



Department of Public Works

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November 3, 2023

ADDENDUM NO. 2
City of Madison, Engineering Division

CONTRACT NO. 9361
STATE STREET CAMPUS GARAGE MIXED-USE PROJECT

This addendum is issued to modify, explain or correct the original Drawings, Specifications, or Contract Documents marked as **State Street Campus Garage Mixed-Use Project, Contract #9361, as issued on October 2, 2023** and is hereby made a part of the contract documents.

Please acknowledge this addendum on page E1 of the contract documents and/or in Section E: Bidder's Acknowledgement on Bid Express.

Electronic version of these documents can be found on Bid Express at <https://www.bidexpress.com/> and the City of Madison web site at <http://www.cityofmadison.com/business/PW/contracts/openforBid.cfm>

If you are unable to download plan revisions associated with the addendum, please contact the Engineering office at (608) 266-4751 to receive the material by another method.

For questions regarding this bid, contact:

Maria Delestre
PH: (608) 243-5891
Email: MDelestre@CityofMadison.com
210 Martin Luther King Jr. Blvd
Room 115
Madison, WI 53703

Sincerely,

James M. Wolfe, P.E.
City Engineer



This addendum modifies the following documents:

1. Exhibit A Drawings Volume 1 dated 10_2_2023
 - A. See EUA Document Addendum P1_AD02
2. Exhibit B Drawings Volume 2 dated 10_2_2023
 - A. See EUA Document Addendum P1_AD02
3. Exhibit C Specifications Volume 1 dated 10_2_2023
 - A. See EUA Document Addendum P1_AD02
4. Exhibit D Specifications Volume 2 dated 10_2_2023
 - A. See EUA Document Addendum P1_AD02

This addendum adds the following documents to the bid package:

1. Reference-12 Open Cell Insulating Units
2. Reference-13 Substitution Requests

Please attach these Addendum documents to the Drawings and Project manual in your possession.

1. GENERAL CONTRACT CONDITIONS

- A. No Change

2. GENERAL QUESTIONS AND ANSWERS

- A. See EUA – Bidder Questions and Answers

3. ACCEPTABLE EQUIVALENTS

- A. See updated 03 30 00 CAST-IN-PLACE CONCRETE
 - i. Added additional crystalline water proofing admixture
- B. See updated 08 51 13 ALUMINUM WINDOWS
 - i. Added Tubelite as an additional acceptable alternate manufacturer
- C. REJECTED – Common Work Results for Flooring Preparation – Remedial Floor Coating for Spec Section 09 05 61
 - i. Reason for rejection: We do not permit substitutions to the slab moisture mitigation materials listed in the common work results for floor prep spec.
- D. REJECTED - Fire Rated Aluminum Window substitution request for Spec Section 08 41 24
 - i. Reason for rejection: All the the required information and products were not included with and listed in the substitution request. The substitution request was only written for Aluflam (did not include VDS) and appeared to only include Aluflam window products with up to a 60 minute fire rating. The fire rated aluminum windows in the stairs at the Northeast and Southeast corners of the building are required to be 2-hr rated. The substitution request did not include the 2-hr rated Aluflam curtain wall product. A revised substitution request listing all applicable products and supporting comparative documents would be considered post bid if submitted by the successful bidder, assuming the design team determines the proposed substitutions are equal to or better than the specified basis of design products.

