

ADDENDUM NO. 2

The Architect/ Engineer issues this addendum, applicable to the above named project, to all known Contractors before receipt of proposal.

This addendum includes Item Number 2-1 thru 2-83. This addendum item shall be fully incorporated into the Bidding/Contract Documents and have the same force and effect as though originally included.

The Bidder shall acknowledge receipt of this Addendum No. 2 on the Bid Proposal Form in the place provided.

GENERAL

Item 2-1: ALTERNATE #6 – FIRE SUPPRESSION SYSTEM

Refer to General Notes on Sheet FP1.01 for description of Base Bid and Alternate conditions.

Item 2-2: Sheet G0.0A – Cover Sheet – Vol. 1

Refer to the **LANDSCAPE ARCHITECTURAL** index of drawings. Add Sheet L5.02 – Site Details to the index of drawings.

SPECIFICATIONS

Item 2-3: Section 03 30 00 – CAST-IN-PLACE CONCRETE – AREA “A”

Refer to subparagraph 2.6 D Sheet Vapor Barrier/Retarder. Delete this subparagraph in its entirety.

Item 2-4: Section 03 49 00 – GLASS-FIBER REINFORCED CONCRETE

Delete Section 03 49 00 – GLASS FIBER REINFORCED CONCRETE in its entirety.

Item 2-5: Section 04 72 01 – CAST STONE MASONRY – AREAS B, C, & D

Add attached Section 04 72 01 – CAST STONE MASONRY – AREAS B, C, & D in its entirety. This section applies to areas of Historic Preservation of the existing south building.

Item 2-6: Section 05 50 01 – METAL FABRICATION – AREAS B, C & D.

Delete Reference to “AREAS B, C & D.” Section applies to Metal Fabrications throughout all areas of the project.

Refer to Part 2 – Products. Add the following:

2.17 METAL BAR GRATINGS

G. Welded Steel Grating:

1. Grating Mark W-15-4 (1 x 1/8) STEEL: 1-by-1/8-inch bearing bars at 15/16 inch o.c., and crossbars at 4 inches o.c.
2. Traffic Surface: Plain.
3. Steel Finish: Shop primed.

Item 2-7: Section 05 56 13 – PREFABRICATED METAL CANOPIES

Add attached Section 05 56 13 – PREFABRICATED METAL CANOPIES in its entirety.

Item 2-8: Section 05 73 13 – GLAZED DECORATIVE METAL RAILINGS

Refer to paragraph 2.3 MANUFACTURERES. Subject to compliance with requirements of this Section, J.M. Gruca Inc/Global Glass Railings is an approved manufacturer.

Item 2-9: Section 06 16 00 – SHEATHING

Refer to sub paragraph 2.6.A.. Subject to compliance with requirements of this Section, Hunter Panels, Cool Vent is an approved equal.

Item 2-10: Section 07 31 13 – ASPHALT SHINGLES

Refer to sub paragraph 2.2.A.2. Subject to compliance with requirements of this Section, Malarkey Roofing Products, Legacy is an approved equal.

Item 2-11: Section 07 46 46 – FIBER CEMENT SIDING

- Refer to paragraph 2.2 FIBER CEMENT SIDING PANEL – NORTH BUILDING. Delete reference to “NORTH BUILDING”. Product applies to all areas of the building unless otherwise noted.
- Refer to paragraph 2.4 FIBER CEMENT SIDING PANEL – SOUTH BUILDING. Change paragraph heading to read “ 2.4 FIBER CEMENT SIDING PANEL – SOUTH BUILDING (LOWER LEVEL INFILL BETWEEN PILASTERS)

Item 2-12: Section 07 53 23 – ETHYLENE-PROPYLENE-DIENE-MONOMER (EPDM) ROOFING

Refer to sub paragraph 2.3 A.1. Subject to compliance with requirements of this Section, Mule-Hide is an approved manufacturer.

Item 2-13: Section 08 44 13 – GLAZED ALUMINUM CURTAIN WALLS

Refer to sub paragraph 2.2 A. Subject to compliance with requirements of this Section, Manko Window Systems is an approved manufacturer.

Item 2-14: Section 08 71 00 – DOOR HARDWARE

Refer to paragraph 3.7. Remove Hardware Set No. 7 from specification.

Item 2-15: Section 08 80 00 – GLAZING

Refer to sub paragraph 2.1.A. Subject to compliance with requirements of this Section, AGC Glass Company, North America is an approved manufacturer.

Item 2-16: Section 08 91 19 – FIXED LOUVERS

Refer to paragraph 2.3 FIXED, EXTRUDED ALUMINUM LOUVERS. Subject to compliance with requirements of this Section, Industrial Louvers, Inc. is an approved manufacturer.

Item 2-17: Section 09 91 23 – INTERIOR PAINTING

Refer to sub paragraph 3.3 G. Replace subparagraph G with the following:

- H. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:
 - 1. Paint the following work where exposed in equipment rooms:
 - a. Equipment, including panelboards
 - b. Uninsulated metal piping.
 - c. Uninsulated plastic piping.
 - d. Pipe hangers and supports.
 - e. Metal conduit.
 - f. Plastic conduit.
 - g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
 - 2. Paint the following work where exposed in occupied spaces:
 - a. Uninsulated metal piping.
 - b. Uninsulated plastic piping.
 - c. Pipe hangers and supports.
 - d. Metal conduit.
 - e. Plastic conduit.
 - f. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.

Item 2-18: Section 09 96 00 – HIGH-PERFORMANCE COATINGS

Add attached Section 09 96 00 – HIGH-PERFORMANCE COATINGS in its entirety.

Item 2-19: Section 11 24 23 – WINDOW WASHING SYSTEMS

Add attached Section 11 24 23 – WINDOW WASHING SYSTEMS in its entirety.

Item 2-20: Section 12 24 13 – ROLLER WINDOW SHADES

Add attached Section 12 24 13 – ROLLER WINDOW SHADES in its entirety.

Item 2-21: Section 21 13 13 – FIRE SUPPRESSION SYSTEM

Refer to paragraph 2.2. Remove subparagraph B from specification. All sprinkler and standpipe piping above ground shall be schedule 40. No schedule 10 piping shall be included in bid.

Item 2-22: Section 22 10 00 – PLUMBING PIPING

Refer to paragraph 2.7. Add subparagraphs B and C per the following to allow buried ductile iron:

- B. Mechanical-Joint, Ductile-Iron Pipe: AWWA C151, with mechanical-joint bell and plain spigot end. Pipe and fittings shall have ANSI/AWWA C104/A21.4, cement-mortar lining for ductile-iron pipe and fittings for water. Pipe and fittings shall also have ANSI/AWWA C105/A21.5, polyethylene encasement for ductile iron pipe systems.
 - 1. Mechanical-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern. Provide manufacturer's restraining joint system equivalent to U.S. Pipe HP-Lok.
 - 2. Glands, Gaskets, and Bolts: AWWA C111, ductile- or gray-iron glands, rubber gaskets, and steel bolts.
- C. Push-on-Joint, Ductile-Iron Pipe: AWWA C151, with push-on-joint bell and plain spigot end unless grooved or flanged ends are indicated. Pipe and fittings shall have ANSI/AWWA C104/A21.4, cement-mortar lining for ductile-iron pipe and fittings for water. Pipe and fittings shall also have ANSI/AWWA C105/A21.5, polyethylene encasement for ductile iron pipe systems.
 - 1. Push-on-Joint, Ductile-Iron Fittings: AWWA C110, ductile- or gray-iron standard pattern or AWWA C153, ductile-iron compact pattern. Provide manufacturer's restraining joint system equivalent to U.S. Pipe HP-Lok.
 - 2. Gaskets: AWWA C111, rubber.

Item 2-23: Section 22 30 00 – PLUMBING EQUIPMENT

Refer to paragraph 2.2, subparagraph C. Revise per the following:

- C. Tank: Unlined pressure vessel constructed from phase-balanced austenitic and ferritic duplex steel with a chemical structure containing a minimum of 21% chromium to prevent corrosion and mill certified per ASTM A 923 Methods A to ensure that the product is free of detrimental chemical precipitation that affects corrosion resistance. The material selected shall be tested and certified to pass stress chloride cracking test protocols as defined in ISO 3651-2 and ASTM G123 - 00(2005) "Standard Test Method for Evaluating Stress-Corrosion Cracking of Stainless Alloys with Different Nickel Content in Boiling Acidified Sodium Chloride Solution."

Item 2-24: Section 23 09 00 – INSTRUMENTS AND CONTROL ELEMENTS

Refer to paragraph 2.7.H, subparagraph 5. Belimo, Bell and Gossett, and DeltaP valves shall be listed as acceptable manufacturers for pressure independent control valves.

Item 2-25: Section 23 09 02 – VARIABLE FREQUENCY DRIVES

Refer to paragraph 2.1. Yaskawa shall be listed as an acceptable manufacturer.

Item 2-26: Section 23 52 16 – GAS-FIRED BOILERS

Refer to paragraph 2.1.B. Lochinvar shall be listed as an acceptable manufacturer.

Item 2-27: Section 31 63 17 – AUGER CAST GROUT PILES – AREAS B, C & D

Add paragraph 3.4 INSTALLATION. Add the following sub paragraph:

- I. If auger is withdrawn without grouting, the pile shall be lengthened to a depth determined by the soil consultant. If the soil consultant determines that extending the pile will not provide the design capacity of the pile, or pile group, an additional pile shall be added at a location approved by the EOR. The contractor is responsible for the cost of increasing the pile length and/or the additional pile.

DRAWINGS

CIVIL

Item 2-28: Sheet C1.01 – Utility Plan

This sheet is being reissued in its entirety with this addendum

Item 2-29: Sheet C1.02 – Storm Sewer Plan

This sheet is being reissued in its entirety with this addendum

LANDSCAPE

Item 2-30: Sheet L1.01 – Site Layout Plan

This sheet is being reissued in its entirety with this addendum

Item 2-31: Sheet L1.02 – Pavement Identification and Sleeve Plan

This sheet is being reissued in its entirety with this addendum

Item 2-32: Sheet L1.03 – Parking Lot Jointing Plan

This sheet is being reissued in its entirety with this addendum

Item 2-33: Sheet L2.01 – Site Grading Plan

This sheet is being reissued in its entirety with this addendum

Item 2-34: Sheet L2.04 – Topsoil Placement Plan

This sheet is being reissued in its entirety with this addendum

Item 2-35: Sheet L5.02 – Site Details

This sheet is being issued as new with this addendum

BUILDING RESTORATION

Item 2-36: Sheets AR3.07 thru AR3.09

Refer to all notations described as “5/8” Fire Rated Plywood Sheathing” and change to read “5/8” Plywood Sheathing”.

STRUCTURE

Item 2-37: Sheet S1.13 – Footing & Foundation Plan – Area C

See reissued sheet for revised placement of grade beams near grid intersection ZG.2-Z1. Change reinforcement of grade beam along grid Z1 between grids ZG and ZH from Type A to Type B.

Item 2-38: Sheet S4.03 – Framing Details – Areas B, C & D

See reissued sheet for new detail 13. Detail shall apply at connections of pre-manufactured canopy on north side of grid Z1 near grid ZG.2. Detail shall be used for all structural connections of canopy to stud wall.

ARCHITECTURE

Item 2-39: Sheet A1.13 – First Floor Plan – Area C

This sheet is being reissued in its entirety with this addendum.

Item 2-40: Sheet A1.15 – First Floor Reflected Ceiling Plan – Area A

See revised sheet for updated ceiling in Lobby and light cove detail.

Item 2-41: Sheet A1.17 – First Floor Reflected Ceiling Plan – Area C

This sheet is being reissued in it's entirely with this addendum.

Item 2-42: Sheet A1.51 – Mechanical Penthouse Floor Plan – Area A

See revised sheet with added notes for equipment pad and steel step.

Item 2-43: Sheet A1.61 – Roof Plan & Skywalk Roof Plan – Area A

See revised sheet for window washing tie off system and walkway pads.

Item 2-44: Sheet A2.21 – Exterior Building Elevations Areas B, C, & D

This sheet is being reissued in it's entirely with this addendum.

Item 2-45: Sheet A2.22 – Exterior Building Elevations Areas B, C, & D

Refer to all notations describes as "Cement Fiberboard over Fluid Applied Air Barrier Membrane and Exterior Grade Plywood" to read "Cement Fiberboard over Fluid Applied Air Barrier Membrane and Gypsum Sheathing"

Item 2-46: Sheet A6.01 – Door & Frame Schedule and Door & Frame Types

Door S1CR1.1 – Change door to read: Pair | 6'-0" | 7'-8" | ALD-1 | ALUM | SF-57 | ALUM | -- | HW-1
Door S1CR1.4 – Add door to read: Pair | 6'-0" | 7'-8" | ALD-1 | ALUM | ST-61 | ALUM | -- | HW-3
Door S2ST2.2 – Change door to read: -- | 3'-0" | 7'-10" | ALD-1 | ALUM | ST-49 | ALUM | -- | HW-5
Door S101.1 – Change door to read: -- | 3'-0" | 7'-0" | HMD-1 | PT | HMF-4 | PT | -- | HW-23
Door S101.2 – Change door to read: -- | 3'-0" | 7'-0" | HMD-1 | PT | HMF-5 | PT | -- | HW-25

Item 2-47: Sheet A6.04 - Exterior Skywalk Exterior Frame Types – Area A

Add general note to sheet as follows:

"PROVIDE PREFINISHED BRAKE METAL, COLOR TO MATCH CURTAINWALL FRAME, @ INTERIOR SIDE OF EXPOSED SPANDREL CURTAINWALL PANEL."

Item 2-48: Sheet A6.05 – Exterior Frame Types – Areas B, C, & D

See reissued sheet for revision of storefront elevation ST-60 and addition of ST-61.

FINISH

Item 2-49: F1.00 – Finish Materials List & Roof Finish Schedule

See reissued sheet for revised Room Finish Schedule.

MECHANICAL

Item 2-50: M1.01 – First Floor HVAC Plans

See reissued sheet for addition of return grille in main vestibule.

Item 2-51: M1.11 – First Floor HVAC Piping Plan – Area C

See reissued sheet for addition of CUH-7 and associated thermostat to new vestibule. Shift CUH-2 as shown on plan.

Item 2-52: M2.01 – Chiller / Condenser Water Piping Schematic and Controls

See reissued sheet for addition of the Evaporator Crossover Valve 3 and Condenser Crossover Valve 3. Control points 148 and 149 shall also be added as Binary Outputs on the BMS.

Item 2-53: M4.03 – Mechanical Schedules

See reissued sheet for revised Electric Cabinet Unit Heater schedule. Add CUH-7 to schedule.

Item 2-54: M4.04 – Mechanical Schedules

See reissued sheet for revised Hydronic Specialties schedule. Pressure independent control valves and actuators shall be provided by controls contractor. Pipe kits shall be provided by mechanical contractor.

Item 2-55: PM1.05 – Mechanical Roof Plan

See reissued sheet for revised roof drain sizing and 4" VTR and 4" AVTR above central plumbing chase.

Item 2-56: PM2.01 – Mechanical and Plumbing Sections

See reissued sheet for revised penthouse ductwork routing. Alter transitions off of AHU's 1-4 to allow 3'-0"W x 7'-6"H walking space for maintenance.

Item 2-57: PM3.01 – Mechanical Site Plan

See reissued sheet for revised grade clean-out location west of IAB. Shift clean-outs east of new enclosures.

PLUMBING

Item 2-58: P1.01 – Below Floor Plumbing Plan – Area A

See reissued sheet for revised storm piping sizing and routing.

Item 2-59: P1.05 – First Floor Plumbing Plan – Area A

See reissued sheet for revised roof drain and storm piping sizing and routing. See central plumbing chase for added 4" V and 4" AV mains and stub-outs.

Item 2-60: P1.06 – First Floor Plumbing Plan – Area B

See reissued sheet for revised roof drain and storm piping sizing and routing.

Item 2-61: P1.08 – First Floor Plumbing Plan – Area D

See reissued sheet for revised roof drain and storm piping sizing and routing.

Item 2-62: P1.09 – Second Floor Plumbing Plan – Area A

See reissued sheet for added 4" V and 4" AV mains and stub-outs in the central plumbing chase.

Item 2-63: P1.10 – Second Floor Plumbing Plan – Area B

See reissued sheet for revised roof drain and storm piping sizing and routing.

Item 2-64: P1.11 – Second Floor Plumbing Plan – Area C

See reissued sheet for revised roof drain and storm piping sizing and routing.

Item 2-65: P1.12 – Second Floor Plumbing Plan – Area D

See reissued sheet for revised roof drain and storm piping sizing and routing.

Item 2-66: P1.13 – Third Floor Plumbing Plan

See reissued sheet for added 4" V and 4" AV mains and stub-outs in the central plumbing chase.

Item 2-67: P1.14 – Fourth Floor Plumbing Plan

See reissued sheet for revised roof drain and storm piping sizing and routing. See central plumbing chase for added 4" V and 4" AV mains and stub-outs.

Item 2-68: P4.02 – Plumbing Schedules

Refer to plumbing fixture, accessory, and connection schedule.

- Remove “bottle filler” from function of HEWC-1.
- HWC-1/WC-1 carrier shall be standard load rating in lieu of 750 LB.
- HUR-1/UR-1 manufacturer and model description should read “urinal package” in lieu of “water closet package”.
- Remove WM-1 from schedule. Meter will be provided by the city and installed by the contractor.

Refer to Plumbing Specialties Schedule:

- BFP-2/3 shall be Watts model 709 or equivalent, Double Check Valve Assembly.
- Remark 4 shall read: “Backflow preventer to have epoxy coated cast iron body, bronze seats, and an FDA epoxy coated strainer.”

Refer to Sump Pump Schedule:

- SP-1/2 shall be Zoeller Oil Guard model 940-0008 or equivalent. Pump shall flow 50 GPM at 37 feet of head. Pump shall be ½ HP at 120V.

Refer to Plumbing Equipment Schedule:

- DWH-1/2 shall be PVI model 500L 300A-TP or equivalent with 25 year unlined duplex alloy tank warranty and 10 year non-pro warranty against stress corrosion cracking.
- LWH-1/2 shall be PVI model 750L 600A-TP or equivalent with 25 year unlined duplex alloy tank warranty and 10 year non-pro warranty against stress corrosion cracking.

ELECTRICAL

Item 2-69: Sheet E0.01 – Electrical Site Utilities Plan

Site lighting and additional details have been modified. This sheet is being re-issued in its entirety as a part of this addendum. See re-issued sheet E0.01 for changes.

Item 2-70: Sheet E1.11 – First Floor Lighting Plan – Area ‘A’

Adjust layout and length of Type ‘W’ fixtures in Lobby to match new ceiling layout. Mount exit sign in Lobby centered above doors to mullion +12’-6” AFF. Relocate ‘Q’ fixture from exterior wall along column line ZG.2 to exterior wall on west side of adjacent door. See re-issued sheet E1.11 for changes.

Item 2-71: Sheet E1.13 – First Floor Lighting Plan – Area ‘C’

Changes in lighting fixtures to coordinate with Vestibule addition. See re-issued sheet E1.13 for changes.

Item 2-72: Sheet E2.11 – First Floor Power & Auxiliary Systems Plan – Area ‘A’

Handicap pushbutton and door control relocated from exterior wall along column line ZG.2 to exterior wall just north of column line 0.1, to coordinate with addition of Vestibule. Add key note 22 to relocated handicap pushbutton and door control, key note 22 to read: MOUNT DEVICES ON EXTERIOR WALL JUST BELOW WALL SWEEP, BOTTOM OF DEVICE AT+3'-0" AFF. Add (1) duplex receptacle in Data Room on western side of north wall, circuit to '1LN1-16'; add key note 23 to receptacle, key note 23 to read: 120V ELECTRICAL CONNECTION FOR LIGHTING CONTROL EQUIPMENT. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH LIGHTING CONTROLS SUPPLIER AND OWNER'S REPRESENTATIVE.

Item 2-73: Sheet E2.13 – First Floor Power & Auxiliary Systems Plan – Area ‘C’

Various changes to accommodate new vestibule, including addition of CUH-7. Add duplex receptacle in Data Room. See re-issued sheet E2.13 for changes.

Item 2-74: Sheet E2.21 – Second Floor Power & Auxiliary Systems Plan – Area ‘A’

Add duplex receptacle in Data Room on western side of north wall, circuit to '2LN1-15'; add key note 13 to receptacle, key note 13 to read: 120V ELECTRICAL CONNECTION FOR LIGHTING CONTROL EQUIPMENT. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH LIGHTING CONTROLS SUPPLIER AND OWNER'S REPRESENTATIVE.

Item 2-75: Sheet E2.31 – Third Floor Power & Auxiliary Systems Plan – Area ‘A’

Add duplex receptacle in Data Room on western side of north wall, circuit to '3LN1-14'; add key note 13 to receptacle, key note 13 to read: 120V ELECTRICAL CONNECTION FOR LIGHTING CONTROL EQUIPMENT. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH LIGHTING CONTROLS SUPPLIER AND OWNER'S REPRESENTATIVE.

Item 2-76: Sheet E2.41 – Fourth Floor Power & Auxiliary Systems Plan – Area ‘A’

Add duplex receptacle in Data Room on western side of north wall, circuit to '4LN1-14'; add key note 21 to receptacle, key note 21 to read: 120V ELECTRICAL CONNECTION FOR LIGHTING CONTROL EQUIPMENT. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH LIGHTING CONTROLS SUPPLIER AND OWNER'S REPRESENTATIVE.

Item 2-77: Sheet E4.01 – Electrical Schedules

Verbiage added to remarks section of fixture type 'W', Focal Point removed from fixture type 'W', and catalog no. change for Neo-Ray fixture type 'W'. For fixture type 'V', add Manufacturer: Kurt Versen, catalog no. A1035-10-35-27'. Change lumen package to B06 for fixture types 'S2', 'S3', 'S4', and 'S5'. See re-issued sheet E4.01 for changes.

Item 2-78: Sheet E4.02 – Electrical Schedules

Reference Panelboard Schedule '1MLS1': poles 25 & 27 to be a 20 amp, 2 pole circuit breaker to serve mechanical load CUH-7, load per pole is 1134VA. Reference Panelboard Schedule '1LS3': 20 amp, 1 pole circuit breaker '1' to serve receptacle in Data Room, 200VA.

Item 2-79: Sheet E4.03 – Electrical Schedules

Reference Panelboard Schedule '1LN1': 20 amp, 1 pole circuit breaker '16' to serve receptacle in Data Room, 200VA. Reference Panelboard Schedule '2LN1': 20 amp, 1 pole circuit breaker '12' to serve receptacle in Data Room, 200VA. Reference Panelboard Schedule '3LN1': 20 amp, 1 pole circuit breaker '14' to serve receptacle in Data Room, 200VA.

Item 2-80: Sheet E4.04 – Electrical Schedules

Reference Panelboard Schedule '4LN1': 20 amp, 1 pole circuit breaker '14' to serve receptacle in Data Room, 200VA. Reference Panelboard Schedule '1LSHS1': 20 amp, 1 pole circuit breaker '11' to serve exterior generator lighting, 60VA.

Item 2-81: Sheet E5.01 – Enlarged Electrical Room Plans

Reference Enlarged Electrical Room Plan – South Building: Adjust future electrical space to coordinate with vestibule addition.

Item 2-82: Sheet E6.03 –Electrical Details

Reference Access Control Connections Diagram: Add door position switch and (2) handicap pushbuttons to door S1CR1.1.

VOLUME 3 TENANT FINISH CONCEPT PLANS

Item 2-83: General Narrative for the Tenant Improvement Package – UNL Food Science and Technology

Is included for reference only as part of this Addendum.

END OF ADDENDUM NO. 2

SECTION 04 72 01 - CAST STONE MASONRY – AREAS B,C, & D

PART 1 GENERAL

1.1 SUMMARY

- A. Architectural cast stone manufactured using the wet-cast method including all accessory materials and components.
- B. Related Sections
 - 1. Section 040511 - Masonry Mortaring and Grouting.
 - 2. Section 079200 - Joint Sealers: Materials and execution methods for sealing soft joints in cast stone work.

1.2 REFERENCE STANDARDS

- A. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; American Concrete Institute International; 2011.
- B. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.
- C. ASTM A615/A615M - Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement; 2012.
- D. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2011a.
- E. ASTM C150/C150M - Standard Specification for Portland Cement; 2012.
- F. ASTM C270 - Standard Specification for Mortar for Unit Masonry; 2012.
- G. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2012.
- H. ASTM C642 - Standard Test Method for Density, Absorption, and Voids in Hardened Concrete; 2006.
- I. ASTM C979/C979M - Standard Specification for Pigments for Integrally Colored Concrete; 2010.
- J. ASTM C 1194 - Standard Test Method for Compressive Strength of Architectural Cast Stone; 1991 (reapproved 1995).
- K. ASTM C1364 - Standard Specification for Architectural Cast Stone; 2010b.
- L. ASTM D 2244 - Standard Test Method for Calculation of Color Differences From Instrumentally Measured Color Coordinates; 1993.
- M. ASTM C 595 – Blended Cement.
- N. ASTM C 1157 – Hydraulic Cement.
- O. ASTM C 231 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Pressure Method.
- P. ASTM C 173 - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volume Method.
- Q. ASTM C 989 – Standard Specification for Ground Granulated Blast-Furnace Slag for Use in Concrete.
- R. ASTM C 1116 – Standard Specification for Fiber Reinforced Concrete and shotcrete.
- S. ASTM C 1195 - Standard Test Method for Absorption of Architectural Cast Stone.
- T. ASTM C 260 - Standard Specification for Air-Entrained Admixtures for Concrete.
- U. ASTM C 426 – Standard Test Method for Linear Shrinkage of Concrete Masonry Units.

- V. ASTM C 666 – Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing.
- W. ASTM C 618 – Specification for Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Concrete.

1.3 SUBMITTALS

- A. See Section 013300- Submittal Procedures.
- B. Product Data: Test results of cast stone components made previously by the manufacturer.
 - 1. Include one copy of ASTM C1364 for Architect's use.
 - 2. Product data on all products and accessories contained within.
- C. Shop Drawings: Include elevations, dimensions, layouts, profiles, cross sections, reinforcement, exposed faces, arrangement of joints, anchoring methods, anchors, and piece numbers.
- D. Mortar Color Selection Samples. Submit full range of samples for selection by Architect.
- E. Selection Samples: Two pieces of actual cast stone components not less than 12 inches square, illustrating range of color and texture to be anticipated in components furnished for the project.
- F. Full-Size Samples for review. After approval of Selection Sample, provide one full size cast stone component of each item listed below and deliver to Architect's office.
 - 1. Medallion.
 - 2. Corbel.
 - 3. Keystone.
- G. Delegated-Design Submittal: For Cast Stone reinforcing, anchorage and concrete mix design, including analysis data signed and sealed by the qualified professional engineer, registered in the State of Nebraska, responsible for their preparation.
- H. Operations and Maintenance Information per Section 017839.
- I. Submit warranty per Section 017700.

1.4 QUALITY ASSURANCE

- A. Manufacturer Qualifications:
 - 1. A firm with a minimum of 5 years experience producing cast stone of types required for project.
 - 2. Current producer member of the Cast Stone Institute or the Architectural Precast Association.
 - 3. Manufacturer's production facility currently holds a Plant Certification from the Cast Stone Institute or the Architectural Precast Association.
 - 4. Adequate plant capacity to furnish quality, sizes, and quantity of cast stone required without delaying progress of the work.
- B. Mock-Up: Provide full size cast stone components for review as indicated in Submittals section above.
 - 1. Approved mock-up will become standard for appearance and workmanship.
 - 2. Mock-up may not remain as part of the completed work.
- C. Erector Qualifications: Company specializing in performing the work of this section with minimum five years of documented experience.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Deliver cast stone components secured to shipping pallets and protected from damage and discoloration. Protect corners from damage.
- B. Number each piece individually to match shop drawings and schedule.

- C. Store cast stone components and installation materials in accordance with manufacturer's instructions.
- D. Store cast stone components on pallets with non-staining, waterproof covers. Ventilate under covers to prevent condensation. Prevent contact with dirt.
- E. Protect cast stone components during handling and installation to prevent chipping, cracking, or other damage.
- F. Store mortar materials where contamination can be avoided.

PART 2 PRODUCTS

2.1 MANUFACTURERS

- A. Architectural Cast Stone. Basis of Design-Pacific Cast Stone, 3300 S. 6th St., Lincoln, NE 68502.
- B. Additional approved manufacturers:
 - 1. Any current producer member of the Cast Stone Institute.
 - 2. Substitutions: See Section 012500 – Substitutions Procedures.

2.2 ARCHITECTURAL CAST STONE

- A. Cast Stone: Architectural concrete product manufactured to simulate appearance of natural limestone, complying with ASTM C1364.
 - 1. Casting Method: Wet Cast.
 - 2. Compressive Strength: As specified in ASTM C 1194; 6500 psi minimum at 28 days. Calculate strength of pieces to be field cut at 80 percent of uncut piece.
 - 3. Absorption, ASTM C 1195: 6 percent maximum by the cold water method, or 10% maximum by the boiling method at 28 days.
 - 4. Freeze-Thaw Resistance: Demonstrated by laboratory testing in accordance with ASTM C1364. The CPWL shall be less than 5% after 300 cycles of freezing and thawing.
 - 5. Air Content- ASTM C 173 or C 231: 4-8% for units exposed to freeze-thaw environments.
 - 6. Linear Shrinkage- ASTM C 426: Shrinkage shall not exceed 0.065%
- B. Surface Texture: Fine grained texture, with no bug holes, air voids, or other surface blemishes visible from distance of 10 feet.
- C. Color and Finish: Match approved selection sample on file at Architect 's office.
 - 1. Viewing Conditions: Compare in direct daylight at 5 feet, 10 feet or 20 feet as indicated, after subjecting to similar aging and weathering conditions.
 - a. All surfaces intended to be exposed to view shall have fine-grained texture similar to natural stone, with no air voids in excess of 1/32 in. and the density of such voids shall be less than 3 occurrences per any square inch.
 - b. Units shall exhibit a texture approximately equal to the approved sample when viewed under direct daylight illumination at a 10 ft. distance.
 - 2. Maximum Variation, ASTM D 2244, measured in units: 2 units hue, 6 units color difference.
- D. Minor chipping resulting from shipment and delivery shall not be grounds for rejection. Minor chips shall not be obvious under direct daylight illumination from a 20 ft. distance.
- E. Remove cement film from exposed surfaces prior to packaging for shipment.
- F. Shapes: Provide shapes indicated on drawings.
 - 1. Variation from Any Dimension, Including Bow, Camber, and Twist: Maximum of plus/minus 1/8 inch or length divided by 360, whichever is greater, but not more than 1/4 inch.
 - 2. Unless otherwise indicated on drawings, provide:

- a. Wash or slope of 1:12 on exterior horizontal surfaces.
- b. Drips on projecting components, wherever possible.
- c. Raised fillets at back of sills and at ends to be built in.

2.3 CAST STONE MATERIALS

- A. Portland Cement: ASTM C 150, Type I or Type III, white or gray as required to match Architect's sample. Blended Cement, ASTM C595 or Hydraulic Cement ASTM C1157.
- B. Color shall be white to match existing building.
- C. Coarse Aggregate: ASTM C33, except for gradation; manufactured or natural sand.
- D. Fine Aggregate: ASTM C33, except for gradation; natural or manufactured sands.
- E. Pigments: ASTM C979, inorganic iron oxides; do not use carbon black.
- F. Admixtures: Comply with the following:
 1. ASTM C 260 for air-entraining admixtures.
 2. ASTM C 494/C495M Types A-G for water reducing, retarding, accelerating and high range mixtures.
 3. Other admixtures: Integral water repellants and other chemicals, for which no ASTM Standard exists, shall be previously established as suitable for use in concrete by proven field performance or through laboratory testing.
 4. ASTM C 618 mineral admixtures of dark and variable colors shall not be used in surfaces intended to be exposed to view.
 5. ASTM C 989 granulated blast furnace slag may be used to improve physical properties. Tests are required to verify these features.
- G. Water: Potable.
- H. Reinforcing Bars: ASTM A615/A615M deformed bars, Grade 40 or 60, galvanized or epoxy coated when cover is less than 1.5 in.
 1. Welded Wire Fabric: ASTM A 185 where applicable for wet cast units.
- I. All anchorage devices and embedded anchors, dowels, and inserts shall be Type 304 stainless steel, of type and size as required for anchorage to existing masonry substrate conditions. All connections and anchorage shall be designed by a State of Nebraska registered Engineer employed by Cast Stone manufacturer.

2.4 MORTAR AND GROUT MATERIALS

- A. Mortar: ASTM C 270-Proportion Specification, Type N.
 1. Portland Cement: ASTM C150.
 2. Type I - Normal.
 3. Masonry Cement: ASTM C91.
 4. Hydrated Lime: ASTM C207, Type N.
 5. Mortar Aggregate: ASTM C144.
 6. Pigments for Colored Mortar: Pure, concentrated mineral pigments specifically intended for mixing into mortar and complying with ASTM C979/C979M. Color as selected by Architect.
- B. Non-metallic Shrinkage-Resistant Grout: Premixed, non-metallic, non-corrosive, non-staining product containing selected silica sands, portland cement, shrinkage compensating agents, and plasticizing and water-reducing agents, complying with CRD-C621.
 1. 2800 psi strength at 28 days; 8-10 inches slump; provide premixed type in accordance with ASTM C 94/C 94Mmix in accordance with ASTM C 476.
 - a. Fine grout for spaces with smallest horizontal dimension of 2 inches or less.
 - b. Coarse grout for spaces with smallest horizontal dimension greater than 2 inches.
- C. The following products may be used subject to compliance with specification requirements:

1. "Hi-Flow," Euclid Chemical Co.
2. "Crystex," L&M Construction Chemicals, Inc.
3. "Masterflow 928," Master Builders, Inc.
4. "Five Star Grout," U.S. Grout Corp.
5. Substitutions: See Section 012500 – Substitutions Procedures.
6. Follow manufacturer's instructions for mixing and installation procedures.

2.5 ACCESSORIES

- A. Sealant: Weatherseal Exterior Sealant: Silicone; Low Modulus, ASTM C920, Grade NS, Class 50/100, Uses T, NT, M, G, and A, O; single component, non-acidic and neutral curing. Capable of withstanding movements from +100 to -50 percent for low modulus on original joint design. Acceptable manufacturers:
1. Momentive Performance Materials, Inc (formerly GE Silicones); Product SCS2700 SilPruf*LM.
 2. Dow Corning Corp; Product 790.
 3. Pecora Corporation; Product 890NST.
 4. Tremco Global Sealants; Product Spectrum 1.
 5. Substitutions: See Section 012500 – Substitutions Procedures.
- B. Cleaner:
1. General-purpose cleaner designed for removing mortar and grout stains, efflorescence, and other construction stains from new masonry surfaces without discoloring or damaging masonry surfaces.
 2. Expressly approved for intended use by cast stone manufacturer and expressly approved by cleaner manufacturer for use on cast stone and adjacent masonry materials.

2.6 FABRICATION

- A. Corbels and Keystones-Manufacturer shall utilize Contractor provided original building decorative design elements removed from building to create molds for Cast Stone production. Manufacturer shall utilize their standard mold procedure and materials. Extreme care shall be taken so original building elements are not damaged during process. Manufacturer shall examine design elements supplied by Contractor and shall repair cracks, spalls, chips and missing or damaged decorative adornments prior to making molds. Manufacturer shall return decorative design elements to Contractor after approval of mock-ups by Architect.
- B. Medallions-Manufacturer's artist shall utilize Architect's concept drawings and historical photographs to create historically accurate medallion element out of sculptural clay to create mold for new Cast Stone. Architect shall review and approve clay medallion prior to fabrication of mold.
- C. Shapes: Unless otherwise indicated on drawings, provide suitable wash on components with exposed top surfaces and drips on projecting components, wherever possible.
- D. Reinforcement: Provide reinforcement as required to withstand handling and structural stresses.
1. Comply with ACI 318.
 2. Provide reinforcement of 0.25 percent of cross-section area.
 3. Reinforcement shall be noncorrosive where faces exposed to weather are covered with less than 1.5 in. of concrete material. All reinforcements shall have minimum coverage of twice the diameter of the bars.
 4. Panels, soffits and similar stones greater than 24 in. in one direction shall be reinforced in that direction. Units less than 24 in. in both their length and width dimension shall be non-reinforced unless otherwise specified.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Examine construction to receive cast stone components. Notify Architect if construction is not acceptable.
- B. Do not begin installation until unacceptable conditions have been corrected.

3.2 INSTALLATION

- A. Install cast stone components in conjunction with masonry, complying with requirements of Section 042000.
- B. Setting:
 - 1. Drench cast stone components with clear, running water immediately before installation.
 - 2. Do not use pry bars or other equipment in a manner that could damage cast stone components.
 - 3. Set units in a full bed of mortar unless otherwise indicated.
 - 4. Fill vertical joints within cast stone with mortar.
 - 5. Fill dowel holes and anchor slots completely with mortar or non-shrink grout.
- C. Joints: Make all joints 3/8 inch, except as otherwise detailed. Joints tolerance is plus 1/16 inch and minus 1/8 inch.
 - 1. Rake mortar joints 3/4 inch for pointing.
 - 2. Remove excess mortar from face of stone before pointing joints.
 - 3. Point joints with mortar in layers 3/8 inch thick and tool to a slight concave profile.
 - 4. Leave the following joints open for sealant:
 - a. Head joints in top courses.
 - b. Joints in projecting units.
 - c. Joints between rigidly anchored units, including soffits, panels, and column covers.
 - d. Joints labeled "expansion joint".
 - e. Joints between cast stone and dissimilar materials (brick veneer is a dissimilar material). Exception is at bed joints. Use full mortar bed at all bed joints.
 - f. Prime ends of units, insert properly sized backing rod and install required sealant.

3.3 TOLERANCES

- A. Installation Tolerances: Comply with requirements of Cast Stone Institute Technical Manual for Installation Tolerances, unless otherwise specified.
 - 1. Cross section dimensions shall not deviate by more than $\pm 1/8$ in. from approved dimensions.
 - 2. Length of units shall not deviate by more length than length/360 or $\pm 1/8$ in., whichever is greater, not to exceed $\pm 1/4$ in.
 - a. Maximum length of any unit shall not exceed 15 times the average thickness of such unit unless otherwise agreed by the manufacturer.
 - 3. Warp, bow or twist of units shall not exceed length/360 or $\pm 1/8$ in., whichever is greater.
 - 4. Location of dowel holes, anchor slots, flashing grooves, false joints and similar features- On formed side of unit, 1/8 in., or unformed sides of unit, 3/8 in maximum deviation.

3.4 JOB SITE TESTING

- A. One sample from production units may be selected at random from the field for each 500 cubic feet delivered to the job site.
 - 1. Three field cut specimens from each of these samples shall have a compressive strength of not less than 85% with no single specimen testing less than 75% of the design strengths as allowed by ACI 318.

2. Three field cut cube specimens from each of these samples shall have an average maximum cold-water absorption of 6%.
3. Field specimens shall be tested in accordance with ASTM C 1194 and C 1195.

3.5 CLEANING

- A. Repair chips and other surface damage noticeable when viewed in direct daylight at 20 feet.
 1. Repair with matching touchup material provided by the manufacturer and in accordance with manufacturer's instructions.
 2. Repair methods and results subject to Architect 's approval.
- B. In-Progress Cleaning: Clean cast stone components as work progresses; remove mortar fins and smears before tooling joints.
- C. Final Cleaning:
 1. Clean exposed cast stone after mortar is thoroughly set and cured.
 2. Cleaner:
 - a. Wet surfaces with water before applying cleaner.
 - b. Apply cleaner to cast stone in accordance with manufacturer's instructions.
 - c. Remove cleaner promptly by rinsing thoroughly with clear water.
- D. Do not use acidic cleaners.

3.6 PROTECTION

- A. Protect completed work from damage.
- B. Clean, repair, or restore damaged or mortar-splashed work to condition of new work.

END OF SECTION 04 72 01

SECTION 05 51 11 – PREFABRICATED METAL CANOPIES

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: Prefabricated metal canopies

1.3 COORDINATION

- A. Coordinate installation of metal fabrications that are anchored to or that receive other work. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

1.4 ACTION SUBMITTALS

- A. Product Data: For pre-fabricated metal canopies
- B. Shop Drawings: Show fabrication and installation details. Include plans, elevations, sections, and details of metal fabrications and their connections. Show anchorage and accessory items.

1.5 FIELD CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 01 40 00 "Quality Requirements," to canopies.
- B. Structural Performance of Canopies: Canopies shall withstand the effects of gravity loads and the following loads and stresses within limits and under conditions indicated.

2.2 PREFABRICATED METAL CANOPIES

- A. Canopies: Fabricate canopies from extruded aluminum shapes.
 - 1. Basis-of-Design Product: Subject to compliance with requirements, provide Mapes Architectural Canopies, Super Lumideck HR, Hanger Rod Supported or comparable product by one of the following:
 - a. Or equal if and as specifically approved by Architect by Addendum during the bidding period.
- B. Fabrication:
 - 1. Roof Decking: 3" deep, extruded flat soffit .078 aluminum decking.
 - 2. Intermediate Framing Members: Manufacturers standard extruded aluminum profiles.
 - 3. Fascia: Extruded aluminum, Mapes Style "G", 8"
- C. Concealed Drainage
 - 1. Water shall drain from covered surfaces into intermediate trough and be directed to Downspout From Rear Gutter.

2.3 FINISHES, GENERAL

- A. Exposed Aluminum Surfaces: Clear Anodic Finish: AAMA 611, AA-M12C22A31, Class II, 0.010 mm or thicker.
- B. Hanger Rods and Attachments: Baked-Enamel or Powder-Coat Finish: AAMA 2603 except with a minimum dry film thickness of 1.5 mils. Comply with coating manufacturer's written instructions for cleaning, conversion coating, and applying and baking finish.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- D. Canopy Installation: Install in accordance with manufacturers written instructions.

END OF SECTION 05 56 13

SECTION 09 96 00 – HIGH-PERFORMANCE COATINGS

1. 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. This Section includes surface preparation and application of high-performance coating systems on the following substrates:

- 1. Interior Substrates:

- a. Concrete, vertical and horizontal surfaces.
 - b. Clay masonry.
 - c. Concrete masonry units (CMU).
 - d. Steel.
 - e. Galvanized metal.
 - f. Aluminum (not anodized or otherwise coated).
 - g. Wood.
 - h. Gypsum board.

1.3 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Samples for Initial Selection: For each type of finish-coat product indicated.
- C. Samples for Verification: For each type of coating system and in each color and gloss of finish coat indicated.
 - 1. Submit Samples on rigid backing, 8 inches square.
 - 2. Step coats on Samples to show each coat required for system.
 - 3. Label each coat of each Sample.
 - 4. Label each Sample for location and application area.
- D. Product List: For each product indicated. Cross-reference products to coating system and locations of application areas. Use same designations indicated on Drawings and in schedules.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: An experienced installer who employs only persons trained and approved by special coatings manufacturer for applying special coatings systems indicated.
 - 1. Qualifications of installers for special coatings system shall not be less than five years of experience installing specified items. Special coatings installer shall be manufacturer approved and have performed at least ten similar installations.

2. Special Coatings System Installers must be pre-approved by the Architect. Subject to the requirements of the specifications and approval of the manufacturer, pre-approved installers are listed in paragraph 2.1 of this Section.

- B. Single-Source Responsibility: Provide primers and undercoat material produced by the same manufacturer as the finish coats for each type of coating. Use only thinners recommended by the manufacturer and only within recommended limits.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.
 1. Maintain containers in clean condition, free of foreign materials and residue.
 2. Remove rags and waste from storage areas daily.

1.6 PROJECT CONDITIONS

- A. Apply coatings only when temperature of surfaces to be coated and surrounding air temperatures are between 50 and 95 deg F.
- B. Do not apply coatings in snow, rain, fog, or mist; when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

1.7 EXTRA MATERIALS

- A. Furnish extra materials described below that are from same production run (batch mix) as materials applied and that are packaged for storage and identified with labels describing contents.
 1. Quantity: Furnish an additional 5 percent, but not less than 1 gal. of each material and color applied.

2. PART 2 - PRODUCTS

2.1 HIGH-PERFORMANCE COATINGS, GENERAL

- A. Material Compatibility:
 1. Provide materials for use within each coating system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
 2. Provide products of same manufacturer for each coat in a coating system.
- B. Chemical Components of Field-Applied Interior Paints and Coatings: Provide topcoat paints and anti-corrosive and anti-rust paints applied to ferrous metals that comply with the following chemical restrictions; these requirements do not apply to paints and coatings that are applied in a fabrication or finishing shop:

1. Aromatic Compounds: Paints and coatings shall not contain more than 1.0 percent by weight of total aromatic compounds (hydrocarbon compounds containing 1 or more benzene rings).
2. Restricted Components: Paints and coatings shall not contain any of the following:
 - a. Acrolein.
 - b. Acrylonitrile.
 - c. Antimony.
 - d. Benzene.
 - e. Butyl benzyl phthalate.
 - f. Cadmium.
 - g. Di (2-ethylhexyl) phthalate.
 - h. Di-n-butyl phthalate.
 - i. Di-n-octyl phthalate.
 - j. 1,2-dichlorobenzene.
 - k. Diethyl phthalate.
 - l. Dimethyl phthalate.
 - m. Ethylbenzene.
 - n. Formaldehyde.
 - o. Hexavalent chromium.
 - p. Isophorone.
 - q. Lead.
 - r. Mercury.
 - s. Methyl ethyl ketone.
 - t. Methyl isobutyl ketone.
 - u. Methylene chloride.
 - v. Naphthalene.
 - w. Toluene (methylbenzene).
 - x. 1,1,1-trichloroethane.
 - y. Vinyl chloride.

C. HIGH-PERFORMANCE COATINGS SCHEDULE

LOCATION

Interior Concrete Slabs (Mech. Room Flrs)

COATINGS SYSTEM

CONC-1

2.2 INTERIOR HIGH-PERFORMANCE COATINGS

A. System CONC-1 for application on Interior High Traffic and Mechanical Room Floors:

1. Concrete Primer: 100% Solids concrete primer for use over cured concrete. Application Rate per manufacturer's instructions:
 - a. PPG: Megaseal High Solids Clear Primer, 99-6639 Series .
 - b. Tnemec: Series 203 Primer.
 - c. Or equal, if and as specifically approved by Architect by Addendum during bidding period.
2. Coved Base: Apply a 4" rolled radius cove to all floor wall/curb transitions. Application Rate per manufacturer's instructions:
 - a. PPG: Nu-Klad 120A Epoxy Surfacer, 1/8" thick with rock-reinforced cove base.

- b. Tnemec: Sub-Flex EP® Series 206.
 - c. Or equal, if and as specifically approved by Architect by Addendum during bidding period.
- 3. Intermediate Coat for use over primed concrete. Application Rate per manufacturer's instructions:
 - a. PPG: Nu-Klad 126 Self Leveling Epoxy.
 - b. Tnemec: Power-Tread® Series 237.
 - c. Or equal, if and as specifically approved by Architect by Addendum during bidding period.
- 4. Finish coat: 1 coat over intermediate coat and concrete primer. Application Rate per manufacturer's instructions: Color as selected by Architect from manufacturer's standards.
 - a. PPG: Megaseal High Performance Urethane, 99-6730 Series .
 - b. Tnemec: Series 291.
 - c. Or equal, if and as specifically approved by Architect by Addendum during bidding period.

3. PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.
 - 1. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:
 - a. Concrete: 12 percent.
 - 2. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 3. Begin coating application only after unsatisfactory conditions have been corrected and surfaces are dry.
 - 4. Coating application indicates acceptance of surfaces and conditions.
 - 5. Notify the Architect of problems anticipated using the coatings specified over substrates primed by others.

3.2 PREPARATION

- A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.
- B. Remove plates, machined surfaces, and similar items already in place that are not to be coated. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and coating.

1. After completing coating operations, reinstall items that were removed; use workers skilled in the trades involved.
- C. Clean substrates of substances that could impair bond of coatings, including dirt, oil, grease, and incompatible paints and encapsulants.
 1. Remove incompatible primers and reprime substrate with compatible primers as required to produce coating systems indicated.
- D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not coat surfaces if moisture content or alkalinity of surfaces to be coated exceeds that permitted in manufacturer's written instructions. **Examine existing floor finishes for good adhesion.**
 1. Abrasive blast clean surfaces to comply with SSPC-SP 13 / NACE No. 6, "Surface Preparation of Concrete." **Affirm that the surface is free of contaminants prior to abrasive blast, shot-blast, or mechanical abrasion of concrete surface in accordance with SSPC-SP 13 / NACE No. 6 and manufacturer's recommendations.**
- E. Material Preparation: Carefully mix and prepare materials according to the coating manufacturer's directions.
 1. Maintain containers used in mixing and application of coatings according to the manufacturer's directions.
 2. Stir materials before applying to produce a mixture of uniform density; stir as required during application. Do not stir surface film into the material. Remove film and, if necessary, strain the coating material before using.
 3. Use only the type of thinners approved by the manufacturer and only within recommended limits.

3.3 APPLICATION

- A. **Provide finish coats compatible with the primers used.**
- B. Apply high-performance coatings according to manufacturer's written instructions.
 1. Use applicators and techniques suited for coating and substrate indicated.
 - a. Do not apply coatings over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to forming a durable coating film.
 2. Coat surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, coat surfaces behind permanently fixed equipment or furniture with prime coat only.
 3. Coat back sides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
 - a. The term "exposed surfaces" includes areas visible when permanent or built-in fixtures, convactor covers, covers for finned tube radiation, grilles, and similar components are in place. Extend coatings in these areas, as required, to maintain the system integrity and provide desired protection.

4. Omit primer on metal surfaces that have been shop-primed and touch-up painted.
- C. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of the same material are to be applied. Tint undercoats to match color of finish coat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.
- D. If undercoats or other conditions show through final coat, apply additional coats until cured film has a uniform coating finish, color, and appearance.
- E. Apply coatings to produce surface films without cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections. Produce sharp glass lines and color breaks.
- F. The number of coats and film thickness required is the same regardless of the application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. Where sanding is required, according to the manufacturer's directions, sand between applications to produce a smooth, even surface.

3.4 FIELD QUALITY CONTROL

- A. Owner reserves the right to invoke the following procedure at any time and as often as Owner deems necessary during the period when coatings are being applied:
 1. Owner will engage the services of a qualified testing agency to sample coating material being used. Samples of material delivered to Project site will be taken, identified, sealed, and certified in presence of Contractor.
 2. Testing agency will perform tests for compliance with specified requirements.
 3. Owner may direct Contractor to stop applying coatings if test results show materials being used do not comply with specified requirements. Contractor shall remove noncomplying coating materials from Project site, pay for testing, and recoat surfaces coated with rejected materials. Contractor will be required to remove rejected materials from previously coated surfaces if, on recoating with complying materials, the two coatings are incompatible.

3.5 CLEANING AND PROTECTION

- A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.
- B. After completing coating application, clean spattered surfaces. Remove spattered coatings by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.
- C. Protect work of other trades against damage from coating operation. Correct damage by cleaning, repairing, replacing, and recoating, as approved by Architect, and leave in an undamaged condition.
- D. At completion of construction activities of other trades, touch up and restore damaged or defaced coated surfaces.
- E. Provide "Wet Paint" signs to protect newly coated finishes.

- F. Refer to the drawings, room finish schedules and notes for paint requirements. Architect shall approve all "match adjacent surfaces" colors before painting begins.

END OF SECTION 09 96 00

SECTION 11 24 23 - WINDOW WASHING EQUIPMENT

PART 1 - GENERAL

1.1 GENERAL REQUIREMENTS

- A. Comply with the conditions of the Contract and Division 1 – General Requirements

1.2 SECTION INCLUDES

- A. Work of this section includes the design, supply and installation of window cleaning/suspended maintenance equipment

1.3 REFERENCES

- A. AISC S342L-1993, with Supplement No. 1 "Load and Resistance Factor Design Specification for Structural Steel Buildings".
- B. AWS D1.1-2000-Structural Welding Code – Steel.
- C. ANSI/WCA I-14.1-2001 Window Cleaning Safety Standard (International Window Cleaning Association).

1.4 DESIGN REQUIREMENTS

- A. Design window cleaning/suspended maintenance system to suit building and in accordance with plans, specifications, standards, and regulations/codes contained in sections 1.4 and 1.8.
- B. Locate anchorages to suite suspension equipment that will be used on the building with respect to items such as reach, rigging, spacing, roof edge condition and similar items.
- C. Design all anchor components to provide adequate attachment to the building and suited to current window cleaning/suspended maintenance practices. Ensure compatibility with industry standard equipment.
- D. Ensure all anchor components conform to proper engineering principles and have been designed by a Professional Engineer qualified in the design of window cleaning/suspended maintenance equipment, its application and safety requirements.
- E. Design system fall arrest safety anchors and equipment supports to comply with the following structural requirements:
 - 1. Supports Suspended Platforms: monorails are used for suspending a powered platform from storage and rigging/working locations on the building. These supports and the structures to which they are attached are typically designed to 1000 lbs (4.5kN) vertical service load plus impact with a factor of safety as per AISC requirements and/or ACI or other applicable construction codes, and to 4 times the rated load against fracture or detachment (i.e. 4 to 1 stability factor).

2. Fall Arrest Safety Anchors: designed to a maximum fall arresting force of typically 1800 lbs (8.0 kN) when wearing a body harness with a safety factor of 2 without any permanent deformation and to 5000 lbs (22.24 kN) against fracture or detachment.
3. Ensure design of primary support equipment is capable of sustaining without failure at least four times the maximum static working load applied or transmitted to the components, i.e. a 4 to 1 stability factor.

1.5 SHOP DRAWINGS AND ENGINEERING CERTIFICATION

- A. Submit shop drawings showing complete layout and configuration of complete window cleaning/suspended maintenance system, including all components and accessories. Clearly indicate design and fabrication details, window "drops", hardware, and installation details.
- B. Shop drawings to include installation and rigging instructions and all necessary Restrictive and Non-Restrictive Working Usage Notes and General Safety Notes.
- C. Shop drawings to be reviewed by a professional engineer, and upon request, complete with calculations and/or test reports.

1.6 QUALIFICATIONS

- A. Manufacturer: Work of this Section to be executed by manufacturer specializing in the design, fabrication and installation of window cleaning/suspended maintenance system having a minimum of 5 years documented experience.
- B. Loading and safety assurance: Work of this Section to meet the requirements of governing codes and jurisdiction and to comply with properly engineered loading and safety criteria for the intended use.
- C. Insurance: Manufacturer to carry specific liability insurance (products and completed operations) in the amount of \$2,000,000.00 to protect against product/system failure.
- D. Welding to be executed by certified welders in accordance with AWS requirements.

1.7 REGULATORY REQUIREMENTS

- A. Comply with the following OSHA regulations:
 1. 1910, Subpart D (Walking and Working Surfaces)
 2. Appendix C to 1910 Subpart F (Personal Fall Arrest Systems).

1.8 MAINTENANCE DATA

- A. Submit 1 copy of system Equipment Manual & Inspection Log Book, with "Initial Inspection – Certification for Use" and "Inspection Sign-Off" forms completed.
- B. Submit 2 copies of a reduced plastic laminated as-built shop drawing showing equipment locations and details. This drawing is to be posted near exits onto the roof.

PART 2 - PRODUCTS

2.1 MANUFACTURER

- A. This specification is based on systems currently being manufactured by PRO-BEL ENTERPRISES LTD. Toll free: 1-800-461-0575. Telephone: 905-427-0616, Fax: 905-427-2545, infor@pro-bel.ca.
- B. Other manufactured products meeting this specification may be substituted provided that manufacturers show proof of product insurance. Equipment details to be approved by the architect and/or consultant. Companies, such as miscellaneous metal fabricators, who are not normally engaged in the design and manufacture of window cleaning/suspended maintenance equipment are not permitted to bid.

2.2 HORIZONTAL TROLLEY RAIL SYSTEM

- A. Horizontal rails and mounting: designed to carry minimum vertical service load of 1,000 lbs (4.5 kN); fabricated using cold rolled steel sections, Type 300W with yield strength of 44Ksi (300 Mpa) and tensile strength of 65 Ksi (450 Mpa), galvanized to ASTM A123/A 123M-2000 Standard Specification for Zinc Coating (Hot-Dip Galvanizing) of Iron and Steel Products. Provide end stops to ensure trolleys cannot become detached from the rail. Stops to be removable for service.
- B. Monorail finish: exterior finish to be galvanized. Interior finish to be epoxy.
- C. Capacity/Data plates: rail entry systems to be equipped with prominently displayed, non-corrosive plate clearly stating Maximum Service Capacity, Manufacturer's name, Serial No. and Manufacturing Date.
- D. Trolleys: equipped with heavy duty rollers and 5/8" (16mm) diameter U-bar safety anchors; exterior finish to be Type 304 stainless steel. Design trolleys to run freely under load with minimum manipulation.
- E. Safety U-bars: Type 304 stainless steel with yield strength of 35 Ksi (240 Mpa). U-bar to be not less than 3/4" (19 mm) diameter material with 1-1/2" (38 mm) eye opening.
- F. Securement bolts: mild steel, Type 300W with yield strength of 44 Ksi (300 MPa), hot dipped galvanized to ASTM A123/A 123M-2000.
- G. Hollow steel section (HSS) piers: galvanized steel as above with yield strength of 50 Ksi (300 Mpa). Wall thickness to suit application.
- H. Tethers: All pins and loose pieces to be secured using 1/8" (3mm) stainless steel cable complete with easily inserted lead connectors to avoid loss.
- I. Base plate and all other sections: galvanized mild steel as above with yield strength of 44 Ksi (300 Mpa). Thickness and securement to suit application.

- J. Seamless spun aluminum flashing (for roof mounted steel pier anchors): Type 6061-T6 alloy to ASTM-B221-2000 with deck flange flashed into NRCA recommendations. Seal top of aluminum flashing with conformable mastic tape and torch applied heat-shrink rubber collar flashing.
- K. Miscellaneous bolts, nuts, and washers: mild steel, Type 300W with yield strength of 44 Ksi (300 Mpa), hot-dip galvanized to ASTM A123/A 123m-2000 or Type 304 stainless steel with yield strength of 35 Ksi (240 Mpa).

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine work surfaces and areas upon which the work of this section depends. Report to the Contractor in writing, defects of work prepared by other trades and other unsatisfactory site conditions which would cause defective installation of products, or cause latent defects in workmanship or function.
- B. Verify site dimensions.
- C. Commencement of work will imply acceptance of prepared work.

3.2 INSTALLATION

- A. Install equipment in accordance with approved shop drawings and manufacturer's recommendations.
- B. Coordinate installation with work of related trades.
- C. Install all work true, level, tightly fitted and flush with adjacent surfaces as required.
- D. Deform threads of tail end of anchor studs after nuts have been tightened to prevent accidental removal or vandalism.
- E. Manufacturer to assist and/or supervise installation of window cleaning/suspended maintenance equipment installed by others.
- F. Structural steel to receive safety anchors to have adequate bearing surface as indicated on shop drawings and/or to ensure 100% weld.

3.3 FINAL ADJUSTING AND INSPECTION

- A. Adjust and leave equipment in proper working order.
- B. Complete "Initial Inspection – Certification for Use" form included in Equipment Manual & Inspection Log Book.

3.4 TESTING

- A. All anchors relying upon chemical adhesive fasteners to be 100% tested on site using load cell test apparatus in accordance with manufacturer's recommendations.

END OF SECTION 11 24 23

SECTION 12 24 13 – ROLLER WINDOW SHADES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes:
 - 1. Manual clutch window shades.
 - 2. Accessories and attaching hardware.

1.3 SUBMITTALS

- A. General: Submit each item in this Article according to the Conditions of the Contract and Division 1 Specification Sections.
- B. Product data for each type of window shade specified. Include printed data on physical characteristics.
- C. Samples for initial selection in the form of manufacturer's color charts showing the full range of colors, textures, and patterns available for each type of window shade indicated.
- D. Maintenance data for window shades to include in the operation and maintenance manual specified in Division 1. Include the following:
 - 1. Methods for maintaining window shades and finishes.
 - 2. Precautions for cleaning materials and methods that could be detrimental to finishes and performance.

1.4 QUALITY ASSURANCE

- A. Fire-Test-Response Characteristics: Provide horizontal louver blinds identical to those tested for the following fire-test-response characteristics as determined by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
 - 1. Test Method: NFPA 701.
 - 2. Rating: Pass.
- B. Single-Source Responsibility: Obtain each type of window shade from one source and by a single manufacturer.

1.5 PROJECT CONDITIONS

- A. Field Measurements: Check actual window shade dimensions by accurate field measurements before fabrication, and show recorded measurements on final shop drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Enclosure and Environmental Limitations: Do not install window shades until space is enclosed and weatherproof, wet-work in space is completed and nominally dry, work above ceilings is complete, and ambient temperature and humidity conditions are and will be continuously maintained at values near those indicated for final occupancy.
- C. Install all shades no closer than 2" from glass surfaces. Provide minimum of 1/2" air space between either ceiling and top of shade or between side of shade and wall jambs.
- D. Warranty:
 - 1. Provide manufacturer's standard twenty-five (25) year written warranty against defects in manual shade materials and workmanship, beginning at date of substantial completion. The control chain is considered a normal maintenance item and is not under warranty. Also, electrical components and motors are warranted for a period of five years only. [

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Manual Clutch Shades:
 - a. MechoShade, Manual Clutch System, 42-03 35th Street, Long Island City, NY 11101 (877) 774-2572.
 - 2. Other equal products if and as specifically approved by the Architect by Addendum during the bidding period.

