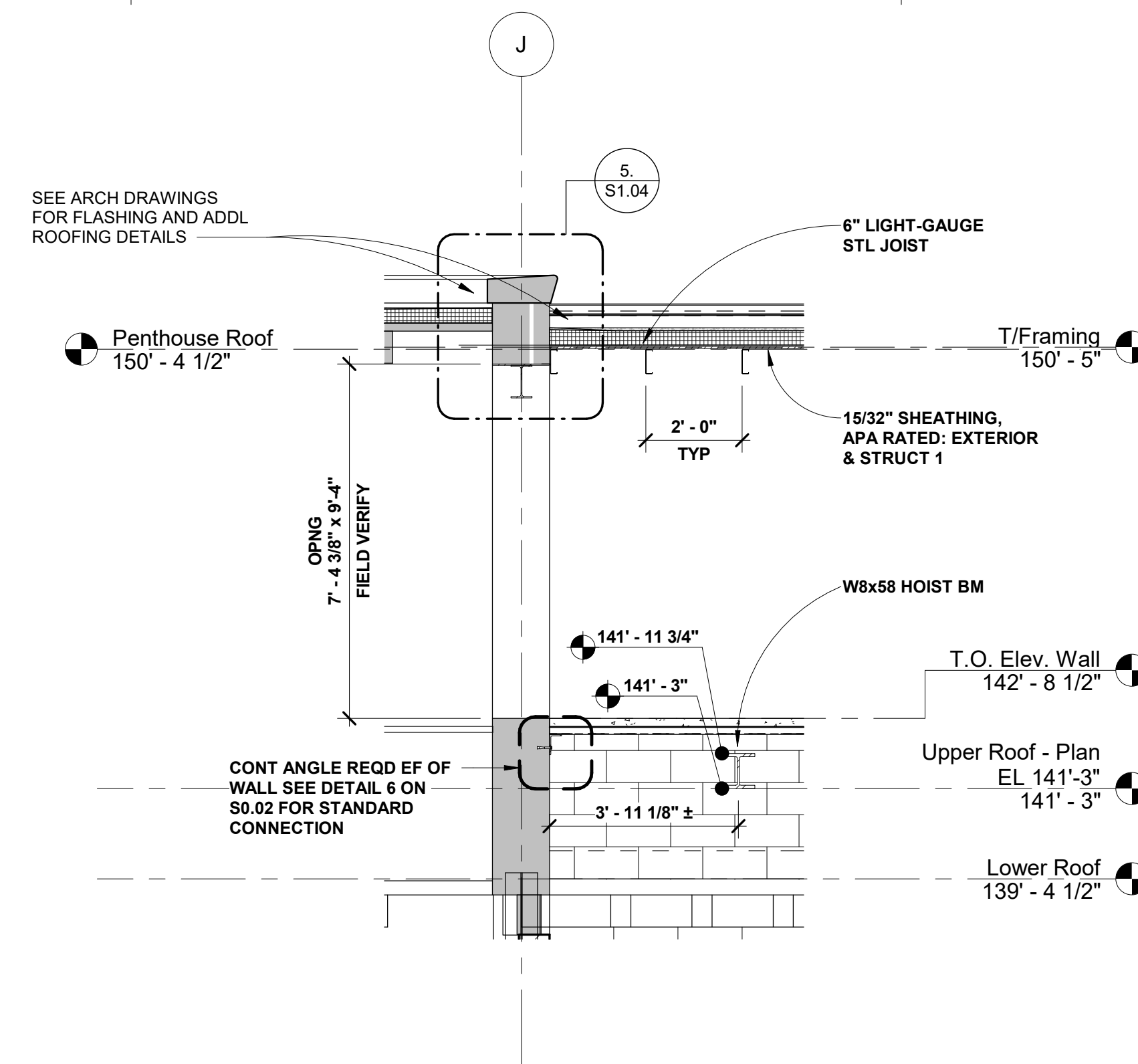
S1.03



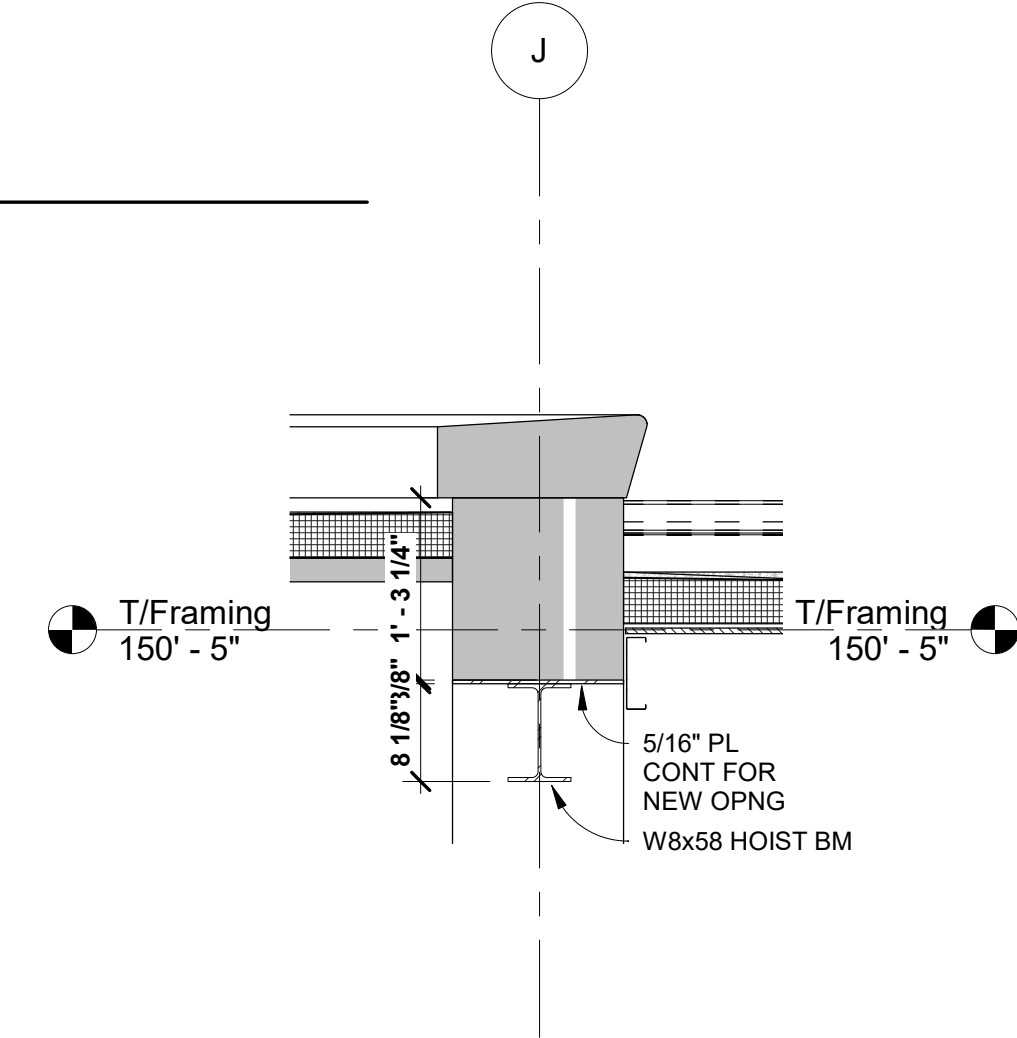
2 Structural Plan
Penthouse Extension - Plan EL 141'-3"
S1.04 1/4" = 1'-0"



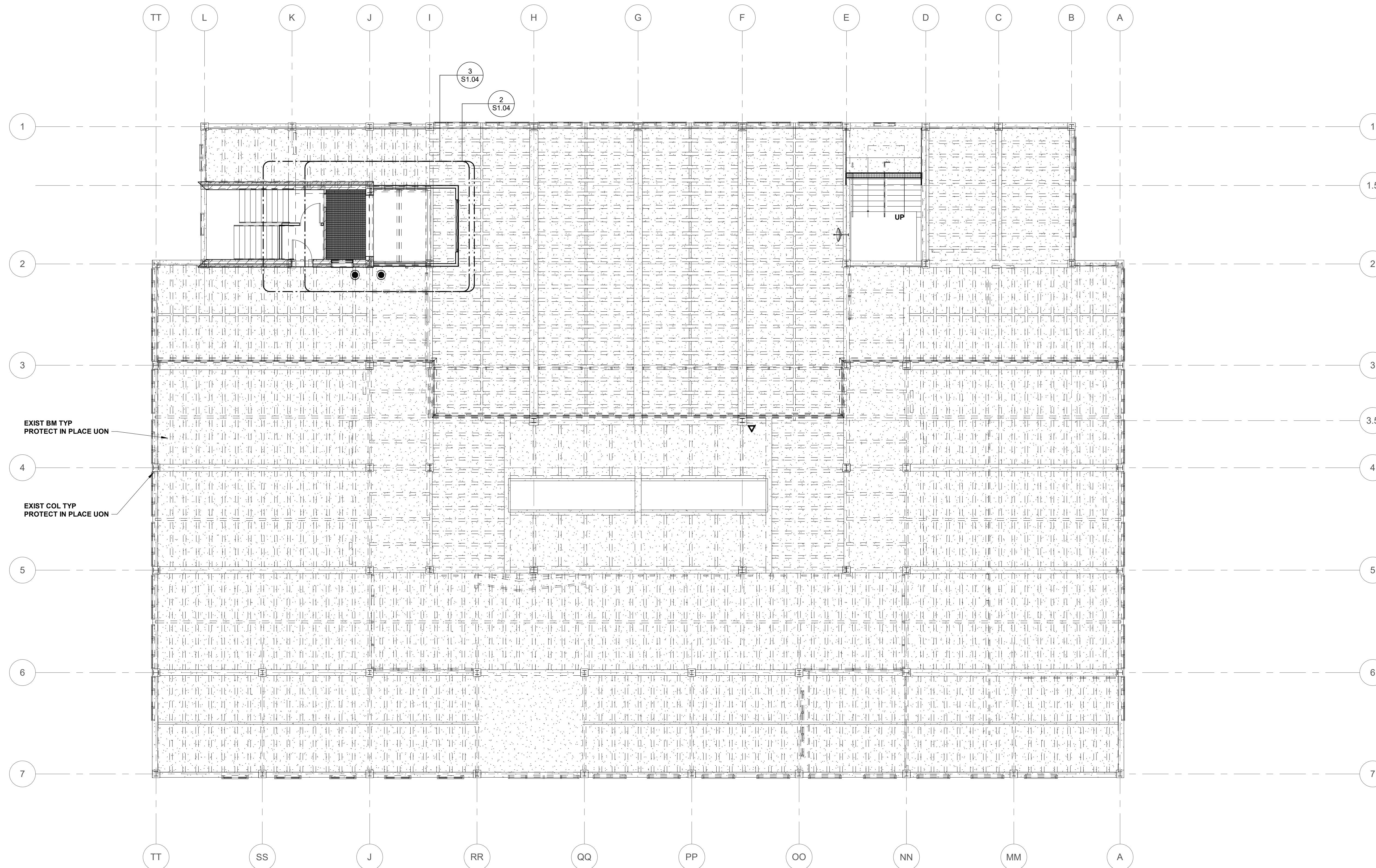
3 Structural Plan
Penthouse Roof Framing - Plan EL 150' - 5"
S1.04 1/4" = 1'-0"



4 Wall Section
Section - Exist Wall w/ New Opening
S1.04 3/8" = 1'-0"



5 Wall Section
LINTEL - NEW OPNG
S1.04 3/4" = 1'-0"



1 Structural Plan
Upper Roof - Plan EL 141'-3"
S1.04 1/8" = 1'-0"

SYMBOL LEGEND	
101	DOOR TAG: SEE SHEET A8-SERIES DRAWINGS
WALL TAG	WALL TAG: SEE SHEET A0.10 and A0.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.

STRUCTURAL NOTES ROOF	
1.	FIELD VERIFY ALL DIMENSIONS.
2.	SEE D1.04 FOR ALL REMAINING DEMOLITIONS ITEMS.
3.	ROOF DESIGN LL = 20 PSF
4.	ALL INTERIOR WALLS ARE NON-LOAD BEARING UON.
5.	SEE A1.05 DRAWINGS FOR ROOF INFORMATION DETAILS.
6.	ROOF DECK IS 1 1/2" FORM DECKING W/ 4" REINFORCED CONCRETE.

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.	



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Str. Roof Plan

S1.04



STRUCTURAL NOTES LOBBY FDTN	
1.	FIELD VERIFY ALL DIMENSIONS.
2.	REVIEW ALL CIVIL DRAWINGS BEFORE EXCAVATION. SEE C2.00 SITE DEMOLITION NOTES.
3.	EXISTING TUNNEL ON NORTHERN EDGE OF EXCAVATION MUST REMAIN-IN-PLACE. CONTRACTOR IS RESPONSIBLE FOR SHORING AND BRACING OF THE TUNNEL TO PREVENT DAMAGED DURING CONSTRUCTION.
4.	FLOOR DESIGN LL <ul style="list-style-type: none"> a. LOBBY ADDITION SLABS = 100 PSF b. ELSEWHERE = 40 PSF
5.	SEE S0.03 & SPECIFICATIONS FOR MASONRY CONSTRUCTION.
6.	NOT ALL EXISTING FOUNDATIONS ARE SHOWN, ONLY SHOWN IF THERE IS POTENTIAL FOR CONFLICT.
7.	SEE A1.01 & A1.01A DRAWINGS FOR ADDL ROOM, DOOR, & DIMENSIONAL INFORMATION.

GENERAL STRUCTURAL NOTES	
1.	DO NOT SCALE DRAWINGS.
2.	FOR GENERAL NOTES AND TYPICAL DETAILS SEE \$0.01 TO \$0.03 DRAWINGS.
3.	FOR ADDITIONAL BUILDING INFORMATION SEE DRAWINGS FROM DIVISIONS A, D, M, E, T, P, & FP.

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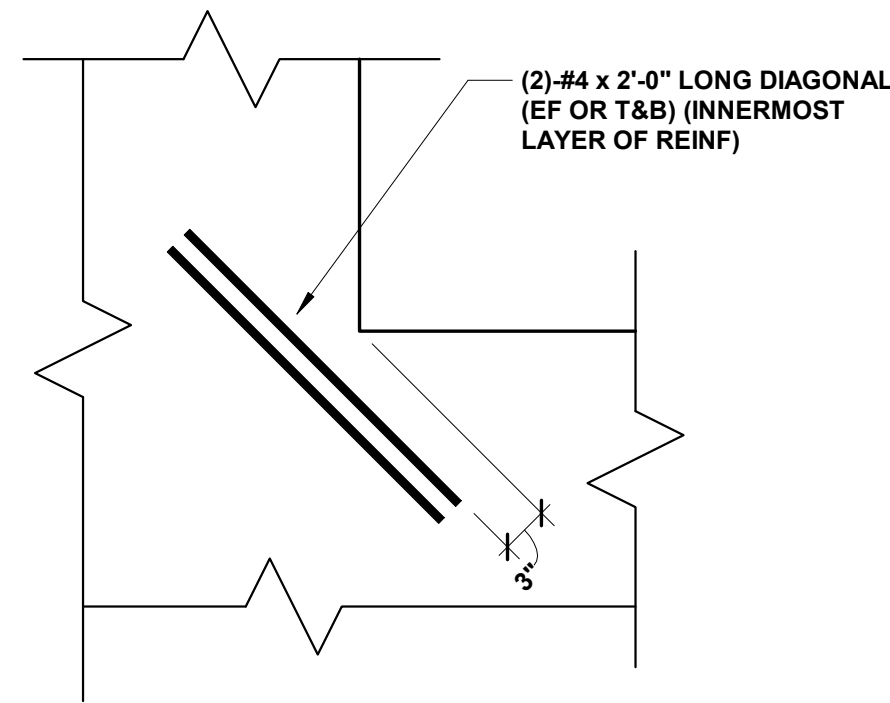
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Foundation Plan - Lobby

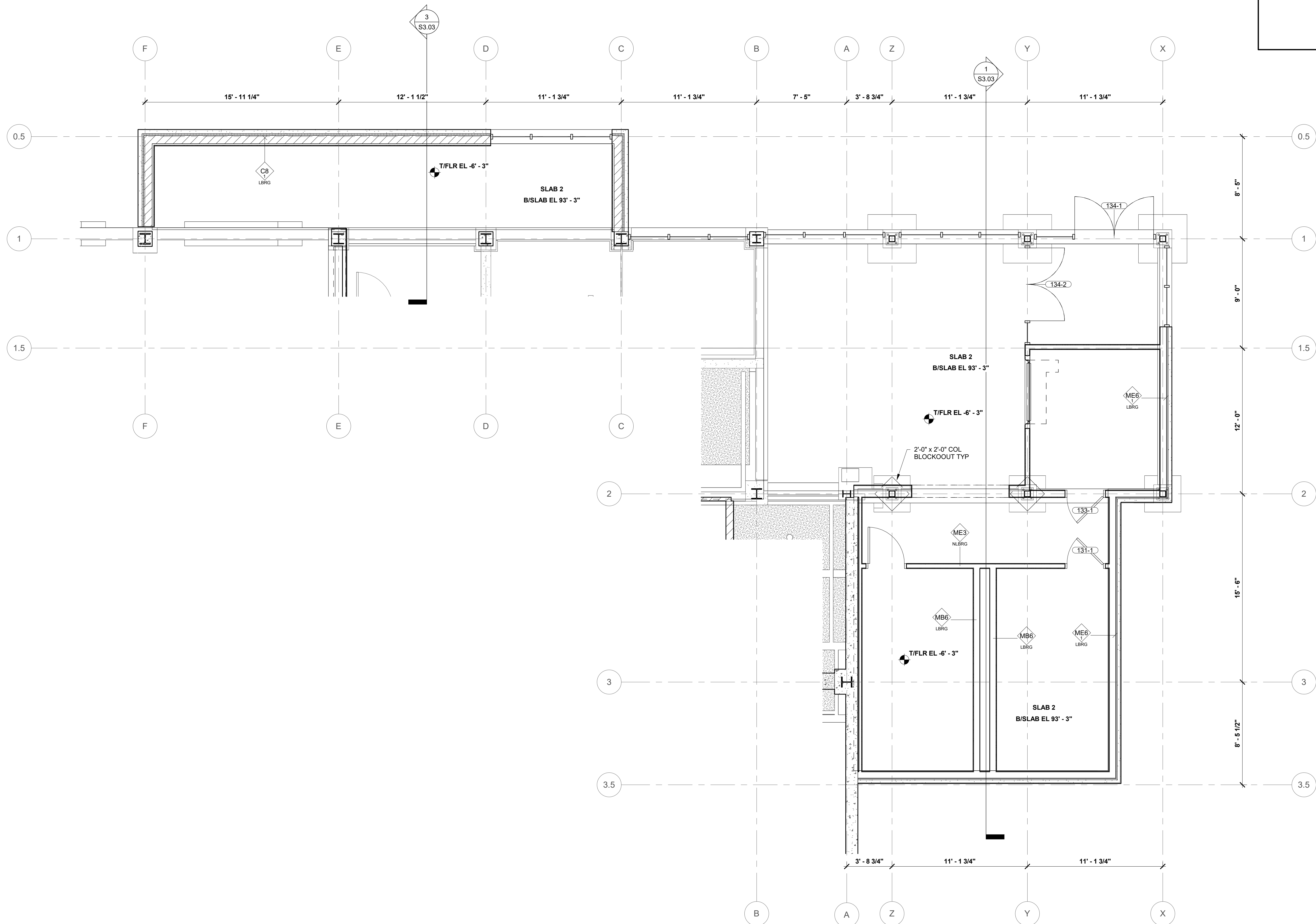
S2.00



2

Detail
S2.01
1" = 1'-0"

ADDITIONAL REINFORCING AT SLAB REENTRANT CORNER



1

Structural Plan
S2.01
1/4" = 1'-0"

Lobby Addition - Plan EL 93'-9"

SYMBOL LEGEND

- 101 DOOR TAG: SEE SHEET A8-SERIES DRAWINGS
- WW LBRG w/ INBRG WALL TAG: SEE SHEET A0.10 and A0.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.

STRUCTURAL NOTES LOBBY FLR

- FIELD VERIFY ALL DIMENSIONS.
- EXISTING FFE = 487.93', SEE CIVIL DRAWINGS FOR ADDL SITE ELEVATIONS.
- FLOOR DESIGN LL
 - LOBBY ADDITION SLABS = 100 PSF
 - ELSEWHERE = 40 PSF
- SEE S0.03 & SPECIFICATIONS FOR MASONRY CONSTRUCTION.
- NOT ALL EXISTING FOUNDATIONS ARE SHOWN, ONLY SHOWN IF THERE IS POTENTIAL FOR CONFLICT.
- SEE A1.01 & A1.01A DRAWINGS FOR ADDL ROOM, DOOR, & DIMENSIONAL INFORMATION.
- ALL NEW INTERIOR NON-LOAD BEARING WALL WILL BE REINFORCED W/ #5 @ 32" OC UON.
- ALL NEW INTERIOR NON-LOAD BEARING METAL STUD WALLS WILL BE FRAMED W/ STUDS @ 24" OC UON.
- ALL NEW INTERIOR LOAD BEARING METAL STUD WALLS WILL BE FRAMED W/ STUDS @ 16" OC UON.

GENERAL STRUCTURAL NOTES

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



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F. A. Parikh
SEAL AFFIXED: 06-11-2020
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Str. Floor Plan - Lobby

S2.01



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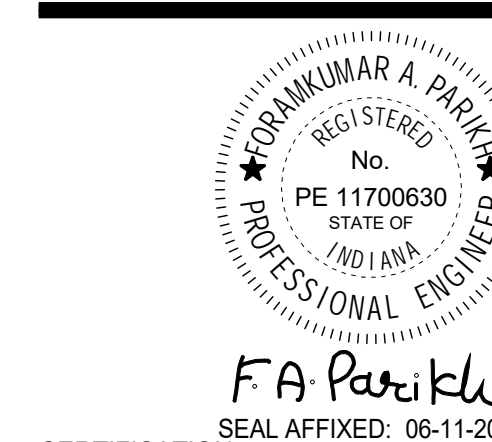
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1. FIELD VERIFY ALL DIMENSIONS.
2. FURTHER SIZE AND LOCATION OF EQUIPMENT SUPPORTS AND DUCT/PIPE OPENINGS SEE OTHER DRAWINGS.
3. ROOF DESIGN $LL_s = 20$ PSF
4. ROOF DESIGN $SL_s = 19$ PSF (W/ RAIN-ON-SNOW SURCHARGE)
5. ROOF $WL_s = 24.96$ PSF TYP DECK UPLIFT
6. ROOF OVERHANG $WL_s = 13.21$ PSF TYP DECK UPLIFT
7. ALL STRUCTURAL SHAPES SHALL BE STEEL AS FOLLOWS
(UNLESS OTHERWISE NOTED):
 $W8x = W8x31$
 $C8x = C8x13.75$
8. STEEL DECKING SPAN NOTED WITH (---). STEEL DECKING SIZES AS NOTED:
 $ROOF = 0.6522$
9. LIGHT-GAUGE JOIST ARE C8 UNON.
10. SECURE THE EXISTING BEAMS AND COLUMNS UNON.

Indiana State University
Dreiser Hall Renovation

Project No.: 19A052

Project No.: 19A052
 Drawn By: J. Hand
 Checked By: F. Parik
 Scale: See Dra
 Issue Date: June 5,

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020

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.

S2.02



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S3.01 $1/4" = 1'-0"$

S3.01 $1/4" = 1'-0"$



S3.01 $1/4" = 1'-0"$



S3.01 $1/4" = 1'-0"$



S3.01 $3/4" =$



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F.A. Parikh
SEAL AFFIXED: 06-11-20
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Construction Documents

Indiana State University
Dreiser Hall Renovation

Terre Haute, Indiana 47809

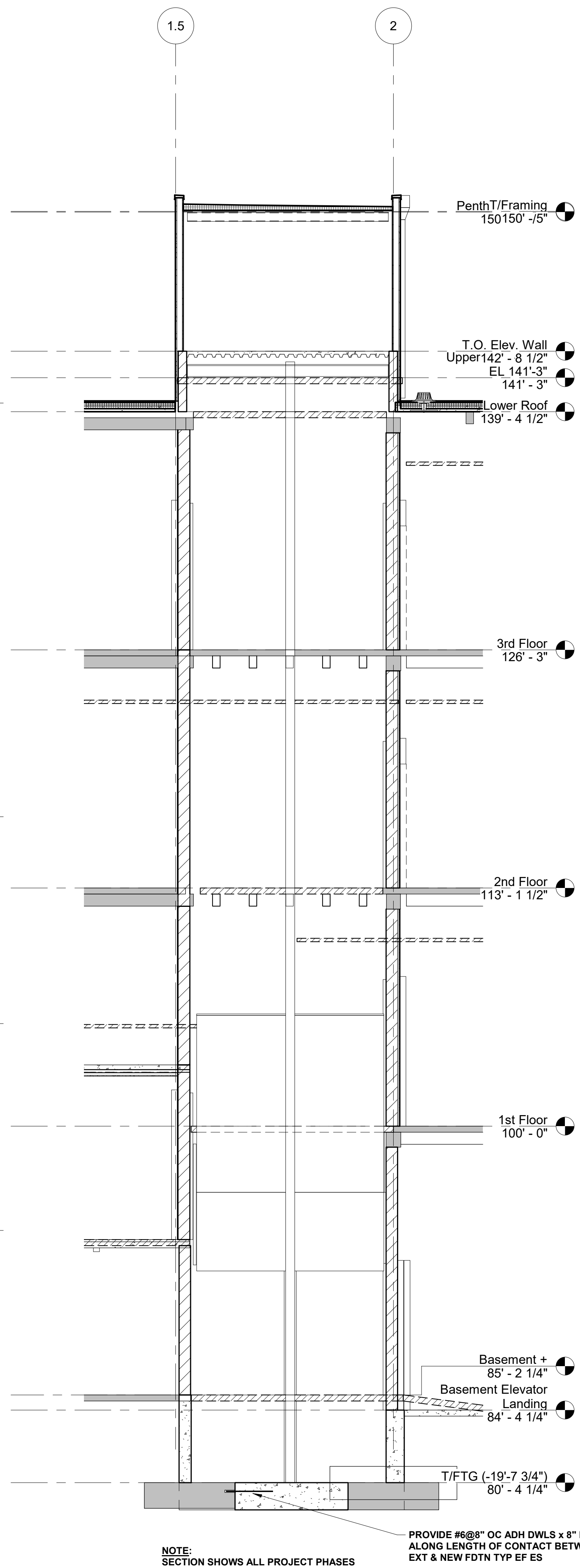
Project No.: 19A052
Drawn By: J. Hand
Checked By: F. Parikh
Scale: See Draw
Issue Date: June 5, 20

REVISION SCHEDULE		
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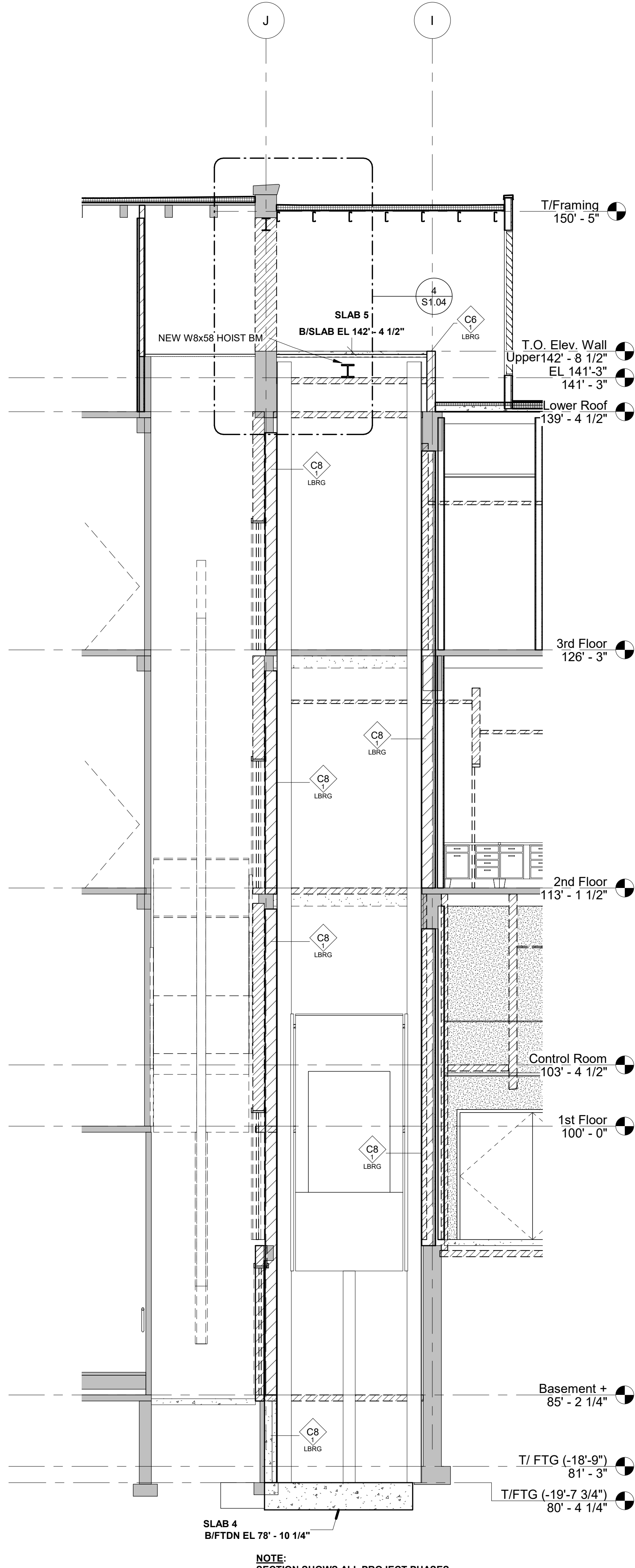
Str. Sections

S3.01

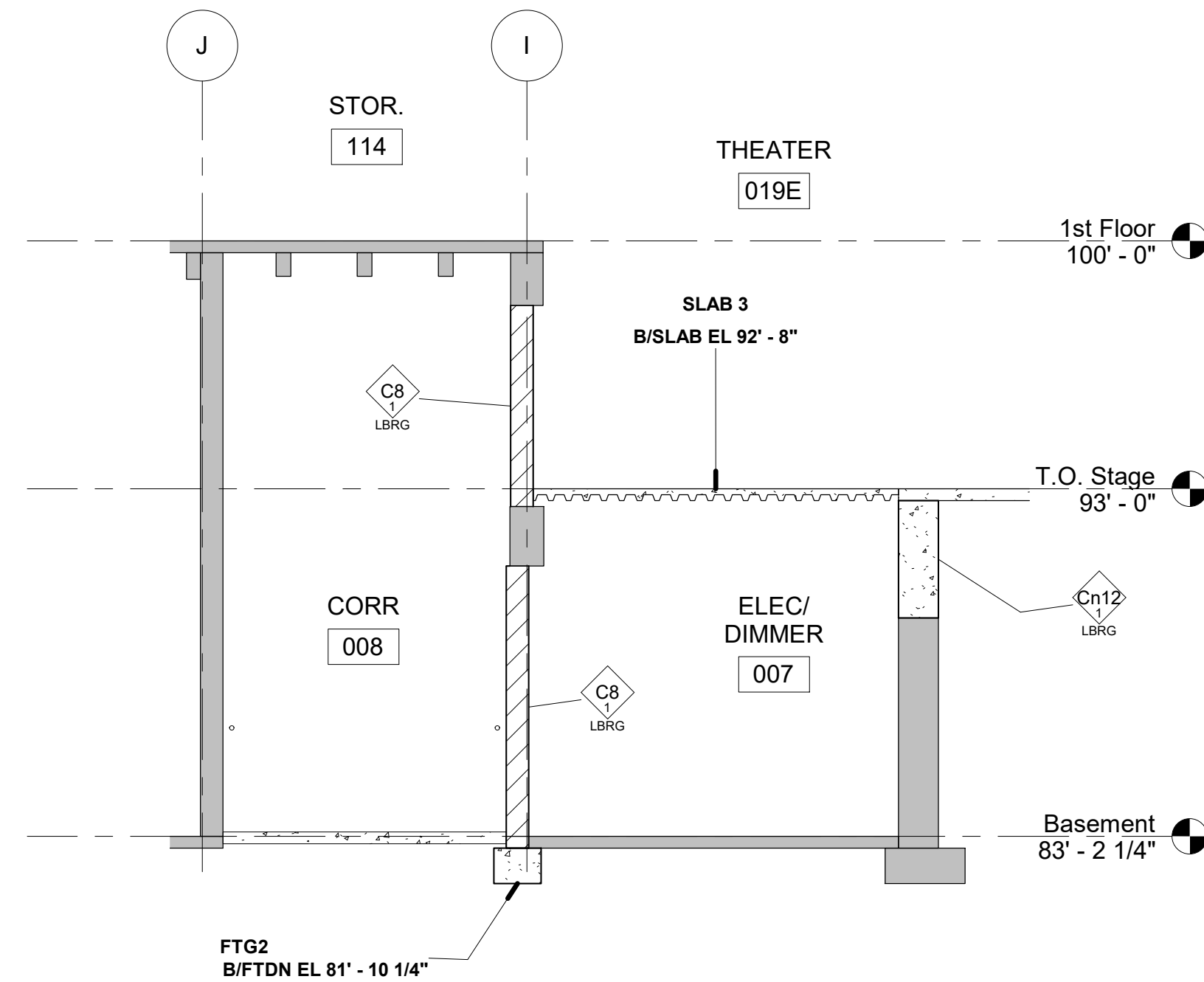
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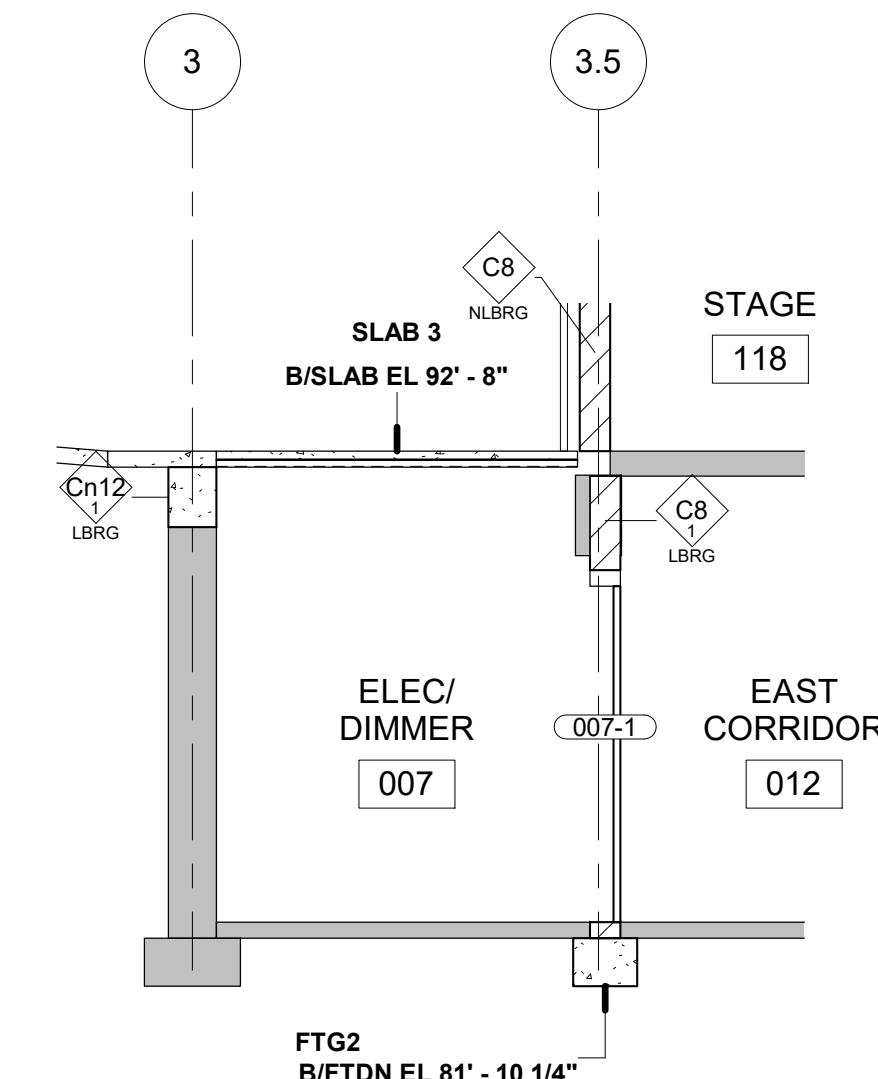
1 Wall Section
Section - Elevator N/S



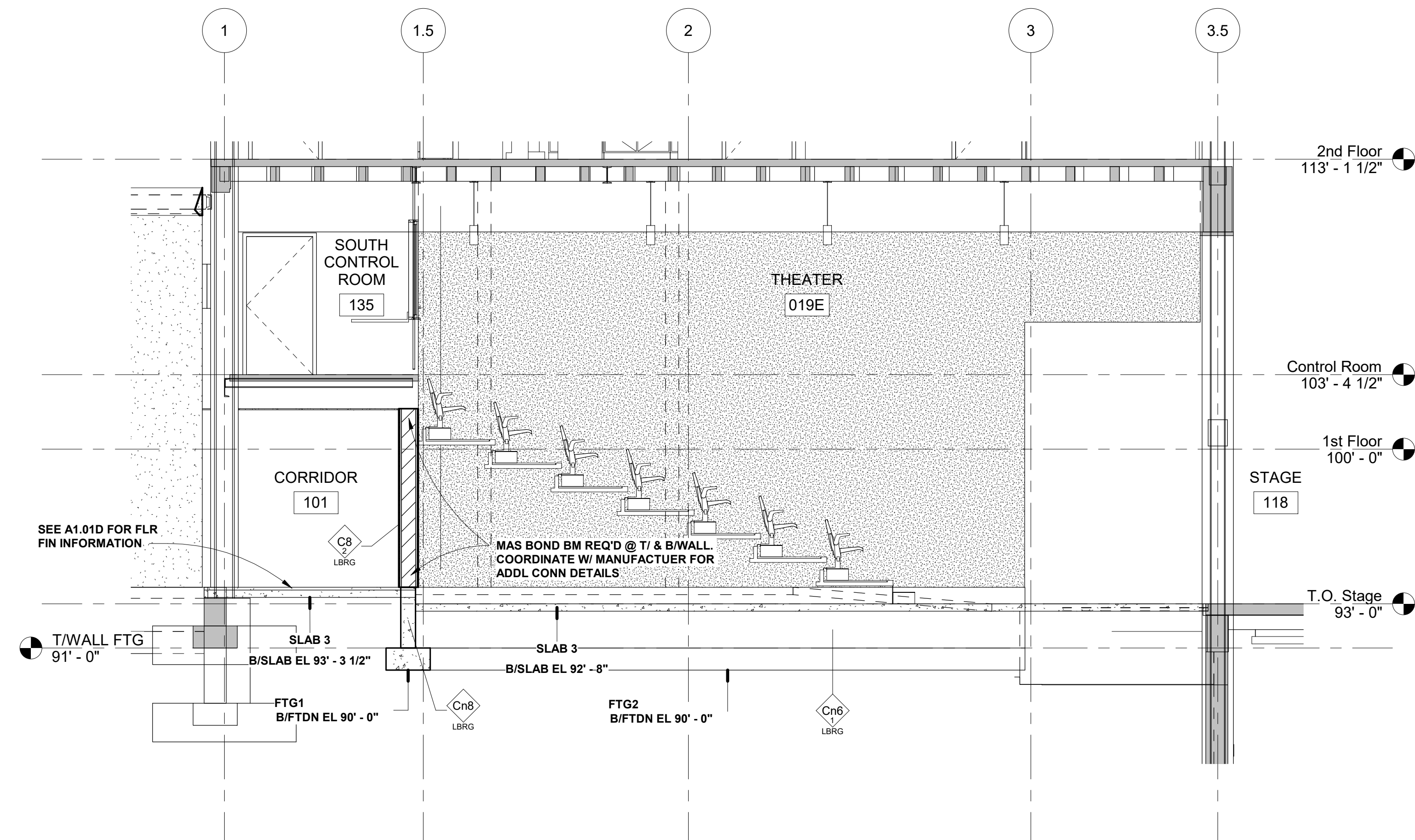
2 Wall Section
Section - Elevator E/W



3 Wall Section
Section N/S - ELEC/DIMMER 007



4 Wall Section
Section E/W - ELEC/DIMMER 007



5 Wall Section
Section - Auditorium

SYMBOL LEGEND		
101	DOOR TAG: SEE SHEET A8-SERIES DRAWINGS	
WALL	WALL TAG: SEE SHEET A0.10 and A0.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.	