4. SPECIFICATIONS

- A. See EUA Document Addendum P1_AD02

5. DRAWINGS

- A. See EUA Document Addendum P1_AD02



6. PROPOSAL

A. No Change



Bidder Question and Answers

State Street Campus Garage Mixed Use Project - Addendum No. 2

Date: 2023.11.02

No.	Bidder Question	Source	Response
02	Addendum No. 2		
02.1	Specification section 22 05 33 Heat Tracing For Plumbing Piping parts 2.1 and 2.2 have not been modified for project specific requirements.	10-17-23 Email from Darren Schumacher	Revised 22 05 33 Heat Tracing For Plumbing Piping included in this Addendum
02.2	Plumbing drawing is showing (qty 3) 4"TD-1 serving the elevators in the elevator lobby 246. There is no reference to TD-1 on the plumbing drain schedule on P0000-1 or in the plumbing specification. 4"TD-1 are also shown on P1003-A-1 and P1004-A-1.	10-17-23 Email from Darren Schumacher	Revised plumbing drain schedule to include TD-1.
02.3	TLT 181A is showing a WC-2 watercloset that is scheduled to have a battery operated flush valve with a L-1 that is scheduled to have a hardwired faucet. Should both fixtures have battery operated valves?	10-17-23 Email from Darren Schumacher	Revised lavatory in TLT 181A to be L-2 battery operated faucet.
02.4	TLT 185A is showing a WC-2 watercloset that is scheduled to have a battery operated flush valve with a L-1 that is scheduled to have a hardwired faucet. Electrical drawing E8001-1 is showing a wired connection to this location. Should both fixtures have battery operated valves or hardwired.	10-17-23 Email from Darren Schumacher	Revised lavatory in TLT 185A to be L-2 battery operated faucet.
02.5	The motor connection schedule has the ERH-2a thru ERH-2f are scheduled as 480V/3ph per the schedule on mechanical drawing M8001-1 those units are scheduled as 208V/1PH.	10-17-23 Email from Darren Schumacher	Revised ERH-2a thru ERH-2f schedule on M8001-1 to correct electrical requirements (480V/3ph).
02.6	The motor connection schedule is showing an EWH-11 serving the plumbing room. The schedule on mechanical drawing M8001-1 does not have this electric wall heater.	10-17-23 Email from Darren Schumacher	Removed EWH-11 from motor connection schedule on E8002-1. EWH-11 will not be provided per drawings.
02.7	The motor connection schedule is showing an EWH-TB that is serving room 180. The schedule on mechanical drawing M8000-1 does not have this electric wall heater.	10-17-23 Email from Darren Schumacher	Removed EWH-TB from motor connection schedule on E8002-1. EWH-TB will not be provided per drawings.
02.8	The motor connection schedule is not showing the plumbing circulation pumps CP- 1, CP-2, and CP-3.	10-17-23 Email from Darren Schumacher	Added electrical connections for CP-1, CP-2, and CP-3 in motor connection schedule one E80002-1.
02.9	The motor connection schedule has the following electric wall heaters EWH-5,6,7, 12,14 scheduled as 208v/1ph. Per the schedule on mechanical drawing M8000-1 those electrical wall heaters are scheduled as 208v/3ph.	10-17-23 Email from Darren Schumacher	Revised EWH-5,6,7,12,14 in motor connection schedule on E8002-1 to correct electrical requirements (208V/3ph).
02.10	The motor connection schedule has the transfer fan TF-1 scheduled as 208v/1ph. Per the mechanical schedule on drawing M8000-1 the TF-1 is schedule as 115V/1ph.	10-17-23 Email from Darren Schumacher	Revised TF-1 in motor connection schedule on E8002-1 to correct electrical requirements (115V/1ph).
02.11	The electrical drawing is not showing the power connection for plumbing CP-1 in room 191 and plumbing CP-2 in room 185A.	10-17-23 Email from Darren Schumacher	Added electrical connections for CP-1, CP-2, and CP-3 in motor connection schedule one E80002-1.
02.12	The electrical drawing is not showing the power connection for plumbing CP-3 in room 181A.	10-17-23 Email from Darren Schumacher	Added electrical connections for CP-1, CP-2, and CP-3 in motor connection schedule one E80002-1.



02.13	In case of conflicts between the CITY OF MADISON Standard Specifications for Public Works Construction 2023 Edition and the AE project-specific specs (9361 Exhibit-C Specifications Volume 1 dated 10_2_2023), could you provide clear direction on which takes precedence?	10-26-23 Email from Lou Olson	In the event of a conflict in the documents that Contractor will provide the greater quantity and/or greater quality.
02.14	We suspect that an Earth Retention System (ERS) was likely incorporated in the original 1962 Ramp project. Where can we find historical records or information about this within the city's archives? Is there a designated office or contact for this?	10-26-23 Email from Lou Olson	All available historical records of the existing building and neighboring buildings have been provided in the Bid Documents and Addendum No. 1.
02.15	Is there a way to verify the foundation of existing adjacent buildings prior to bidding, if reference is not noted on the as-builts? As of this question I have not seen the as builts that contractors were going to be able to have access to.	10-26-23 Email from Lou Olson	All available historical records of the existing building and neighboring buildings have been provided in the Bid Documents and Addendum No. 1.
02.16	Has the City of Madison secured easements for the use of aerial work platforms with neighbors to both the North and South (different than air rights)?	10-26-23 Email from Lou Olson	Provide bid based on assumption neighboring easements will allow swing stage equipment.
02.17	Regarding Section D-6 109.9 Questions and or clarifications relating for liquidated damages. Are liquidated damages compounding? <ul style="list-style-type: none">• If Interim Date 1 Completion is missed, and the Developer work starts later but planned duration remains the same, Interim Completion Date #3 will likely also be missed. Would the \$10,000 per calendar day be applied to the Interim Completion Date #1, and then also Interim Completion Date #2.• In addition, how will LD's be handled if Interim Completion Date #1 is made, and Interim Completion Date #3 is not made because the Developer has not completed their work which impacts the ability for Phase 1 to receive final occupancy sign off?	10-26-23 Email from Lou Olson	<p>The max the Contractor will be charged is \$10,000 per calendar day. If the Contractor misses Completion Date #1, liquidated damages will be charged until work is complete per the Contract. If the delay related to Completion Date #1 results in Completion Date #3 not being made then the Contractor would be charged liquidated damages for every day after Completion Date #3 until work is complete per the Contract.</p> <p>If the Developer causes a delay to the Contractor and Contractor is unable to meet Completion Dates #2, #3 or #4 as a result, the Contractor is required to notify the City of Madison formally, and should seek an extension of time under Sec. 109.8 (for work delayed because of conditions beyond the control of the Contractor). If an extension is granted, the Developer caused delay will not result in the imposition of liquidated damages.</p>
02.18	Sections 104.1, 105.12, etc., mandate coordination with various stakeholders. Could you provide more clarity on how conflict resolution will be managed, especially when coordination is not in the best interest of certain stakeholders? Sub-Questions: <ul style="list-style-type: none">• How should we navigate scheduling around major public events like Badger Game Day, Maxwell Street Days, etc.?• Is a list of what the major civic/public events available or a metric that is used to understand better?• What's the protocol for ensuring our work doesn't disrupt these events? (What guidelines should we follow for scheduling around major public events.)	10-26-23 Email from Lou Olson	<p>The Contractor will have control of the site per the drawings and Reference-3 Construction Logistics Plan with Developer. Any Street occupancy permits will need to be coordinated and procured from City of Madison Traffic Engineering/Parking Utility.</p> <p>Knowledge of events surrounding the project is the responsibility of the Contractor. Scheduling of deliveries and ensuring those deliveries follow City of Madison Ordinances is the responsibility of the Contractor.</p>