2.2 MATERIALS

- A. Manual Clutch: Manufacturers standard manual clutch system for size of shade required. All manual clutch shades shall include a lift assist mechanism.
- B. Accessories:
 - 1. Intermediate Brackets: as required.
- C. Roller Tube shall be extruded aluminum of sufficient diameter and wall thickness to prevent excessive deflection along its length. The shade fabric will be spline-mounted to the roller to allow shade fabric to be removed from the roller without having to remove roller from the brackets. Adhesives, double-sided adhesive tapes, staples, and/or rivets applied for mounting of the fabric are not acceptable. A minimum of one turn of fabric will be placed on the roller before the working section of fabric starts.

1. Shades, 10 feet or more wide must have gear reduction lifting/clutch mechanism.
- D. Hem Bar shall be either 1/8" x 1" or 3/16" x 1-1/2" extruded aluminum bar depending on size of shade, pocketed in lower end of fabric by thermal seal.
- E. Shade retention systems may be required to maintain shade position where HVAC registers are directly in front of floor to ceiling windows.
- F. Surface-mounted Single Shade Pocket shall be 4-3/4" wide by 5" high extruded aluminum enclosure with a 3" wide closure for use when the shade is to be recessed into the pocket or completely concealed. **Surface-Mounted Roller Window Shades shall not be attached to the window system, Typ.**
 1. WIC-1, Manual Clutch Rolling Shade: Equal to MechoShade Mecho/5 with Fascia and #4133 Surface-Mounted Ceiling Pocket. Finish: Clear Anodized to Match Framing System
- G. Shadecloth Materials:
 1. Vinyl jacketed polyester fabrics, 3% openness (See drawings for locations).
 - a. Style: EuroTwill 6000 Series (+/- 3% openness). Color: Charcoal, 6012.
- H. Fire Retardance: The described woven fabrics have been tested by an approved laboratory and meet the minimum requirements established by the California State Fire Marshal, per California Administrative Code, Title 19, Public Safety, Sub-chapter 8, Article 4, Section 1237, paragraph (b) as amended in 1986 and as modified by the State Fire Marshal in subsequent discussions. They also pass the National Fire Protection Association Test #701, and shall be fade resistant to commercially accepted standards.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions for compliance with requirements for installation tolerances, operational clearances, and other conditions affecting performance of window shades.
 1. Proceed with installation only after unsatisfactory conditions have been met.

3.2 INSTALLATION

- A. Install window shades level, plumb, and aligned with adjacent units according to manufacturer's written instructions, and located so shade band is not closer than 2 inches (50 mm) to interior face of glass. Allow clearances for window operation hardware. **Surface-Mounted Roller Window Shades shall not be attached to the window system.**

3.3 ADJUSTING

- A. Adjust and balance roller shades to operate smoothly, easily, safely, and free from binding or malfunction throughout entire operational range.

3.4 CLEANING

- A. Clean window shade surfaces, according to manufacturer's instructions, after installation.
- B. Remove surplus materials, packaging, rubbish, and debris resulting from installation. Leave installation areas neat, clean, and ready for use.

3.5 PROTECTION

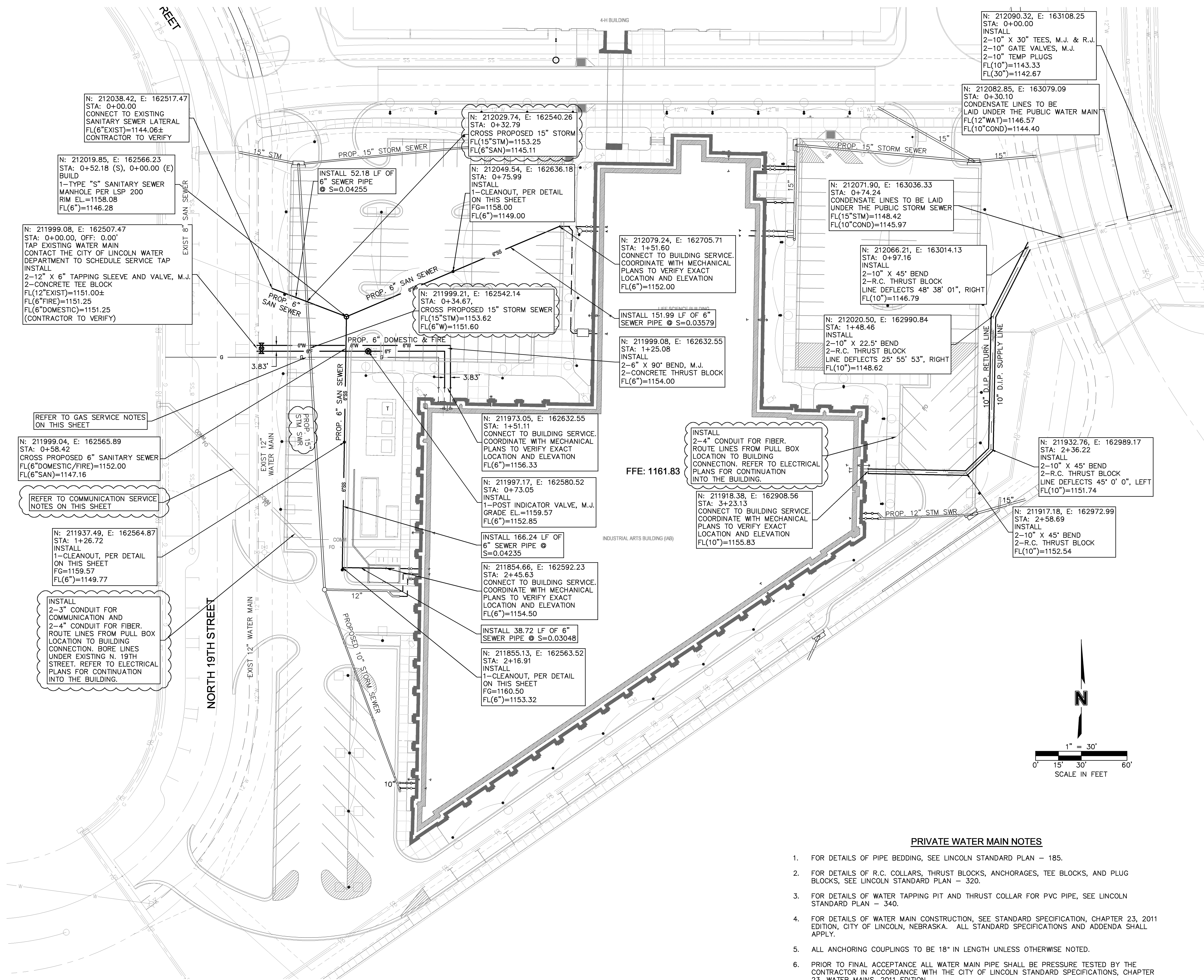
- A. Provide final protection and maintain conditions in a manner acceptable to manufacturer and installer that ensure that window shades are without damage or deterioration at the time of Substantial Completion.

3.6 DEMONSTRATION

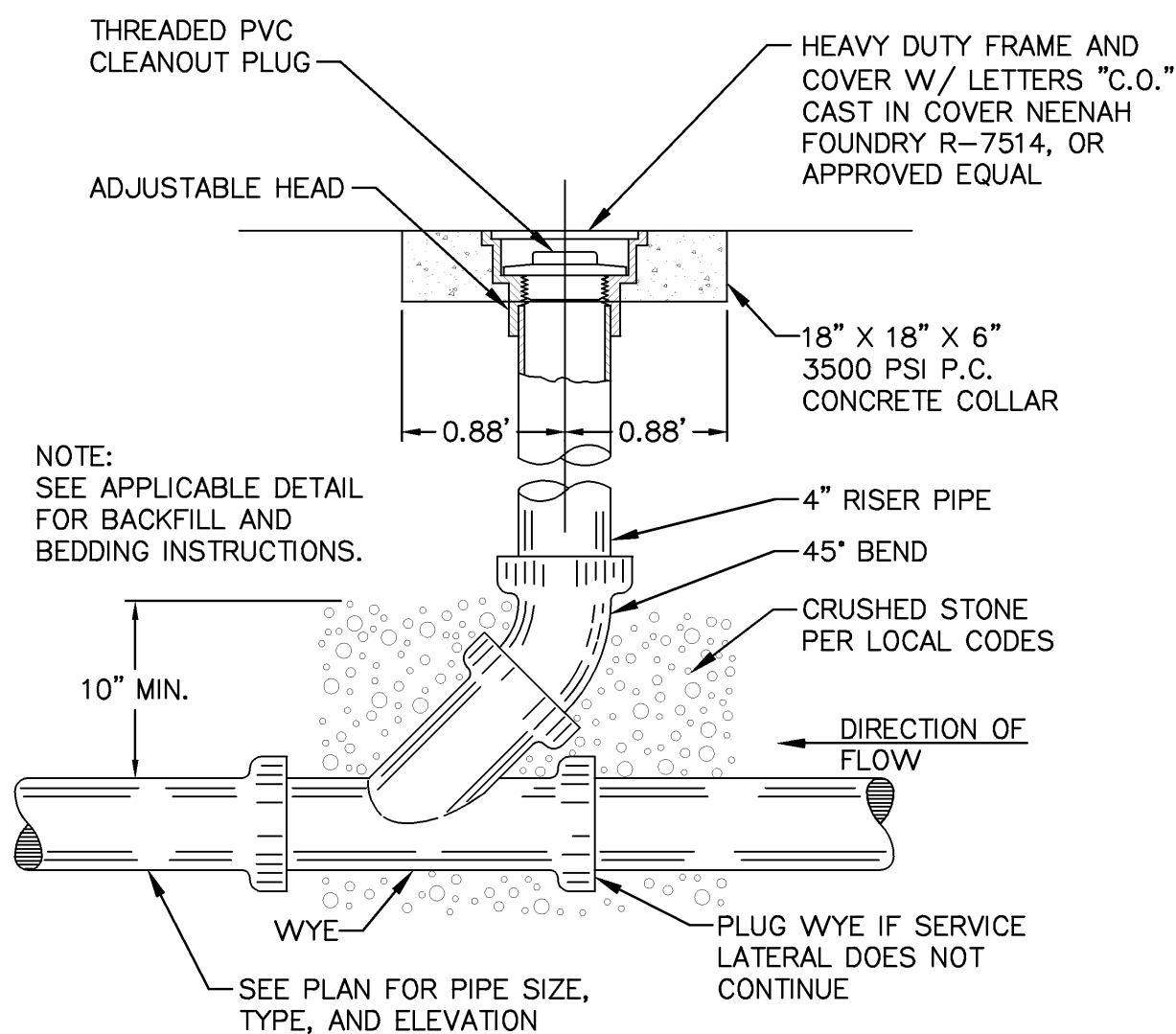
- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain roller shades. Refer to Division 01 Section Demonstration and Training.

END OF SECTION 12 24 13

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LEGEND	
—W—	PROPOSED WATER MAIN
—SS—	PROPOSED SANITARY SEWER
—SD—	PROPOSED STORM SEWER
—W—	EXISTING WATER MAIN
—SS—	EXISTING SANITARY SEWER
—SD—	EXISTING STORM SEWER
—	ROAD RIGHT-OF-WAY
---	EASEMENT LINE
---	BUILDING SETBACK LINE
---	ROADWAY CENTERLINE
---	SECTION LINE
○	SANITARY SEWER MANHOLE
○	FIRE HYDRANT
○	WATER VALVE



SANITARY SEWER CLEAN-OUT
NOT TO SCALE

PRIVATE WATER MAIN NOTES

- FOR DETAILS OF PIPE BEDDING, SEE LINCOLN STANDARD PLAN – 185.
- FOR DETAILS OF R.C. COLLARS, THRUST BLOCKS, ANCHORAGES, TEE BLOCKS, AND PLUG BLOCKS, SEE LINCOLN STANDARD PLAN – 320.
- FOR DETAILS OF WATER TAPPING PIT AND THRUST COLLAR FOR PVC PIPE, SEE LINCOLN STANDARD PLAN – 340.
- FOR DETAILS OF WATER MAIN CONSTRUCTION, SEE STANDARD SPECIFICATION, CHAPTER 23, 2011 EDITION, CITY OF LINCOLN, NEBRASKA. ALL STANDARD SPECIFICATIONS AND ADDENDA SHALL APPLY.
- ALL ANCHORING COUPLINGS TO BE 18" IN LENGTH UNLESS OTHERWISE NOTED.
- PRIOR TO FINAL ACCEPTANCE ALL WATER MAIN PIPE SHALL BE PRESSURE TESTED BY THE CONTRACTOR IN ACCORDANCE WITH THE CITY OF LINCOLN STANDARD SPECIFICATIONS, CHAPTER 23, WATER MAINS, 2011 EDITION.
- PRIOR TO FINAL ACCEPTANCE ALL WATER MAIN PIPE SHALL BE DISINFECTED BY THE CONTRACTOR IN ACCORDANCE WITH THE CITY OF LINCOLN STANDARD SPECIFICATIONS, CHAPTER 23, WATER MAINS, 2011 EDITION.
- FOR PVC WATER MAIN CONSTRUCTION, ALL FITTINGS SHALL BE DUCTILE IRON WRAPPED WITH POLYWRAP. POLYWRAP SHALL BE LINEAR LOW DENSITY POLYETHYLENE FILM MANUFACTURED OF VIRGIN POLYETHYLENE MATERIAL. MINIMUM THICKNESS SHALL BE 8 MIL. POLYWRAP SHALL BE IN ACCORDANCE WITH DRAFT OF AWWA C105 REVISION, DOUBLE WRAPPED (2 LAYERS) AND TAPED AS PER CITY OF LINCOLN STANDARD SPECIFICATION.
- WHERE THE WATER MAIN IS TO BE CONSTRUCTED BELOW OR WITHIN 18 INCHES (0.5 M) OF ANY SEWER PIPE, THE CONTRACTOR SHALL LAY A FULL LENGTH OF WATER MAIN PIPE CENTERED ON THE SEWER OR SUCH LENGTH AS WILL PROVIDE THE MAXIMUM POSSIBLE SEPARATION OF THE JOINTS IN THE WATER MAIN FROM THE SEWER LINE. IF NOT ALREADY SO, THE CONTRACTOR SHALL CONSTRUCT SANITARY SEWER WITH ONE 20 FOOT (6 M) NOMINAL LENGTH OF PRESSURE PIPE MATERIAL CENTERED ON THE WATER MAIN AS PROVIDED IN SECTION 22.02(B), SUCH THAT THE MAXIMUM POSSIBLE SEPARATION BETWEEN THE WATER MAIN AND THE SEWER PIPE JOINTS WILL RESULT. THE BACKFILL MATERIAL SHALL BE SELECT, LOW PERMEABILITY SOL.
- AT ALL WATER MAIN CROSSINGS, SANITARY SEWERS SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SANITARY SEWER IS AT LEAST 18 IN (357 MM) BELOW THE BOTTOM OF THE WATER MAIN.
- ALL WATER MAIN CONSTRUCTION TO BE DONE UNDER A PLUMBERS PERMIT AND SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES.
- ALL WATER METERS, PUMPS, AND BACKFLOW PREVENTERS ARE LOCATED INSIDE BUILDING. REFER TO ARCHITECTURAL PLANS FOR DESIGN AND LOCATIONS.
- WATER SERVICE PIPE SHALL HAVE A 5.0' MINIMUM BURY DEPTH AS MEASURED FROM FINISHED GROUND TO TOP OF PIPE.
- SITE SHALL BE TO FINISHED GRADE PRIOR TO INSTALLATION OF WATER SERVICE.
- MATERIAL OF PIPE FROM TAP OF PUBLIC WATER MAIN TO METER IN BUILDING SHALL BE TYPE "K" SEAMLESS COPPER (3/4" TO 3"), DUCTILE IRON PIPE (3" AND LARGER), OR AWWA C900 PVC (4" AND LARGER) PER LOCAL CODES AND REGULATIONS.
- REFER TO ARCHITECTURAL PLANS FOR WATER SERVICE TIE-INS WITH BUILDING.

UTILITY NOTES

ELECTRICAL SERVICE

- ELECTRICAL TRANSFORMER PAD TO BE BUILT BY SITE CONTRACTOR. COORDINATE WITH LINCOLN ELECTRIC SYSTEM FOR EXACT SIZE, LOCATION, AND MATERIALS USED FOR PAD.
- UNDERGROUND TELEPHONE AND ELECTRIC PRIMARY CONDUITS AND CONDUCTORS TO BE BUILT BY LINCOLN ELECTRIC SYSTEM. COORDINATE WITH LINCOLN ELECTRIC SYSTEM FOR EXACT LOCATION AND SCHEDULING OF CONSTRUCTION. CONTRACTOR WILL BE RESPONSIBLE FOR SECONDARY CONDUIT FROM TRANSFORMER TO WITHIN 5' OF BUILDING.
- REFER TO ARCHITECTURAL BUILDING ELECTRICAL PLANS FOR CONTINUATION OF SERVICE IN BUILDING.
- PARKING LOT LIGHTING TO BE SUBMITTED SEPARATELY.

TELEPHONE SERVICE

- THE CONTRACTOR IS RESPONSIBLE TO FURNISH AND INSTALL CONDUIT FOR TENANT TELEPHONE SERVICE AS SHOWN.
- WINDSTREAM WILL DIRECT BURY TELEPHONE LINES IN UTILITY EASEMENTS.
- CONTRACTOR TO CONTACT WINDSTREAM TO VERIFY EXACT CONNECTION POINT OF SERVICE OFF THE PROPERTY.
- REFER TO ARCHITECTURAL BUILDING MECHANICAL PLANS FOR CONTINUATION OF SERVICE IN BUILDING.

CABLE TELEVISION

- CONDUIT FOR CABLE TELEVISION IS TO BE INSTALLED IN THE SAME TRENCH AS THE TELEPHONE.
- CONTACT CABLE COMPANY FOR EXACT LOCATION OF CONNECTION POINTS.
- REFER TO ARCHITECTURAL BUILDING MECHANICAL PLANS FOR CONTINUATION OF SERVICE IN BUILDING.

GAS MAIN

- UNDERGROUND GAS SERVICE TO BE BUILT BY BLACK HILLS ENERGY. COORDINATE WITH BLACKS HILLS ENERGY FOR EXACT LOCATION AND SCHEDULING OF CONSTRUCTION.
- REFER TO ARCHITECTURAL BUILDING MECHANICAL PLANS FOR CONTINUATION OF SERVICE IN BUILDING.

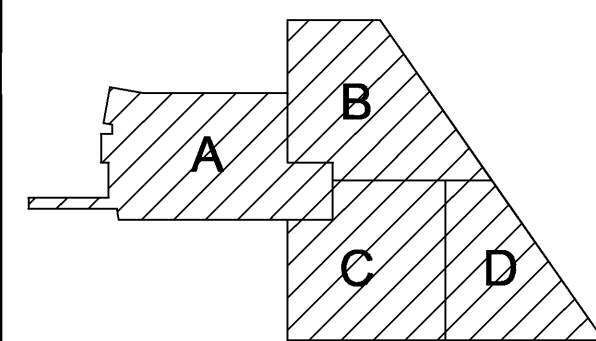
GENERAL NOTES

- THE CONTRACTOR SHALL MAINTAIN STRICT LATERAL CLEARANCE AS SHOWN ON THE PLANS FOR ALL UTILITY LINES.
- IN ANY OF THE MAIN OR SERVICE ROUTES ARE ADJUSTED IN THE FIELD BY THE CONTRACTOR, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING TO THE ENGINEER A RECORD OF THE EXACT LOCATIONS, AT THE CONTRACTOR'S EXPENSE, A LICENSED SURVEYOR SHALL BE RETAINED TO LOCATE THE CONDUIT ROUTES. THE CONTRACTOR SHALL PROVIDE THE SURVEYED LOCATIONS TO THE ENGINEER IN ELECTRONIC FORMAT.
- ALL TRENCHES SHALL BE BACKFILLED AND COMPACTED PER THE SPECIFICATIONS IN THE GEOTECHNICAL REPORT.
- THE CONTRACTOR SHALL RESTORE ANY DISTURBED AREA TO ITS PREVIOUS CONDITION.
- ALL CONDUITS SHALL BE TERMINATED 5 FEET FROM THE BUILDING.
- THE CONTRACTOR SHALL VERIFY ALL VERTICAL AND HORIZONTAL CROSSINGS OF ALL PROPOSED AND EXISTING UTILITIES PRIOR TO INSTALLATION OF CONDUIT. CONTACT THE ENGINEER WITH ANY CONFLICTS.
- ALL CONDUIT STUBS SHALL BE CAPPED AND MARKED ABOVE GROUND WITH REBAR AND A FLAG.

PRIVATE SANITARY SEWER NOTES

- FOR DETAILS OF C.I. MANHOLE RING, COVER, AND STEPS, SEE LINCOLN STANDARD PLAN – 162.
- FOR DETAILS OF STANDARD SEWER MANHOLE TYPE "S" (LINE) AND TYPE "R" (OUTSIDE DROP), SEE LINCOLN STANDARD PLAN – 200.
- FOR DETAILS OF PIPE BEDDING, SEE LINCOLN STANDARD PLAN – 185.
- FOR DETAILS OF STANDARD SANITARY SEWER SERVICES, SEE LINCOLN STANDARD PLAN – 210.
- FOR DETAILS OF PAVEMENT REPLACEMENT FOR UTILITY CONSTRUCTION, SEE LINCOLN STANDARD PLAN – 670.
- FOR DETAILS OF SANITARY SEWER CONSTRUCTION, SEE STANDARD SPECIFICATION, CHAPTER 22, 2011 EDITION, CITY OF LINCOLN, NEBRASKA. ALL STANDARD SPECIFICATIONS AND ADDENDA SHALL APPLY.
- USE 3" COUPLINGS AS REQUIRED BY STANDARD SPECIFICATIONS. MINIMUM PIPE LENGTH = 6.25'
- SANITARY SEWERS SHALL BE SEPARATED BY AT LEAST 10 FT. (3.05 M) HORIZONTALLY FROM ANY EXISTING OR PROPOSED PARALLEL WATER MAINS, MEASURED EDGE TO EDGE.
- AT ALL WATER MAIN CROSSINGS, SANITARY SEWERS SHALL BE LAID AT SUCH AN ELEVATION THAT THE TOP OF THE SANITARY SEWER IS AT LEAST 18 IN (457 MM) BELOW THE BOTTOM OF THE WATER MAIN. IN THOSE INSTANCES WHERE THE BOTTOM OF THE WATER MAIN IS LESS THAN 18 IN (457 MM), ABOVE THE TOP OF THE SANITARY SEWER OR THE SANITARY SEWER IS LOCATED ABOVE THE WATER MAIN, THE SANITARY SEWER SHALL BE CONSTRUCTED USING A 20 FT. (6.10 M) LENGTH OF PVC PRESSURE PIPE, MEETING THE REQUIREMENTS OF AWWA C900 FOR DR18, PRESSURE RATING 150 PSI (1034 KPA), CENTERED ON THE WATER MAIN.
- ALL SANITARY SEWER WILL BE DONE UNDER A PLUMBERS PERMIT, AND SHALL COMPLY WITH ALL APPLICABLE BUILDING CODES.
- PRIOR TO FINAL ACCEPTANCE ALL SEWER MAIN SHALL BE AIR TESTED BY THE CONTRACTOR @ 5 LBS FOR 15 MINUTES, IN ACCORDANCE WITH THE LINCOLN PLUMBING CODE.
- PRIOR TO FINAL ACCEPTANCE, THE CONTRACTOR SHALL HAVE THE SEWER MAIN TV INSPECTED AND THE COST OF SUCH WORK SHALL BE SUBSIDIARY TO THE PRICE BID FOR SEWER WITH INSTALLATION.
- PRIOR TO FINAL ACCEPTANCE, VACUUM TESTING SHALL BE PERFORMED ON ALL MANHOLES TO CONFORM TO THE REQUIREMENTS OF STANDARD TEST METHOD FOR CONCRETE MANHOLES BY THE "NEGATIVE AIR PRESSURE (VACUUM) TEST" ASTM DESIGNATION C-1244.
- CONTRACTOR SHALL VERIFY PROPOSED SANITARY SEWER MANHOLE RIM ELEVATIONS TO BE WITHIN ±0.25' TOLERANCE WITH EXISTING GROUND SURFACE. CONTRACTOR SHALL ADJUST MANHOLE RIM ELEVATIONS TO BE WITHIN TOLERANCE. ADJUSTMENTS SHALL BE A SUBSIDIARY TO THE PRICE BID FOR STANDARD SEWER MANHOLE, TYPE "S".
- FOR BORED SECTION OF PIPE, CONTRACTOR SHALL TEST EVERY 25' SECTION OF 8" SEWER PIPE BASED ON THE FOLLOWING GUIDELINES: GRADE TOLERANCES SHOULD NOT EXCEED THE FOLLOWING:
 - THE MINIMUM SLOPE OF THE SEWER MAIN BETWEEN ANY TWO CHECK POINTS ALONG THE ALIGNMENT SHALL BE AT LEAST 0.005 FT/FT.
 - THE ENGINEER HAS THE RIGHT TO REJECT ANY INSTALLATION SECTION OF THE INSTALLATION THAT DOES NOT MEET THE MINIMUM REQUIREMENTS. CONTRACTOR SHALL, AT THEIR OWN EXPENSE, REINSTALL THE SEWER PIPE TO THE LINES AND GRADES REQUIRED.
- REFER TO ARCHITECTURAL PLANS FOR SANITARY SEWER TIE-INS WITH BUILDING(S).
- BUILD 1 1/2" P.V.C. RISER PIPE WITH 1 1/2" SOLVENT WELDED CAP, AT THE END OF SANITARY SEWER SERVICE.
- CLEAN-OUTS TO BE BUILT AS PER CITY OF LINCOLN CODE.
- ALL PIPE, SERVICE PIPE, AND FITTINGS SHALL BE SCHEDULE 40 PVC.

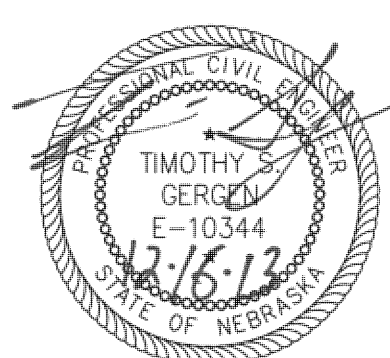
SHEET HISTORY:	
ISSUED	11/27/2013 AS PER CONSTR. DOCUMENTS
A-001	12/11/2013 AS PER ADDENDUM #1
A-002	12/16/2013 AS PER ADDENDUM #2



Key Plan

Life Sciences Collaboration

1910 N. Antelope Valley
Parkway
Lincoln, Nebraska
TCEP No.: 716-002-12
Davis Design.: 12-0077
BVH No.: L12018.unl
November 27, 2013



PRIVATE STORM SEWER NOTES

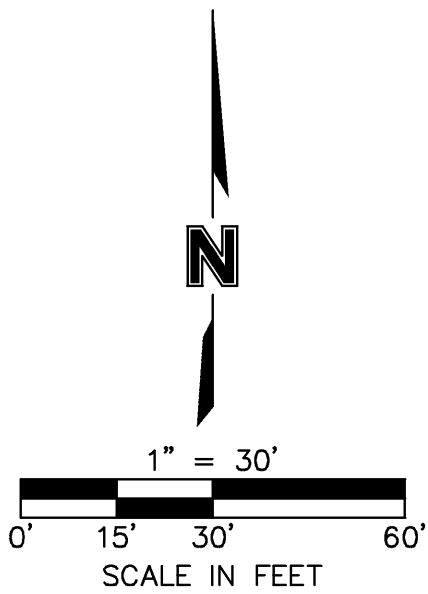
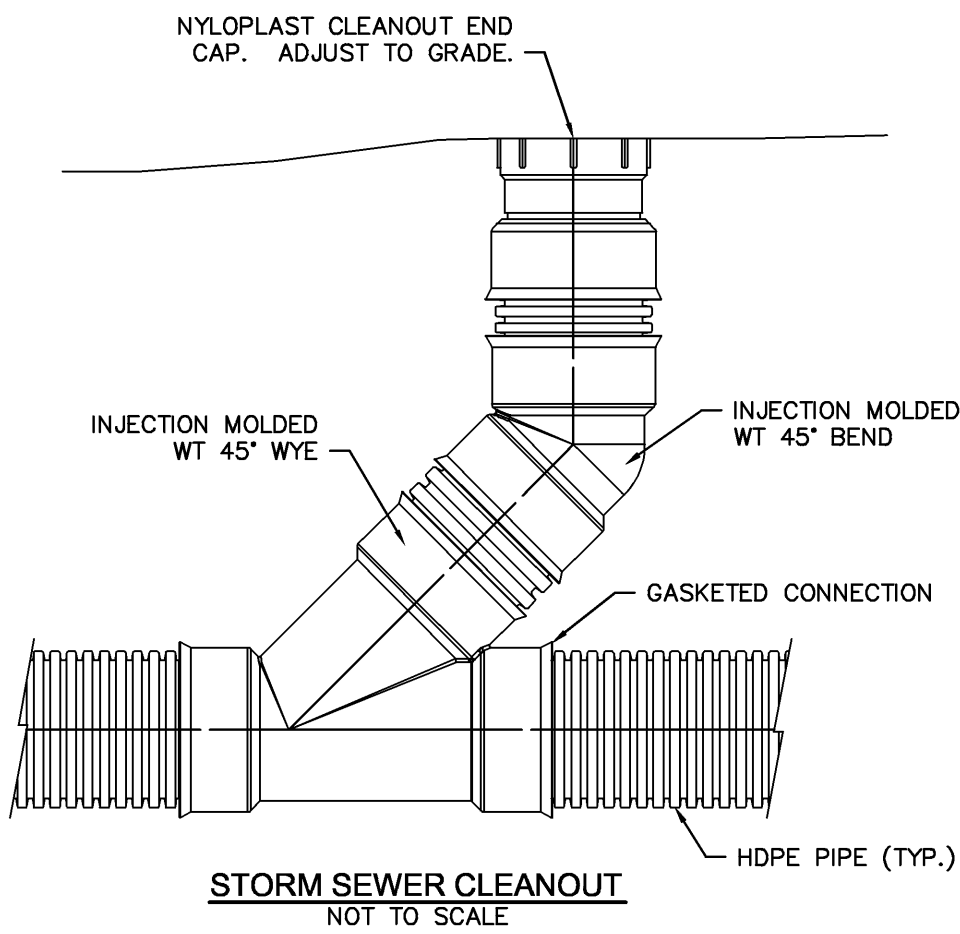
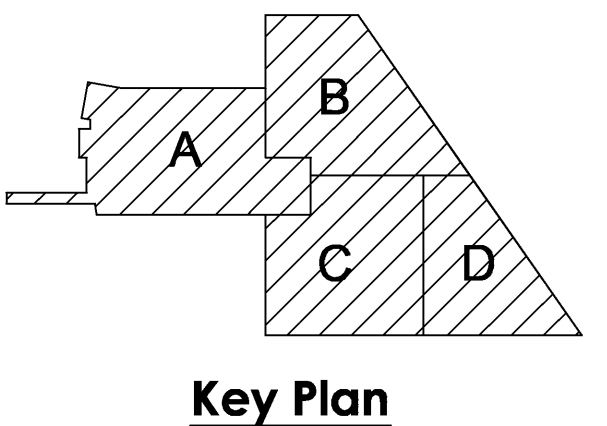
- FOR DETAILS OF TYPE "A-2" STORM SEWER INLET, SEE LINCOLN STANDARD PLAN - 101.
- BUILD 72" STORM SEWER INLET (COMPLETE) DOES NOT INCLUDE LENGTH OF CURB AS SHOWN ON LINCOLN STANDARD PLAN - 101.
- FOR DETAILS OF TYPE "M-2" STORM SEWER MANHOLE, SEE LINCOLN STANDARD PLAN - 142.
- FOR DETAILS OF R.C. COLLARS, R.C. ELBOWS, AND PLUGS, SEE LINCOLN STANDARD PLAN - 150.
- FOR DETAILS OF C.I. MANHOLE RING, COVER, AND STEPS, SEE LINCOLN STANDARD PLAN - 162.
- FOR DETAILS OF PIPE BEDDING, SEE LINCOLN STANDARD PLAN - 185.
- FOR DETAILS OF STORM SEWER CONSTRUCTION, SEE STANDARD SPECIFICATION, CHAPTER 21, 2011 EDITION, CITY OF LINCOLN, NEBRASKA. ALL STANDARD SPECIFICATIONS AND ADDENDA SHALL APPLY.
- FOR DETAILS OF PAVEMENT REPLACEMENT FOR UTILITY CONSTRUCTION, SEE LINCOLN STANDARD PLAN - 670.
- ALL STATIONING AND DIMENSIONS ARE TO BE CENTERLINE OF VAULT UNLESS OTHERWISE NOTED.
- THE PAVING CONTRACTOR SHALL BE RESPONSIBLE FOR THE INLET THROAT AND CURB AND GUTTER UP TO THE INLET TOP.
- ALL STORM SEWER PIPE MATERIAL 12" AND SMALLER SHALL BE ADVANCED DRAINAGE SYSTEMS (ADS) PRODUCT OR APPROVED EQUAL.
- ALL STORM SEWER PIPE MATERIAL TO CONFORM TO LOCAL CODES.

LEGEND

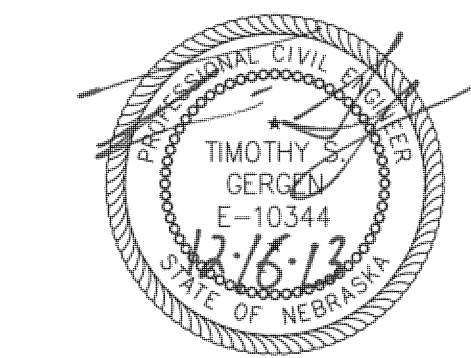
W	PROPOSED WATER MAIN
SS	PROPOSED SANITARY SEWER
SD	PROPOSED STORM SEWER
W	EXISTING WATER MAIN
SS	EXISTING SANITARY SEWER
SD	EXISTING STORM SEWER
	ROAD RIGHT-OF-WAY
	EASEMENT LINE
	BUILDING SETBACK LINE
	ROADWAY CENTERLINE
	SECTION LINE
	SANITARY SEWER MANHOLE
	FIRE HYDRANT
	WATER VALVE



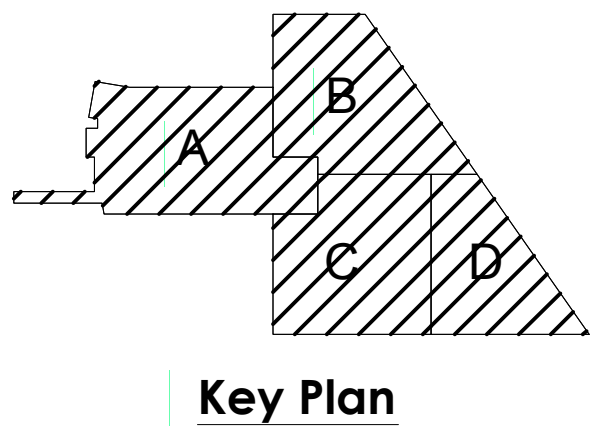
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A-001	12/11/2013	AS PER ADDENDUM #1
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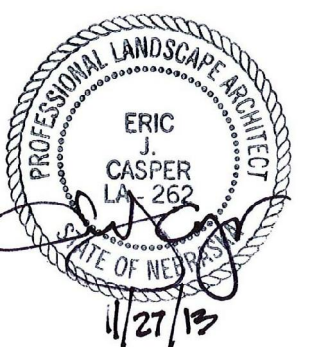
Life Sciences Collaboration
 1910 N. Antelope Valley
 Parkway
 Lincoln, Nebraska
 TCEP No.: 716-002-12
 Davis Design.: 12-0077
 BVH No.: L12018.unl
 November 27, 2013



STORM SEWER PLAN
C1.02



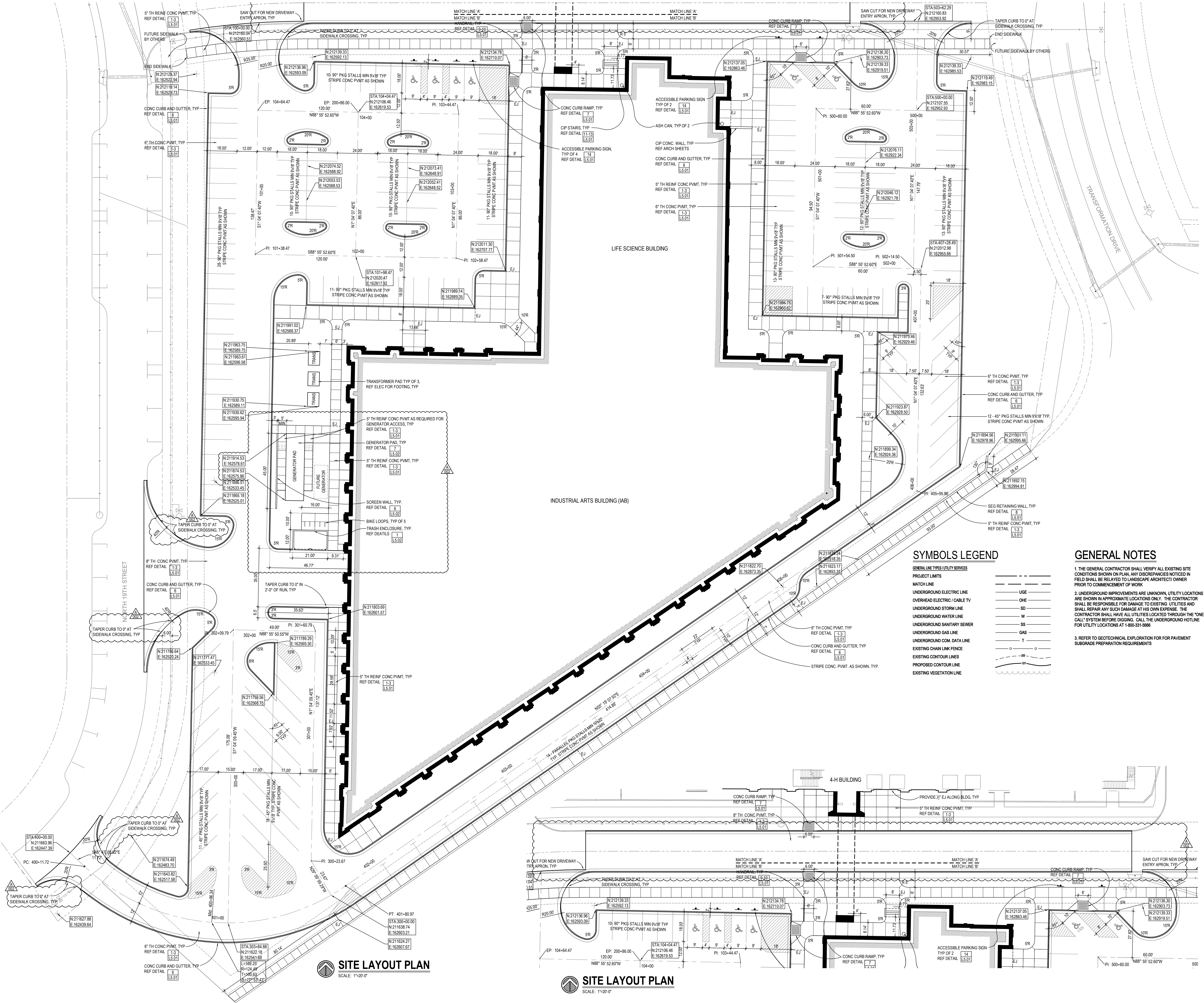
Life Sciences Collaboration
1910 N. Antelope Valley
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November 27, 2013



Site Layout Plan

L1.01

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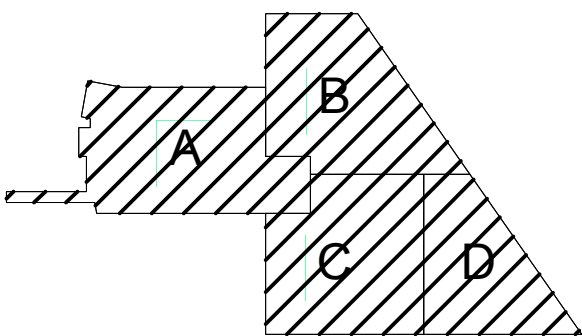


SITE LAYOUT PLAN
SCALE: 1"=20'-0"

SITE LAYOUT PLAN
SCALE: 1"=20'-0"



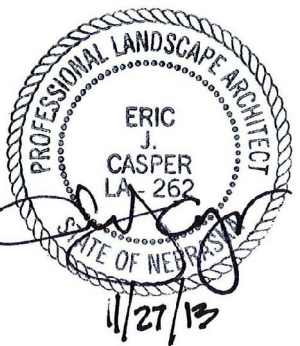
SHEET HISTORY:		
ISSUED	11/27/2013	AS PER CONSTR. DOCUMENTS
A - 002	12/16/2013	AS PER ADDENDUM #2



Key Plan

Life Sciences Collaboration

1910 N. Antelope Valley
Parkway
Lincoln, Nebraska
TCEP No.: 716-002-12
Davis Design.: 12-0077
BVH No.:L12018.unl
November 27, 2013



Pavement Identificaiton
and Sleeve Plan

L1.02

Plot Time Stamp: 12 / 16 / 2013 1:41:43 PM
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PAVEMENT IDENTIFICATION AND SLEEVE PLAN

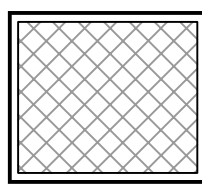
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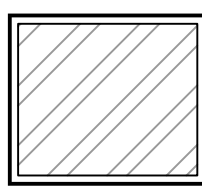
PAVEMENT IDENTIFICATION AND SLEEVE PLAN

SCALE: 1"=20'-0"

PAVEMENT LEGEND



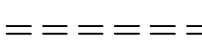
6" TH CONC. PAVEMENT



8" TH CONC. PAVEMENT

ALL SIDEWALKS

5" TH REINF CONC. PAVEMENT
(UNLESS OTHERWISE NOTED)



IRRIGATION PVC SLEEVE, SCH 40, SIZE AS SHOWN

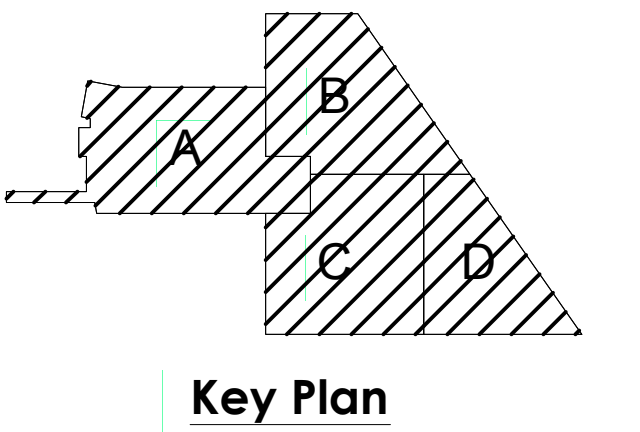
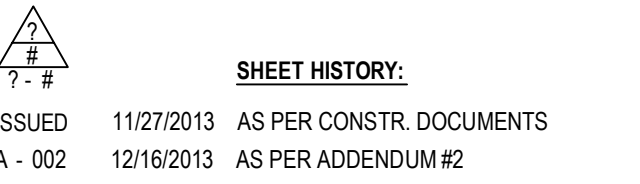
INDUSTRIAL ARTS BUILDING (IAB)

LIFE SCIENCE BUILDING

4-H BUILDING

NORTH 16TH STREET

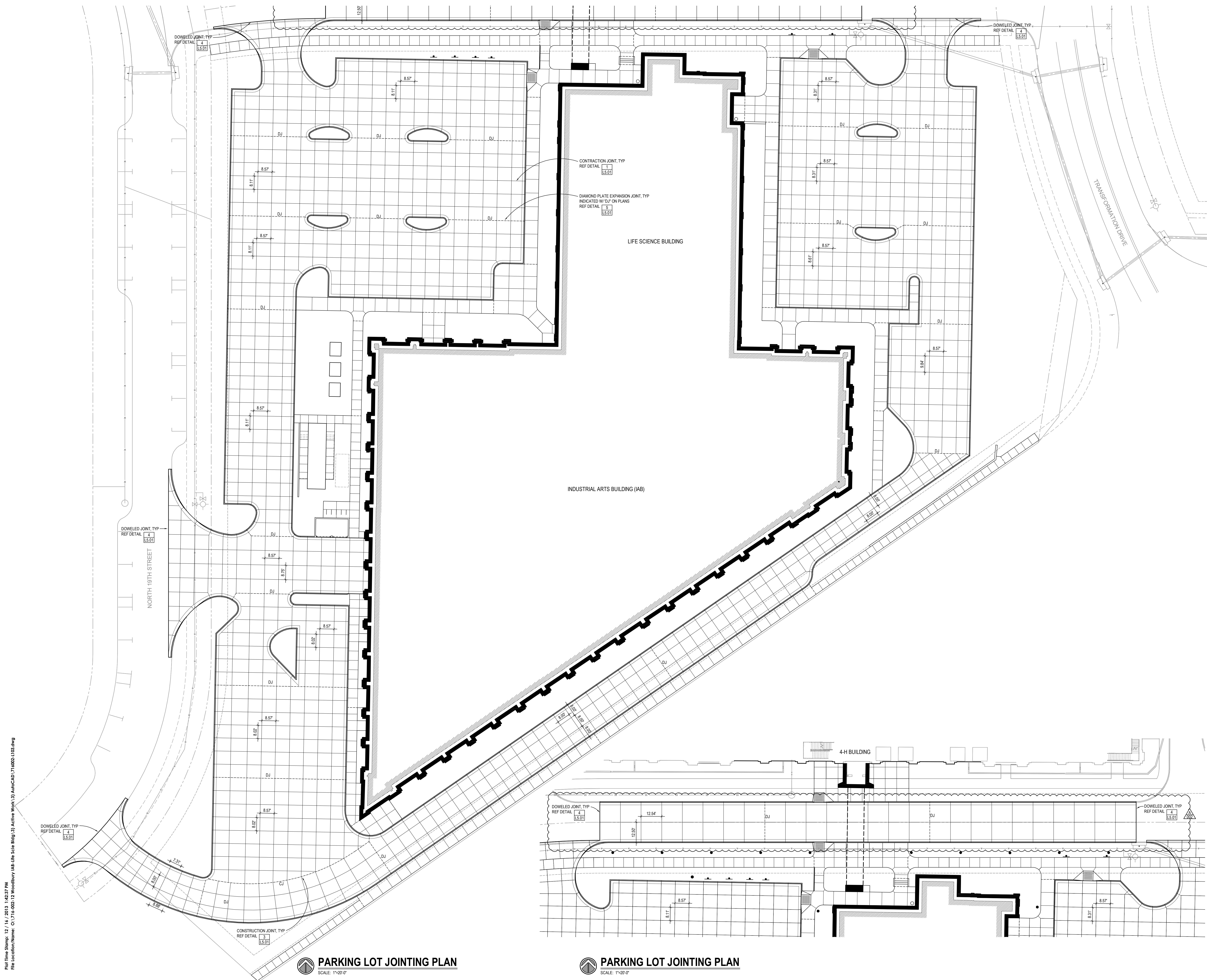
TRANSFORMATION DRIVE



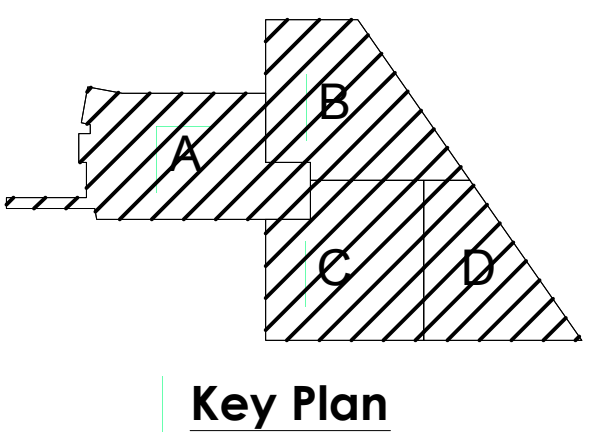
1910 N. Antelope Valley
Parkway
Lincoln, Nebraska
TCEP No.: 716-002-12
Davis Design.: 12-0077
BVH No.: L12018.unl
November 27, 2013



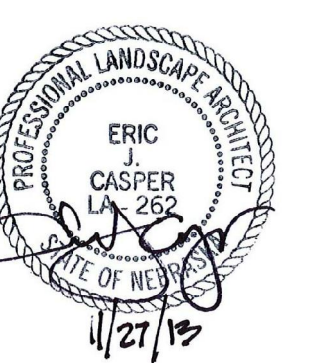
L1.03



SHEET HISTORY:
 ISSUED 11/27/2013 AS PER CONSTR. DOCUMENTS
 A - 002 12/16/2013 AS PER ADDENDUM #2

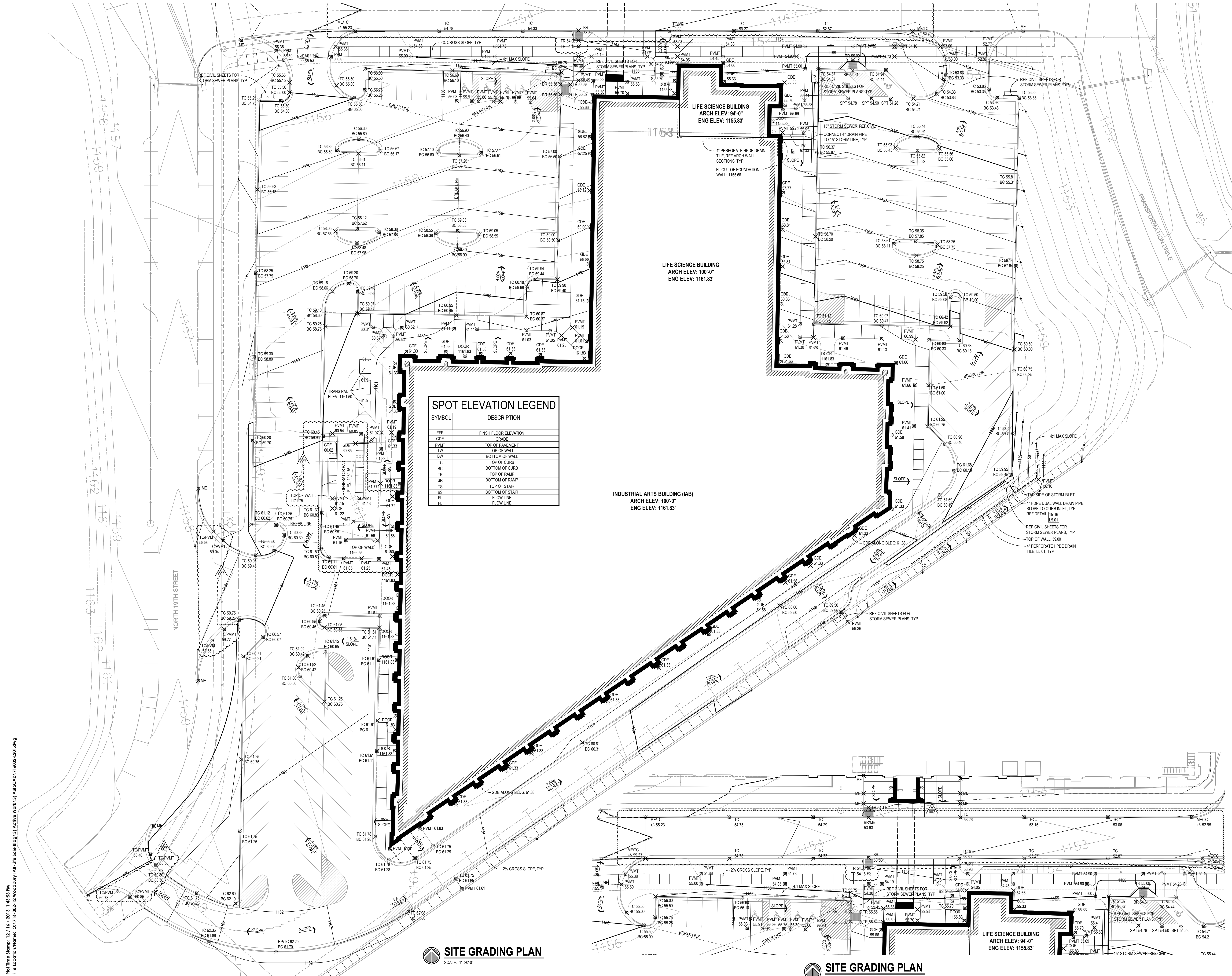


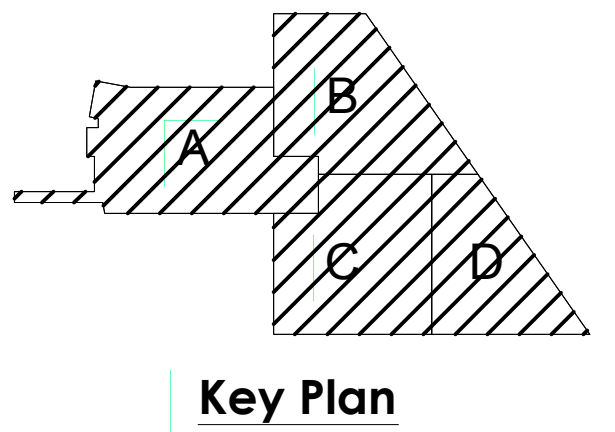
Life Sciences Collaboration
 1910 N. Antelope Valley
 Parkway
 Lincoln, Nebraska
 TCEP No.: 716-002-12
 Davis Design.: 12-0077
 BVH No.: L12018.unl
 November 27, 2013



Site Grading Plan

L2.01

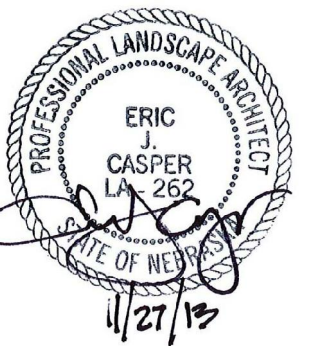




Life Sciences Collaboration

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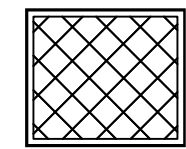
Topsoil Placement Plan

L2.04

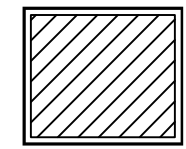
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TOPSOIL PLACEMENT PLAN
SCALE: 1"=20'-0"

TOPSOIL SCHEDULE:



TYPE A ZONE: TURF
6" TOPSOIL DEPTH



TYPE B ZONE: PLANTING BED
12" TOPSOIL DEPTH

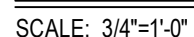
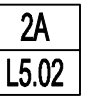
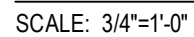
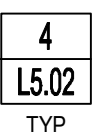
INDUSTRIAL ARTS BUILDING (IAB)
ARCH ELEV: 100'-0"
ENG ELEV: 1161.83'

LIFE SCIENCE BUILDING
ARCH ELEV: 94'-0"
ENG ELEV: 1155.83'

LIFE SCIENCE BUILDING
ARCH ELEV: 100'-0"
ENG ELEV: 1161.83'

NORTH 16TH STREET

TRANSFORMATION DRIVE



L5.02

GENERAL FOUNDATION NOTES:

1. SEE GEOTECHNICAL ENGINEERING REPORT INCLUDED IN THE SPECIFICATIONS FOR EARTHWORK AND FOUNDATION PREPARATION REQUIREMENTS. ALL RECOMMENDATIONS GIVEN SHALL BE CONSIDERED PART OF THE CONSTRUCTION DOCUMENT SET.

2. THE GENERAL CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCEMENT OF THE WORK. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO COORDINATE THE INSTALLATION OF THE NEW WORK WITHIN THE EXISTING CONDITIONS. ANY DEVIATION IN THE EXISTING CONDITIONS OR DIMENSIONS INDICATED SHALL BE COORDINATED WITH THE ENGINEER/ARCHITECT.

3. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR VERIFICATION AND COORDINATION OF ALL DIMENSIONS WITH THE MECHANICAL UNIT SUPPLIER.

4. DO NOT SCALE PLAN FOR DIMENSIONS.

5. CONTRACTOR IS RESPONSIBLE FOR TEMPORARY SUPPORT OF THE EXISTING STRUCTURE DURING FOUNDATION EXCAVATION AND CONSTRUCTION TO PREVENT ANY POSSIBLE MOVEMENT OF THE EXISTING STRUCTURE. CONCRETE FOUNDATIONS ADJACENT TO EXISTING STRUCTURE SHALL BE CAST THE SAME DAY AS EXCAVATION. EXTENTS OF EXCAVATION ADJACENT TO EXISTING STRUCTURE SHALL BE LIMITED TO EXTENT OF FOUNDATIONS TO BE INSTALLED THAT DAY. EXTENTS AND CONFIGURATION OF EXISTING STRUCTURE SHALL BE VERIFIED PRIOR TO FOUNDATION EXCAVATION.

6. ALL PILE CAPS SHALL BE ORIENTED AS SHOWN IN PILE LAYOUT PLANS.

7. PILES TO THE EAST OF GRID ZD SHALL NOT BE INSTALLED UNTIL THE SETTLEMENT OF THE PREVIOUS FILL MATERIAL HAS BEEN VERIFIED TO BE COMPLETE. SEE GEOTECHNICAL ENGINEERING REPORT FOR MONITORING PROGRAM REQUIREMENTS.

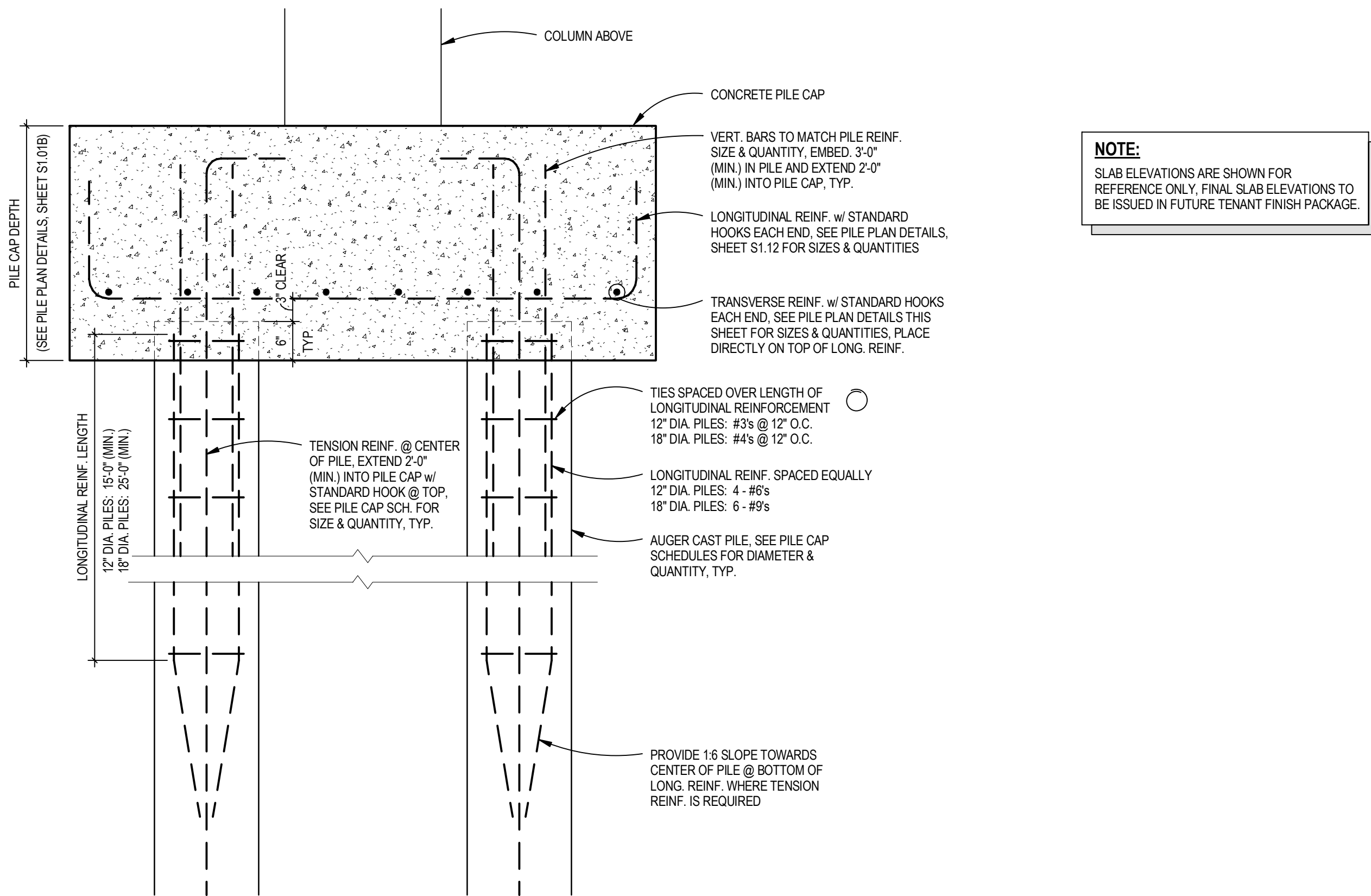
8. INDICATES STEP IN THE FOUNDATION ELEVATION. SEE DETAIL 4/S1.13 FOR REQUIRED REINFORCEMENT.