GENERAL STRUCTURAL NOTES		
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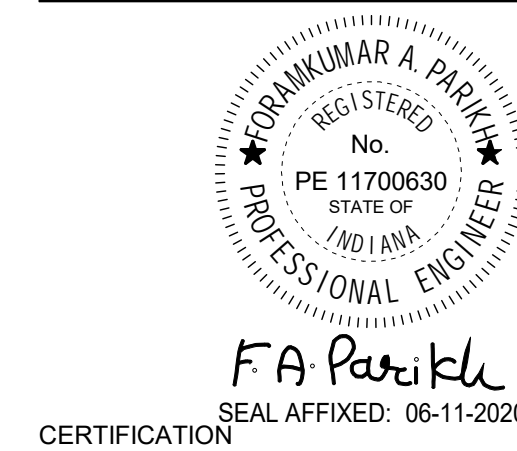
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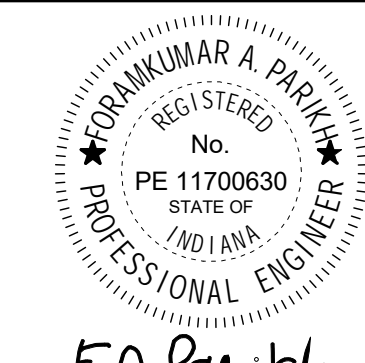
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REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
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Str. Sections

S3.02



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Construction Documents

Indiana State University -
Dreiser Hall Renovation

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SYMBOL LEGEND

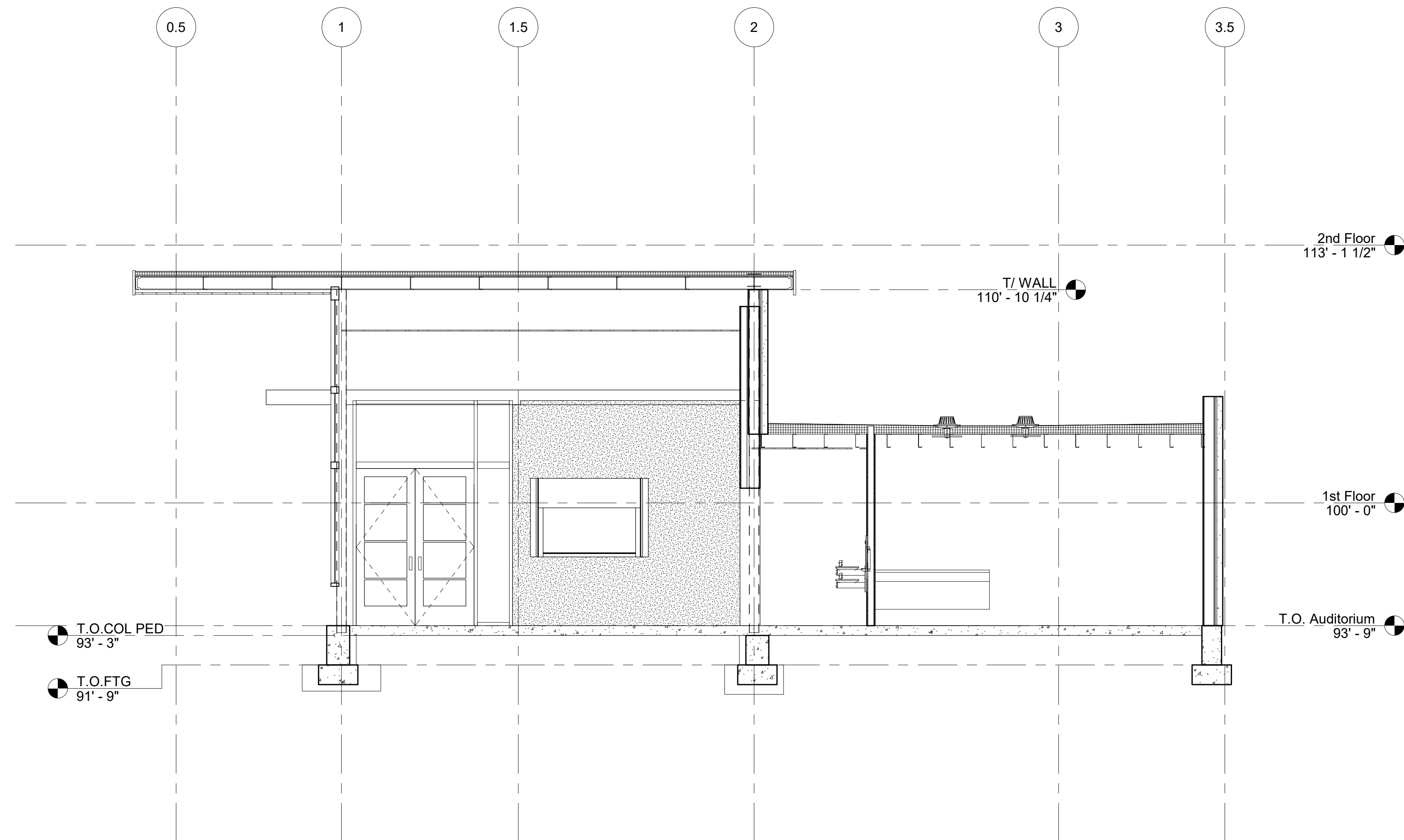
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	WALL TAG: SEE SHEET A6.10 and A6.11 FOR WALL TYPE, FIRE RATING, AND STRUCTURAL USAGE REQUIREMENTS. SEE A4 SERIES DRAWINGS FOR WALL FINISHES.

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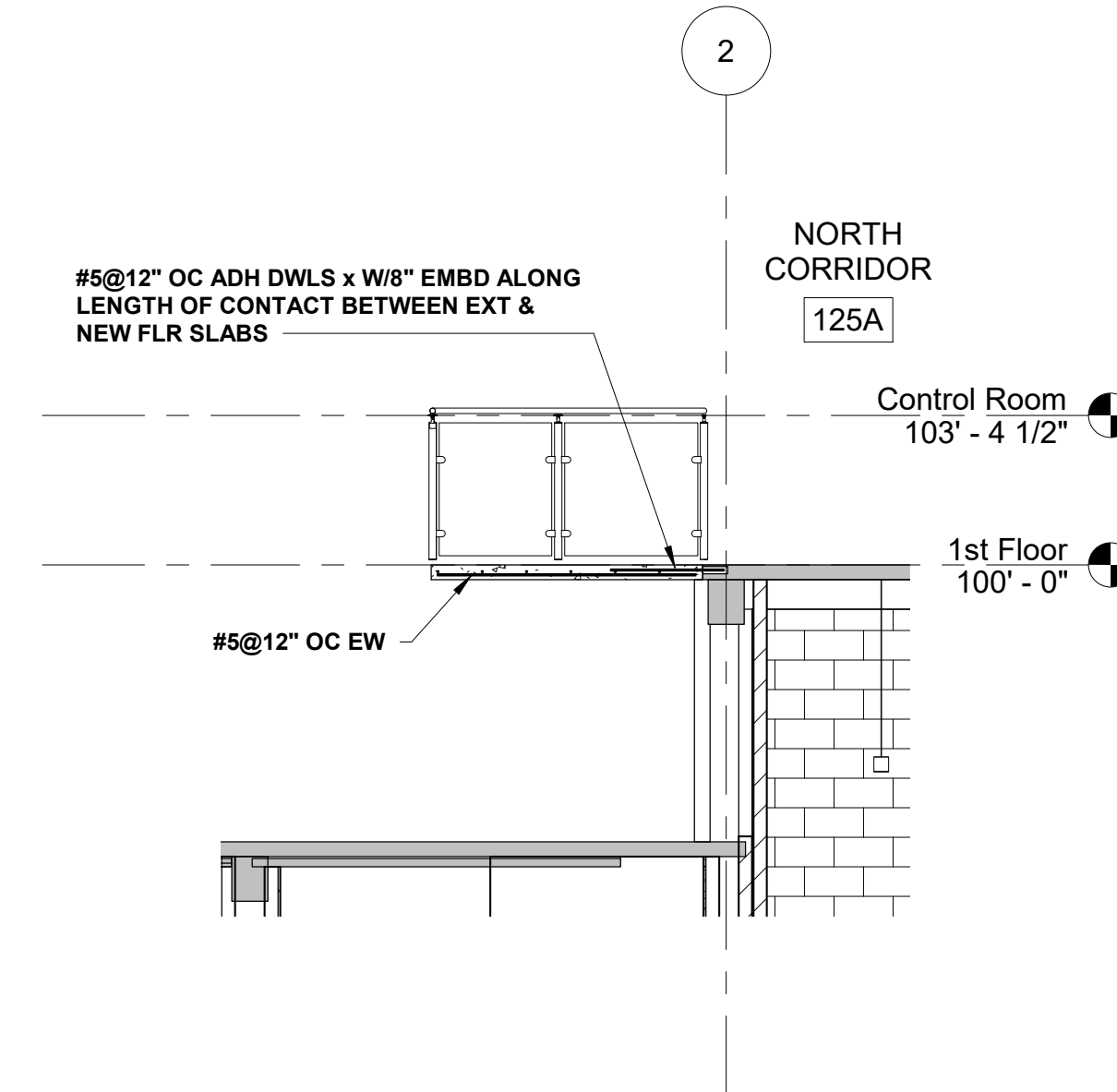
Str. Sections

S3.03



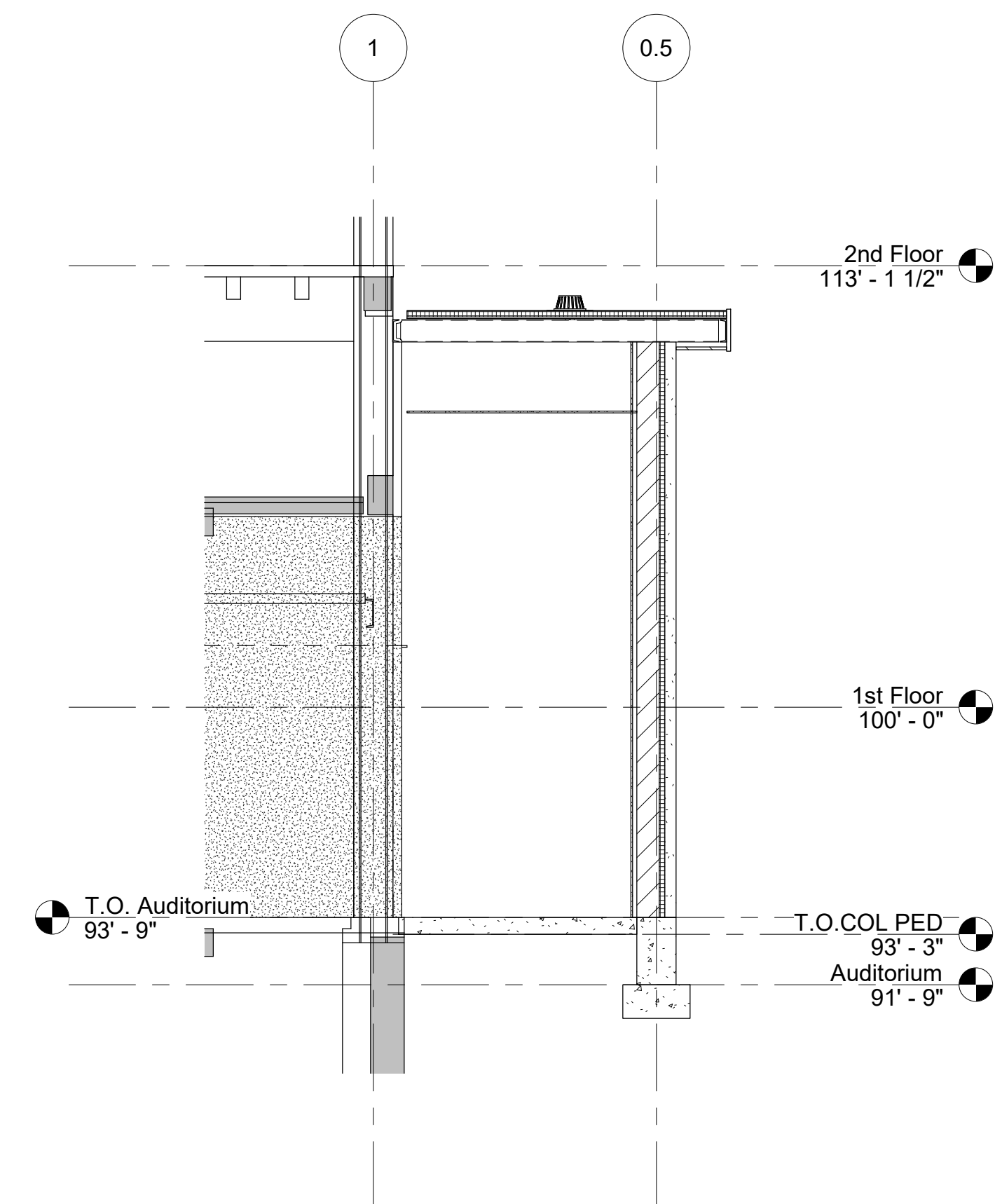
1 Wall Section
Section E/W - Lobby Addition

S3.03 1/4" = 1'-0"



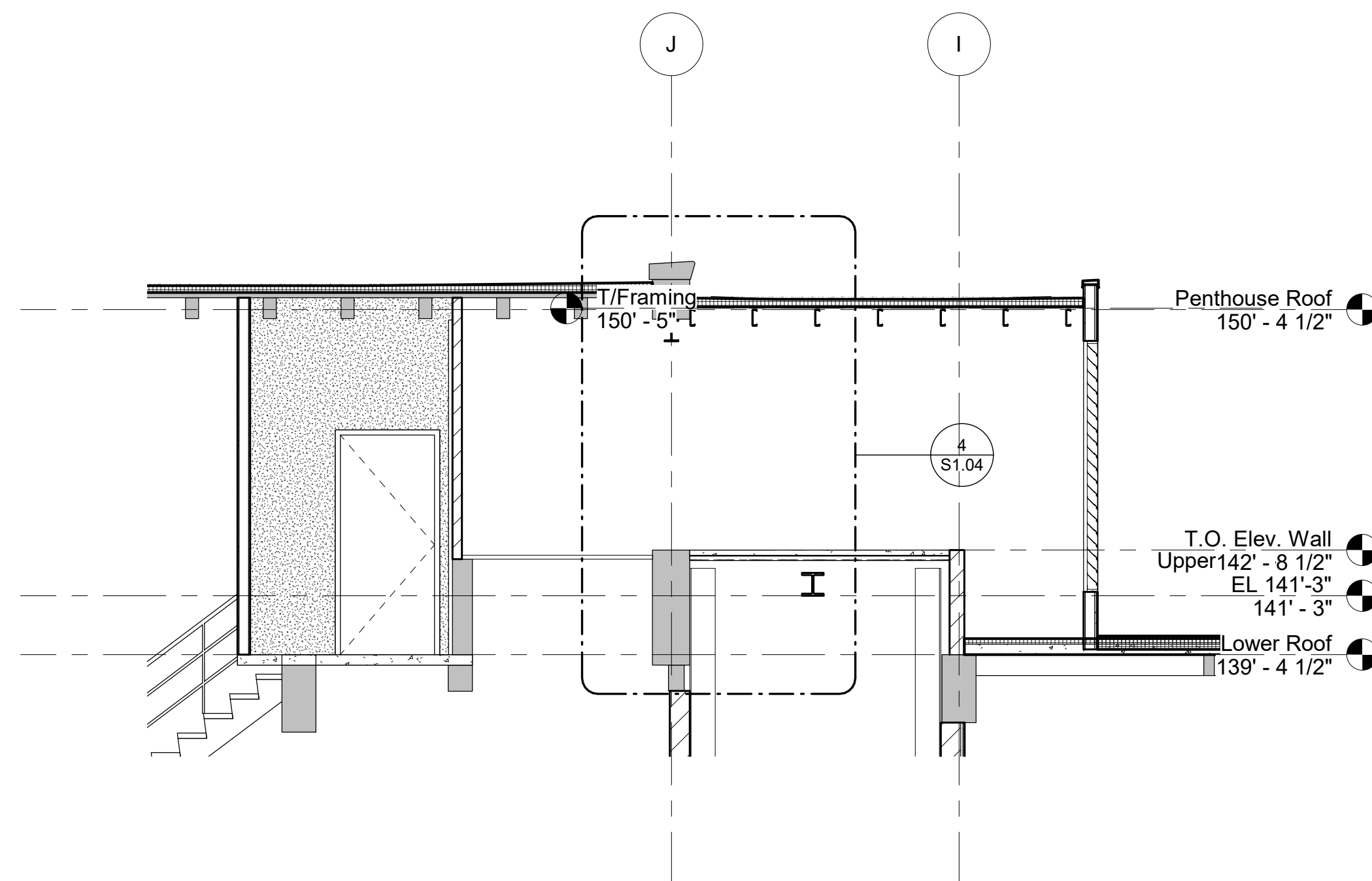
2 Wall Section
Section - Lobby Cantilever Slab

S3.03 1/4" = 1'-0"



3 Wall Section
Section - Lobby (West Bldg Face)

S3.03 1/4" = 1'-0"



4 Wall Section
Section - Penthouse Extension

S3.03 1/4" = 1'-0"



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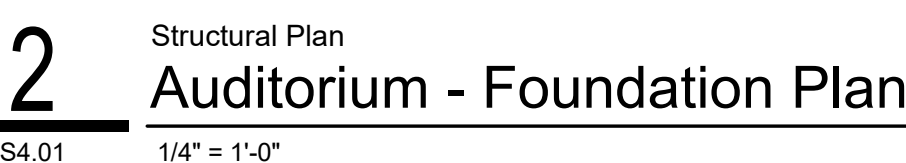
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1 Detail FOUNDATION & SLAB SCHEDULE



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 Issue Date: June 5,

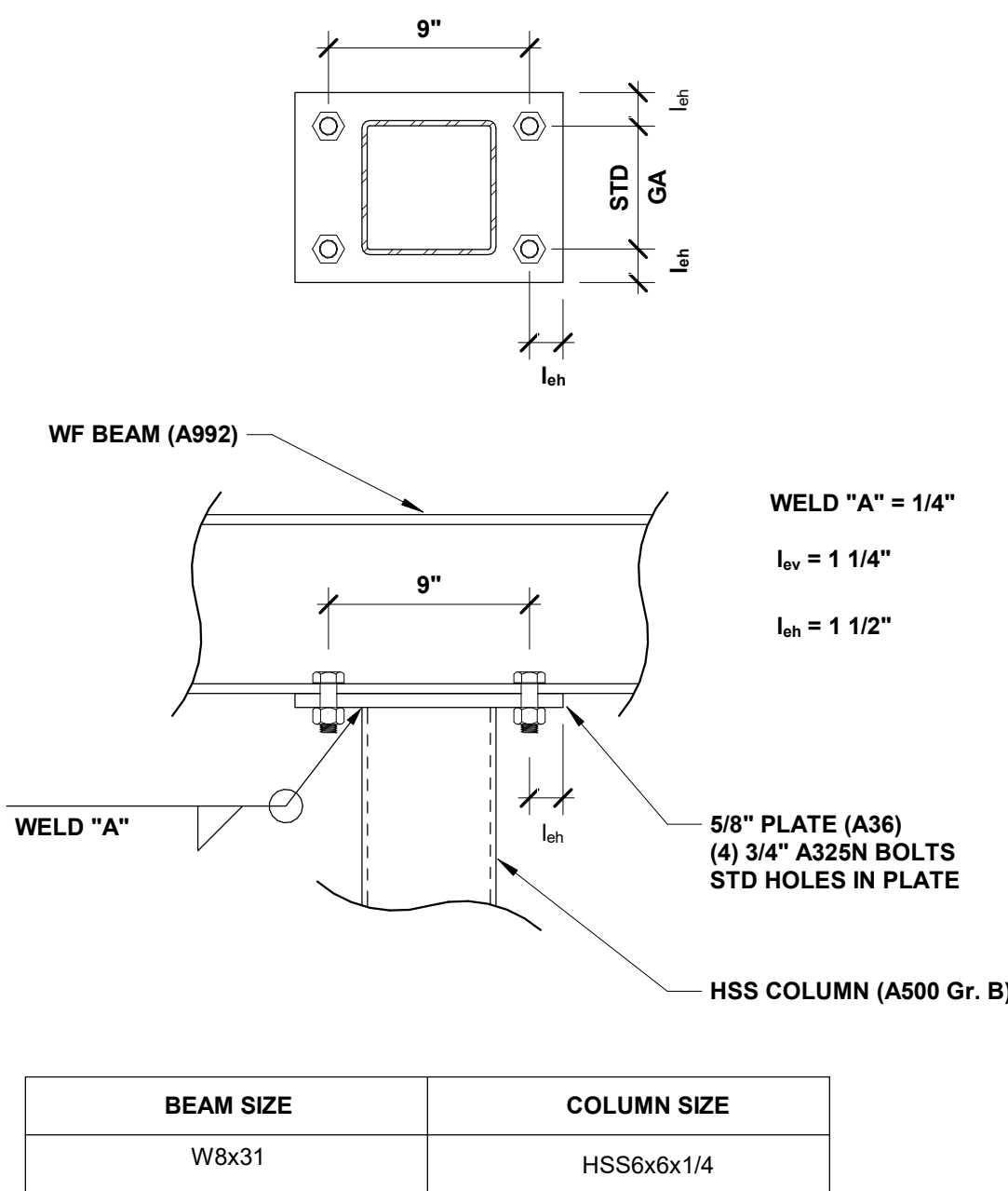
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	Addendum #2	6/19/2020

S4.01

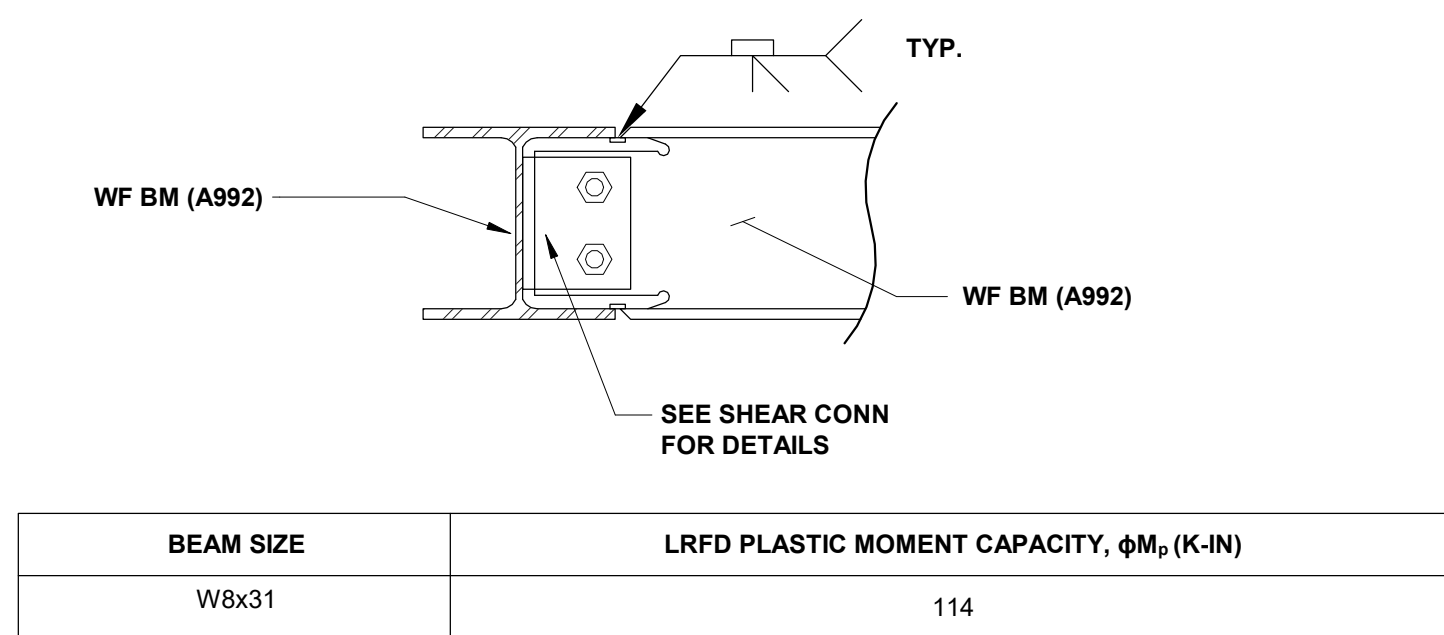
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COLUMN SCHEDULE							
COLUMN LOCATION		1-X		1-Y		1-Z	
Roof +111'-0"							
		HSS 6x6x1/4		HSS 6x6x1/4		HSS 6x6x1/4	
Floor +93'-9"							
Bottom of Column			93'-4 3/4"		93'-4 3/4"		93'-4 3/4"
Pedestal	Size	1'-6" x 1'-6"x1'-6"		1'-6" x 1'-6"x1'-6"		1'-6" x 1'-6"x1'-6"	
	Elevation at Bottom	91'-9"		91'-9"		91'-9"	
	Main Reinforcement	8 - #6		8 - #6		8 - #6	
	Transverse Reinforcement	#4 @ 9" C.C.		#4 @ 9" C.C.		#4 @ 9" C.C.	
Footing	Size	4'-0" x 4'-0" x 1'-0"		4'-0" x 4'-0" x 1'-0"		3'-0" x 3'-0" x 1'-0"	
	Elevation at Bottom	90'-9"		90'-9"		90'-9"	
	Top Reinforcement	5 - #5 Eachway		5 - #5 Eachway		4 - #5 Eachway	
	Bottom Reinforcement	5 - #5 Eachway		5 - #5 Eachway		4 - #5 Eachway	

1
S4.02
Detail
NEW LOBBY AREA - COLUMN SCHED
3/4" = 1'-0"

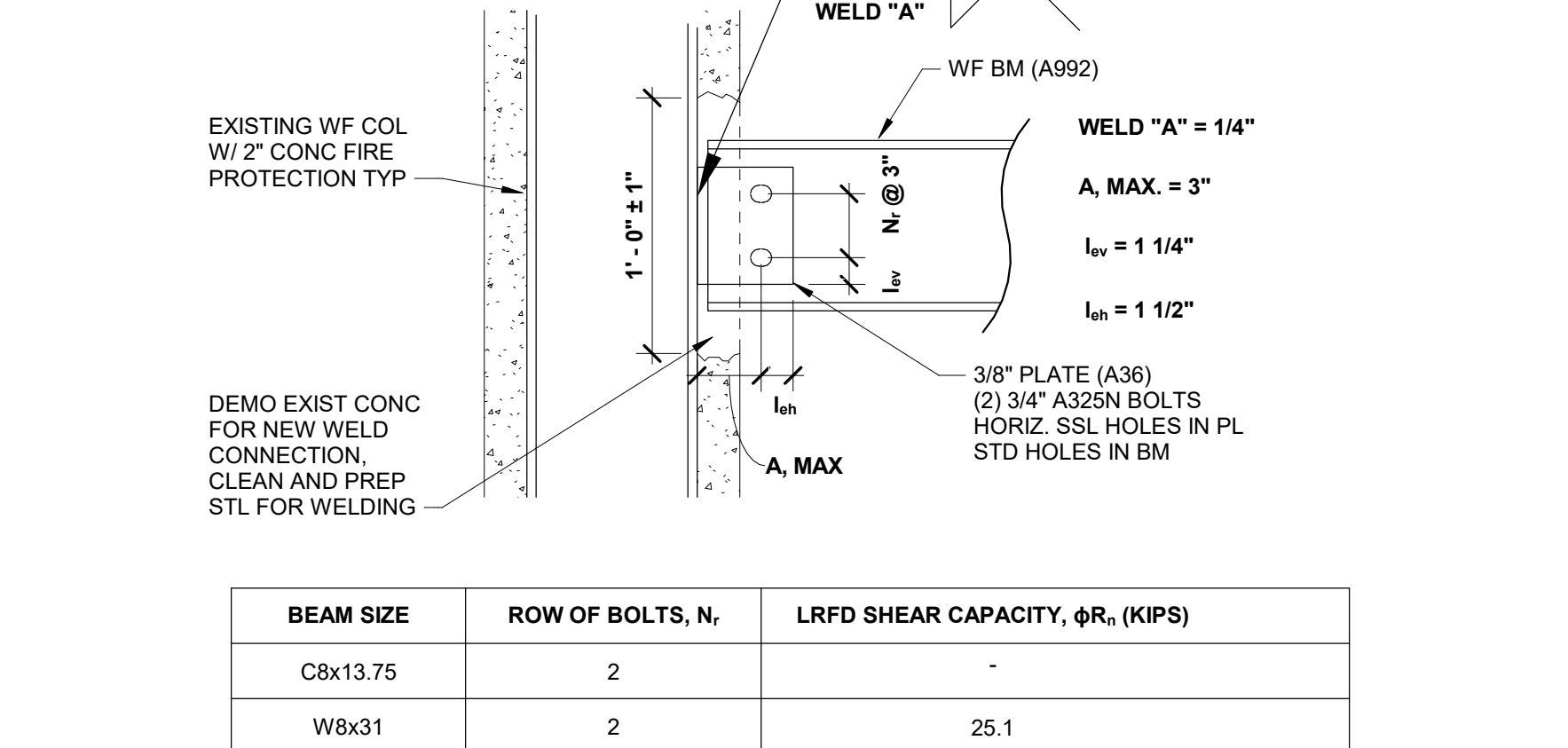


3
S4.02
Detail
COLUMN TO WF GIRDER CONNECTION
1 1/2" = 1'-0"

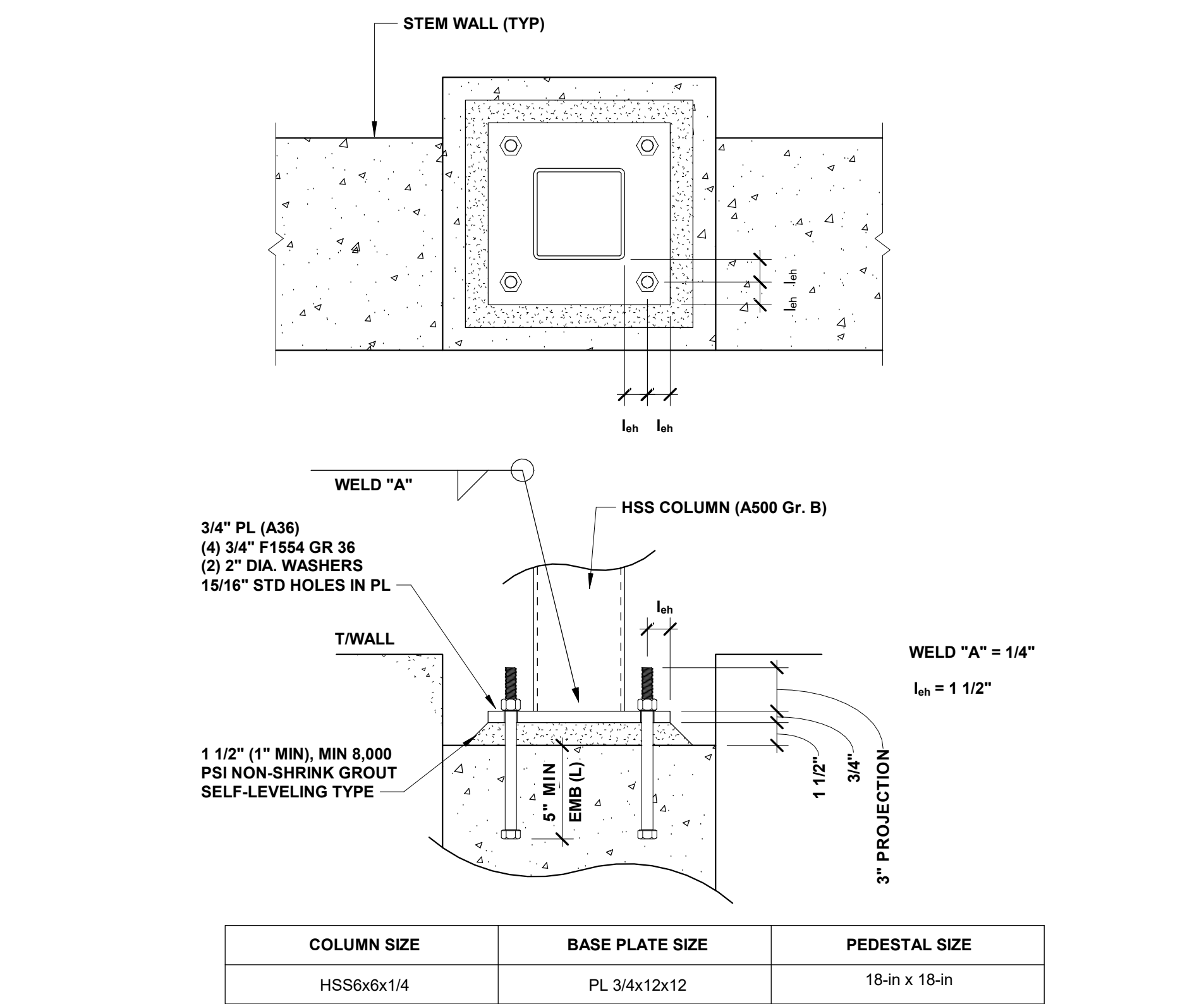


4
S4.02
Detail
WF GIRDER MOMENT CONNECTION
1 1/2" = 1'-0"

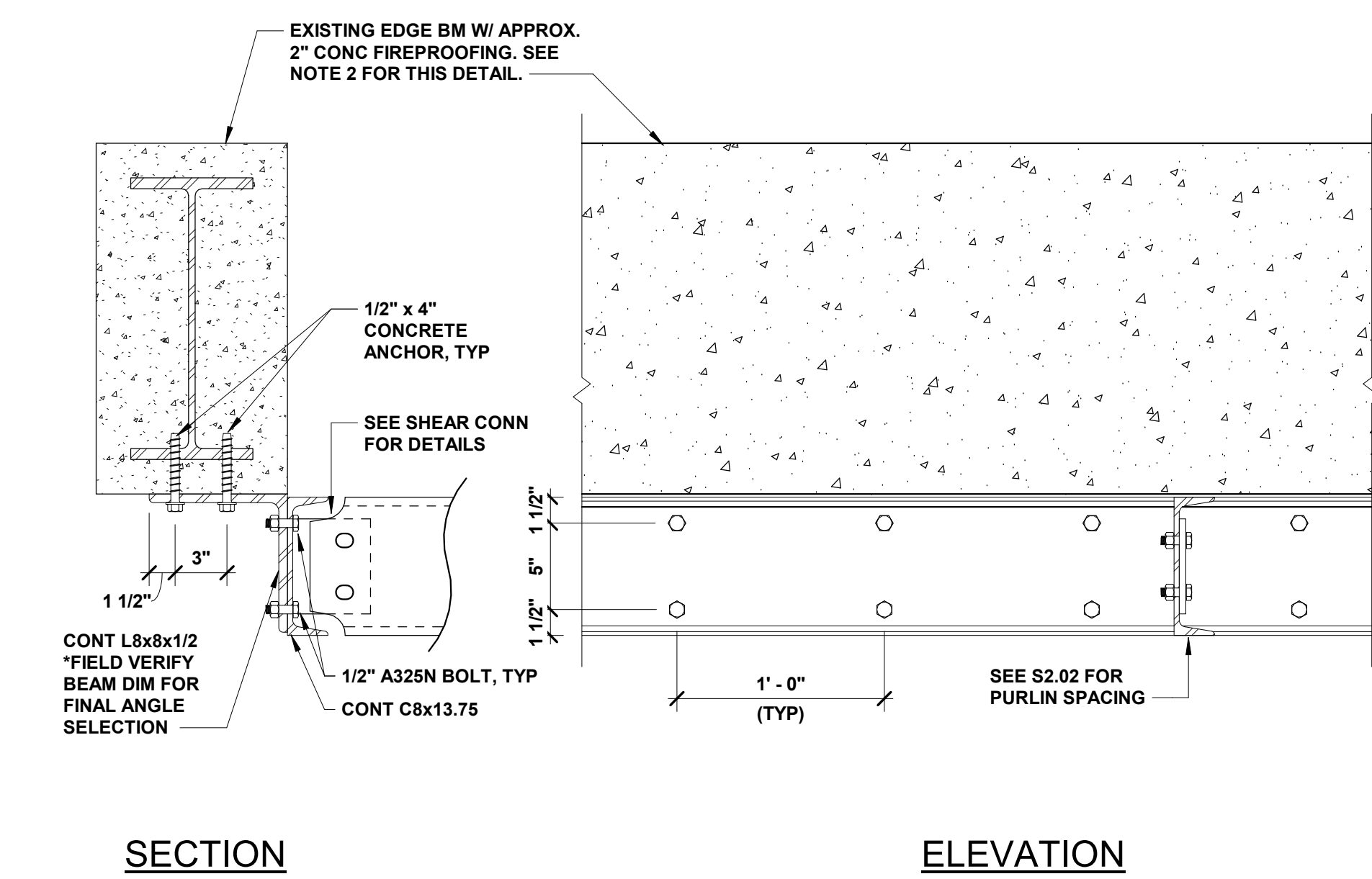
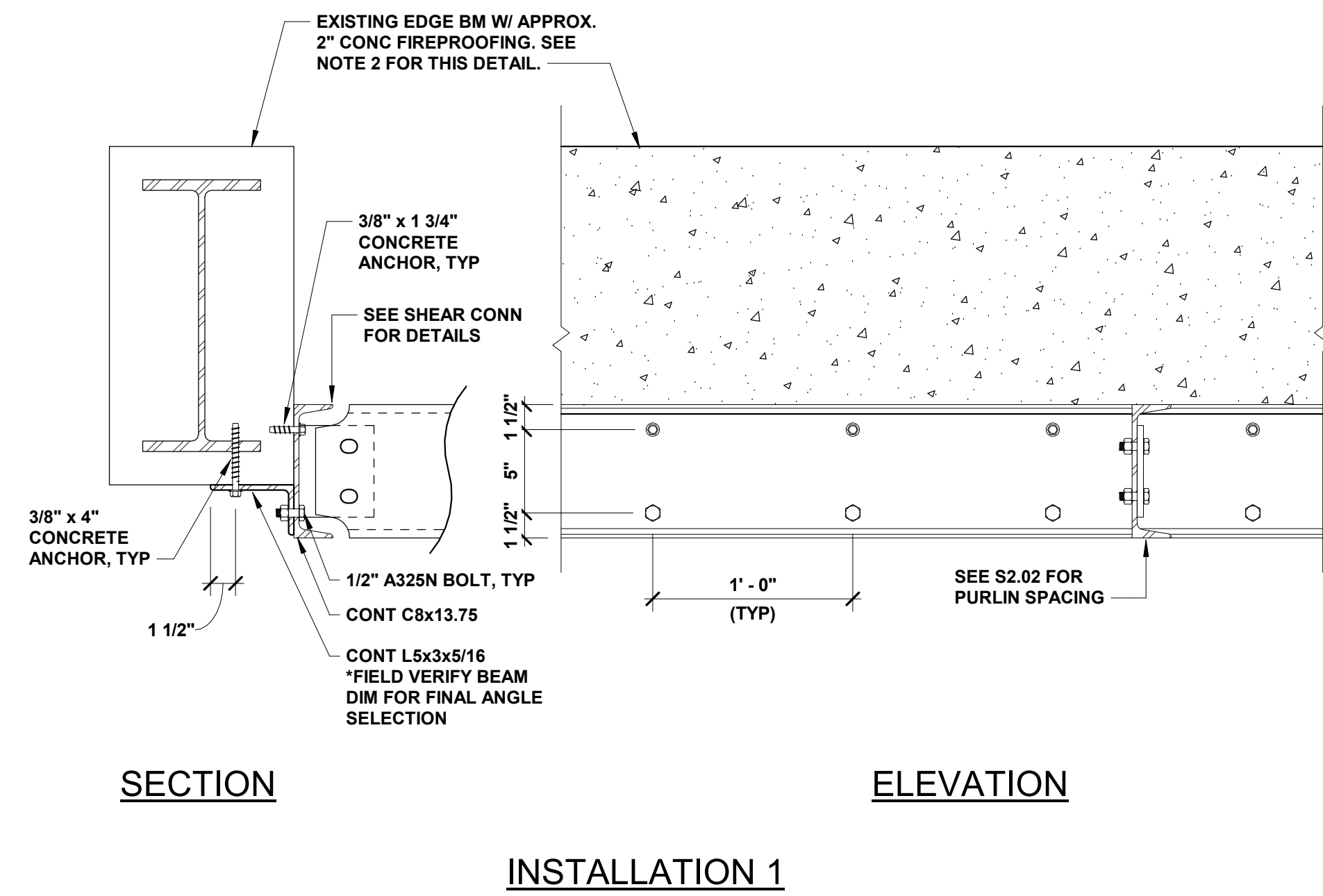
5
S4.02
Detail
TYP SHEAR CONNECTION
1 1/2" = 1'-0"



6
S4.02
Detail
WF GIRDER TO EXISTING COLUMN
1 1/2" = 1'-0"



2
S4.02
Detail
STANDARD BASE PLATE
1 1/2" = 1'-0"



- NOTES:
1. FIELD VERIFY ALL DIMENSIONS EXIST BEAMS.
 2. DEPENDING ON LOCATION ALONG BLDG FACES, EXIST EDGE BEAMS VARY IN SIZE. VERIFY ANGLE SIZE PRIOR TO STEEL SHOP DRAWING SUBMITTAL.
 3. CONTRACTOR IS RESPONSIBLE FOR ALL SHORING AND BRACING TO MINIMIZE STRUCTURAL DAMAGE TO THE EXISTING FRAMING MEMEBERS.