02.19	To proceed with the demolition of the bridges, we'll need both access and a designated safe area within the Frances Street ramp. Could you clarify the City's specific expectations and or provisions afforded to the contractor for this specific work?	10-26-23 Email from Lou Olson	The Contractor shall provide the City's Construction Manager a proposed schedule and details of the required area needed at least 2 week ahead of the proposed demo activity start date. City Staff will coordinate with Contractor to provide access. It is understood that some parking stalls in the Frances St. Garage may need to be blocked off to complete this work. Contractor is expected to provide a safe work area separate from the public. Once work is started the Contractor will complete the work without delay. Once demolition is complete the openings should be addressed per the details in the Contract Drawings.
02.20	Please confirm. Would the City be open to negotiating mutually agreeable language relating to a mutual waiver of claims for consequential damages with the successful contractor?	10-26-23 Email from Lou Olson	No - the City may not negotiate contractual terms with the successful bidder.
02.21	Sheet A3203-1 labels one wall of the elevator shaft to be B2010-00 burnished block. Please clarify whether all the walls of the elevator shaft shall be burnished. Should the Stair shaft be burnished block as well and if so, should the stairwell be burnished inside and out?	10-26-23 Email from Lou Olson	The referenced wall of the elevator and stairwell is not to be burnished block. Addendum No. 2 revises this annotation.
02.22	Is phase 1 considered a prevailing wage project?	10-25-23 Email from Collin Zuehlke	No – prevailing wage not required.
02.23	In looking at the exterior walls being single wythe burnished block. a. Is there any possibility of utilizing a swing stage to strike joints effectively on the outside or are the limits of the construction going to be too tight That we will?	10-25-23 Email from Collin Zuehlke	See response to 02.16.
02.24	On the north and South Elevations there appears to be (2) colors of burnish block veneer. Is there a shaded exterior elevation deviating the (2) apart?	10-25-23 Email from Collin Zuehlke	Wall sections show the deviation
02.25	Shown on elevations C3/A2004-1 & D4/A2005-1. There is burnished block veneer that is within L1. I assume that the CMU BU is to be within the Phase 1 contract and the veneer/insulation/AVB is to be within the Phase 2 contract.	10-25-23 Email from Collin Zuehlke	Updated drawings A2004-1 & A2005-1 included in Addendum No. 2 to clarify exterior work Phasing responsibility.
02.26	Insulated units – I have a proposed solution to help achieve an insulated wall for this as they (County Materials) don't make a burnished block insulated unit if there's any openness to hearing about this?	10-25-23 Email from Collin Zuehlke	According to Reference-12 Open Cell Insulating Units, County Materials has the open cell insulating units and Thermal Block units in Burnished. Other manufacturers' products or other insulating options can be submitted for review/approval by the awarded contractor.
02.27	On structural drawings for levels P2 through P6 (P7 is not identified); Between column lines 1-3 on column line K; can you confirm that this is an MW-1 and not a MW-2 as both are shown, but no schedule is identified for a MW-2.	10-25-23 Email from Collin Zuehlke	MW-2 labeling was in error and this has been addressed in Addendum 02
02.28	Is there any thought into providing the current concrete shear wall into 12" Masonry walls?	10-25-23 Email from Collin Zuehlke	Not at this time
02.29	Detail 6,7, and 8 on Sheet S4001-1 reference back to sheets S1000A-1 through S1007B-1 for deck elevations. Change in deck elevations at slab transitions	10-26-23 Adam Mastalir	Overall framing plans (i.e. S1001-1, S1002-1, S1003-1...) contain the slab information requested – elevations, slab diagrams/thicknesses.



	are not noted on plans (see images below). Can you please clarify what the tops of deck elevation would be for these conditions?		
02.30	Please clarify the extent of cut section 4/S3002-1 and 5/S3002-1 as it relates to Gridline K between gride lines 1 and 8 on sheet S1000-B-1?	10-26-23 Adam Mastalir	Added extent arrows and a slab edge detail (11/S4000-1) at the 7th floor to address question.
02.31	Please clarify unmarked column shown on gridline H of Concrete Column Key Plan of sheet S2000-1.	10-26-23 Adam Mastalir	See updated S2000-1 calling out detail 9/S4010-1. Detail 9/S4010-1 has also been updated in Addendum No. 2.
02.32	Please clarify the deck thickness on P4 between gridlines 1 and 3 and A and K as the plans appear to indicate that there is a Top of Slab Offset plan east of Gridline 3	10-26-23 Adam Mastalir	Overall framing plans (i.e. S1001-1, S1002-1, S1003-1...) contain the slab information requested – elevations, slab diagrams/thicknesses.
02.33	Please clarify if a structural detail will be provided as part of Phase 1 for the Phase 2 exterior wall system that is bearing on the 7th floor concrete deck. We would be expecting embeds in the top of 7th floor and/or curb wall for this system to bear on.	10-26-23 Adam Mastalir	Added extent arrows and a slab edge detail (11/S4000-1) at the 7th floor to address question.
02.34	As discussed, the Phase 1 contractor (and affected subcontractors) will need to re-mobilize for final completion at the end of the Phase 2 portion of the work which is more than a year after the Phase 1 substantial completion date. Will retainage be significantly reduced at the end of the Phase 1 work while Phase 2 work is executed? If yes, what will define substantial completion as some of the Phase 1 work will not be able to be tested/inspected until Phase 2 work is complete?	10-16-23 Bid Talk	Retainage will be released based on Contract Documents. Please review Spec Section 01 29 73 and 01 29 76.