9. INDICATES 6" CONCRETE SLAB ON GRADE w/ #4s @ 36" O.C. EACH WAY OVER VAPOR RETARDER OVER 4" GRANULAR BASE. PROVIDE 3/4" COVER FOR REINF. @ TOP OF SLAB.

10. INDICATES 6" CONCRETE SLAB ON GRADE w/ #4s @ 36" O.C. EACH WAY OVER VAPOR RETARDER OVER 4" GRANULAR BASE. PROVIDE 3/4" COVER FOR REINF. @ TOP OF SLAB.

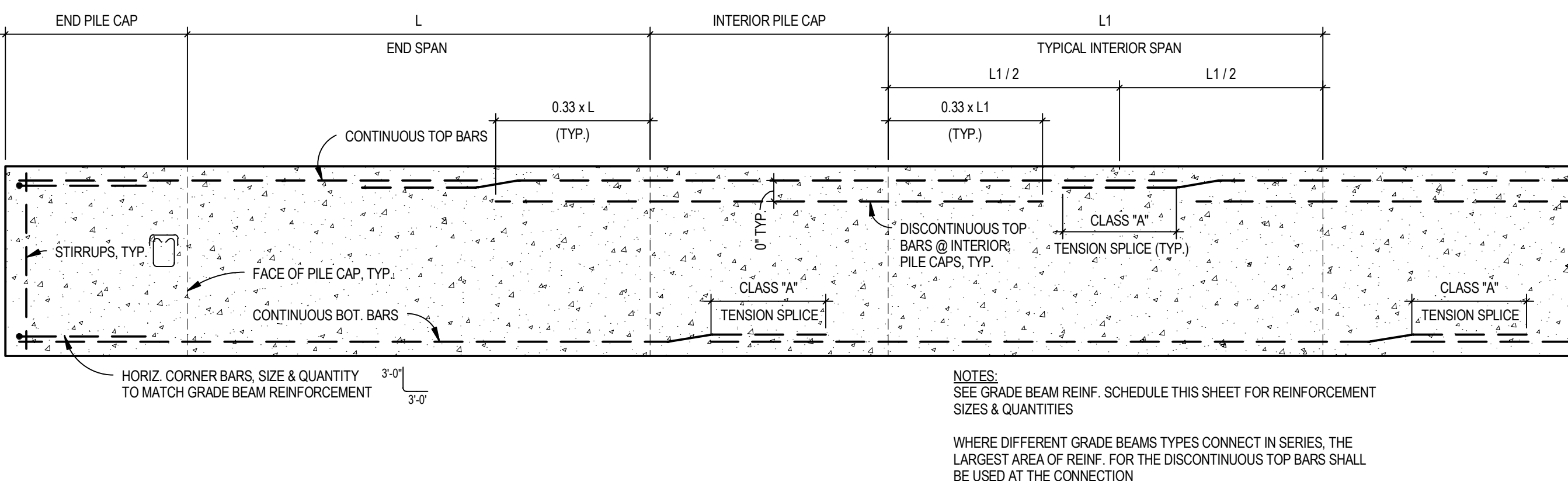
GRID LOCATION	PILE CAP TYPE	B.O. PILE CAP ELEV.	REQ'D PILE LENGTH (FT)	TENSION REINF.
ZF-Z2.6	2	96'-2"	46	
ZF-Z3	4	96'-2"	51	
ZF-Z4	5	95'-11"	49	
ZF-Z5	4	96'-2"	42	
ZG-Z1	2	96'-2"	40	
ZG-Z2	2	96'-2"	63	
ZG-Z3	4	96'-2"	57	
ZG-Z4	5	95'-11"	57	
ZG-Z5	4	96'-2"	48	
ZG-Z3.7	1	96'-2"	51	
ZH-Z1	2	96'-2"	49	
ZH-Z2	3	96'-2"	56	
ZH-Z3	4	96'-2"	52	
ZH-Z4	5	95'-11"	51	
ZH-Z5	4	96'-2"	40	
ZH-Z3.7	1	96'-2"	58	
ZJ-Z1	2	96'-2"	44	
ZJ-Z2	6	94'-8"	42	1 - #6 x FULL LENGTH
ZJ-Z3	6	94'-8"	43	1 - #6 x FULL LENGTH
ZJ-Z3.7	1	96'-2"	42	
ZJ-Z4	5	95'-11"	49	
ZJ-Z5	4	96'-2"	40	
ZK-Z1	2	96'-2"	39	
ZK-Z2	3	96'-2"	40	
ZK-Z3	3	96'-2"	40	
ZK-Z3.7	1	96'-2"	40	
ZK-Z4	3	96'-2"	54	
ZK-Z5	3	96'-2"	42	
ZK.7-Z4	3	96'-2"	49	
ZK.7-Z5	3	96'-2"	49	
ZL-Z1	2	96'-2"	35	
ZL-Z2.2	2	96'-2"	39	
ZL-Z3	2	96'-2"	41	
ZL-Z3.7	1	96'-2"	30	

SEE SHEET S1.12 FOR PILE CAP PLAN DETAILS
SEE SHEET S1.13 FOR TYPICAL PILE SECTION



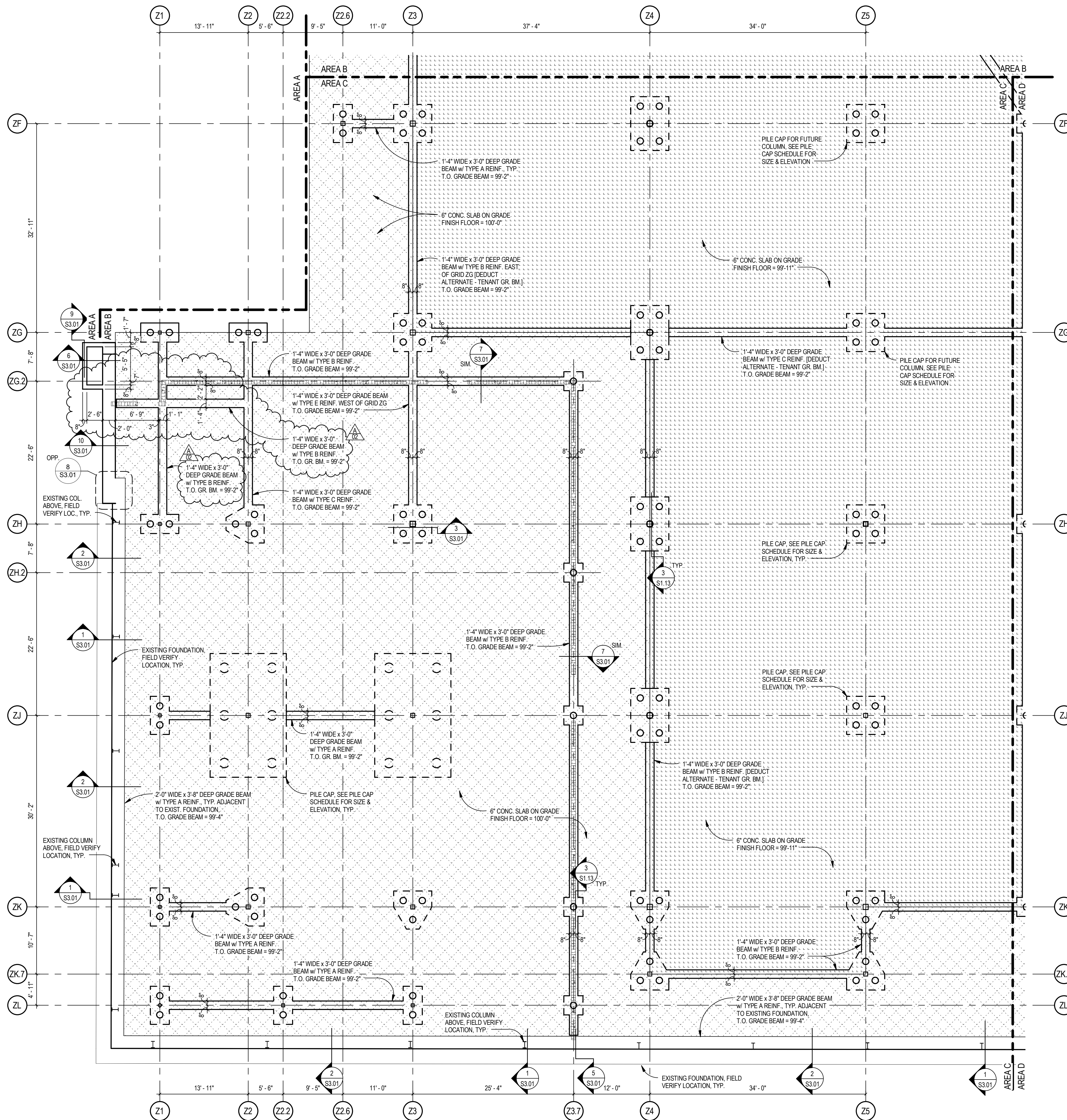
1 TYPICAL PILE SECTION

SCALE: 3/4" = 1'-0"



2 TYPICAL GRADE BEAM REINFORCEMENT LAYOUT

SCALE: 3/4" = 1'-0"



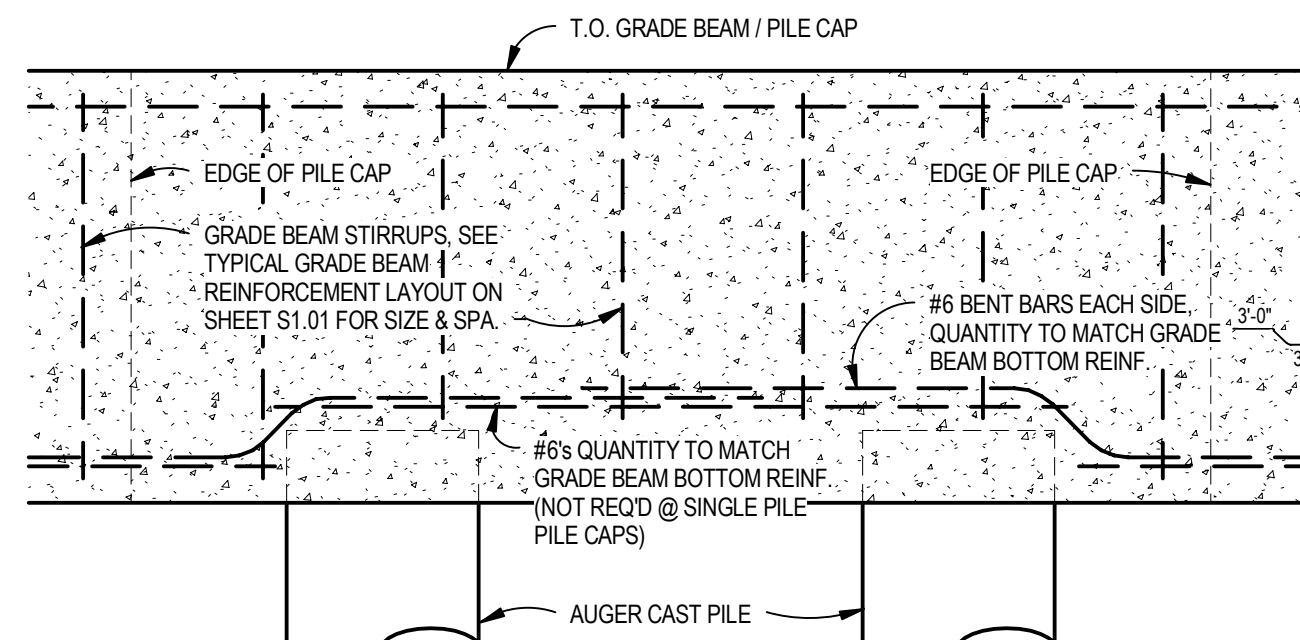
FOOTING & FOUNDATION PLAN - AREA C

SCALE: 1/8" = 1'-0"

GRADE BEAM TYPE	CONTINUOUS TOP BARS	DISCONT. TOP BARS	CONTINUOUS BOT. BARS	STIRRUPS
A	3 - #6s	—	3 - #6s	#4s @ 24" O.C.
B	3 - #7s	—	3 - #7s	#4s @ 18" O.C.
C	3 - #8s	—	3 - #7s	#4s @ 18" O.C.
D	3 - #8s	—	3 - #8s	#4s @ 18" O.C.
E	3 - #9s	—	3 - #7s	#4s @ 18" O.C.

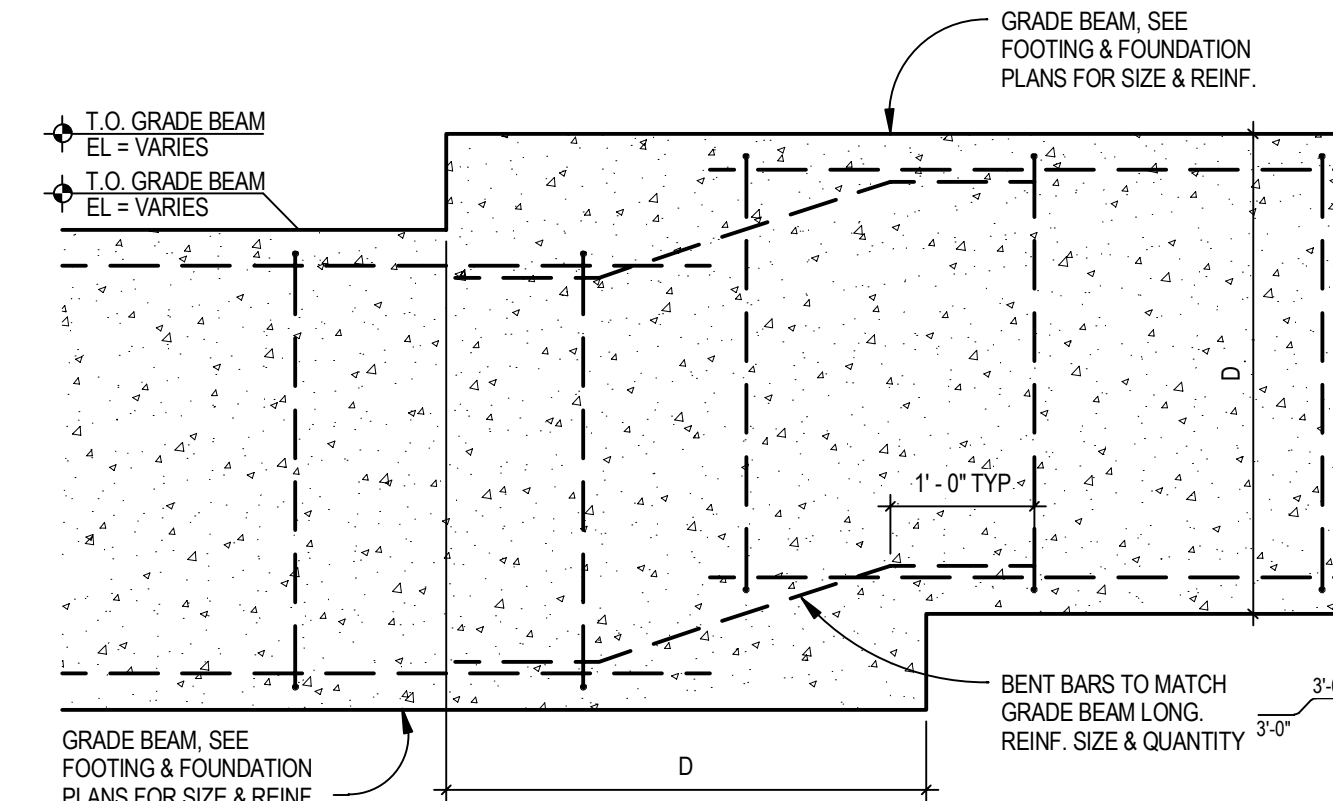
NOTE:
DETAIL TO BE USED EVERYWHERE TYPICAL GRADE BEAM REINF. RUNS ARE INTERRUPTED BY CIP PILES, U.N.O.

PILE CAP REINF. NOT SHOWN FOR CLARITY



3 GRADE BEAM REINF. @ PILE CAP

SCALE: 3/4" = 1'-0"

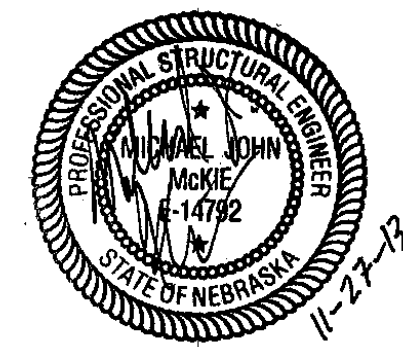


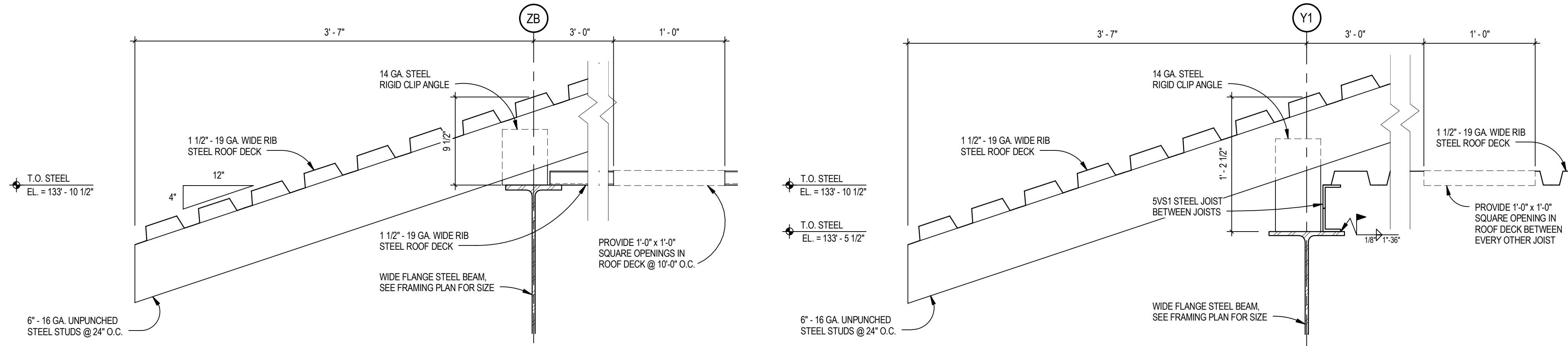
4 TYPICAL GRADE BEAM STEP

SCALE: 3/4" = 1'-0"

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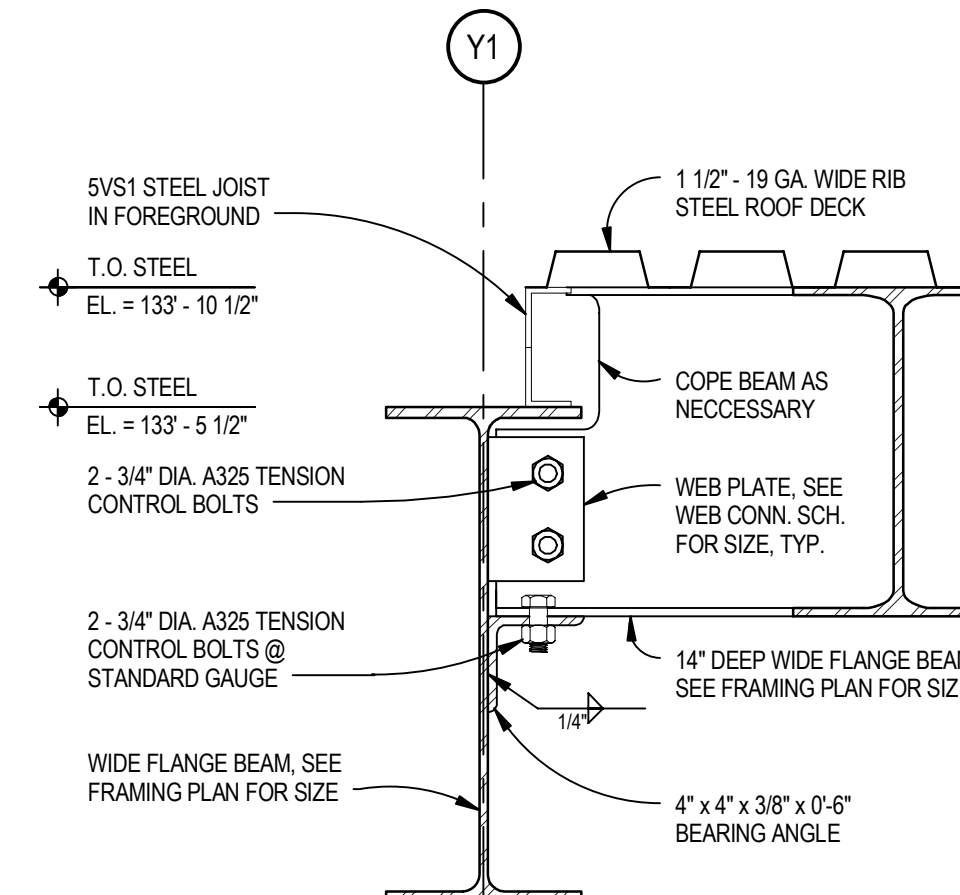
1910 N Antelope Valley
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Lincoln, Nebraska
TCEP No.: 716-002-12
Davis Design No.: 12-0077
BVH No.: L12018.unl
November 27, 2013



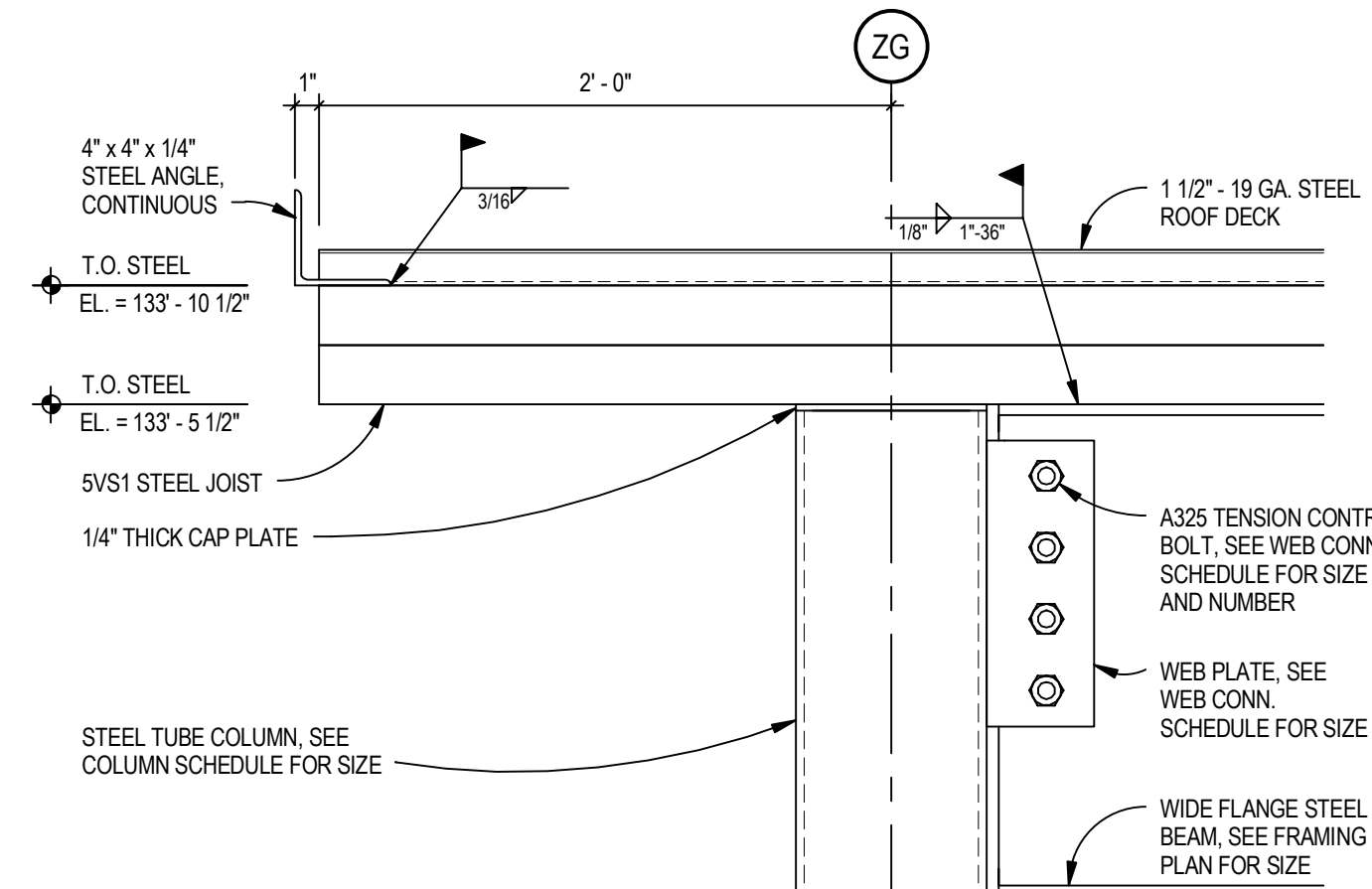


1 ROOF EDGE DETAIL
 SCALE: 1 1/2" = 1'-0"

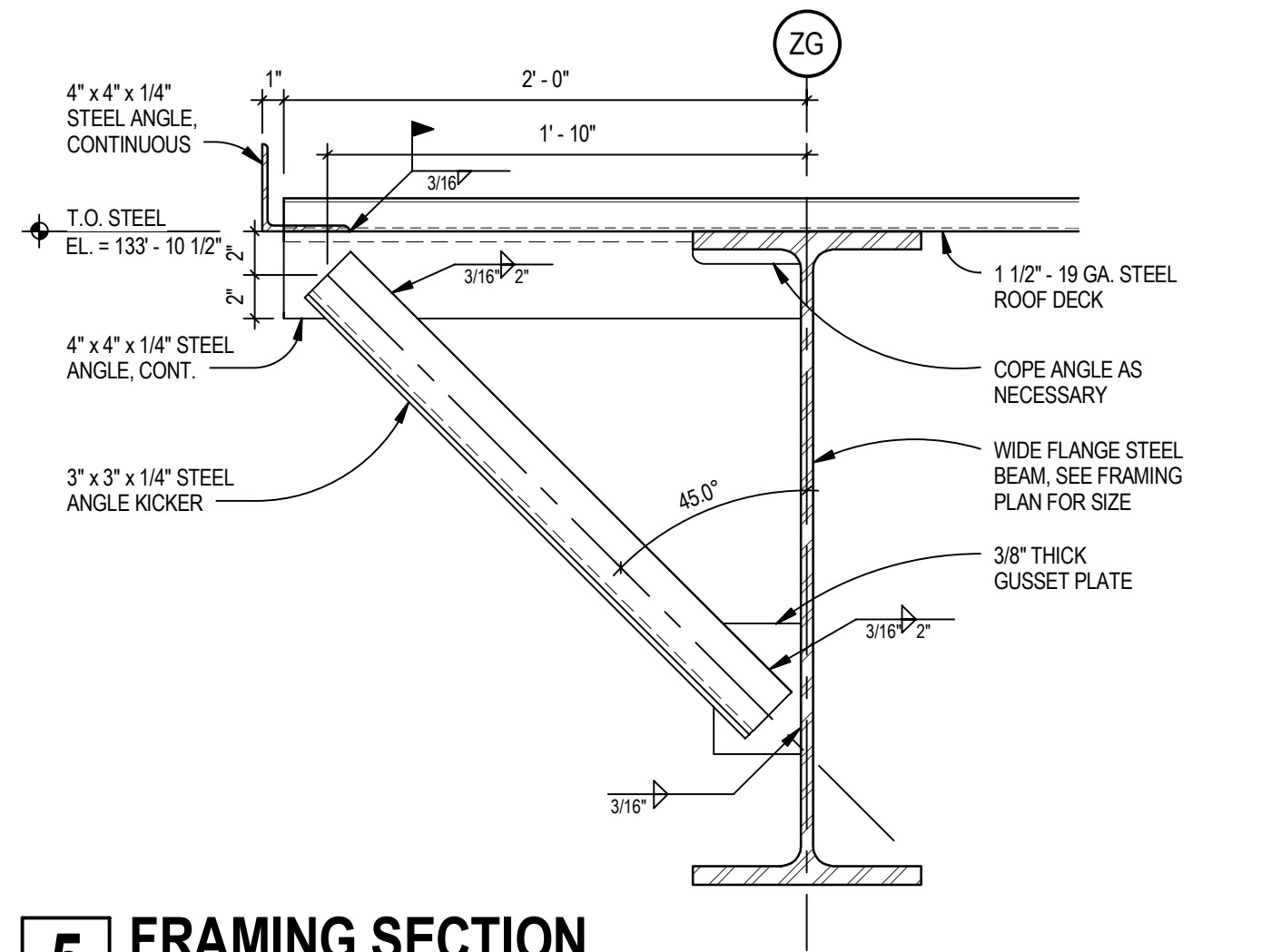
2 ROOF EDGE DETAIL
 SCALE: 1 1/2" = 1'-0"



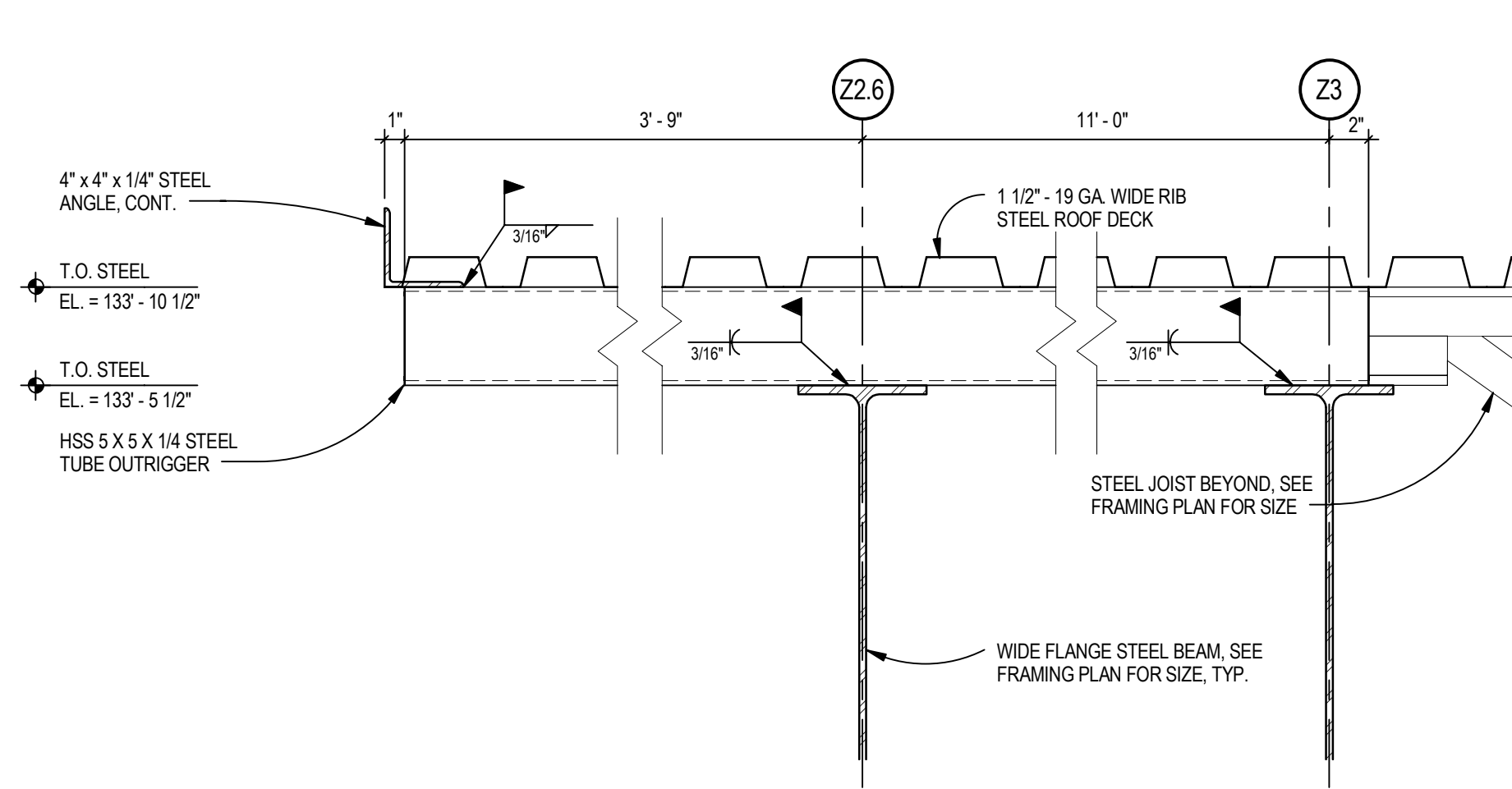
3 CONNECTION DETAIL
 SCALE: 1 1/2" = 1'-0"



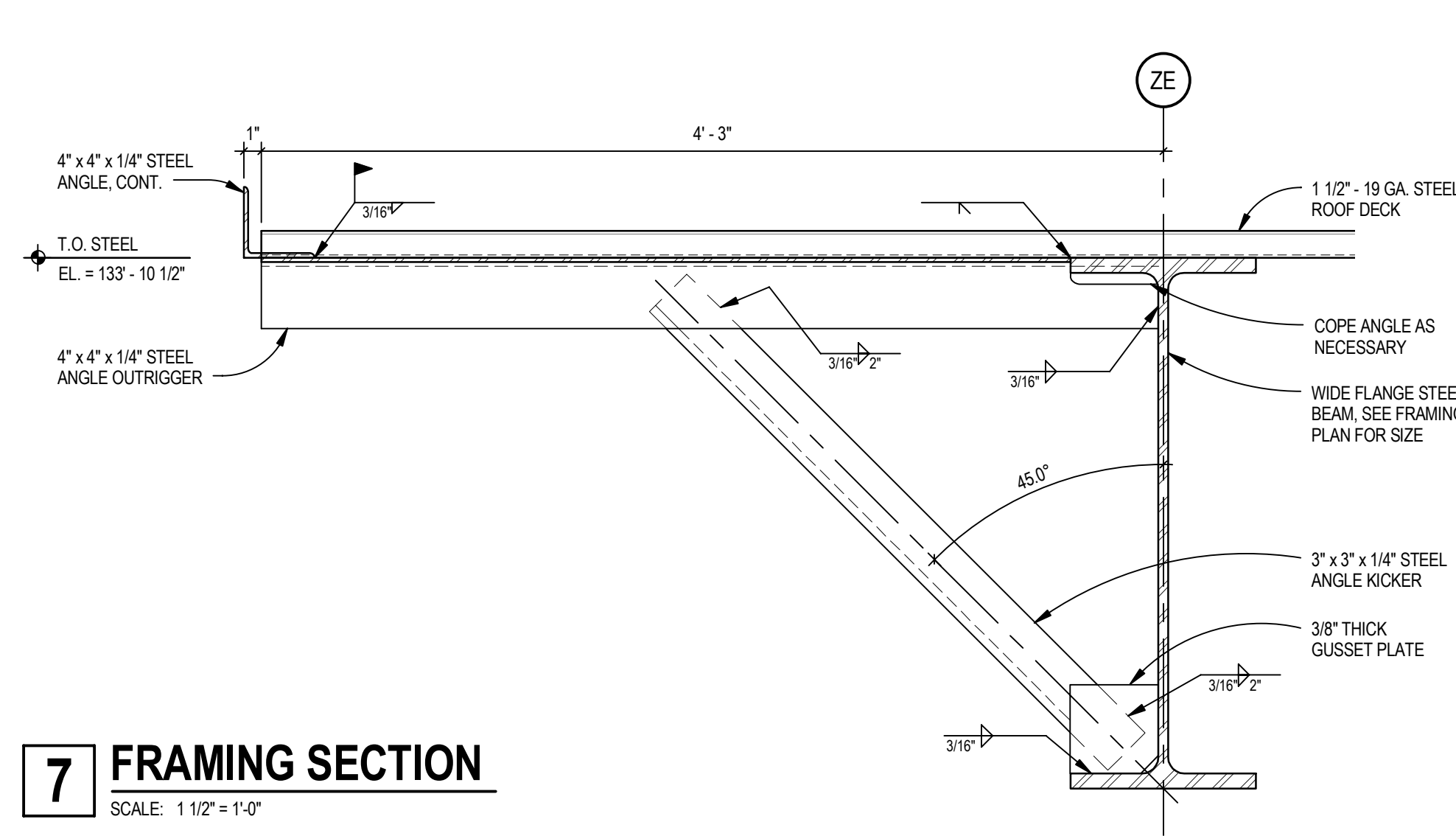
4 FRAMING SECTION
 SCALE: 1 1/2" = 1'-0"



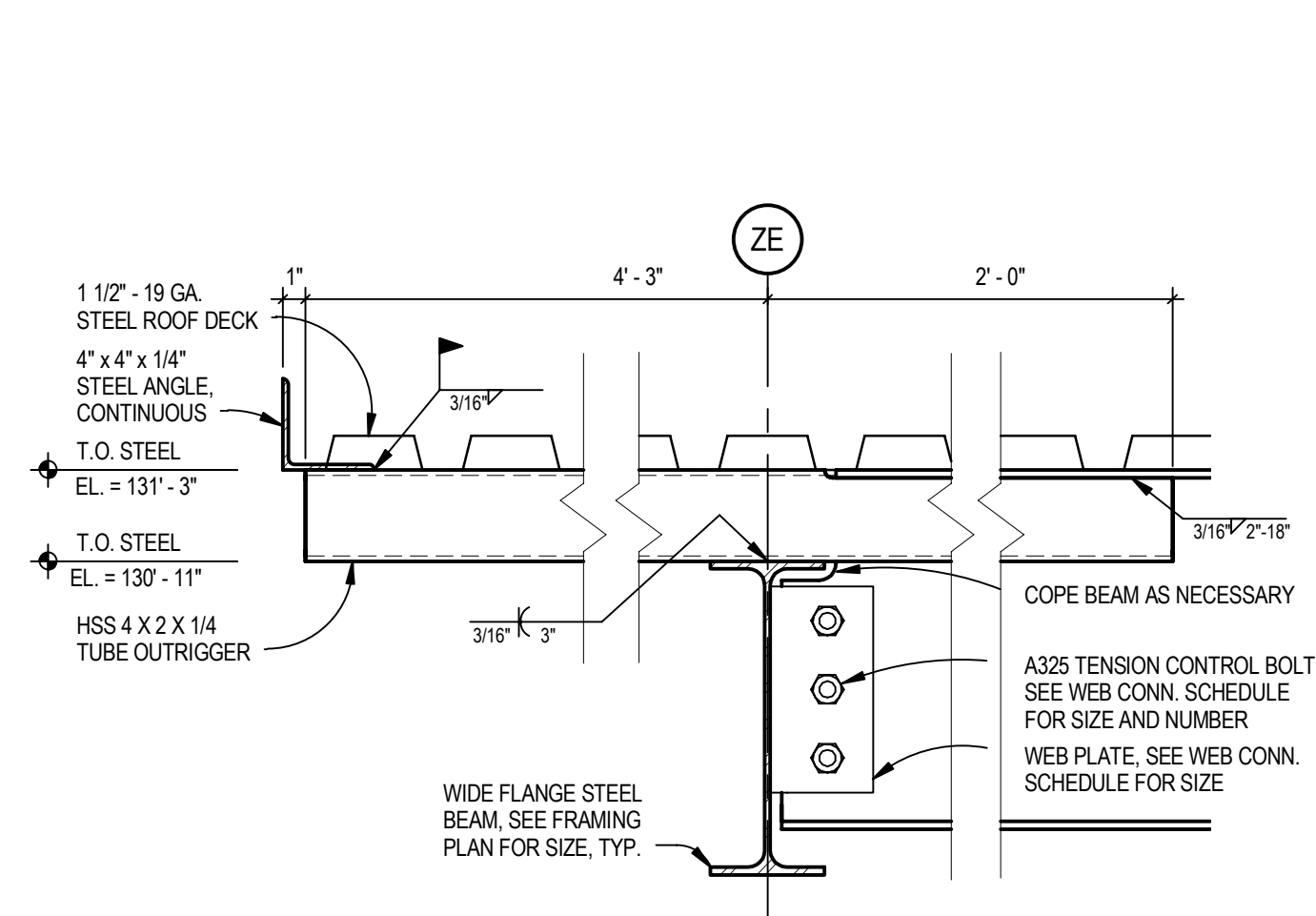
5 FRAMING SECTION
 SCALE: 1 1/2" = 1'-0"



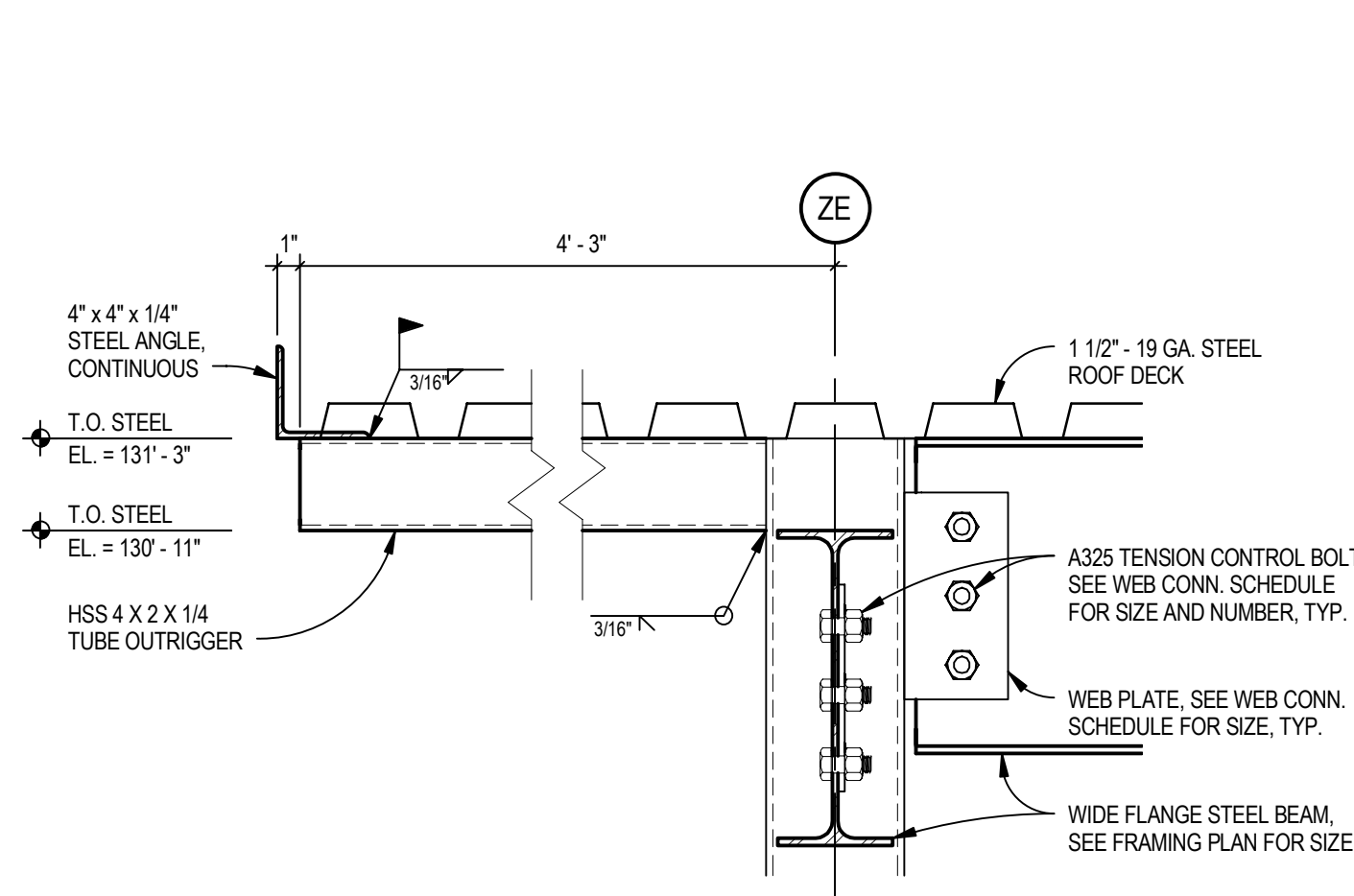
6 FRAMING SECTION
 SCALE: 1 1/2" = 1'-0"



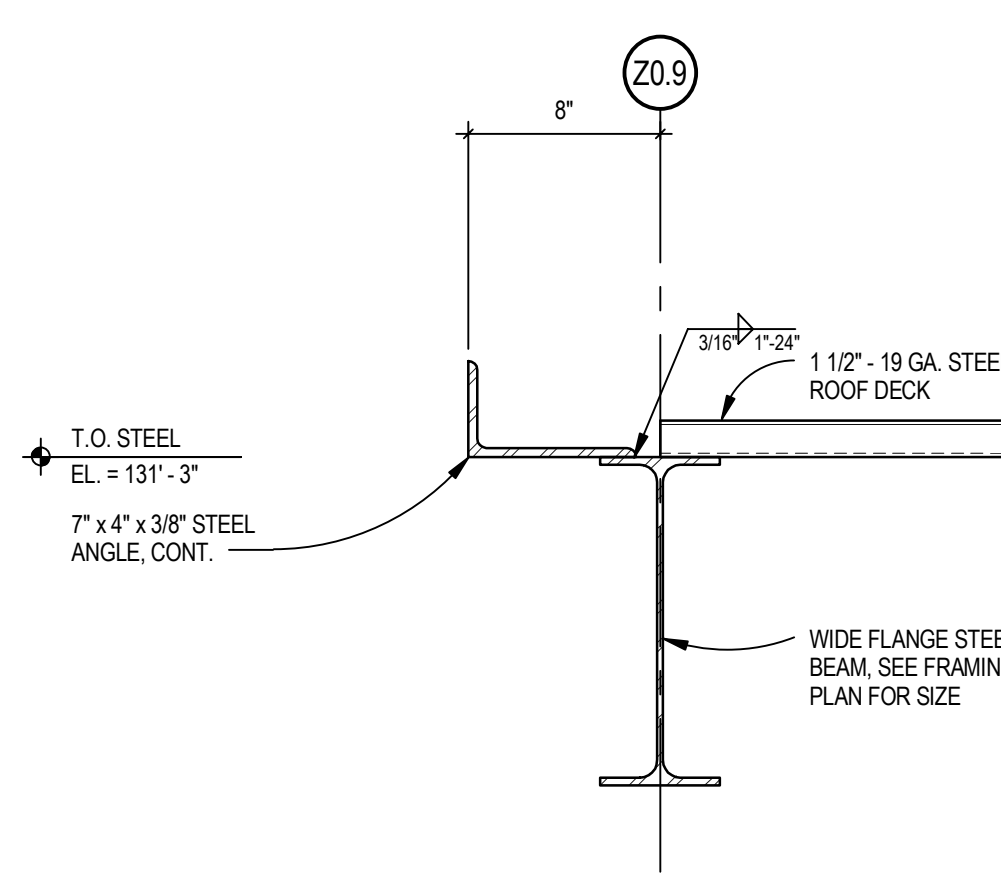
7 FRAMING SECTION
 SCALE: 1 1/2" = 1'-0"



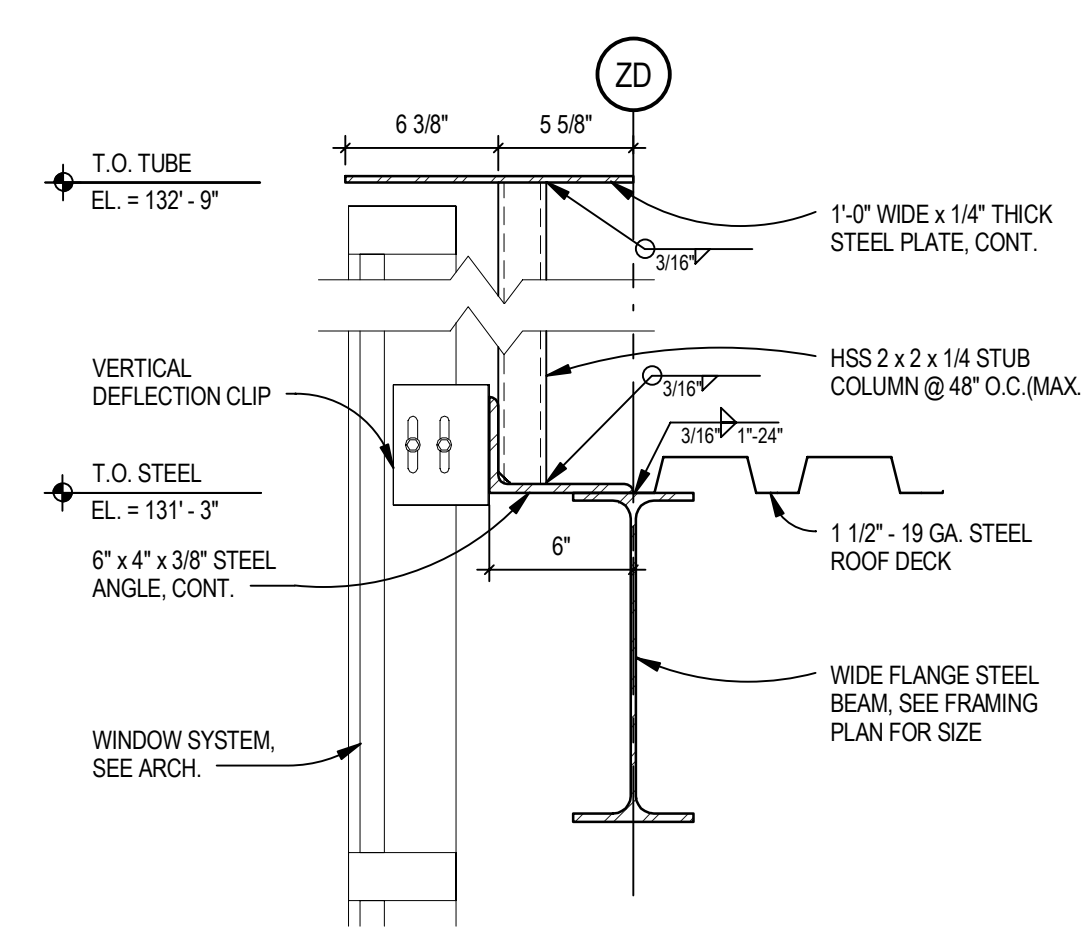
8 FRAMING SECTION
 SCALE: 1 1/2" = 1'-0"



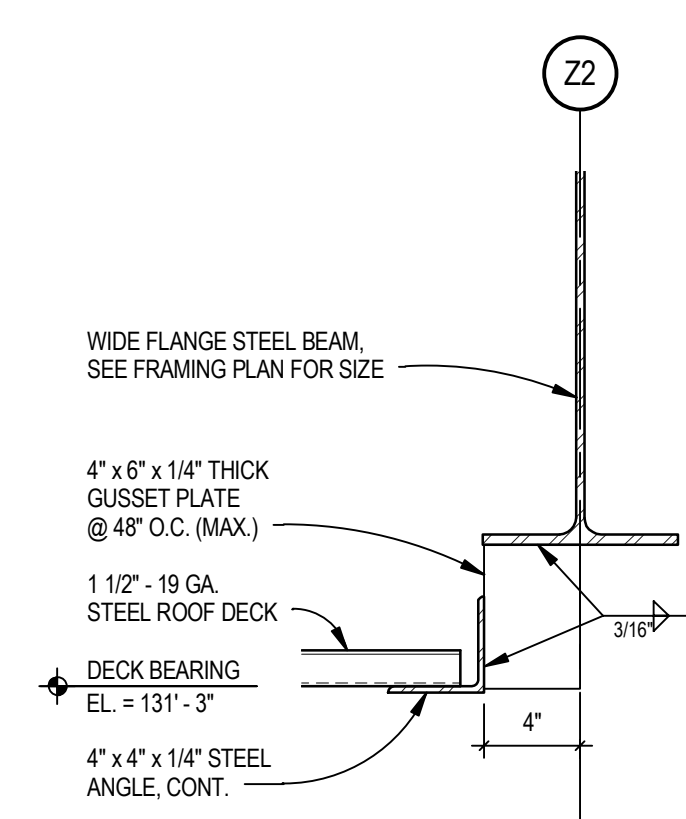
9 FRAMING SECTION
 SCALE: 1 1/2" = 1'-0"



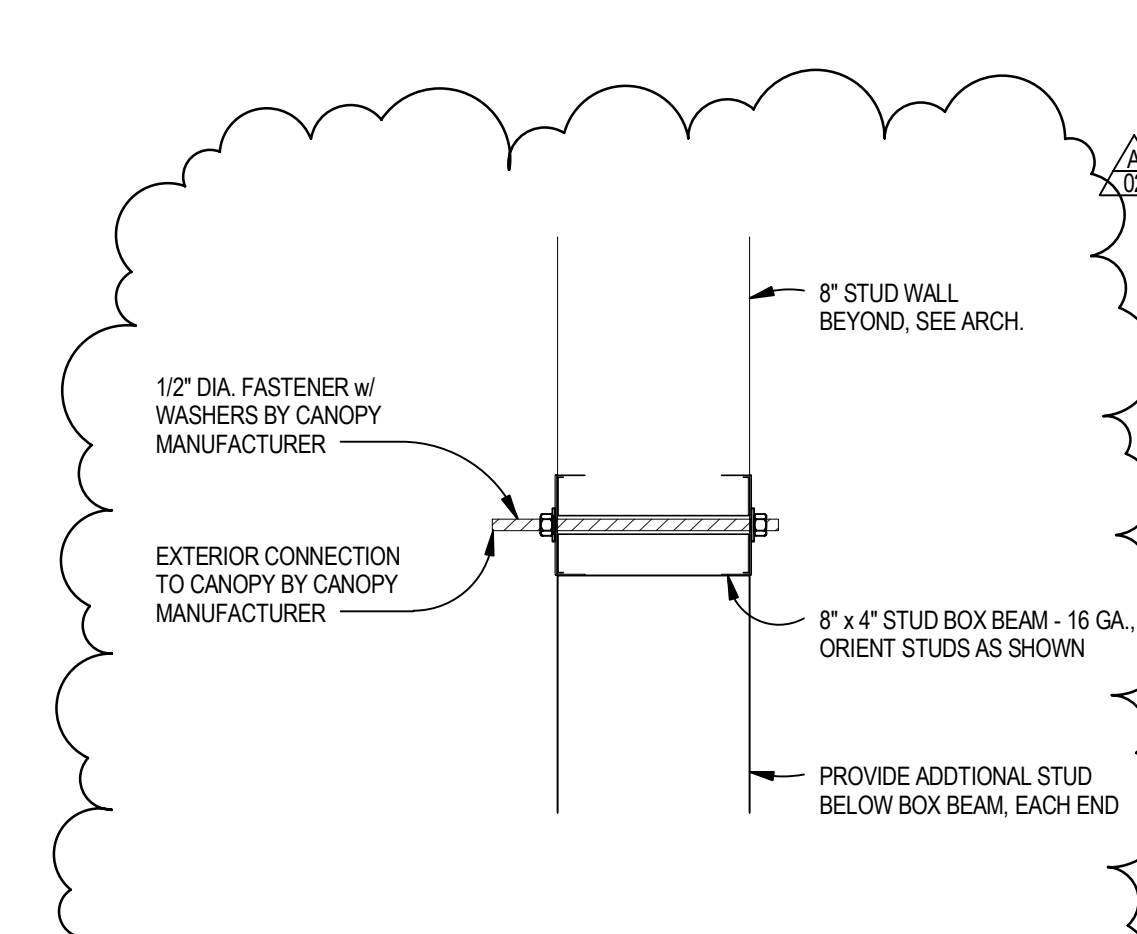
10 ROOF EDGE DETAIL
 SCALE: 1 1/2" = 1'-0"



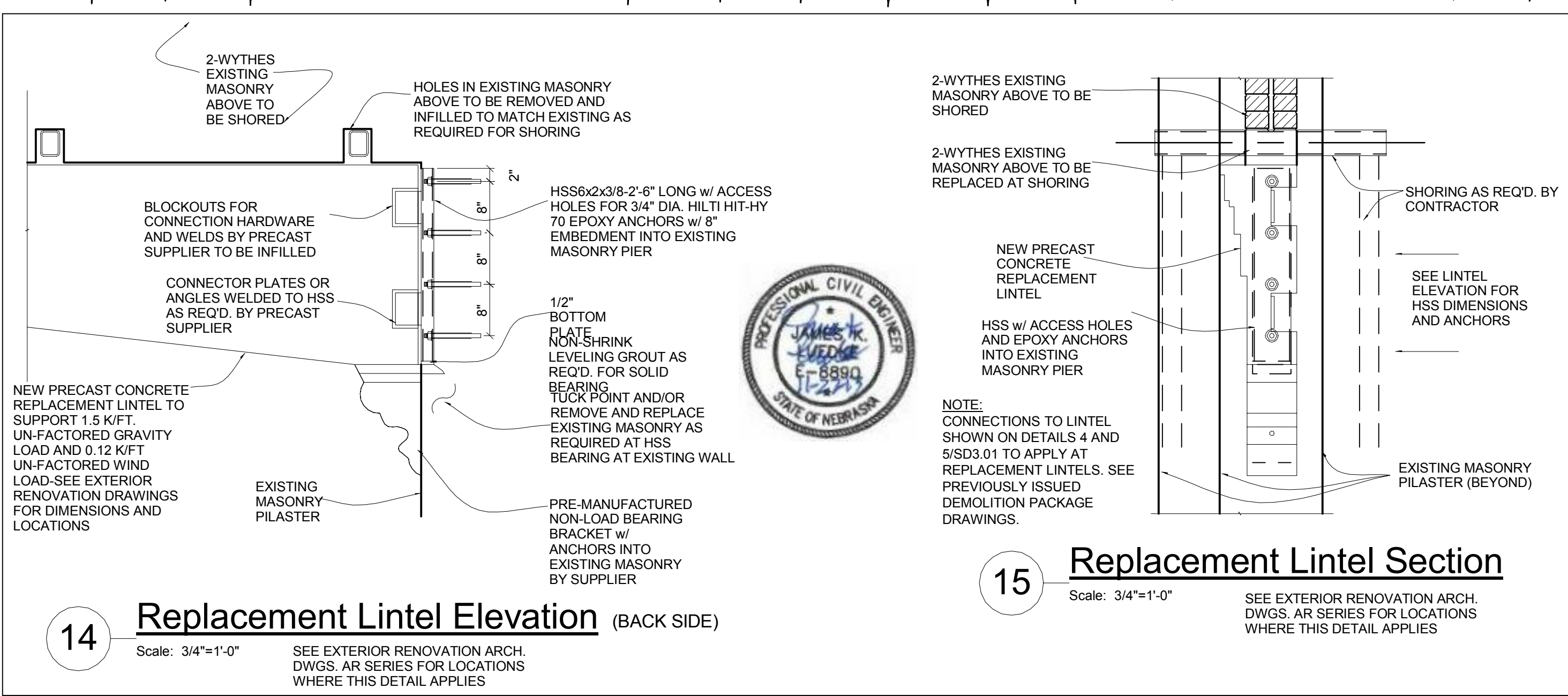
11 ROOF EDGE DETAIL
 SCALE: 1 1/2" = 1'-0"



12 ROOF EDGE DETAIL
 SCALE: 1 1/2" = 1'-0"



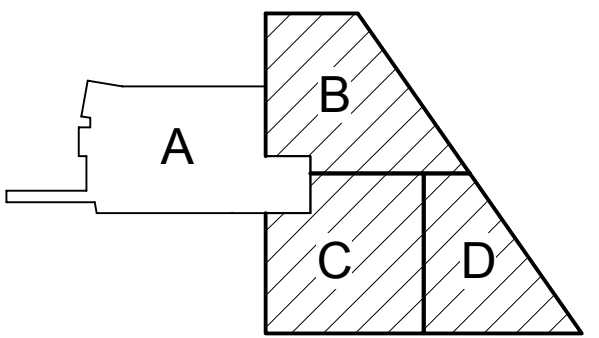
13 CANOPY CONNECTION DETAIL
 SCALE: 1 1/2" = 1'-0"



14 Replacement Lintel Elevation (BACK SIDE)
 Scale: 3/4" = 1'-0"

15 Replacement Lintel Section
 Scale: 3/4" = 1'-0"

SHEET HISTORY:		
ISSUED	11/27/2013	AS PER CONSTRUCTION DOCUMENTS
A - 01	12/11/2013	AS PER ADDENDUM #01
A - 02	12/16/2013	AS PER ADDENDUM #02

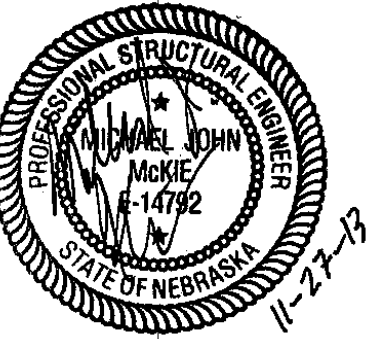


Key Plan

Progress Print

Life Science Collaboration

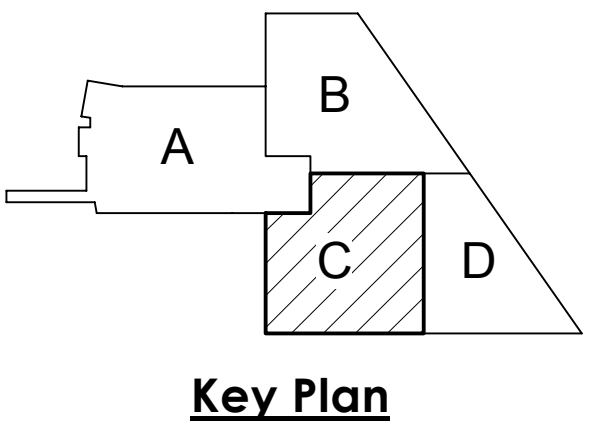
1910 N Antelope Valley
 Parkway
 Lincoln, Nebraska
 TCEP No.: 716-002-12
 Davis Design No.: 12-0077
 BVH No.: L12018.unl
 November 27, 2013