7
S4.02
Detail
PURLIN HEADER TO EXISTING STRUCTURE CONNECTION
1 1/2" = 1'-0"

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REGISTERED
No. PE 11700630
STATE OF INDIANA
F.A. Parikh
SEAL AFFIXED: 06-11-2020
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Terre Haute, Indiana 47809

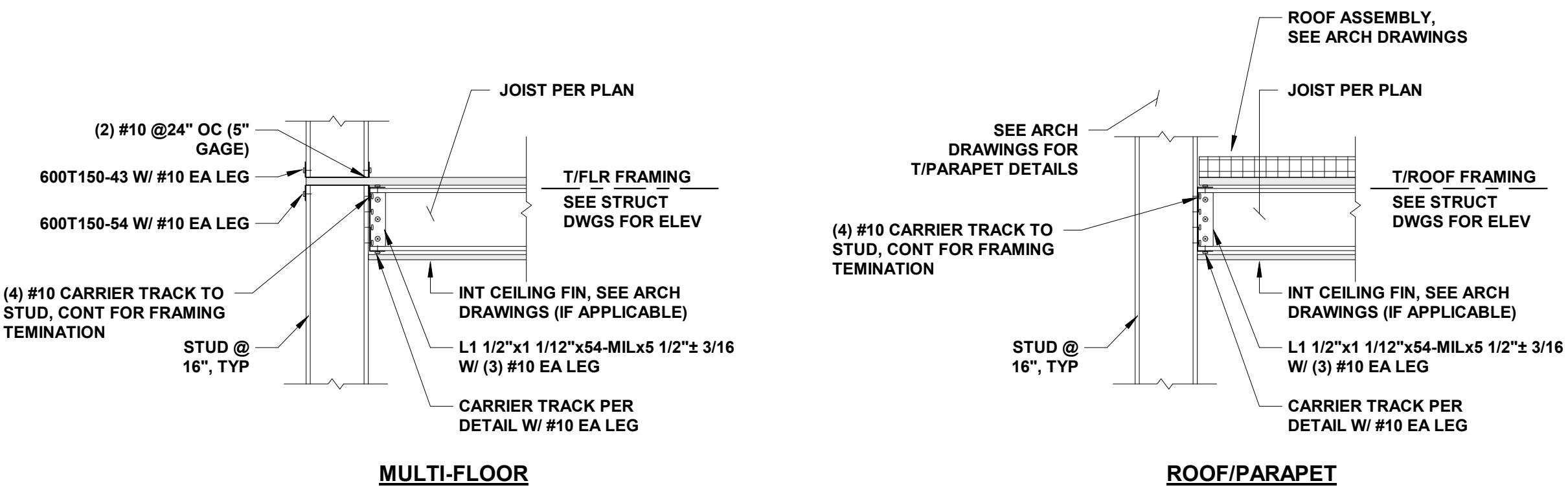
Project No.: 19A052
Drawn By: J. Hand
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REVISION SCHEDULE		
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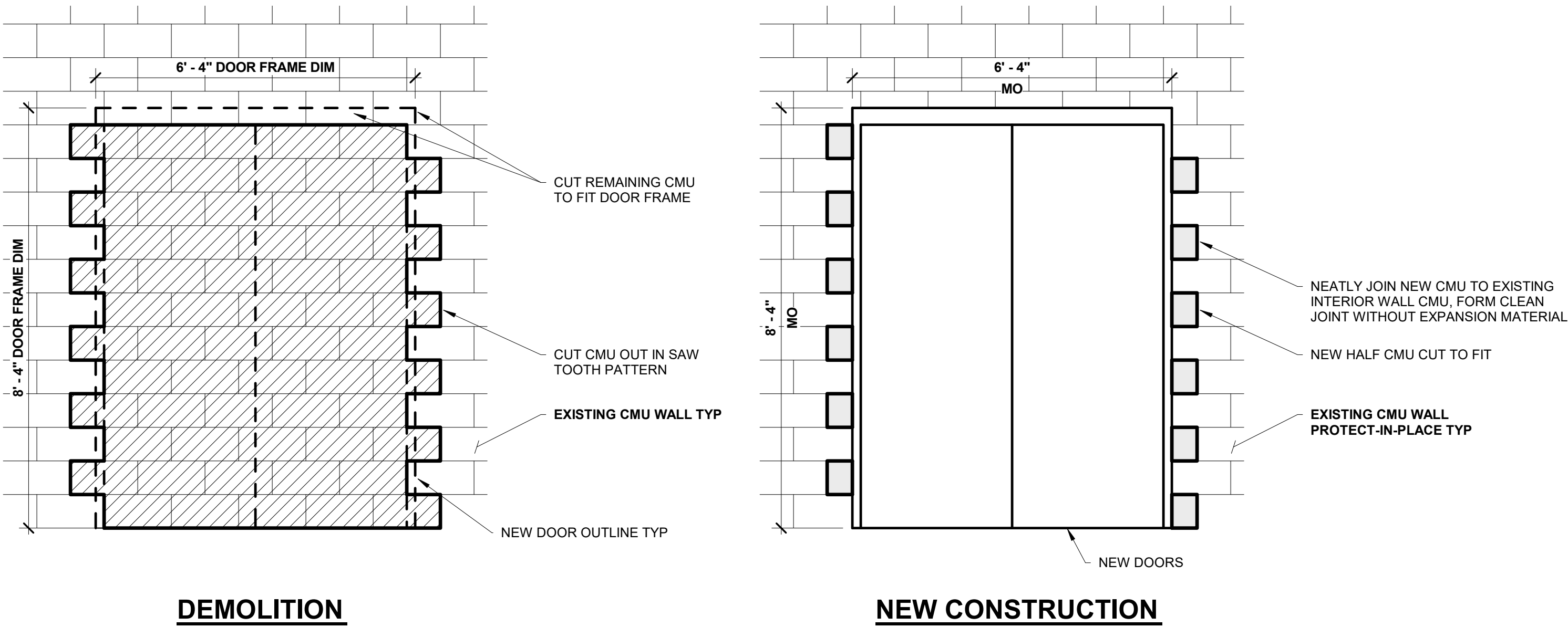
S4.02

WALL SCHEDULE					
MARK	LOCATION	TOP OF WALL (ELEV. RANGE)	SIZE	REINFORCING	REMARKS
			TNK		
Cn14	Grid Line F	93'-9"	14"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	New Lobby Addition
Cn14	Grid Line 0.5	93'-9"	14"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	New Lobby Addition
Cn14	Grid Line C	93'-9"	14"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	New Lobby Addition
Cn14	Grid Line 1	93'-9"	14"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	New Lobby Addition
Cn14	Grid Line X	93'-9"	14"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	New Lobby Addition
Cn14	Grid Line 2	93'-9"	14"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	New Lobby Addition
Cn12	New Bathroom Area	93'-9"	12"	#4 at 12" Vertical & #4 at 12" Horizontal Each Face	New Lobby Addition, Both Walls
Cn12	Where noted		12"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	Auditorium Area
Cn10	Where noted		10"	#4 at 12" Vertical & #4 at 12" Horizontal Each Face	Auditorium Area
Cn8	Grid Line 1.5	93'-9"	8"	#4 at 12" Vertical & #4 at 12" Horizontal Each Face	Auditorium Area
Cn8	Grid Line 3.5	83'-2 1/4"	8"	#4 at 12" Vertical & #4 at 12" Horizontal Each Face	Basement for Room 007 & 013. For new 8" masonry wall support.
Cn8	Grid Line I	83'-2 1/4"	8"	#4 at 12" Vertical & #4 at 12" Horizontal Each Face	Basement for Room 007 & 013. For new 8" masonry wall support.
Cn8	Grid Line E	83'-2 1/4"	8"	#4 at 12" Vertical & #4 at 12" Horizontal Each Face	Basement for Room 007 & 013. For new 8" masonry wall support.
Cn8	New Pits (East)	VARIES SEE SECTIONS	8"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	This is the smaller pits on east side for new addition. Connect with existing wall with epoxy filled drilled holes..
Cn8	New Pit (Elevator Shaft)	84'-2 1/4"	8"	#5 at 12" Vertical & #5 at 12" Horizontal Each Face	From base slab of the new elevator pit to landing level.
Cn8	New Pit (South)	101'-0"	8"	#6 at 12" Vertical & #6 at 9" Horizontal Each Face	Use the similar reinforcement for other east side New pit. Connect with existing wall with epoxy filled drilled holes.
Cn6	Where noted		6"	#4 at 12" Vertical & #4 at 12" Horizontal Each Face	Auditorium Area
C8	Grid Line F	111'-0 1/8"	8"	#5 at 16" Vertical for grouting	New Lobby Addition
C8	Grid Line 0.5	111'-0 1/8"	8"	#5 at 16" Vertical for grouting	New Lobby Addition
C8	Grid Line C	111'-0 1/8"	8"	#5 at 16" Vertical for grouting	New Lobby Addition
C8	Grid Line 1	95'-9"	8"	#5 at 16" Vertical for grouting	New Lobby Addition
C8	Grid Line 1.5	101'-10"	8"	#5 at 16" Vertical for grouting	Auditorium Area
C8	Grid Line 3.5	93'-0"	8"	#5 at 16" Vertical for grouting	Basement for Room 007 & 013. New 8" masonry wall support.
C8	Grid Line I	93'-0"	8"	#5 at 16" Vertical for grouting	Basement for Room 007 & 013. New 8" masonry wall support.
C8	Grid Line E	93'-0"	8"	#5 at 16" Vertical for grouting	Basement for Room 007 & 013. New 8" masonry wall support.
C8	New Elevator Area	142'-4 1/2"	8"	#5 at 16" Vertical for grouting	New Elevator Area



2 Detail
Ledger for Joist Framing
S4.03 1" = 1'-0"

1 Detail
WALL SCHED
S4.03 1" = 1'-0"

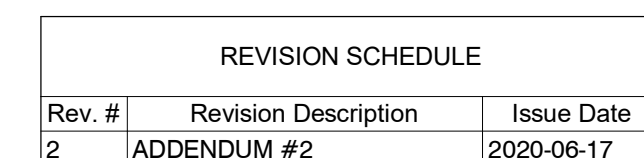


3 Detail
CMU CUT OUT DETAIL
S4.03 1/2" = 1'-0"

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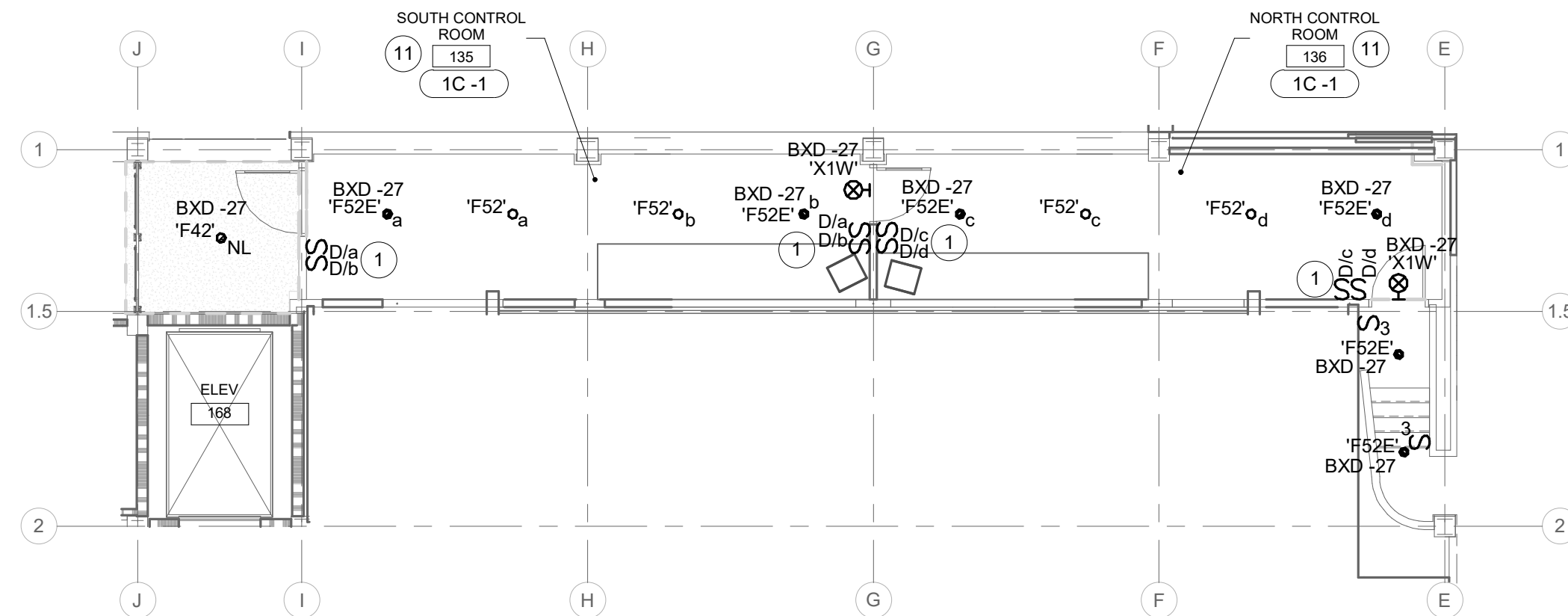
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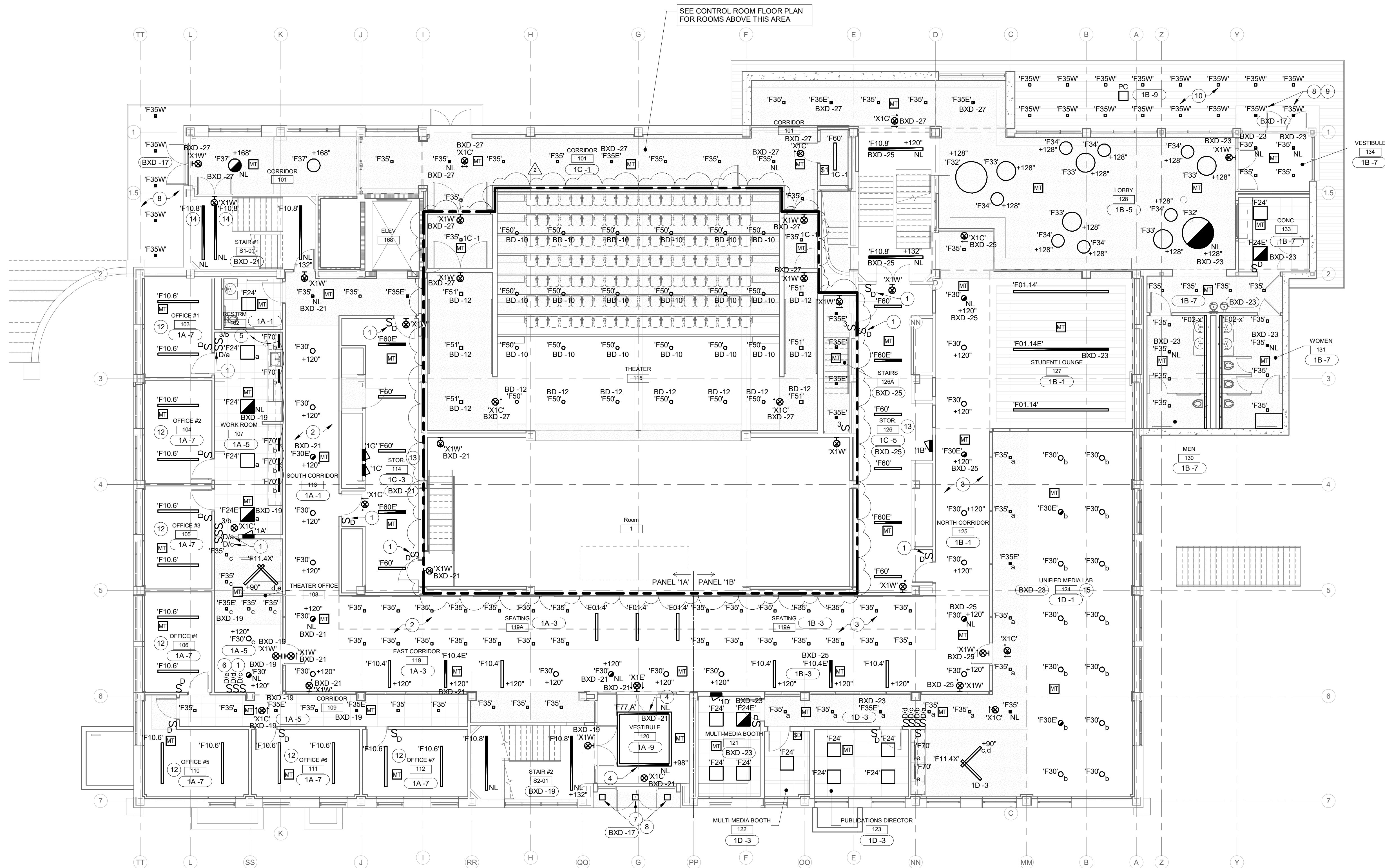
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CONTROL ROOM FLOOR PLAN - LIGHTING
SCALE: 1/8" = 1'-0"
NORTH



FIRST FLOOR PLAN - LIGHTING
SCALE: 1/8" = 1'-0"
NORTH

RENOVATION LEGEND:

- WORK TO BE INSTALLED
- WORK TO REMAIN

GENERAL NOTES:

- SEE E0.1 FOR GENERAL NOTES.

PLAN NOTES:

- PROVIDE MULTI-LOCATION DIMMERS.
- INTERLOCK OCCUPANCY SENSORS TOGETHER TO CONTROL LIGHTS IN CORRIDOR AND SEATING ON CIRCUIT 1A-1 AND 1A-3.
- INTERLOCK OCCUPANCY SENSORS TOGETHER TO CONTROL LIGHTS IN CORRIDOR AND SEATING ON CIRCUIT 1B-1 AND 1B-3.
- CONNECT PORTION OF LIGHT FIXTURE TO EMERGENCY CIRCUIT. PROVIDE ALCR TRANSFER DEVICE.
- UNDERCOUNTER LIGHTING TO BE CONTROLLED BY OVERHEAD LIGHTING CONTROL OCCUPANCY SENSOR.
- DIMMER d CONTROLS DOWNLIGHT AND DIMMER e CONTROLS UPLIGHT.
- (3) - EXISTING RECESSED CANOPY LIGHTS - REFINISH DOOR AND FRAME AND REPLACE LAMP WITH LED 'A' LAMP. REWIRE TO EMERGENCY CIRCUIT AND CONTROL WITH PHOTOCELL.
- EXTERIOR LIGHT FIXTURES TO BE CONTROLLED THROUGH PHOTOCELL. COORDINATE EXACT LOCATION OF PHOTOCELL WITH ENGINEER PRIOR TO ROUGH-IN.
- MOUNT LIGHT FIXTURES AS INDICATED IN LOWER CANOPY.
- PROVIDE 120V NORMAL CIRCUIT TO (14) 'F35W' DOWNLIGHTS IN UPPER CANOPY. WIRE THROUGH PHOTOCELL. COORDINATE EXACT LOCATION OF PHOTOCELL WITH ENGINEER PRIOR TO ROUGH-IN.
- LIGHTING TO BE MOUNTED AT 8'-2" TO BOTTOM OF FIXTURES IN THIS AREA.
- LIGHTING TO BE MOUNTED AT 10'-6" TO BOTTOM OF FIXTURES IN THIS AREA.
- LIGHTING TO BE MOUNTED AT 8'-0" TO BOTTOM OF FIXTURES IN THIS AREA.
- MOUNT ONE LIGHT AT 11'-0" ABOVE SW ENTRY LEVEL LANDING AND ONE LIGHT AT 11'-0" ABOVE INTERMEDIATE LANDING BETWEEN FLOORS 1 AND 2.
- PENDANT FIXTURES IN THIS AREA TO BE MOUNTED AT 10'-0" AFF UNLESS OTHERWISE NOTED.



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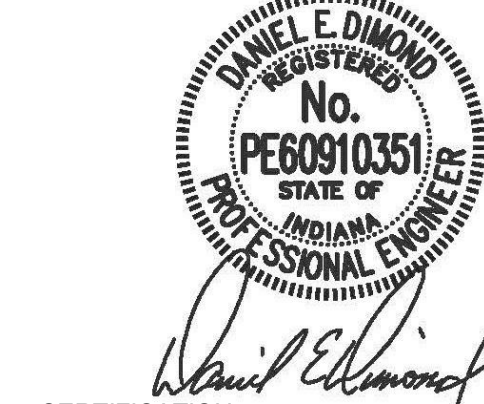
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CERTIFICATION 06/09/2020

100% CONSTRUCTION
DOCUMENTS

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Dreiser Hall Renovation

221 North 6th Street
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Project No.: 19A052
Drawn By: JPS
Checked By: TEH
Scale: See Drawing
Issue Date: 06/05/2020

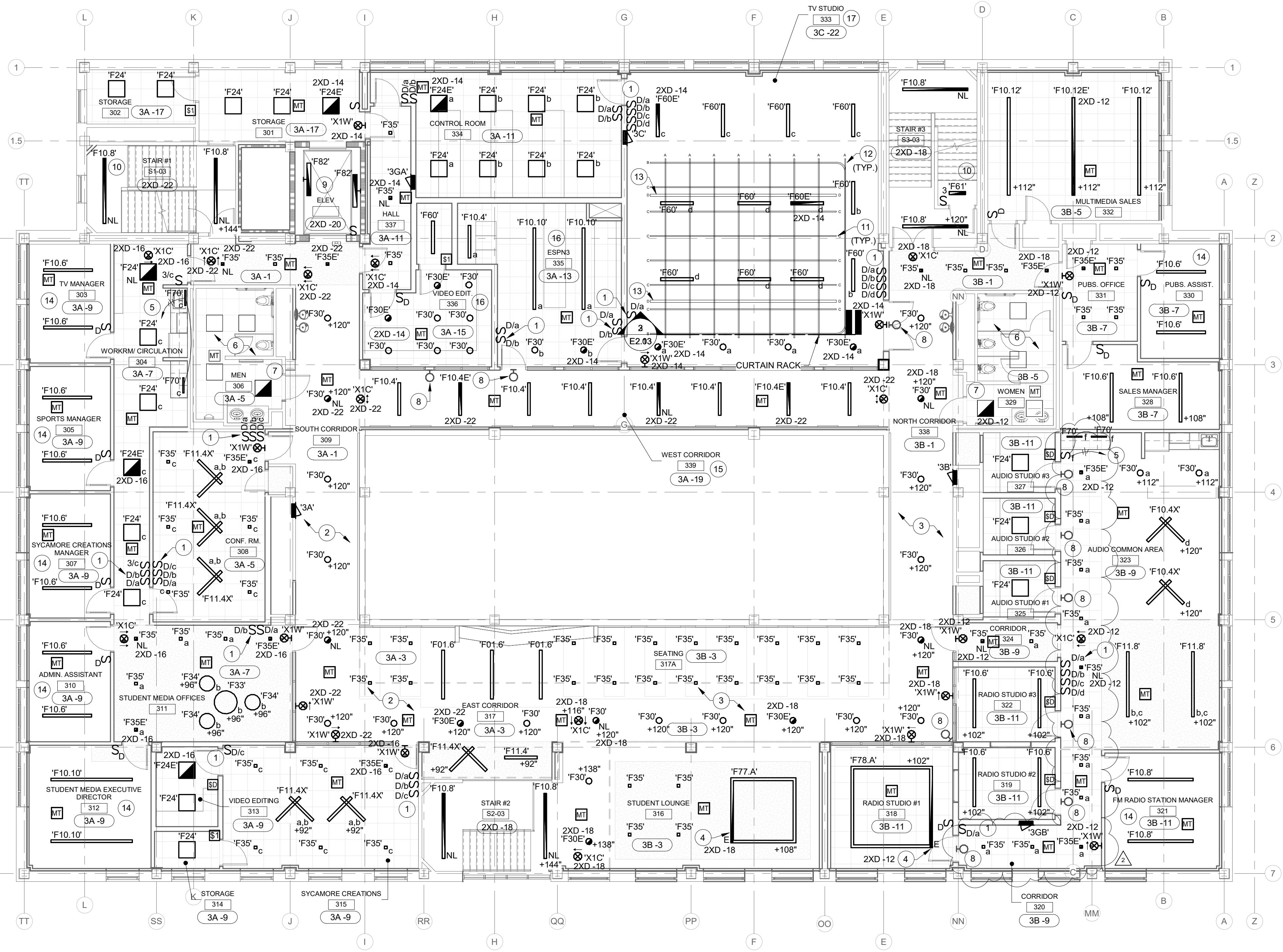
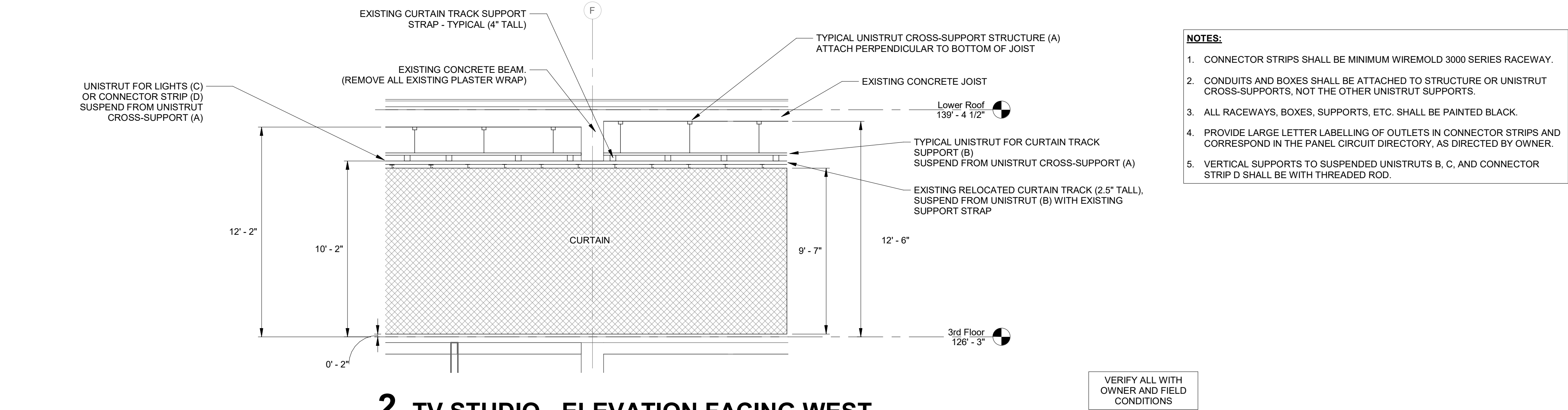
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
2	ADDENDUM #2	2020-06-17

FIRST FLOOR PLAN -
LIGHTING

E2.01

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THIRD FLOOR PLAN - LIGHTING
SCALE: 1/8" = 1'-0"

RENOVATION LEGEND:

- WORK TO BE INSTALLED
- WORK TO REMAIN

GENERAL NOTES:

- SEE E01 FOR GENERAL NOTES.

PLAN NOTES:

- PROVIDE MULTI-LOCATION DIMMERS.
- INTERLOCK OCCUPANCY SENSORS TOGETHER TO CONTROL LIGHTS IN CORRIDOR AND SEATING ON CIRCUIT 3A-1 AND 3A-3.
- INTERLOCK OCCUPANCY SENSORS TOGETHER TO CONTROL LIGHTS IN CORRIDOR AND SEATING ON CIRCUIT 3B-1 AND 3B-3.
- CONNECTION PORTION OF LIGHT FIXTURE TO EMERGENCY CIRCUIT. PROVIDE AUTOMATIC LOAD CONTROL RELAY TRANSFER DEVICE.
- CONNECT UNDERCOUNTER LIGHTS TO ALSO BE CONTROLLED BY OVERHEAD LIGHTING CONTROL OCCUPANCY SENSOR.
- EXISTING LIGHT FIXTURES AND OCCUPANCY SENSOR TO REMAIN. PROVIDE WIRING AND CONDUIT AS REQUIRED TO RE-CONNECT FIXTURES TO CIRCUIT INDICATED.
- CONNECT ONE EXISTING LIGHT FIXTURE TO EMERGENCY CIRCUIT. PROVIDE UL524 AUTOMATIC LOAD CONTROL RELAY (ALCR).
- PROVIDE ROUGH-IN FOR LOW-VOLTAGE LED "ON AIR" LIGHT. LIGHTS FURNISHED BY OWNER AND INSTALLED BY CONTRACTOR. PROVIDE CONDUIT AND LOW VOLTAGE WIRING TO CONTROLS WITHIN ROOM. COORDINATE LOCATIONS AND WIRING WITH OWNER. CABLE BELIEVED TO BE 2 CONDUCTOR, 18 GAUGE. VERIFY.
- PROVIDE AT LEAST TWO TYPE F82 FIXTURES AT TOP OF ELEVATOR SHAFT. COORDINATE EXACT LOCATION WITH EQUIPMENT. PROVIDE ADDITIONAL FIXTURES AS REQUIRED TO MAINTAIN 20 FOOT CANDLES MINIMUM ON TOP OF CAB AT HIGHEST LEVEL. PROVIDE LIGHT SWITCH FOR CONTROL OF LIGHTS. COORDINATE WITH ELEVATOR INSTALLER.
- SEE E220 FOR NEW LIGHTING IN SOUTHWEST AND NORTHWEST UPPER STAIRS.
- PROVIDE 1-5/8" UNISTRUT CROSS SUPPORT FOR LIGHTING. (TYPICAL - C)
- PROVIDE 1-5/8" UNISTRUT CROSS SUPPORT STRUCTURE INSTALLED ACROSS THE BOTTOM OF THE EXISTING CONCRETE JOISTS FOR SUPPORT STRUCTURE. (TYPICAL - A)
- PROVIDE CONNECTOR STRIP WITH TEN (10) TWIST-LOCK RECEPTACLES (NEMA L5-20R) FOR OWNER PROVIDED LIGHT FIXTURES. COORDINATE EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN. SEE E2.13 FOR CIRCUITS. VERIFY RECEPTACLE TYPE WITH OWNER. (TYPICAL - D)
- LIGHTING IN THIS AREA TO BE MOUNTED AT 10'-6" AFF.
- LIGHTING IN THIS AREA TO BE MOUNTED AT 8'-4" AFF.
- LIGHTING IN THIS AREA TO BE MOUNTED AT 8'-0" AFF.
- LIGHTING AROUND PERIMETER OF CURTAIN TO BE MOUNTED AT 10'-6" AFF IN THIS SPACE.