STATE STREET CAMPUS GARAGE MADISON, WI 20448

OWNER:	CITY OF MADISON
From ARCHITECT:	EPPSTEIN UHEN ARCHITECTS, INC
To CONTRACTOR:	BIDDERS
DATE OF ISSUANCE	11/02/2023

This Addendum is issued to modify, explain or correct the original drawings and project manual and is hereby made a part of the Contract Documents. Please attach this Addendum to the specifications in your possession.

Each Bidder shall carefully read all items in their entirety and thoroughly examine the Contract Documents to determine what extent various clarifications, changes, and conditions will affect their bid.

I. PROJECT MANUAL

SPECIFICATIONS

03 30 00	CAST-IN-PLACE CONCRETE
2.04 F 7	ADD additional crystalline water proofing admixture.
08 51 13	ALUMINUM WINDOWS
2.01 A 1 b	ADD Tubelite as an additional acceptable alternate manufacturer.
2.02 A	REVISE various aluminum window performance requirements.
08 71 00	DOOR HARDWARE
1.03 B 6	ADD Pre-procurement/Installation meeting requirements paragraph
22 05 33	HEAT TRACING FOR PLUMBING PIPING
	REVISE SECTIONS 2.1, 2.2, 2.3, 3.1, AND 3.2
23 05 20	VARIABLE FREQUENCY DRIVES
	REVISE UNIT OPERATING REQUIREMENTS RELATED TO AMBIENT TEMPURTURE RATING
23 09 03	CONTROL INSTRUMENTATION
	REVISE ANALOG ELECTRONIC INSTRUMENTATION SECTION
	ADD AIRFLOW STATION SECTION

- 23 83 23 ELECTRIC INFRARED RADIANT HEATER
ADD ELECTRIC INFRARED RADIANT HEATER SPECIFICATION SECTION
- 26 06 33 RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS
ADD CLARIFICATION TO UTILIZE RMC CONDUIT FOR EXPOSED VERTICAL RISERS AND TRANSITION TO EMT WHEN ROUTING CONDUIT ACROSS PARKING DECK.

II. CONSTRUCTION DOCUMENTS

STRUCTURAL Sheets (S)

- S0002-1 DESIGN CRITERIA
REVISED allowable bearing pressure
- S1000-A-1 FOUNDATION PLAN – ZONE A – PHASE 1
REVISED spread footing sizes
REVISED mat footing sizes
ADDED bottom bar at column
REVISED top of wall elevation
REVISED the elevator core footing thickness
REVISED quantity of bottom bars for the elevator core footing
REVISED the top bars for the elevator core footing
- S1000-B-1 FOUNDATION PLAN – ZONE B – PHASE 1
REVISED spread footing sizes
REVISED mat footing sizes
REVISED top bars from mat footing
REVISED bottom bars from mat footing
REVISED quantity of bottom bars from mat footing
REVISED thickness of mat footing
REVISED spacing of east-west bottom bars
REVISED column offset from gridlines
ADDED column offset from gridlines
ADDED continuous footing
ADDED top bars in mat footing
- S1001-1 1st FLR FRAMING PLAN – OVERALL – PHASE 1
ADDED top of wall elevations
ADDED similar callout for detail
ADDED detail cut callouts
ADDED brick ledge callout

S1001-A-1	1 st FLR FRAMING PLAN – ZONE A – PHASE 1 ADDED top and bottom reinforcement ADDED spacing of top bar callout
S1001-B-1	1 st FLR FRAMING PLAN – ZONE B – PHASE 1 ADDED top and bottom reinforcement REVISED force of PT cables REVISED path of PT cables REVISED hooked top and bottom bars ADDED spacing to hooked top bars
S1002-1	2 nd FLR FRAMING PLAN – OVERALL – PHASE 1 ADDED detail cut callout ADDED brick ledge callout ADDED typical dimension callout
S1002-A-1	2 nd FLR FRAMING PLAN – ZONE A – PHASE 1 REVISED force of PT cables REVISED quantity of bottom bars ADDED additional PT cables
S1002-B-1	2 nd FLR FRAMING PLAN – ZONE B – PHASE 1 ADDED slab opening REVISED spacing of top and bottom bars ADDED slab opening bars ADDED hooked top and bottom bars REVISED force of PT cables REVISED path of PT cables
S1003-1	P3 FLR FRAMING PLAN – OVERALL – PHASE 1 ADDED detail cut callout REVISED detail callout number ADDED steel braces and corresponding detail REVISED opening at Stair 4
S1003-A-1	P3 FLR FRAMING PLAN – ZONE A – PHASE 1 REVISED force of PT cables REVISED slab opening bar location REVISED slab opening ADDED additional top and bottom bar near slab opening REVISED quantity of column top bars