Framing Details - Areas B, C & D

S4.03

SHEET HISTORY:	
ISSUED	11/27/2013 AS PER CONSTRUCTION DOCUMENTS
A - 02	12/11/2013 AS PER ADDENDUM #2

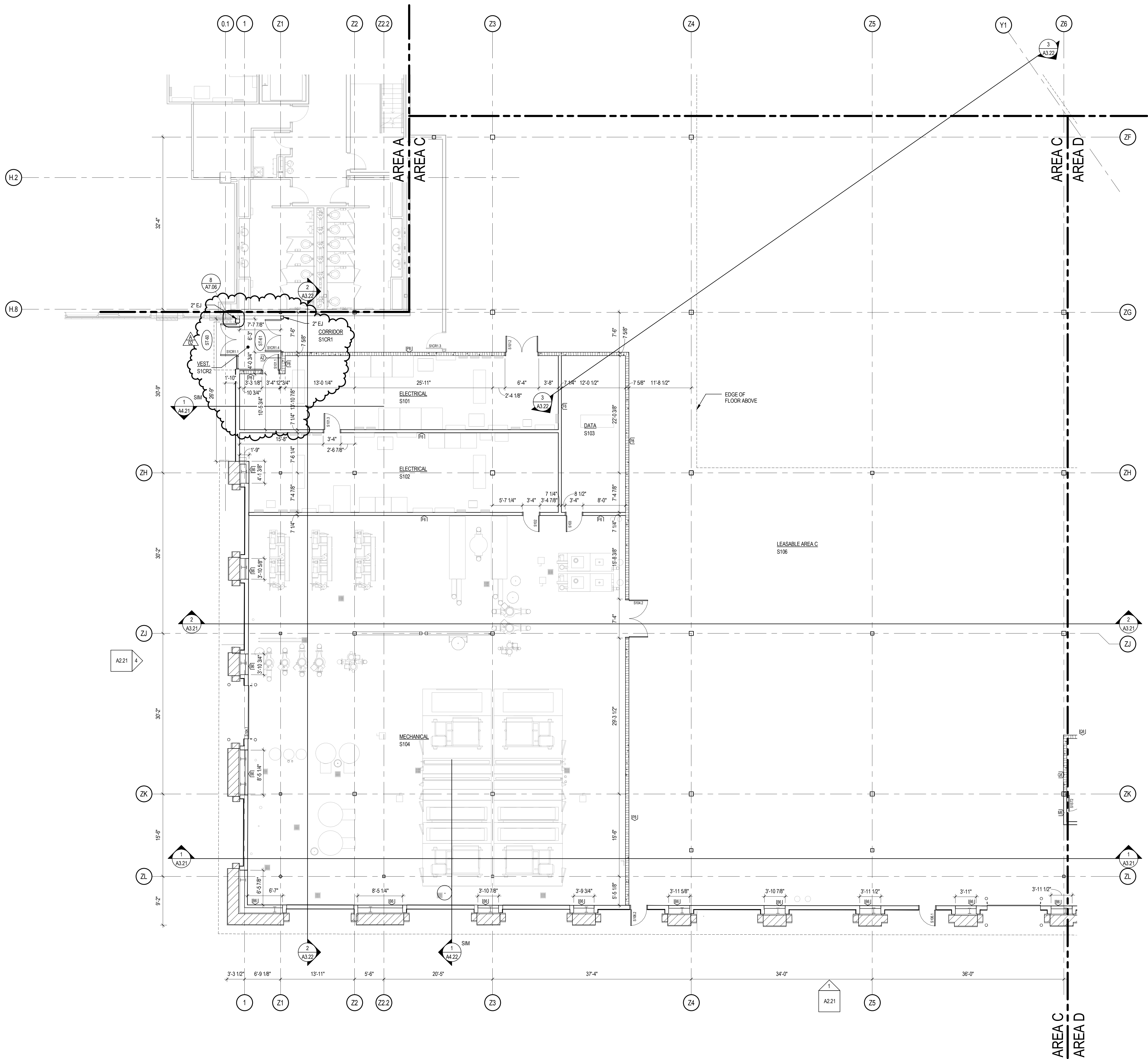


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First Floor Plan - Area C

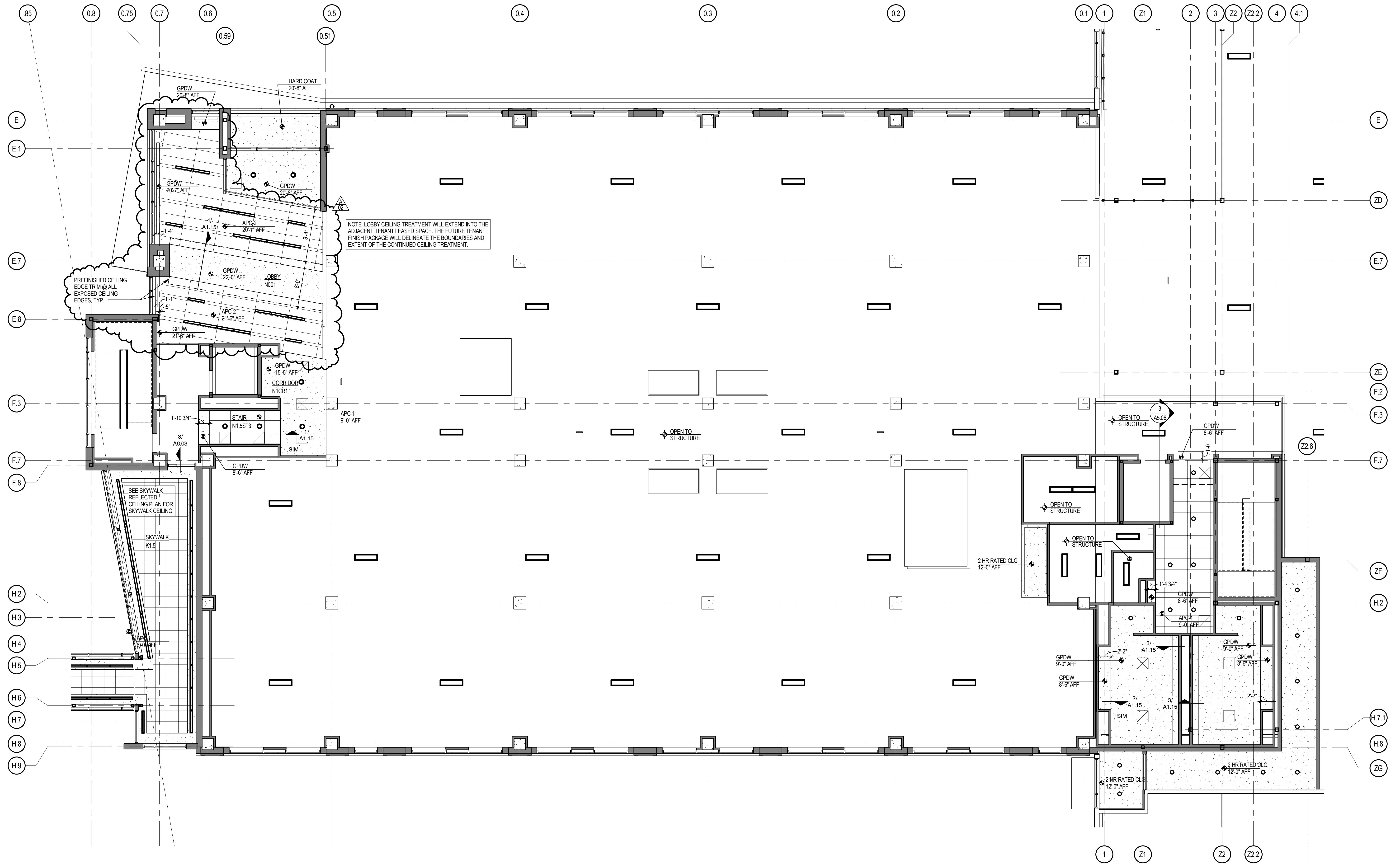
A1.13



FIRST FLOOR PLAN - AREA C
SCALE: 1/8" = 1'-0"

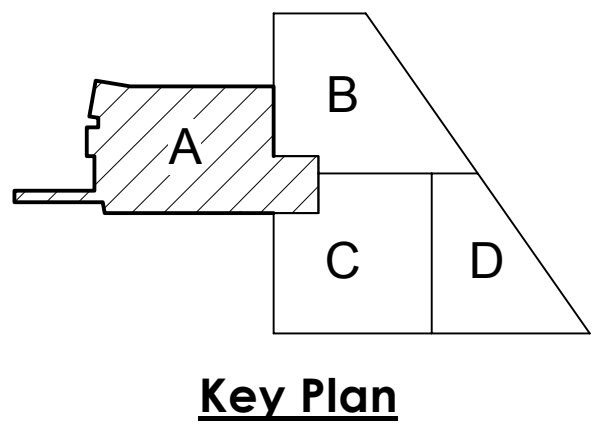
REFLECTED CEILING LEGEND

	5/8" SUSPENDED GPDW CEILING SYSTEM		RECESSED DOWNLIGHT, REF. ELEC.
	ACOUSTICAL PANEL CEILING SYSTEM		EXIT SIGNAGE, REF. ELEC.
	2X2 ACCESS PANEL		RETURN AIR/EXHAUST AIR GRILLE, REF. MECH.
	RECESSED & PENDANT MOUNTED LIGHT FIXTURES, REF. ELEC.		SUPPLY AIR DIFFUSER, REF. MECH.



FIRST FLOOR REFLECTED CEILING PLAN - AREA A
SCALE: 1/8\"/>

SHEET HISTORY:
ISSUED 11/27/2013 AS PER CONSTRUCTION DOCUMENTS
A - 02 12/16/2013 ADDENDUM #2

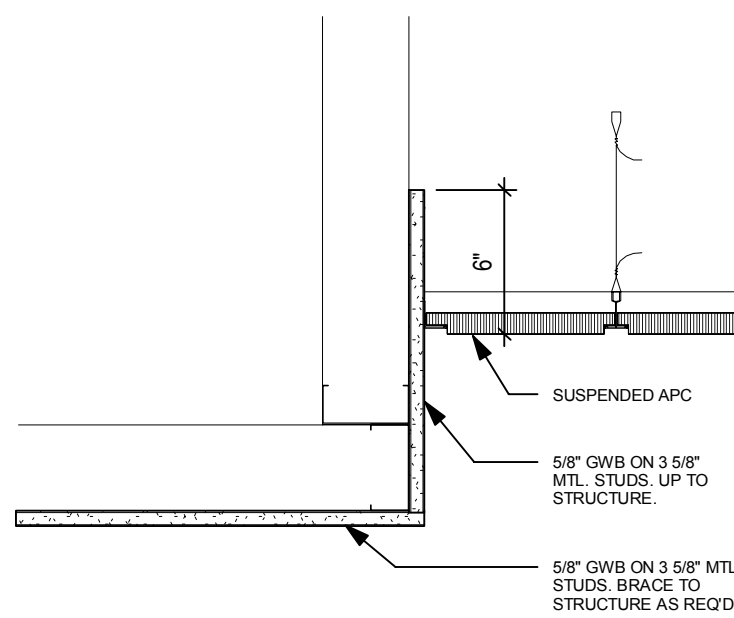


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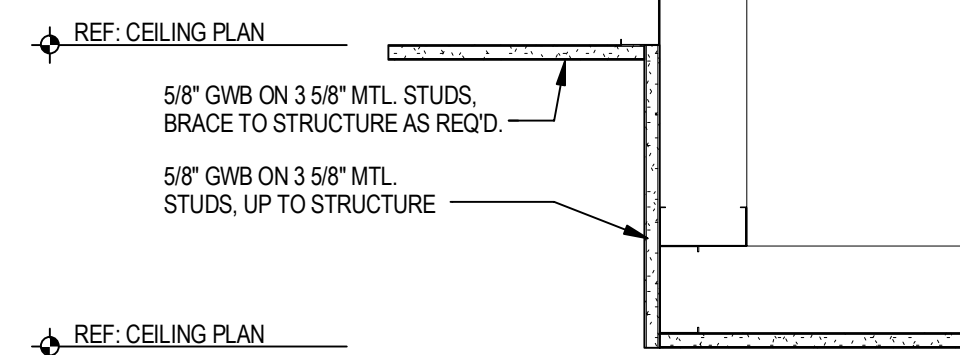


First Floor Reflected
Ceiling Plan - Area A

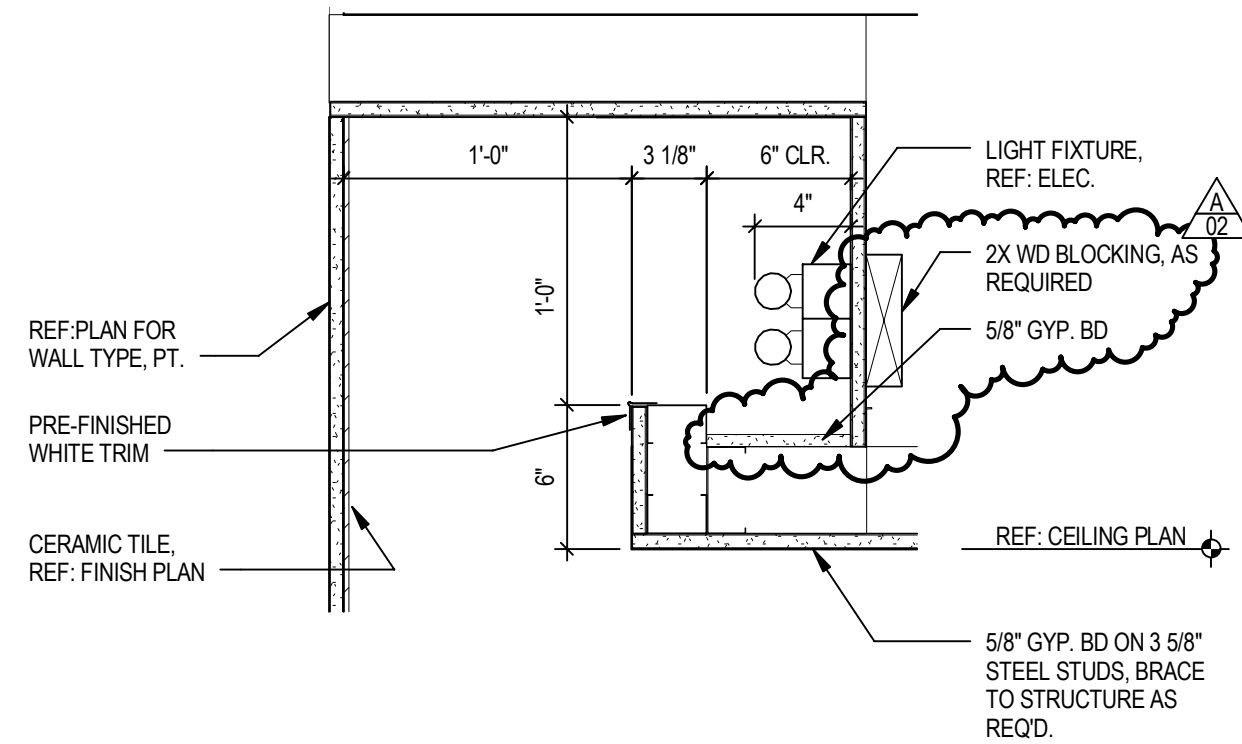
A1.15



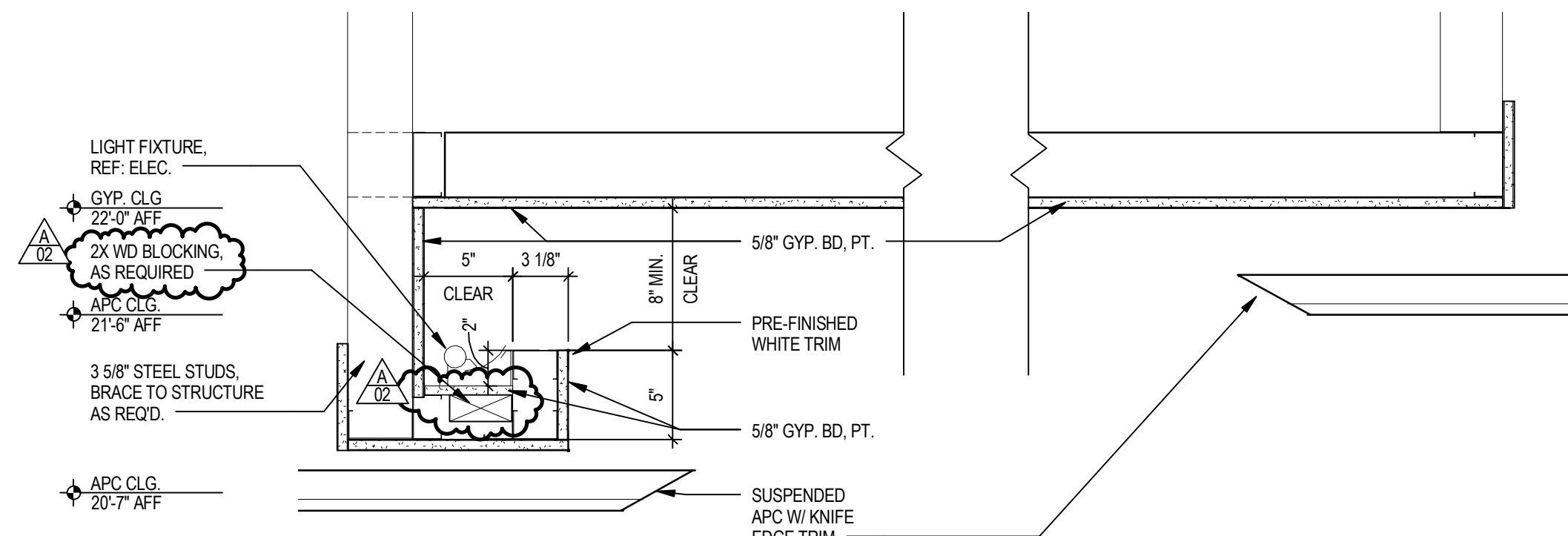
1 GWB TO APC TRANSITION DETAIL
SCALE: 1 1/2\"/>



2 GWB TO GWB TRANSITION DETAIL
SCALE: 1 1/2\"/>



3 RESTROOM COVE DETAIL
SCALE: 1 1/2\"/>

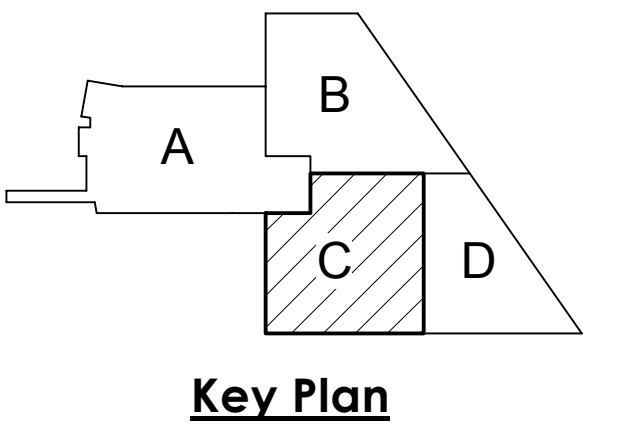


4 LOBBY CEILING DETAIL
SCALE: 1 1/2\"/>



GENERAL NOTE:
1. ELECTRICAL & MECHANICAL COMPONENTS SHOWN ON REFLECTED CEILING PLAN ARE REPRESENTATIVE ONLY, SEE ELECTRICAL DRAWINGS & SPECIFICATIONS FOR ACTUAL REQUIREMENTS AND LOCATIONS.

ISSUED 11/27/2013 AS PER CONSTRUCTION DOCUMENTS
A - 02 12/11/2013 AS PER ADDENDUM #2



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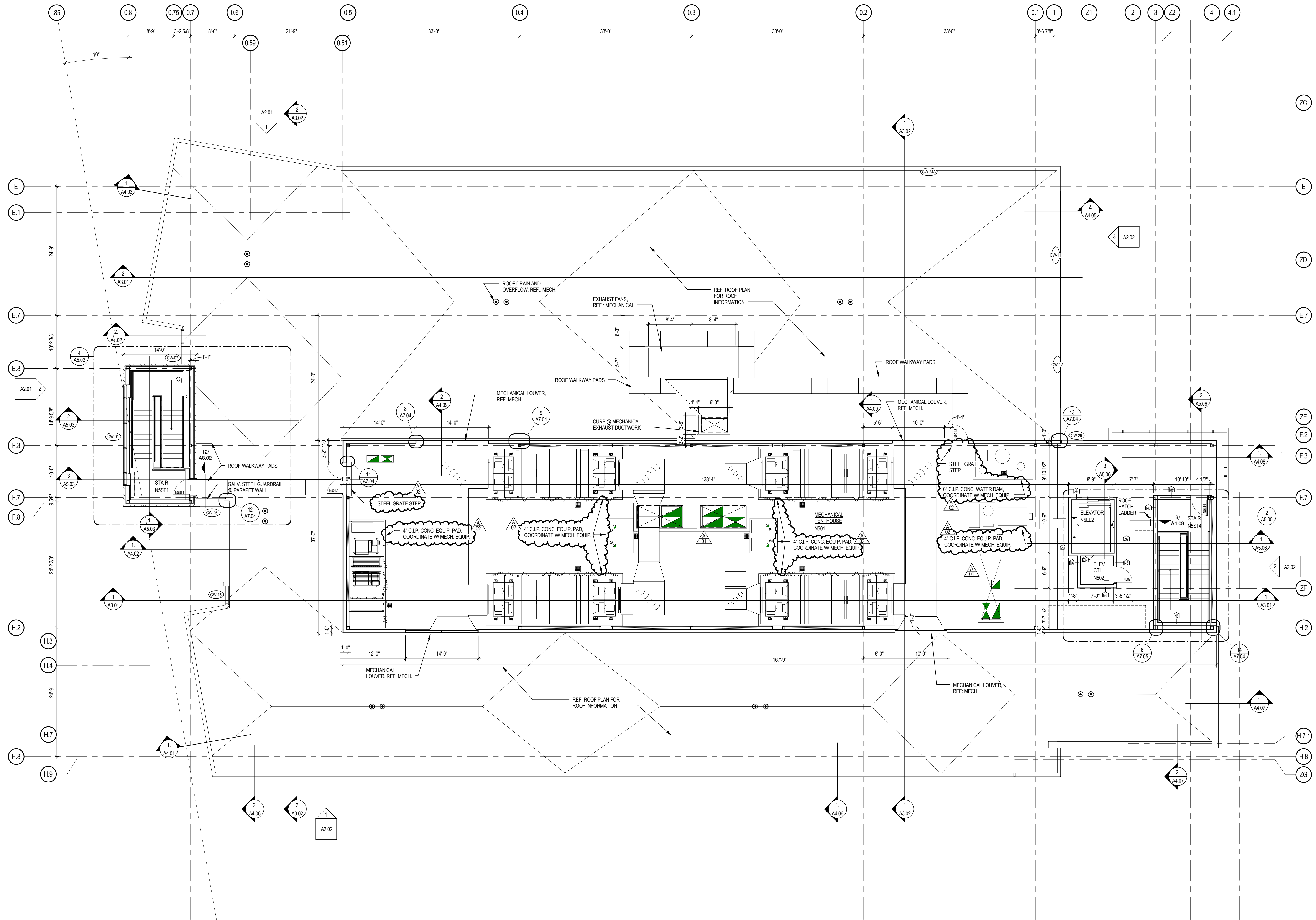
First Floor Reflected
Ceiling Plan - Area C

A1.17

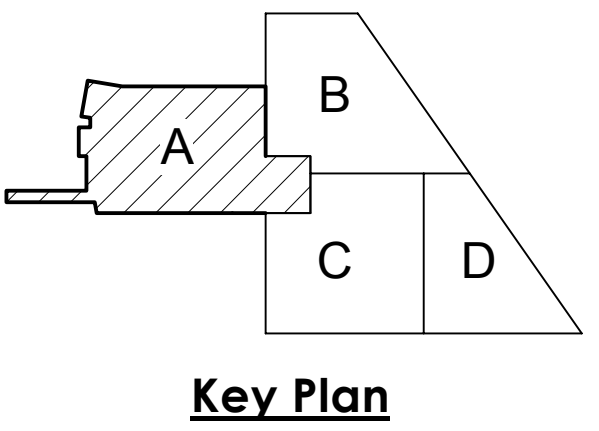


 FIRST FLOOR REFLECTED CEILING PLAN - AREA C
SCALE: 1/8" = 1'-0"

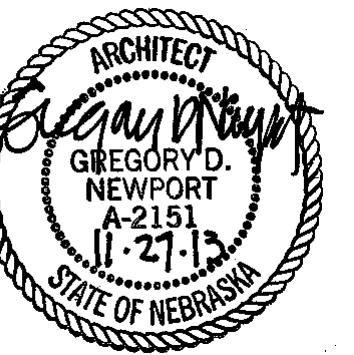
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SHEET HISTORY:
ISSUED 11/27/2013 AS PER CONSTRUCTION DOCUMENTS
A - 01 12/11/2013 ADDENDUM #1
A - 02 12/16/2013 ADDENDUM #2



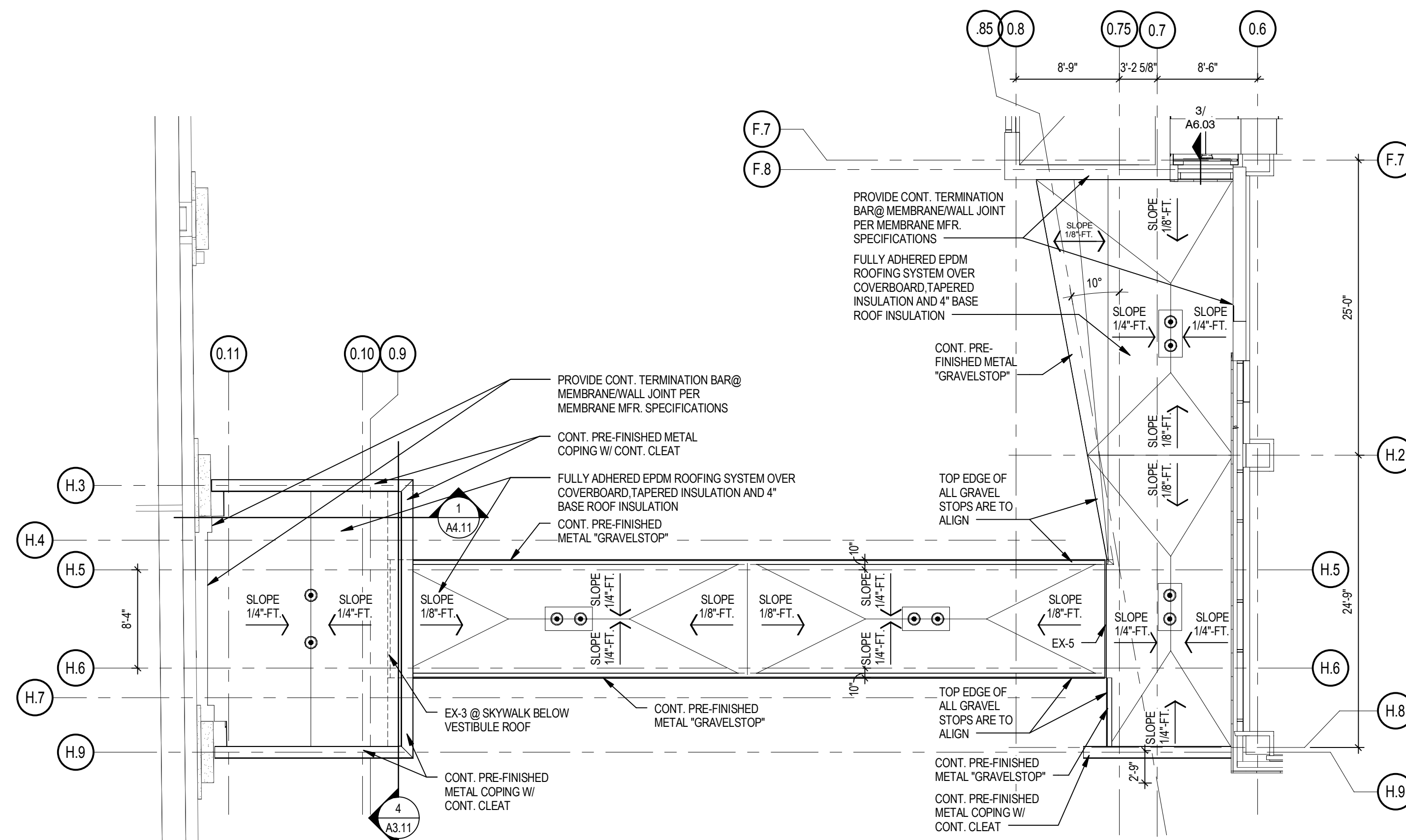
Life Science Collaboration
1910 N Antelope Valley
Parkway
Lincoln, Nebraska
TCEP No.: 716-002-12
Davis Design No.: 12-0077
BVH No.: L12018.unl
November 27, 2013



MECHANICAL PENTHOUSE FLOOR PLAN - AREA A
SCALE: 1/8" = 1'-0"

Mechanical Penthouse
Floor Plan - Area A

A1.51

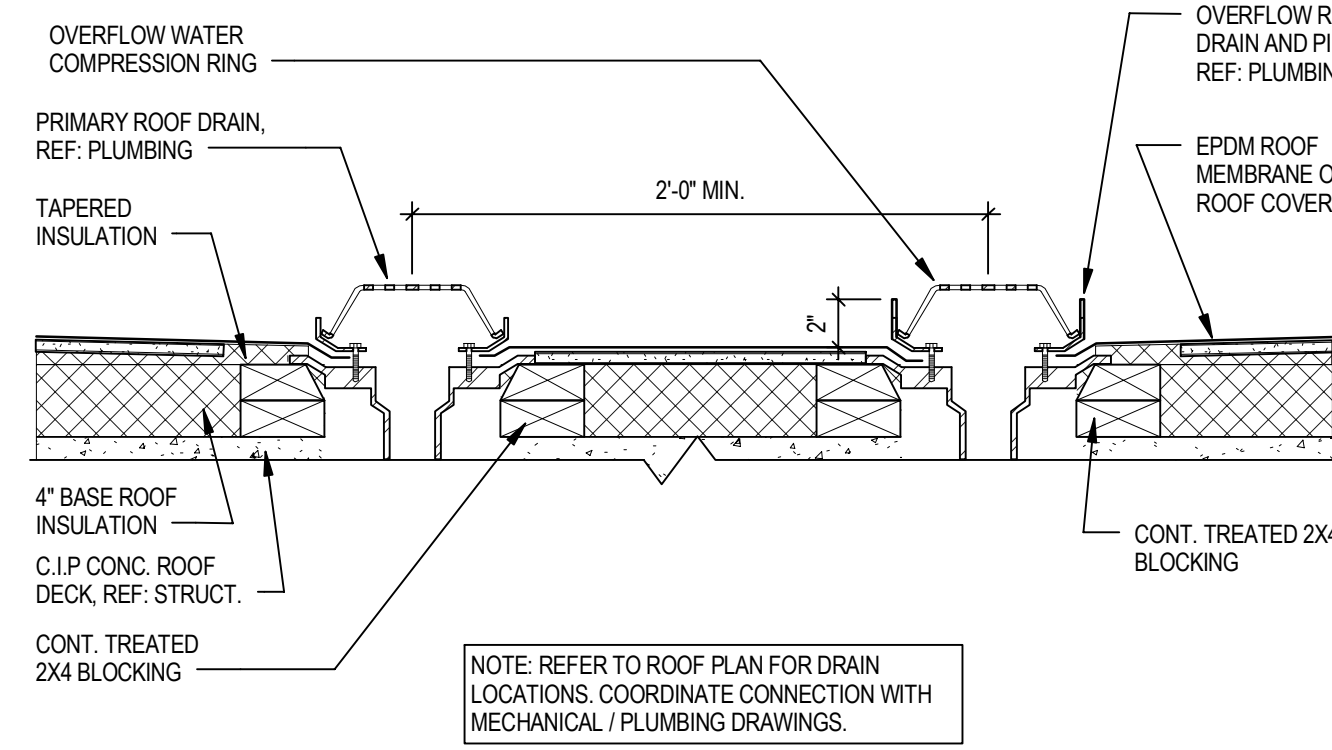


1 SKYWALK / SKYWALK VESTIBULE ROOF PLAN

SCALE: 1/8" = 1'-0"

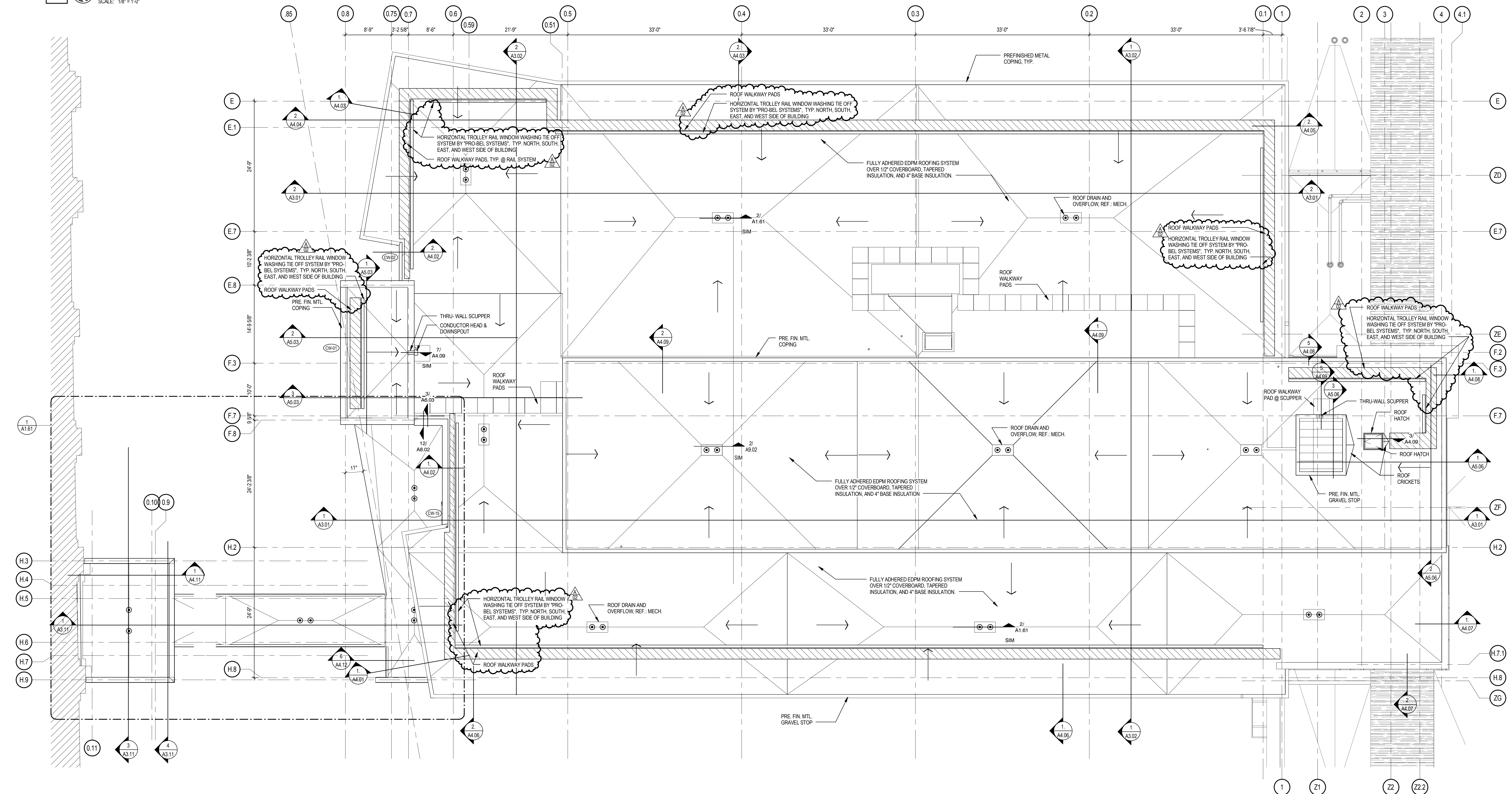
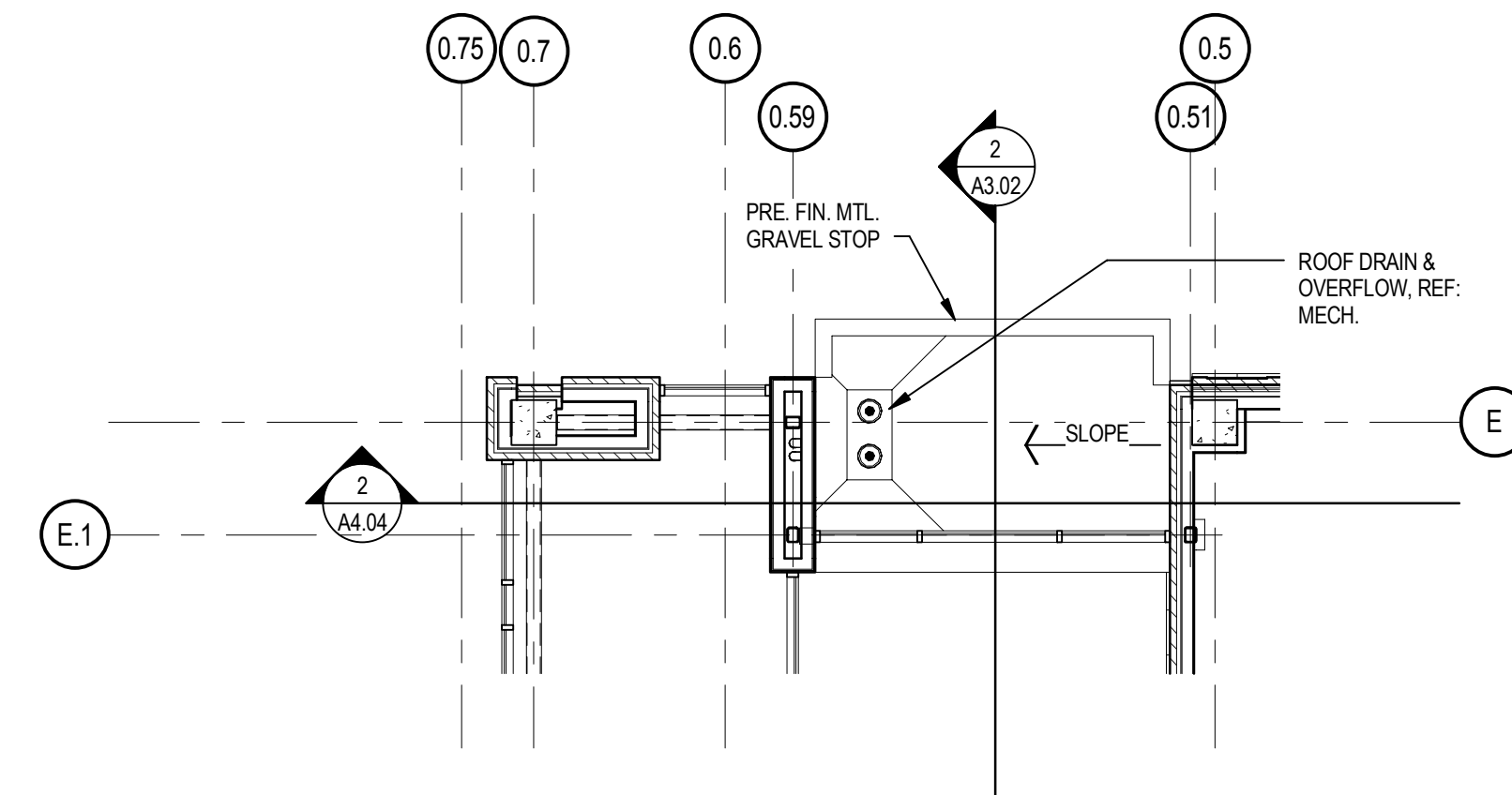
2 TYP. ROOF DRAIN DETAIL

SCALE: 1 1/2" = 1'-0"



3 ROOF PLAN AT ENTRY CANOPY

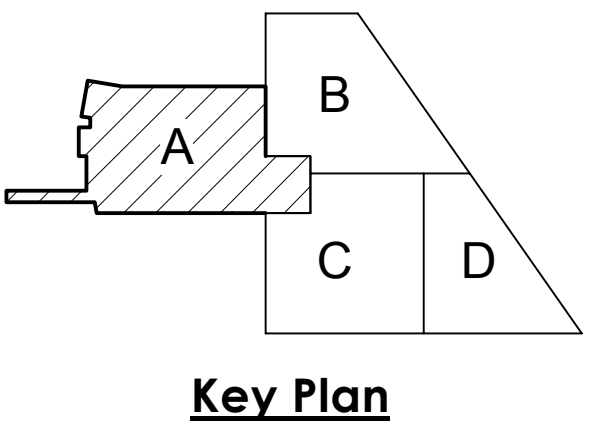
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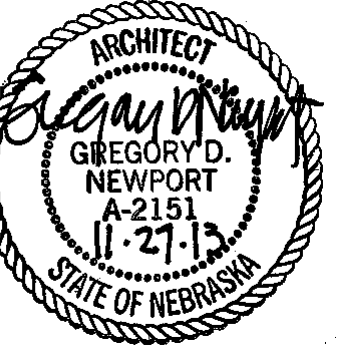
ROOF PLAN - AREA A

SCALE: 1/8" = 1'-0"

SHEET HISTORY:
 ISSUED 11/27/2013 AS PER CONSTRUCTION DOCUMENTS
 A - 02 12/16/2013 ADDENDUM #2

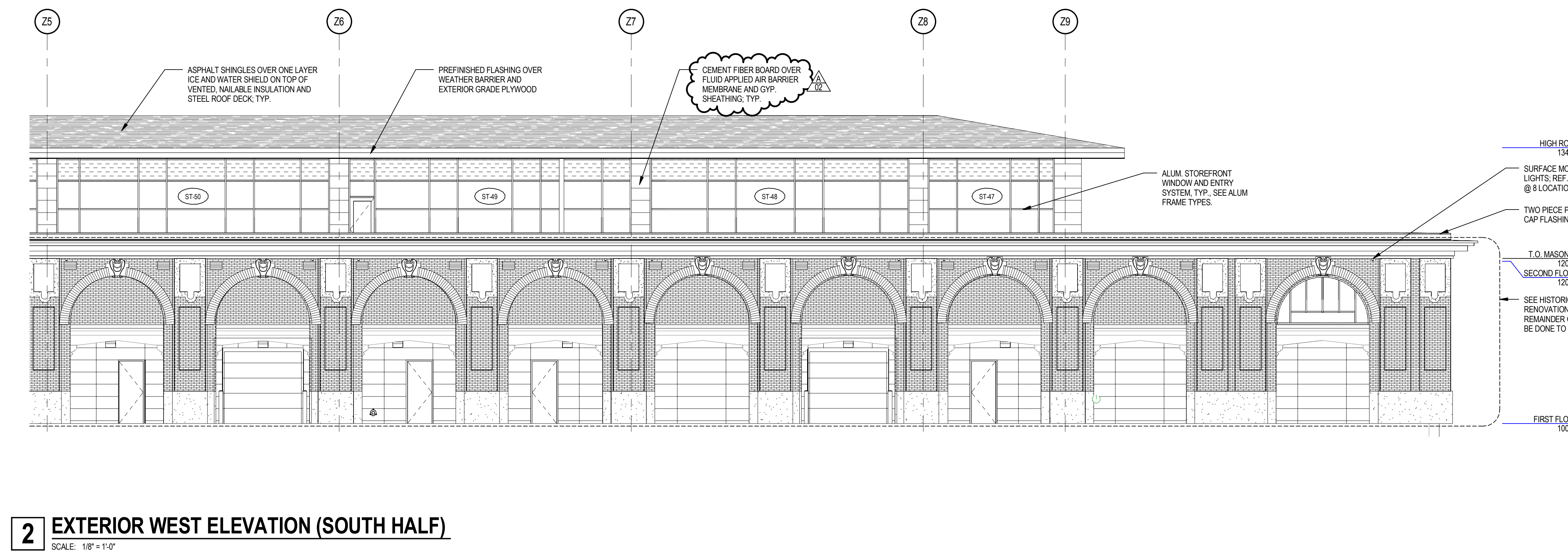
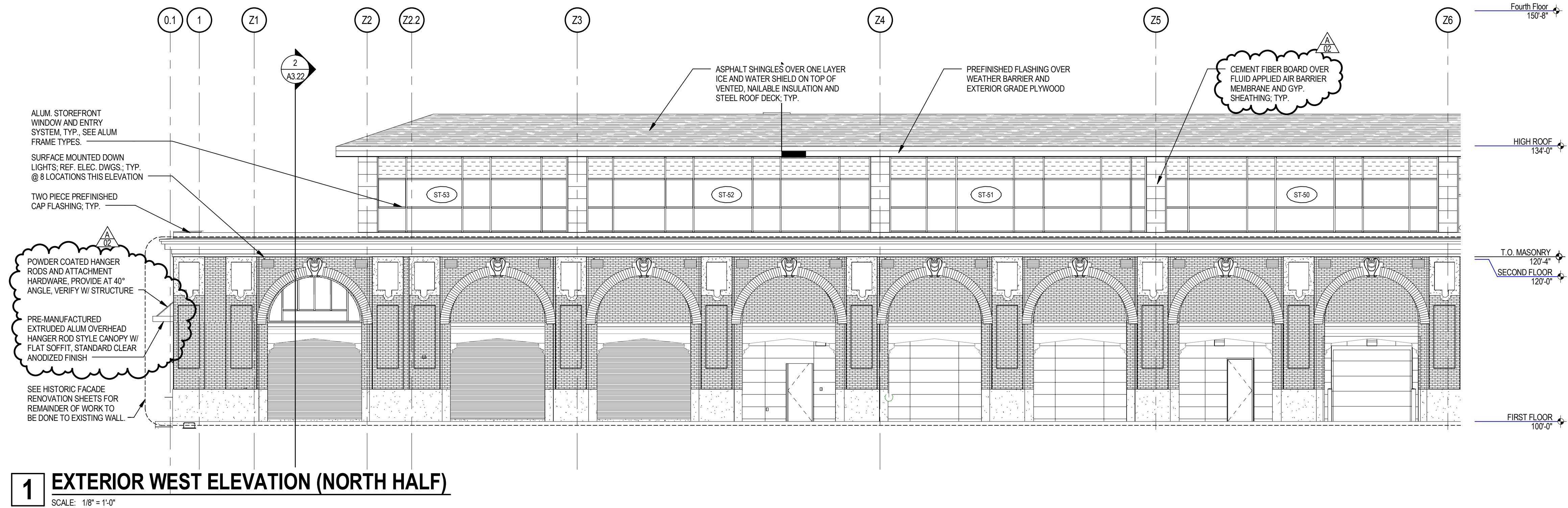


Life Science Collaboration
 1910 N Antelope Valley
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 Lincoln, Nebraska
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 BVH No.: L12018.unl
 November 27, 2013

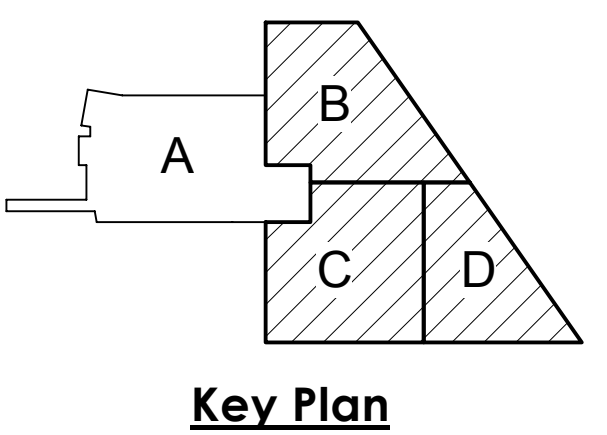


Roof Plan & Skywalk Roof
 Plan - Area A

A1.61



SHEET HISTORY:
ISSUED 11/27/2013 AS PER CONSTRUCTION DOCUMENTS
A - 02 12/11/2013 AS PER ADDENDUM #2

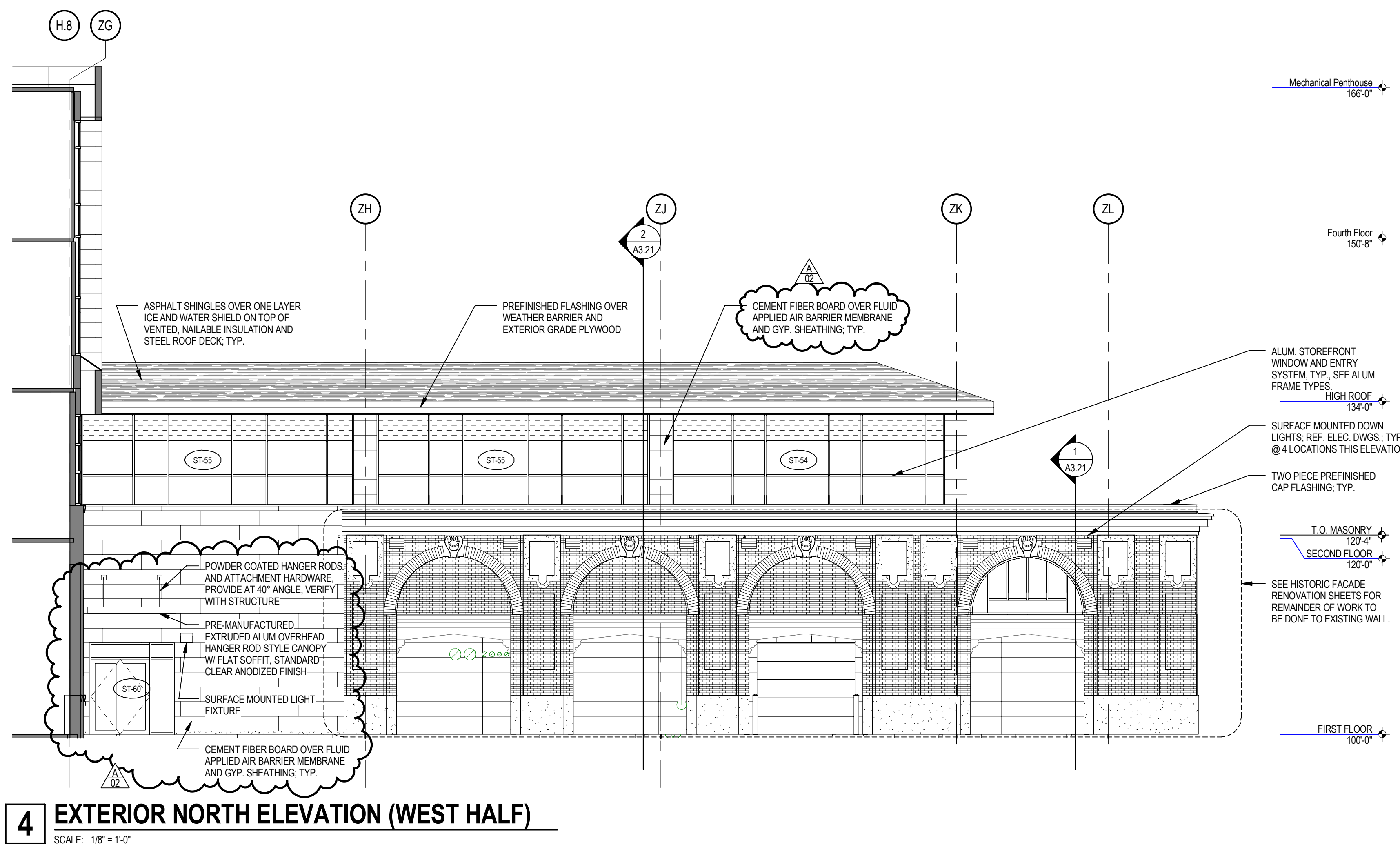
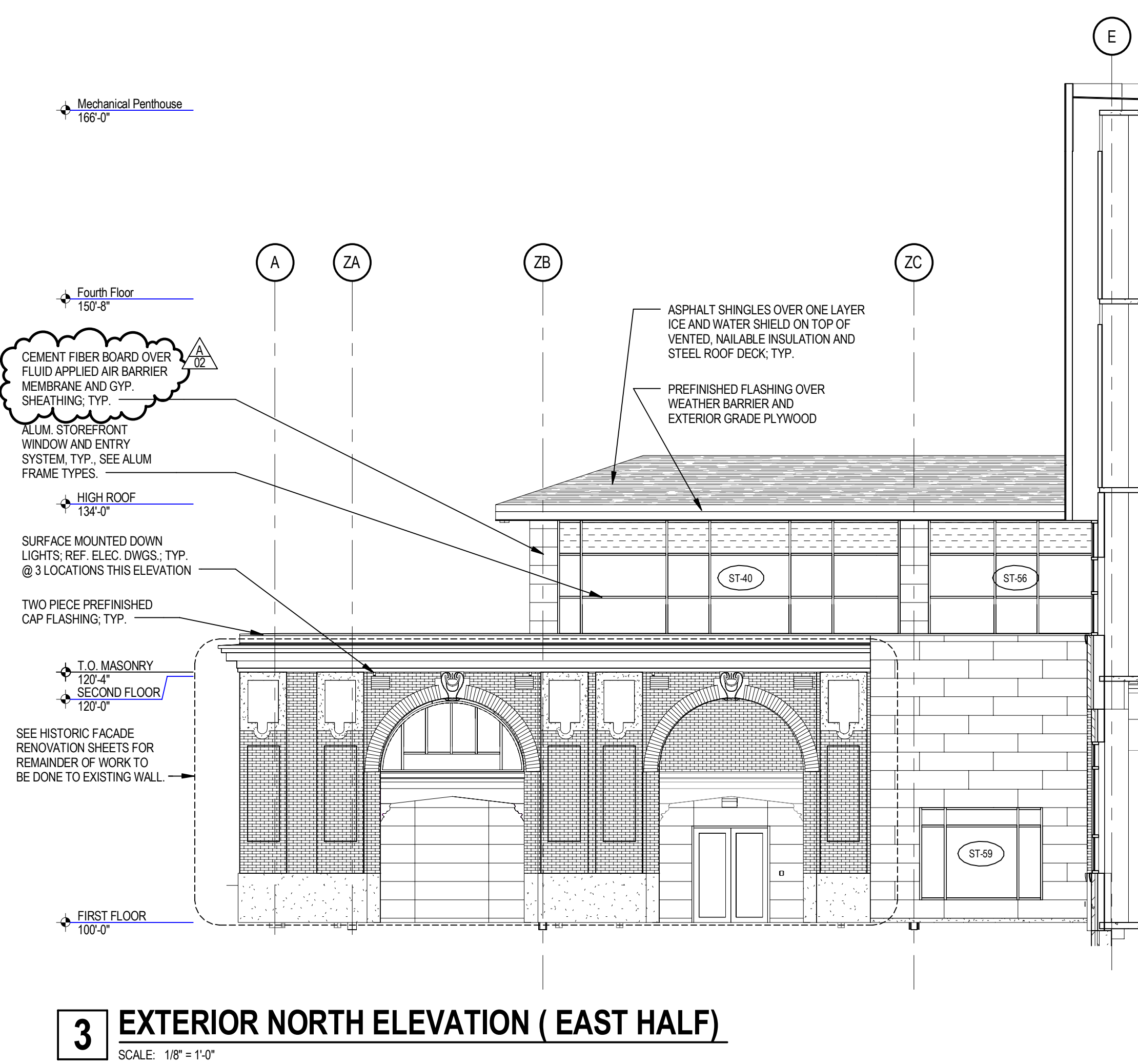


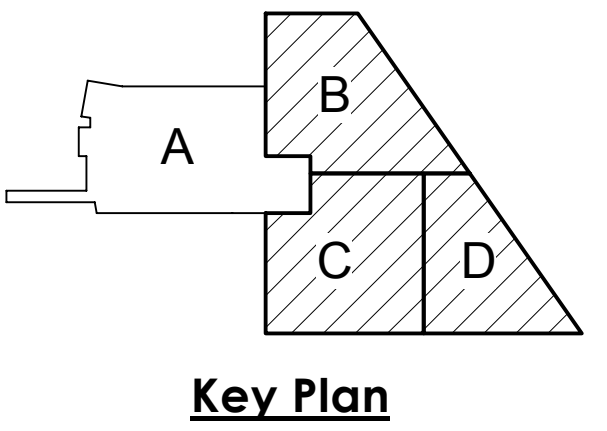
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Lincoln, Nebraska
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Davis Design No.: 12-0077
BVH No.: L12018.unl
November 27, 2013



Exterior Building Elevations
Areas B, C, & D

A2.21



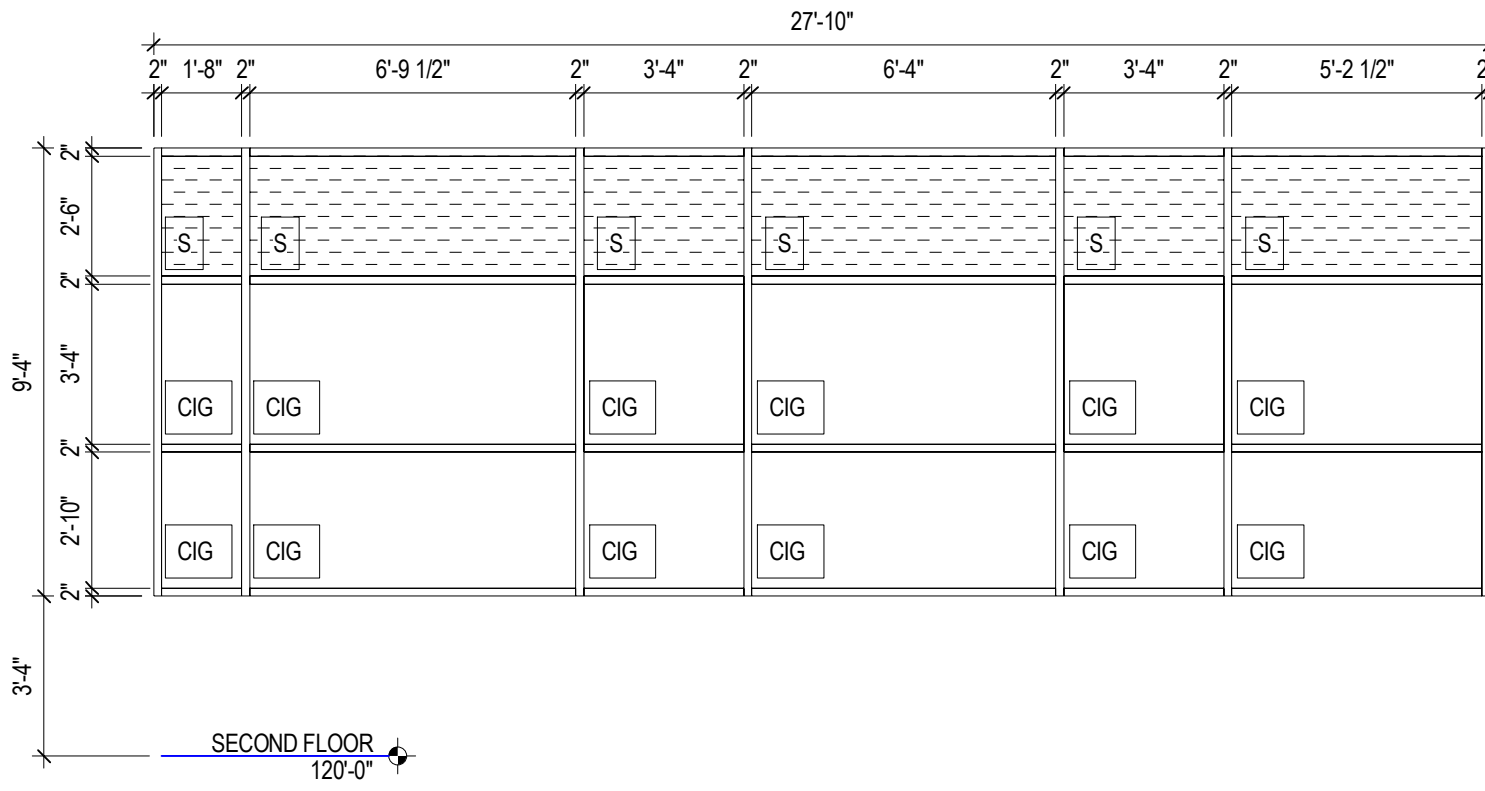


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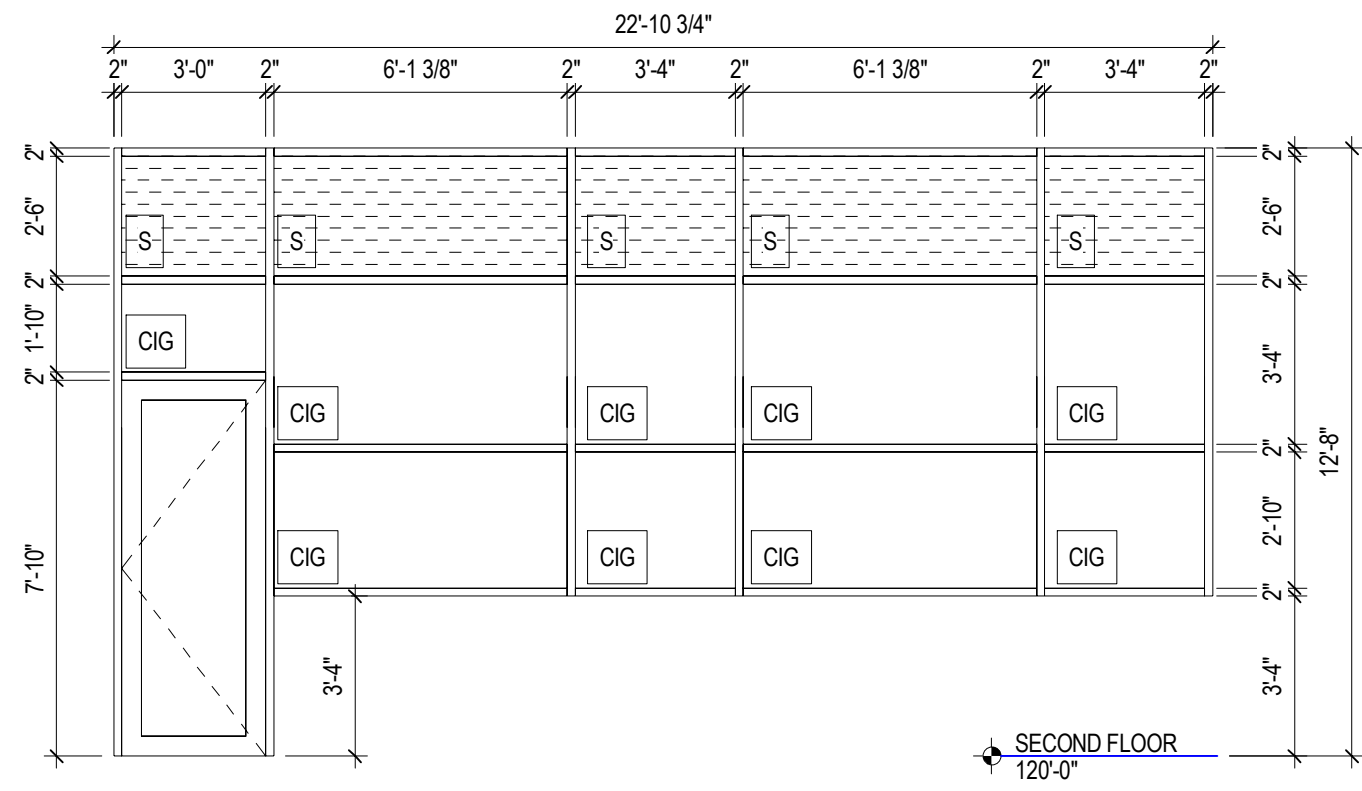