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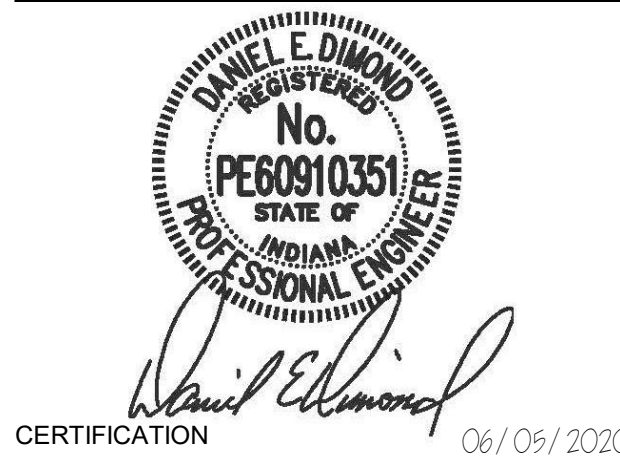
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Scale: See Drawing
Issue Date: 06/05/2020

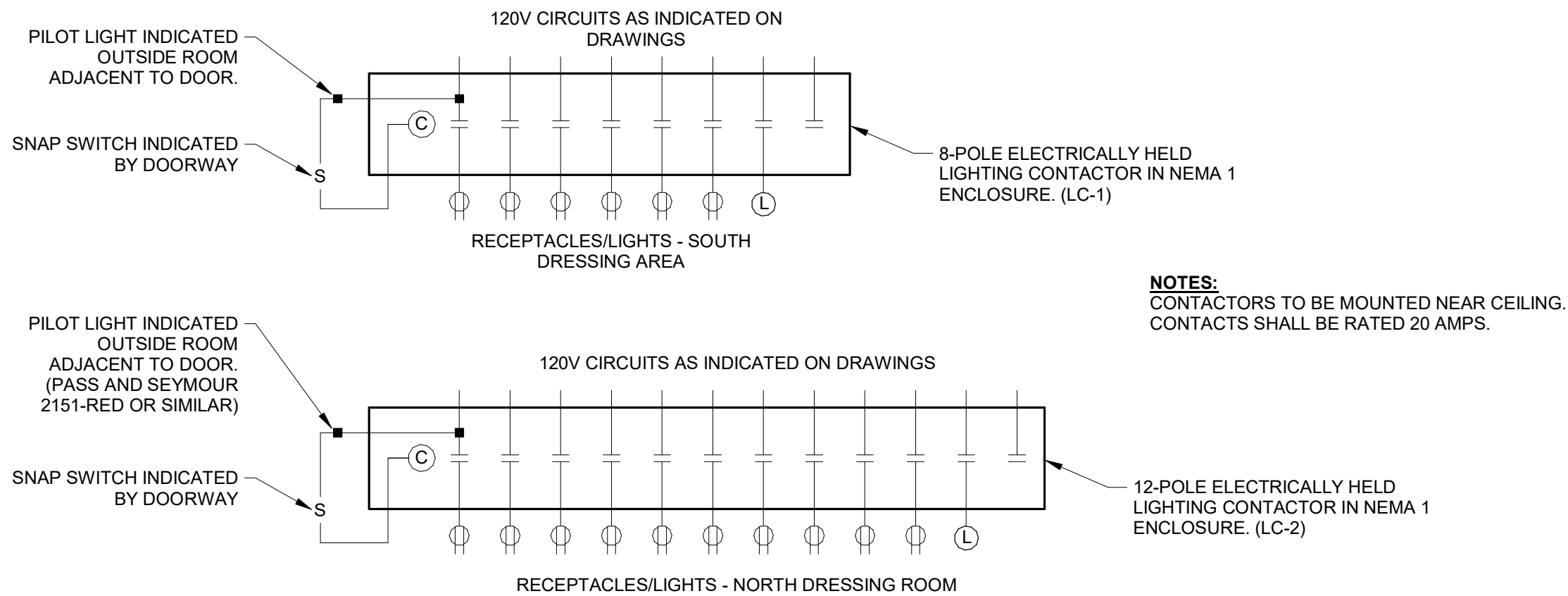
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THIRD FLOOR PLAN -
LIGHTING

E2.03

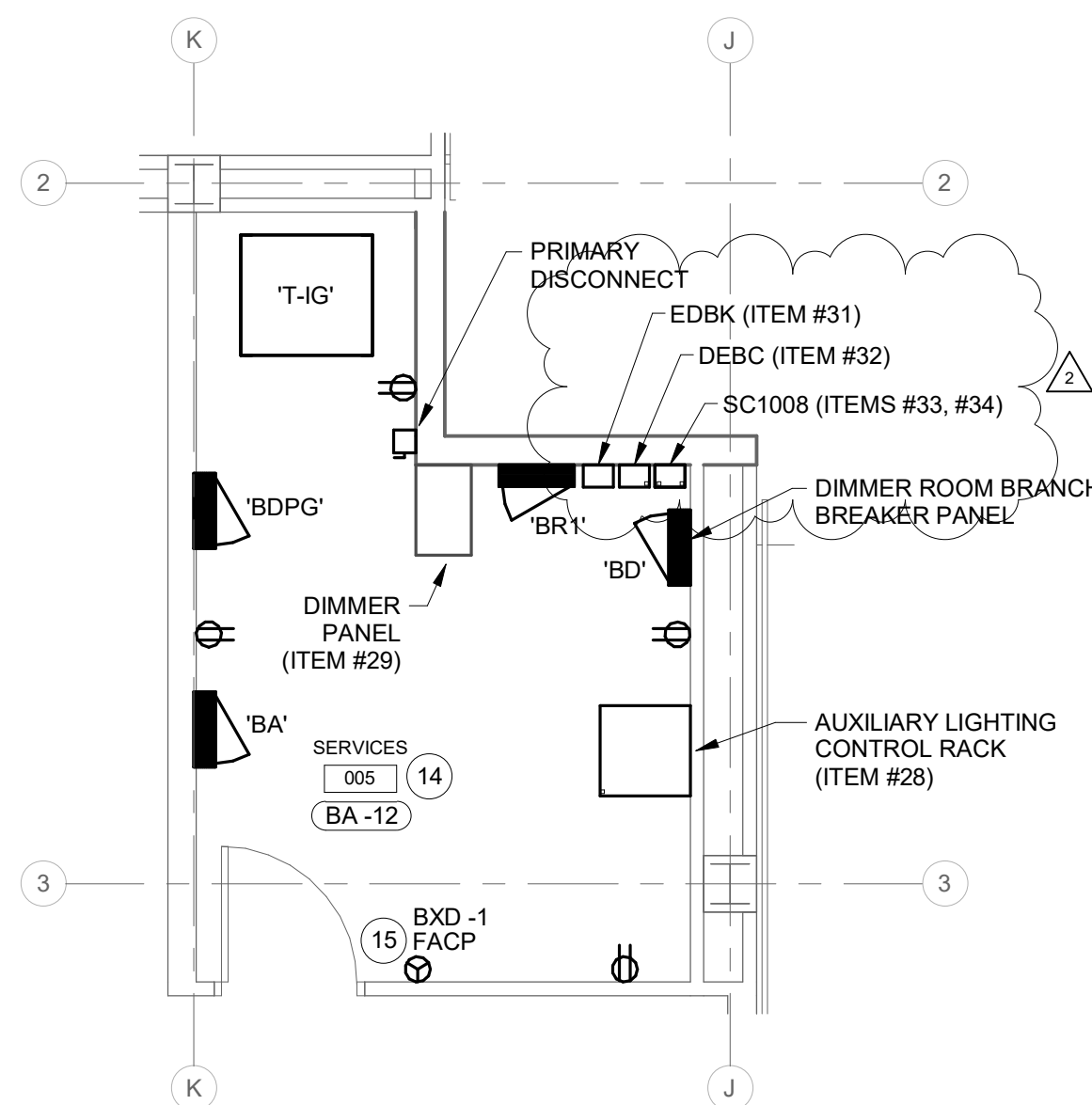
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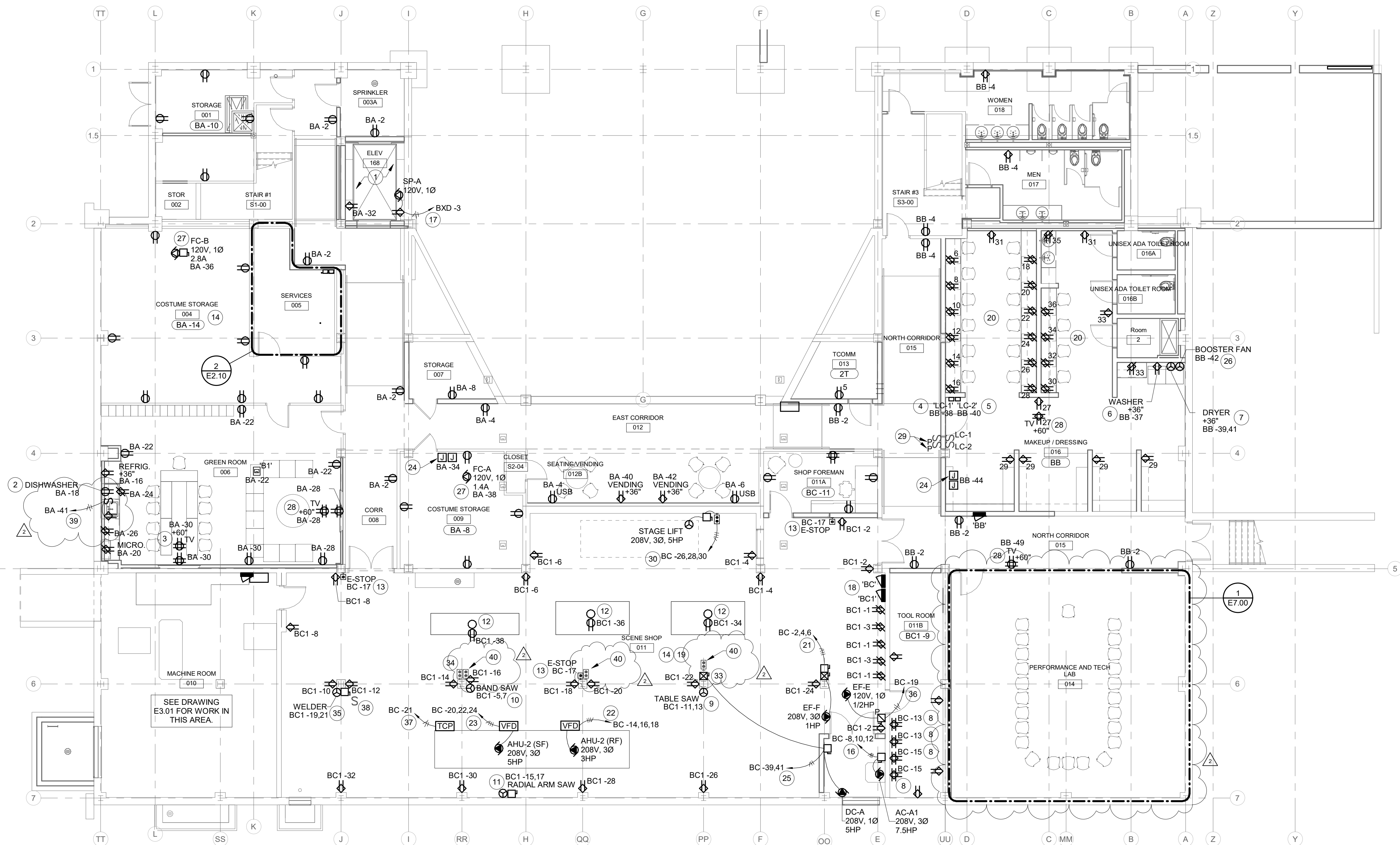
MAKEUP/DRESSING 019 - CONTACTOR CONTROLLED A RECEPTACLES DETAIL

SCALE: NONE



2 ENLARGED SERVICES 005 - POWER

SCALE: 1/4" = 1'-0"



BASEMENT PLAN - POWER

SCALE: 1/8" = 1'-0"

RENOVATION LEGEND:

- WORK TO BE INSTALLED
- WORK TO REMAIN

GENERAL NOTES:

- SEE E0.1 FOR GENERAL NOTES.

PLAN NOTES:

- COORDINATE ALL EQUIPMENT AND DEVICES IN ELEVATOR SHAFT WITH ELEVATOR INSTALLER PRIOR TO ROUGH-IN.
- PROVIDE DUPLEX MOUNTED UNDER COUNTER FOR DISHWASHER. PROVIDE 20A-1P GFCI BREAKER IN PANELBOARD.
- VERIFY TV LOCATION AND MOUNTING HEIGHT PRIOR TO ROUGH-IN.
- PROVIDE 8-POLE CONTACTOR FOR CONTROL OF MAKEUP LIGHTS AND RECEPTACLES. PROVIDE 120V CIRCUIT FOR CONTROL OF CONTACTOR. CONTACTOR TO BE CONTROLLED VIA SWITCH INSIDE DRESSING ROOM. (I.E. WHEN SWITCH IS ON, CONTACTOR IS CLOSED, WHEN SWITCH IS OFF, CONTACTOR IS OPEN)
- PROVIDE 12-POLE CONTACTOR FOR CONTROL OF MAKEUP LIGHTS AND RECEPTACLES. PROVIDE 120V CIRCUIT FOR CONTROL OF CONTACTOR. CONTACTOR TO BE CONTROLLED VIA SWITCH INSIDE DRESSING ROOM. (I.E. WHEN SWITCH IS ON, CONTACTOR IS CLOSED, WHEN SWITCH IS OFF, CONTACTOR IS OPEN)
- PROVIDE 120V CIRCUIT AND NEMA 5-20R RECEPTACLE MOUNTED AT 36" AFF FOR WASHING MACHINE. COORDINATE EXACT LOCATION.
- PROVIDE 120/208V CIRCUIT AND NEMA 14-30R RECEPTACLE MOUNTED AT 36" AFF FOR ELECTRIC DRYER. PROVIDE 3 #10, 1 #10 GND, 3/4" CONDUIT. COORDINATE EXACT LOCATION. WIRE DRYER CIRCUIT THROUGH A JUNCTION BOX. CONTROL CONTRACTOR TO PROVIDE A CURRENT SENSOR ON CONDUCTORS FOR CONTROL OF DRYER EXHAUST FAN. COORDINATE IN FIELD.
- PROVIDE QUAD RECEPTACLE FOR OWNER EQUIPMENT CHARGING STATION. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- PROVIDE HUBBELL #HBL2630 NEMA L6-20R RECEPTACLE FOR TABLE SAW. PROVIDE 2 #10, 1 #10 GND, 3/4" CONDUIT.
- PROVIDE HUBBELL #HBL2630 NEMA L6-30R RECEPTACLE FOR BAND SAW. PROVIDE 2 #10, 1 #10 GND, 3/4" CONDUIT.
- INSTALL EXISTING RADIAL ARM SAW STARTER/CONTROL CABINET AND CONNECT TO SAW. PROVIDE 2 #6, 1 #6 GND, 1" CONDUIT. PROVIDE 60A-2P NON-FUSED DISCONNECT SWITCH.
- PROVIDE A 20A NEMA 5-20R SINGLE RECEPTACLE NEAR CEILING AND PROVIDE A CORD REEL WITH 25' SLO CORD. IN-LINE GFCI PROTECTOR AND (2) DUPLEX RECEPTACLES. SUPPORT FROM STRUCTURE. ACCEPTABLE MANUFACTURERS:
 - A. HUBBELL #HBL25123GF220
 - B. EQUAL BY REELCRAFT
- PROVIDE RED MUSHROOM HEAD EMERGENCY STOP (E-STOP) BUTTON TO DE-ENERGIZE CONTACTOR IN PANEL. BC1' FEEDER AND SHUT OFF POWER TO SHOP DEVICES/EQUIPMENT. PROVIDE 120V CIRCUIT INDICATED FOR CONTROL POWER. SEE E5.01.
- COORDINATE RECEPTACLE LOCATIONS WITH FINAL EQUIPMENT LAYOUT.
- PROVIDE 120V CIRCUIT INDICATED TO FIRE ALARM CONTROL PANEL.
- PROVIDE 3 #8, 1 #10, 3/4" CONDUIT TO AIR COMPRESSOR. PROVIDE 60A-3P NON-FUSED DISCONNECT. COORDINATE EXACT LOCATION IN FIELD.
- PROVIDE GFCI DUPLEX RECEPTACLE AND CONNECTION TO ELEVATOR SUMP PUMP. PROVIDE 3 #10, 3/4" CONDUIT. COORDINATE EXACT LOCATION IN FIELD.
- VERIFY PANEL 'BC' AND 'BC1' LOCATION WITH OWNER PRIOR TO ROUGH-IN.
- ALL DUPLEX RECEPTACLES IN SCENE SHOP AND TOOL ROOM SHALL BE GFCI TYPE AND SHALL BE INSTALLED AT 48" AFF UNLESS OTHERWISE INDICATED.
- SEE ELEVATIONS OF RECEPTACLES AT MAKEUP MIRRORS ON E2.00.
- PROVIDE 3 #12, 1 #12 GND, 3/4" CONDUIT. REUSE EXISTING DISCONNECT AND 2-SPEED CONTROLS. COORDINATE EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN.
- PROVIDE VFD FOR AIR HANDLING UNIT RETURN FAN. FUSE AT 17.5 AMPS. CONNECT FROM VFD TO FAN WITH SAME SIZE CONDUCTORS FROM PANEL. PROVIDE 3 #12, 1 #12 GND, 3/4" CONDUIT.
- PROVIDE VFD FOR AIR HANDLING UNIT SUPPLY FAN. FUSE AT 25 AMPS. CONNECT FROM VFD TO FAN WITH SAME SIZE CONDUCTORS FROM PANEL. PROVIDE 3 #10, 1 #10 GND, 3/4" CONDUIT.
- PROVIDE 120V CIRCUIT INDICATED FOR VAV CONTROL TRANSFORMERS. COORDINATE EXACT LOCATION IN FIELD.
- PROVIDE 60A-2P FUSED DISCONNECT FOR DUST COLLECTOR. PROVIDE 2 #6, 1 #10, 1" CONDUIT. WIRE THROUGH REMOTE STARTER AS INDICATED. FUSE PER MANUFACTURER'S RECOMMENDATIONS. SEE NOTE 33.
- PROVIDE 120V CIRCUIT FOR IN-LINE BOOSTER FAN FOR DRYER EXHAUST. PROVIDE 3 #10, 3/4" CONDUIT. EXHAUST FAN TO BE CONTROLLED WITH CURRENT SENSOR FOR DRYER CONDUCTORS. SEE NOTE 7.
- PROVIDE 120V CIRCUIT TO DISCONNECT FURNISHED WITH FAN COIL UNIT. COORDINATE EXACT CONNECTION LOCATION IN FIELD.
- COORDINATE LOCATION OF RECEPTACLE WITH THEATRICAL TV MONITOR BACKBOX. INTEGRATE OUTLET WITH BACKBOX.
- PROVIDE PILOT LIGHT (PASS AND SEYMOUR 2151 RED SERIES OR SIMILAR) TO INDICATE WHEN RECEPTACLES AND MAKEUP MIRRORS ARE ENERGIZED. PROVIDE SWITCHES INSIDE DRESSING ROOM FOR CONTROL. SEE DETAIL ON THIS DRAWING FOR SCHEMATIC.
- PROVIDE 60A-3P FUSED DISCONNECT FOR STAGE LIFT. FUSE AT 25 AMPS. PROVIDE 3 #10, 1 #10 GND, 3/4" CONDUIT. PROVIDE CONNECTIONS TO STAGE LIFT AS REQUIRED. WIRE THROUGH CONTROLS.
- VERIFY PANEL LOCATION WITH OWNER. SEE PLAN ABOVE FOR LOW VOLTAGE WIRING.
- NOT USED.
- PROVIDE MANUAL STOP/START MOTOR STARTER FOR DUST COLLECTOR. VERIFY LOCATION WITH OWNER.
- PROVIDE REMOTE 2-SPEED STOP/START STATION FOR EF-F.
- PROVIDE NEMA 6-50R RECEPTACLE AND 60A-2P NON-FUSED DISCONNECT FOR WELDER. PROVIDE 2 #6, 1 #10 GND, 3/4" CONDUIT. COORDINATE EXACT LOCATION IN FIELD.
- WIRE EF-E CIRCUIT THROUGH MANUAL STARTER IN SCENE SHOP 011 AS INDICATED. FAN TO BE MANUALLY CONTROLLED. PROVIDE 3 #12, 3/4" CONDUIT AND 20A-2P DISCONNECT AT EXHAUST FAN.
- PROVIDE 120V CIRCUIT INDICATED TO AHU-2 TEMPERATURE CONTROL PANEL. COORDINATE EXACT LOCATION IN FIELD.
- PROVIDE ON/OFF SWITCH FOR EXHAUST FAN EF-E.
- PROVIDE 120V CIRCUIT TO GFCI RECEPTACLE BELOW COUNTER AND SWITCH ABOVE COUNTER FOR GARBAGE DISPOSAL. COORDINATE EXACT LOCATION IN FIELD.
- PROVIDE AUXILIARY START/STOP STATIONS (ONEIDA AMP000001) FOR DUCT COLLECTOR. PROVIDE REMOTE PLUG-IN ADAPTOR MODULE IN DUST COLLECTOR STARTER. PROVIDE WIRING AS REQUIRED TO DAISY CHAIN STATIONS TOGETHER. COORDINATE WITH MANUFACTURER.



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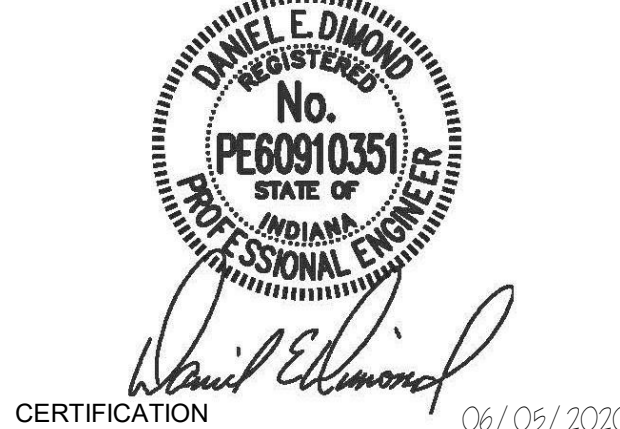
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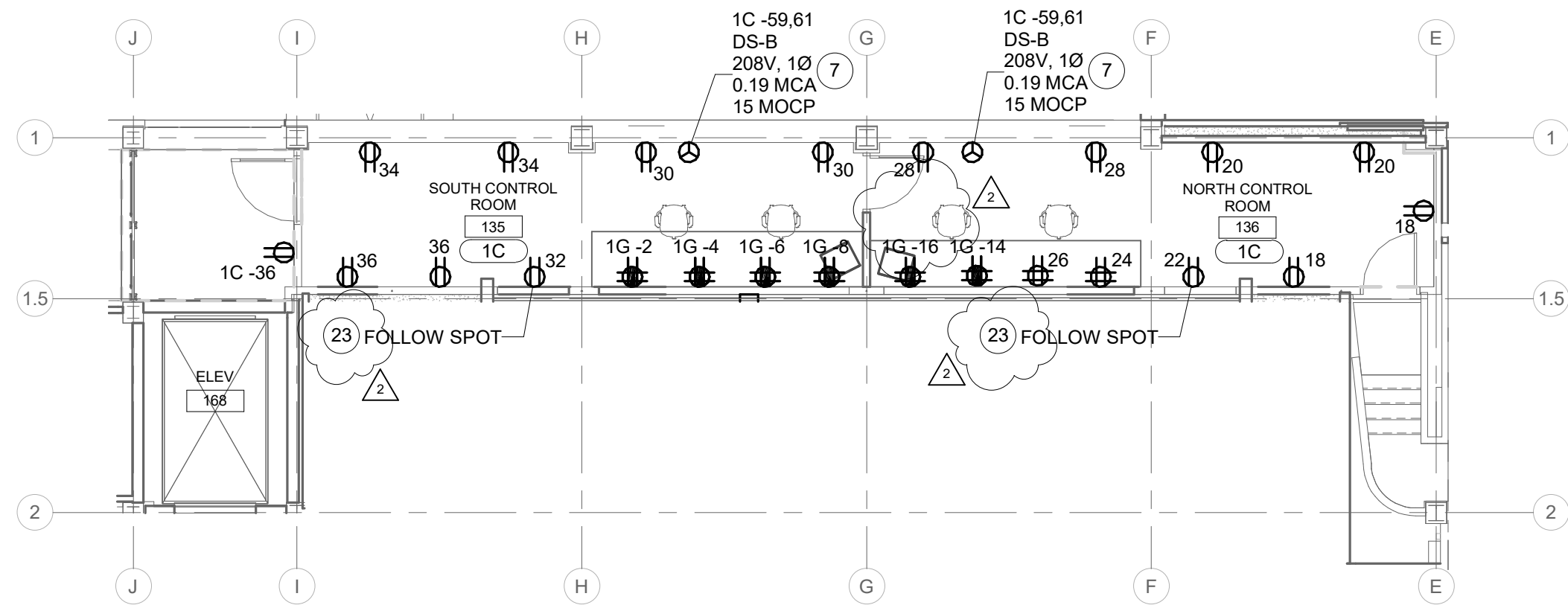
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Checked By: TEH
Scale: See Drawing
Issue Date: 06/05/2020

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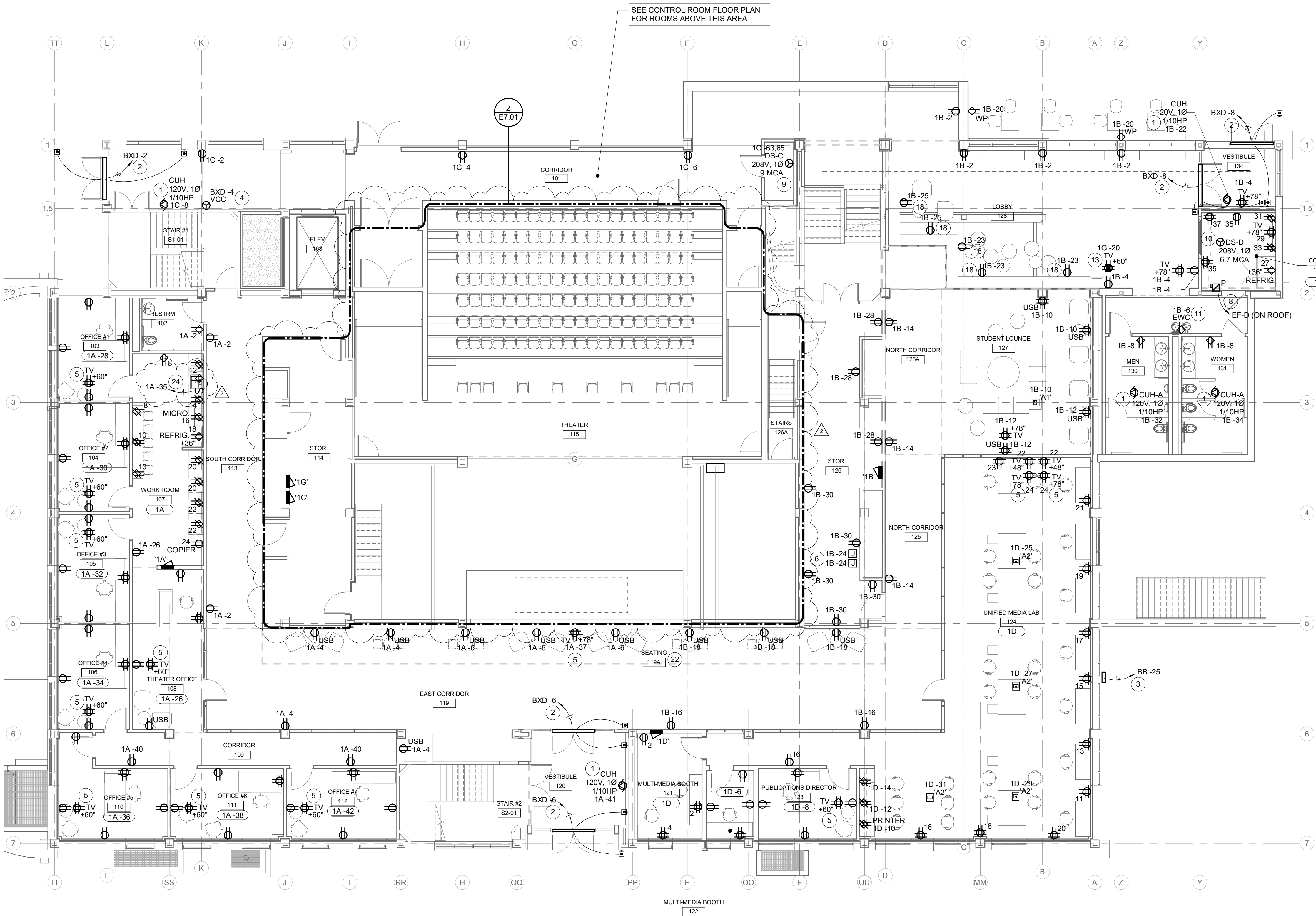
BASEMENT PLAN -
POWER

E2.10

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CONTROL ROOM FLOOR PLAN - POWER
SCALE: 1/8" = 1'-0"
NORTH



FIRST FLOOR PLAN - POWER
SCALE: 1/8" = 1'-0"
NORTH

RENOVATION LEGEND:

- WORK TO BE INSTALLED
- WORK TO REMAIN

GENERAL NOTES:

- SEE E0.1 FOR GENERAL NOTES.
- COORDINATE DEVICE LOCATIONS AT WALLS RECEIVING SPECIAL COVERING (WOOD, ETC.) WITH ARCHITECT.
- COORDINATE LOCATION OF FLOORBOXES WITH STRUCTURAL BEAMS.
- COORDINATE RECEPTACLES AT PERIMETER WALLS WITH HOT WATER RADIATION. SEE MECHANICAL DRAWINGS.
- ALL RECEPTACLES FED FROM PANEL '1G' SHALL BE ISOLATED GROUND CIRCUITS.

PLAN NOTES:

- PROVIDE 120V, 20A CIRCUIT TO DISCONNECT FURNISHED WITH CABINET UNIT HEATER. COORDINATE EXACT LOCATION IN FIELD.
- PROVIDE 120V EMERGENCY CIRCUIT TO DOOR OPERATOR(S) AND WIRE TO ALL CONTROLS. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
- RE-FEED 120V TO EXISTING IRRIGATION CONTROLLER.
- PROVIDE 120V CIRCUIT TO FIRE ALARM VOICE COMMAND CENTER. COORDINATE EXACT LOCATION IN FIELD.
- VERIFY TV LOCATION AND MOUNTING HEIGHT PRIOR TO ROUGH-IN.
- PROVIDE 120V CIRCUIT INDICATED FOR VAV CONTROL TRANSFORMERS. COORDINATE EXACT LOCATION IN FIELD.
- PROVIDE WIRING FROM ROOFTOP CONDENSING UNIT (ACCU-B). SEE DRAWING E2.20.
- PROVIDE MANUAL STARTER FOR EF-D ON LOW ROOF. SEE E2.12.
- PROVIDE WIRING FROM ROOFTOP CONDENSING UNIT (ACCU-C). SEE DRAWING E2.20.
- PROVIDE WIRING FROM ROOFTOP CONDENSING UNIT (ACCU-D). SEE DRAWING E2.20.
- PROVIDE GFCI RECEPTACLE FOR NEW ELECTRIC WATER COOLER. COORDINATE LOCATION OF OUTLET WITH WATER COOLER HOUSING AND REMOTE CHILLER.
- NOT USED.
- COORDINATE LOCATION OF RECEPTACLE WITH THEATRICAL TV MONITOR BACKBOX. INTEGRATE OUTLET WITH BACKBOX.
- NOT USED.
- NOT USED.
- NOT USED.
- NOT USED.
- RECEPTACLES TO BE MOUNTED IN BASE OF BANQUETTE. COORDINATE EXACT LOCATION WITH CASEWORK INSTALLER AND ARCHITECT PRIOR TO ROUGH-IN.
- NOT USED.
- NOT USED.
- NOT USED.
- INSTALL RECEPTACLES IN BASE IN SEATING 119A. VERIFY WITH ARCHITECT.
- VERIFY FOLLOWSPOT RECEPTACLE LOCATION WITH OWNER.
- PROVIDE 120V CIRCUIT TO GFCI RECEPTACLE UNDER COUNTER AND SWITCH ABOVE COUNTER FOR GARBAGE DISPOSAL. COORDINATE EXACT LOCATION IN FIELD.



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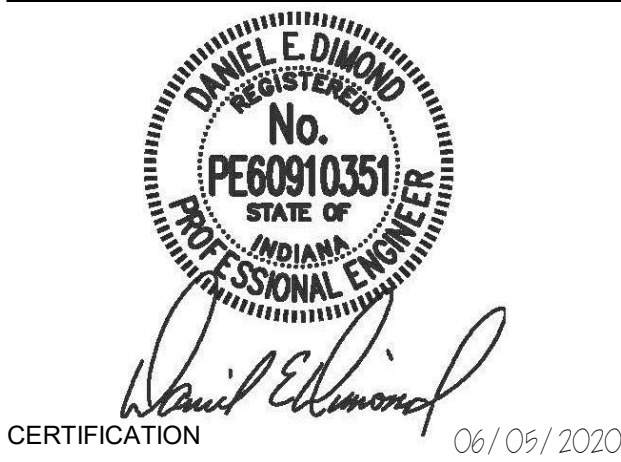
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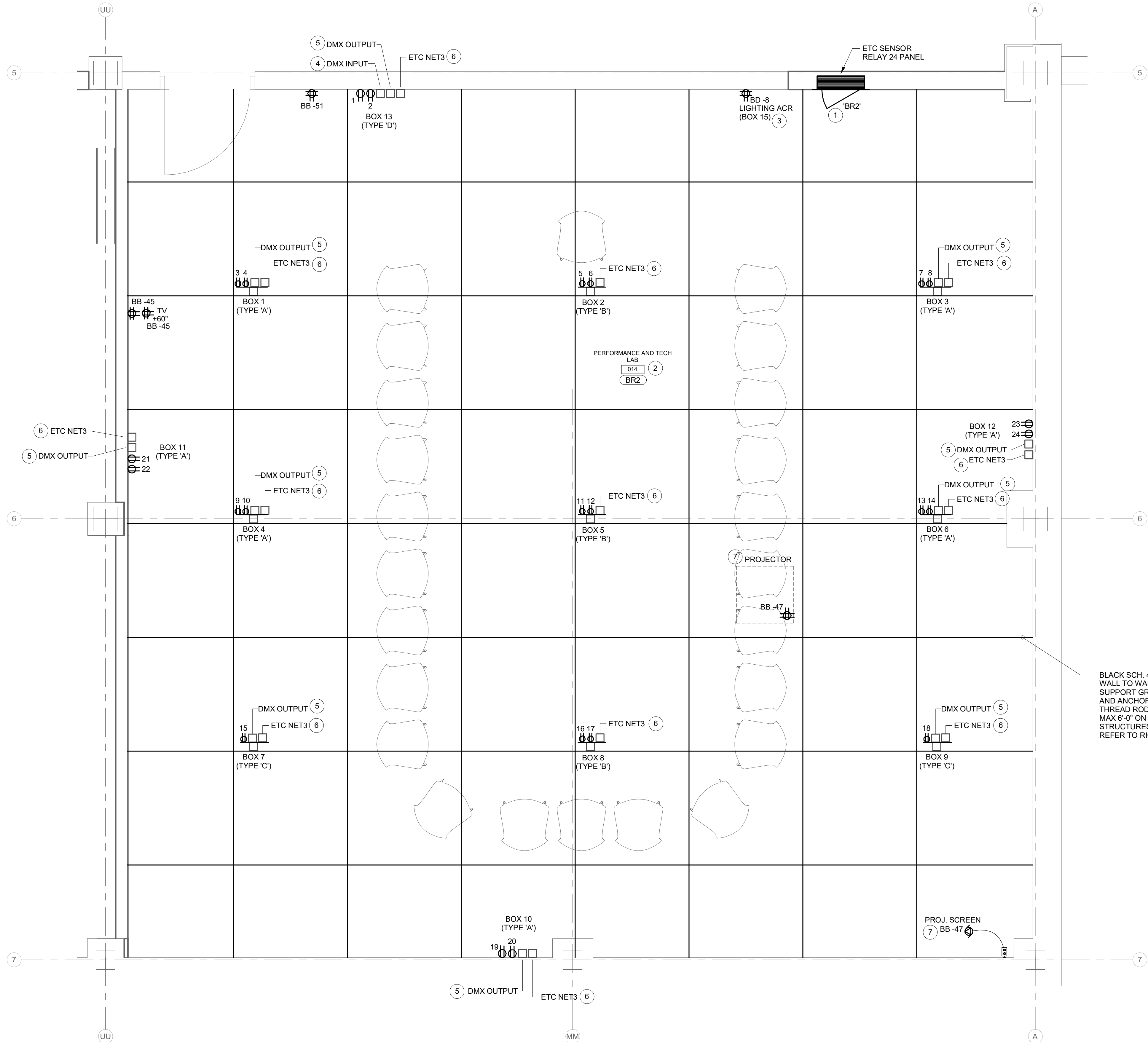
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FIRST FLOOR PLAN -
POWER

E2.11

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PERFORMANCE AND TECH LAB CIRCUITS DATA MATRIX									
NAME	20A RELAY CIRCUITS	DMX OUTPUT	DMX INPUT	NETWORK LIGHTING	NETWORK TO BOOTH	COMM LINE	MAINSTAGE CAMERA FEED	CAMERA FEED TO BOOTH	STAGE AUDIO
GRID BOX 1 (TYP 'A')	2	1		1	SEE A/V DRAWINGS FOR REQUIREMENTS	SEE A/V DRAWINGS FOR REQUIREMENTS	SEE A/V DRAWINGS FOR REQUIREMENTS	SEE A/V DRAWINGS FOR REQUIREMENTS	SEE A/V DRAWINGS FOR REQUIREMENTS
GRID BOX 2 (TYP 'B')	2			1					
GRID BOX 3 (TYP 'A')	2	1		1					
GRID BOX 4 (TYP 'A')	2	1		1					
GRID BOX 5 (TYP 'B')	2			1					
GRID BOX 6 (TYP 'A')	2	1		1					
GRID BOX 7 (TYP 'C')	1	1		1					
GRID BOX 8 (TYP 'B')	2			1					
GRID BOX 9 (TYP 'C')	1	1		1					
GRID BOX 10 (TYP 'A')	2	1		1					
GRID BOX 11 (TYP 'A')	2	1		1					
GRID BOX 12 (TYP 'A')	2	1		1					
GRID BOX 13 (TYP 'D')	2	1	1	1					
SENSOR RELAY 24 ('BR2')				1					
LIGHTING ACR									

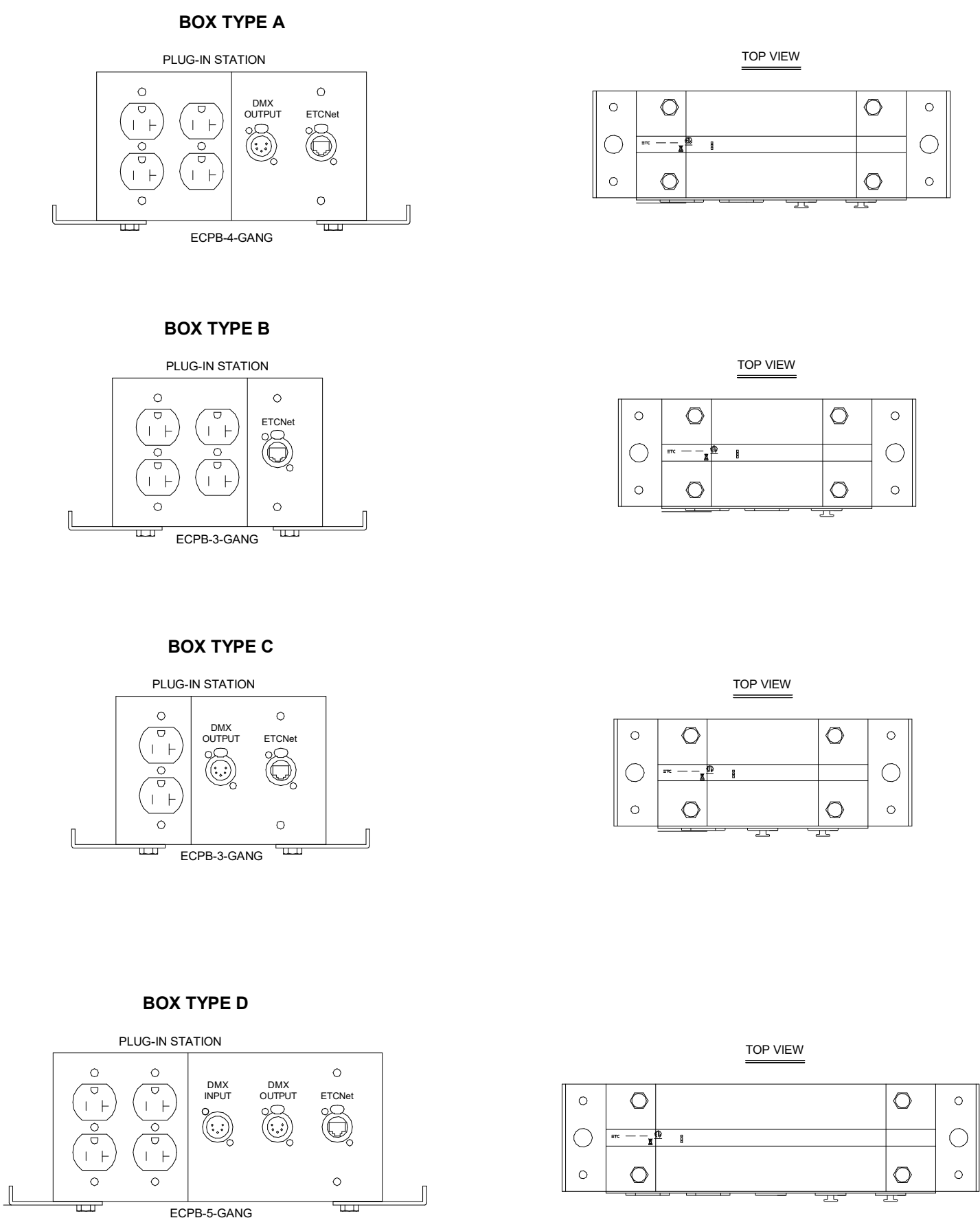


RENOVATION LEGEND:

- WORK TO BE INSTALLED
 WORK TO REMAIN

GENERAL NOTES:

1. SEE E0.1 FOR GENERAL NOTES.
- # **PLAN NOTES:**
1. VERIFY PANEL LOCATION WITH OWNER. SEE PLAN ABOVE FOR LOW VOLTAGE WIRING. PROVIDE CABLING FROM PANEL TO LIGHTING ACR IN THIS ROOM. SEE SPECIFICATIONS FOR REQUIREMENTS.
2. RUN CONDUITS FOR GRID BOXES IN PERFORMANCE/TECH LAB 014 TIGHT TO DECK (NOT ON GRID) AND DROP DOWN TO GRID BOXES. COORDINATE EXACT ROUTING IN FIELD.
3. PROVIDE 120V, 20A CIRCUIT AND QUADRIplex RECEPTACLE FOR LIGHTING ACR. COORDINATE EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN.
4. DMX INPUT OUTLET. PROVIDE CABLING AS REQUIRED FROM THIS LOCATION TO LIGHTING ACR RACK IN THIS ROOM. SEE SPECIFICATIONS FOR REQUIREMENTS.
5. DMX OUTPUT OUTLET. PROVIDE CABLING AS REQUIRED FROM THIS LOCATION TO LIGHTING ACR RACK IN THIS ROOM. SEE SPECIFICATIONS FOR REQUIREMENTS.
6. LIGHTING NETWORK CONNECTION JACK. PROVIDE CABLING AS REQUIRED FROM THIS LOCATION TO LIGHTING ACR RACK IN THIS ROOM. SEE SPECIFICATIONS FOR REQUIREMENTS.
7. COORDINATE LOCATION OF PROJECTOR, MOTORIZED PROJECTION SCREEN, AND PROJECTION SCREEN CONTROLS WITH OWNER PRIOR TO ROUGH-IN.
8. PIPE GRID SHALL BE STEEL PIPE AND SHALL BE PART OF ALTERNATE #4. ALL GRID BOXES, WIRING, AND RECEPTACLES CONNECTED TO PANEL 'BR2', PANEL 'BR2', AND ETC NETWORK WIRING SHALL BE PART OF ALTERNATE #4. PROJECTOR AND PROJECTION SCREEN SHALL BE BASE BID. COORDINATE MOUNTING HEIGHT AT PIPE GRID WITH OWNER AND ENGINEER. INTENT IS TO INSTALL AS HIGH AS POSSIBLE. COORDINATE WITH STRUCTURE AND DUCTWORK.