- S1003-B-1 P3 FLR FRAMING PLAN – ZONE B – PHASE 1
 REVISED force of PT cables
 REVISED path of PT cables
 ADDED slab opening
 ADDED reinforcing bars for slab opening
 ADDED bottom bar
 REVISED Location of additional PT tendons
- S1004-1 P4 FLR FRAMING PLAN – OVERALL – PHASE 1
 ADDED detail cut callout at beams
 ADDED detail at split ramp
 ADDED slab diagrams
 REVISED opening at Stair 4
- S1004-A-1 P4 FLR FRAMING PLAN – ZONE A – PHASE 1
 REVISED force of PT tendon
 REVISED quantity of top column bars
 ADDED bottom column bars
 ADDED callout for hooked top and bottom bars
 ADDED top bar between slab openings
 REVISED location of slab opening bars
 ADDED bottom bars along slab opening
 REVISED extents of the slab opening
- S1004-B-1 P4 FLR FRAMING PLAN – ZONE B – PHASE 1
 REVISED force of PT tendon
 REVISED quantity of top column bars
 ADDED bottom column bars
 REVISED PT tendon path
 ADDED uniform PT tendons
 ADDED additional PT tendons
 ADDED top and bottom hooked bars
 ADDED slab opening
 ADDED slab opening bars
 ADDED bottom bars near slab opening
- S1005-1 P5 FLR FRAMING PLAN – Overall – PHASE 1
 REMOVED detail 2/S4021-1
 ADDED detail cut callout at beams
 ADDED slab diagrams

REVISED "typ" note at detail 3/S4021-1

S1005-A-1 P5 FLR FRAMING PLAN – ZONE A – PHASE 1

REVISED force of PT tendons

ADDED column bottom bar

ADDED top and bottom bar along slab opening

REVISED location of slab opening bars

REVISED extents of slab opening

S1005-B-1 P5 FLR FRAMING PLAN – ZONE B – PHASE 1

REVISED force of PT tendons

REVISED path of PT tendons

ADDED slab opening

ADDED slab opening bars

ADDED top and bottom hooked bars

ADDED bottom bar along slab opening

S1006-1 P6 FLR FRAMING PLAN – OVERALL – PHASE 1

ADDED detail at beams

ADDED slab diagrams

ADDED detail at split ramp

S1006-A-1 P6 FLR FRAMING PLAN – ZONE A – PHASE 1

REVISED force of PT tendons

ADDED bottom bar

ADDED top and bottom hooked bars between slab openings

REVISED location of slab opening bars

REVISED extents of slab opening

S1006-B-1 P6 FLR FRAMING PLAN – ZONE B – PHASE 1

REVISED force of PT tendons

REVISED path of PT tendons

ADDED uniform PT tendons

REVISED the profile of the PT tendons

ADDED top and bottom hooked rebar

ADDED slab opening

ADDED slab opening bar

ADDED bottom bar

S1007-1 7th FLR FRAMING PLAN – OVERALL – PHASE 1

ADDED detail cut callout at beams

ADDED and clarified quantity of details clarified
ADDED dimensions and details
ADDED detail at transfer beam
ADDED Phase 2 steel and detail
REMOVED detail 2/S4021-1
REVISED “typ” note at detail 3/S4021-1

S1007-B-1 7th FLR FRAMING PLAN – ZONE B – PHASE 1

ADDED stud rail callout

S2000-1 CONCRETE COULMN SCHEDULE – PHASE 1

ADDED and revise column schedule
ADDED a detail number to the schedule notes
ADDED note regarding the phase 2 columns
REVISED notes
REVISED column type 7
REVISED concrete column key plan
ADDED phase 2 column splice detail

S2001-1 TRANSFER COLUMN ELEVATIONS – PHASE 1

REVISED annotation of future concrete columns in Phase 2
ADDED dimensions in annotations

S2010-1 CONCRETE SHEAR WALL ELEVATIONS – PHASE 1

REVISED link beam schedule quantity of bars and stirrup spacing
ADDED detail callout to the general notes
REVISED shear wall reinforcement extents in elevations

S3000-1 FOOTING SCHEDULE AND DETAILS – PHASE 1

REVISED isolated footing schedule

S3002-1 FOUNDATION WALL SECTIONS

REVISED Basement wall section detail

S4000-1 POST-TENSIONED CONCRETE FRAMING DETAILS

ADDED “Sim” note for slab step to Detail 11

S4001-1 CONCRETE FRAMING DETAILS

ADDED CIP Wall Reinforcement Detail
REVISED details in embed schedule

ADDED EP14-1 to embed schedule

S4010-1 CONCRETE BEAM SCHEDULE AND DETAILS

REVISED details to the concrete beam schedule

ADDED new transfer beam column detail

S4020-1 STEEL FRAMING DETAILS – PHASE 1

ADDED detail 7

S4021-1 STEEL FRAMING DETAILS – PHASE 1

REVISED details

REVISED slab embeds for phase 2 framing detail

ADDED detail 12, 13, and 14

ARCHITECTURAL Sheets (A)/General Sheets (G)

G0000-1.1 INDEX VOLUME 1 - PHASE 1

REMOVES Duplicate M9002-1 Sheet name

ADD penetration plan sheet to index

G000-1.2 INDEX VOLUME 2 - PHASE 1

REMOVES Duplicate M9002-1 Sheet name

ADD penetration plan sheet to index

G1002 P3 & P4 FLR LIFE SAFETY PLAN

ADD Fire Extinguisher

G1003 P5 & P6 FLR LIFE SAFETY PLAN

ADD Fire Extinguisher

G4001 CODE CALCS

REVISE ADA Parking

A1000-1 LOWER LEVEL OVERALL - PHASE 1

REVISE compact space removed

REVISE ADA Parking

REVISE dimensions in Parking

A1000-A-1 LOWER LEVEL - ZONE A - PHASE 1

REVISES -3" note. EL to be 85'-9"

REVISE dimensions in Parking

A1000-B-1 LOWER LEVEL - ZONE B - PHASE 1
REVISE compact space removed

A1001-1 1ST FLR OVERALL - PHASE 1
REVISES location of lavatories
REVISE length of curb and safety rail
REVISE dimensions for phase clarifications
REVISE door type
REVISE column sizes
REVISE stoop and adds handrail