Exterior Frame Types -
Areas B, C, & D

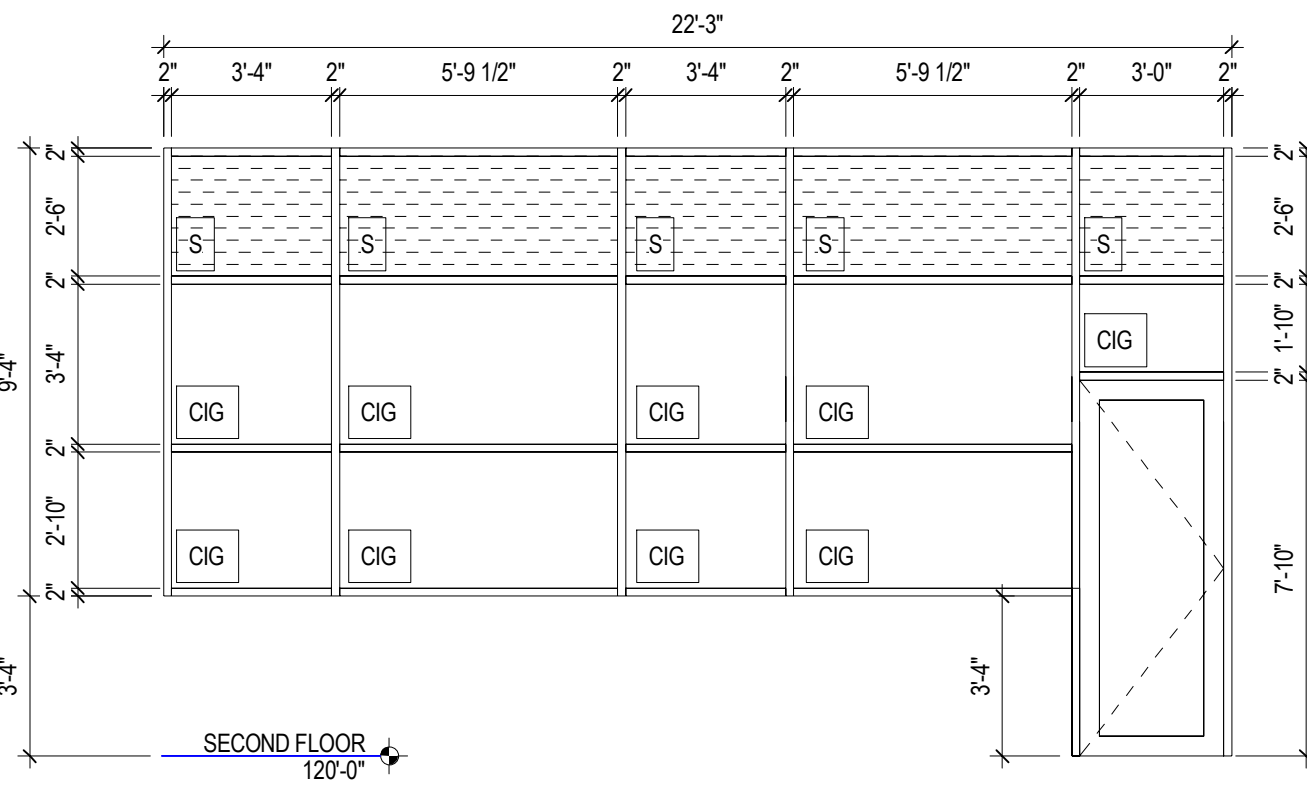
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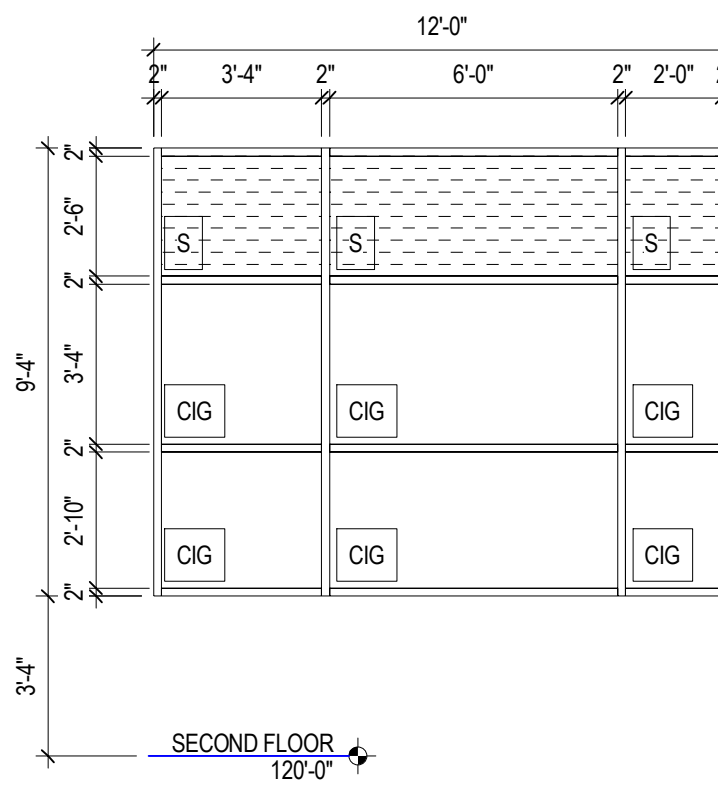
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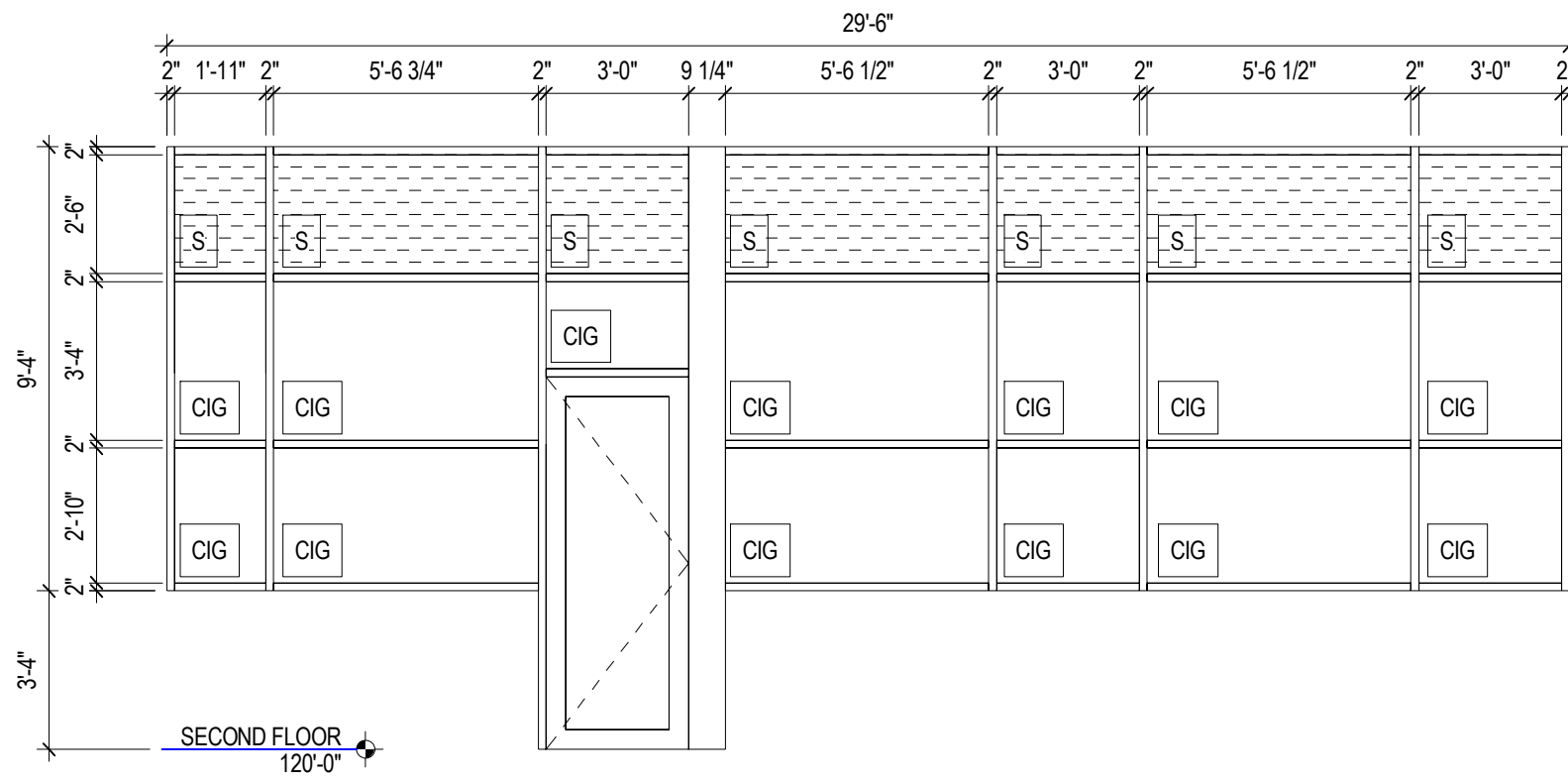
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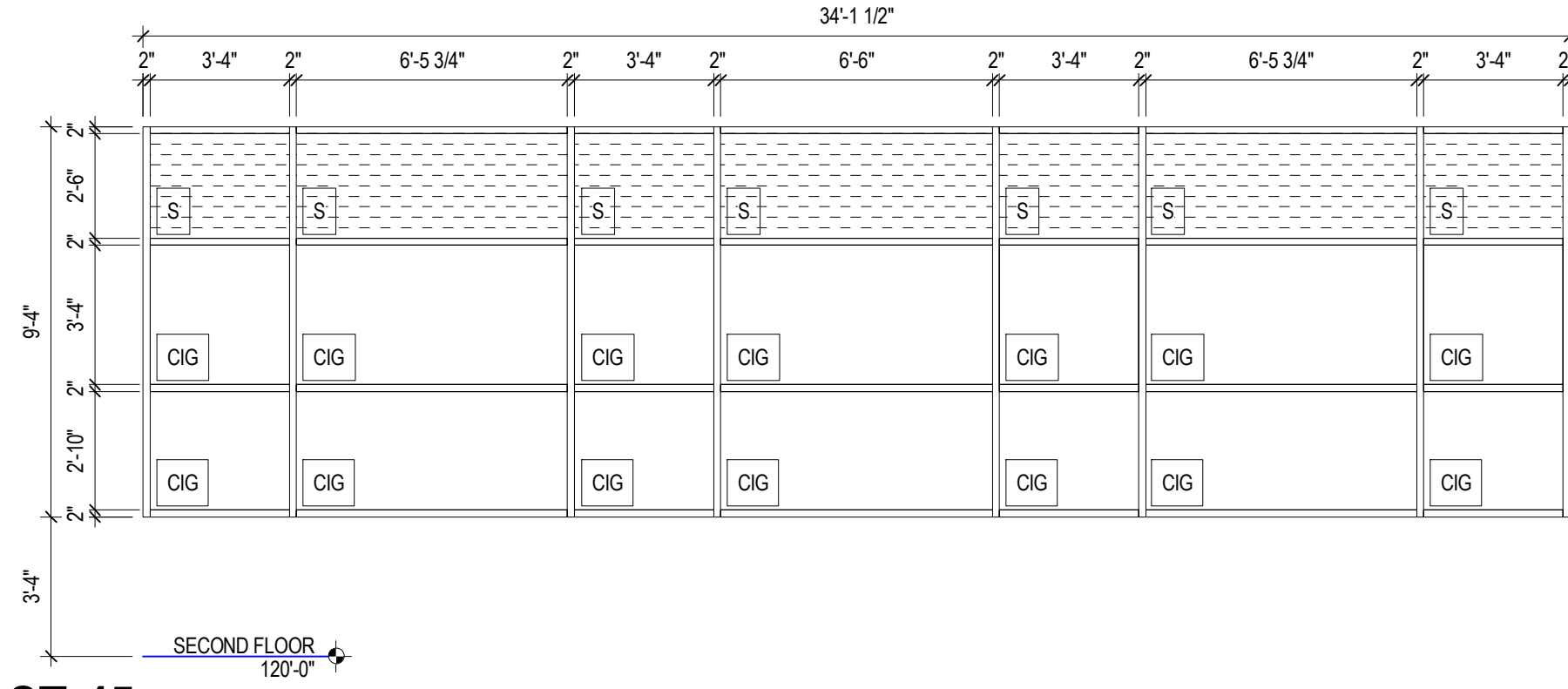
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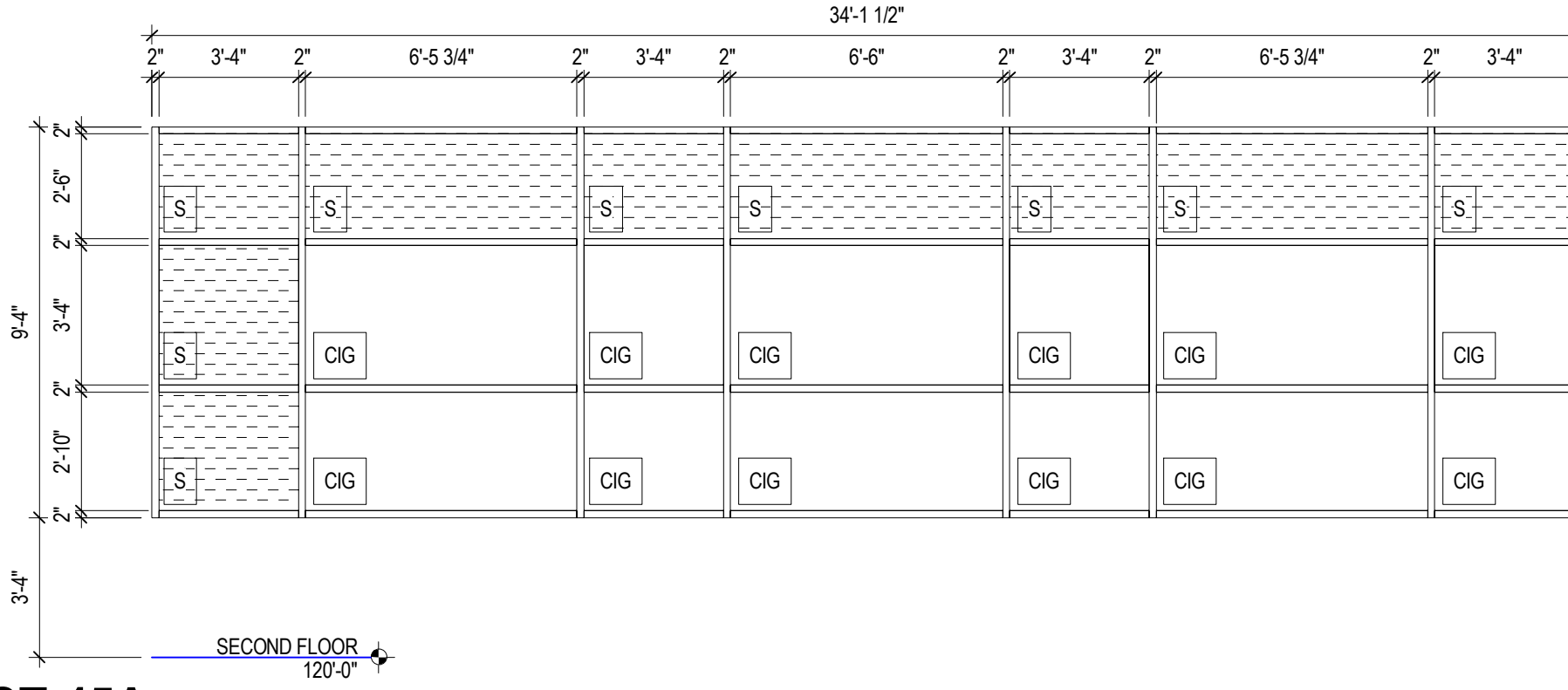
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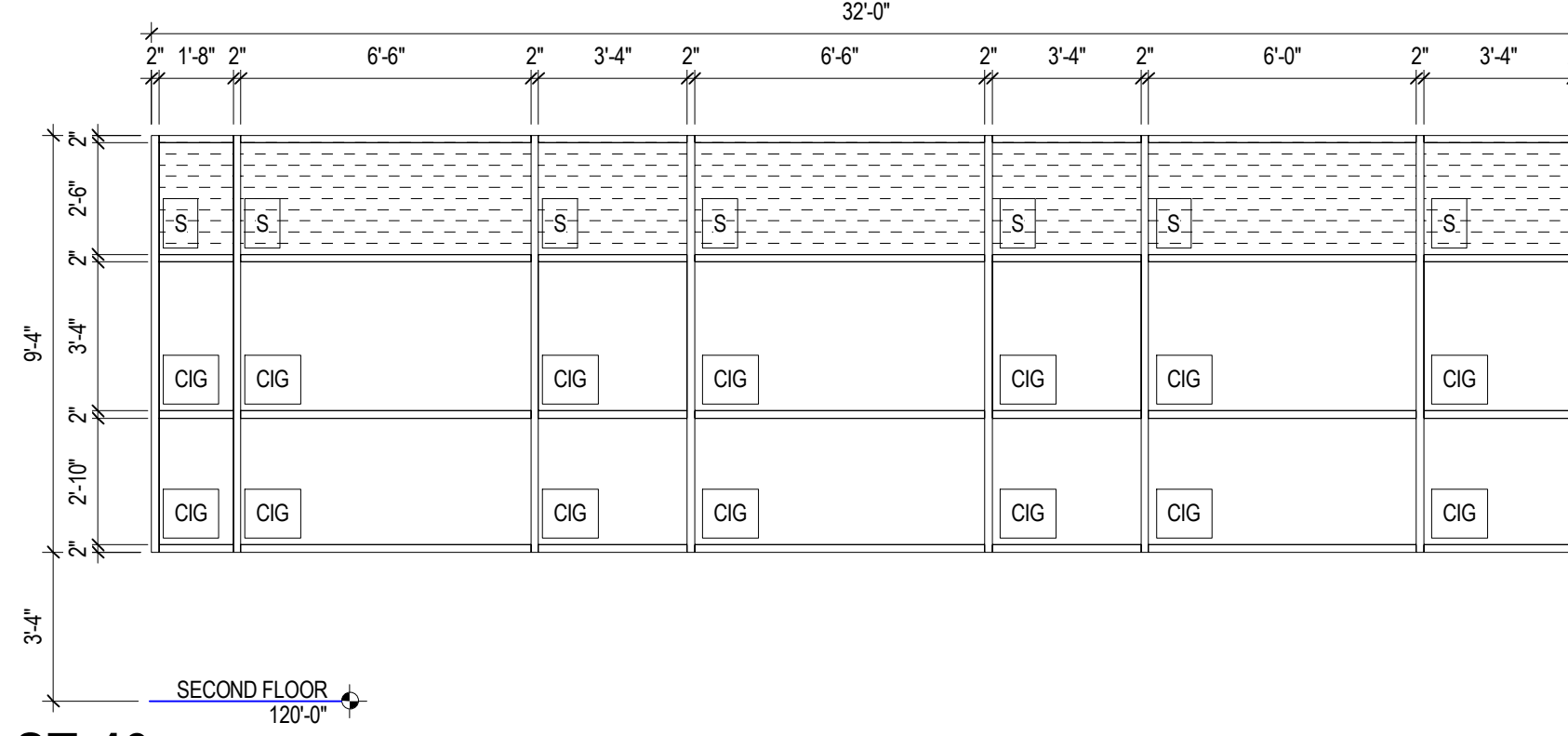
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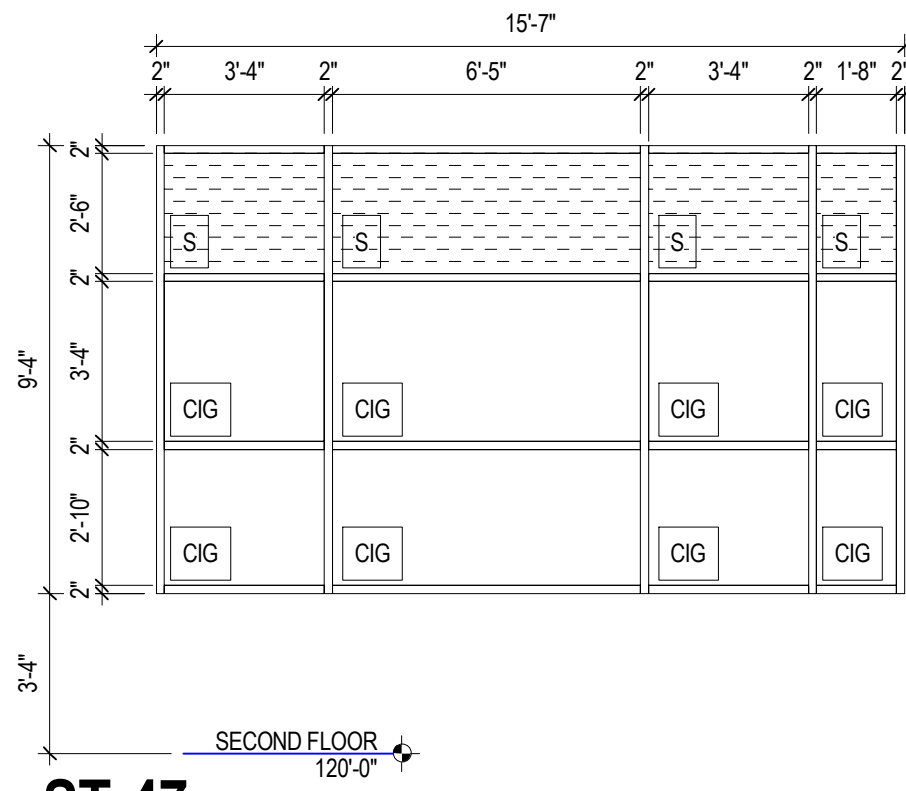
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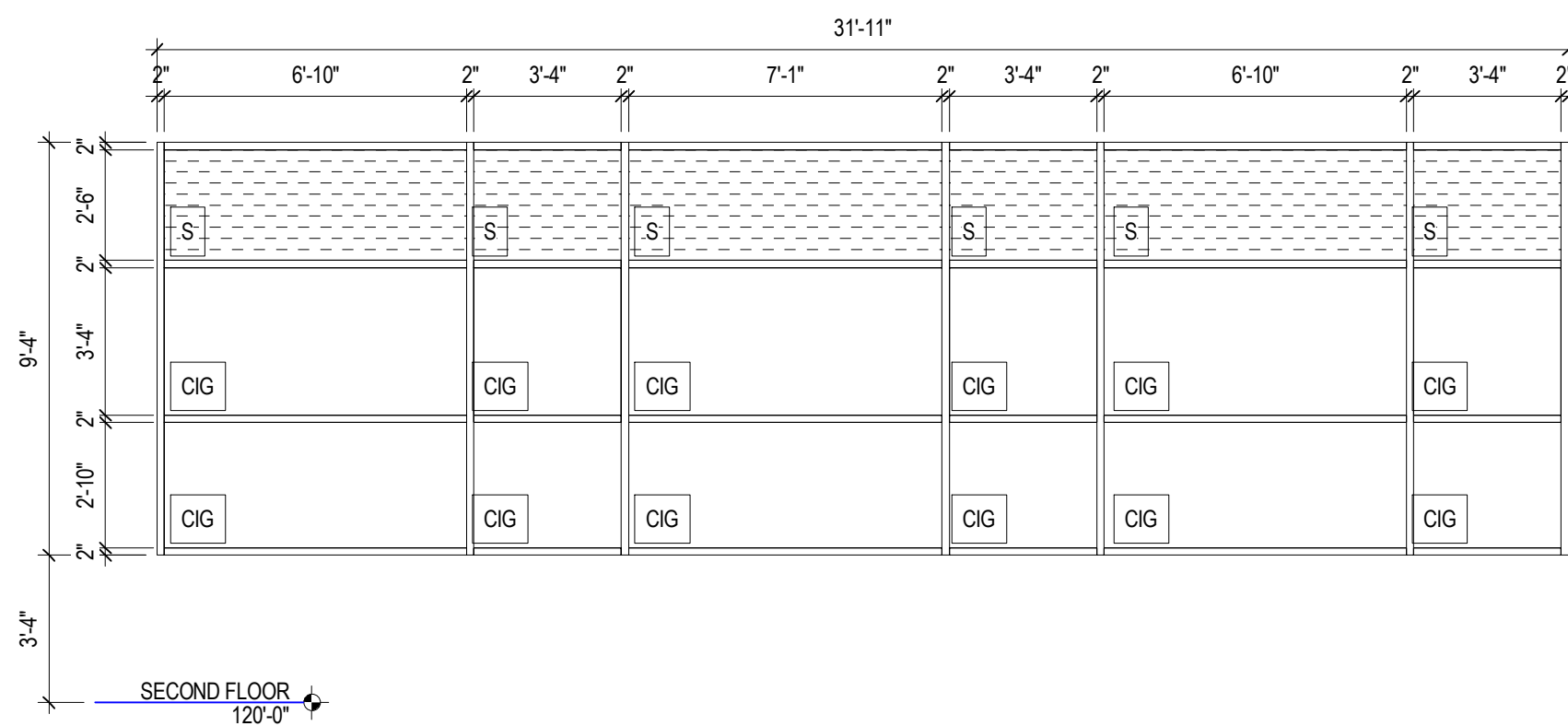
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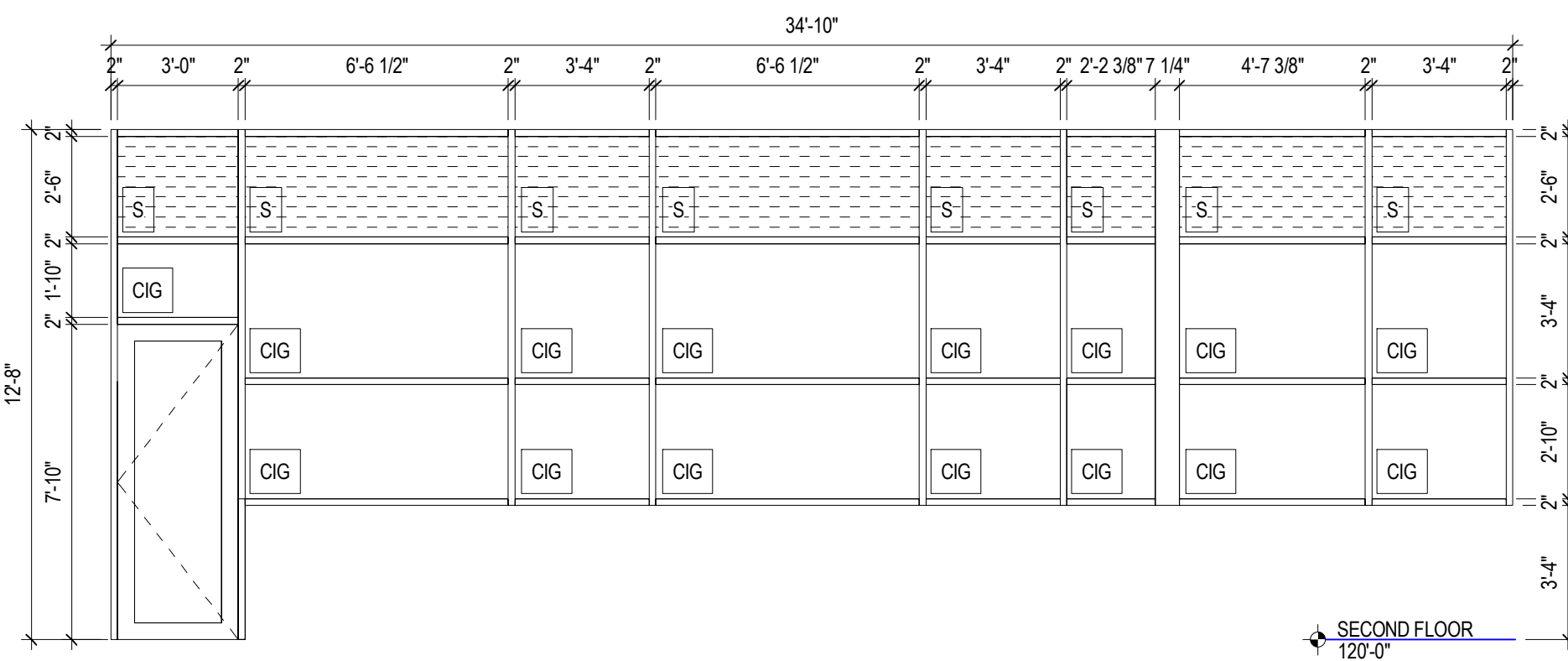
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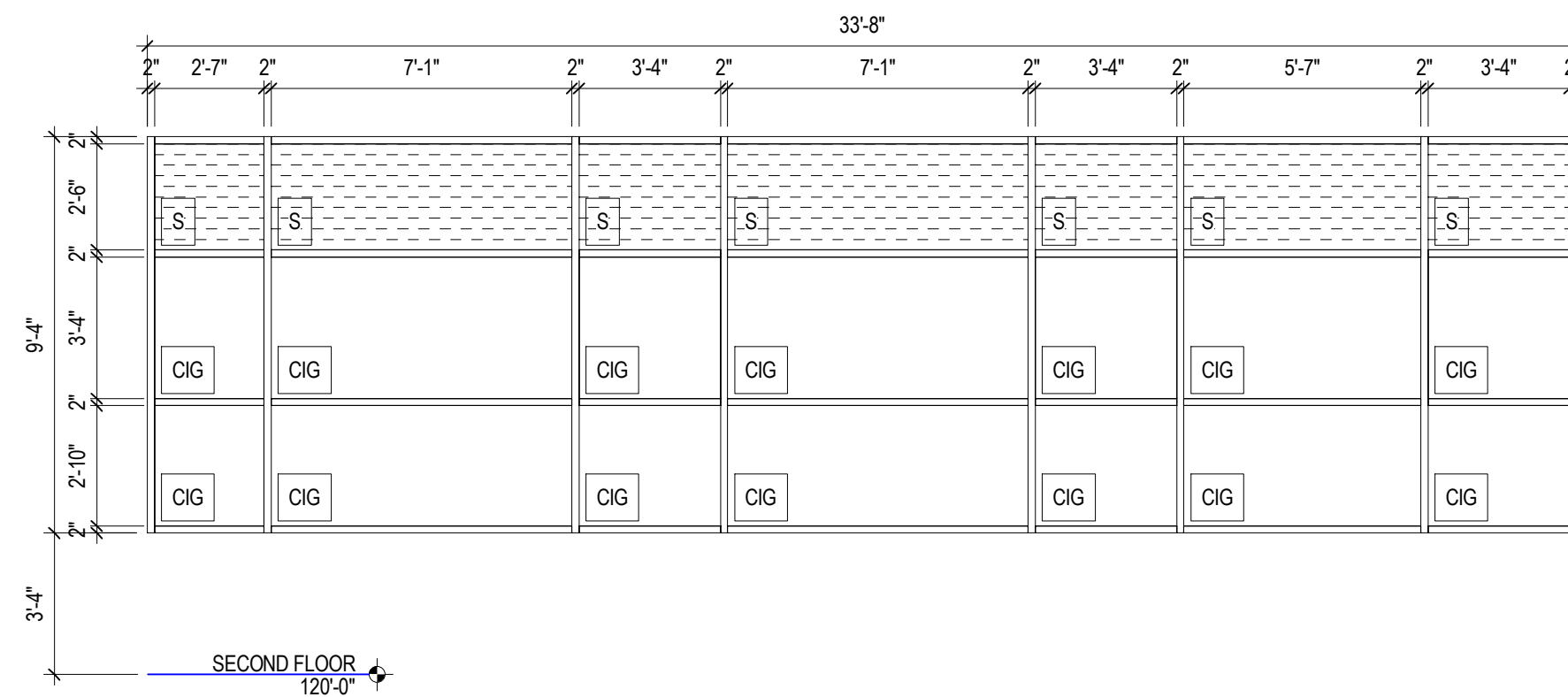
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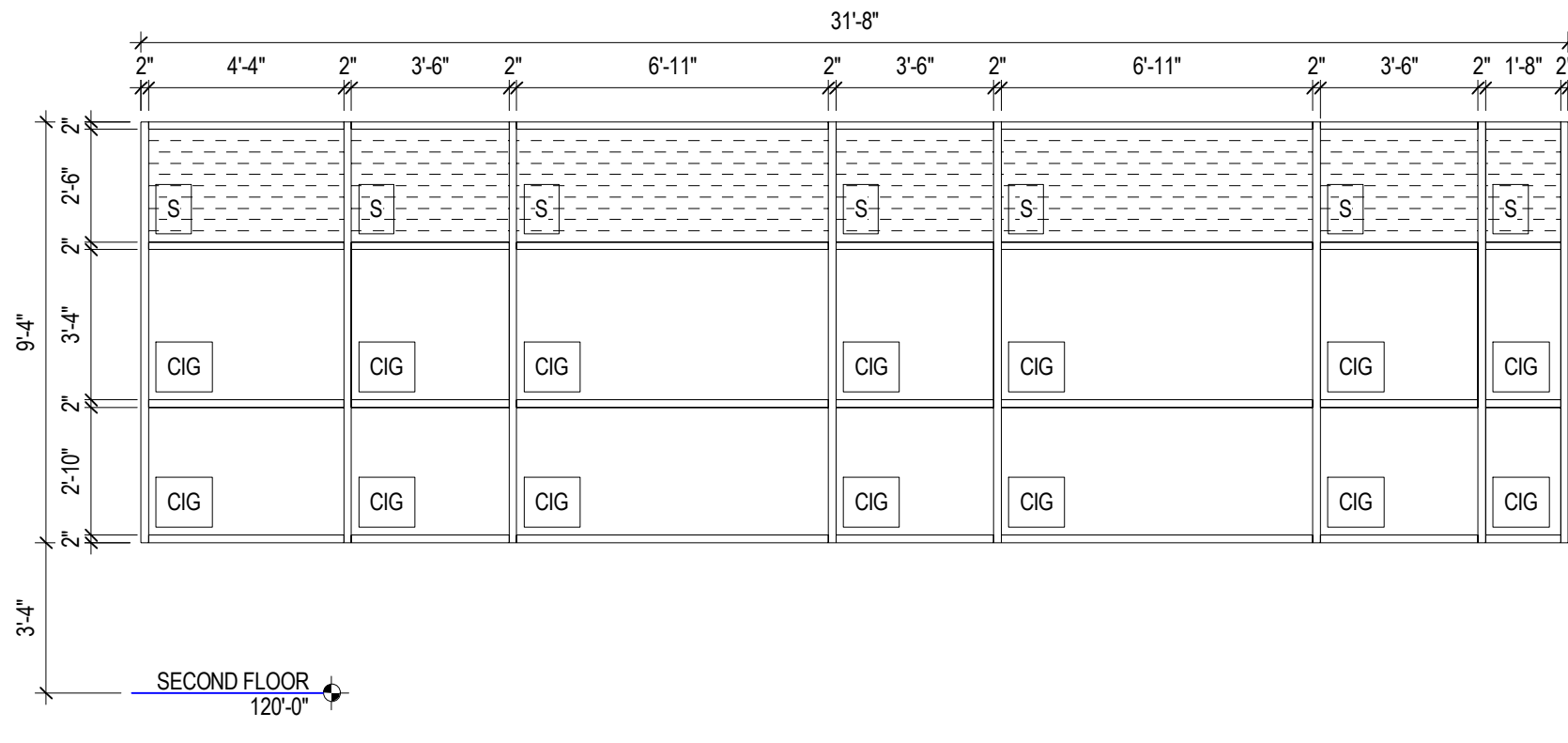
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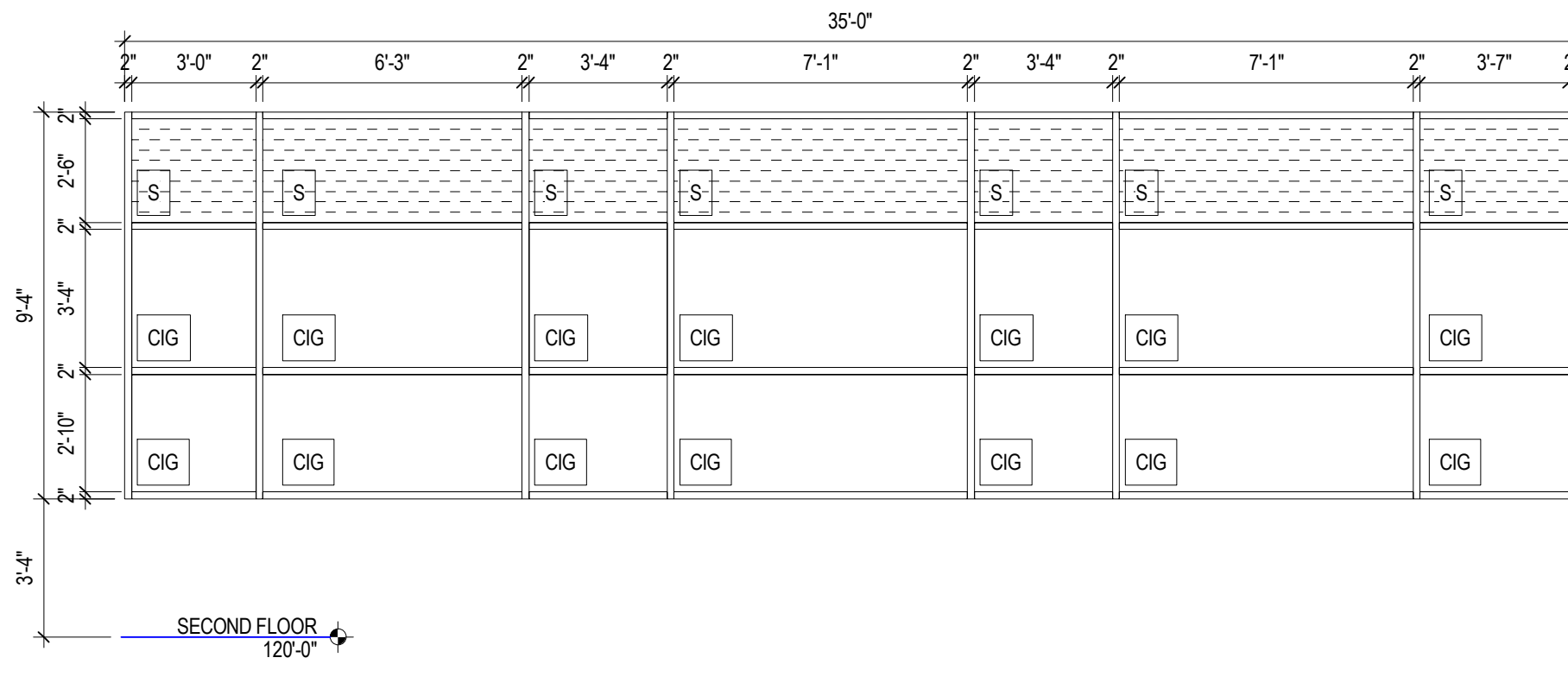
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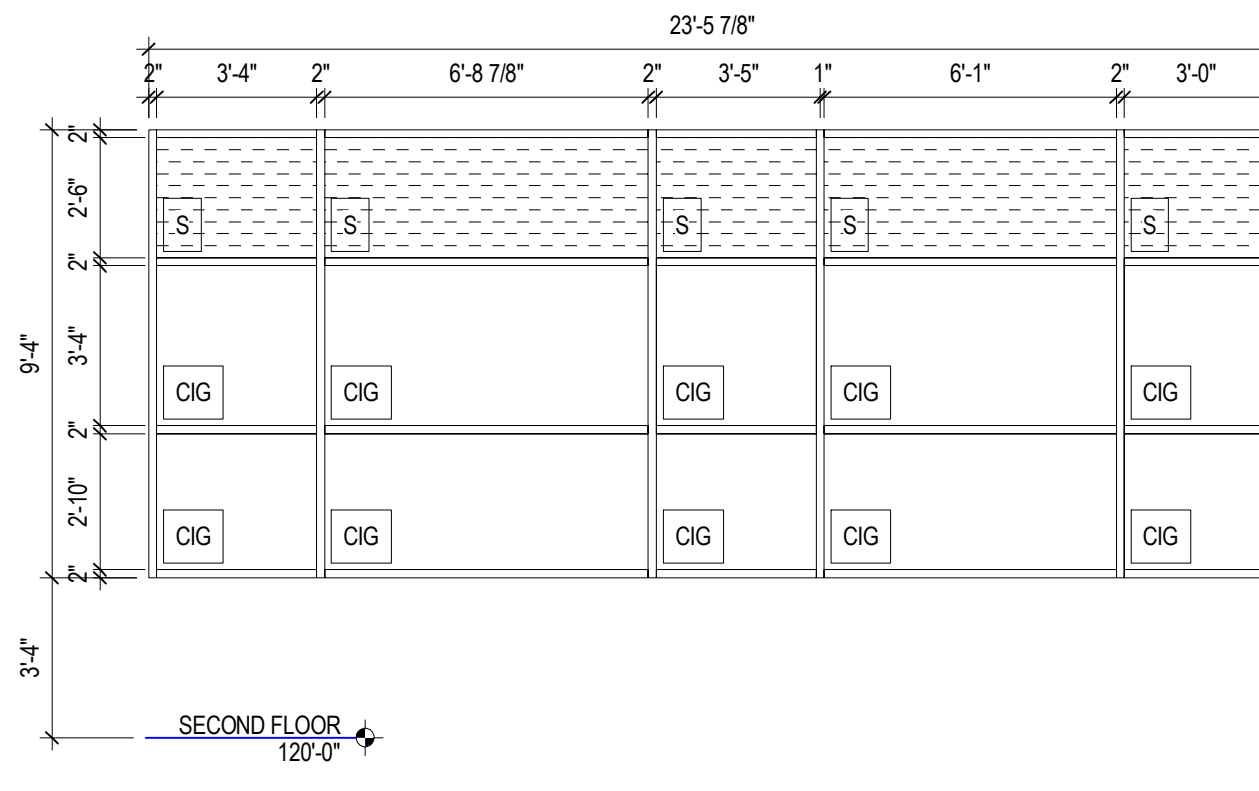
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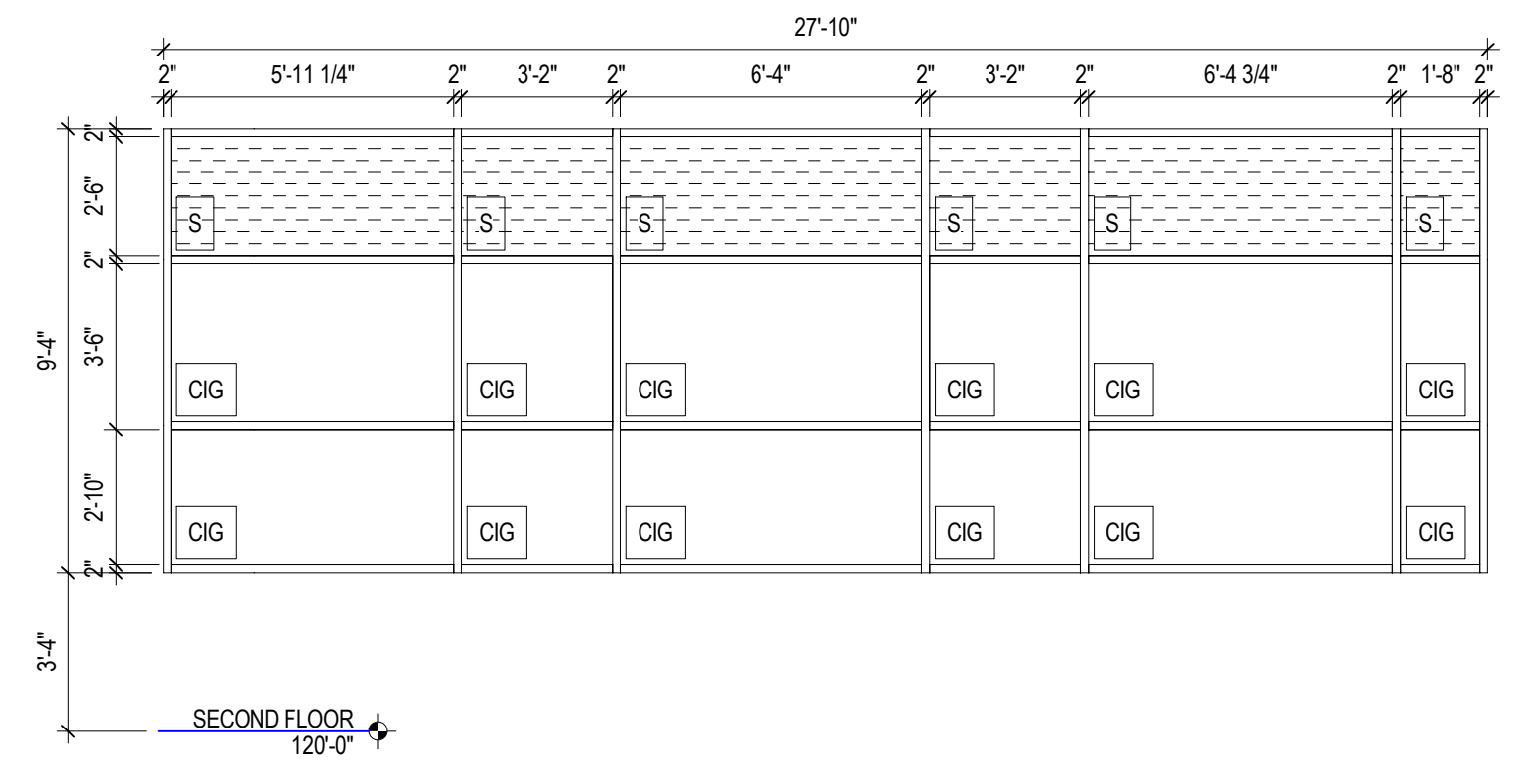
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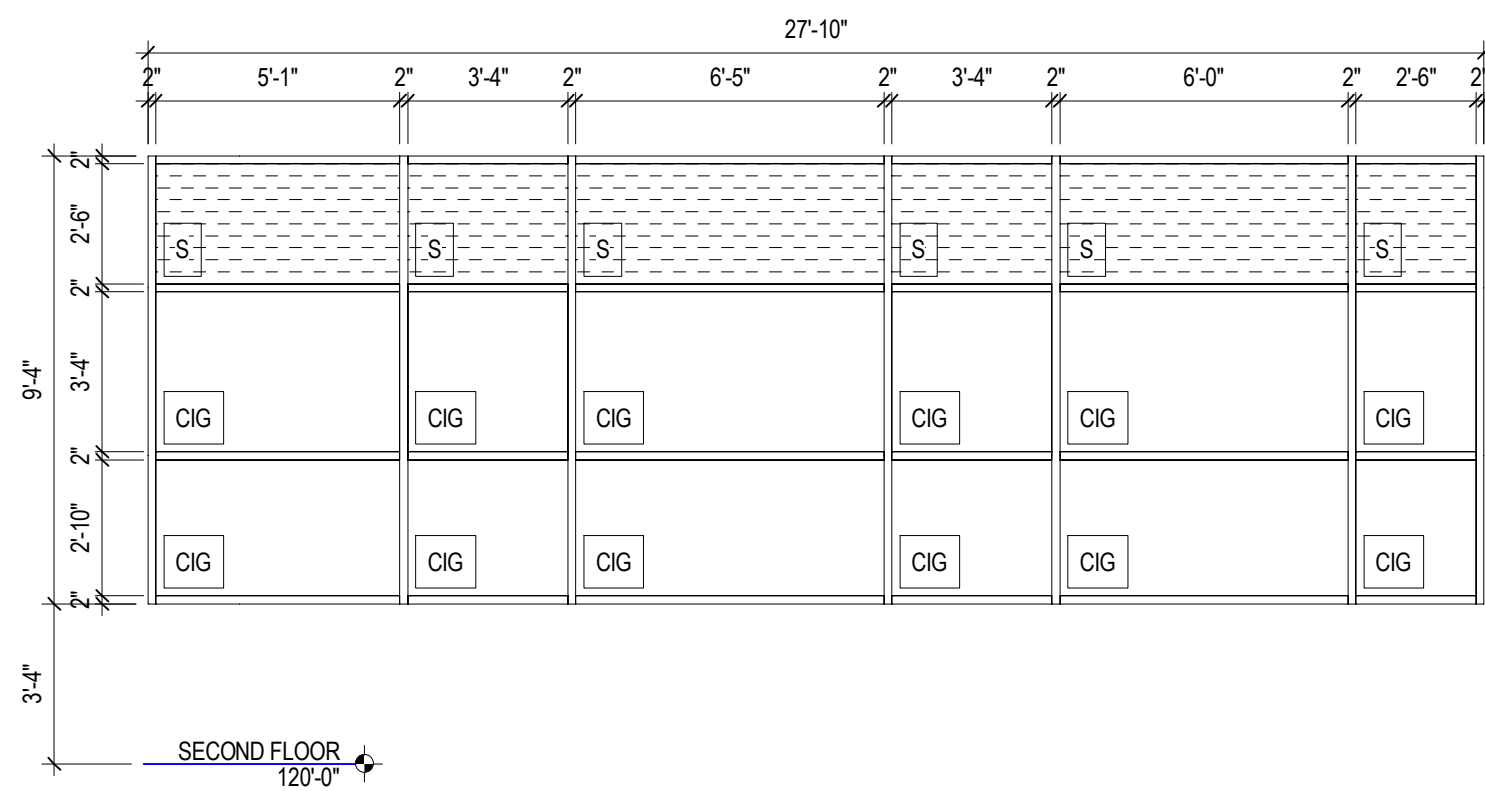
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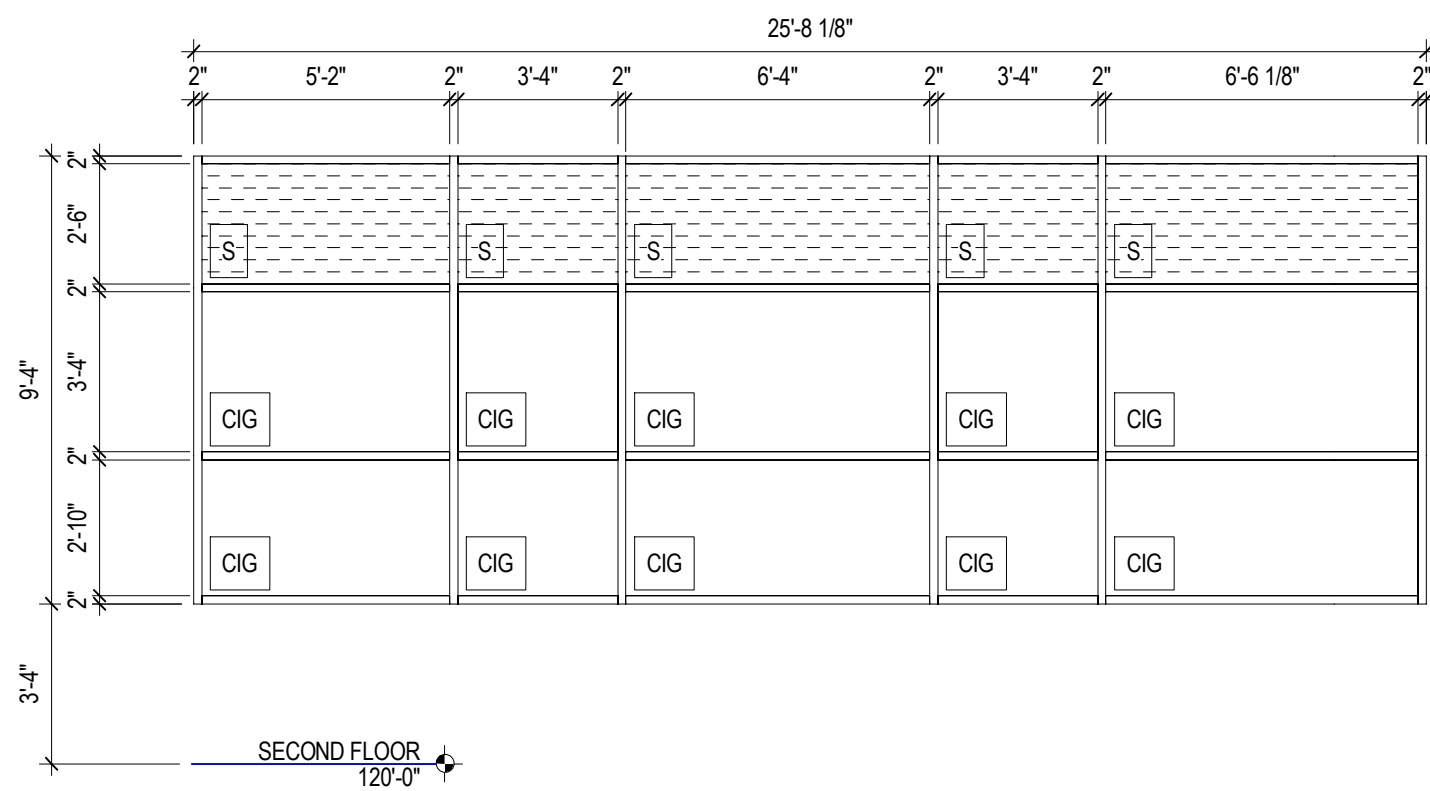
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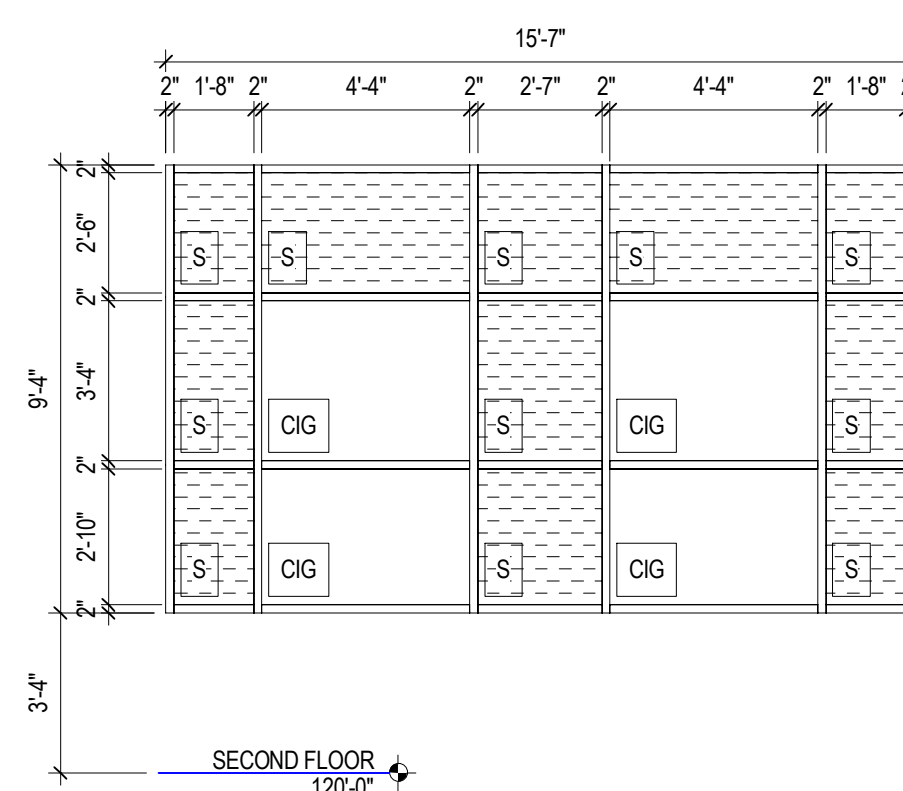
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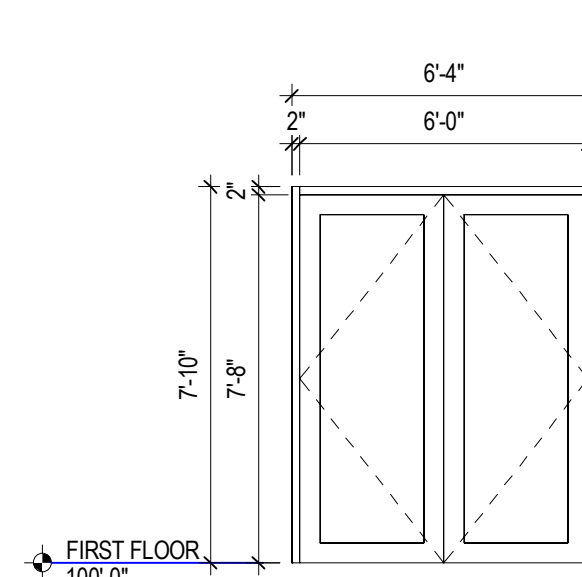
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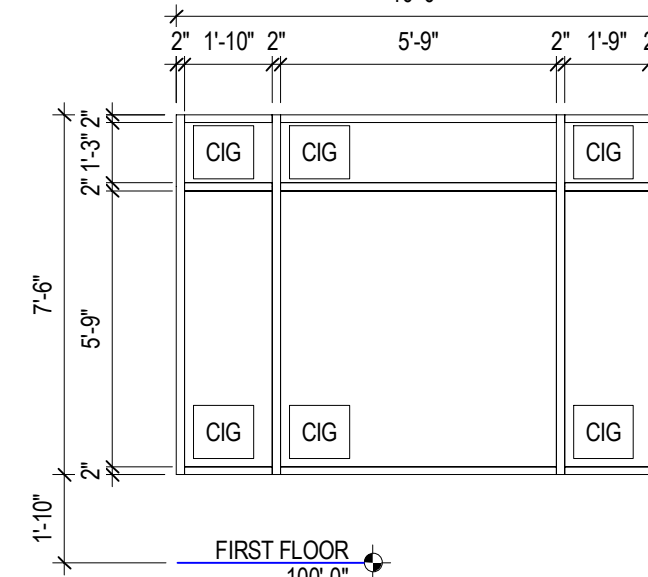
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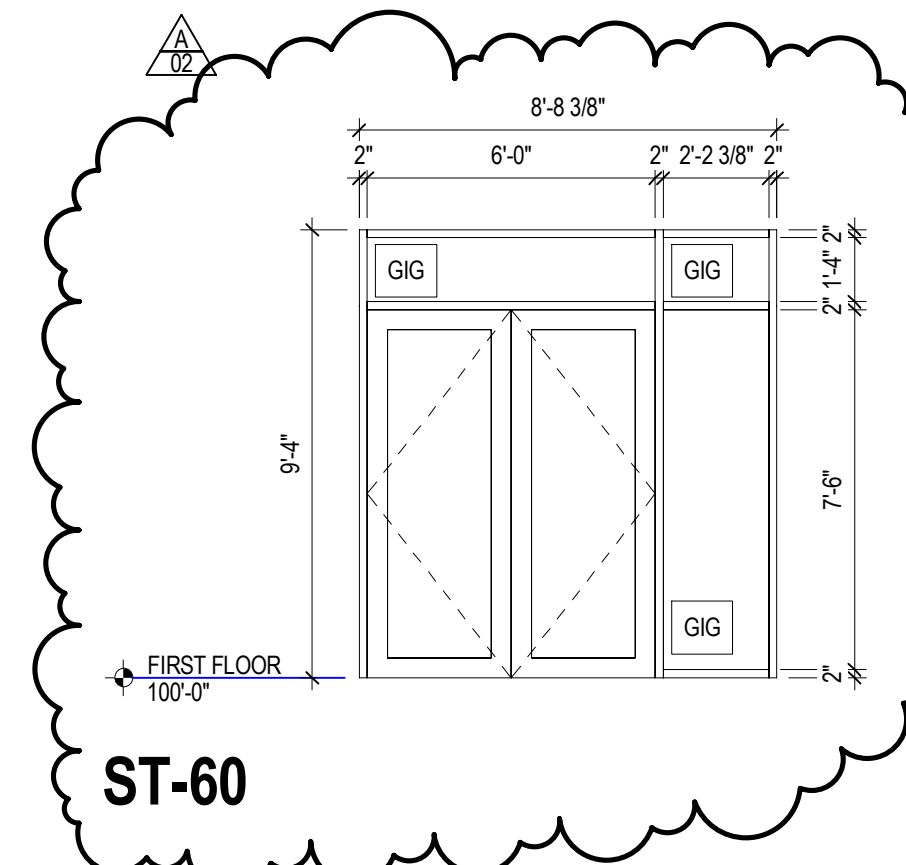
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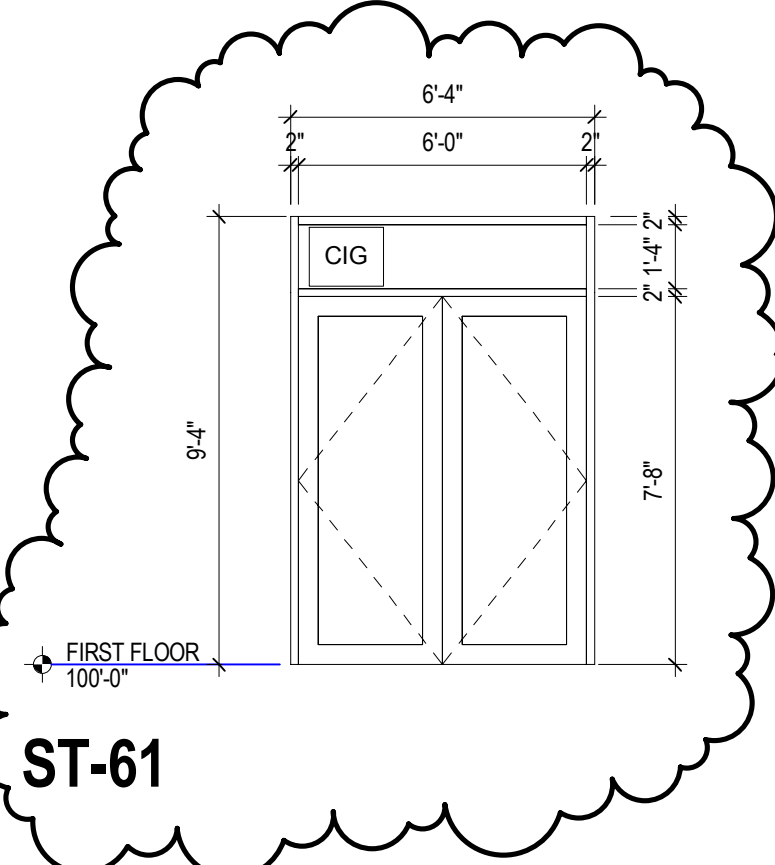
ST-58