TYPICAL THEATRICAL BOXES - A DETAIL

SCALE: NONE

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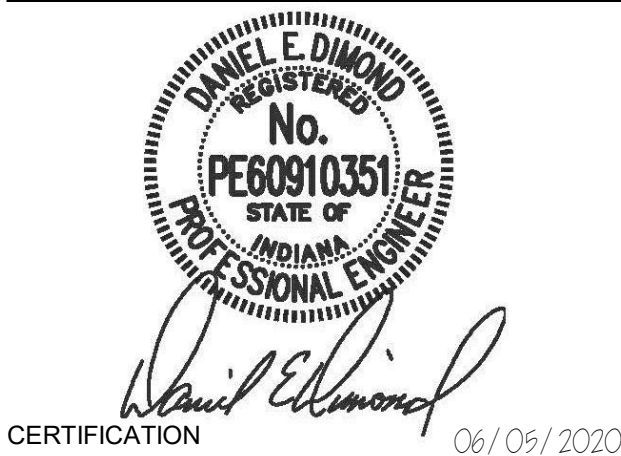
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PERFORMANCE AND TECH LAB 014 - THEATRICAL

E7.00

THEATER LIGHTING CIRCUITS DATA MATRIX								
NAME	LX BRANCH POWER	MOTOR BRANCH POWER	MOTOR CONTROL WIRE	20A DIMMED CIRCUITS	20A RELAY CIRCUITS	DMX INPUT	DMX OUTPUT	NETWORK LIGHTING
1A. FOH 1		20A, 3P, 120/208V, 4W+G	1	6 (1-6)	3 (97-99)		1	
1B. FOH 1		20A, 3P, 120/208V, 4W+G	1	6 (7-12)	3 (100-102)		1	
2A. FOH 2		20A, 3P, 120/208V, 4W+G	1	3 (13-15)	3 (103-105)		1	
2B. FOH 2		20A, 3P, 120/208V, 4W+G	1	3 (16-18)	3 (106-108)		1	
3A. FOH 3		20A, 3P, 120/208V, 4W+G	1	2 (19-20)	2 (109-110)		1	
3B. FOH 3		20A, 3P, 120/208V, 4W+G	1	2 (21-22)	2 (111-112)		1	
4A. FOH 4				1 (23)	2 (113-114)		1	
4B. FOH 4				1 (24)	2 (115-116)		1	
5. 1ST LX		20A, 3P, 120/208V, 4W+G	1	18 (25-42)	4 (117-120)		2	1
6. 2ND LX		20A, 3P, 120/208V, 4W+G	1	12 (43-54)	4 (121-124)		2	1
7. DROPBOX MULTICABLE 1					3 (125-127)		1	
8. DROPBOX MULTICABLE 2					3 (128-130)		1	
9. DROPBOX MULTICABLE 3				6 (55-60)			1	
10. DROPBOX MULTICABLE 4				6 (61-66)			1	
11. DROPBOX MULTICABLE 5				6 (67-72)			1	
12. DROPBOX MULTICABLE 6				6 (73-78)			1	
13. SR FLOOR POCKET 1				2 (79-80)	1 (131)			1
14. SR FLOOR POCKET 2				2 (81-82)	1 (132)		1	1
15. SR FLOOR POCKET 3				2 (83-84)	1 (133)		1	1
16. SR FLOOR POCKET 4					1 (134)		1	1
17. SL FLOOR POCKET 1				2 (85-86)	1 (135)		1	1
18. SL FLOOR POCKET 2				2 (87-88)	1 (136)		1	1
19. SL FLOOR POCKET 3				2 (89-90)	1 (137)		1	1
20. SL FLOOR POCKET 4					1 (138)		1	1
21. SR BOX BOOM				3 (91-93)	1 (139)		1	1
22. SL BOX BOOM				3 (94-96)	1 (140)		1	1
23. TECH TABLE FLOOR POCKET SR	(1) - 20A, 1P, 120V					2	1	1
24. TECH TABLE FLOOR POCKET CS	(1) - 20A, 1P, 120V					2	1	1
25. TECH TABLE FLOOR POCKET SL	(1) - 20A, 1P, 120V					2	1	1
26. STAGE MANAGERS PANEL	(1) - 20A, 1P, 120V	20A, 1P, 120V	1			2	1	1

THEATER LIGHTING CIRCUITS DATA MATRIX (CONT...)								
NAME	LX BRANCH POWER	MOTOR BRANCH POWER	MOTOR CONTROL WIRE	20A DIMMED CIRCUITS	20A RELAY CIRCUITS	DMX INPUT	DMX OUTPUT	NETWORK LIGHTING
27. CONTROL BOOTH	(1) - 20A, 1P, 120V							1
28. AUXILIARY CNTRL RACK	(1) - 20A, 1P, 120V							
29. SENSOR DIMMER RACK	(1) - 400A, 120/208V, 3P, 4W + G							1
30. SENSOR RELAY PANEL	(1) - 200A, 120/208V, 3P, 4W + G							1
31. EMERGENCY BYPASS DETECTION KIT (EBDK)	(1) - 20A, 120/208V, 3P, 4W + G							
32. DMX EMERGENCY BYPASS CONTROLLER	(1) - 20A, 120V, 1P EMERG.					1	1	
33. SC1008 - UL 1008 LISTED	(1) - 20A, 120V, 1P EMERG.							
34. SC1008 - UL 1008 LISTED	(1) - 20A, 120V, 1P EMERG.							
35. LIGHTING BRANCH BREAKER PANEL, DIMMER ROOM	(1) - 200A, 120/208V, 3P, 4W + G							
36. LIGHTING CONSOLE								
37. TOUCHSCREEN MONITOR								
38. TOUCHSCREEN MONITOR								
39. ACCESS POINT								1
40. STAGE RIGHT TAB HOIST		20A, 3P, 120/208V, 4W+G	1					
41. UPSTAGE HOIST		20A, 3P, 120/208V, 4W+G	1					
42. STAGE LEFT TAB HOIST		20A, 3P, 120/208V, 4W+G	1					
43. MOTOR HOIST BRANCH BREAKER PANEL	(13) - 20A, 3P, 120/208V, 4W+G							
44. ENTRY STATION - SR								
45. ENTRY STATION - SL								
46. ENTRY STATION - HL								
47. ENTRY STATION - HR								
48. RUNNING LIGHT BOX - DSR								1 (144)
49. RUNNING LIGHT BOX - DSL								1 (144)
50. RUNNING LIGHT BOX - USL								1 (144)
51. RUNNING LIGHT BOX - USR								1 (144)
52. INDEX LIGHT DIM BOX		20A, 1P, 120V						1 (141)
HOUSE LIGHTS CIRCUIT 1								1 (142)
HOUSE LIGHTS CIRCUIT 2								1 (143)
WORK LIGHTS 1								

RENOVATION LEGEND:

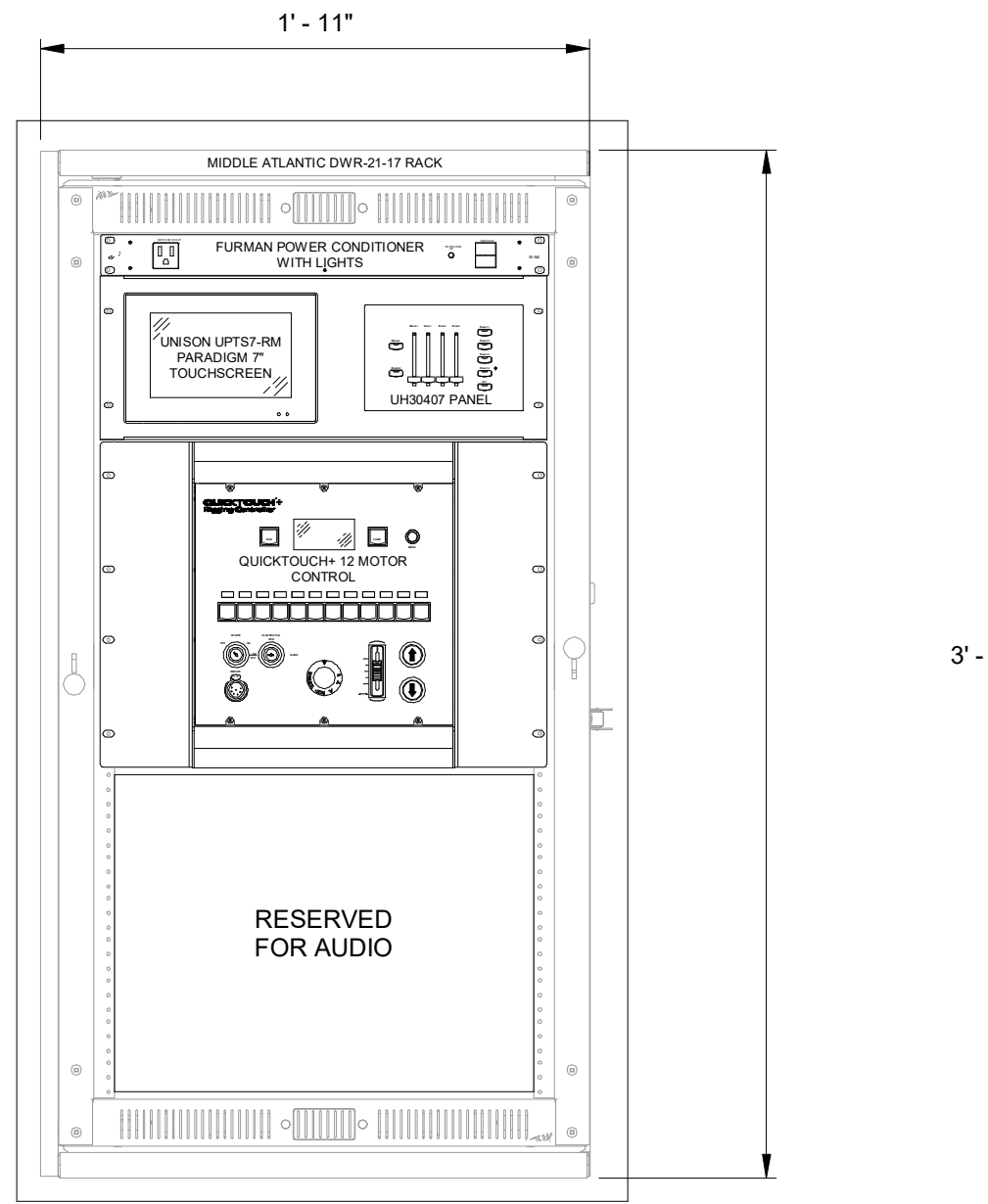
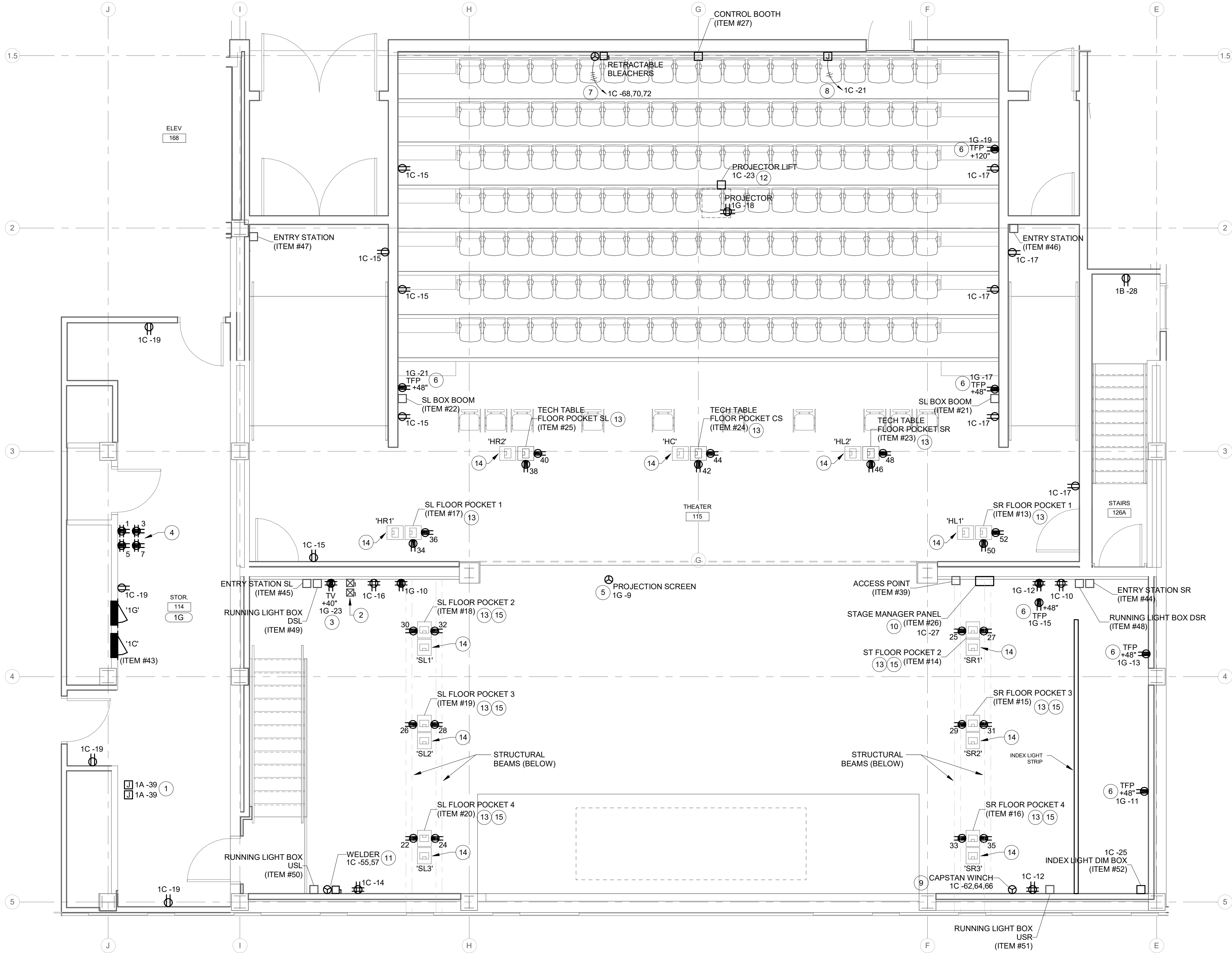
- ☐ WORK TO BE INSTALLED
☐ WORK TO REMAIN

GENERAL NOTES:

- SEE E0.1 FOR GENERAL NOTES.
- SEE THEATRICAL RISER DIAGRAMS ON E7.10 SERIES DRAWINGS AND SPECIFICATIONS FOR THEATRICAL EQUIPMENT CONNECTIONS AND CABLING REQUIREMENTS.
- FLOORBOX RECEPTACLE CIRCUITS ARE ISOLATED GROUND CIRCUITS FROM PANELBOARD 1G.
- PROVIDE ENGRAVED COVERPLATES AT ALL DEVICES TO INDICATE FUNCTION PER OWNER'S DIRECTION.

PLAN NOTES:

- PROVIDE 120V CIRCUIT INDICATED FOR VAV CONTROL TRANSFORMERS. COORDINATE EXACT LOCATION IN FIELD.
- RELOCATE EXISTING SMOKE EVAC FAN MOTOR STARTERS. COORDINATE LOCATION WITH OWNER. EXTEND EXISTING WIRING.
- COORDINATE LOCATION OF RECEPTACLE WITH THEATRICAL TV MONITOR BACKBOX. INTEGRATE OUTLET WITH BACKBOX.
- PROVIDE (4) 120V CIRCUITS FROM PANEL 1G* INDICATED AND TERMINATE IN BACKBOX ABOVE AV EQUIPMENT RACK. CONFIRM EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN.
- PROVIDE 120V CIRCUIT AND CONNECTION TO MOTORIZED SCREEN. PROVIDE CONNECTION TO CONTROLS ON STAGE AND BACK OF HOUSE CONTROL ROOM.
- PROVIDE 120V CIRCUIT ADJACENT TO TECHNICAL FACILITIES PANEL. COORDINATE EXACT LOCATION AND MOUNTING HEIGHT IN FIELD PRIOR TO ROUGH-IN.
- PROVIDE 3 #10, 1 #10M, 1 #10 GND TO RETRACTABLE SEATING. PROVIDE 120/208V, 3-PHASE, 30A NON-FUSED DISCONNECT WIRE THROUGH SEATING CONTROLLERS. COORDINATE EXACT LOCATION OF CONTROLLERS IN FIELD PRIOR TO ROUGH-IN.
- PROVIDE 120V CIRCUIT INDICATED TO INTEGRAL SEATING AISLE LIGHTING. COORDINATE EXACT CONNECTION IN FIELD. PROVIDE 3 # 12, 3/4" CONDUIT.
- PROVIDE A NEMA 1-15-20R RECEPTACLE FOR CAPSTAN WINCH. VERIFY LOCATION AND REQUIREMENTS. PROVIDE 4 #12, 1 #12 GND, 3/4" CONDUIT.
- STAGE MANGER'S PANEL. PROVIDE 120V CIRCUIT INDICATED. SEE ELEVATION ON THIS DRAWING.
- PROVIDE NEMA 6-50R RECEPTACLE AND 60A-2P NON-FUSED DISCONNECT FOR WELDER. PROVIDE 2 #8, 1 #10 GND, 3/4" CONDUIT. COORDINATE EXACT LOCATION IN FIELD.
- PROVIDE 120V CIRCUIT INDICATED TO PROJECTOR LIFT. COORDINATE EXACT LOCATION IN FIELD PRIOR TO ROUGH-IN. WIRE THROUGH CONTROLS AT STAGE AND CONTROL BOOTH.
- PROVIDE ETC 8500 SERIES FLOOR POCKET WITH DEVICES AS INDICATED PER THIS DRAWING AND LIGHTING CIRCUITS DATA MATRIX.
- PROVIDE ETC 8500 SERIES FLOOR POCKET WITH DEVICES AS INDICATED ON A/V DRAWINGS. CONFIRM QUANTITY WITH A/V DRAWINGS.
- FLOORBOXES ON STAGE WILL REQUIRE CUTTING THROUGH FLOOR SLAB. PROVIDE NECESSARY SUPPORTS. COORDINATE WITH EXISTING STRUCTURE AND WITH STRUCTURAL ENGINEER.



STAGE MANAGERS PANEL - 4 ELEVATION

SCALE: NONE



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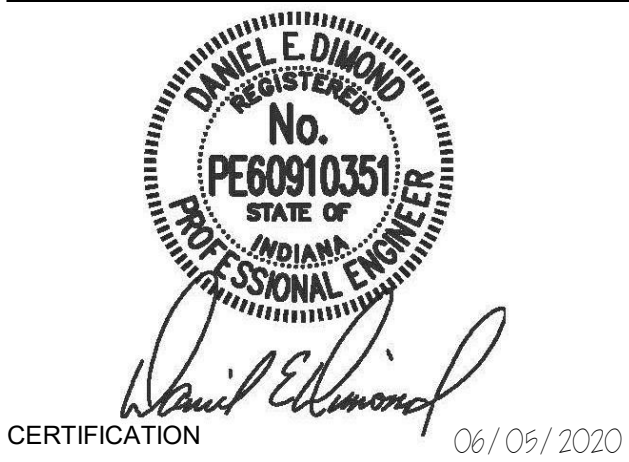
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Indiana State University -
Dreiser Hall Renovation

221 North 6th Street
Terre Haute, IN 47809

Project No.: 19A052
Drawn By: JPS
Checked By: TEH
Scale: See Drawing
Issue Date: 06/05/2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date

ENLARGED THEATER 126
- THEATRICAL

E7.01

ENLARGED THEATER 115 - THEATRICAL
SCALE: 1/4" = 1'-0"

THEATER LIGHTING CIRCUITS DATA MATRIX								
NAME	LX BRANCH POWER	MOTOR BRANCH POWER	MOTOR CONTROL WIRE	20A DIMMED CIRCUITS	20A RELAY CIRCUITS	DMX INPUT	DMX OUTPUT	NETWORK LIGHTING
1A. FOH 1		20A, 3P, 120/208V, 4W+G	1	6 (1-6)	3 (97-99)		1	
1B. FOH 1		20A, 3P, 120/208V, 4W+G	1	6 (7-12)	3 (100-102)		1	
2A. FOH 2		20A, 3P, 120/208V, 4W+G	1	3 (13-15)	3 (103-105)		1	
2B. FOH 2		20A, 3P, 120/208V, 4W+G	1	3 (16-18)	3 (106-108)		1	
3A. FOH 3		20A, 3P, 120/208V, 4W+G	1	2 (19-20)	2 (109-110)		1	
3B. FOH 3		20A, 3P, 120/208V, 4W+G	1	2 (21-22)	2 (111-112)		1	
4A. FOH 4				1 (23)	2 (113-114)		1	
4B. FOH 4				1 (24)	2 (115-116)		1	
5. 1ST LX		20A, 3P, 120/208V, 4W+G	1	18 (25-42)	4 (117-120)		2	1
6. 2ND LX		20A, 3P, 120/208V, 4W+G	1	12 (43-54)	4 (121-124)		2	1
7. DROPBOX MULTICABLE 1					3 (125-127)		1	
8. DROPBOX MULTICABLE 2							1	
9. DROPBOX MULTICABLE 3				6 (55-60)			1	
10. DROPBOX MULTICABLE 4				6 (61-66)			1	
11. DROPBOX MULTICABLE 5				6 (67-72)			1	
12. DROPBOX MULTICABLE 6				6 (73-78)			1	
13. SR FLOOR POCKET 1				2 (79-80)	1 (131)		1	1
14. SR FLOOR POCKET 2				2 (81-82)	1 (132)		1	1
15. SR FLOOR POCKET 3				2 (83-84)	1 (133)		1	1
16. SR FLOOR POCKET 4					1 (134)		1	1
17. SL FLOOR POCKET 1				2 (85-86)	1 (135)		1	1
18. SL FLOOR POCKET 2				2 (87-88)	1 (136)		1	1
19. SL FLOOR POCKET 3				2 (89-90)	1 (137)		1	1
20. SL FLOOR POCKET 4					1 (138)		1	1
21. SR BOX BOOM				3 (91-93)	1 (139)		1	1
22. SL BOX BOOM				3 (94-96)	1 (140)		1	1
23. TECH TABLE FLOOR POCKET SR	(1) - 20A, 1P, 120V					2	1	1
24. TECH TABLE FLOOR POCKET CS	(1) - 20A, 1P, 120V					2	1	1
25. TECH TABLE FLOOR POCKET SL	(1) - 20A, 1P, 120V					2	1	1
26. STAGE MANAGERS PANEL	(1) - 20A, 1P, 120V	20A, 1P, 120V	1			2	1	1

THEATER LIGHTING CIRCUITS DATA MATRIX (CONT...)								
NAME	LX BRANCH POWER	MOTOR BRANCH POWER	MOTOR CONTROL WIRE	20A DIMMED CIRCUITS	20A RELAY CIRCUITS	DMX INPUT	DMX OUTPUT	NETWORK LIGHTING
27. CONTROL BOOTH	(1) - 20A, 1P, 120V					2		1
28. AUXILIARY CNTRL RACK	(1) - 20A, 1P, 120V							
29. SENSOR DIMMER RACK	(1) - 400A, 120/208V, 3P, 4W + G							1
30. SENSOR RELAY PANEL	(1) - 200A, 120/208V, 3P, 4W + G							1
31. EMERGENCY BYPASS DETECTION KIT (EBDK)	(1) - 20A, 120/208V, 3P, 4W + G							
32. DMX EMERGENCY BYPASS CONTROLLER	(1) - 20A, 120V, 1P EMERG.					1	1	
33. SC1008 - UL 1008 LISTED	(1) - 20A, 120V, 1P EMERG.							
34. SC1008 - UL 1008 LISTED	(1) - 20A, 120V, 1P EMERG.							
35. LIGHTING BRANCH BREAKER PANEL, DIMMER ROOM	(1) - 100A, 120/208V, 3P, 4W + G							
36. LIGHTING CONSOLE								
37. TOUCHSCREEN MONITOR								
38. TOUCHSCREEN MONITOR								
39. ACCESS POINT								1
40. STAGE RIGHT TAB HOIST		20A, 3P, 120/208V, 4W+G	1					
41. UPSTAGE HOIST		20A, 3P, 120/208V, 4W+G	1					
42. STAGE LEFT TAB HOIST		20A, 3P, 120/208V, 4W+G	1					
43. MOTOR HOIST BRANCH BREAKER PANEL		(13) - 20A, 3P, 120/208V, 4W+G						
44. ENTRY STATION - SR								
45. ENTRY STATION - SL								
46. ENTRY STATION - HL								
47. ENTRY STATION - HR								
48. RUNNING LIGHT BOX - DSR								
49. RUNNING LIGHT BOX - DSL					1 (144)		1	
50. RUNNING LIGHT BOX - USL					1 (144)		1	
51. RUNNING LIGHT BOX - USR					1 (144)		1	
52. INDEX LIGHT DIM BOX		20A, 1P, 120V						
HOUSE LIGHTS CIRCUIT 1					1 (141)			
HOUSE LIGHTS CIRCUIT 2					1 (142)			
WORK LIGHTS 1					1 (143)			

RENOVATION LEGEND:

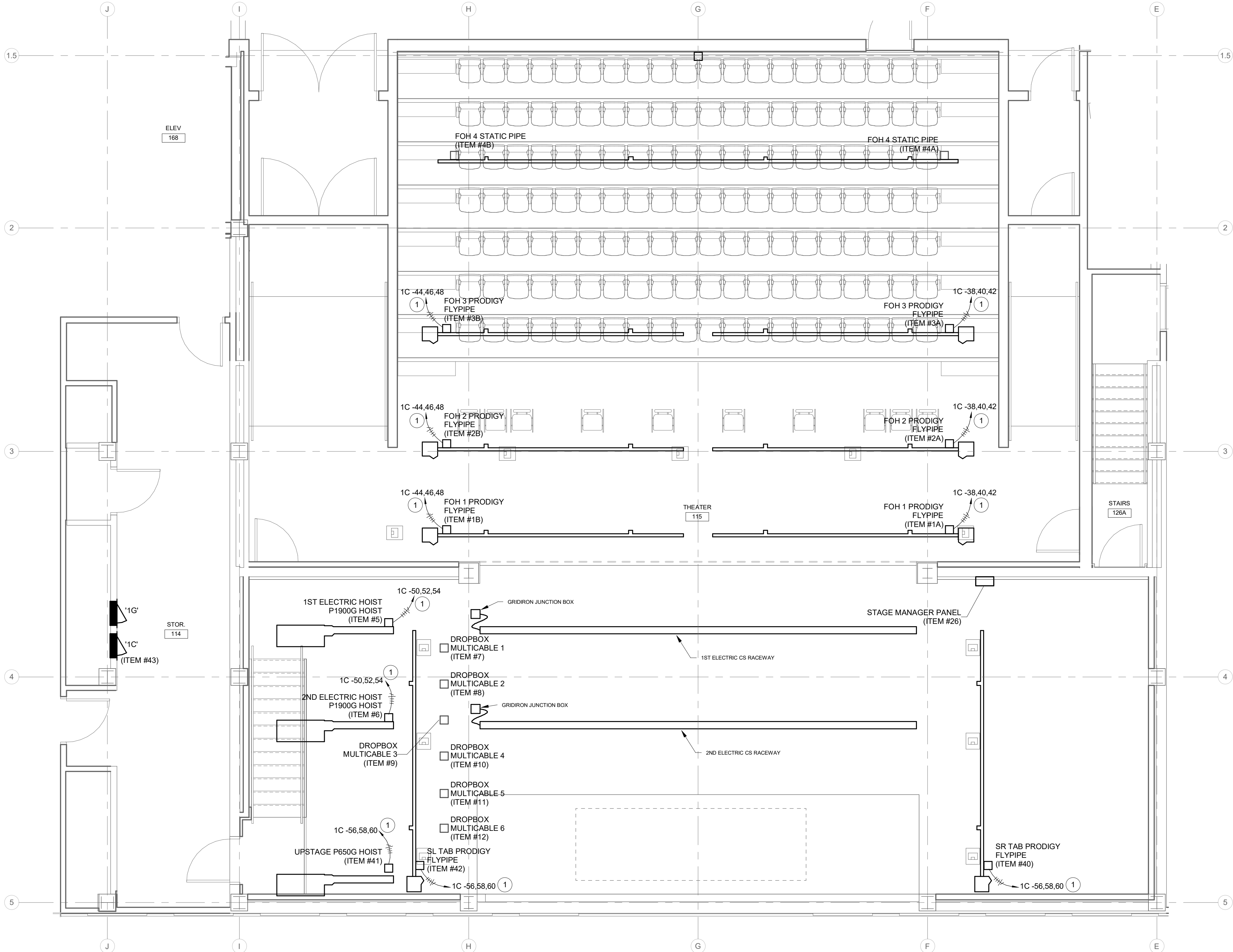
- WORK TO BE INSTALLED
- WORK TO REMAIN

GENERAL NOTES:

1. SEE E0.1 FOR GENERAL NOTES.
2. SEE THEATRICAL RISER DIAGRAMS ON E7.10 SERIES DRAWINGS AND SPECIFICATIONS FOR THEATRICAL EQUIPMENT CONNECTIONS AND CABLING REQUIREMENTS.
3. PROVIDE UNISTRUT SUPPORTS ACROSS BOTTOM OF EXISTING CONCRETE JOISTS FOR SUPPORTS OF FLYPIPE AND STATIC PIPE. COORDINATE WITH STRUCTURAL ENGINEER.
4. PROVIDE UNISTRUT SUPPORTS FOR ALL RACEWAYS. COORDINATE WITH ARCHITECT AND ENGINEER.

PLAN NOTES:

1. PROVIDE 120/208V, 20A CIRCUIT TO MOTORIZED RIGGING. PROVIDE CONTROL WIRING FROM MOTORIZED RIGGING TO STAGE MANAGERS PANEL (ITEM #26). SEE THEATRICAL RISER DIAGRAMS AND SPECIFICATIONS.



ENLARGED THEATER 115 - THEATRICAL RIGGING

SCALE: 1/4" = 1'-0"



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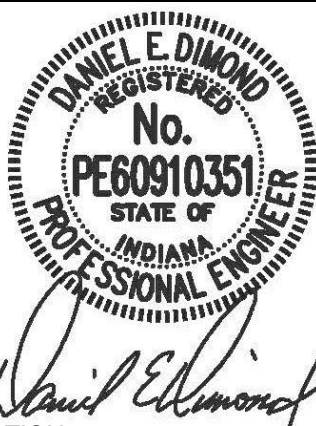
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CERTIFICATION 06/09/2020

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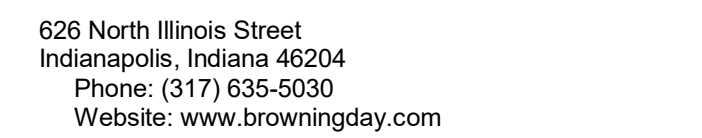
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Project No.: 19A052
Drawn By: JPS
Checked By: TEH
Scale: See Drawing
Issue Date: 06/05/2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date

ENLARGED THEATER 126
- THEATRICAL RIGGING

E7.02



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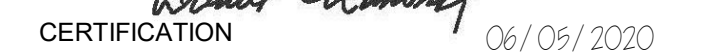
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SCALE: 1/4" = 1'-0"



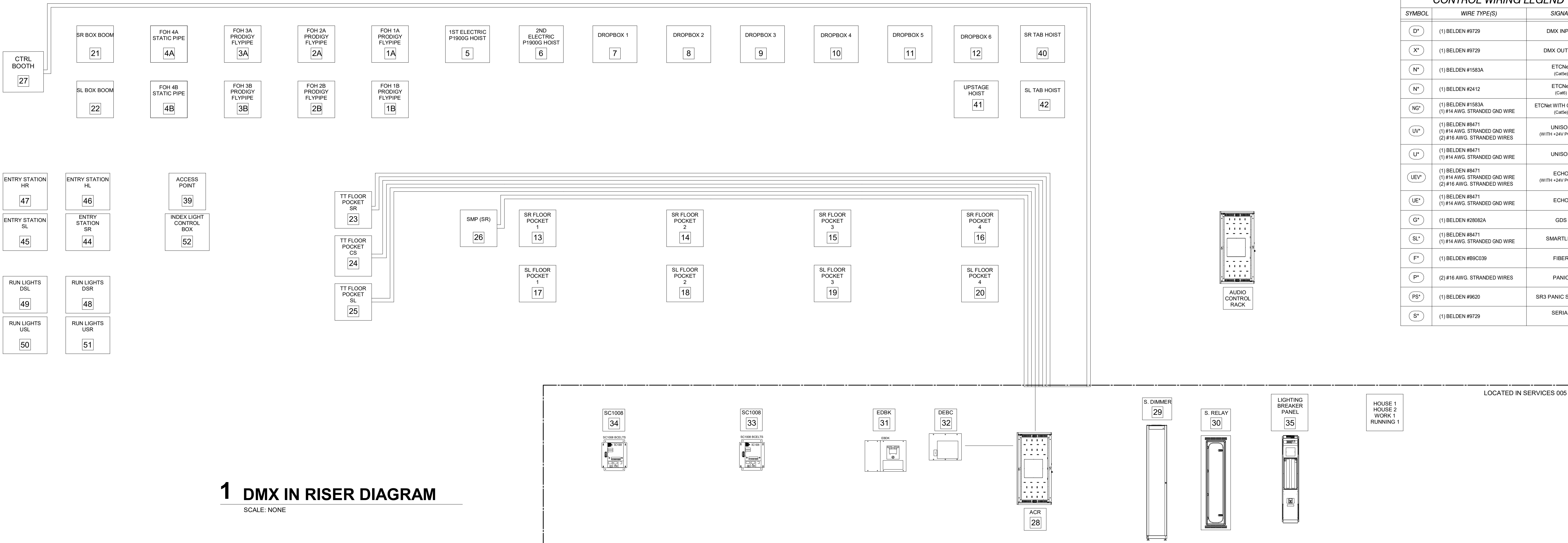
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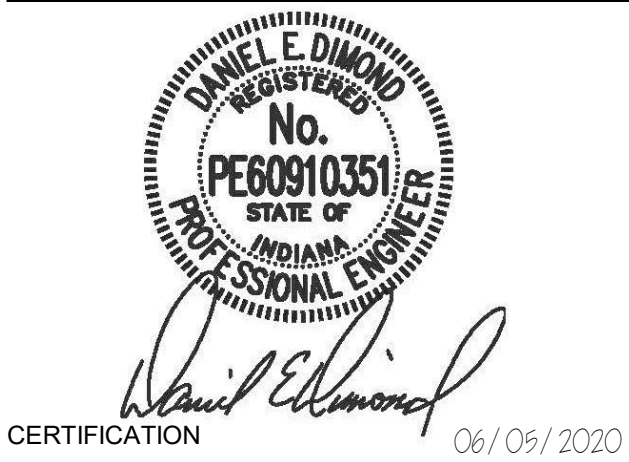
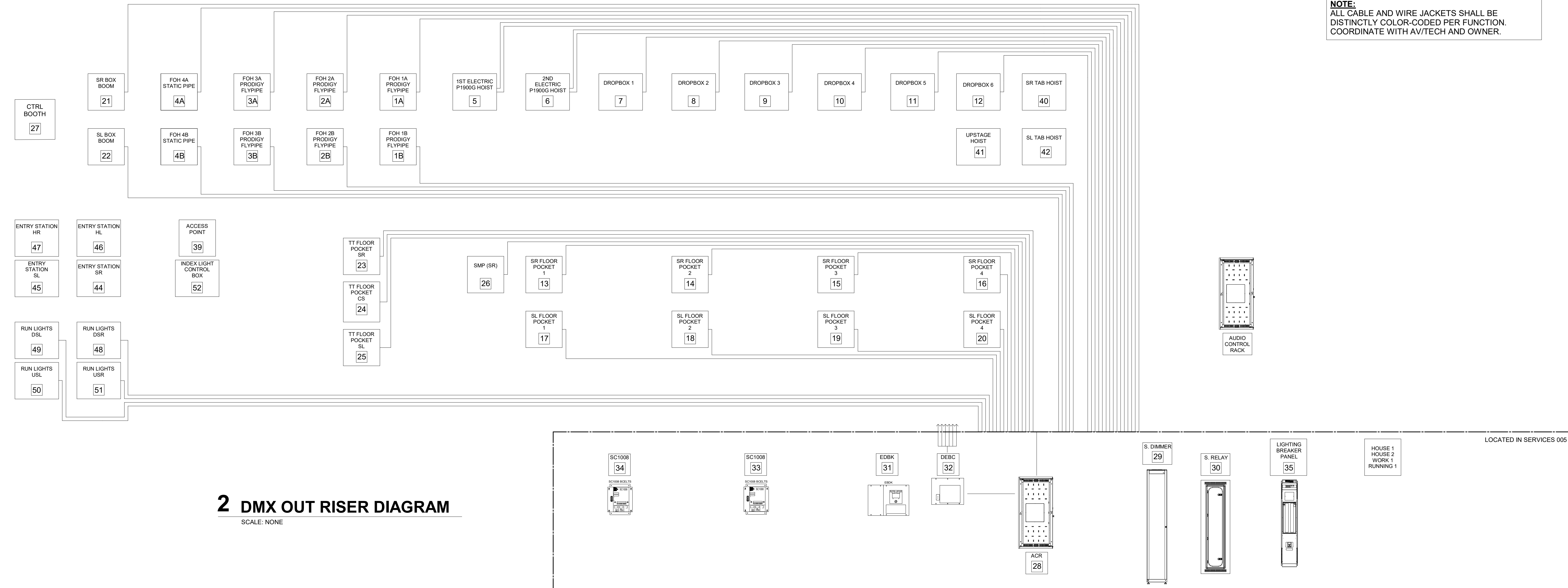
Project No.: 19A052
 Drawn By: JPS
 Checked By: TEH
 Scale: See Drawing
 Issue Date: 06/05/2020

E7.03

CONTROL WIRING LEGEND		
SYMBOL	WIRE TYPE(S)	SIGNAL
D*	(1) BELDEN #9729	DMX INPUT
X*	(1) BELDEN #9729	DMX OUTPUT
N*	(1) BELDEN #1583A	ETCNet (Cat5)
N*	(1) BELDEN #2412	ETCNet (Cat6)
NG*	(1) BELDEN #1583A (1) #14 AWG. STRANDED GND WIRE	ETCNet WITH GROUND (Cat5)
UV*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE (2) #16 AWG. STRANDED WIRES	UNISON (WITH +24V POWER)
U*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	UNISON
UEV*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE (2) #16 AWG. STRANDED WIRES	ECHO (WITH +24V POWER)
UE*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	ECHO
G*	(1) BELDEN #28082A	GDS
SL*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	SMARTLINK
F*	(1) BELDEN #85C039	FIBER
P*	(2) #16 AWG. STRANDED WIRES	PANIC
PS*	(1) BELDEN #9620	SR3 PANIC SUPPLY
S*	(1) BELDEN #9729	SERIAL



NOTE:
ALL CABLE AND WIRE JACKETS SHALL BE
DISTINCTLY COLOR-CODED PER FUNCTION.
COORDINATE WITH AV/TECH AND OWNER.