A1001-A-1 1ST FLR - ZONE A - PHASE 1
ADD Fire Extinguisher
REVISE ADA Parking
ADD stop sign to floor plan
ADD one way signage
REVISES location of lavatories
ADD wall tag
REVISE dimensions for phase clarifications
REVISE stoop at northwest exit
REVISE PARKING EQUIPMENT
ADD note for phase clarification

A1001-B-1 1ST FLR - ZONE B - PHASE 1
REVISE door type
REVISE column sizes
REVISE length of curb and safety rail
REVISE parking equipment
REVISE pay station location

A1002-1 P2 FLR OVERALL - PHASE 1
ADD Fire Extinguisher
REVISE cable railings
REVISE wall type
REVISE ADA Parking

A1002-A-1 P2 FLR - ZONE A - PHASE 1
ADD Fire Extinguisher
REVISE cable railings
REVISE wall type

REVISE parking equipment
ADD note for phase clarification

A1002-B-1 P2 FLR - ZONE B - PHASE 1

REVISE parking equipment
ADD Fire Extinguisher
REVISE cable railings
REVISE wall type
REVISE ADA Parking

A1003-1 P3 FLR OVERALL - PHASE 1

REVISE add Fire Extinguisher
REVISE cable railings
REVISE wall type
REVISE ADA Parking

A1003-A-1 P3 FLR - ZONE A - PHASE 1

REVISE parking equipment
ADD Fire Extinguisher
REVISE cable railings
REVISE wall type
REVISE ADA Parking
ADD note for phase clarification

A1003-B-1 P3 FLR - ZONE B - PHASE 1

REVISE parking equipment
REVISE wall type
REVISE cable railings
ADD Fire Extinguisher
REVISE ADA Parking

A1004-1 P4 FLR OVERALL - PHASE 1

ADD Fire Extinguisher
REVISE wall type
REVISE ADA Parking

A1004-A-1 P4 FLR - ZONE A - PHASE 1

REVISE parking equipment
REVISE wall type
ADD Fire Extinguisher
REVISE cable railings
REVISE ADA Parking
ADD note for phase clarification

A1004-B-1	<p>P4 FLR - ZONE B - PHASE 1</p> <p>REVISE parking equipment</p> <p>REVISE wall type</p> <p>ADD Fire Extinguisher</p> <p>REVISE cable railings</p> <p>REVISE ADA Parking</p>
A1005-1	<p>P5 FLR OVERALL - PHASE 1</p> <p>ADD Fire Extinguisher</p> <p>REVISE wall type</p> <p>REVISE ADA Parking</p> <p>REVISE cable railings</p>
A1005-A-1	<p>P5 FLR - ZONE A - PHASE 1</p> <p>REVISE parking equipment</p> <p>REVISE wall type</p> <p>ADD Fire Extinguisher</p> <p>REVISE cable railings</p> <p>REVISE ADA Parking</p> <p>ADD note for phase clarification</p>
A1005-B-1	<p>P5 FLR - ZONE B - PHASE 1</p> <p>REVISE parking equipment</p> <p>REVISE wall type</p> <p>ADD Fire Extinguisher</p> <p>REVISE cable railings</p> <p>REVISE ADA Parking</p>
A1006-1	<p>P6 FLR OVERALL - PHASE 1</p> <p>ADD Fire Extinguisher</p> <p>REVISE cable railings</p> <p>REVISE wall type</p> <p>REVISE ADA Parking</p>
A1006-A-1	<p>P6 FLR - ZONE A - PHASE 1</p> <p>REVISE parking equipment</p> <p>REVISE wall type</p> <p>ADD Fire Extinguisher</p> <p>REVISE cable railings</p> <p>REVISE ADA Parking</p> <p>ADD note for phase clarification</p>
A1006-B-1	<p>P6 FLR - ZONE B - PHASE 1</p>

REVISE parking equipment
REVISE wall type
ADD Fire Extinguisher
REVISE cable railings
REVISE ADA Parking

A1007-A-1	7TH FLR - ZONE A - PHASE 1 ADD annotations for clarification
A1007-B-1	7TH FLR - ZONE B - PHASE 1 ADD annotations for clarification
A1102-1	P2 FLR OVERALL CEILING PLAN - PHASE 1 REVISE ceiling to phase 2
A1200-1	LOWER LEVEL OVERALL FINISH PLANS - PHASE 1 ADD finish plan annotations
A1201-1	1ST FLR FINISH PLAN - ZONE B - PHASE 1 DELETE finish notes from rooms
A2000-1	EXTERIOR ELEVATIONS - PHASE 1 ADDS do not enter signage to elevation REVISE elevations annotations for clarification to phase scope
A2004-1	EXTERIOR ELEVATIONS - PHASE 1 REVISE depth of elevation view to include more information ADDS one way signage to elevation REVISE elevations annotations for clarification to phase scope
A2005-1	EXTERIOR ELEVATIONS - PHASE 1 REVISE elevations annotations for clarification to phase scope
A2200-1	EXTERIOR FRAME TYPES - PHASE 1 DELETE FX05 from legend
A3102-1	WALL SECTIONS - PHASE 1 REVISE section for phasing clarification
A3200-1	STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1 REVISE dimensions ADD elevator overrun detail and spray applied waterproofing to exterior cmu ADD details E4/A3200-1 and C4/A3200-1