ST-59



ST-60



ST-61

FRAME TYPE LEGEND

- S SPANDREL GLAZING
- G CLEAR GLASS
- T SINGLE PANE TEMPERED GLAZING
- OIG CLEAR INSULATED GLASS / LOW-E COATING

NOTE: PROVIDE AND INSTALL SAFETY GLAZING IN
LOCATION AS PER SECTION 2406 OF THE 2009
INTERNATIONAL BUILDING CODE

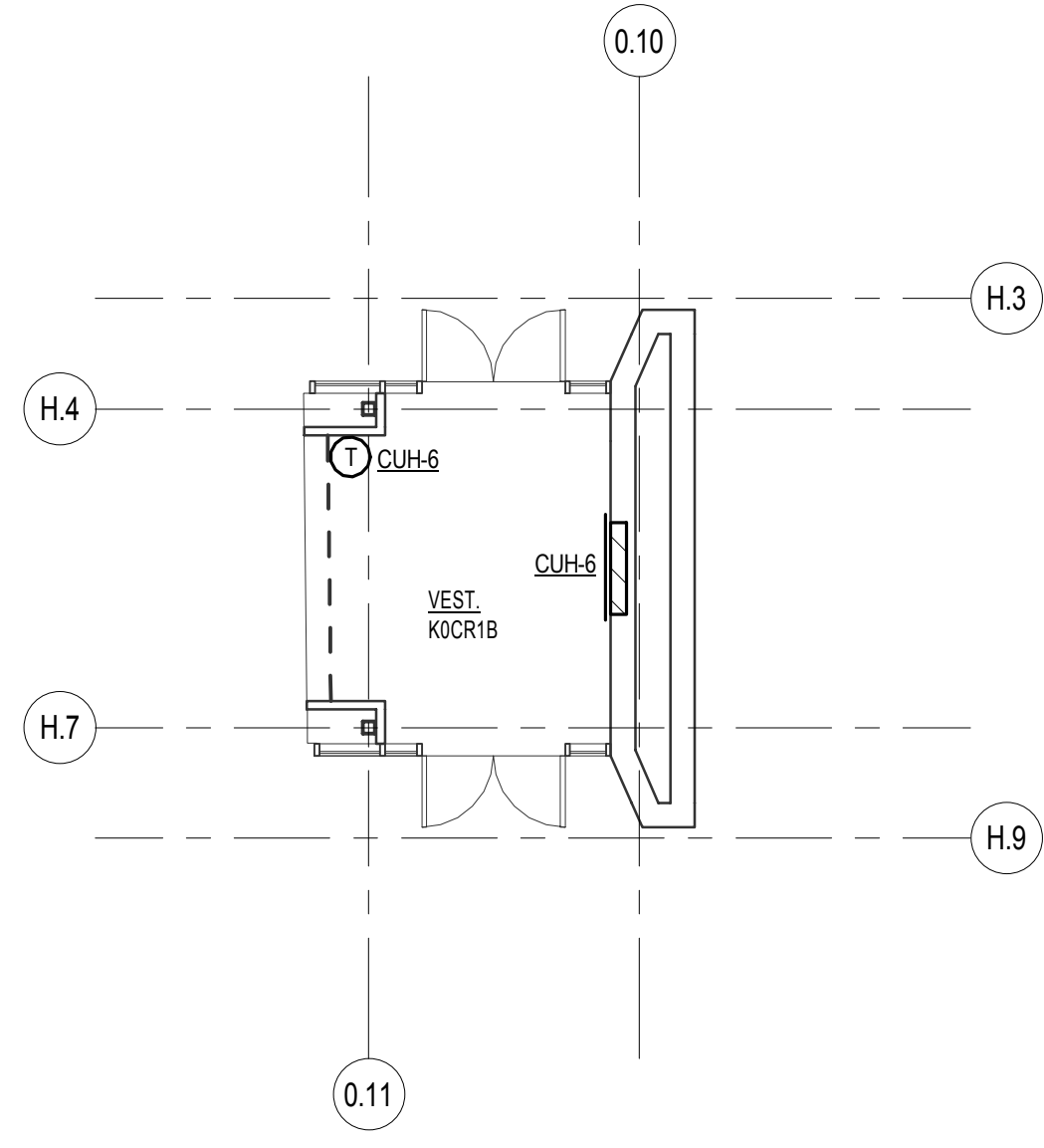
STOREFRONT FRAME TYPES

SCALE: 1/4" = 1'-0"

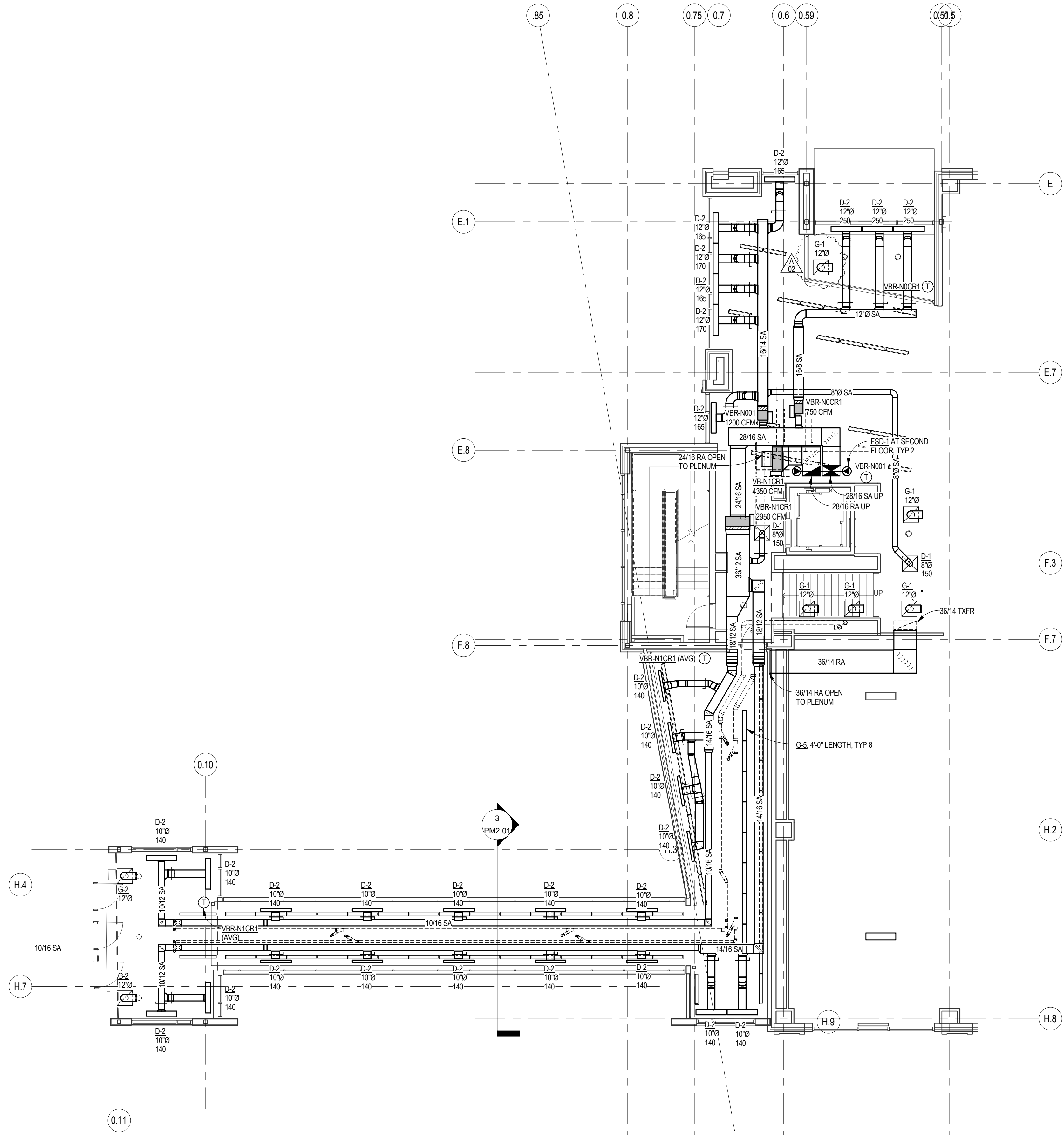
FINISH MATERIALS LEGEND

CARPET TILE	
OPT-1	MANUFACTURER: INTERPACE PRODUCT: ENTRY LUG #12010290 COLOR: #7197 BLACK (TBD) INSTALLATION METHOD: RANDOM
OPT-2	MANUFACTURER: INTERPACE PRODUCT: PERMAN #14269290 COLOR: TBD INSTALLATION METHOD: BRICK
PORCELAIN CERAMIC TILE	
PCT-1	MANUFACTURER: CAESAR PRODUCT: MORE 24 X 48, FINISH: SMOOTH COLOR: REDDUM
PCT-2	MANUFACTURER: TBD PRODUCT: COLOR:
CERAMIC TILE	
CT-1	MANUFACTURER: DALTILE PRODUCT: GLAZED CERAMIC MATTE #079961P4 6" X 6" COLOR: PEARL WHITE #0799
CT-2	MANUFACTURER: MOSA PRODUCT: COLORS 6" X 6" COLOR: #1790 (ORANGE)
PAINT	
PT-1	MANUFACTURER: SHERWIN WILLIAMS COLOR: #SW7005 PURE WHITE
PT-2	MANUFACTURER: SHERWIN WILLIAMS COLOR: #SW7005 PURE WHITE (FLAT)
PT-3	MANUFACTURER: SHERWIN WILLIAMS COLOR: #SW6381 ANJOU PEAR
PT-4	MANUFACTURER: SHERWIN WILLIAMS COLOR: #SW6382 TIGER EYE
WOOD STAIN	
ST-1	MANUFACTURER: TBD WOOD SPECIES: MAPLE STAIN COLOR: CLEAR SATIN
WOOD	
WD-1	WOOD SPECIES: HARDWOOD FINISH: OIL FINISH MATCH
RESILIENT BASE	
RB-1	MANUFACTURER: MERCERBURKE PRODUCT: 4" RUBBER BASE (CONTINUOUS) COLOR: TBD
ACOUSTICAL PANEL CEILING	
APC-1	MANUFACTURER: CERTANTEED PRODUCT: #122-10F-1 PERFORMA SYMPHONY m SIZE: 24" X 24" X 3/4" COLOR: WHITE
APC-2	MANUFACTURER: HUNTER DOUGLAS PRODUCT: TECHSTYLE E SIZE: 24" X 22" X 1 1/8" COLOR: WHITE
WINDOW COVERINGS	
VIC-1	MANUFACTURER: MEDIOSHADE ROLLER SHADES PRODUCT: 3% OPNENESS ECOVEL SHADES LOTH FABRIC COLOR: TBD
FIBER CEMENT PANELING	
FCP-1	MANUFACTURER: AMERICAN FIBER CEMENT PRODUCT: NATURA FINISH COLOR: TBD
EPOXY TERRAZZO FLOORING	
ETF-1	MANUFACTURER: TERROXY SYSTEMS PRODUCT: TM #11-206 COLOR: WHITE/WHITE SAMPLE REFERENCE: 1 LIGHT
ETF-2	MANUFACTURER: TERROXY SYSTEMS PRODUCT: TM #11-206 COLOR: WHITE/WHITE SAMPLE REFERENCE: 2 MEDIUM
ETF-3	MANUFACTURER: TERROXY SYSTEMS PRODUCT: TM #11-206 COLOR: WHITE/WHITE SAMPLE REFERENCE: 3 DARK

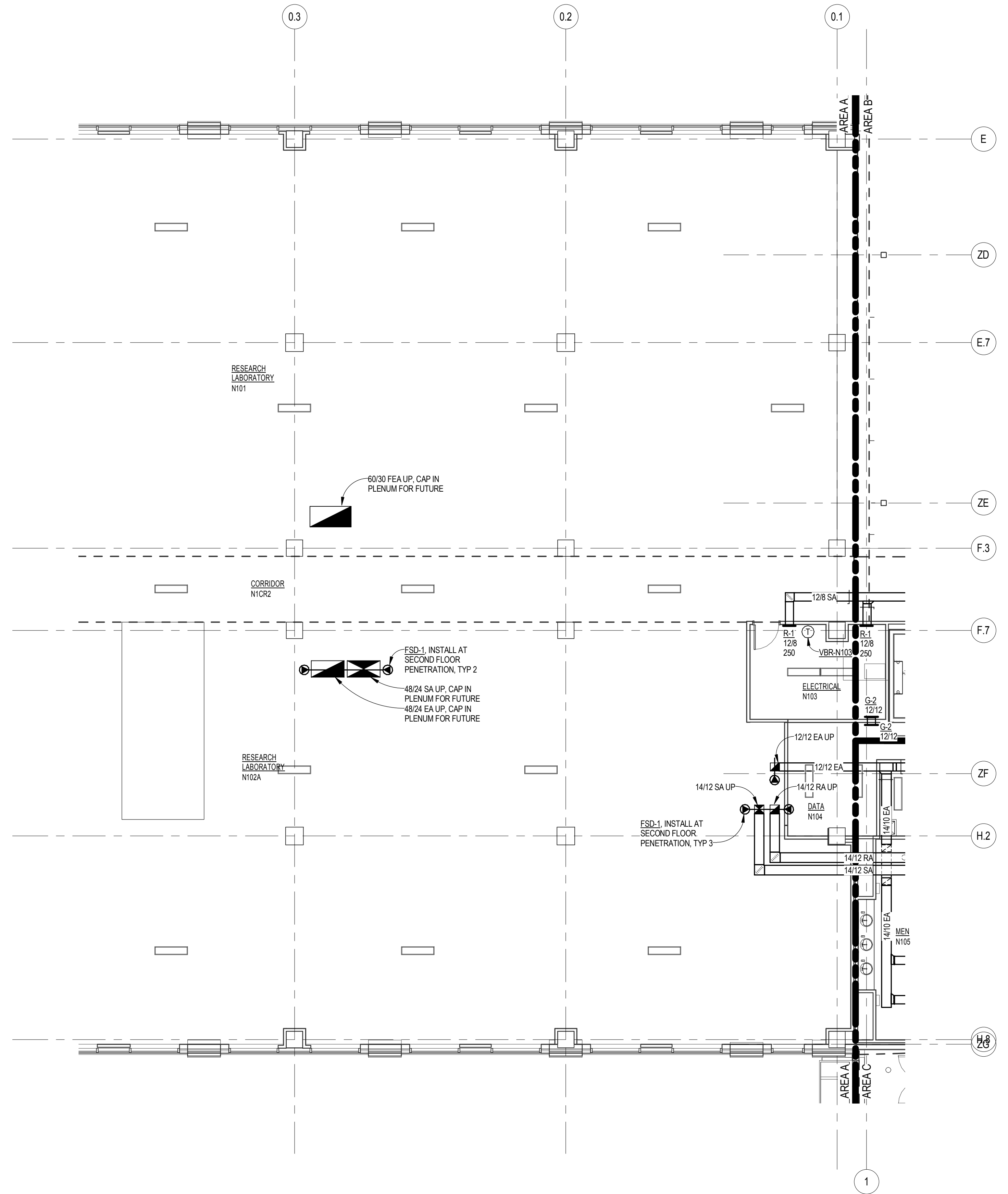
ROOM NUMBER	ROOM NAME	ROOM FINISH SCHEDULE												COMMENTS
		FLOOR		NORTH WALL		EAST WALL		SOUTH WALL		WEST WALL		CEILING		
MTL	FIN	MTL	FIN	MTL	FIN	MTL	FIN	MTL	FIN	MTL	FIN	FIN		
K0CR1	VEST.	CONC	OPT-1	RB-1	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW/BRCK	PT-1	GPDW	PT-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
K1.5	SKYWALK	CONC	CPT-2	RB-1	--	PT-1	GPDW	PT-1	--	CT-1	GPDW	PT-1	APC-1 PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
K1.SCR1	VEST.	CONC	CPT-2	RB-1	--	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N0CR1	VESTIBULE	CONC	CPT-1	RB-1	GPDW	PT-1	GPDW	PT-1	STONE	PT-1	GPDW	PT-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL	
N0CR2	CORRIDOR	CONC	ETF-1,2,3	ETF-1,2,3	GPDW	PT-1	--	--	GPDW	FCP-1	--	--	GPDW/APC-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N0EL1	ELEV.	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N0ST1	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-3	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N0ST2	STAIR	CONC	ETF-1,2,3	ETF-1,2,3	--	--	GPDW	PT-1	GPDW	PT-1	GPDW	FCP-1	APC-2 PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N001	LOBBY	CONC	ETF-1,2,3	ETF-1,2,3	GPDW / BRK	PT-1	GPDW / BRK	PT-1	WD-1	GPDW	WD-1, PT-1	GPDW	APC-2 PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1 SCR3	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1	--	--	GPDW	PT-1, FCP-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1.SEL1	ELEV.	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N1.SST1	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-3	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1.SST3	STAIR	CONC	ETF-1	ETF-1	GPDW	PT-1	GPDW	PT-1, FCP-1	GPDW	PT-1	GPDW	PT-1	APC-2 PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1CR1	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1, FCP-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	APC-2 PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1CR2	CORRIDOR	--	--	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N1CR3	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1, CT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	APC-1 PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1CR3A	CUST.	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1EL1	ELEV.	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N1EL2	ELEVATOR	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N1ST1	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N1ST4	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE SPECIFICATION
N2CR1	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1, FCP-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N2CR2	CORRIDOR	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N2CR3	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1, CT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N2CR3A	CUST.	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N2EL1	ELEV.	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N2EL2	ELEV.	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N2ST1	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-3	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N2ST4	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N3CR1	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1, FCP-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N3CR2	CORRIDOR	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N3CR3	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1, CT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N3CR3A	CUST.	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N3EL1	ELEV.	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N3EL2	ELEVATOR	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N3ST1	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-3	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N3ST4	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N4CR1	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1, FCP-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N4CR2	CORRIDOR	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N4CR3	CORRIDOR	CONC	ETF-1	ETF-1	GPDW	PT-1, CT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	APC-1	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N4CR3A	CUST.	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N4EL1	ELEV.	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N4EL2	ELEVATOR	--	CPT-1	--	--	--	--	--	--	--	--	--	--	SEE SPECIFICATION
N4ST1	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-3	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N4ST4	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N101	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N102	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N103	ELECTRICAL	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N104	DATA	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N105	MEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N106	WOMEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N201	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N202	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N203	ELECTRICAL	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N204	DATA	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N205	MEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N206	WOMEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N301	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N302	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N303	ELECTRICAL	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N304	DATA	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N305	MEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N306	WOMEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N401	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N402	RESEARCH LABORATORY	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
N403	ELECTRICAL	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N404	DATA	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N405	MEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N406	WOMEN	CONC	ETF-1	ETF-1	GPDW	CT-1	GPDW	CT-1, CT-2	GPDW	CT-1	GPDW	CT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N407	ELEV. CTL.	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N501	MECHANICAL PENTHOUSE	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N502	ELEV. CTL.	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S1CR1	CORRIDOR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	CMU	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S1CR2	VEST.	CONC	CPT-1	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	CMU	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S1ST1	STAIR	CONC	SCONC	RB-1	CMU	PT-1	CMU	PT-1	CMU	PT-1	CMU	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S1ST2	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	CMU	PT-1	CMU	PT-1	CMU	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S2ST1	STAIR	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
N507	MECHANICAL PENTHOUSE	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S101	ELECTRICAL	CONC	SCONC	RB-1	GPDW	PT-1	CMU	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S102	ELECTRICAL	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S103	DATA	CONC	SCONC	RB-1	GPDW	PT-1	CMU	PT-1	CMU	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S104	MECHANICAL	CONC	SCONC	RB-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S105	LEASABLE AREA B	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S106	LEASABLE AREA B	CONC	--	--	GPDW / CMU	--	GPDW	--	GPDW	--	GPDW / CMU	--	--	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S107	LEASABLE AREA D	CONC	--	--	-- / CMU	--	--	--	GPDW	--	GPDW	--	--	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S108	ALCOVE	CONC	SCONC	RB-1	GPDW	PT-1	CMU	PT-1	CMU	PT-1	GPDW	PT-1	PT-2	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL
S201	LEASABLE AREA B	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
S202	LEASABLE AREA C	CONC	--	--	GPDW	--	GPDW	--	GPDW	--	GPDW	--	--	SEE SPECIFICATION
S203	LEASABLE AREA D	CONC	--	--	--	--	GPDW	--	GPDW	--	GPDW	--	--	SEE DRAWINGS FOR CEILING HEIGHTS AND MATERIAL



LOWER FLOOR HVAC PLAN
SCALE: 1/8" = 1'-0"



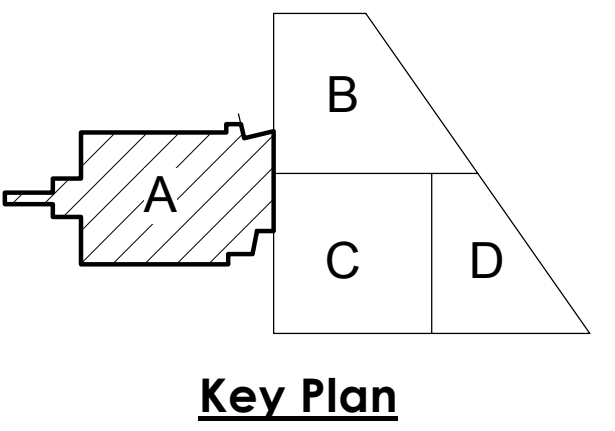
SKYWALK HVAC PLAN
SCALE: 1/8" = 1'-0"



PARTIAL FIRST FLOOR HVAC PLAN - AREA A
SCALE: 1/8" = 1'-0"

SHEET HISTORY:

ISSUED	11/27/2013	AS PER CONSTRUCTION DOCUMENTS
A - 02	12/16/2013	ADDENDUM #2

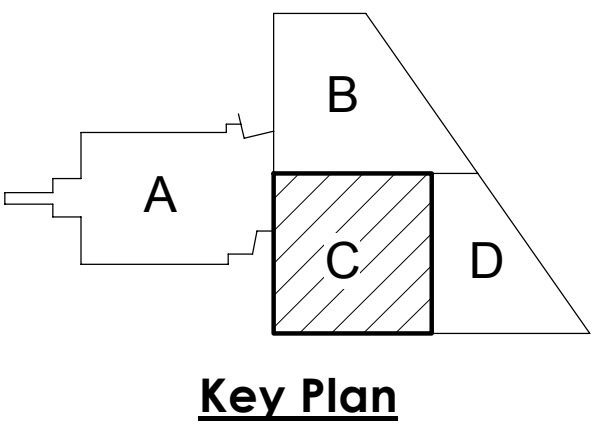


Life Science Collaboration
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Parkway
Lincoln, Nebraska
TCEP No.: 716-002-12
Davis Design No.: 12-0077
BVH No.: L12018.unl
November 27, 2013



First Floor HVAC Plans -
Area A

M1.01

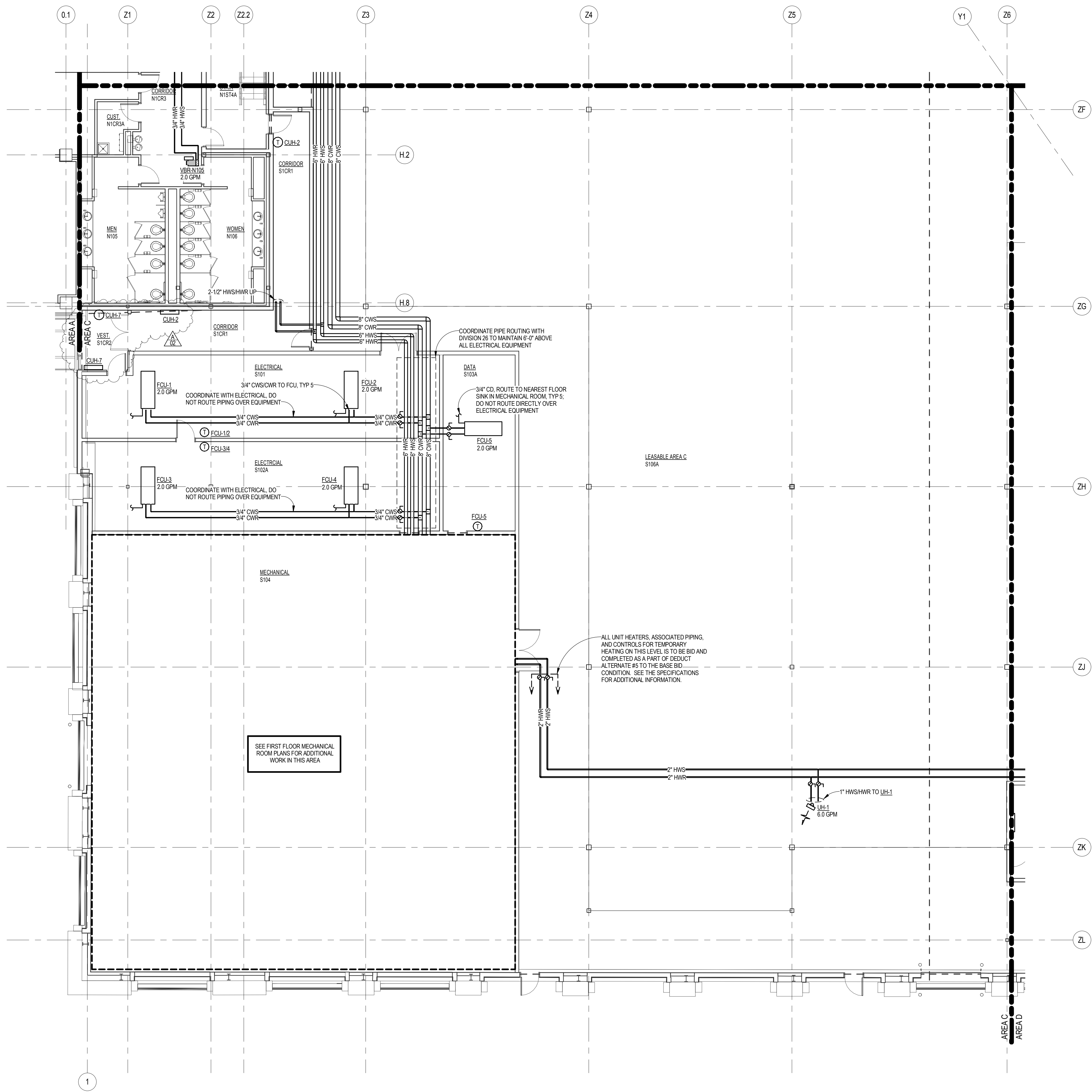


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November 27, 2013



First Floor HVAC Piping
Plan - Area C

M1.11



FIRST FLOOR HVAC PIPING PLAN - AREA C
SCALE: 1/8" = 1'-0"



CONDENSER WATER SYSTEM

SEQUENCE OF OPERATIONS

- | | |
|-------|--|
| 2.1 | CHILLER / CONDENSER WATER SYSTEM |
| 2.2 | CONTROL SHALL BE THROUGH THE EMS AND CHILLER-PLANT CONTROLLER. |
| 2.3 | THE CHILLER MANUFACTURER WILL IN CONTROL, THE SEQUENCING OF THE CHILLER-PLANT BASED UPON ITS OWN CONTROLS AND SAFETIES. CHILLER-PLANT CONTROLLER SHALL BE PROVIDED WITH BACNET INTERFACE FOR INTERFACEMONITORING PURPOSES. COORDINATE NECESSARY FIELD CONTROL WIRING FOR CHILLERS WITH CHILLER MANUFACTURER. |
| 2.4 | COORDINATE COMMUNICATION THROUGH BACNET INTERFACE WITH CHILLER-PLANT CONTROLLER TO PROVIDE PUMP PRESSURE OPTIMIZATION FOR CHILLED WATER AND HOT WATER. PROVIDE POLLING AND PUSH FUNCTIONALITY, CHILLED WATER AND HOT WATER CONTROL VALVES AND ADJUSTIVE PUMP DIFFERENTIAL PRESSURE SETPOINT TO DRIVE THE WORST CASE VALVE TO NEARLY 100% OPEN. |
| 2.5 | CHILLER SYSTEM RUN CONDITIONS: THE BMS SHALL SEND A COOLING AND/OR HEATING CALL TO THE CHILLER PLANT BASED UPON BUILDING NEEDS. |
| 2.6.1 | TO PREVENT SHORT CYCLING, THE CHILLER SYSTEM SHALL RUN FOR AND BE OFF FOR MINIMUM ADJUSTABLE TIMES (BOTH USER DEFINABLE), MINIMUM SHUTDOWN ON SAFETIES OR |

ELECTRIC CABINET UNIT HEATER SCHEDULE										
MARK	SERVES	FAN AIRFLOW (CFM)	MOTOR HP	MOTOR RPM	HEAT CAPACITY (BTU)	HEAT LOAD (AMPS)	ELECTRICAL REQUIREMENTS	MANUFACTURER AND MODEL	CONFIGURATION	REMARKS
CUH-1	STAR N08T1	800	0.12	H = 1000 M = 800 L = 600	13.50	16.3	460 / 60 / 3	TRANS FENCE FLO FFH0800 OR EQUIVALENT	VERTICAL RECESSED, FRONT STAMPED/LOUVER INLET AND OUTLET	1, 2, 3, 4, 6, 7
CUH-30	CORRIDOR SICR1 AND ALCOVE S108	240	0.03	H = 980 M = 940 L = 655	2.25	10.9	208 / 60 / 1	TRANS FENCE FLO FFH8020 OR EQUIVALENT	VERTICAL CABINET TYPE, FRONT STAMPED/LOUVER INLET AND OUTLET	1, 2, 3, 4, 5, 7
CUH-45	STAR S1S12 AND STAR S1S11	320	0.04	H = 980 M = 700 L = 580	4.5	21.7	208 / 60 / 1	TRANS FENCE FLO FFH8020 OR EQUIVALENT	VERTICAL CABINET TYPE, FRONT STAMPED/LOUVER INLET AND OUTLET	1, 2, 3, 4, 5, 7
CUH-6	VESTIBULE K0CR1	240	0.03	H = 980 M = 940 L = 655	2.25	10.9	208 / 60 / 1	TRANS FENCE FLO FFH8020 OR EQUIVALENT	VERTICAL RECESSED, FRONT STAMPED/LOUVER INLET AND OUTLET	1, 2, 3, 4, 5, 7
CUH-7	VESTIBULE S1CR2	240	0.03	H = 980 M = 940 L = 655	2.25	10.9	208 / 60 / 1	TRANS FENCE FLO FFH8020 OR EQUIVALENT	VERTICAL CABINET TYPE, FRONT STAMPED/LOUVER INLET AND OUTLET	1, 2, 3, 4, 5, 7

SPLIT SYSTEM AIR CONDITIONER SCHEDULE									
INDOOR MARK:	TOTAL CAPACITY (BTU/H)	AIRFLOW (CFM)	SEER	ELECTRICAL:			UNIT MARK:	MANUFACTURER AND MODEL OR EQUIVALENT:	
				V:	PH	HZ:			
AC-1A	22,200	618	15.0	208	1	60	AC-1B	FRIEDRICH C24YF	
AC-2A/3A	24,200	650	18.0	208	1	60	AC-2B/3B	FRIEDRICH M24CF	

REMARKS:

- PERFORMANCE CALCULATED WITH 95 DB / 76 WB (OUTDOOR CONDITIONS), 80 DB / 67 WB (INDOOR CONDITIONS)
- PROVIDE REFRIGERANT TUBING KIT. SEE PLANS FOR TOTAL LENGTH OF TUBING
- 3 FAN SPEEDS
- PROVIDE 1" ROOF CURB AND VIBRATION ISOLATION SUPPORTS ON OUTDOOR UNIT
- PROVIDE REQUIRED CONNECTIONS BETWEEN INDOOR AND OUTDOOR UNIT
- PROVIDE CONDENSATE PUMP WITH EACH UNIT
- PROVIDE WITH LOW AMBIENT COOLING CAPABILITY

MODULAR CONDENSING BOILER SCHEDULE																
MARK	MANUFACTURER	BOILER TYPE	HEATING	BOILER OUTPUT (MMB)	FRING RATE	OPERATING PRESSURE	MAXIMUM PRESSURE	LWT (DEG F)	DESIGN WATER PRESSURE DRPG	FLUE DIAMETER	COMBUSTION AIR INTAKE	ELECTRICAL VOLTS	HERTZ	PHASE	PLA	REMARKS
	MODEL NUMBER		NATURAL GAS		HOT WATER		PSIG		PSIG		PSIG					
HWB-1	FULTON VTG-4000	NATURAL GAS	HOT WATER	3700	4000	60 PSIG	160 PSIG	130	1.7 PSIG	12"	12"	480	60	3	9.3	1,2,3,4,5,6,7,8,9
HWB-2	FULTON VTG-4000	NATURAL GAS	HOT WATER	3700	4000	60 PSIG	160 PSIG	130	1.7 PSIG	14"	12"	480	60	3	9.3	1,2,3,4,5,6,7,8,9

REMARKS:

1. BOILERS PROVIDED MUST MEET ALL RELEVANT ASME, CS&I-1 AND UL REQUIREMENTS AS WELL AS ALL APPLICABLE STATE AND LOCAL CODES.
2. PROVIDE NATURAL GAS TRAIN WITH ANY ADDITIONAL GAS PRESSURE REDUCING VALVES AS REQUIRED TO OPERATE AT 14" WC.
3. PROVIDE LOW WATER CUTOFF WITH MANUAL RESET, HIGH LIMIT AND OPERATING AQUASTATS, AIR PRESSURE RELIEF VALVE, HOSE BIBB AND DRAIN VALVE.
4. PROVIDE WITH FACTORY COMBUSTION AIR CONNECTION TO BURNER.
5. PROVIDE BOILER CONTROL PANEL WITH BOILER SYSTEM ENABLE/DISABLE RELAY FROM THE BMS SYSTEM.
6. PROVIDE TERMINAL STRIP AT BURNER CONTROL PACKAGE FOR BMS INTERFACE FOR STATUS ALARM RELAY FOR EACH BOILER.
7. PROVIDE CONDENSATE DRAIN KIT.
8. PROVIDE INTAKE AND EXHAUST MUFFLER. INSTALL PER MANUFACTURERS RECOMMENDATIONS.
9. PROVIDE MODULOG SEQUENCING SYSTEM.

BLADE STYLE:	FRAME CONSTRUCTION:	BLADE CONSTRUCTION	LEAKAGE @ 1" WG PD:	BLADE SEALS:	EDGE:	BEARINGS:	ACTUATOR:	MANUF. OR EQUIVALENT:	MODEL:	REMARKS:
PARALLEL	5" x 16-GA GALVANIZED HAT-SHAPED CHANNEL	6" WIDE, 14-GA GALVANIZED STEEL AIRFOIL SHAPE	4 CFM / S.F.	SILICONE	SS	SS or BRONZE OILITE	1	RUSKIN	F8D-80	1,2,3,4,5,6,7

MARK:	TYPE:	MAX. P.D. (IN. WG.):	MAX. N.C.:	MAXIMUM CFM:	MANUFACTURER AND MODEL NUMBER:	REMARKS:
D-1	SQUARE PLAQUE CEILING DIFFUSER ARCH. TYPE	0.15	25	SEE PLANS FOR CFM AND NECK SIZE	TITUS OMNI-AA OR EQUIVALENT	24" X 24" FACE SIZE, ALL ALUMINUM CONSTRUCTION, WHITE FINISH PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION
D-2	SLOT DIFFUSER	0.1	30	SEE PLANS FOR CFM	TITUS MODEL ML-39 (2) 1" SLOTS SEE PLANS FOR INLET SIZE	4'-0" ONE PIECE LENGTH, WITH END TO END ALIGNMENT FINS, PROVIDE WITH PATTERN CONTROLLERS, WHITE FINISH ON FACE WITH BLACK PATTERN CONTROLLERS, PROVIDE END BORDERS FOR END DIFFUSERS. PROVIDE WITH INSULATED PLENUM
D-3	SQUARE PLAQUE CEILING DIFFUSER ARCH. TYPE	0.15	25	SEE PLANS FOR CFM AND NECK SIZE	TITUS OMNI-AA OR EQUIVALENT	24" X 24" FACE SIZE, ALL ALUMINUM CONSTRUCTION, WHITE FINISH PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION PROVIDE DAMPER ACCESSIBLE FROM FACE OF DIFFUSER
G-1	SQUARE PLAQUE CEILING GRILLE ARCH. TYPE	-0.15	25	SEE PLANS FOR CFM AND NECK SIZE	TITUS OMNI-AA OR EQUIVALENT	24"x24" FACE, ALUMINUM CONSTRUCTION, 1/2"x1/2"x1/2" CORE, WHITE FINISH PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION PROVIDE HARD 1/4" DUCTED ROUND BOOT
G-2	GRILLE	-0.1	25	SEE PLANS FOR SIZE	TITUS 350RL OR EQUIVALENT	3/4" BLADE SPACING, SINGLE DEFLECTION, FRONT BLADES PARALLEL TO LONG DIMENSION, AIR/OIL BLADES, ALUMINUM FINISH
G-3	SQUARE PLAQUE CEILING GRILLE ARCH. TYPE	-0.15	25	SEE PLANS FOR CFM AND NECK SIZE	TITUS OMNI-AA OR EQUIVALENT	24" X 24" FACE SIZE, ALL ALUMINUM CONSTRUCTION, WHITE FINISH PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION PROVIDE DAMPER ACCESSIBLE FROM FACE OF DIFFUSER
G-4	SQUARE PLAQUE CEILING GRILLE ARCH. TYPE	-0.15	25	SEE PLANS FOR CFM AND NECK SIZE	TITUS OMNI-AA OR EQUIVALENT	24" X 24" FACE SIZE, ALL ALUMINUM CONSTRUCTION, WHITE FINISH PROVIDE APPROPRIATE BORDER FOR CONSTRUCTION
G-5	SLOT RETURN PANEL	-0.1	25	SEE PLANS FOR SIZE	TITUS MODEL MLA-38 4 SLOTS	BLACK PATTERN CONTROLLERS AND EXPOSED SURFACES, WHITE PATTERN CONTROLLER
R-1	REGISTER	0.15	25	SEE PLANS FOR CFM AND SIZE	TITUS 272RL OR EQUIVALENT	3/4" BLADE SPACING, DOUBLE DEFLECTION, FRONT BLADES PARALLEL TO LONG DIMENSION, AIR/OIL BLADES, ALUMINUM FINISH, DAMPER AT FACE

REFRIGERANT MONITORING EQUIPMENT SCHEDULE

EQUIPMENT MARK:	EQUIPMENT FUNCTION:	OPERATING CONDITIONS:	PERFORMANCE REQUIREMENTS:	MANUFACTURER AND MODEL:	REMARKS:
RMP-1	REFRIGERANT MONITORING PANEL	120V / 1 PH / 60 HZ	DETECT R-134a REFRIGERANT	MSA MULTIPONT CHILLGARD RT OR APPROVED EQUIVALENT	CALIBRATED FOR R-134a REFRIGERANT -MULTIGAS CAPABILITY WITH MULTIPONT SEQUENCER -FOUR SAMPLE POINT -PROVIDE ALARM REASON AND NORM -PROVIDE END-OF-LINE FILTER ASSEMBLY FOR EACH SAMPLE POINT -PROVIDE CALIBRATION KIT -INSTALL PER MANUFACTURER RECOMMENDATIONS. -CONTRACTOR RESPONSIBLE FOR ALL REQUIRED POWER AND CONTROL WIRING BETWEEN RMP-1 AND RA-1
RA-1	REFRIGERANT ALARM LIGHT TOWERBUZZER	120V / 1 PH / 60 HZ	N/A	MSA MODEL 10057B45 OR APPROVED EQUIVALENT	-120V RED/YELLOW/BLUE LIGHT TOWER WITH BUZZER -COORDINATE REQUIRED OUTPUTS AND RELAYS WITH REFRIGERANT MONITORING PANEL MANUFACTURER -WIRE AND TAG LIGHTS AS FOLLOWS: RED = "ALARM", YELLOW = "WARNING", BLUE = "CAUTION" -CONTRACTOR RESPONSIBLE FOR ALL REQUIRED POWER AND CONTROL WIRING BETWEEN RMP-1 AND RA-1

VARIABLE FREQUENCY DRIVE SCHEDULE

MARK:	SERVES:	ELECTRICAL REQUIREMENTS:	CAPACITY:	MANUFACTURER (OR APPROVED EQUIVALENT):	REMARKS:
VFD SF-1	AHU-1 SUPPLY FAN	480 V / 3 PH / 60 HZ	40 HP MOTOR	ABB ACH550	1, 2
VFD EF-1	AHU-1 EXHAUST FAN	480 V / 3 PH / 60 HZ	25 HP MOTOR	ABB ACH550	1, 2
VFD SF-2	AHU-2 SUPPLY FAN	480 V / 3 PH / 60 HZ	40 HP MOTOR	ABB ACH550	1, 2
VFD EF-2	AHU-2 EXHAUST FAN	480 V / 3 PH / 60 HZ	25 HP MOTOR	ABB ACH550	1, 2
VFD SF-3	AHU-3 SUPPLY FAN	480 V / 3 PH / 60 HZ	40 HP MOTOR	ABB ACH550	1, 2
VFD EF-3	AHU-3 EXHAUST FAN	480 V / 3 PH / 60 HZ	25 HP MOTOR	ABB ACH550	1, 2
VFD SF-4	AHU-4 SUPPLY FAN	480 V / 3 PH / 60 HZ	40 HP MOTOR	ABB ACH550	1, 2
VFD EF-4	AHU-4 EXHAUST FAN	480 V / 3 PH / 60 HZ	25 HP MOTOR	ABB ACH550	1, 2
VFD SF-5	AHU-5 SUPPLY FAN	480 V / 3 PH / 60 HZ	50 HP MOTOR	ABB ACH550	1, 2
VFD RF-5	AHU-5 RETURN FAN	480 V / 3 PH / 60 HZ	30 HP MOTOR	ABB ACH550	1, 2
VFD SF-6	AHU-6 SUPPLY FAN	480 V / 3 PH / 60 HZ	50 HP MOTOR	ABB ACH550	1, 2
VFD RF-6	AHU-6 RETURN FAN	480 V / 3 PH / 60 HZ	30 HP MOTOR	ABB ACH550	1, 2
VFD SF-7	AHU-7 SUPPLY FAN	480 V / 3 PH / 60 HZ	20 HP MOTOR	ABB ACH550	1, 2
VFD RF-7	AHU-7 RETURN FAN	480 V / 3 PH / 60 HZ	10 HP MOTOR	ABB ACH550	1, 2
VFD EF-5	LABORATORY EXHAUST FAN EF-5	480 V / 3 PH / 60 HZ	15 HP MOTOR	ABB ACH550	1, 2
VFD EF-6	LABORATORY EXHAUST FAN EF-6	480 V / 3 PH / 60 HZ	15 HP MOTOR	ABB ACH550	1, 2
VFD EF-7	LABORATORY EXHAUST FAN EF-7	480 V / 3 PH / 60 HZ	15 HP MOTOR	ABB ACH550	1, 2
REMARKS: 1. LISTED CAPACITY IS THE NOMINAL MOTOR SIZE FOR EACH EQUIPMENT ITEM. VFD CAPACITY SHALL BE APPROPRIATELY MATCHED TO THE ACTUAL MOTOR, INCLUDING CAPACITY BASED ON ACTUAL MOTOR SERVICE FACTOR. 2. PROVIDE SHAFT GROUNDING RINGSYSTEM ON MOTORS WITH VFD'S. SEE SPECIFICATION SECTION 23 05 13 FOR MORE INFORMATION.					

CHILLER/HEATER SCHEDULE

EQUIPMENT MARK:	CH-1, 2, 3 (ALL SIMILAR, CH-4 FUTURE)
CAPACITY/PERFORMANCE: Cooling Capacity at Design Conditions (TONS): Refrigerant: Heating Mode Unit Efficiency (PLV): Heating Mode Cooling Efficiency (W/ton): Heating Mode Heating Efficiency (COP): Cooling Mode Unit Efficiency (NPLV): Cooling Mode Cooling Efficiency (W/ton): Cooling Mode Heating Efficiency (COP): Sound Pressure (dBA)	250 R-134a 0.820 kW/ton 1.302 3.700 0.834 W/ton 0.759 5.820 81
EVAPORATOR: Medium: Cooling Mode Entering Water Temperature (Deg. F): Cooling Mode Leaving Water Temperature (Deg. F): Cooling Mode Water Flowrate (GPM, MAX/MIN): Heating Mode Entering Water Temperature (Deg. F): Heating Mode Leaving Water Temperature (Deg. F): Heating Mode Water Flowrate (GPM, MAX/MIN): Max Design Pressure Drop (Cooling/Heating) (Ft.w.g.): Design Fouling Factor: Passes: Tube Thickness: Working Pressure (PSIG):	CHILLED WATER/CONDENSER WATER 56.0 42.0 328.4 / 240.0 51.0 41.0 411.8 / 240.0 9.8 / 10.9 0.00010 2 0.020" 150
CONDENSER: Medium: Cooling Mode Entering Water Temperature (Deg. F): Cooling Mode Leaving Water Temperature (Deg. F): Cooling Mode Water Flowrate (GPM, MAX/MIN): Heating Mode Entering Water Temperature (Deg. F): Heating Mode Leaving Water Temperature (Deg. F): Heating Mode Water Flowrate (GPM, MAX/MIN): Design Pressure Drop (Cooling/Heating) (Ft.w.g.): Design Fouling Factor: Passes: Tube Thickness: Working Pressure (PSIG):	CONDENSER WATER/HEATING WATER 81.0 91.0 648.7 / 328.0 112.8 130.0 328.0 / 326.0 12.3 / 3.3 0.00025 2 0.028" 150
ELECTRICAL: Voltage / Phase / Hertz: Single Point Power MCA (Amps): Single Point Power MOCF (Amps): Compressor Starter Type:	480 / 3 / 60 329 450 WYE-DELTA, INTEGRAL TO UNIT
MANUFACTURER AND MODEL: Manufacturer and Model (Or Equivalent):	TRANE RTWD-250 HE
REMARKS: 1. EFFICIENCIES LISTED ARE AT OPERATING CONDITIONS. 2. FIVE-YEAR COMPRESSOR WARRANTY. 3. FACTORY PROVIDED NEOPRENE VIBRATION ISOLATORS. 4. PROVIDE BACKNET MS/TP COMMUNICATIONS LINK BETWEEN CHILLER AND BMS. 5. PROVIDE FACTORY MOUNTED DISCONNECT SWITCH. 6. PROVIDE ASHRAE 90.1-2010-COMPLIANT EQUIPMENT. 7. PROVIDE HINGED, MARINE WATER BOXES FOR BOTH EVAPORATOR AND CONDENSER. 8. REFER TO SPECIFICATIONS FOR OTHER REQUIREMENTS.	

HEAT EXCHANGER SCHEDULE

EQUIPMENT MARK:	HX-1/2
SERVES:	CAMPUS CONDENSER WATER SYSTEM
MANUFACTURER AND MODEL (OR EQUIVALENT):	ALFA LAVAL AQ10-MFG
TYPE:	PLATE AND FRAME HEAT EXCHANGER
SYSTEM SIDE:	
MEDIA:	CONDENSER WATER
FLOWRATE (GPM):	2,400.0
COOLING ENT. TEMPERATURE (DEG. F):	51.0
COOLING LVG. TEMPERATURE (DEG. F):	51.0
HEATING ENT. TEMPERATURE (DEG. F):	41.0
HEATING LVG. TEMPERATURE (DEG. F):	51.0
PRESSURE DROP (FT. W.G.):	5.0
CONNECTION SIZE:	8"
LOAD SIDE:	
MEDIA:	ORES SYSTEM EFFLUENT
FLOWRATE (GPM):	2,400.0
COOLING ENT. TEMPERATURE (DEG. F):	78.0
COOLING LVG. TEMPERATURE (DEG. F):	88.0
HEATING ENT. TEMPERATURE (DEG. F):	54.0
HEATING LVG. TEMPERATURE (DEG. F):	44.0
PRESSURE DROP (FT. W.G.):	5.0
CONNECTION SIZE:	8"
DESIGN PRESSURE:	150 PSIG
UNIT DIMENSIONS:	156" LONG x 38" WIDE x 122" HIGH
PLATE MATERIAL:	STAINLESS STEEL 316L
MINIMUM ALLOWABLE SURFACE AREA (SQ.FT.)	6,293

HYDRONIC SPECIALTIES SCHEDULE

MARK:	FUNCTION:	SERVES:	OPERATING CONDITIONS:	CAPACITY:	MANUFACTURER OR EQUIVALENT:	MODEL:	REMARKS:
AS-1	AIR/DIRT SEPARATOR WITH INTEGRAL AIR VENT	CHILLER/CONDENSER WATER SYSTEM	40 - 100 DEG. F	2400 GPM 10" FLANGED CONNECTION	SPIRO THERM	VHT1000	1
AS-2	AIR/DIRT SEPARATOR WITH INTEGRAL AIR VENT	CHILLED WATER SYSTEM	45-85 DEG. F	1750 GPM 10" FLANGED CONNECTION	SPIRO THERM	VHT1000	1
AS-3	AIR/DIRT SEPARATOR WITH INTEGRAL AIR VENT	HEATING WATER SYSTEM	80-130 DEG. F	650 GPM 6" FLANGED CONNECTION	SPIRO THERM	VHT600	1
BS-1	BASKET STRAINER	CONDENSER WATER SYSTEM	50 - 100 DEG. F	2400 GPM @ 0.15 FT WPD 8" FLANGED CONNECTION	KECKLEY	GFV	2
CF-1, 2, 3	CHEMICAL POT FEEDER	CHILLED WATER AND HEATING WATER SYSTEM	40 - 80 DEG. F 140-200 DEG. F	5 GALLONS	NEPTUNE	DBF-SHP	3
CV-1	TWO WAY CONTROL VALVE	AHU-1 COOLING COIL CC-1	40 - 80 DEG. F TWO WAY MODULATING,	140 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-2	TWO WAY CONTROL VALVE	AHU-2 COOLING COIL CC-2	40 - 80 DEG. F TWO WAY MODULATING,	140 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-3	TWO WAY CONTROL VALVE	AHU-3 COOLING COIL CC-3	40 - 80 DEG. F TWO WAY MODULATING,	140 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-4	TWO WAY CONTROL VALVE	AHU-4 COOLING COIL CC-4	40 - 80 DEG. F TWO WAY MODULATING,	140 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-5	TWO WAY CONTROL VALVE	AHU-5 COOLING COIL CC-5	40 - 80 DEG. F TWO WAY MODULATING,	208 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-6	TWO WAY CONTROL VALVE	AHU-6 COOLING COIL CC-6	40 - 80 DEG. F TWO WAY MODULATING,	208 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-7	TWO WAY CONTROL VALVE	AHU-7 COOLING COIL CC-7	40 - 80 DEG. F TWO WAY MODULATING,	52 GPM, 2-1/2" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-8	TWO WAY CONTROL VALVE	AHU-1 HEATING COIL HC-1	80-130 DEG. F TWO WAY MODULATING,	144 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-9	TWO WAY CONTROL VALVE	AHU-2 HEATING COIL HC-2	80-130 DEG. F TWO WAY MODULATING,	144 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-10	TWO WAY CONTROL VALVE	AHU-3 HEATING COIL HC-3	80-130 DEG. F TWO WAY MODULATING,	144 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-11	TWO WAY CONTROL VALVE	AHU-4 HEATING COIL HC-4	80-130 DEG. F TWO WAY MODULATING,	144 GPM, 4" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-12	TWO WAY CONTROL VALVE	AHU-5 HEATING COIL HC-5	80-130 DEG. F TWO WAY MODULATING,	102 GPM, 3" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-13	TWO WAY CONTROL VALVE	AHU-6 HEATING COIL HC-6	80-130 DEG. F TWO WAY MODULATING,	102 GPM, 3" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CV-14	TWO WAY CONTROL VALVE	AHU-7 HEATING COIL HC-7	80-130 DEG. F TWO WAY MODULATING,	20 GPM, 1-1/2" PIPE SIZE, 5 - 70 PSID RANGE	DANFOSS	ABQM	1
CWM-1	CHILLED WATER FLOW AND BTU METER	CHILLED WATER SYSTEM	40 - 100 DEG. F	10" PIPE SIZE 1750 GPM PEAK FLOW	ONICON	F-3500 INSERTION FLOWMETER WITH SYSTEM 10 BTU METER	7
ET-1	VERTICAL EXPANSION TANK	CHILLER/CONDENSER WATER SYSTEM	40 - 100 DEG. F	37 GALLON TANK CAPACITY, 37 GALLON ACCEPTANCE VOLUME, FACTORY CHARGED TO 13 PSIG	TACO	CA-140	4
ET-2	VERTICAL EXPANSION TANK	CHILLED WATER SYSTEM	45-85 DEG. F	23 GALLON TANK CAPACITY, 23 GALLON ACCEPTANCE VOLUME, FACTORY CHARGED TO 13 PSIG	TACO	CA90	4
ET-3	VERTICAL EXPANSION TANK	HEATING WATER SYSTEM	80-130 DEG. F	284 GALLON TANK CAPACITY, 284 GALLON ACCEPTANCE VOLUME, FACTORY CHARGED TO 13 PSIG	TACO	CA-1000	4
HWM-1	HEATING WATER FLOW AND BTU METER	HEATING WATER SYSTEM	80-130 DEG. F	8" PIPE SIZE 650 GPM PEAK FLOW	ONICON	F-3500 INSERTION FLOWMETER WITH SYSTEM 10 BTU METER	7
PK-1	COIL PIPE KIT PACKAGE	UNIT HEATERS VAV BOXES REHEAT COILS FAN COIL UNITS	80-130 DEG. F AND 40 - 80 DEG. F	SEE DRAWINGS FOR MAX FLOW	NEXUS WITH DANFOSS	CPR-ANZY WITH ABQM	5
SRV-1	SAFETY RELIEF VALVE	CHILLER/CONDENSER WATER SYSTEM	40 - 100 DEG. F	100 PSIG SET PRESSURE, 2" INLET AND 2" OUTLET	KUNKLE	S37	6
SRV-2	SAFETY RELIEF VALVE	CHILLED WATER SYSTEM	45-85 DEG. F	100 PSIG SET PRESSURE, 2" INLET AND 2" OUTLET	KUNKLE	S37	6
SRV-3	SAFETY RELIEF VALVE	HEATING WATER SYSTEM	80-130 DEG. F	100 PSIG SET PRESSURE, 1-1/2" INLET AND 1-1/2" OUTLET	KUNKLE	S37	6

- REMARKS:
- SUPPLY SIDE: PROVIDE ISOLATION VALVE, INTEGRAL STRAINER, DRAIN VALVE WITH HOSE END AND CAP, UNIONS, PRESSURE/TEMPERATURE TAP. PRESSURE INDEPENDENT MODULATING CONTROL VALVE WITH MINIMUM RANGEABILITY OF 10:1, CAST IRON BODY, NON-PLASTIC INTERNAL PARTS, FACTORY MOUNTED ELECTRIC ACTUATOR. SHALL BE COMPATIBLE WITH THE INSTALLED CONTROL SYSTEM. CONTROLS CONTRACTOR TO PROVIDE CONTROL VALVE AND ACTUATOR.
 - RETURN SIDE: PROVIDE ISOLATION BALL VALVE, MANUAL AIR VENT, THREE PRESSURE/TEMPERATURE TAPS, UNIVERSAL MOUNTING PLATE, SHAFT, AND MOUNTING HARDWARE.
 - CAST IRON BODY WITH 125-LB FLANGES, TYPE 304 SS STRAINER WITH 1/8" PERFORATIONS, COMPOSITION GASKET, REMOVABLE BOLTED CAST IRON COVER, SIDE DRAIN BLOW-OFF HOLE.
 - 11-GAUGE STEEL CONSTRUCTION, RATED TO 300 PSIG AND 200 DEG. F, 3-1/2" DIAMETER WIDE MOUTH OPENING, CONTINUOUS THREADED CLOSURE, CAST IRON CAP WITH EPOXY-COATED UNDERSIDE, SQUARE RING GASKET SEAL, LEG SUPPORT STAND KIT, WITH FILTER BAG KIT.
 - 150 PSIG DESIGN CONSTRUCTION, HEAVY DUTY BUTYL DIAPHRAGM, CARBON STEEL SHELL, CONSTRUCTED TO ASME SECTION VIII, DIVISION 1.
 - SUPPLY SIDE-BRASS BALL VALVE, STAINLESS STEEL MESH FORGED BRASS BODY STRAINER, PAT PLUG AND UNION CONNECTION.
 - RETURN SIDE-UNION COUPLING WITH MANUAL AIR VENT, PRESSURE INDEPENDENT MODULATING CONTROL VALVE, 2-PAT PLUG, BRASS BALL VALVE.
 - FACTORY MOUNTED FULLY MODULATING ELECTRIC ACTUATOR SHALL BE COMPATIBLE WITH THE INSTALLED CONTROL SYSTEM. CONTROLS CONTRACTOR TO PROVIDE CONTROL VALVE AND ACTUATOR.
 - BRONZE BODY CONSTRUCTION, ASME SECTION IV CERTIFIED, RAISED SEAT AND NON-METALLIC DISC ALIGNMENT, NON-METALLIC DISC-TO-METAL SEATING.
 - ELECTRONIC insertion flow meter, 316 stainless steel construction, polysiloxane sensor head, 1% or less repeatability, coordinate control system requirements with control contractor.