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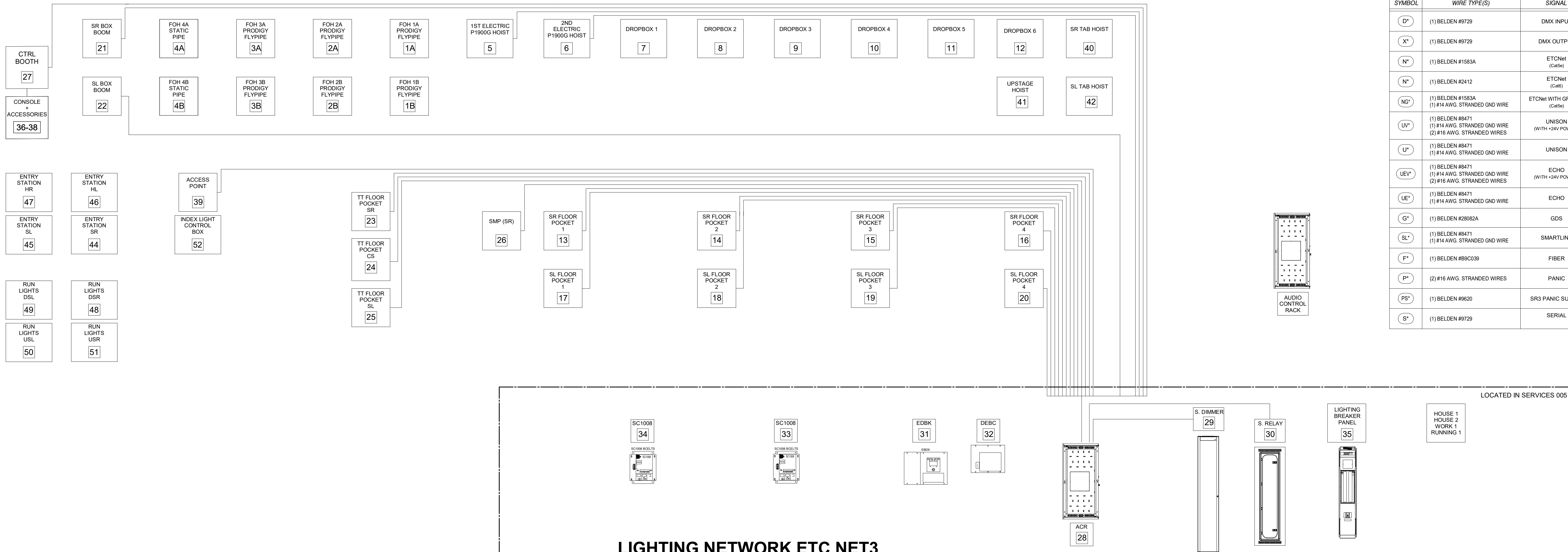
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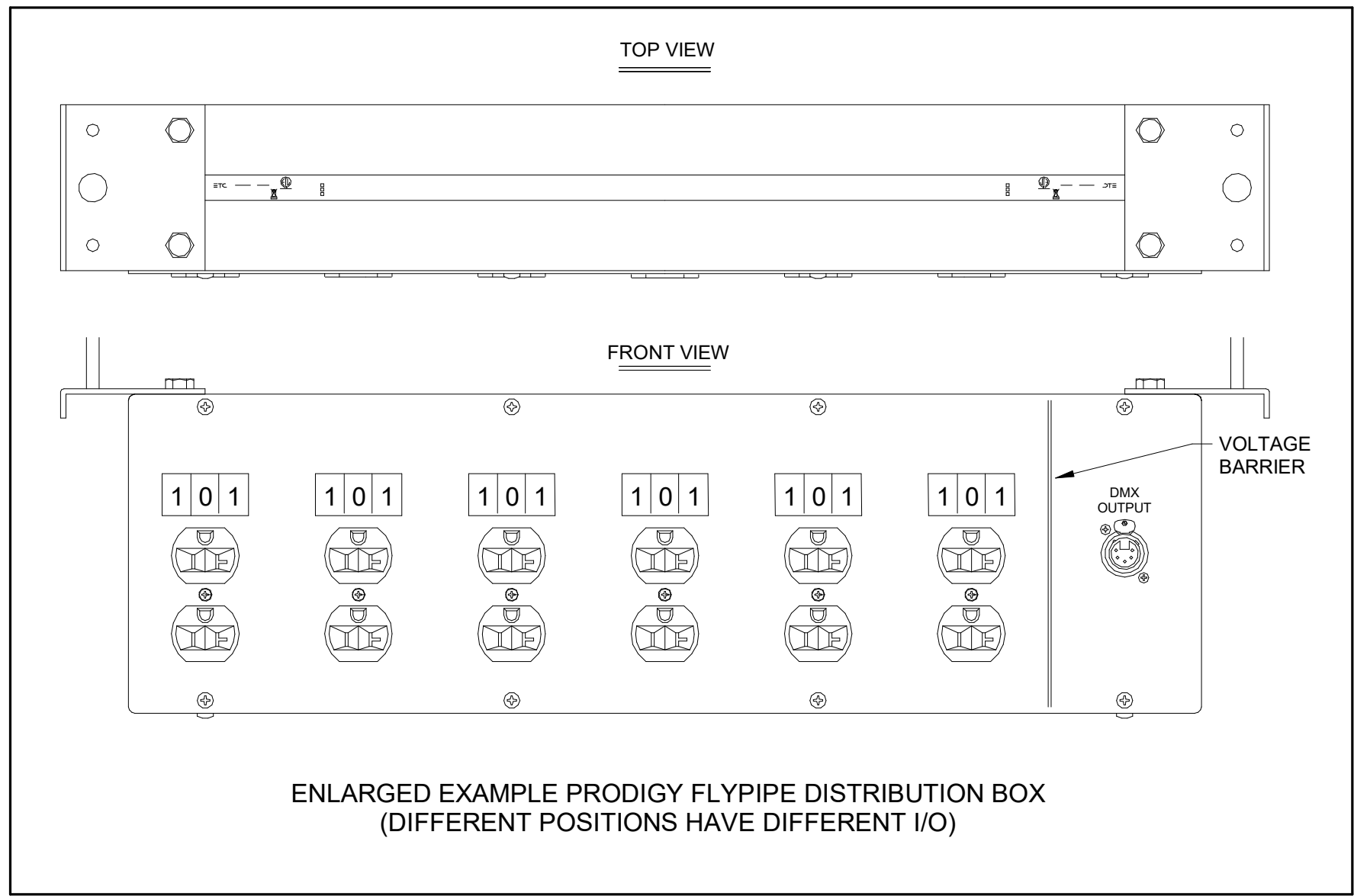
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Drawn By: JPS
Checked By: TEH
Scale: See Drawing
Issue Date: 06/05/2020

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date

THEATER RISER
DIAGRAM - DMX

E7.10





NOTE:
ALL CABLE AND WIRE JACKETS SHALL BE DISTINCTLY COLOR-CODED PER FUNCTION. COORDINATE WITH AV/TECH AND OWNER.

CONTROL WIRING LEGEND		
SYMBOL	WIRE TYPE(S)	SIGNAL
D*	(1) BELDEN #9729	DMX INPUT
X*	(1) BELDEN #9729	DMX OUTPUT
N*	(1) BELDEN #1583A	ETCNet (Cat5)
N*	(1) BELDEN #2412	ETCNet (Cat6)
NG*	(1) BELDEN #1583A (1) #14 AWG. STRANDED GND WIRE	ETCNet WITH GROUND (Cat5)
UV*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE (2) #16 AWG. STRANDED WIRES	UNISON (WITH +24V POWER)
U*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	UNISON
UEV*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE (2) #16 AWG. STRANDED WIRES	ECHO (WITH +24V POWER)
UE*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	ECHO
G*	(1) BELDEN #28082A	GDS
SL*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	SMARTLINK
F*	(1) BELDEN #89C039	FIBER
P*	(2) #16 AWG. STRANDED WIRES	PANIC
PS*	(1) BELDEN #9620	SR3 PANIC SUPPLY
S*	(1) BELDEN #9729	SERIAL



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Website: www.redimond.com

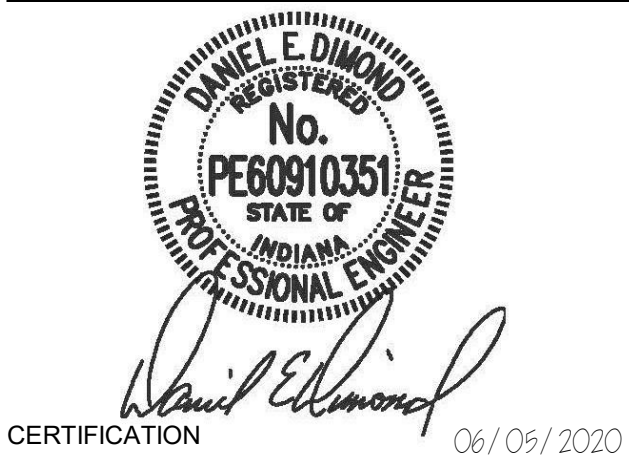
DA# 19082

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



100% CONSTRUCTION
DOCUMENTS

Indiana State University -
Dreiser Hall Renovation

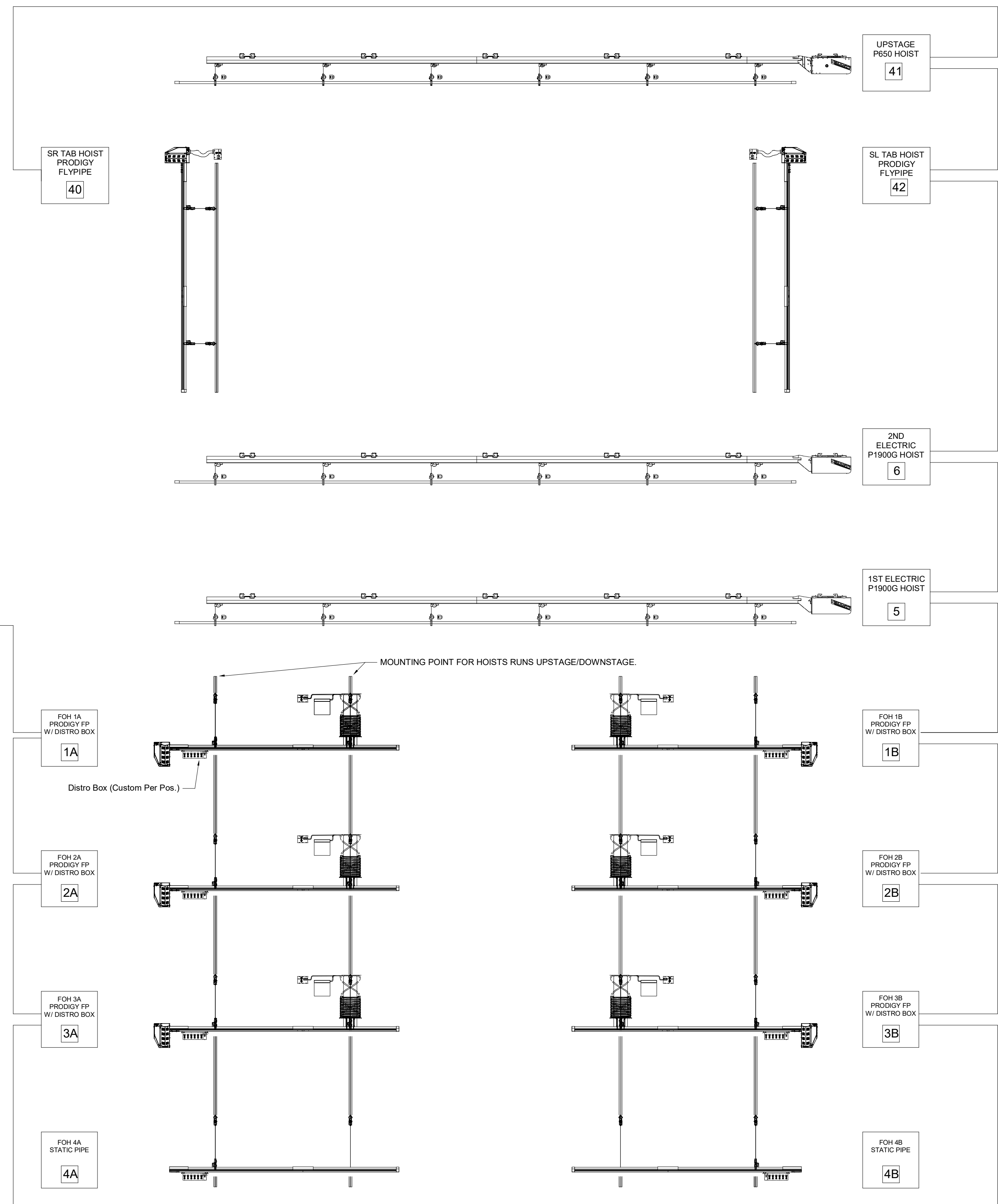
221 North 6th Street
Terre Haute, IN 47809

Project No.: 19A052
Drawn By: JPS
Checked By: TEH
Scale: See Drawing
Issue Date: 06/05/2020

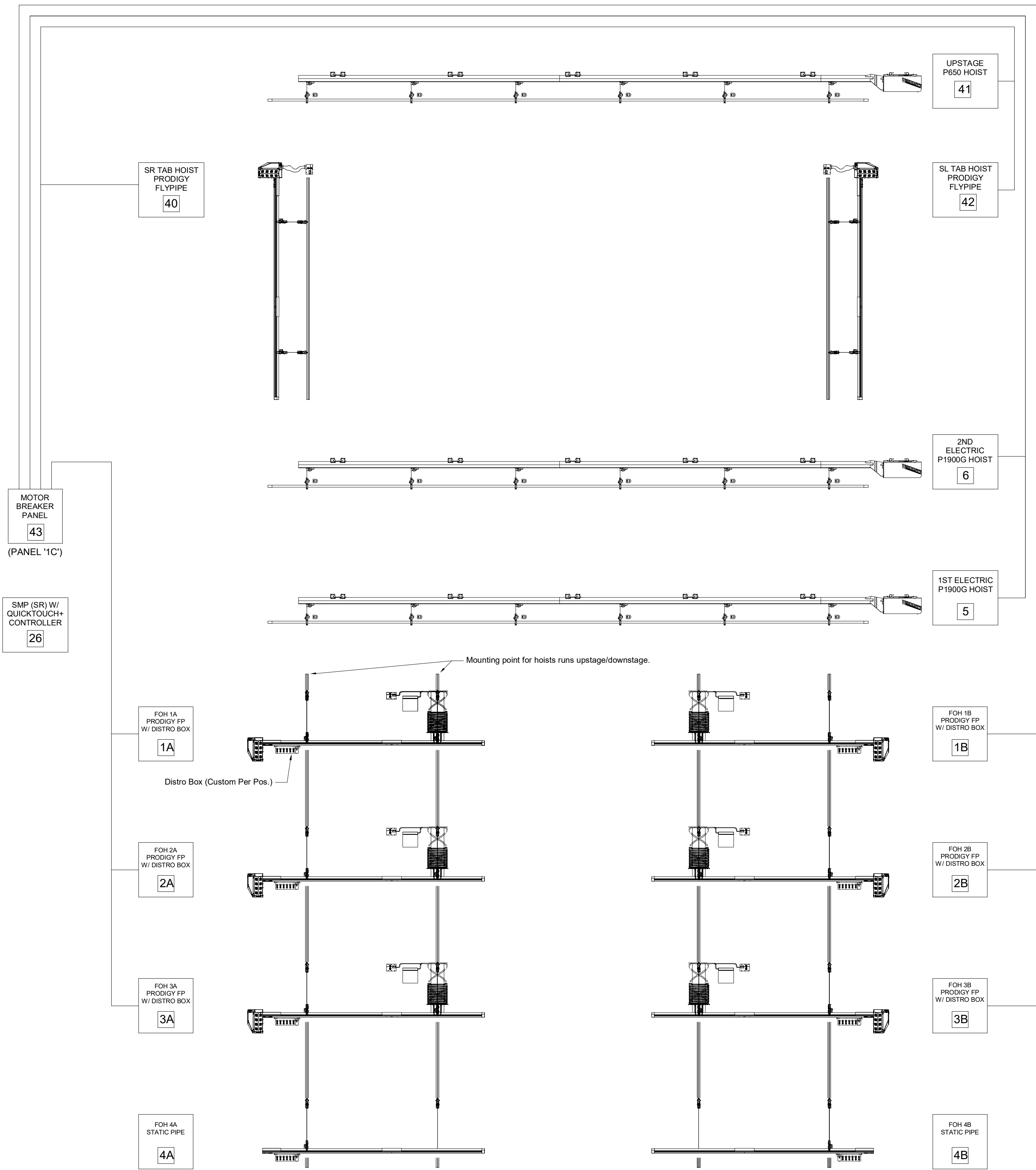
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date

THEATER RISER
DIAGRAM - MOTORIZED
RIGGING

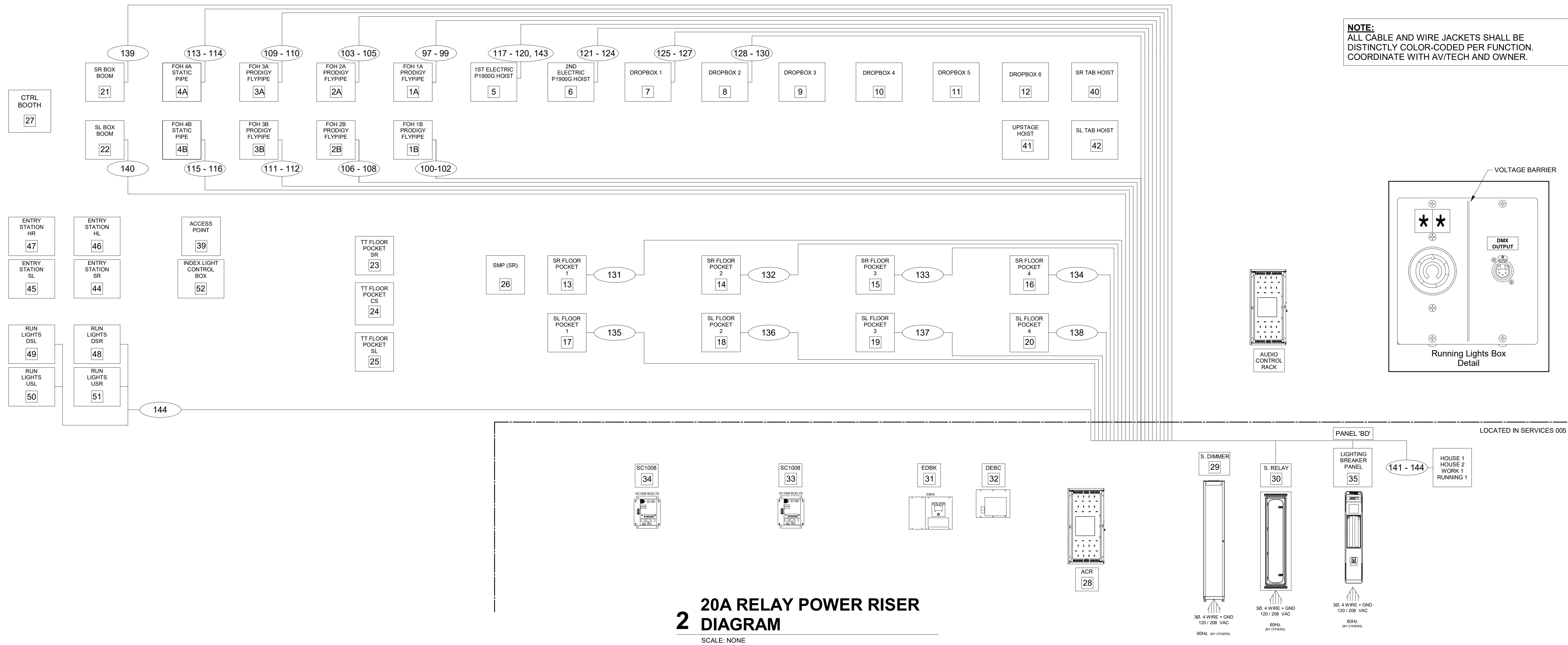
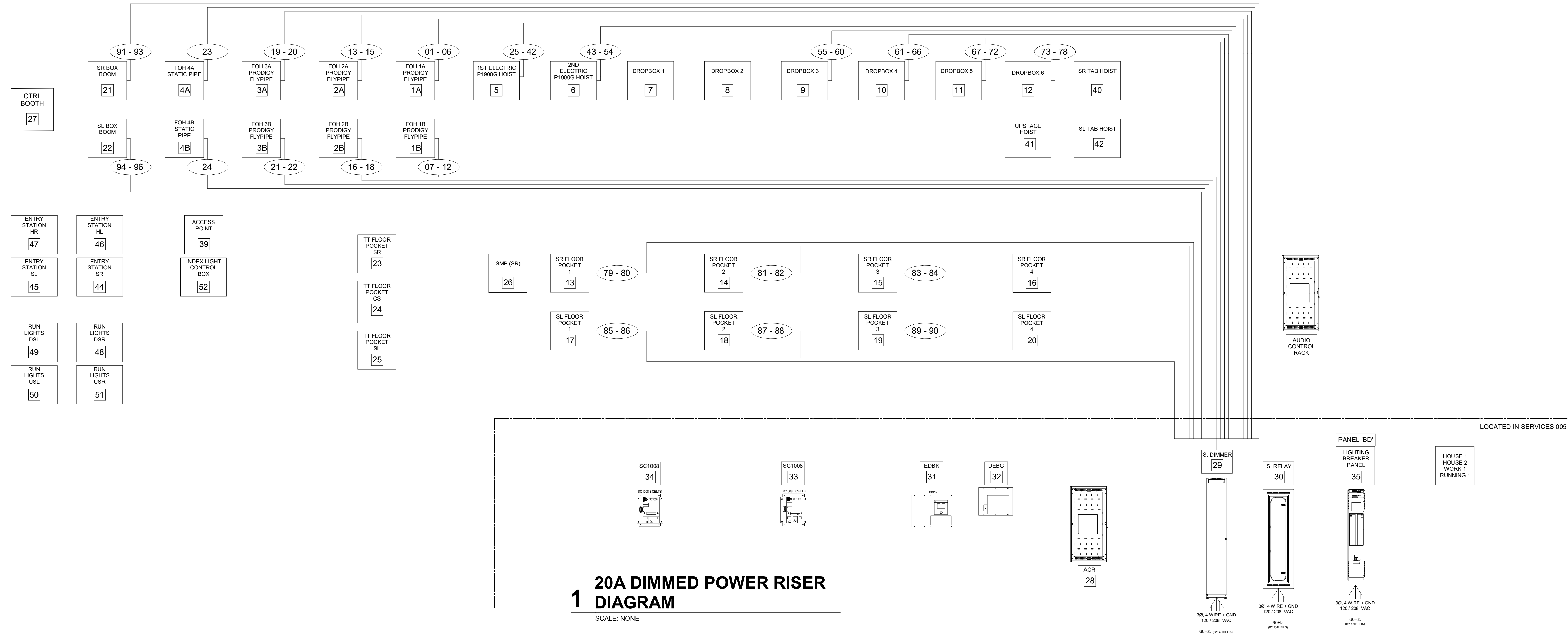
E7.12



1 HOIST CONTROL RISER DIAGRAM
SCALE: NONE



2 HOIST POWER RISER DIAGRAM
SCALE: NONE





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

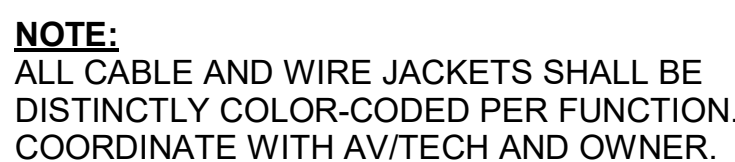
4275 North High School Road
Indianapolis, IN 46254
Phone: (317) 293-3542
Website: www.vsengineering.com

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

DA# 1908

1650 East 49th Street
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SCALE: NONE

CERTIFICATION 06/05/2020

221 North 6th Street
Terre Haute, IN 47809

Project No.: 19A052
 Drawn By: JPS
 Checked By: TEH
 Scale: See Dr
 Issue Date: 06/05/2

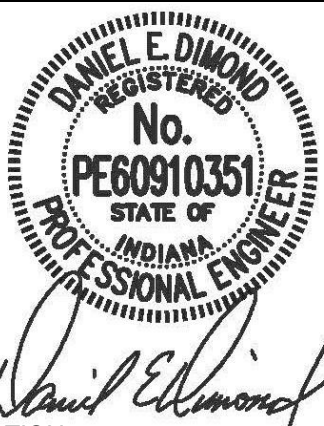
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date

E7.14



CONTROL WIRING LEGEND		
SYMBOL	WIRE TYPE(S)	SIGNAL
D*	(1) BELDEN #9729	DMX INPUT
X*	(1) BELDEN #9729	DMX OUTPUT
N*	(1) BELDEN #1583A	ETCNet (Cat5)
N*	(1) BELDEN #2412	ETCNet (Cat6)
NG*	(1) BELDEN #1583A (1) #14 AWG. STRANDED GND WIRE	ETCNet WITH GROUND (Cat5)
UV*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE (2) #16 AWG. STRANDED WIRES	UNISON (WITH +24V POWER)
U*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	UNISON
UEV*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE (2) #16 AWG. STRANDED WIRES	ECHO (WITH +24V POWER)
UE*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	ECHO
G*	(1) BELDEN #28082A	GDS
SL*	(1) BELDEN #8471 (1) #14 AWG. STRANDED GND WIRE	SMARTLINK
F*	(1) BELDEN #89039	FIBER
P*	(2) #16 AWG. STRANDED WIRES	PANIC
PS*	(1) BELDEN #9620	SR3 PANIC SUPPLY
S*	(1) BELDEN #9729	SERIAL

1 ENTRY STATIONS RISER DIAGRAM
SCALE: NONE



CERTIFICATION 06/09/2020

100% CONSTRUCTION
DOCUMENTS

Indiana State University -
Dreiser Hall Renovation

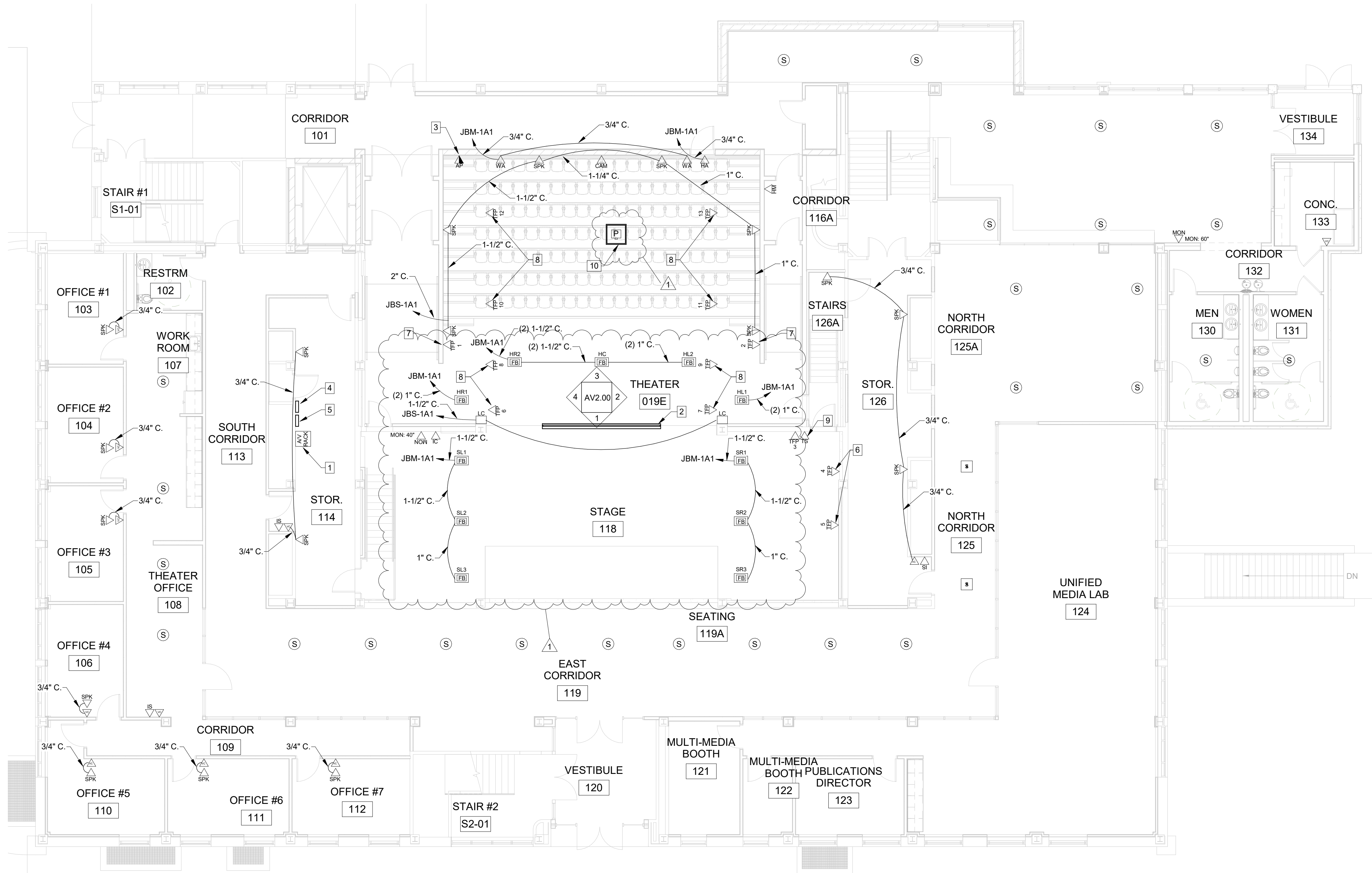
221 North 6th Street
Terre Haute, IN 47809

Project No.: 19A052
Drawn By: JPS
Checked By: TEH
Scale: See Drawing
Issue Date: 06/05/2020

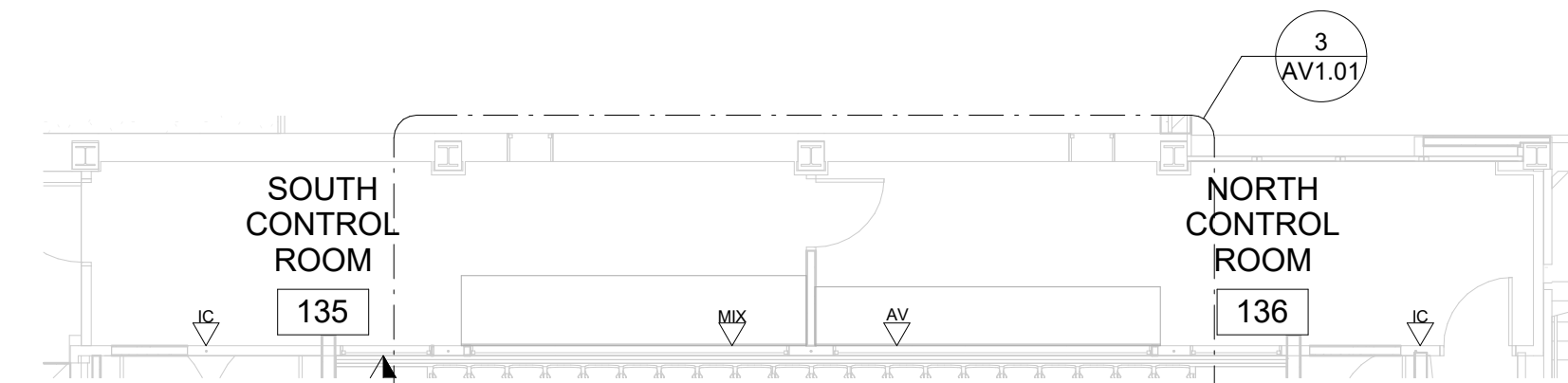
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date

THEATER RISER
DIAGRAM - ENTRY
STATIONS

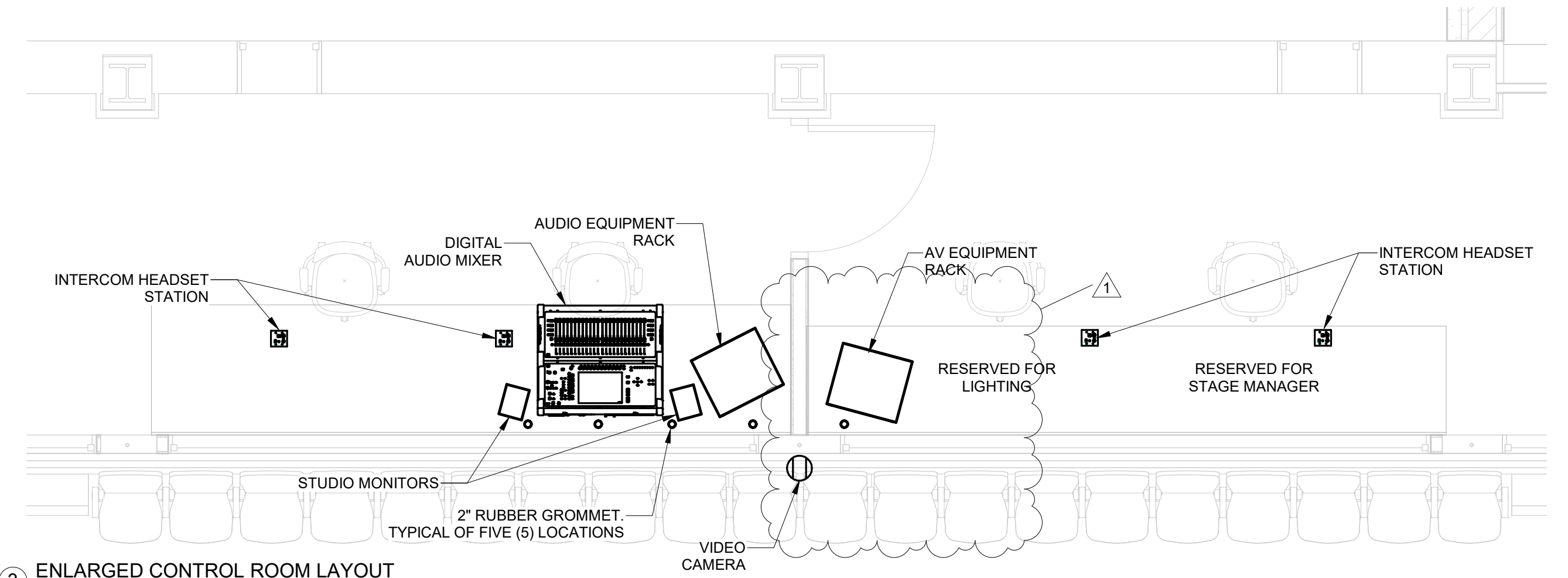
E7.15



1 1ST FLOOR AUDIO VISUAL PLAN
1/8" = 1'-0"