A3202-1	<p>STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1</p> <p>ADD legend</p>
A3203-1	<p>STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1</p> <p>REVISE handrails</p> <p>REVISE masonry wall to concrete wall</p> <p>REVISE stair keynote</p> <p>ADD legend</p> <p>REVISE wall tag</p>
A3204-1	<p>STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1</p> <p>REVISE stair keynote</p> <p>ADD legend</p>
A5100-1	<p>EXTERIOR DETAILS - PHASE 1</p> <p>REVISE waterproofing/earth retention detail</p>
A5101-1	<p>EXTERIOR DETAILS - PHASE 1</p> <p>DELETE plywood and metal sill</p> <p>REVISE to aluminum angle</p> <p>REVISE waterproofing keynote</p> <p>REVISE waterproofing/earth retention detail</p>
A5102-1	<p>EXTERIOR DETAILS - PHASE 1</p> <p>REVISE waterproofing keynote</p> <p>DELETE plywood and metal sill</p> <p>ADD aluminum angle</p> <p>REVISE detail for phase clarification</p> <p>DELETE metal trim at window</p> <p>REVISE window location</p> <p>REVISE waterproofing/earth retention detail</p>
A5103-1	<p>EXTERIOR DETAILS - PHASE 1</p> <p>REVISE detail for phase clarification</p> <p>DELETE detail D4/A5103-1 and detail C3/A5103-1</p> <p>REVISE extents of waterproofing</p> <p>REVISE to aluminum angle</p> <p>ADD keynote</p> <p>REVISE waterproofing/earth retention detail</p>
A5104-1	<p>EXTERIOR DETAILS - PHASE 1</p> <p>REVISE detail for phase clarification</p> <p>REVISE concrete stem wall to cmu</p> <p>DELETE A6/A5104-1</p>

- A5105-1 EXTERIOR DETAILS - PHASE 1
 REVISE waterproofing/earth retention detail
- A5106-1 EXTERIOR DETAILS - PHASE 1
 REVISE slab extents at trough
 REVISE waterproofing keynote
- A5110-1 EXTERIOR DETAILS - PHASE 1
 REVISE detail for phase clarification
 REVISE jamb trim and flashing
 REVISE metal trim and flashing
- A5111-1 EXTERIOR DETAILS - PHASE 1
 REVISE detail for phase clarification
 DELETE detail A5/A5111-1 and B5/A5111-1

FIRE PROTECTION Sheets (F)

- F1000-1 LOWER LEVEL OVERALL - PHASE 1 - FIRE PROTECTION
 REVISE HAZARD CLASSIFICATIONS BOUNDARY FOR CLARIFICATION.
 ADD NOTE F18 "PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT."
 ADD NOTE F22 "PROTECT ELEVATOR LOBBY OFF OF PHASE 1 WET SYSTEM."
 ADD NOTE F23 "PROVIDE SPRINKLER HEADS AT THE BOTTOM OF STAIR SHAFT."
 ADD NOTE F24 "SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OF THE WET SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR."
- F1001-1 1ST FLR OVERALL – PHASE 1 – FIRE PROTECTION
 REVISE NOTE F9 TO "SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OF THE DRY SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR."
 ADD NOTE F17 "FIRE SUPPRESSION ONLY REQUIRED AT TOP AND BOTTOM OF STAIR SHAFT."
 ADD NOTE F18 "PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT."
 ADD NOTE F19 "PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM."
 REVISE HAZARD CLASSIFICATIONS BOUNDARY FOR CLARIFICATION.
 REVISE BOUNDARY FOR AREA OF WORK TO BE DONE BY PHASE 2 CONTRACTOR.
 REVISE LOCATION OF FDC AND ASSOCIATED PIPING.
- F1002-1 P2 FLR OVERALL – PHASE 1 – FIRE PROTECTION
 REVISE NOTE F9 TO "SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OF THE DRY SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR."
 ADD NOTE F17 "FIRE SUPPRESSION ONLY REQUIRED AT TOP AND BOTTOM OF STAIR SHAFT."
 ADD NOTE F18 "PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT."

ADD NOTE F19 "PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM."
REVISE HAZARD CLASSIFICATIONS BOUNDARY FOR CLARIFICATION.
REVISE BOUNDARY FOR AREA OF WORK TO BE DONE BY PHASE 2 CONTRACTOR.
REVISE LOCATION OF FDC AND ASSOCIATED PIPING.

F1003-1 P3 FLR OVERALL – PHASE 1 – FIRE PROTECTION

REVISE NOTE F9 TO "SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OF THE DRY SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR.

ADD NOTE F17 "FIRE SUPPRESSION ONLY REQUIRED AT TOP AND BOTTOM OF STAIR SHAFT."

ADD NOTE F18 "PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT."

ADD NOTE F19 "PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM."

REVISE HAZARD CLASSIFICATIONS BOUNDARY FOR CLARIFICATION.

F1004-1 P4 FLR OVERALL – PHASE 1 – FIRE PROTECTION

REVISE NOTE F9 TO "SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OF THE DRY SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR.

ADD NOTE F17 "FIRE SUPPRESSION ONLY REQUIRED AT TOP AND BOTTOM OF STAIR SHAFT."

ADD NOTE F18 "PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT."

ADD NOTE F19 "PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM."

REVISE HAZARD CLASSIFICATIONS BOUNDARY FOR CLARIFICATION.

F1005-1 P5 FLR OVERALL – PHASE 1 – FIRE PROTECTION

REVISE NOTE F9 TO "SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OF THE DRY SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR.