Life Science Collaboration

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 Davis Design.: 12-0077
 BVH No.: L12018.unl

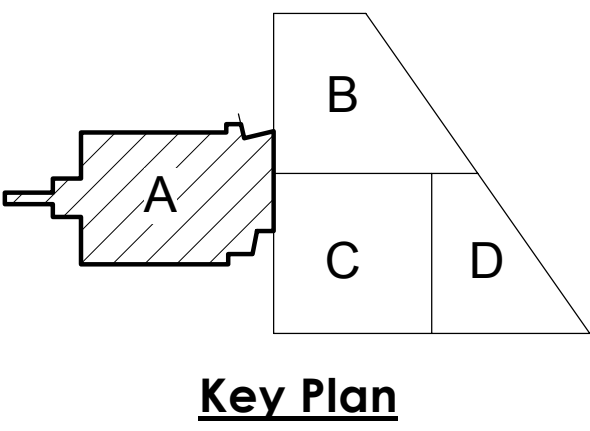
November 27, 2013



Mechanical Schedules

M4.04

SHEET HISTORY:		
ISSUED	11/27/2013	AS PER CONSTRUCTION DOCUMENTS
A - 02	12/16/2013	ADDENDUM #2

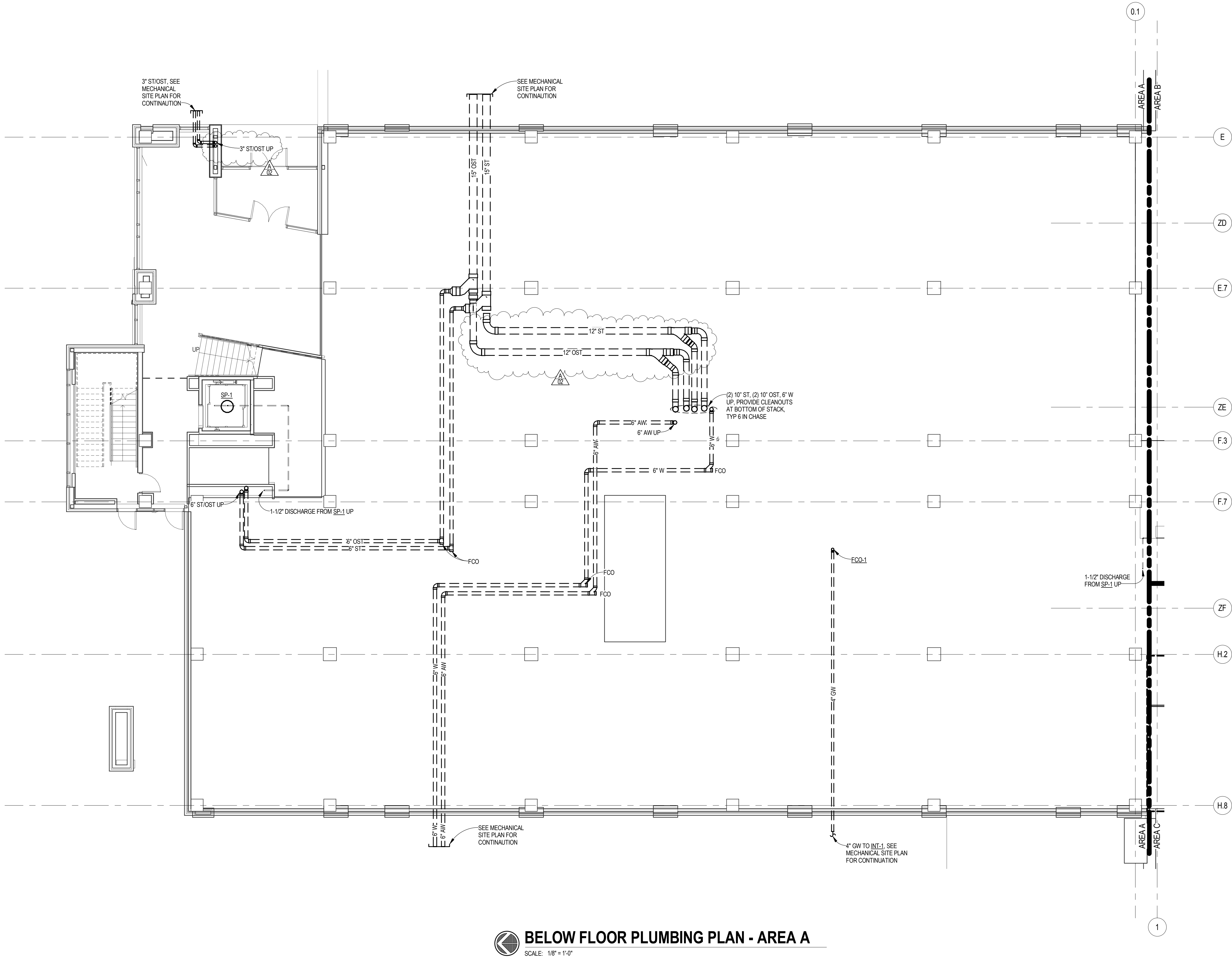


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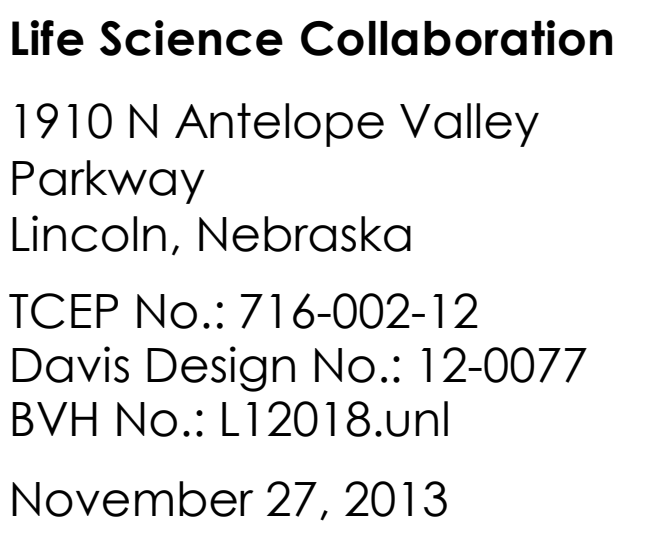


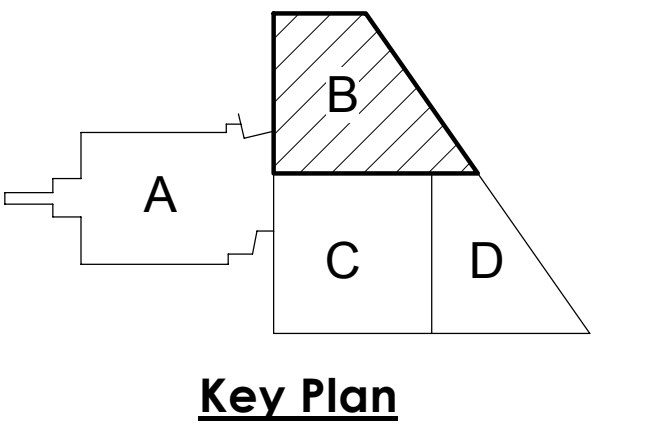
Below Floor Plumbing Plan
- Area A

P1.01

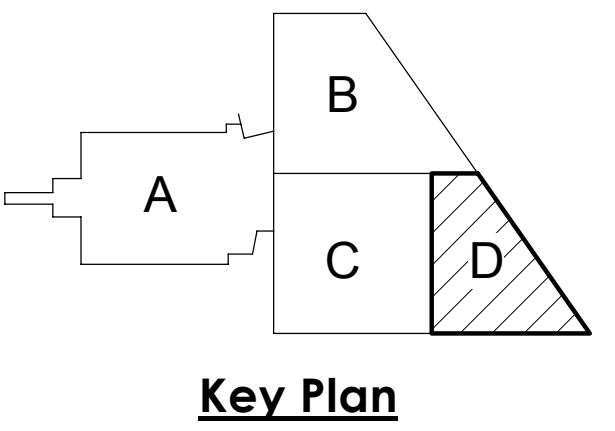


BELOW FLOOR PLUMBING PLAN - AREA A
SCALE: 1/8" = 1'-0"





SHEET HISTORY:		
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A - 02	12/16/2013	ADDENDUM #2

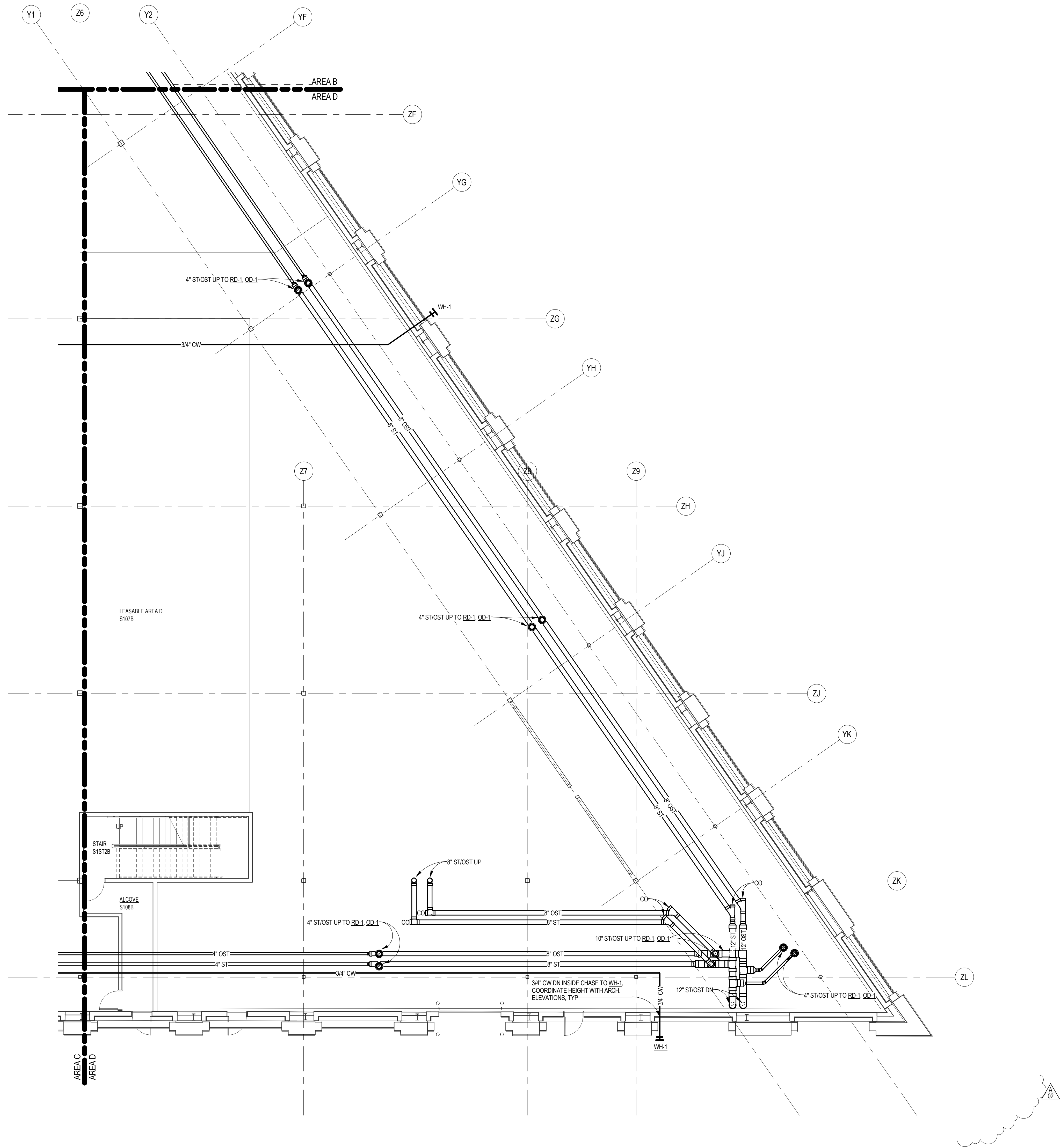


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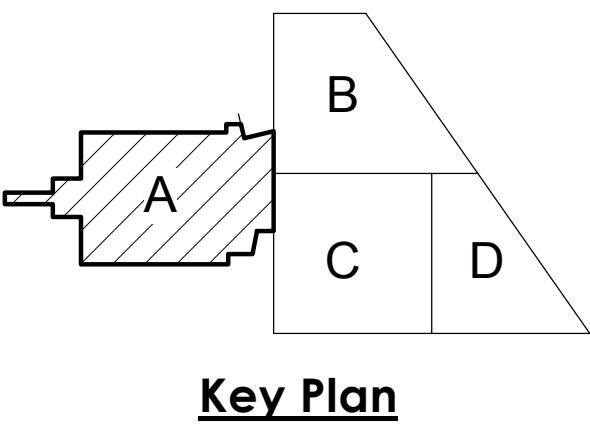


First Floor Plumbing Plan -
Area D

P1.08



FIRST FLOOR PLUMBING PLAN - AREA D
SCALE: 1/8" = 1'-0"

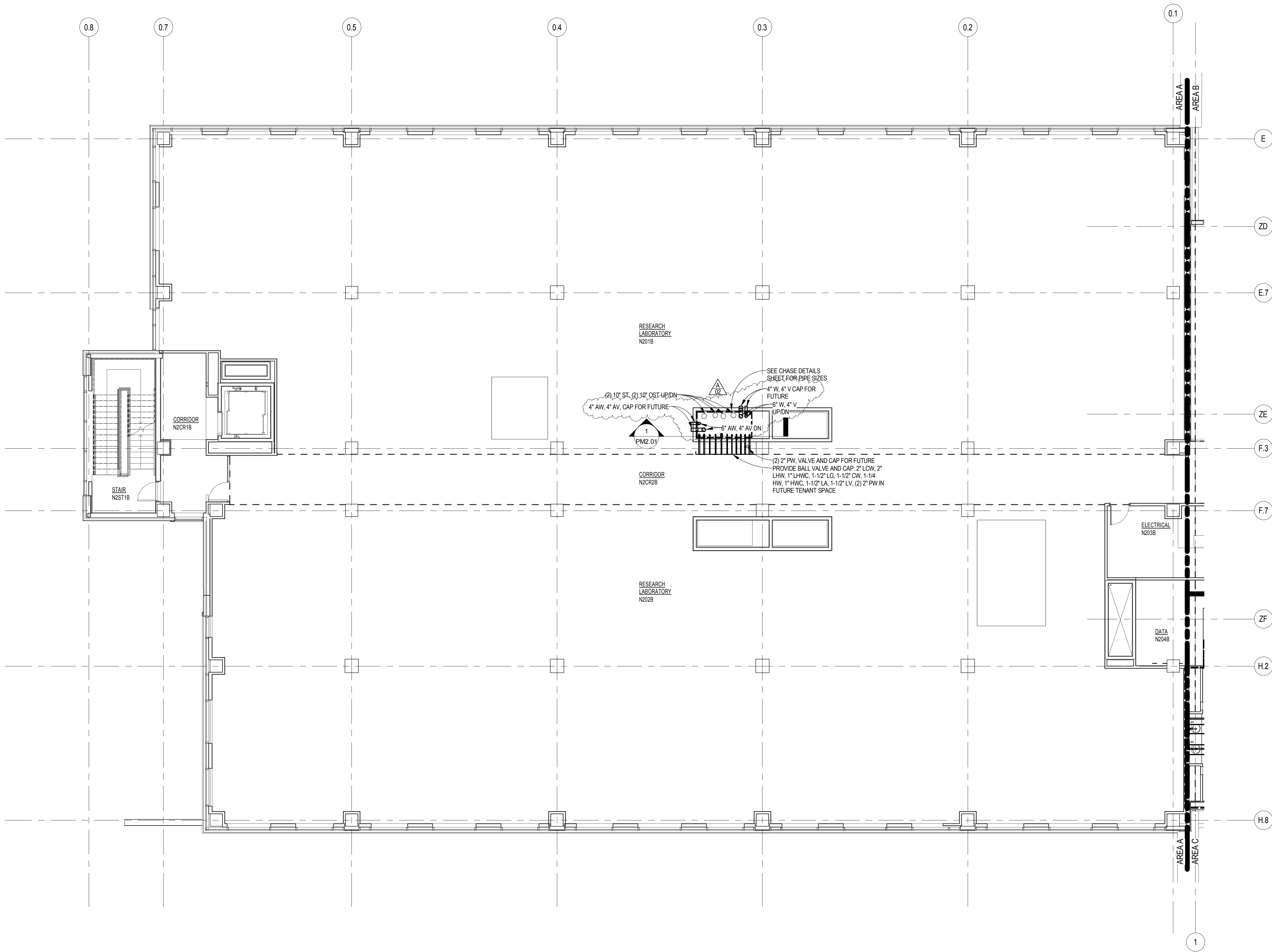


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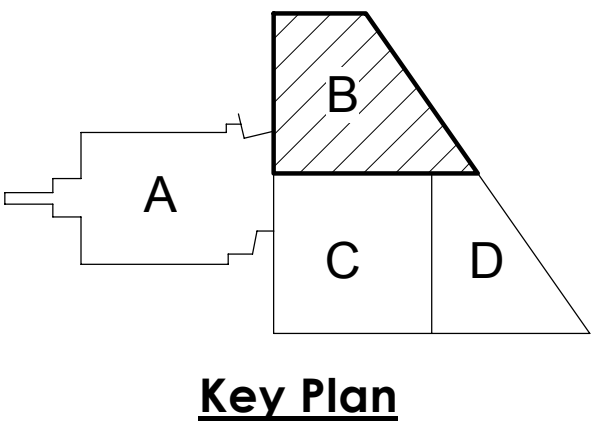
Second Floor Plumbing
Plan - Area A

P1.09



SECOND LEVEL PLUMBING PLAN - AREA A
SCALE: 1/8" = 1'-0"

SHEET HISTORY:		
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A - 02	12/16/2013	ADDENDUM #2

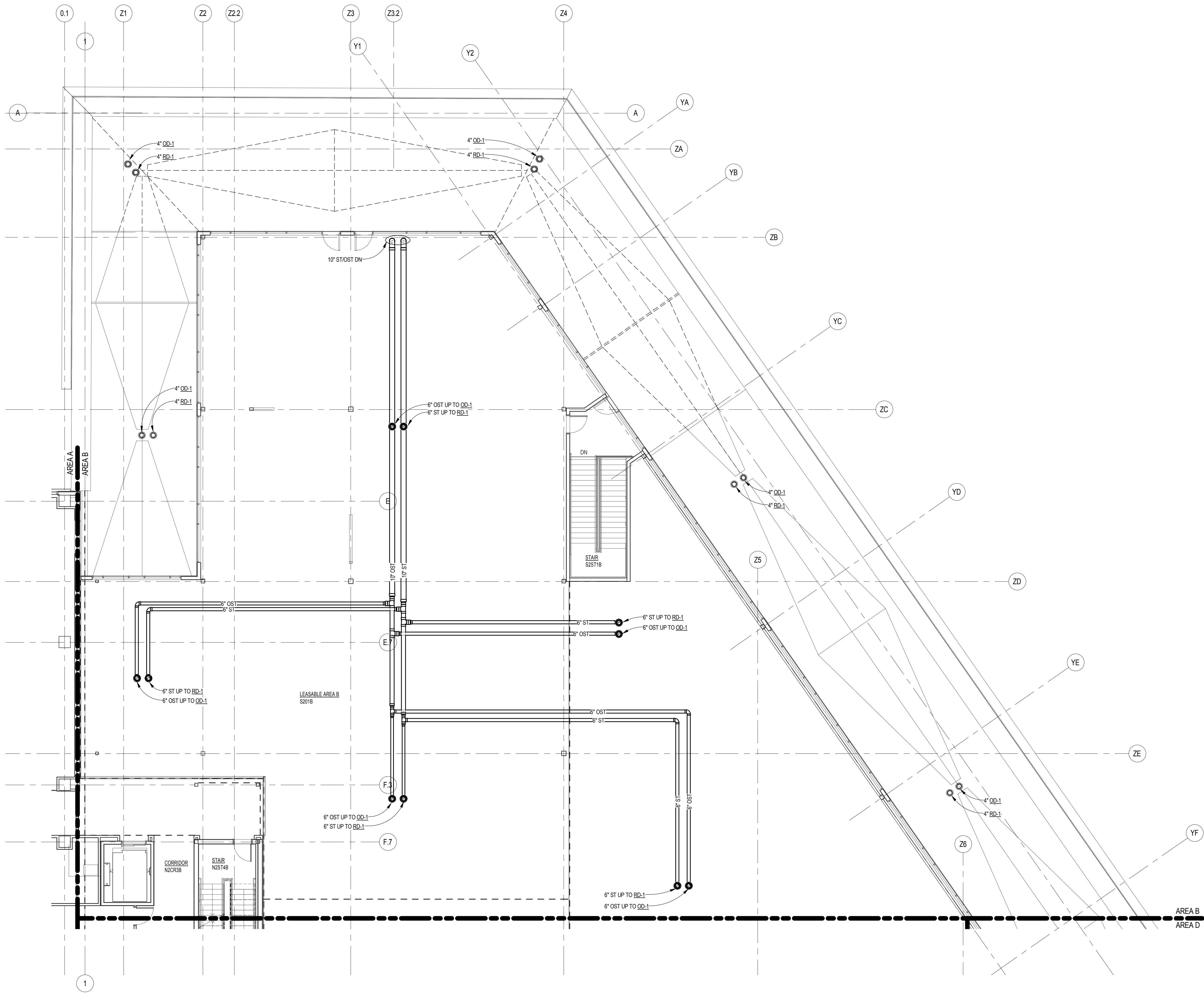


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Second Floor Plumbing
Plan - Area B

P1.10

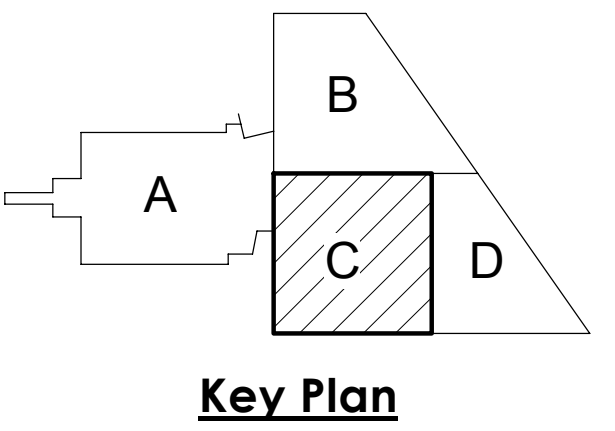


SECOND FLOOR PLUMBING PLAN - AREA B
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. ROUTE STORM AND OVERFLOW
STORM PIPING TIGHT TO STRUCTURE.

SHEET HISTORY:
ISSUED 11/27/2013 AS PER CONSTRUCTION DOCUMENTS
A - 02 12/16/2013 ADDENDUM #2

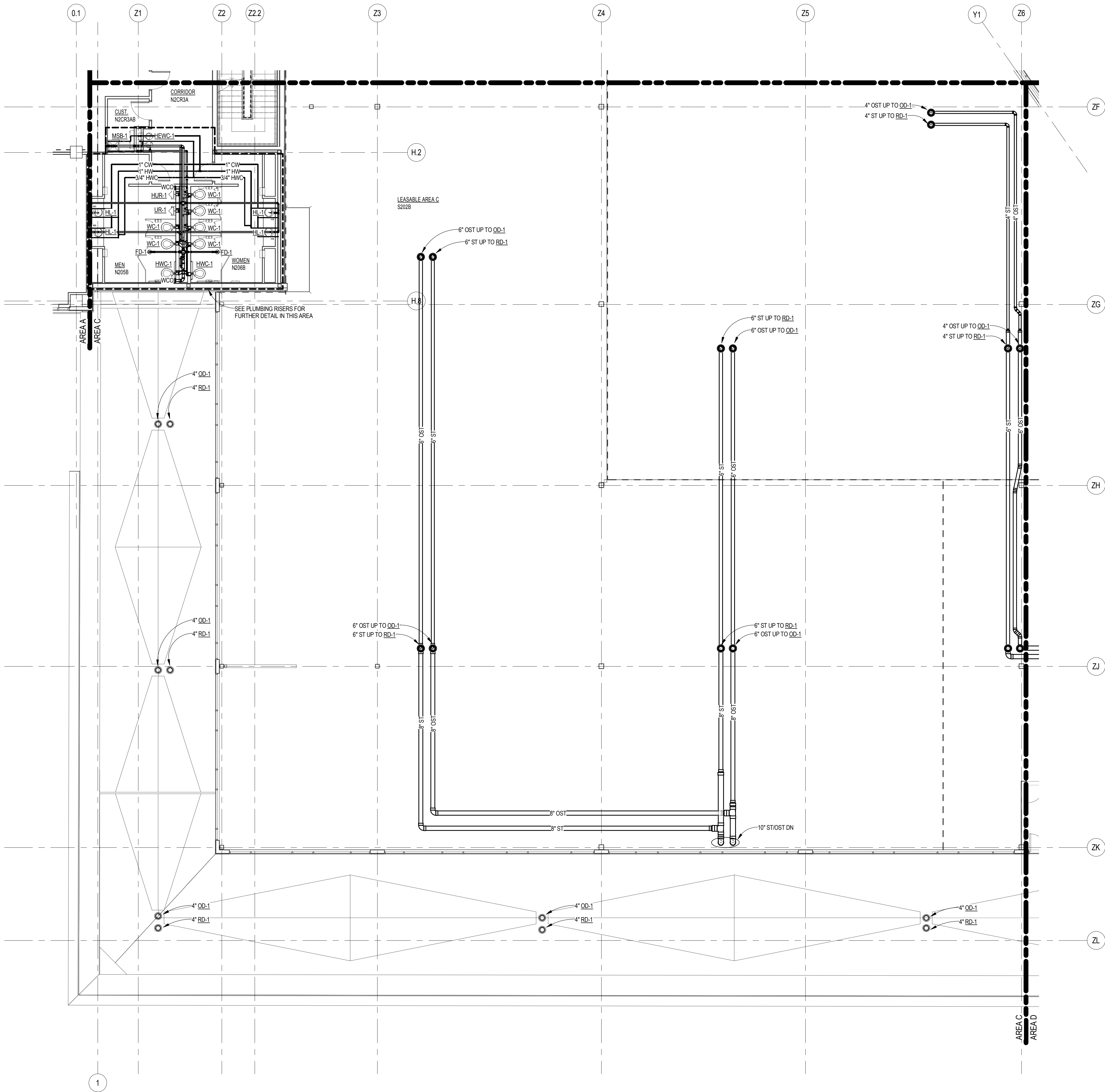


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Second Floor Plumbing
Plan - Area C

P1.11

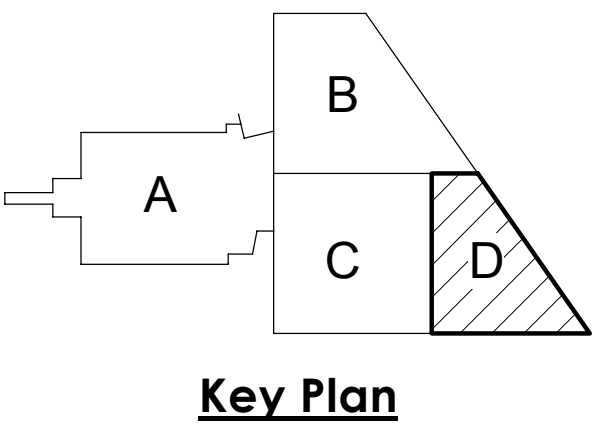


SECOND FLOOR PLUMBING PLAN - AREA C
SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. ROUTE STORM AND OVERFLOW
STORM PIPING TIGHT TO STRUCTURE.

SHEET HISTORY:			
ISSUED	11/27/2013	AS PER CONSTRUCTION DOCUMENTS	
A - 02	12/16/2013	ADDENDUM #2	

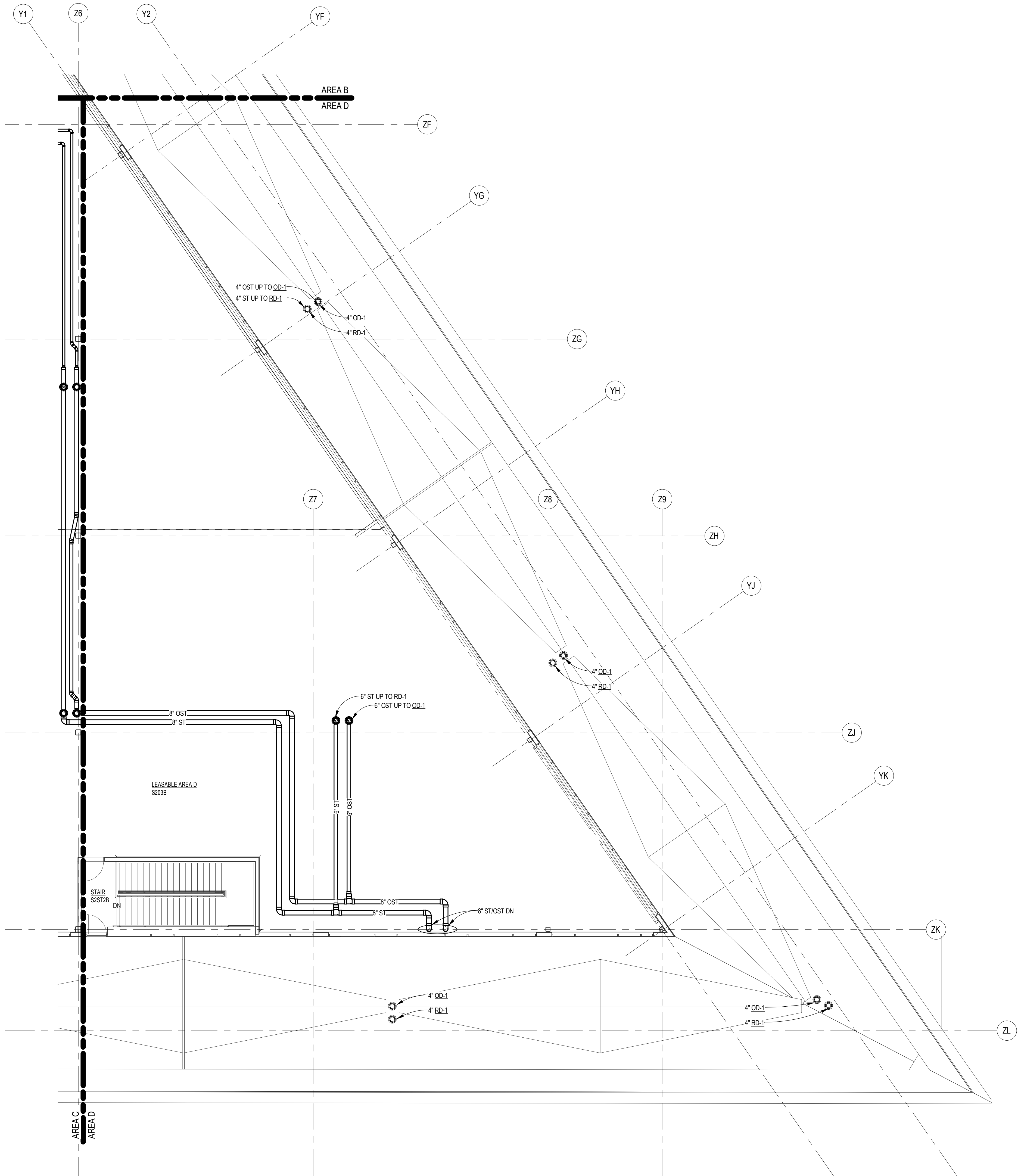


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Second Floor Plumbing
Plan - Area D

P1.12

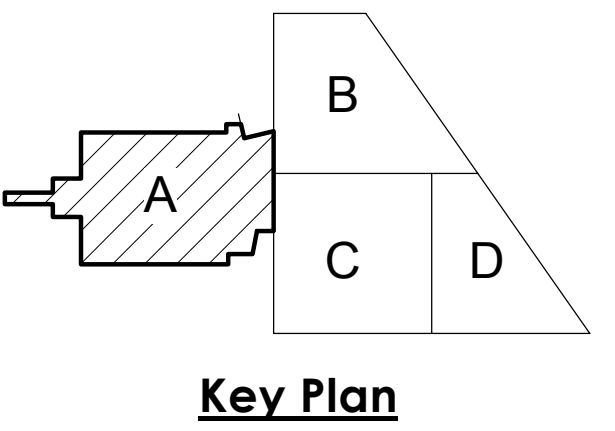


SECOND FLOOR PLUMBING PLAN - AREA D
SCALE: 1/8" = 1'-0"

GENERAL NOTES:
1. ROUTE STORM AND OVERFLOW
STORM PIPING TIGHT TO STRUCTURE.



SHEET HISTORY:
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A - 02 12/16/2013 ADDENDUM #2

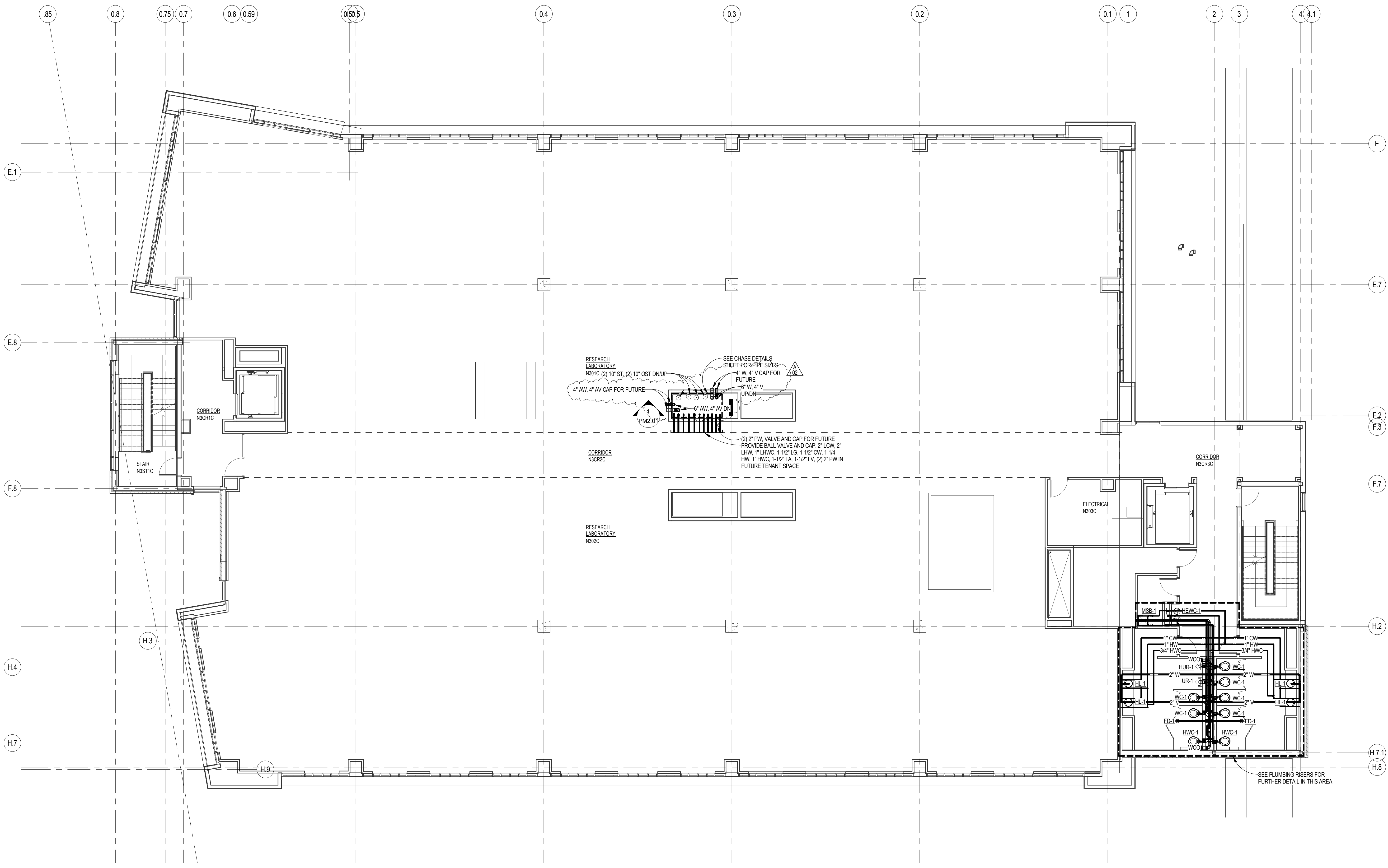


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Third Floor Plumbing Plan

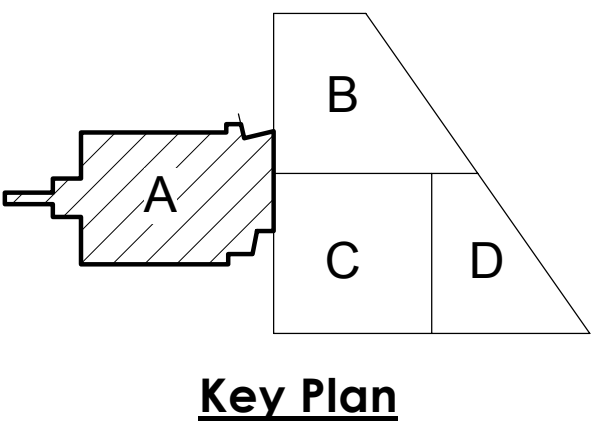
P1.13



THIRD FLOOR PLUMBING PLAN

SCALE: 1/8" = 1'-0"

SHEET HISTORY:
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A - 02 12/16/2013 ADDENDUM #2

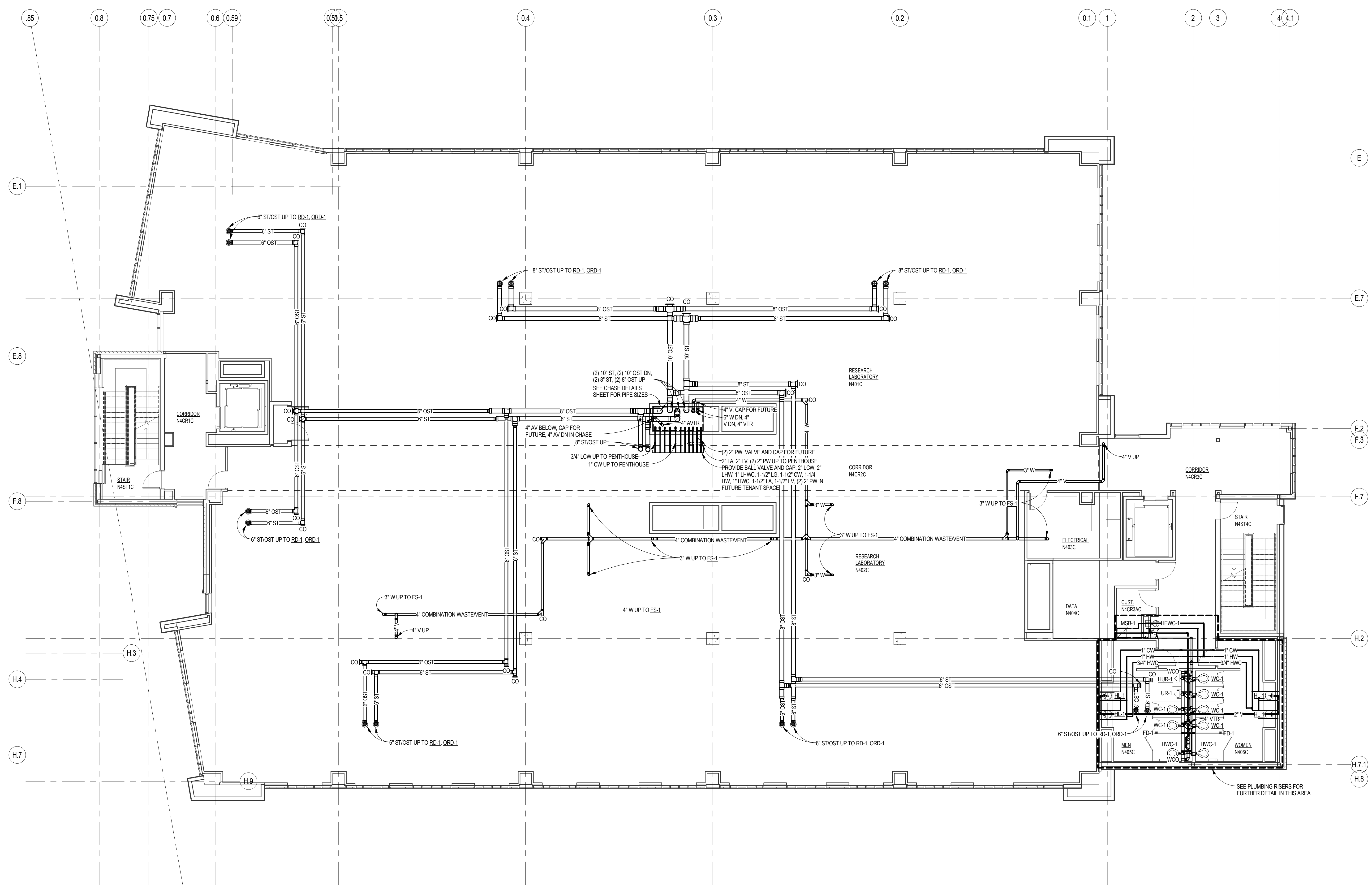


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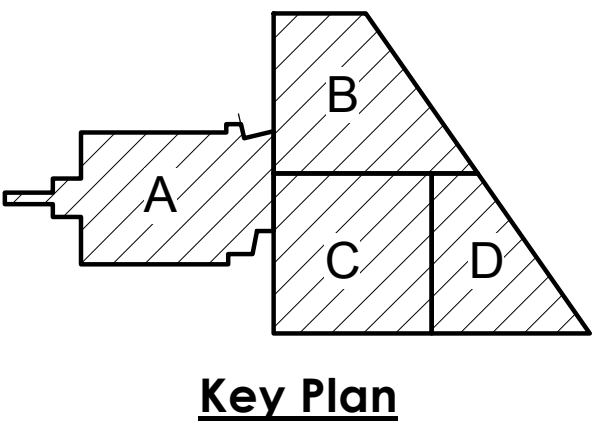
Fourth Floor Plumbing
Plan

P1.14



FOURTH FLOOR PLUMBING PLAN
SCALE: 1/8" = 1'-0"

GENERAL NOTES:
1. ROUTE STORM AND OVERFLOW
STORM PIPING TIGHT TO STRUCTURE.

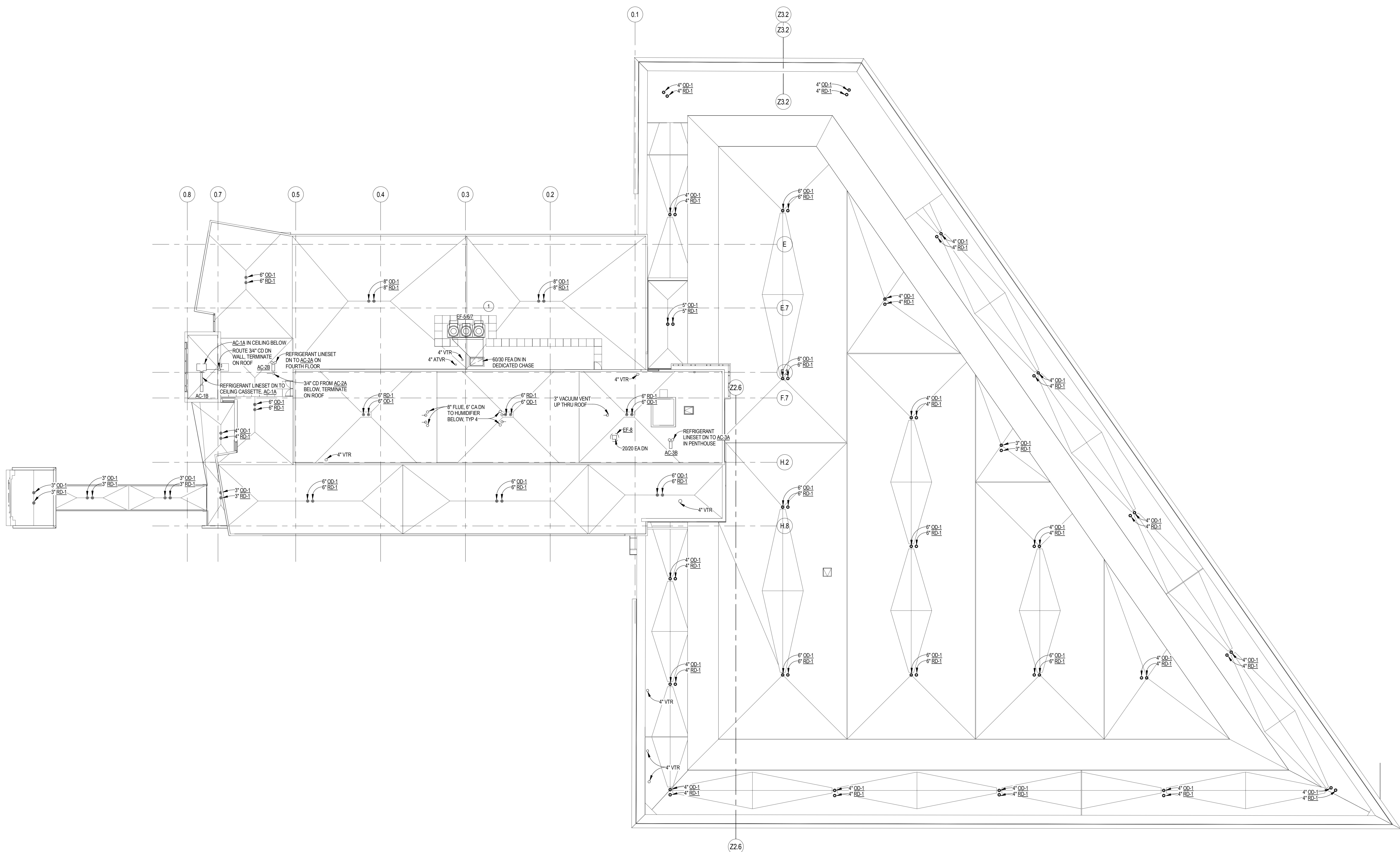


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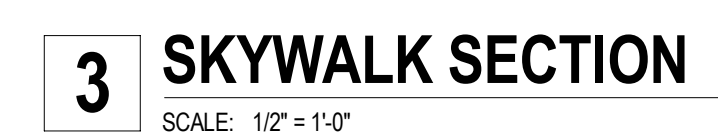
Mechanical Roof Plan

PM1.05



MECHANICAL ROOF PLAN
SCALE: 1/16" = 1'-0"

PLAN NOTES
1 CONTRACTOR TO PROVIDE SEPARATE UNIT PRICING FOR MATERIAL AND
INSTALLATION OF EXHAUST FAN MANIFOLD.



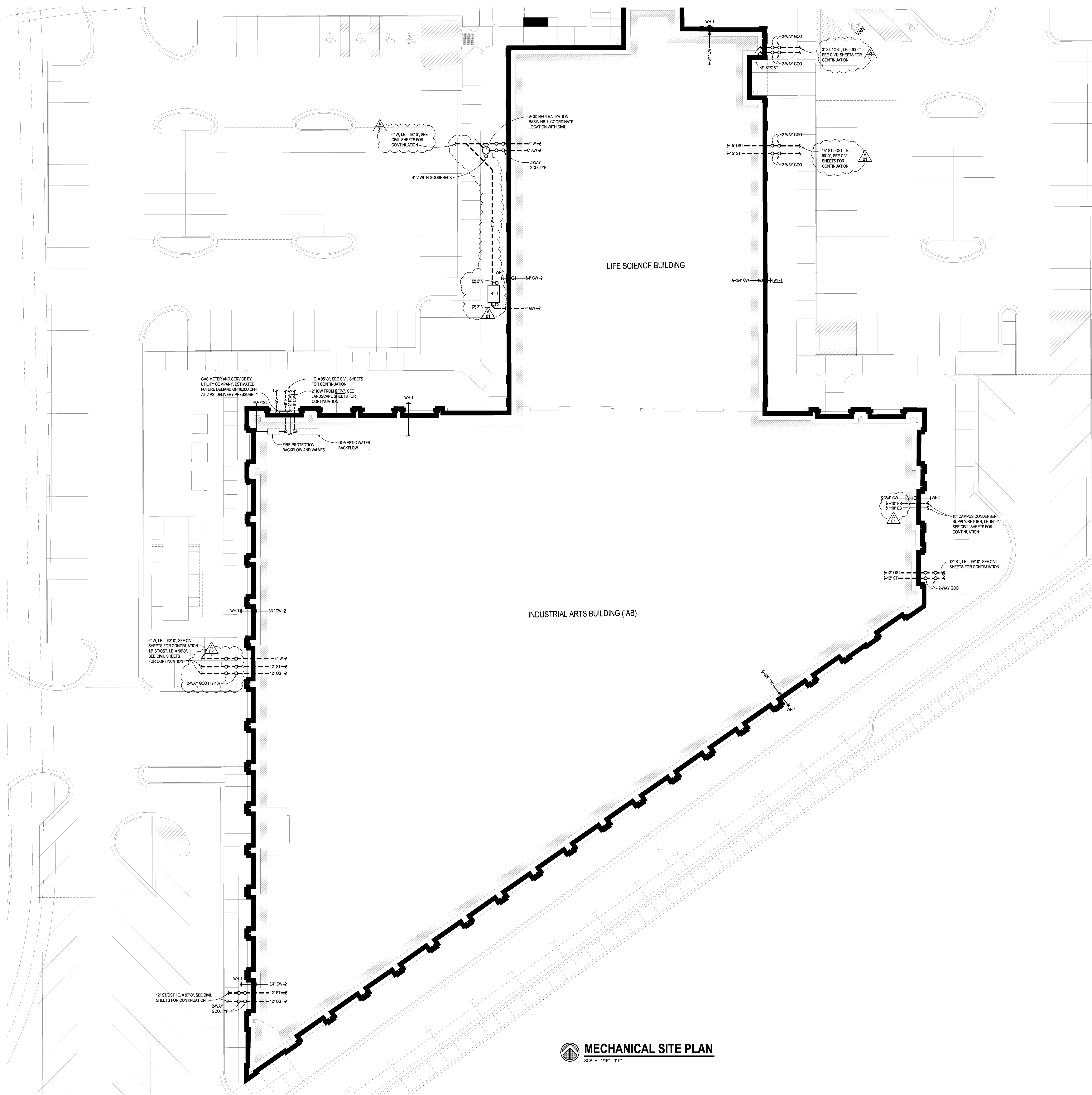
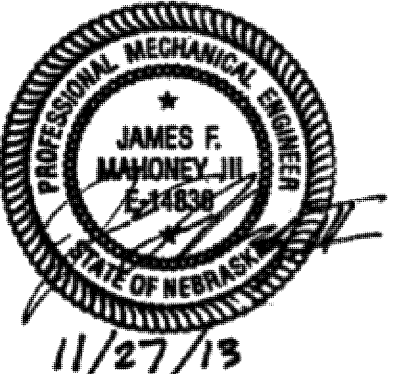
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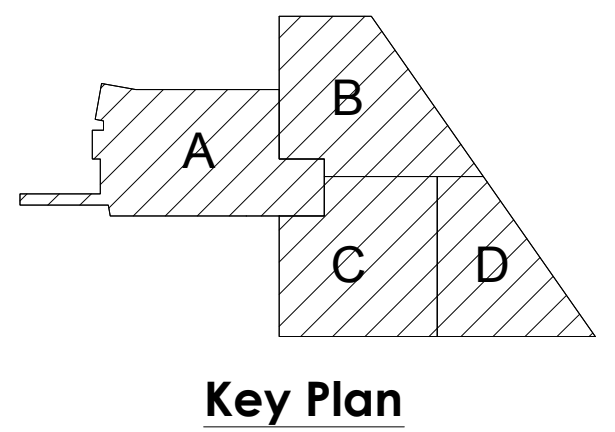
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SHEET HISTORY:		
ISSUED	11/27/2013	AS PER CONSTRUCTION DOCUMENTS
A - 01	12/11/2013	ADDENDUM #1
A - 02	12/16/2013	ADDENDUM #2

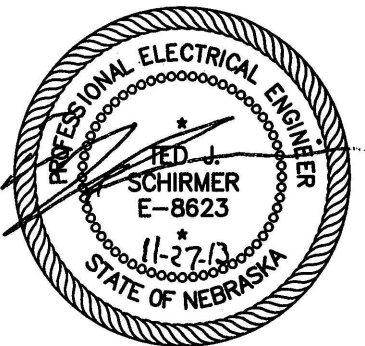
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MECHANICAL SITE PLAN
SCALE: 1/16" = 1'-0"

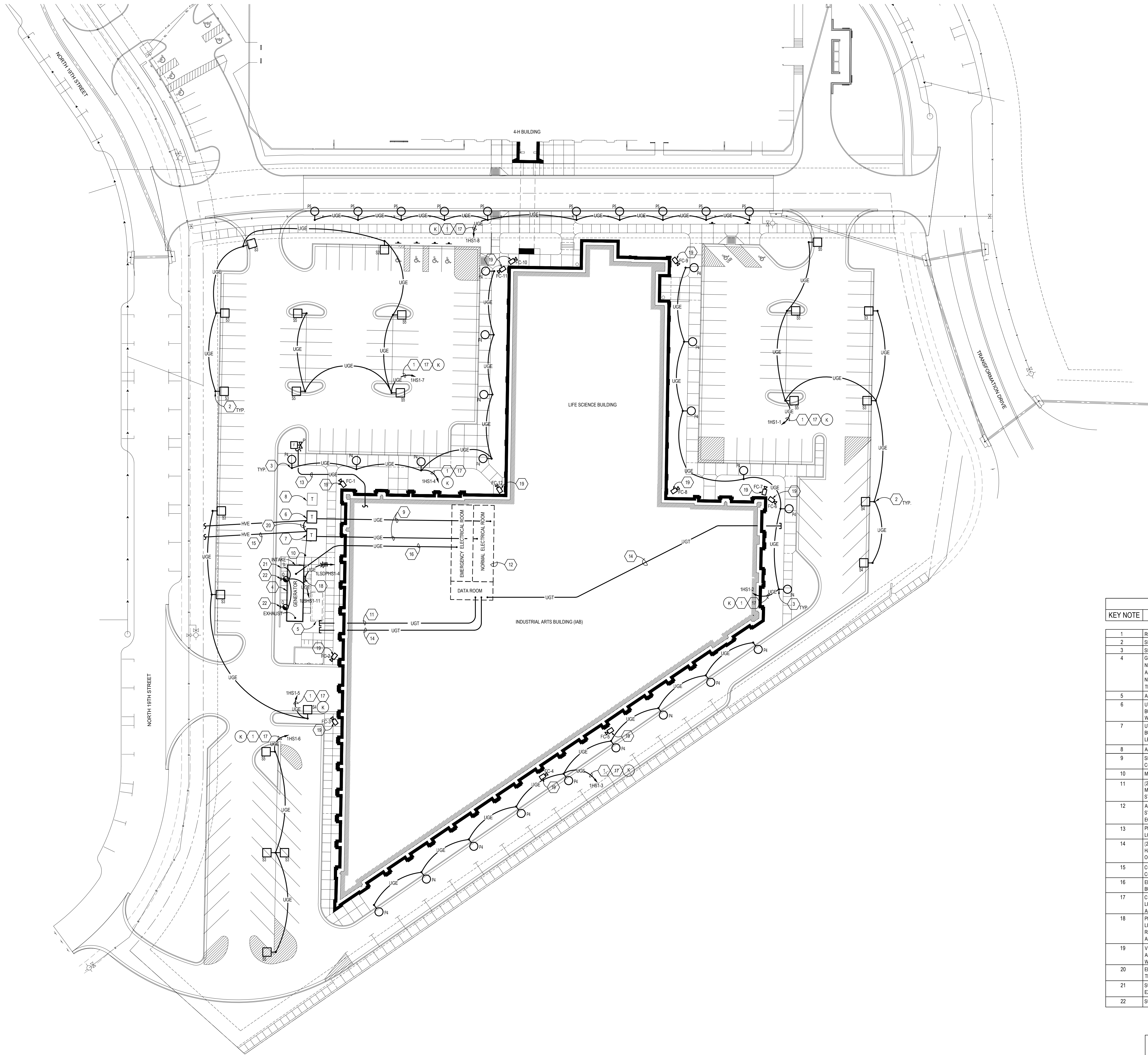


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Electrical Site Utilities
Plan

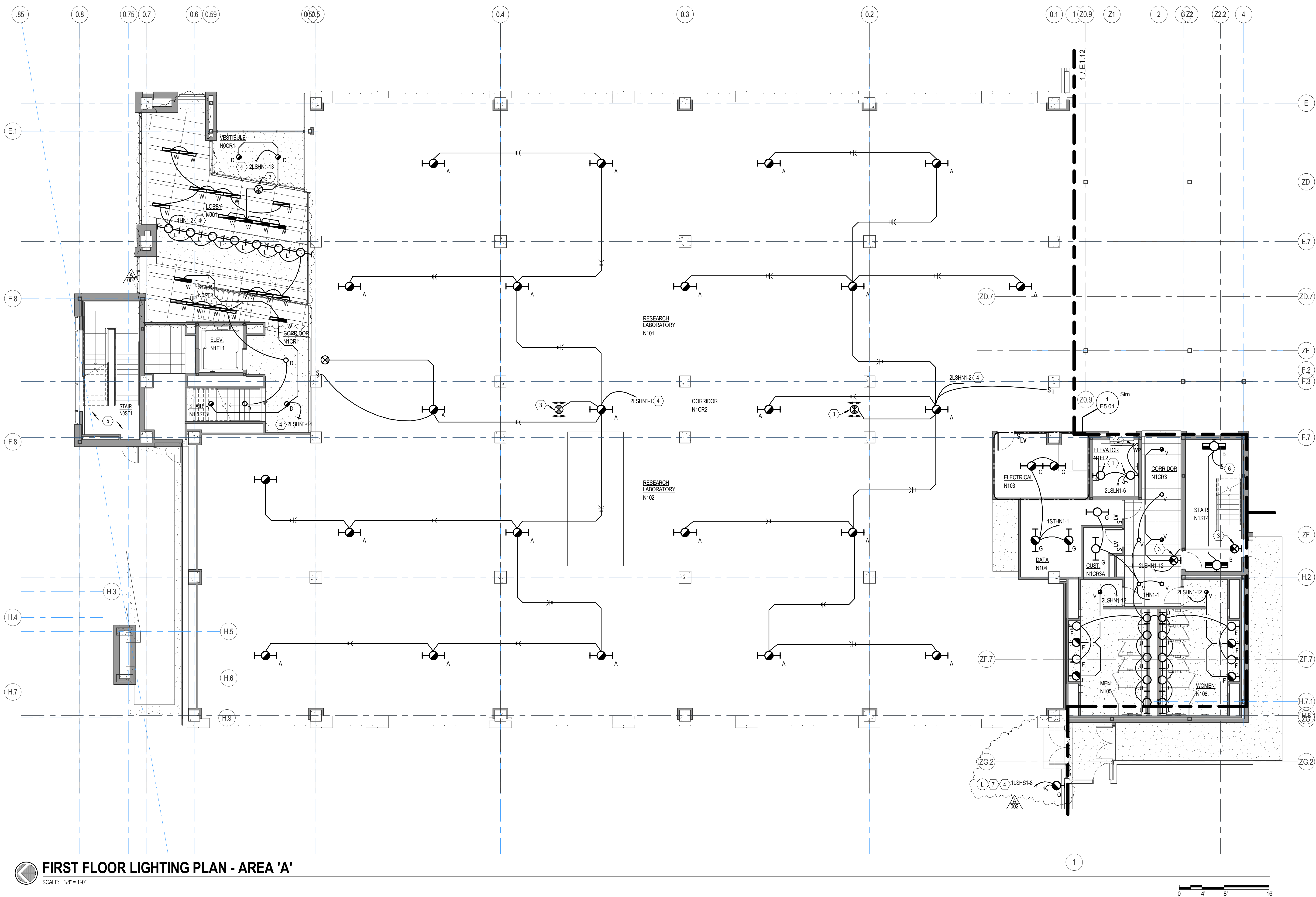
E0.01



ELECTRICAL SITE UTILITIES PLAN NOTES	
KEY NOTE	DESCRIPTION
1	ROUTE #8 CONDUCTORS IN 1" CONDUIT THROUGHOUT ENTIRE CIRCUIT.
2	SEE THE SITE FIXTURE POLE BASE DETAIL FOR ADDITIONAL INFORMATION.
3	SEE THE PEDESTRIAN FIXTURE POLE BASE DETAIL FOR ADDITIONAL INFORMATION.
4	GENERATOR. SEE THE ONE LINE DIAGRAM - EMERGENCY, SOUTH BUILDING FOR ADDITIONAL INFORMATION. PROVIDE ALL NECESSARY CONTROL CIRCUITS IN CONDUIT FROM THE GENERATOR TO ASSOCIATED AUTOMATIC TRANSFER SWITCHES. IN ADDITION, PROVIDE ALL NECESSARY CIRCUITS IN CONDUIT FOR AUXILIARY GENERATOR LOADS AND SERVICES FROM THE NEAREST LIFE SAFETY BRANCH PANELBOARD. FULLY COORDINATE ALL REQUIREMENTS AND INSTALLATION DETAILS WITH THE GENERATOR SUPPLIER/MANUFACTURER FOR A COMPLETE INSTALLATION.
5	AREA FOR POTENTIAL FUTURE GENERATOR.
6	UTILITY TRANSFORMER PROVIDED AND INSTALLED BY THE UTILITY. SEE THE ONE-LINE DIAGRAM - NORMAL - NORTH BUILDING; AND THE TRANSFORMER PAD DETAIL FOR ADDITIONAL INFORMATION. COORDINATE EXACT REQUIREMENTS WITH LES.
7	UTILITY TRANSFORMER PROVIDED AND INSTALLED BY THE UTILITY. SEE THE ONE-LINE DIAGRAM - NORMAL - SOUTH BUILDING; AND THE TRANSFORMER PAD DETAIL FOR ADDITIONAL INFORMATION. COORDINATE EXACT REQUIREMENTS WITH LES.
8	AREA FOR POTENTIAL FUTURE UTILITY TRANSFORMER.
9	SECONDARY SERVICE ENTRANCE CONDUCTORS. SEE THE ONE-LINE DIAGRAMS FOR ADDITIONAL INFORMATION. COORDINATE ALL ROUTING AND DETAILS WITH LES.
10	MAINTAIN A MINIMUM OF 10'-0" BETWEEN THE GENERATOR SET AND THE PAD MOUNTED TRANSFORMERS.
11	(2) 3" CONDUITS FOR TELEPHONE AND TELEVISION UTILITIES FROM MAIN BUILDING DATA ROOM. ROUTE CONDUITS A MINIMUM OF 42" BELOW GRADE AND STUB AND CAP UNDERGROUND 10'-0" OUTSIDE OF THE BUILDING. COORDINATE EXACT STUB LOCATION WITH THE TELEPHONE AND TELEVISION COMPANIES.
12	APPROXIMATE LOCATIONS OF THE MAIN ELECTRICAL AND DATA ROOMS. SEE THE ELECTRICAL POWER & AUXILIARY SYSTEMS PLANS AND THE ENLARGED ELECTRICAL ROOM PLANS FOR ADDITIONAL INFORMATION AND LOCATION OF EQUIPMENT.
13	PROVIDE MONITORING OF POST INDICATOR VALVE (PIV) AT THE FIRE ALARM CONTROL PANEL. COORDINATE THE EXACT LOCATION OF PIV WITH MECHANICAL CONTRACTOR.
14	(2) 4" CONDUITS FOR UNL FIBER/COMMUNICATIONS CABLING FROM MAIN BUILDING DATA ROOM. PROVIDE NECESSARY HANDHOLES REQUIRED DUE TO LENGTH/DIRECTION OF CONDUIT ROUTING. STUB AND CAP UNDERGROUND 10'-0" OUTSIDE OF THE BUILDING. SEE THE CIVIL SHEETS FOR ADDITIONAL INFORMATION.
15	CONDUIT(S) FOR LES PRIMARY CABLING. CONDUIT PROVIDED BY LES. INSTALLED AS NECESSARY BY ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION SCOPE, ROUTING AND TERMINATION DETAILS WITH LES.
16	EMERGENCY/STANDBY SERVICE ENTRANCE FEEDERS. SEE THE ELECTRICAL ONE LINE DIAGRAM - EMERGENCY - SOUTH BUILDING FOR ADDITIONAL INFORMATION.
17	CIRCUIT TO BE CONTROLLED BY THE NETWORKED LIGHTING CONTROL SYSTEM. SEE THE LIGHTING CONTROL PLANS, THE LIGHTING CONTROL SCHEMATIC DIAGRAM AND THE NETWORKED LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR ADDITIONAL INFORMATION.
18	PROVIDE CONNECTION TO INTEGRAL GENERATOR TRANSFORMER AND 208Y/120V PANELBOARD. SEE THE ELECTRICAL ONE LINE DIAGRAM - EMERGENCY - SOUTH BUILDING FOR ADDITIONAL INFORMATION. COORDINATE ALL CONNECTION REQUIREMENTS WITH THE GENERATOR SUPPLIER/MANUFACTURER. SEE THE GENERATOR SPECIFICATIONS FOR ADDITIONAL INFORMATION.
19	VIDEO CAMERA SECURITY LOCATION. CAMERAS MOUNTED ON BUILDING SHALL BE INSTALLED WITHIN 12" OF THE ROOF TOP AND WITHIN 12" OF THE CORNER OF THE BUILDING (WHERE SHOWN AT THE CORNER). COORDINATE THE EXACT LOCATION WITH THE SECURITY CONTRACTOR. SEE THE VIDEO SECURITY CONNECTION DIAGRAM FOR ADDITIONAL INFORMATION.
20	ELECTRICAL CONTRACTOR TO INTERCONNECT LES PROVIDED 4" PRIMARY CONDUITS BETWEEN PAD MOUNTED TRANSFORMERS. COORDINATE EXACT REQUIREMENTS AND ROUTING WITH LES.
21	SURFACE MOUNT WATERPROOF SWITCH ON SCREEN WALL NEAR STAIRS UP TO GENERATOR PLATFORM. COORDINATE EXACT LOCATION WITH THE GENERATOR SUPPLIER/INSTALLER.
22	SURFACE MOUNT FIXTURE ON SCREEN WALL. ENSURE TOP OF FIXTURE IS NOT ABOVE TOP OF WALL.