2 CONTROL ROOM
1/8" = 1'-0"

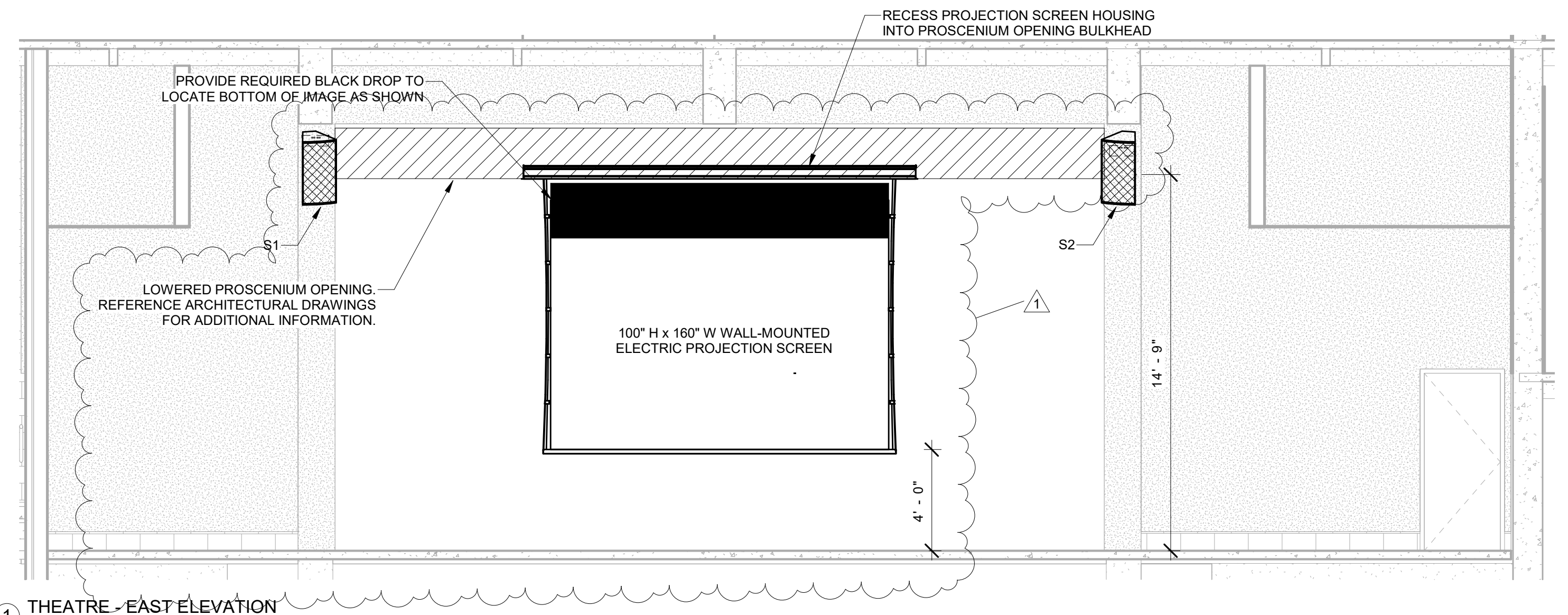


3 ENLARGED CONTROL ROOM LAYOUT
3/8" = 1'-0"

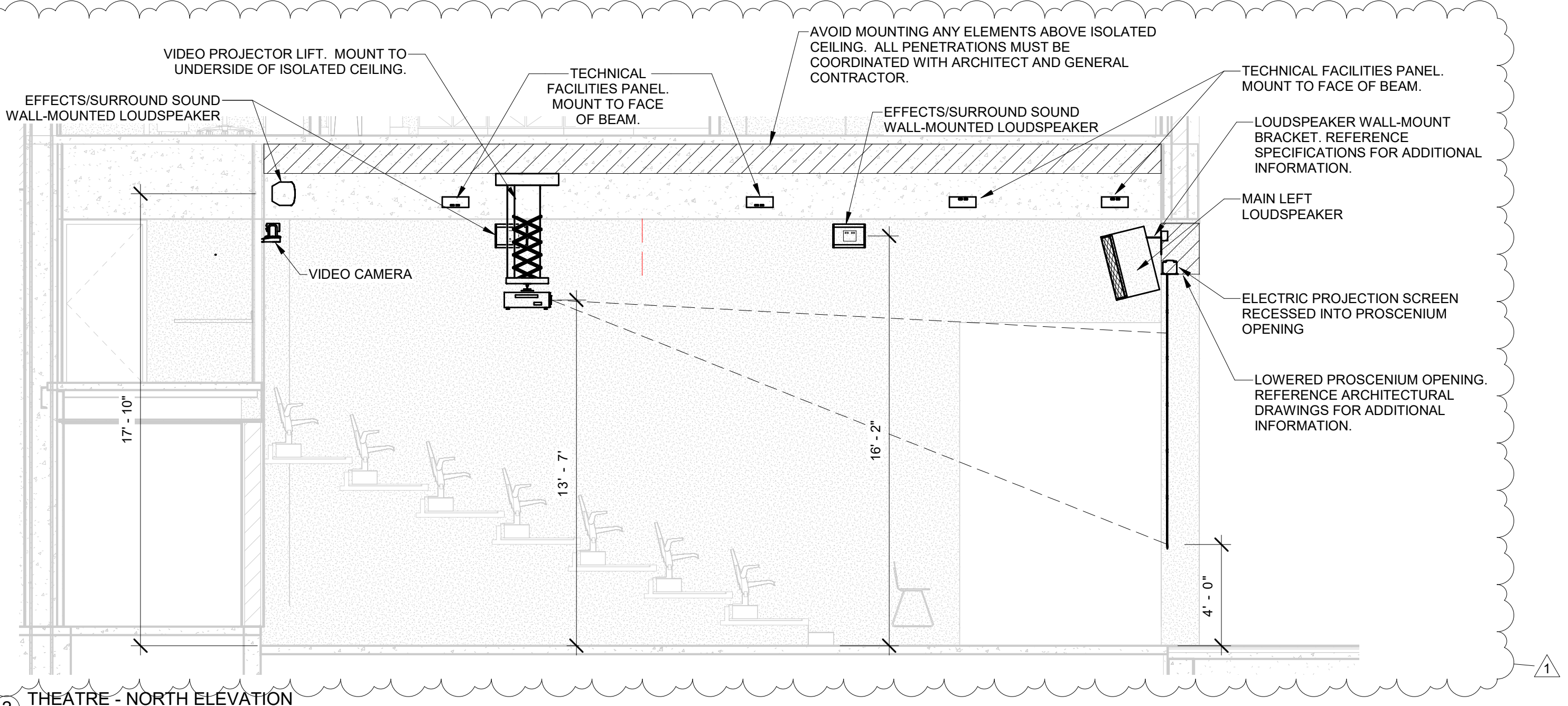
TELECOM LEGEND	
	TECHNICAL FACILITIES PANEL
	PROJECTOR LOCATION
	MONITOR LOCATION
	SPEAKER - WALL MOUNTED
	SPEAKER - CEILING PENDANT
	EQUIPMENT RACK LOCATION
	MIXING BOARD LOCATION
	INTERCOM CONNECTION LOCATION
	INTERCOM SPEAKER STATION LOCATION
	WIRELESS MICROPHONE ANTENNA LOCATION
	HEARING ASSIST ANTENNA LOCATION
	LOUDSPEAKER JUNCTION BOX LOCATION
	FLOOR BOX LOCATION
	VOLUME CONTROL LOCATION
	HOUSE MANAGER LOCATION
	AUDIO INPUT LOCATION
	TOUCH SCREEN LOCATION
	VIDEO CAMERA LOCATION
	WIRELESS ACCESS POINT - WALL MOUNTED

SHEET NOTES	
1.	THEATER AMPLIFIER EQUIPMENT RACK. 100" H x 160" W RECESSED ELECTRIC PROJECTION SCREEN.
2.	WIRELESS ACCESS POINT FOR AUDIO SYSTEM ONLY.
3.	JBM-1A1 MICROPHONE/LINE LEVEL JUNCTION BOX. PROVIDE 18" x 18" JUNCTION BOX MOUNTED AT 84" A.F.F. PROVIDE (2) 3" CONDUITS STUBBED WITHIN 6" OF TOP OF AMPLIFIER RACK. COORDINATE FINAL LOCATION IN FIELD.
4.	JBS-1A1 SPEAKER JUNCTION BOX. PROVIDE 18" x 18" JUNCTION BOX MOUNTED AT 84" A.F.F. PROVIDE (2) 3" CONDUITS STUBBED WITHIN 6" OF TOP OF AMPLIFIER RACK. PROVIDE (1) 1" CONDUIT TO EACH VOLUME CONTROL (VC) LOCATION ON THIS LEVEL. COORDINATE FINAL LOCATION IN FIELD.
5.	AV CONNECTION PLATE FOR THEATER AV CABLEING ON FIRST AND SECOND LINE SETS. COORDINATE WITH GENERAL CONTRACTOR, LIGHTING CONTRACTOR, RIGGING CONTRACTOR AND OWNER FOR FINAL LOCATION. TRAVELING CABLEING FROM CONNECTION POINT TO LINE SET CABLE MANAGEMENT SYSTEM TO BE PROVIDED AND INSTALLED BY OTHERS.
6.	AV CONNECTION PLATE FOR THEATER AV CABLEING FOR BOX BOOM LOCATIONS. COORDINATE WITH GENERAL CONTRACTOR, LIGHTING CONTRACTOR, RIGGING CONTRACTOR AND OWNER FOR FINAL LOCATION.
7.	AV CONNECTION PLATE FOR THEATER AV CABLEING ON FOH LINE SETS MOUNT ON SIDE OF STRUCTURAL BEAM. COORDINATE WITH GENERAL CONTRACTOR, LIGHTING CONTRACTOR, RIGGING CONTRACTOR AND OWNER FOR FINAL LOCATION. TRAVELING CABLEING FROM CONNECTION POINT TO LINE SET CABLE MANAGEMENT SYSTEM TO BE PROVIDED AND INSTALLED BY OTHERS.
8.	INTEGRATE TOUCHSCREEN INTO STAGE RACK. STAGE RACK PROVIDED AND INSTALLED BY OTHERS. REFERENCE THEATRICAL LIGHTING/RIGGING DRAWINGS FOR ADDITIONAL INFORMATION.
9.	VIDEO PROJECTOR LIFT LOCATION.
10.	

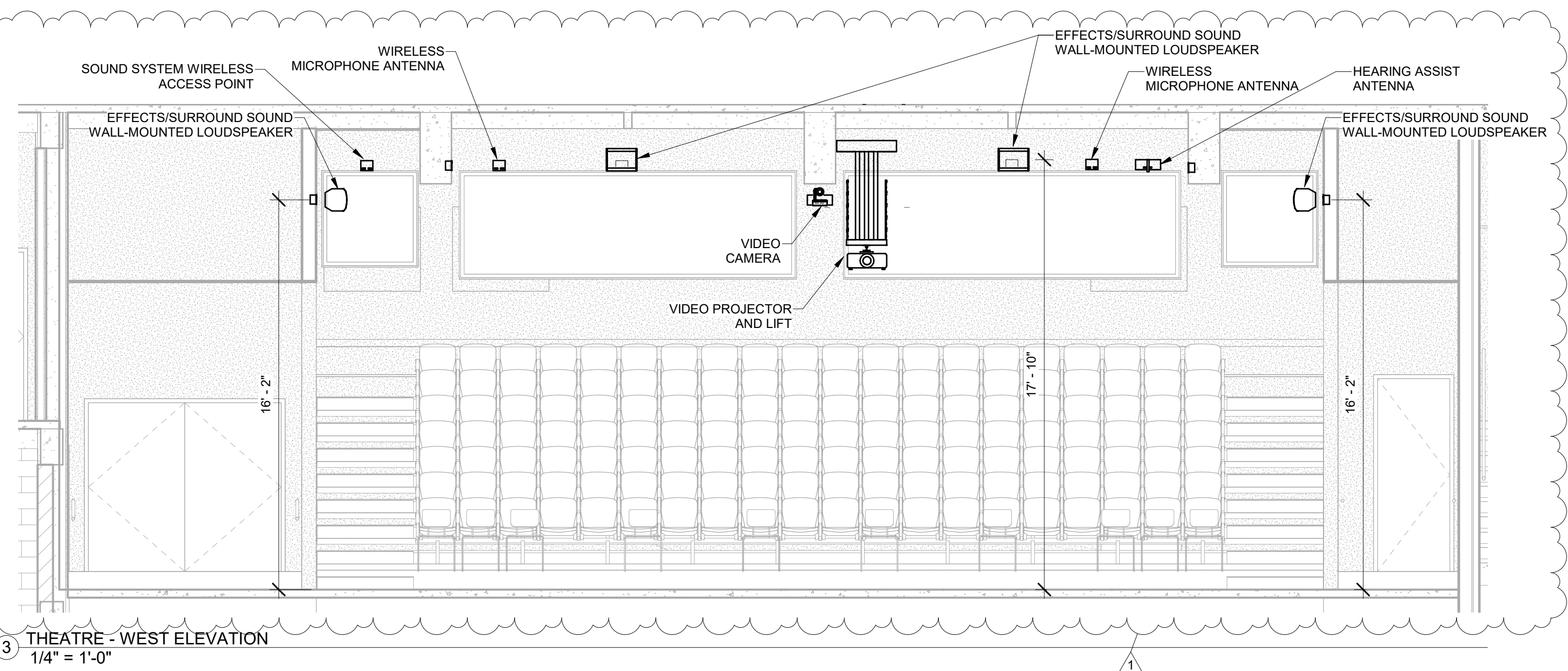
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #2	06/19/2020



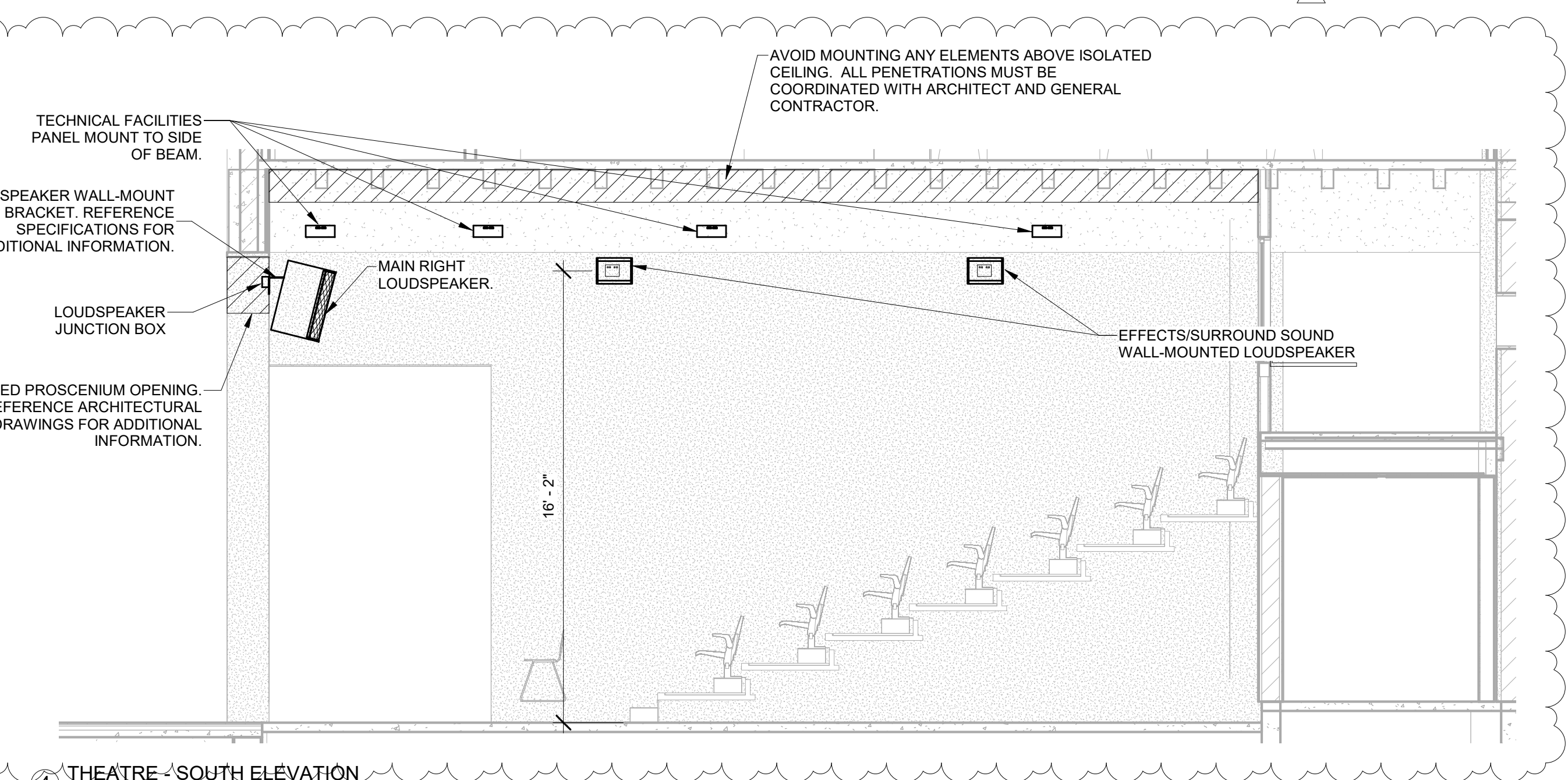
1 THEATRE - EAST ELEVATION
1/4" = 1'-0"



2 THEATRE - NORTH ELEVATION
1/4" = 1'-0"

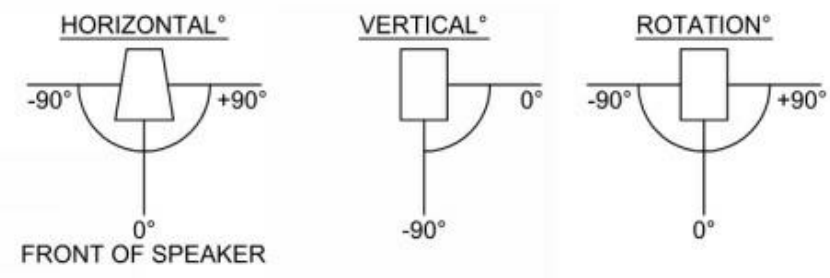


3 THEATRE - WEST ELEVATION
1/4" = 1'-0"

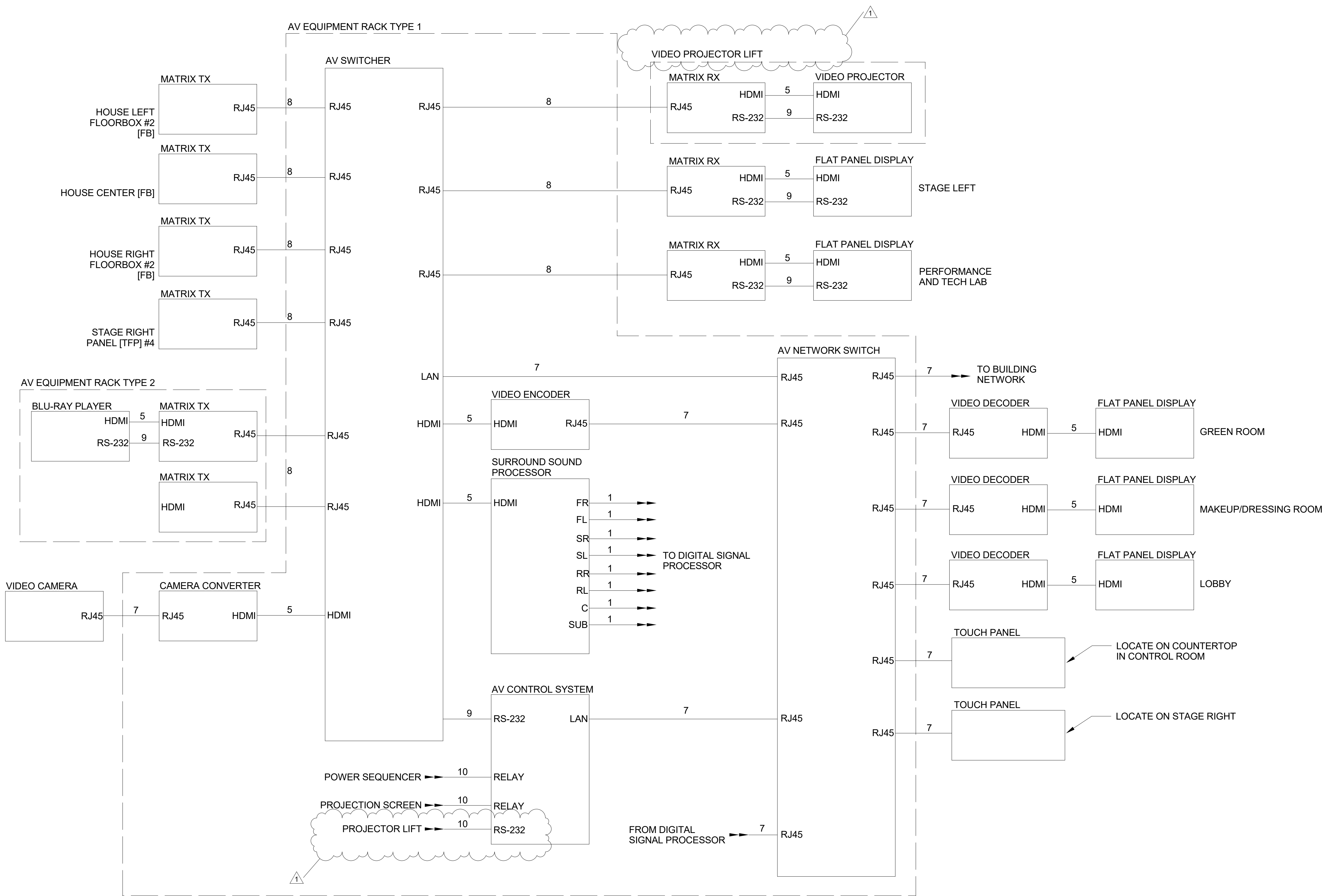


4 THEATRE - SOUTH ELEVATION
1/4" = 1'-0"

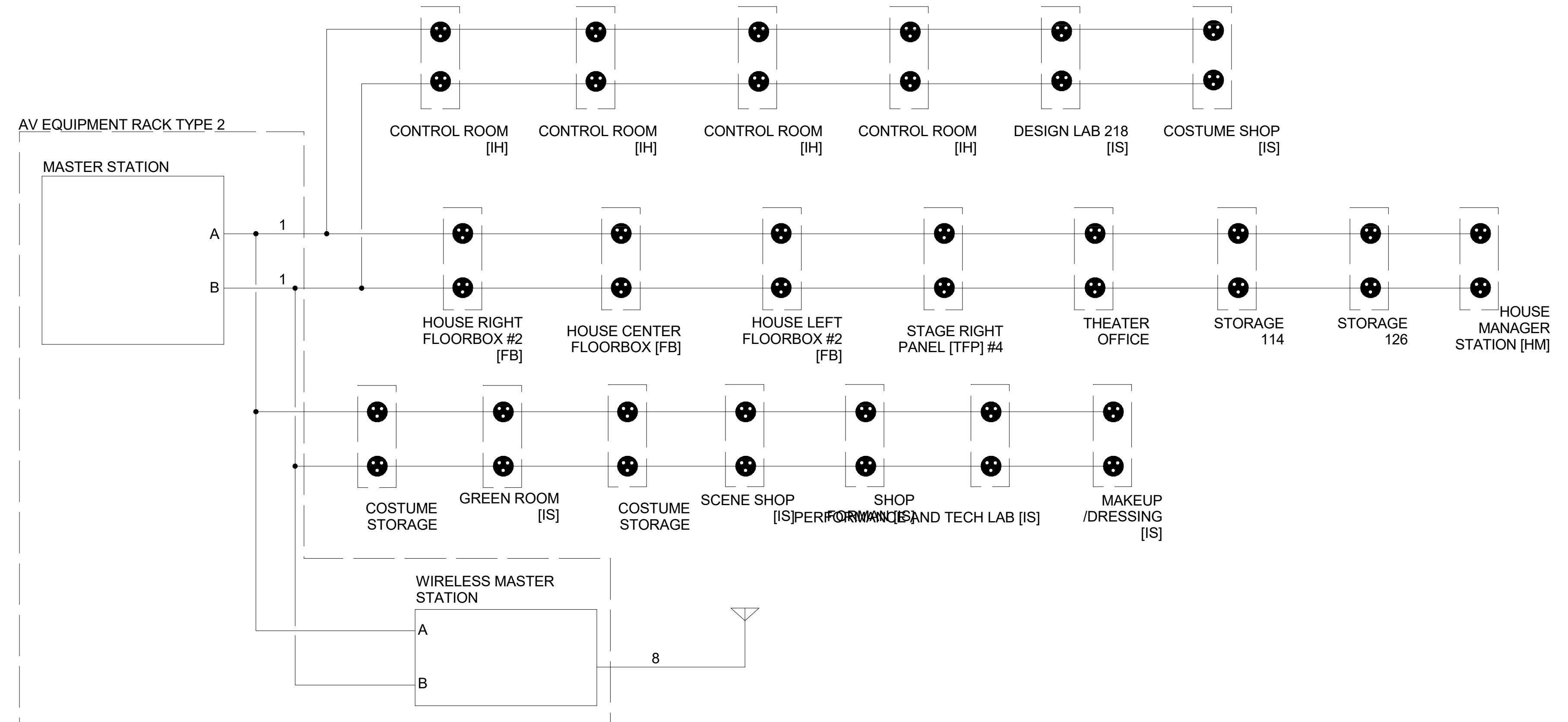
SPEAKER AIMING DETAILS			
LOUDSPEAKER	VERTICAL ANGLE	HORIZONTAL ANGLE	ROTATION
S1	-14°	15°	0°
S2	-14°	-15°	0°



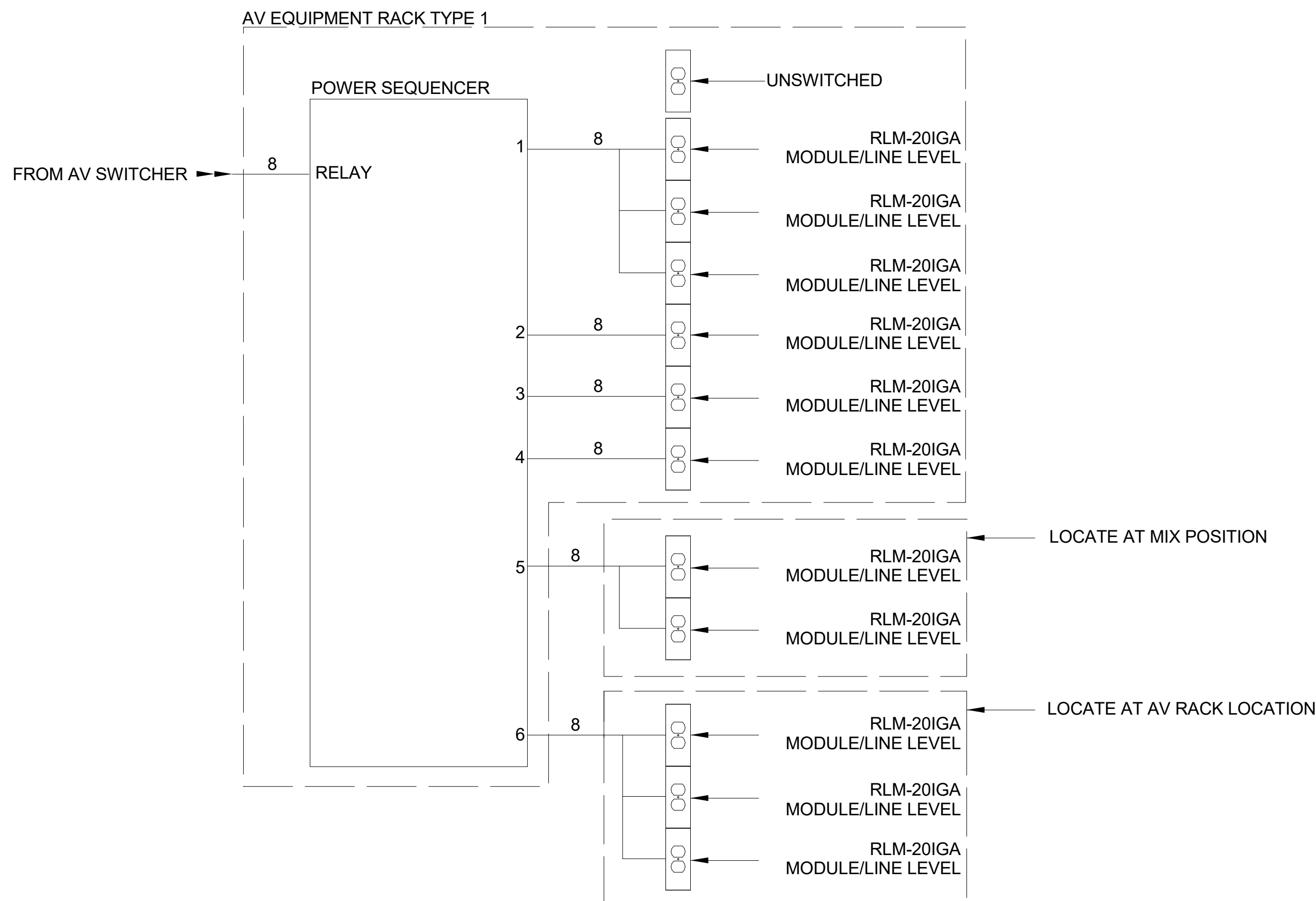
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #2	06/19/2020



1 AUDIO-VISUAL SYSTEM DIAGRAM
N.T.S.



2 INTERCOM FUNCTIONAL DIAGRAM
N.T.S.



3 POWER SEQUENCING FUNCTIONAL
DIAGRAM
N.T.S.

CABLING LEGEND	
1.	BALANCED MICROPHONE / LINE LEVEL CABLING
2.	UNBALANCED MICROPHONE / LINE LEVEL CABLING
3.	12AWG LOUDSPEAKER CABLING
4.	16AWG LOUDSPEAKER CABLING
5.	HDMI CABLING
6.	STP CABLING
7.	UTP CABLING
8.	MANUFACTURER RECOMMENDED CABLING
9.	RS-232 CABLING
10.	RELAY CABLING
11.	RF CABLING



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Indiana State University
Owner

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Website: www.indstate.edu

VS Engineering
Structural Engineer

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Phone: (317) 293-3542
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RE Dimond
MEP Engineer

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CERTIFICATION

Construction Documents

Indiana State University -
Dreiser Hall Renovation

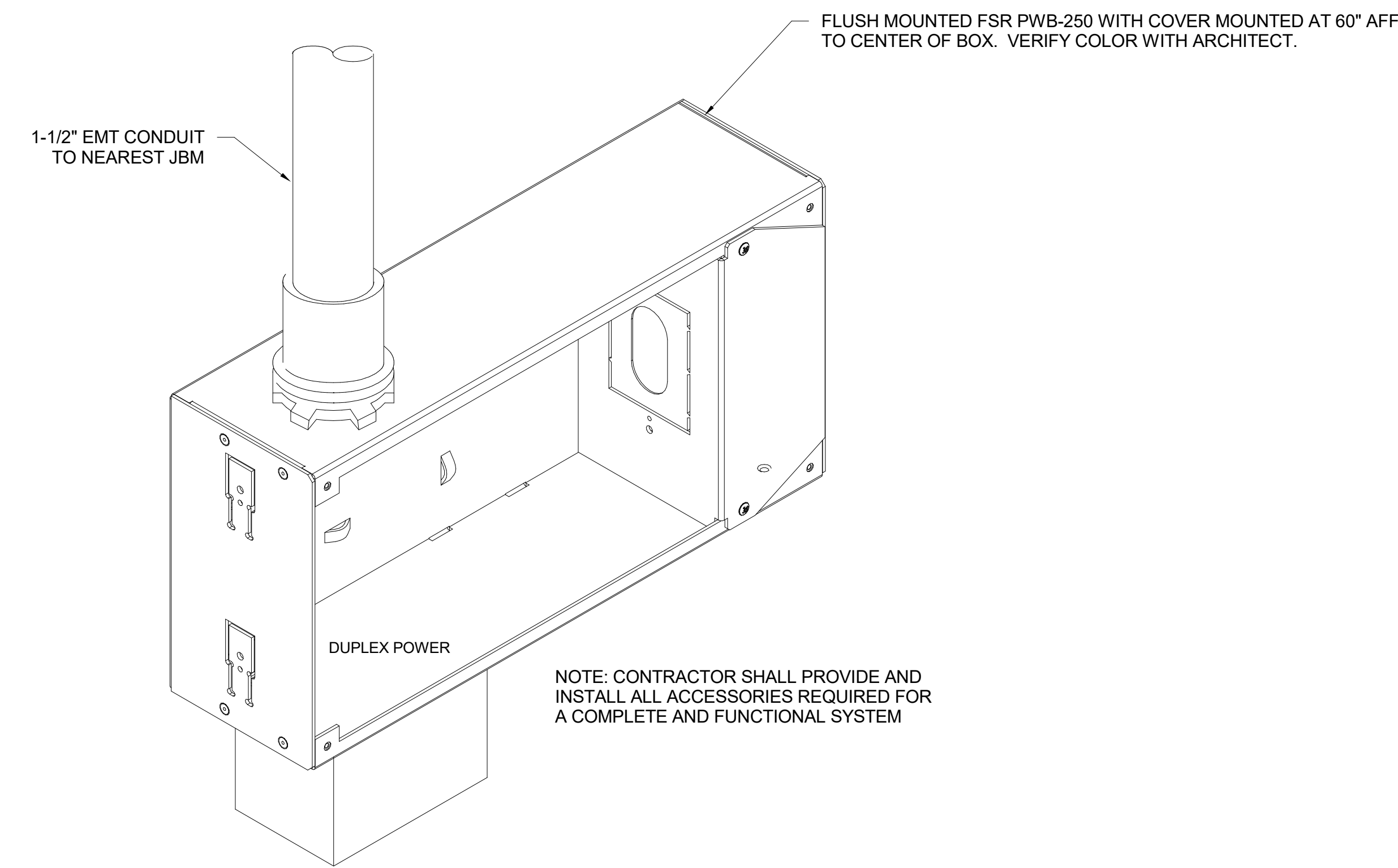
Terre Haute, Indiana 47809

Project No.: 19A052
Drawn By: LAC
Checked By: JJK
Scale: See Drawing
Issue Date: June 5, 2020

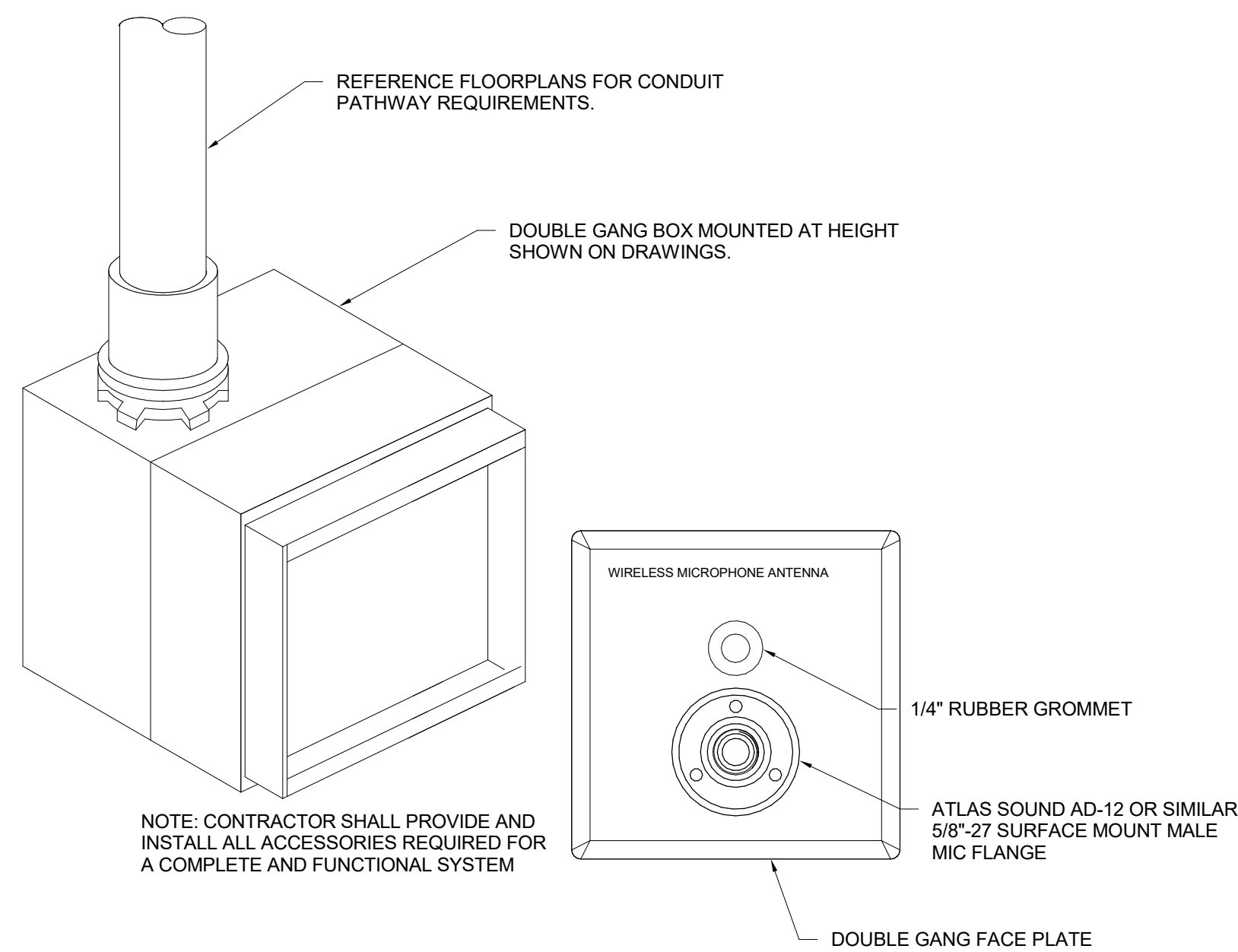
REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #2	06/19/2020