THE CONTRACTOR SHALL IDENTIFY, SUPPORT AND PROTECT ALL EXISTING UTILITIES THROUGHOUT THE DURATION OF CONSTRUCTION.

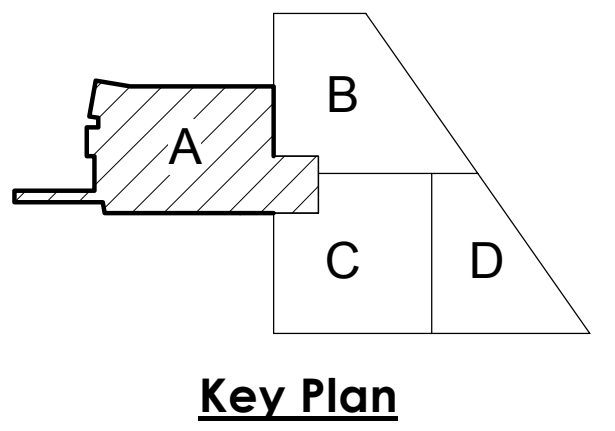
ELECTRICAL SITE UTILITIES PLAN
SCALE: 1" = 30'-0"



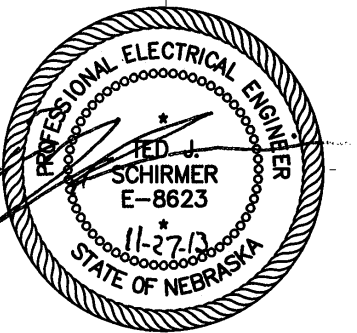
SHELL SPACE LIGHTING ON THIS LEVEL INCLUDING ASSOCIATED CIRCUITING AND CONDUIT TO BE BID AND COMPLETED AS A PART OF DESIGN ALTERNATE #4 TO THE BASE BID CONDITION. SEE THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

FIRST FLOOR LIGHTING PLAN - AREA 'A' NOTES	
KEY NOTE	DESCRIPTION
1	ELEVATOR PIT LIGHT FIXTURE. EPCO (OR EQUIVALENT) TYPE G-4.12.75HxV. (ENCLOSED AND GASKETED. SUITABLE FOR WET LOCATIONS). WALL MOUNT PIT LIGHT FIXTURE AT 12" ABOVE PIT FLOOR. COORDINATE EXACT FIXTURE LOCATION WITH ELEVATOR SUPPLIER/INSTALLER. GROUND FIXTURE AND FIXTURE GUARD IN ACCORDANCE WITH CODE REQUIREMENTS. DO NOT CONNECT THE LIGHT FIXTURE TO THE LOAD SIDE OF THE GFI RECEPTACLE. SEE SHEET E2.11 FOR CONTINUATION OF CIRCUIT.
2	MOUNT WEATHERPROOF PIT LIGHT SWITCH 18" ABOVE LOWER LEVEL FINISHED FLOOR ELEVATION. ADJACENT TO PIT LADDER. COORDINATE EXACT SWITCH LOCATION WITH ELEVATOR SUPPLIER/INSTALLER.
3	CONNECT FIXTURE TO 'UNSWITCHED HOT' OF CIRCUIT INDICATED.
4	ROUTE #10'S THROUGHOUT ENTIRE CIRCUIT.
5	SEE THE SKYWALK LIGHTING PLAN AND SHEET A5.03, DETAIL 1 FOR LIGHTING IN THIS AREA.
6	SEE SHEET E1.21 FOR CONTINUATION OF CIRCUIT.
7	CIRCUIT TO BE CONTROLLED BY THE NETWORKED LIGHTING CONTROL SYSTEM. SEE THE LIGHTING CONTROL PLANS. THE LIGHTING CONTROL SCHEMATIC DIAGRAM AND THE NETWORKED LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR ADDITIONAL INFORMATION.

SHEET HISTORY:
ISSUED 11/27/2013 AS PER CONSTRUCTION DOCUMENTS
A - 002 12/16/2013 ADDENDUM #002

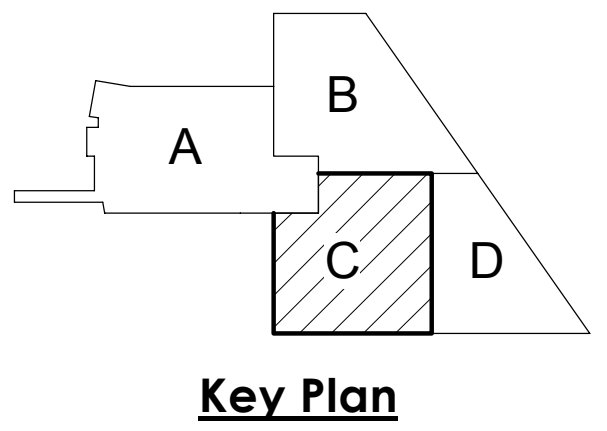


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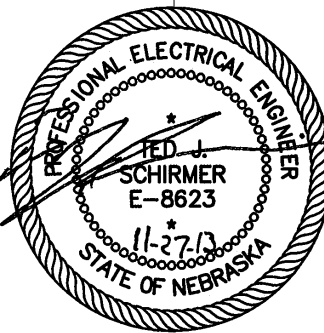


First Floor Lighting Plan -
Area 'A'

E1.11

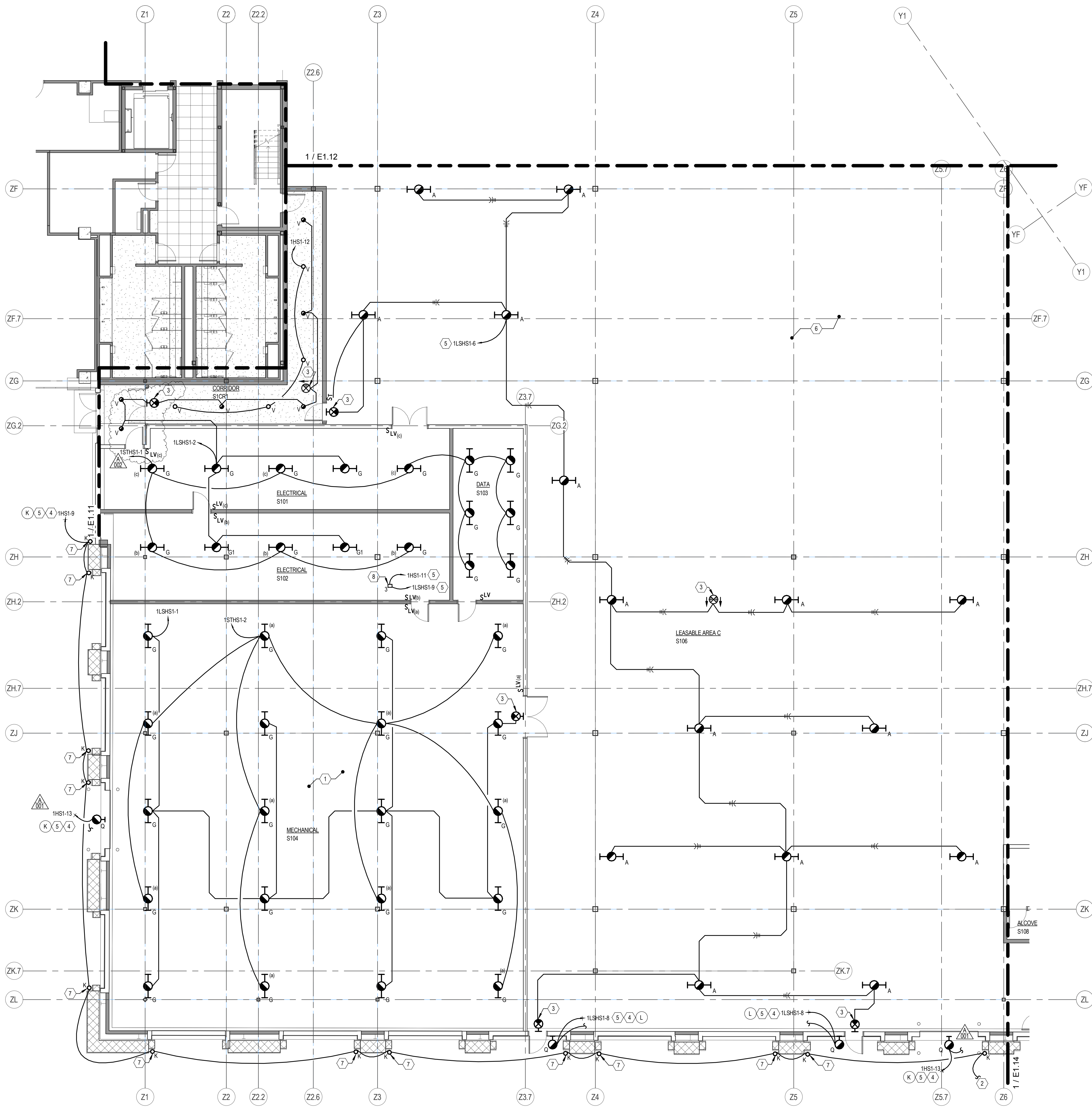


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First Floor Lighting Plan -
Area 'C'

E1.13

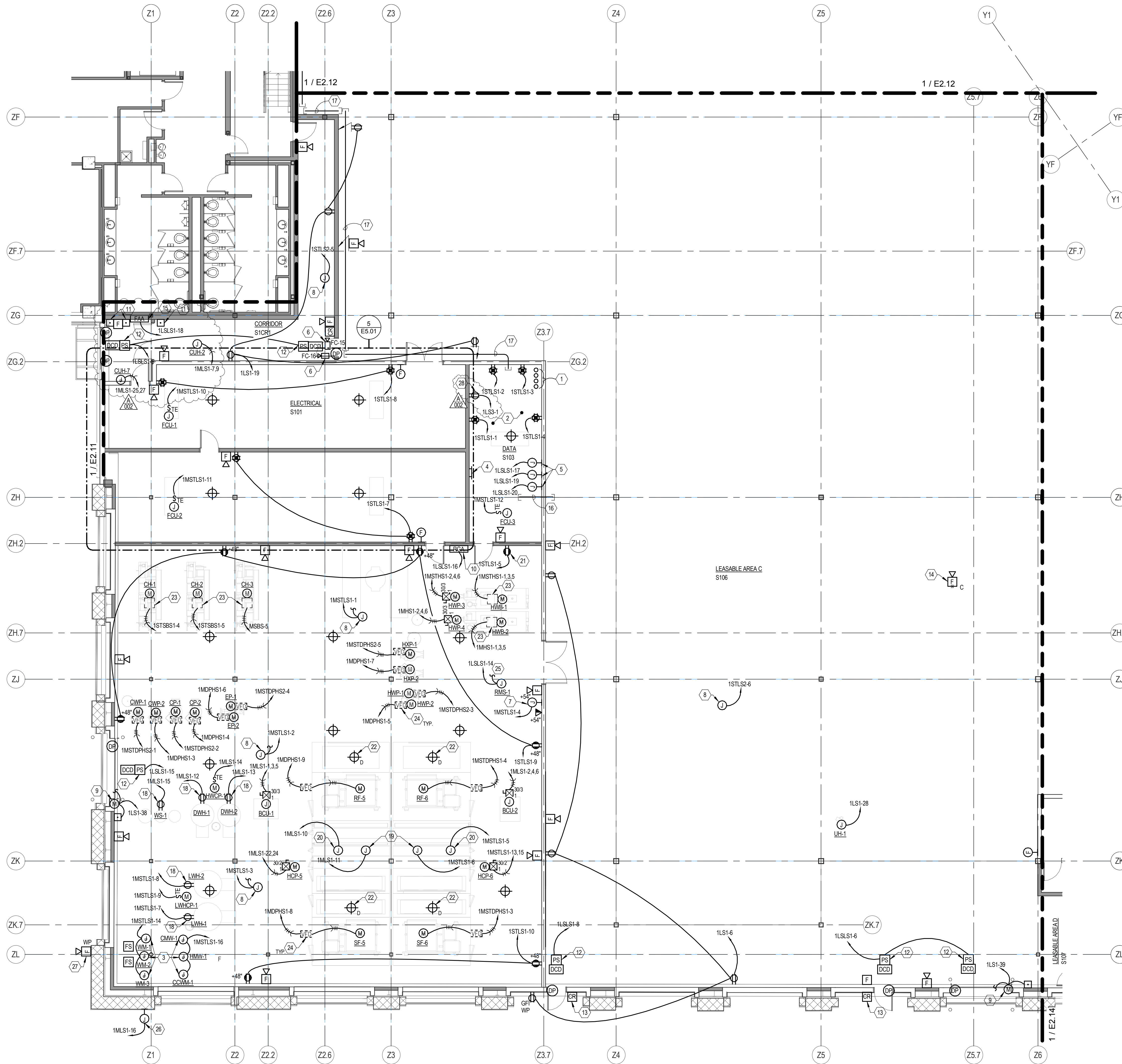


SHELL SPACE LIGHTING ON THIS LEVEL INCLUDING ASSOCIATED
CIRCUITING AND CONDUIT TO BE BID AND COMPLETED AS A
PART OF DEDUCT ALTERNATE #4 TO THE BASE BID CONDITION.
SEE THE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

FIRST FLOOR LIGHTING PLAN - AREA 'C' NOTES	
KEY NOTE	DESCRIPTION
1	COORDINATE ALL TYPE 'G' LIGHT FIXTURE LOCATIONS WITH THE MECHANICAL CONTRACTOR.
2	SEE SHEET E1.14 FOR CONTINUATION.
3	CONNECT FIXTURE TO UNSWITCHED HOT OF CIRCUIT INDICATED.
4	CIRCUIT TO BE CONTROLLED BY THE NETWORKED LIGHTING CONTROL SYSTEM. SEE THE LIGHTING CONTROL PLANS, THE LIGHTING CONTROL SCHEMATIC DIAGRAM AND THE NETWORKED LIGHTING CONTROL SYSTEM SPECIFICATIONS FOR ADDITIONAL INFORMATION.
5	ROUTE #10'S THROUGHOUT CIRCUIT.
6	SEE SHEET E1.23 FOR LIGHTING IN THIS AREA.
7	INSTALL FIXTURE IN EXTERIOR SOFFIT. COORDINATE INSTALLATION WITH ARCHITECTURAL PLANS.
8	PROVIDE AN EMERGENCY LIGHTING CONTROL UNIT, DUALITE BATS200 OR APPROVED EQUAL. ROUTE NORMAL AND LIFE SAFETY CIRCUIT INDICATED VIA THIS DEVICE AND THEN TO THE DESIGNATED LIGHTING FIXTURES. MOUNT UNIT TO BOTTOM OF STRUCTURE A MINIMUM OF 14'-0" AFF UNLESS NOTED OTHERWISE.

FIRST FLOOR LIGHTING PLAN - AREA 'C'
SCALE: 1/8" = 1'-0"

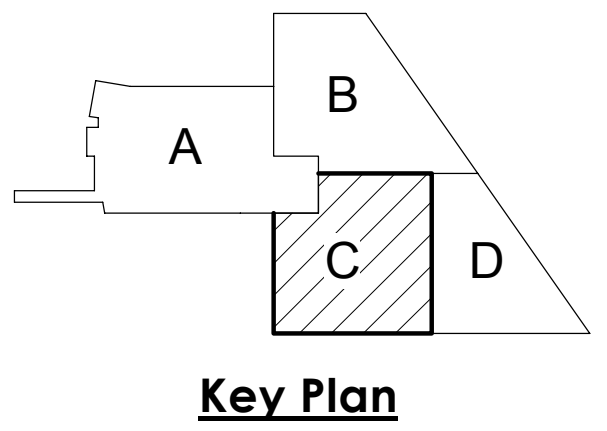
0 4' 8' 16'



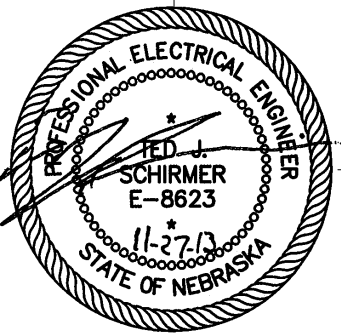
FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA 'C' NOTES	
KEY NOTE	DESCRIPTION
1	TELECOMMUNICATIONS SERVICE ENTRANCES. SEE THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION. COORDINATE THE EXACT LOCATIONS WITH THE UTILITY COMPANIES AND UNL.
2	PROVIDE 3/4" THICK, FIRE TREATED PL WOOD BACKBOARD FROM FLOOR TO 8'-0" AFF ON WALLS. PAINT BACKBOARD WITH (2) COATS OF FIRE RETARDANT WHITE PAINT.
3	120V CONNECTION FOR WATER METERS; COORDINATE CONNECTION AND LOCATIONS WITH MECHANICAL CONTRACTOR.
4	GROUND CONNECTIONS BUS/WIREWAY MOUNTED AT 5'-0" AFF. SEE THE GROUND CONNECTIONS DETAIL FOR ADDITIONAL INFORMATION.
5	PROVIDE 120V CONNECTION TO DOOR CONTROL SYSTEM COMPONENTS. PROVIDE A FIRE ALARM RELAY AND ROUTE CIRCUIT VIA RELAY SO THAT UPON AN ALARM CONDITION THE DOOR FAILS OPEN, UNLESS OTHERWISE DIRECTED BY THE OWNER. COORDINATE INSTALLATION DETAILS WITH THE DOOR HARDWARE SUPPLIER/INSTALLER.
6	VIDEO CAMERA SECURITY LOCATION. COORDINATE THE EXACT LOCATION WITH THE SECURITY CONTRACTOR. SEE THE VIDEO SECURITY CONNECTION DIAGRAM FOR ADDITIONAL INFORMATION.
7	PROVIDE 120V ELECTRICAL CONNECTION AND DATA OUTLET FOR EXACS PANEL. FULLY COORDINATE CONNECTION, LOCATION, AND MONITORING REQUIREMENTS WITH THE MECHANICAL CONTRACTOR AND OWNER'S REPRESENTATIVE.
8	PROVIDE 120V ELECTRICAL CONNECTIONS TO MECHANICAL CONTRACTOR PROVIDED AND INSTALLED CONTROL TRANSFORMERS. COORDINATE THE EXACT CONNECTION REQUIREMENTS AND LOCATIONS OF CONTROL TRANSFORMERS WITH THE MECHANICAL CONTRACTOR. PROVIDE ALL WIRING FOR CONNECTION TO TRANSFORMERS IN CONDUIT.
9	PROVIDE 120V ELECTRICAL CONNECTION TO OVERHEAD DOOR AT THIS LOCATION. PROVIDE ALL NECESSARY CONNECTIONS BETWEEN OVERHEAD DOOR MOTOR AND CONTROLLER. COORDINATE CONNECTION REQUIREMENTS WITH THE OVERHEAD DOOR INSTALLER/SUPPLIER.
10	PROVIDE 120V ELECTRICAL CONNECTION FROM NEAREST LIFE SAFETY PANEL TO REMOTE GENERATOR ANNUNCIATOR RECESS MOUNTED IN WALL AT THIS LOCATION. FULLY COORDINATE CONNECTION REQUIREMENTS WITH THE GENERATOR SYSTEM MANUFACTURER/SUPPLIER AND THE OWNER'S REPRESENTATIVES. PROVIDE ALL NECESSARY CONNECTIONS BETWEEN ANNUNCIATOR AND THE GENERATOR AS REQUIRED AND ALL NECESSARY CONNECTIONS BETWEEN THE GENERATOR SYSTEM AND THE BUILDING MANAGEMENT SYSTEM FOR REMOTE MONITORING OF GENERATOR SYSTEM OFF-SITE. ROUTE (1) - 1" CONDUIT FROM THE ANNUNCIATOR, CONCEALED UP THE WALL, AND STUB OUT INTO THE NEARBY DATA ROOM ADJACENT TO THE CABLE TRAY. BUSH CONDUIT ENDS.
11	OUTLET BOX FOR DOOR ASSIST PUSHBUTTON STATION. INSTALL BOX IN WALL AT LOCATION INDICATED. PROVIDE NECESSARY CONNECTIONS BETWEEN PUSHBUTTON STATION & POWER SUPPLY JUNCTION BOX. ROUTE WIRE IN CONDUIT CONCEALED IN WALL AND ABOVE CEILING. COORDINATE INSTALLATION AND CONNECTION DETAILS WITH THE DOOR HARDWARE SUPPLIER/INSTALLER. SEE THE ACCESS CONTROL DETAILS FOR ADDITIONAL INFORMATION.
12	120V CONNECTION ABOVE ACCESSIBLE CEILING OR MOUNTED TO BOTTOM OF STRUCTURE (WHEN NO ACCESSIBLE CEILING IS AVAILABLE) FOR DOOR POWER SUPPLY. FULLY COORDINATE INSTALLATION AND CONNECTION DETAILS. SEE THE ACCESS CONTROL DETAILS FOR ADDITIONAL INFORMATION.
13	CARD READER TO BE FURNISHED IN FUTURE DEVELOPER INTERIOR PROJECTS. PROVIDE ALL ROUGH-IN NECESSARY FOR FUTURE INSTALL. SEE THE ACCESS CONTROL DETAILS AND ARCHITECTURAL SHEETS FOR ADDITIONAL INFORMATION. INSTALL BLANK COVER PLATES ON ANY UNUSED OUTLET BOXES.
14	PENDANT MOUNT FIRE ALARM DEVICE FROM STRUCTURE ABOVE USING RIGID CONDUIT. FIRE ALARM DEVICE SHALL BE MOUNTED AT 14'-0" A.F.F.
15	FIRE ALARM ANNUNCIATOR PANEL RECESS MOUNTED IN WALL AT THE LOCATION INDICATED. ROUTE (2) - 1" CONDUITS FROM PANEL, CONCEALED UP THE WALL AND STUB ABOVE THE NEAREST ACCESSIBLE CEILING. BUSH CONDUIT ENDS.
16	PROVIDE AND INSTALL EZ-PATH GANGED PATHWAY BRACKET CATALOG NUMBER: EZP544W WITH (4) EZ-PATH SERIES 44 PATHWAY CATALOG NUMBER: EZD4S. THROUGH WALL AT +11'-0" AFF.
17	ROUTE (4) 4" CONDUITS FOR TELECOMMUNICATIONS CABLING AT +11'-0" AFF. BUSH CONDUIT ENDS. COORDINATE ROUTING WITH ALL OTHER TRADES. SEE SHEETS E2.11 AND E2.12 FOR CONTINUATION OF CONDUITS.
18	MOUNT RECEPTACLES ON UNI-STRUT COORDINATE EXACT LOCATION WITH THE MECHANICAL CONTRACTOR.
19	PROVIDE 120V CIRCUIT TO AHU INTEGRAL RECEPTACLES. FULLY COORDINATE ALL REQUIREMENTS WITH THE MECHANICAL CONTRACTOR.
20	PROVIDE 120V CIRCUIT TO AHU INTEGRAL LIGHT FIXTURES. FULLY COORDINATE ALL REQUIREMENTS WITH THE MECHANICAL CONTRACTOR.
21	MOUNT RECEPTACLE WITHIN 12" OF CRES BUILDING METERING CABINET. COORDINATE THE EXACT LOCATION WITH THE MECHANICAL CONTRACTOR.
22	INSTALL DUCT DETECTOR IN DUCT NEAR THIS LOCATION. PROVIDE REMOTE TEST SWITCHES MOUNTED AT 6'-0" AFF. ADJACENT TO EACH GROUP OF DETECTORS. LABEL THE DETECTOR WITH THE NAME OF THE UNIT BEING SERVED AND THE AIR FLOW DIRECTION. FULLY COORDINATE INSTALLATION AND LOCATION WITH THE MECHANICAL CONTRACTOR.
23	INTEGRAL CONTROLLER/DISCONNECT. COORDINATE CONNECTION REQUIREMENTS WITH THE MECHANICAL CONTRACTOR.
24	VFD PROVIDED BY MECHANICAL CONTRACTOR. COORDINATE LOCATION WITH THE MECHANICAL CONTRACTOR.
25	PROVIDE 120V ELECTRICAL CONNECTION TO REFRIGERANT MONITOR SYSTEM. COORDINATE THE EXACT CONNECTION REQUIREMENTS AND LOCATION OF CONTROL MECHANICAL CONTRACTOR.
26	120V CONNECTION TO IRRIGATION CONTROLLER. COORDINATE THE REQUIREMENTS AND EXACT LOCATION WITH THE IRRIGATION SYSTEM SUPPLIER/INSTALLER.
27	FIRE ALARM SPEAKER/STROBE. LOCATE ABOVE FIRE DEPARTMENT CONNECTION. COORDINATE WITH MECHANICAL CONTRACTOR.
28	120V ELECTRICAL CONNECTION FOR LIGHTING CONTROL EQUIPMENT. COORDINATE LOCATION AND CONNECTION REQUIREMENTS WITH LIGHTING CONTROLS SUPPLIER AND OWNER'S REPRESENTATIVE.

CONTRACTOR SHALL PROVIDE SEPARATE PRICING FOR ALL MATERIALS AND LABOR ASSOCIATED WITH AHU-5 & AHU-6.

SHEET HISTORY:
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A - 002 12/16/2013 ADDENDUM #002



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First Floor Power &
Auxiliary Systems Plan -
Area 'C'

E2.13

FIRST FLOOR POWER & AUXILIARY SYSTEMS PLAN - AREA 'C'
SCALE: 1/8" = 1'-0"

0 4 8 16

LIGHTING FIXTURE SCHEDULE									
Fixture Type	Manufacturers	Catalog Numbers	Description	No. of Lamps	Lamp Type	Volt	VA	Mounting	Remarks
A	HE WILLIAMS COLUMBIA METALLUX	B0-4-232-UNV C0R-4-2-32-ST-X-U ICF-232-UNV	4'-0" LONG FLUORESCENT INDUSTRIAL FIXTURE	2	32W T8 3500K	UNV	70	PENDANT	UNLESS OTHERWISE NOTED, CHAIN HANG FIXTURES FROM STRUCTURE SO THAT BOTTOM OF FIXTURE IS 10'-0" AFF. PROVIDE FIXTURE WITH EMERGENCY BATTERY BALLAST. PROVIDE FIXTURE WITH BALLAST DISCONNECT PLUG. SEE SPECIFICATIONS FOR BALLAST INFORMATION.
B	DOL FOCAL POINT AXIS	D01-S18A-48-MV-BAL-2L-F24-277 (80% DIMMING) FAVOW-FL-11TSHO-277...-VM-DC-TS-4 (50% DIMMING) BBW-S-4-TSHO-1-1-AF-UNV-T-X (50% DIMMING)	4'-0" LONG WALL MOUNTED	2	F54TSHO 3500K	UNV	120	WALL MOUNTED	MOUNT FIXTURE HORIZONTALLY TO WALL SO THAT BOTTOM OF FIXTURE IS 6'-6" ABOVE LANDING OR ADJACENT STAIR, UNLESS OTHERWISE NOTED. WHEN REQUIRED IN THE PLANS, PROVIDE FIXTURES WITH DUAL LEVEL BALLASTS THAT EVENLY DIM LAMPS TO 50% UPON SIGNAL FROM LIGHTING CONTROL SYSTEM. SEE THE LIGHTING CONTROL PLANS FOR ADDITIONAL INFORMATION.
C	LITHONIA COLUMBIA METALLUX	F0B184-4-32-N1-X2S-MVOLT-SEE SPEC LW-4-4-32-W-ST-EP-U HB-4-32-M-UNV-ERB	HIGH BAY FLUORESCENT FIXTURE	4	32W T8 3500K	277	150	PENDANT	PENDANT MOUNT FIXTURES FROM STRUCTURE SO BOTTOM OF FIXTURE IS 28' 0" ABOVE FINISHED FIRST FLOOR. PROVIDE FIXTURE WITH EMERGENCY BATTERY BALLAST.
D	PORTFOLIO	LD4A-20-D010TE-X-ERMA20-8-35-6LM-H	6" LED DOWNLIGHT	PROV. W/ FIXTURE	LED	UNV	40	RECESSED	PROVIDE REQUIRED TRIM OPTIONS FOR COMPATIBLE INSTALLATION WITH CEILING TYPES SPECIFIED. PROVIDE BALLAST DISCONNECT PLUG WITH FIXTURE.
	SURE-LITES	LPX-7	EXIT FIXTURE PROVIDED WITH NUMBER OF FACES AND ARROWS AS INDICATED ON PLANS	NA	LED	UNV	10	SURFACE	UNLESS OTHERWISE INDICATED WALL MOUNT AT 7'-0" AFF OR SO THAT BOTTOM OF EXIT SIGN IS 6" ABOVE TOP OF DOOR FRAMES. RECESS MOUNT WHERE CEILING LOCATION ALLOWS. PROVIDE SELF DIAGNOSTICS AND INTEGRAL BATTERY PACK, WHERE SHOWN SUSPENDED FROM STRUCTURE IN SHELL SPACE ANGLES. MOUNT AT 9'-0" AFF WITH RIGID CONDUIT SUPPORT.
	SURE-LITES	UX7-R-WH	WEATHER PROOF EXIT FIXTURE PROVIDED WITH NUMBER OF FACES AND ARROWS AS INDICATED ON PLANS	NA	LED	UNV	10	SURFACE	UNLESS OTHERWISE INDICATED WALL MOUNT AT 7'-0" AFF OR SO THAT BOTTOM OF EXIT SIGN IS 6" ABOVE TOP OF DOOR FRAMES. PROVIDE SELF DIAGNOSTICS AND INTEGRAL BATTERY PACK.
F	AXIS	MBS-S-2-TS-1-AF-UNV-ERS-1	2' LINEAR WALL SCENCE	1	14W T5 3500K	UNV	20	WALL	MOUNT VERTICALLY ON WALL ADJACENT TO, OR CENTERED IN BETWEEN MIRRORS, WITH CENTER OF FIXTURE AT 5'-0" AFF. UNLESS OTHERWISE NOTED, MOUNT SO NARROW SIDE OF FIXTURE FACES OUTWARDS FROM THE WALL. PROVIDE FIXTURES WITH BALLAST DISCONNECT PLUG. SEE SPECIFICATIONS FOR BALLAST INFORMATION.
G	HE WILLIAMS COLUMBIA METALLUX	B2-4-2-32-SPEC-UNV IC4-232-U-EP-U DMF-232-UNV-ERB	4'-0" LONG FLUORESCENT PENDANT MOUNTED PREMIUM INDUSTRIAL	2	32W T8 3500K	UNV	70	PENDANT	UNLESS OTHERWISE NOTED, CHAIN HANG FIXTURES FROM STRUCTURE SO THAT BOTTOM OF FIXTURE IS 10'-0" AFF. PROVIDE TYPE 'O' FIXTURES WITH EMERGENCY BATTERY BALLASTS. SEE SPECIFICATIONS FOR BALLAST INFORMATION.
H	AXIS	ARWLED-B1-640-35-S-3-AF-UNV-D (50% DIMMING)	3' LINEAR WALL SCENCE	NA	LED 3500K	UNV/277	30	WALL	WALL MOUNT FIXTURE VERTICALLY SO CENTER OF FIXTURE IS 6'-0" ABOVE FINISH FLOOR OR STAIR. SEE THE ARCHITECTURAL ELEVATIONS FOR ADDITIONAL INFORMATION. WHEN REQUIRED IN THE PLANS, PROVIDE FIXTURES WITH DRIVER THAT EVENLY DIMS LEDS TO 50% UPON SIGNAL FROM LIGHTING CONTROL SYSTEM. SEE THE LIGHTING CONTROL PLANS FOR ADDITIONAL INFORMATION.
K	MODA LIGHT	MOJO 4000K	LED SURFACE MOUNTED DOWNLIGHT	NA	LED 4000K	277	8	SURFACE	FIXTURE MOUNTED ON UNDERSIDE OF SOFFIT TO LIGHT EXISTING EXTERIOR HISTORICAL WALLS. COORDINATE EXACT PLACEMENT WITH THE ARCHITECT AND ENGINEER. ALL CONDUIT ROUTING TO THE FIXTURE SHALL BE CONCEALED. SEE THE ARCHITECTURAL DETAILS FOR ADDITIONAL INFORMATION.
L	FOCAL POINT	FOCAL-HN-LL3-L35-1C-277-LD1-CV-(LENGTHS AS REQUIRED)	LED COVE FIXTURE	NA	LED 3500K	277	30	COVE	FIXTURES TO BE MOUNTED CONTINUOUSLY END TO END TO PROVIDE EVENLY LIT COVE. PROVIDE ALL NECESSARY LENGTHS OF FIXTURES TO LIGHT THE ENTIRE COVE EVENLY. SEE THE ARCHITECTURAL COVE DETAILS FOR ADDITIONAL INSTALLATION INFORMATION. AIM TO EVENLY LIGHT ENTIRE COVE. COORDINATE AIMING WITH THE ENGINEER. SEE PLANS FOR FIXTURE LENGTHS.
M	NEO-RAY	S22-D-R-2-L35-U-ED-SB2	LED RECESSED LINEAR FIXTURE	NA	LED 3500K	UNV	40	RECESSED	COORDINATE TRIM KIT WITH THE CEILING INSTALLATION APPLICATION. SEE PLANS FOR RAIL LENGTHS. PROVIDE FIXTURES IN CONTINUOUS LENGTHS WHEN INDICATED END TO END. SEE ARCHITECTURAL SHEETS FOR ADDITIONAL INFORMATION.
N	BEGA	2384LED-K4-SLV	12" LONG X 3" HIGH LED RECESSED STEP FIXTURE	NA	LED 4000K	277	15	RECESSED IN WALL	RECESS FIXTURE IN WALL SO THAT BOTTOM OF FIXTURE IS AT 18" ABOVE ADJACENT FINISHED FLOOR/GRAD.
P3	INVUE	MSA-B01-LED-E1-SL3-BK POLE: INVUE SRX BLACK	12'-0" POLE MOUNTED LED PEDESTAL FIXTURE	NA	LED 4000K	277	30	POLE	SEE THE PEDESTAL FIXTURE POLE BASE DETAIL AND THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION.
P4	INVUE	MSA-B01-LED-E1-SL4-BK POLE: INVUE SRX BLACK	12'-0" POLE MOUNTED LED PEDESTAL FIXTURE	NA	LED 4000K	277	30	POLE	SEE THE PEDESTAL FIXTURE POLE BASE DETAIL AND THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION.
P5	INVUE	MSA-B02-LED-E1-SWQ-BK POLE: INVUE SRX BLACK	12'-0" POLE MOUNTED LED PEDESTAL FIXTURE	NA	LED 4000K	277	55	POLE	SEE THE PEDESTAL FIXTURE POLE BASE DETAIL AND THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION.

LIGHTING FIXTURE SCHEDULE GENERAL NOTES:

- MANY OF THE LIGHTING FIXTURES LISTED IN THE FIXTURE SCHEDULE REQUIRE SPECIAL OPTIONS TO FUNCTION PROPERLY IN THE CONTROL SCENARIOS CALLED OUT ON THE LIGHTING CONTROL PLANS AND ASSOCIATED SCHEDULE. THE CONTRACTOR SHALL CAREFULLY REVIEW BOTH THE LIGHTING CONTROL PLANS AND THE LIGHTING FIXTURE SCHEDULE TO PROVIDE FIXTURES WITH ALL NECESSARY COMPONENTS TO ENSURE FULLY FUNCTIONAL LIGHTING CONTROL SCENARIOS AS CALLED OUT IN THE PLANS.
- MULTIPLE CONTROL SCENARIOS ARE INDICATED ON THE LIGHTING AND LIGHTING CONTROL PLANS BY CIRCUITING AND/OR OTHER NOTATION. PROVIDE QUANTITY AND TYPE OF BALLASTS/DRIVERS OR OTHER COMPONENTS NECESSARY TO ACHIEVE THE CONTROL SCENARIOS INDICATED BY THE PLANS. FULLY COORDINATE BALLAST/DRIVER AND ALL LIGHTING FIXTURE COMPONENTS WITH THE LIGHTING CONTROL SYSTEM CONTRACTOR AND MANUFACTURER. THERE SHALL BE NO ADDITIONAL COMPENSATION FOR A LACK OF COORDINATION BETWEEN THE LIGHTING CONTROL SYSTEM CONTRACTOR, MANUFACTURER AND THE ELECTRICAL CONTRACTOR.

Q	INVUE	ENT-B01-LED-E1-BL4-BK	WALL-MOUNT LED SITE FIXTURE	NA	LED 4000K	277	30	WALL	WALL MOUNT FIXTURE TO EXTERIOR OF BUILDING SO THAT BOTTOM OF FIXTURE IS 9'-4" ABOVE FINISH GRADE UNLESS NOTED OTHERWISE IN THE PLANS.
R	ERCO	81044-023	6" LED RECESSED DOWNLIGHT	NA	LED 4000K	UNV	15	RECESSED	RECESSED, LED, WET LOCATION FIXTURE WITH NARROW OPTIC DISTRIBUTION. ROTATE REFLECTOR TO EVENLY LIGHT BUILDING EXTERIOR BELOW. COORDINATE AIMING WITH THE ENGINEER.
S2	MCGRAW-EDISON	TLM-B06-LED-E1-SL2-BK POLE: STREETWORKS SSS BLACK	22'-0" POLE WITH LED SITE LIGHTING FIXTURE	NA	LED 4000K	277	130	POLE	FIXTURE AND POLE TO MATCH 4H. SEE THE SITE FIXTURE POLE BASE DETAIL AND THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION. LUMINAIRES TO SHARE COMMON POLE AS INDICATED ON THE ELECTRICAL SITE UTILITIES PLAN.
S3	MCGRAW-EDISON	TLM-B06-LED-E1-SL3-BK POLE: STREETWORKS SSS BLACK	22'-0" POLE WITH LED SITE LIGHTING FIXTURE	NA	LED 4000K	277	130	POLE	FIXTURE AND POLE TO MATCH 4H. SEE THE SITE FIXTURE POLE BASE DETAIL AND THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION. LUMINAIRES TO SHARE COMMON POLE AS INDICATED ON THE ELECTRICAL SITE UTILITIES PLAN.
S4	MCGRAW-EDISON	TLM-B06-LED-E1-SL4-BK POLE: STREETWORKS SSS BLACK	22'-0" POLE WITH LED SITE LIGHTING FIXTURE	NA	LED 4000K	277	130	POLE	FIXTURE AND POLE TO MATCH 4H. SEE THE SITE FIXTURE POLE BASE DETAIL AND THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION. LUMINAIRES TO SHARE COMMON POLE AS INDICATED ON THE ELECTRICAL SITE UTILITIES PLAN.
S5	MCGRAW-EDISON	TLM-B06-LED-E1-SWQ-BK POLE: STREETWORKS SSS BLACK	22'-0" POLE WITH LED SITE LIGHTING FIXTURE	NA	LED 4000K	277	130	POLE	FIXTURE AND POLE TO MATCH 4H. SEE THE SITE FIXTURE POLE BASE DETAIL AND THE ELECTRICAL SITE UTILITIES PLAN FOR ADDITIONAL INFORMATION. LUMINAIRES TO SHARE COMMON POLE AS INDICATED ON THE ELECTRICAL SITE UTILITIES PLAN.
T	WILLIAMS LITHONIA COLUMBIA	74-14 OR 2-1-1-32 OR 17-UNV SS-1-1-32 OR 17-MVOLT-X SS-14 OR 2-1-1-32 OR 17-X-U-X	4" LED RECESSED DOWNLIGHT	NA	LED 4000K	277	20	RECESSED	RECESSED, LED, WET LOCATION, IC RATED FIXTURE. PROVIDE REQUIRED TRIM OPTIONS FOR COMPATIBLE INSTALLATION WITH CEILING TYPES SPECIFIED. PROVIDE BALLAST DISCONNECT PLUG WITH FIXTURE.
U	WILLIAMS LITHONIA COLUMBIA	74-14 OR 2-1-1-32 OR 17-UNV SS-1-1-32 OR 17-MVOLT-X SS-14 OR 2-1-1-32 OR 17-X-U-X	4'-0" OR 2'-0" LONG STAGGERED STRIP COVE FIXTURE	1 - CROSS SECTION	32W T8 (4") OR 17W T8 (2) 3500K	277	50 OR 25	COVE	PROVIDE 4'-0" LONG OR 2'-0" LONG FIXTURES AS INDICATED ON THE LIGHTING PLANS. SEE THE ARCHITECTURAL COVE DETAILS FOR ADDITIONAL INSTALLATION INFORMATION. PROVIDE CONTINUOUS LENGTHS AS INDICATED TO EVENLY DISTRIBUTE LIGHT ALONG ENTIRE COVE LENGTH.
V	PORTFOLIO KURTVERSEN	LD4A-09-D010TE-ERMA09-8-35-4LM-H A1035-10-35-27	4" LED DOWNLIGHT	NA	LED	UNV	20	RECESSED	PROVIDE REQUIRED TRIM OPTIONS FOR COMPATIBLE INSTALLATION WITH CEILING TYPES SPECIFIED. PROVIDE BALLAST DISCONNECT PLUG WITH FIXTURE.
W	NEO-RAY	S23DR-2-L35-CONTINUOUS-UNV-KWIPOR	LED RECESSED LINEAR FIXTURE	NA	LED 3500K	UNV	35	RECESSED	PRODUCT TO BE RECESSED IN HUNTER DOUGLAS TECH ZONE CEILING CONTRACTOR TO PROVIDE ALL PARTS AND PIECES FOR A COMPLETE SEAMLESS INSTALLATION. SEE PLANS FOR RAIL LENGTHS. PROVIDE FIXTURES IN CONTINUOUS LENGTHS WHEN INDICATED END TO END. SEE ARCHITECTURAL SHEETS FOR ADDITIONAL INFORMATION.

GENERAL NARRATIVE FOR THE TENANT IMPROVEMENT PACKAGE – UNL FOOD SCIENCE AND TECHNOLOGY

(REFERENCE SHEETS: G0.00C, TF1.11, TF1.21, & TF1.31)

ARCHITECTURAL GENERAL NARRATIVE FOR FUTURE TENANT WORK

The details called out as a part of the Architectural General Narrative are for contractor reference only and actual design elements of future tenant work could change as more details are coordinated and plans evolve.

ARCHITECTURAL

GENERAL REQUIREMENTS

The design and installation of all architectural systems will be in accordance with relevant portions of the following codes, standards, and publications:

- International Building Code (IBC)
- American National Standards Institute (ANSI) Standards
- National Fire Protection Association (NFPA) Codes
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)

The Tenant Improvement narrative includes information for the first, second, and third floors of the North Building (Area A) and the first and second floors of the South Building (IAB) for the Life Science Collaboration project.

Research and Teaching Laboratory Furnishings

Teaching and research laboratories will be located mainly on the first, second and third floors new north laboratory building. These spaces will include standard laboratory furnishings consisting of pre-manufactured wood laboratory casework with epoxy resin tops and epoxy resin sinks where shown. All hardware incorporated into the laboratory casework will be stainless steel. Where indicated, these spaces will be equipped with chemical fume hoods that are generally 6'-0" wide. Base cabinetry under fume hoods will either consist of pre-manufactured steel casework that is purpose built for the storage of either flammable or corrosive chemicals. See later discussion concerning fume hood type. Most teaching and research laboratories will be equipped at regular intervals with standard laboratory piped services including laboratory compressed air, laboratory vacuum, natural gas and purified (reverse osmosis) water at some sink locations.

Each teaching laboratory will be equipped with at least one sink and fume assembly that is accessible. Accessible sink and fume hood stations will also distributed in the research laboratories on the upper floors. Some specialized and support spaces such as food grade laboratories and sterilization rooms may be equipped throughout with stainless steel laboratory casework.

Fume Hoods

All fume hoods associated with the project will be high performance hoods designed to operate at face velocities as low as 60 FPM.

Pilot Plant

The pilot plant will be located mainly on the first floor of the IAB building. These spaces will include processing areas, storage, and walk in cooler / freezers. Wall construction will be both CMU and metal stud partition walls.

Locker Rooms / Restrooms

The restrooms will be located on the first floor of the IAB building. The restrooms will include standard fixtures, roll in shower, and lockers. Finishes include wall and floor tile with a gypsum wallboard ceiling.

Offices

The majority of offices will be located on the second floor of the IAB building.

General Construction: Cast in Place concrete floor and beam system with metal stud partition walls. The majority of the doors will be wood with a hollow metal frame and include a sidelight.

All metal stud and gypsum board partition construction that separates laboratory spaces and offices will extend from floor to structure above and include sound batt insulation. Laboratory and support spaces will include a mix of acoustic ceiling panels and gypsum wallboard.

MEP GENERAL NARRATIVE FOR FUTURE TENANT WORK

The details called out as a part of the MEP General Narrative are for contractor reference only and actual design elements of future tenant work could change as more details are coordinated and plans evolve.

MECHANICAL

GENERAL REQUIREMENTS

The design and installation of all mechanical systems will be in accordance with relevant portions of the following codes, standards, and publications:

- International Building Code (IBC)
- International Energy Conservation Code
- International Mechanical Code
- International Plumbing Code
- American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Handbooks and Standards
- American National Standards Institute (ANSI) Standards
- National Fire Protection Association (NFPA) Codes
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)

The following temperature and ventilation parameters will be used as the basis for the design of the building HVAC systems:

- Indoor Design Conditions:
 - Winter Dry Bulb Temperature:
 - Laboratory areas 72 Deg. F
 - Laboratory support areas 72 Deg. F
 - Classroom areas 72 Deg. F
 - Office/general use areas 72 Deg. F
 - All other areas: 72 Deg. F
 - Summer Dry Bulb Temperature:
 - Laboratory areas 73 Deg. F
 - Laboratory support areas 73 Deg. F
 - Classroom areas 75 Deg. F
 - Office/general use areas 75 Deg. F
 - All other areas: 75 Deg. F
 - Summer/Winter Relative Humidity:
 - All areas 30-60% RH
- Minimum Ventilation Rates:
 - Laboratory areas w/ fume hoods 6 ACH (occ.), 3 ACH (unocc.)
 - All other areas per ASHRAE requirements
- The following noise criteria conditions will be used:
 - All areas NC<40

MECHANICAL SYSTEMS

Air Handling, Exhaust, and Energy Recovery Systems

All air handling equipment needed for the proposed tenant finishes will be provided in the shell package. The equipment includes air handling units, general and fume exhaust fans, and energy recovery wheels.

Supply, Return and Exhaust Air Distribution Systems

A variable air volume (VAV) air distribution system will be utilized for all areas. With this system type, each non-laboratory temperature control zone will be served by a supply VAV box with an integral hot water reheat coil, while each laboratory temperature control zone will be served by a high-speed air valve and hot water reheat coil. The VAV box/air valve will modulate its damper position to maintain the required airflow as system pressure fluctuates. A heating water 2-way control valve will modulate water flow to the reheat coil to maintain desired zone temperature conditions. Supply air ductwork will generally be galvanized steel construction.

The exhaust system will operate in a VAV mode similar to the supply air system. Each temperature control zone will be served by an exhaust VAV box or air valve. In non-laboratory zones, the airflow of the exhaust VAV box will “track” the airflow of the corresponding zone supply VAV box to

guarantee proper space pressurization is maintained. In laboratory zones, a fume hood air valve will be used to provide proper fume hood face velocity and a general exhaust air valve will modulate to provide proper room pressurization and minimum ventilation rates. Exhaust air ductwork will generally be galvanized steel construction. However, all ductwork serving fume hoods, canopy hoods, or other specialized equipment will be stainless steel construction.

Fume exhaust air will be ducted back to the high-plume dilution exhaust fans, while the general exhaust air will be ducted back to the energy recovery wheels in the 100% outdoor air units.

Room occupancy sensors will be used to reduce the airflow to the spaces during unoccupied hours. In laboratory areas, the airflow will be reduced, but will still be sufficient to maintain minimum code-required ventilation rates.

Chilled Water System

The building will be served by a new chilled water plant in the south first floor mechanical room. No additional process cooling equipment or chilled water coils are expected for the future tenant work.

Heating Water System

The building will be served by a new heating water plant in the south first floor mechanical room. Heating water piping will be extended to new reheat coils provided in future tenant work. Pipe kits and pressure independent control valves will be provided for all new coils.

Steam and Condensate System

No steam generation equipment is included in the shell package. No additional steam needs are expected for the tenant finish package. However, these needs may change in subsequent design phases.

Building Management System

A new Building Management System (BMS) will be installed to serve the entire facility. The new system will utilize direct digital controls (DDC). Connections to and from the BMS and new devices will be installed with the tenant finish package.

PLUMBING SYSTEMS

Water Systems

Potable cold water, hot water, hot water recirculation, laboratory cold water, laboratory hot water, and laboratory hot water recirculation mains will be installed in the shell package. Extensions of these systems from the mains on each floor to new fixtures in the tenant package will be required.

No tempered water system is provided in the shell package. However, the need for such may be required based on future user meetings and subsequent design phases.

Pure Water Systems

A central pure water system will be installed in the core and shell package. Extension of pure water from the mains on each floor to new fixtures in the tenant package will be required.

Waste and Vent Systems

Sanitary waste and vent and laboratory waste and vent piping mains will be installed in the shell package. Additionally, a central neutralization basin will be provided on exterior grade in the shell package. Extensions of these systems from the mains on each floor to new fixtures in the tenant package will be required.

Natural Gas Systems

Natural gas will be provided in the shell package, but only to required equipment (water heaters, humidifiers), and is not routed throughout each leasable space. The need for general natural gas is not expected in any future tenant space. However, based upon future user meetings and subsequent design phases, an extension of natural gas may be required.

Specialized Lab Gas Systems

Central laboratory gas, laboratory air, and laboratory vacuum systems will be provided in the shell package. Extensions of these systems from the mains on each floor to new fixtures in the tenant package will be required.

FIRE PROTECTION SYSTEMS

A new NFPA 13 compliant wet-pipe sprinkler system will provide full coverage for the building. Quick-response sprinklers will be used throughout the facility. Water supply for the system will be provided by extending services from the mains routed in each leasable space in the shell package. All extensions of the sprinkler piping and sprinkler zoning will comply with NFPA 13 and other local requirements.

Code-required fire dampers, smoke dampers, and fire/smoke dampers will be installed as necessary in the new tenant improvements.

Design of the fire protection systems is subject to review by the Authority Having Jurisdiction (AHJ) and may require modifications in subsequent design phases.

ELECTRICAL

The design and installation of all electrical systems and devices will be in accordance with relative portions of the following codes, standards, and publications:

- National Electrical Code; NFPA #70
- National Fire Protection Association (NFPA) Standards
- National Electrical Safety Code (NESC)
- The International Building Code (IBC)
- ASHRAE Standards for the design of energy efficient buildings
- International Energy Conservation Code (IECC)
- International Fire Code

- American National Standards Institute (ANSI) Standards
- National Electrical Manufacturer's Association (NEMA) Standards
- Underwriter's Laboratories, Inc. (UL)
- Illuminating Engineering Society (IES) Lighting Handbook
- Americans with Disabilities Act Accessibility Guidelines (ADAAG)

Electrical Distribution System

Electrical service will be provided to for future tenants by making use of the electrical infrastructure included in the Core and Shell package. New electrical feeders will be extended to tenant specific panelboards and equipment. Additional, dry type transformers and panelboards will be provided as required to support the necessary 208Y/120 volt, 3-phase, 4-wire distribution system throughout the facility. In general, HVAC equipment and large equipment loads will be served at 480 volts, 3-phase. Fluorescent and HID lighting throughout the facility and on site will be served at 277 volts, single phase. Classroom, office, laboratory and computer equipment, as well as general-purpose receptacle circuits will be served at 120 volts, single phase. All other equipment and devices will be served by the appropriate distribution system voltage

Additional electrical distribution system details include the following:

- Panelboards will make use of circuit breakers for overcurrent protection of feeders and branch circuits.
- Copper bussing will be provided for all electrical distribution system equipment.
- Separate panelboards will be used to support facility lighting and general-purpose electrical requirements.

Lighting Systems

Lighting systems throughout the facility will be designed in accordance with tenant and Owner design guidelines, IES recommendations and applicable energy codes.

The majority of the building lighting will tie into the network lighting control system.

Occupancy sensors will be used throughout most spaces to provide automatic off of lighting loads during unoccupied times. In addition, where daylighting opportunities exist, the use of daylighting controlled lighting systems will also be investigated. In general, lighting systems will be as follows:

- Lighting for classrooms will be designed in accordance with all tenant and Owner standards. In general, lighting will be provided by direct/indirect pendant or highly efficient recessed fluorescent or LED fixtures with photometry that minimizes issues associated with direct and indirect glare on computer screens, television monitors and projection screens. Fixture layouts will be provided to prevent excessive illumination levels on projection screens, and to provide maximum uniformity for classroom tasks. Fixtures will be controlled locally within each room by lamp and by row to allow multiple lighting levels and zones for maximum flexibility. Accent lighting will be provided as required to support podium locations in large lecture halls. In addition, wall wash fixtures will be utilized to light marker boards when applicable. When the size and audio/visual needs of classroom or lecture hall warrant, additional control such as a programmable dimming system will be utilized to integrate with other audio/visual controls in the space. Such systems will be designed to provide various light level presets for a wide array of uses including audio/visual presentations.

- For traditional lab areas, it is critical to provide appropriate illumination levels on benchtops, to minimize the impact of shadows created by equipment, casework and personnel, and to minimize the effects of direct and indirect glare on computer and equipment screens. In addition, it is imperative that labs be provided with lighting fixtures that can withstand environmental conditions in each space. If floor to floor ceiling space allows, a direct/indirect type of lighting system best satisfies all of the illumination requirements in most wet lab spaces. However, if ceiling heights are limited by structural and mechanical considerations, it is difficult to achieve maximum ceiling uniformity for indirect lighting components. An option to the direct/indirect approach is to make use of 1'x 4', recessed direct/indirect fluorescent or LED fixtures. This type of lighting provides adequate levels of illumination on benchtops and helps to minimize issues associated with glare while still providing illumination of vertical surfaces. In labs that make use of a significant amount of chemicals, the most prudent approach to lighting is to make use of 1'x 4' recessed lensed fluorescent or LED troffers. This type of illumination reduces shadowing and provides adequate illumination levels; however, glare can be a problem on computer and equipment screens. Lighting for each wet laboratory space will be fully coordinated with the users and Owner to determine the most appropriate type of system. Normal fixtures in laboratories will be enabled by occupancy sensors, and controlled locally within each space. A portion of the lighting in all laboratories will be connected to the emergency generator system. Task lighting will be provided in each laboratory according to direction provided by the users.
- In food processing areas, it is imperative that labs be provided with lighting fixtures that can withstand environmental conditions in each space. IP65 rated light fixtures will be used to support potential wash down of the area. Normal fixtures in processing spaces will be enabled by occupancy sensors or low voltage switches, and controlled locally within each space. A portion of the lighting in all processing spaces will be connected to the emergency generator system.
- In general, private offices will be lighted with 2'x 4' or 1' x 4', high efficiency fluorescent or LED fixtures. Fixtures will be enabled by occupancy sensors and will be controlled locally to allow for maximum flexibility.
- In general, lighting in corridors will be provided by high efficiency fluorescent or LED troffers, pendant mounted direct/indirect fluorescent fixtures or LED downlight fixtures. A portion of these fixtures will be connected to the emergency generator system to provide Code required emergency egress lighting and night lighting. All normal lighting fixtures will be connected to a lighting control system so they are turned off when the building is normally unoccupied.
- Metal halide, high pressure sodium or LED type building and pole mounted lighting fixtures will provide exterior illumination in accordance with Campus and University requirements. Fixtures will be controlled by photocell devices or by connection to a building lighting control system.

All fluorescent fixtures will be provided with high frequency, solid state, programmed rapid start electronic ballasts.

Receptacle Layouts

Receptacle layouts and circuiting to support computer equipment, classroom equipment, laboratory equipment, telecommunications equipment and general purpose needs will be

provided in accordance with direction provided by building users the Owner. Overhead busway may be considered in open laboratory spaces with floor or moveable bench mounted equipment that needs flexible overhead power available.

Two or three channel surface metal raceway systems will be provided above benches in teaching and research labs to support the distribution of power, telecommunications and instrumentation cabling to computer and laboratory equipment. Duplex receptacles will be installed in surface metal raceway systems at intervals dictated by building users. Receptacles in raceway systems will be connected to alternate 20-amp branch circuits. All electrical devices in laboratories will be labeled with the panel source and circuit number.

Dedicated receptacles and circuits will be provided as required to support specific equipment locations throughout the facility. All receptacle branch circuits will be provided with equipment ground conductors. All branch circuit wiring will be copper and will be installed in concealed raceway systems. Ground fault interrupting type receptacles will be provided in all Code required locations, and in all designated "wet" locations throughout the facility.

Power and low voltage wiring to floor locations will be provided by either poke-thru devices or floor boxes as coordinated with the users and Owner.

Special Systems

Electrical work to support the telecommunications, access control, lighting control and video security systems will be required. Details calling out demarcation of responsibilities for these systems will be issued with each tenant package.

Fire Alarm System

The building's fire alarm system will be extended as necessary for each area of tenant fit-out.