THEATER FUNCTIONAL
DIAGRAMS

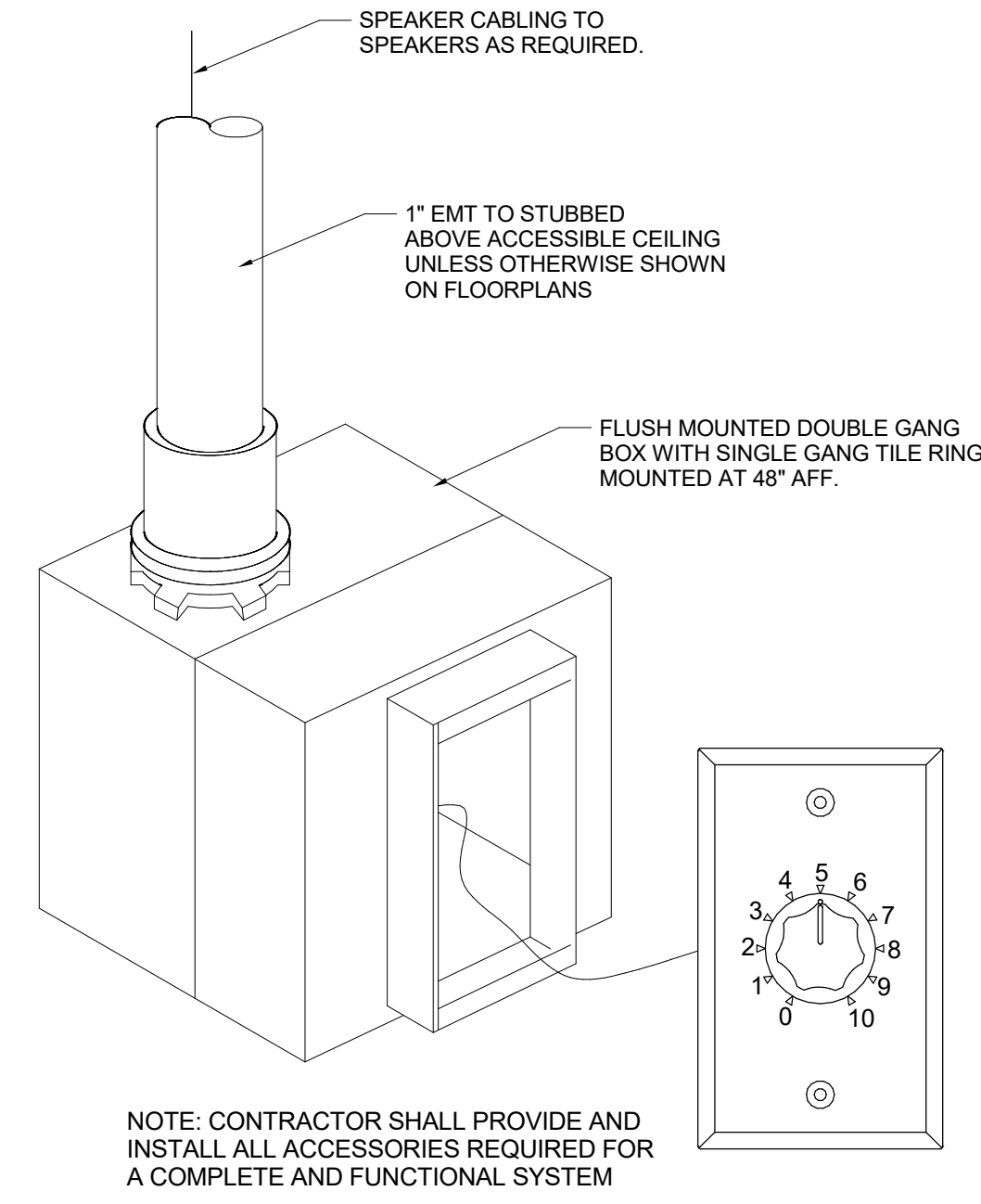
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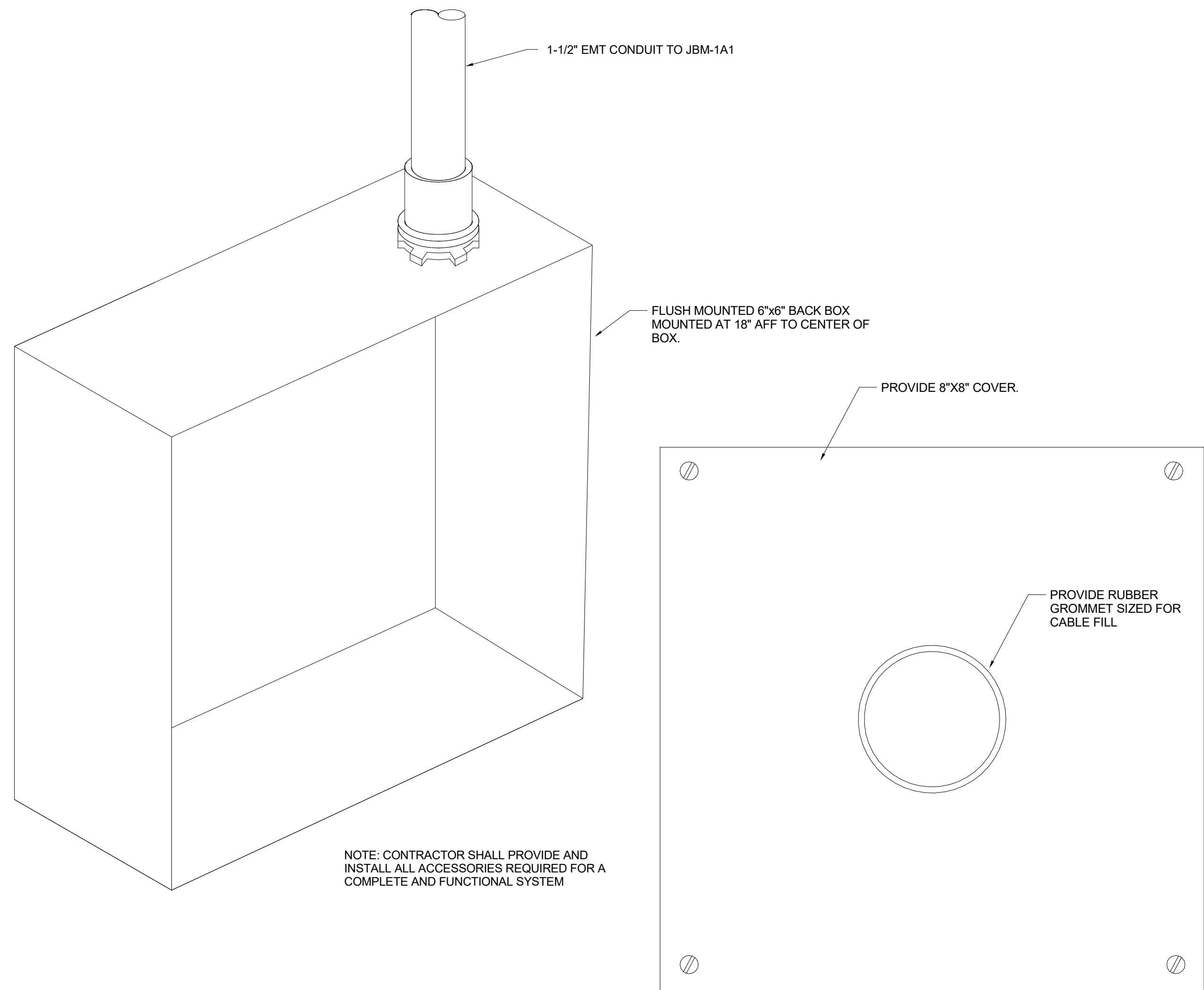
1 MONITOR LOCATION
N.T.S.



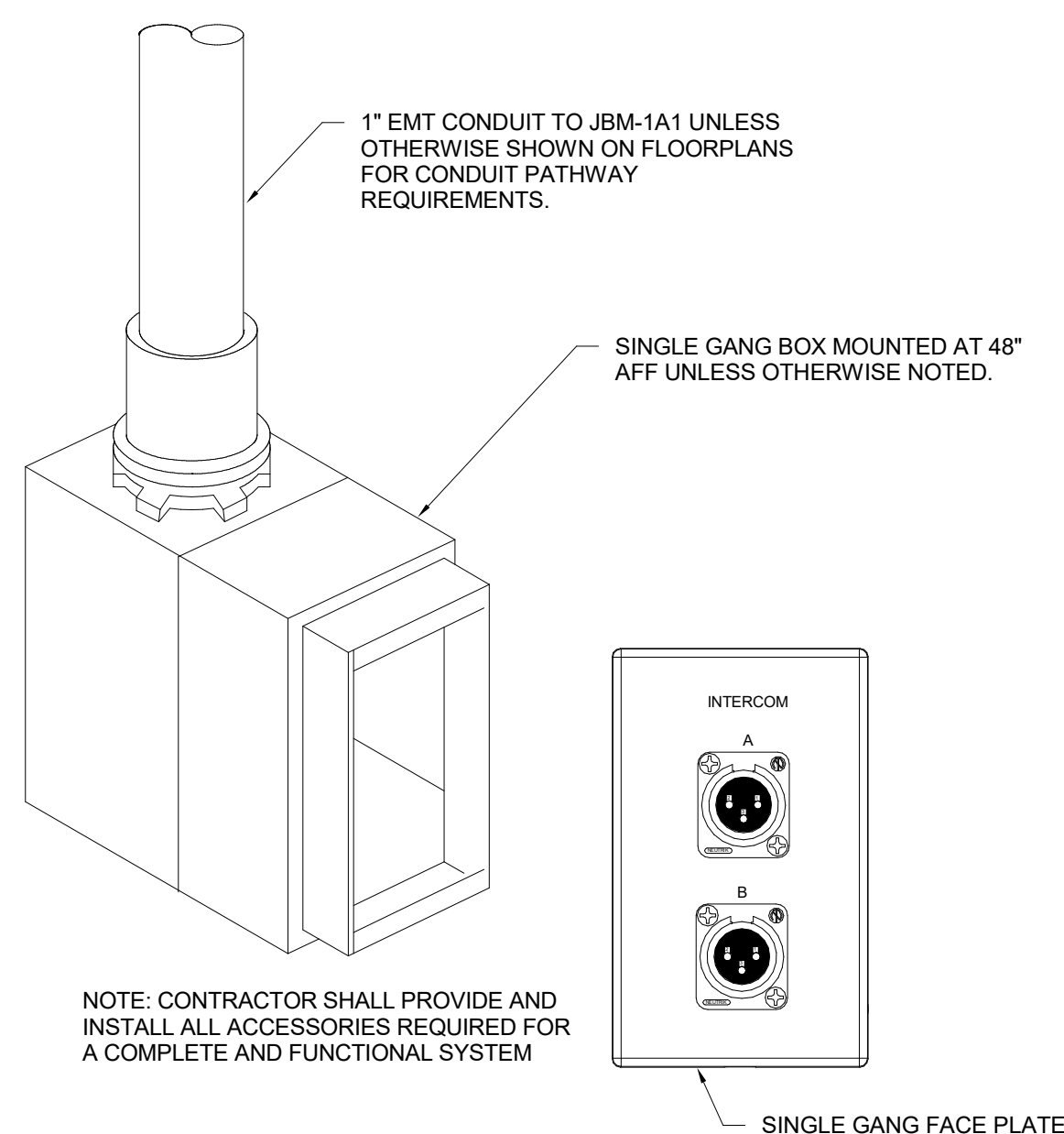
2 WIRELESS MICROPHONE ANTENNA
LOCATION
N.T.S.



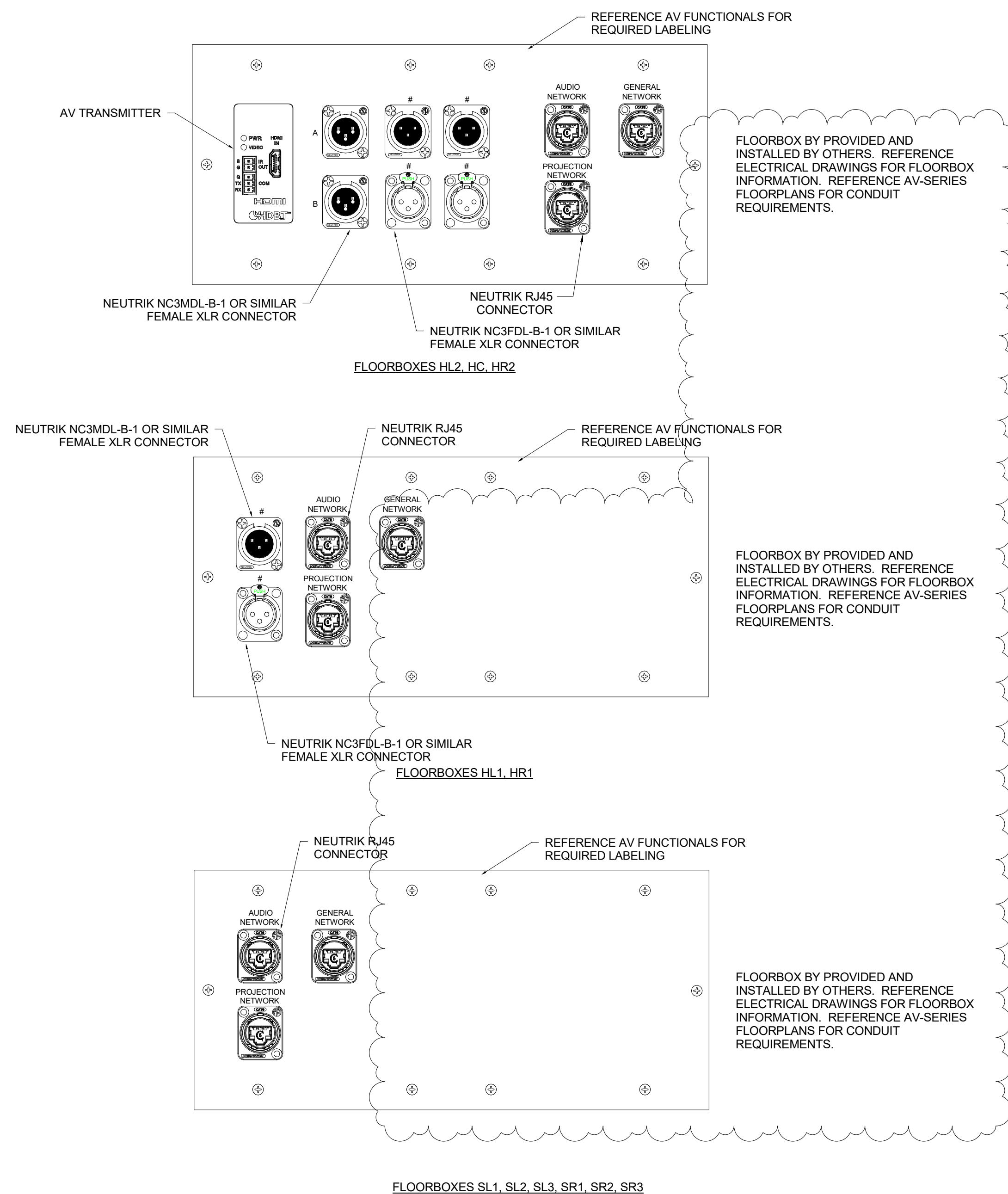
3 VOLUME CONTROL LOCATION
N.T.S.



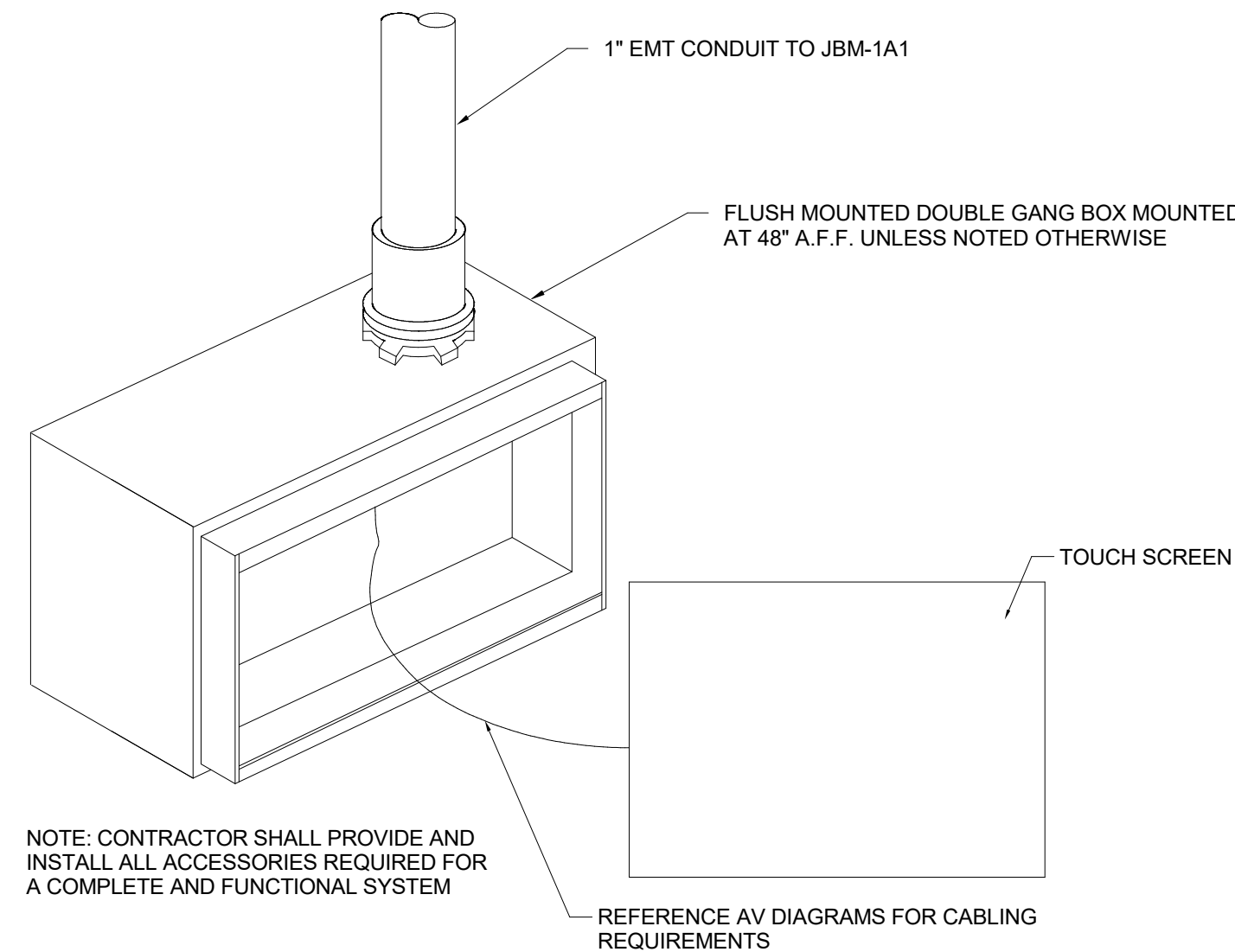
4 AV CONNECTION LOCATION
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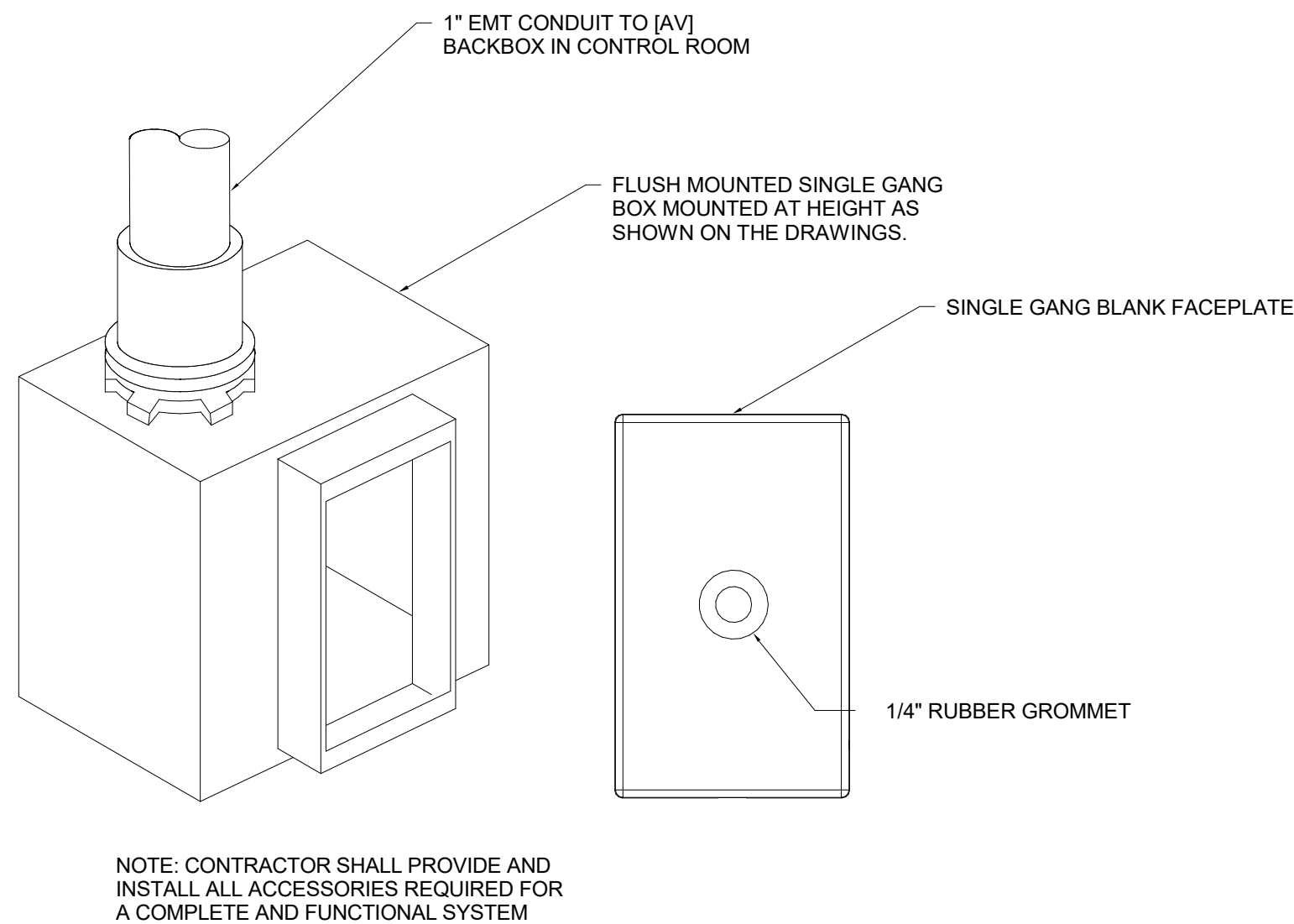
5 INTERCOM CONNECTION LOCATION
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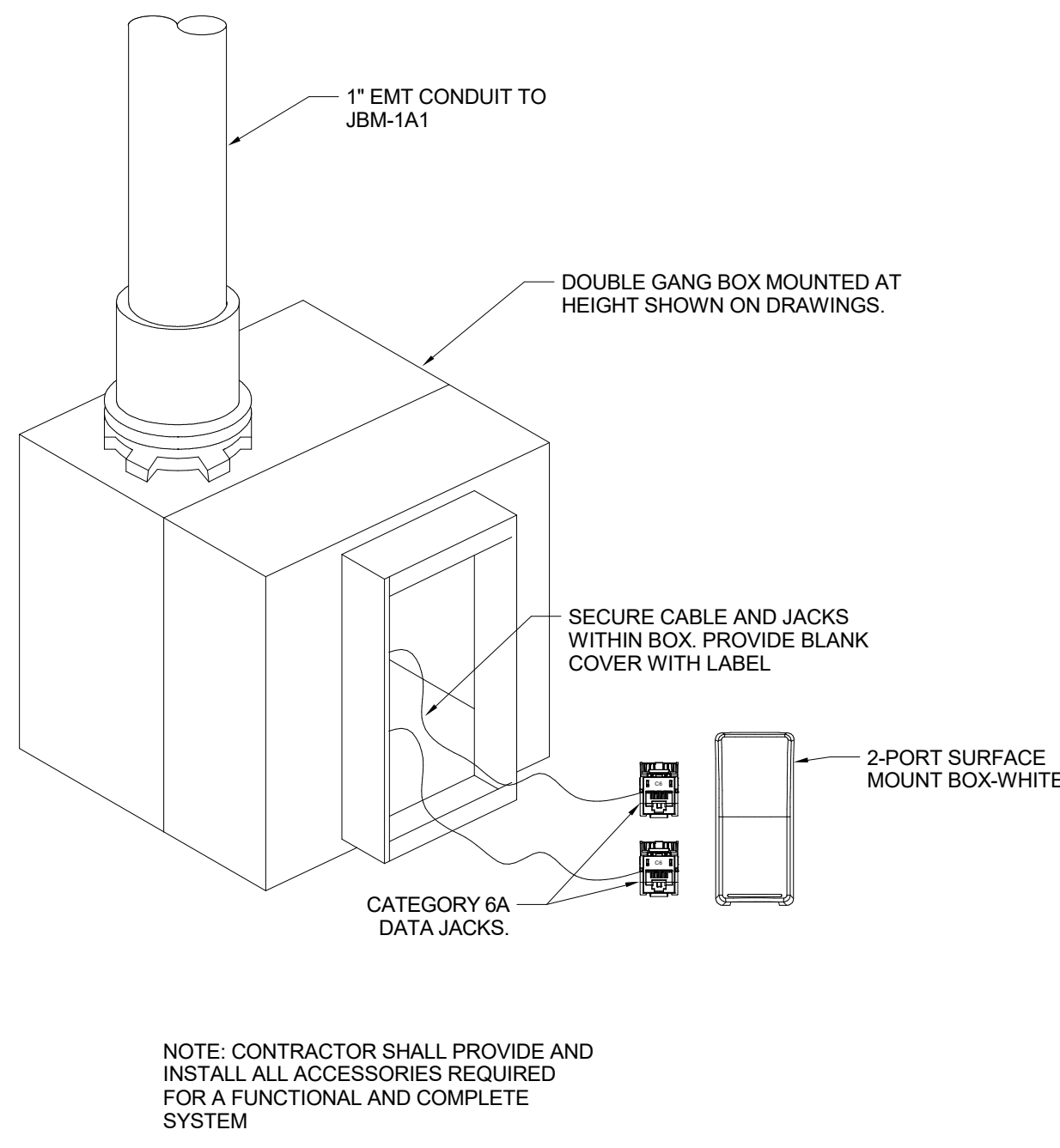
6 FLOOR BOX LOCATION
N.T.S.



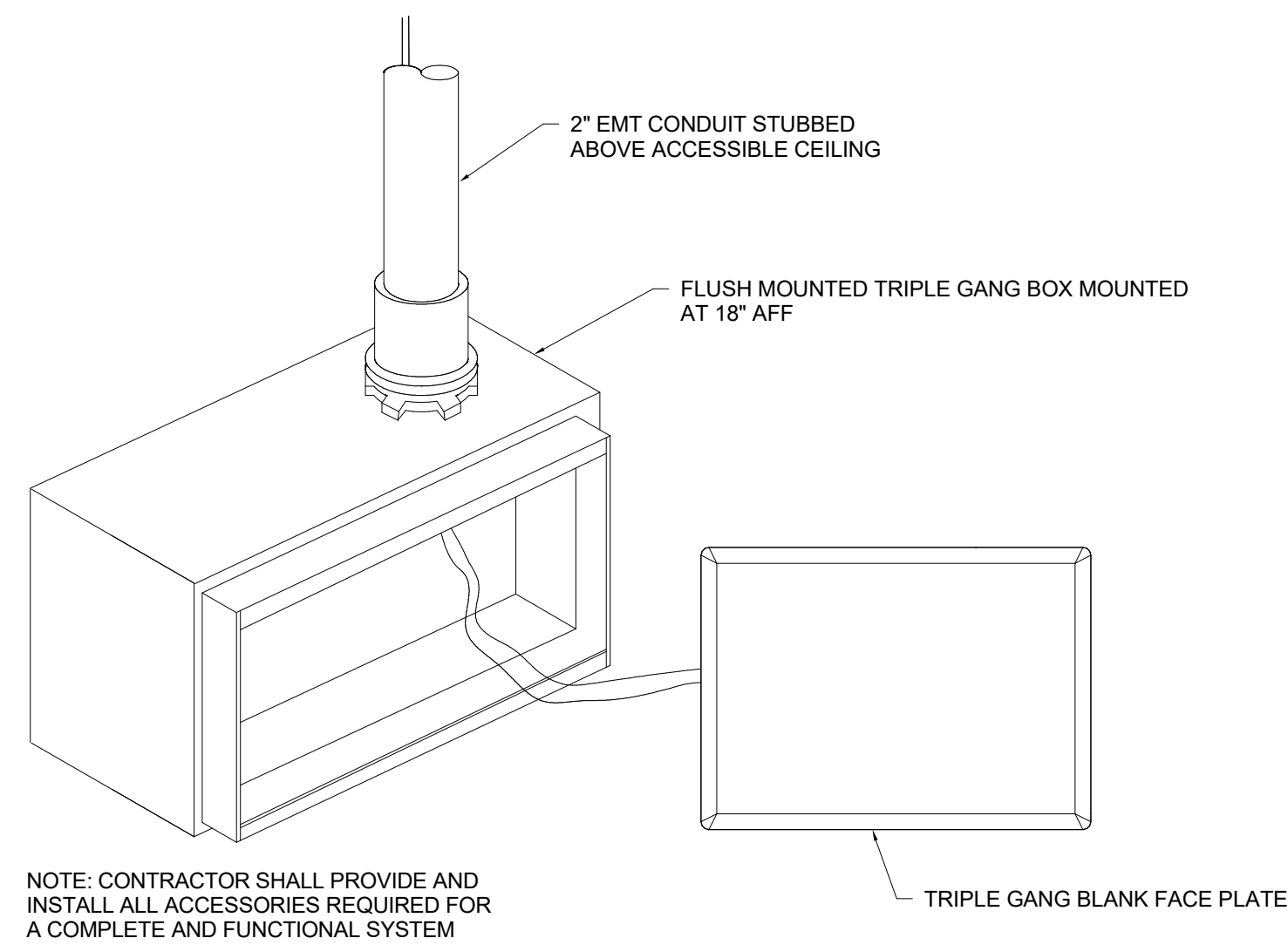
1 TOUCH SCREEN LOCATION
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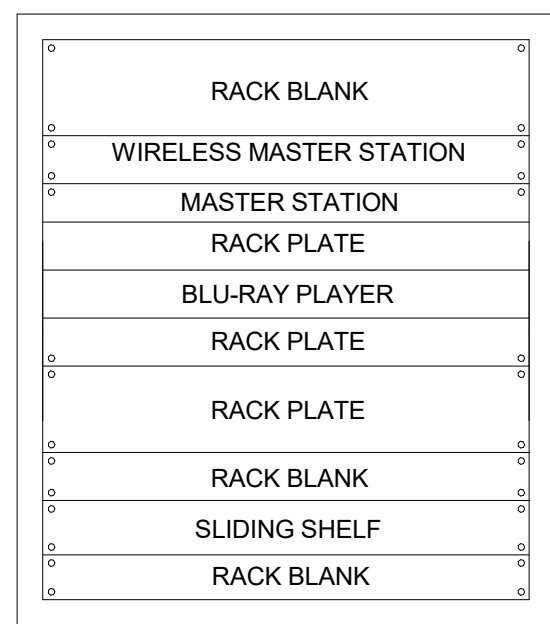
2 VIDEO CAMERA LOCATION
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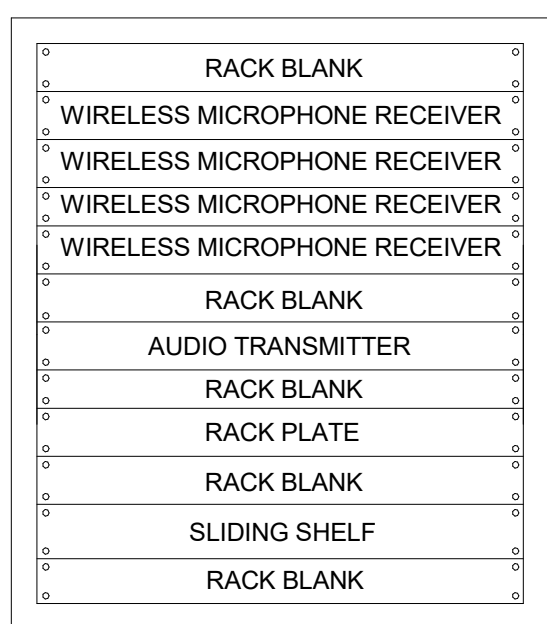
3 WIRELESS ACCESS POINT - WALL
MOUNTED
N.T.S.



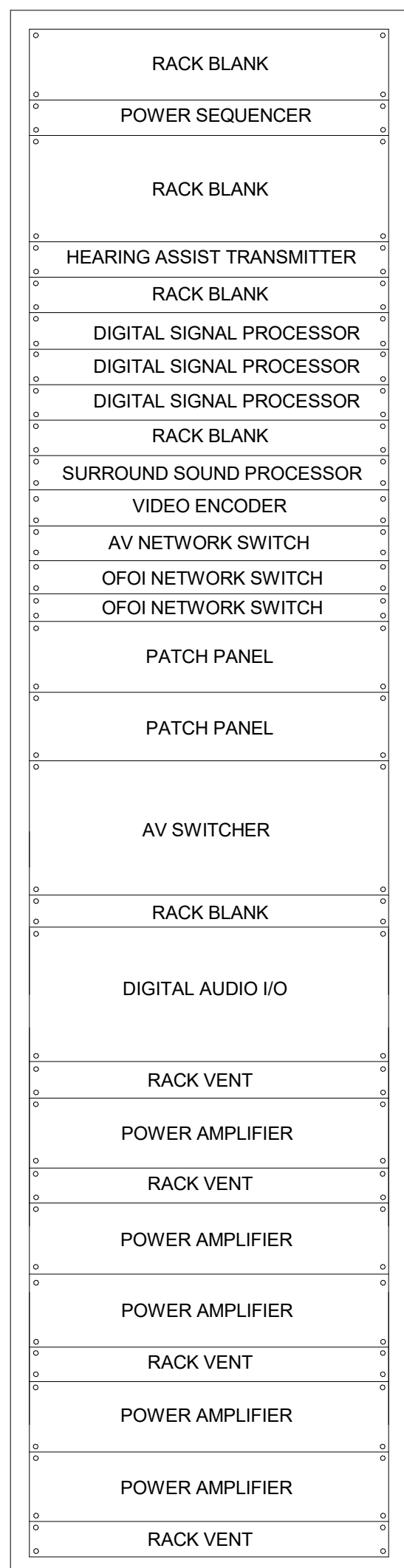
4 AUDIO INPUT LOCATION
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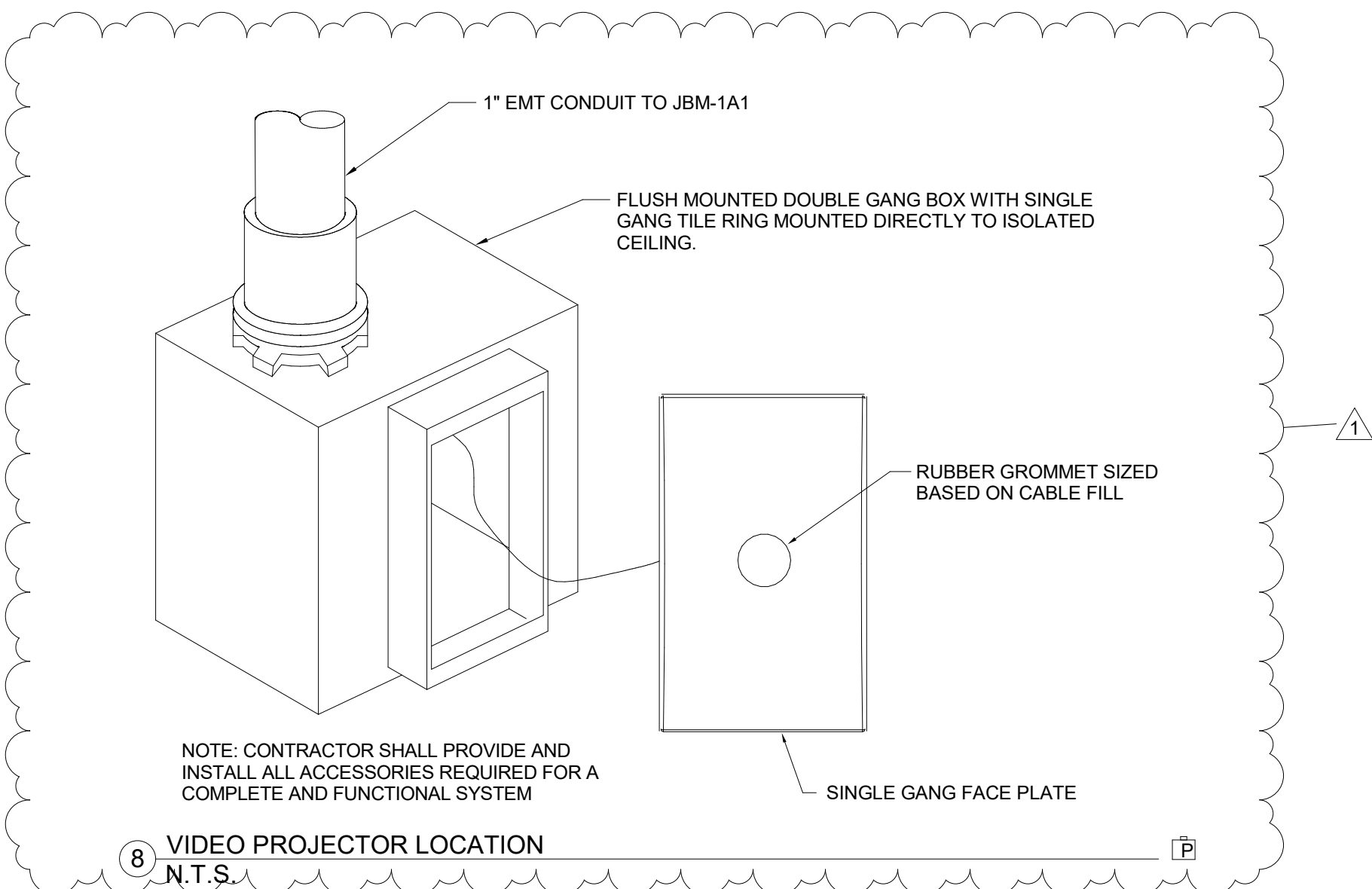
5 NORTH CONTROL ROOM 136 AV
EQUIPMENT RACK ELEVATION
N.T.S.



6 SOUTH CONTROL ROOM 135 AUDIO
RACK ELEVATION
N.T.S.



7 THEATER AMPLIFIER RACK ELEVATION
N.T.S.



8 VIDEO PROJECTOR LOCATION
N.T.S.

REVISION SCHEDULE		
Rev. #	Revision Description	Issue Date
1	Addendum #2	06/19/2020