ADD NOTE F17 "FIRE SUPPRESSION ONLY REQUIRED AT TOP AND BOTTOM OF STAIR SHAFT."

ADD NOTE F18 "PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT."

ADD NOTE F19 "PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM."

REVISE HAZARD CLASSIFICATIONS BOUNDARY FOR CLARIFICATION.

F1006-1 P6 FLR OVERALL – PHASE 1 – FIRE PROTECTION

REVISE NOTE F9 TO "SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OF THE DRY SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR.

ADD NOTE F18 "PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT."

ADD NOTE F19 "PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM."

REVISE HAZARD CLASSIFICATIONS BOUNDARY FOR CLARIFICATION.

- P0000-1 SYMBOLS, ABBREV. & SCHEDULES - PLUMBING
REVISE PLUMBING DRAIN AND CLEANOUT SCHEDULE.
ADD FOLLOWING SHEETS TO SHEET INDEX, P4200-1 – STORM ISOMETRICS – PLUMBING, P4201-1 – STORM ISOMETRICS – PLUMBING, AND P4202-1 STORM ISOMETRICS – PLUMBING.
- P1000-1 LOWER LEVEL - PHASE 1 - PLUMBING
REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
ADD SANITARY PIPING DUE THE ADDITION OF 4"TD-1 ON 1ST FLOOR.
REVISE LOCATION OF SANITARY LATERAL DUE TO COORDINATION WITH CIVIL.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
- P1000-A-1 LOWER LEVEL - ZONE A - PHASE 1 - PLUMBING
REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
ADD SANITARY PIPING DUE THE ADDITION OF 4"TD-1 ON 1ST FLOOR.
REVISE LOCATION OF SANITARY LATERAL DUE TO COORDINATION WITH CIVIL.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."
- P1000-B-1 LOWER LEVEL - ZONE B - PHASE 1 - PLUMBING
REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."
- P1001-1 1ST FLR OVERALL - PHASE 1 - PLUMBING
REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
ADD TRENCH DRAIN (TD-1) ON 1ST FLOOR.
REVISE FLOOR DRAIN TYPES.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
- P1001-A-1 1ST FLR - ZONE A - PHASE 1 - PLUMBING
REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
ADD TRENCH DRAIN (TD-1) ON 1ST FLOOR.
REVISE FLOOR DRAIN TYPES.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."
REVISE to L-2 in TLT 185A

P1001-B-1 1ST FLR - ZONE B - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

REVISE FLOOR DRAIN TYPES.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

REVISE to L-2 in TLT 181A

P1002-1 P2 FLR OVERALL – PHASE 1 – PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

P1002-A-1 P2 FLR - ZONE A - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

ADD NOTE P11 "CAP SANITARY FOR FUTURE EXTENSION BY PHASE 2 PC."

P1002-B-1 P2 FLR - ZONE B - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

ADD NOTE P11 "CAP SANITARY FOR FUTURE EXTENSION BY PHASE 2 PC."

P1003-1 P3 FLR OVERALL – PHASE 1 – PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

P1003-A-1 P3 FLR - ZONE A - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

P1003-B-1 P3 FLR - ZONE B - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

P1004-1 P4 FLR OVERALL – PHASE 1 – PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.

P1004-A-1 P4 FLR - ZONE A - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

P1004-B-1 P4 FLR - ZONE B - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

P1005-1 P5 FLR OVERALL – PHASE 1 – PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.

P1005-A-1 P5 FLR - ZONE A - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

P1005-B-1 P5 FLR - ZONE B - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.
DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.
ADD CLEARWATER WASTE SYSTEM.
DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

P1006-1 P6 FLR OVERALL – PHASE 1 – PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

ADD CLEARWATER WASTE HUB DRAIN.

P1006-A-1 P6 FLR - ZONE A - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

ADD 3" CLEARWATER WASTE HUB DRAIN.

P1006-B-1 P6 FLR - ZONE B - PHASE 1 - PLUMBING

REVISE PIPING DUE TO COORDINATION WITH PHASE 2 WORK.

DELETE ANY SLEEVES ASSOCIATED WITH PHASE 2.

ADD CLEARWATER WASTE SYSTEM.

DELETE NOTE P14 "RISER TO BE INSTALLED AS PART OF PHASE 2 CONSTRUCTION."

ADD 3" CLEARWATER WASTE HUB DRAIN.

P4000-1 WASTE AND VENT ISOMETRICS - PLUMBING

REVISE WASTE AND VENT ISOMETRIC TO REFLECT CHANGES MADE ON FLOOR PLANS.

P4001-1 WASTE AND VENT ISOMETRICS - PLUMBING

REVISE WASTE AND VENT ISOMETRIC TO REFLECT CHANGES MADE ON FLOOR PLANS.

P4002-1 WASTE AND VENT ISOMETRICS - PLUMBING

REVISE WASTE AND VENT ISOMETRIC TO REFLECT CHANGES MADE ON FLOOR PLANS.

P4003-1 WASTE AND VENT ISOMETRICS - PLUMBING

REVISE WASTE AND VENT ISOMETRIC TO REFLECT CHANGES MADE ON FLOOR PLANS.

P4200-1 STORM ISOMETRICS - PLUMBING

REVISE STORM ISOMETRIC TO REFLECT CHANGES MADE ON FLOOR PLANS.

P4201-1 STORM ISOMETRICS - PLUMBING

ADD STORM ISOMETRIC TO PLAN SET TO REFLECT CHANGES MADE ON FLOOR PLANS.

P4202-1 STORM ISOMETRICS - PLUMBING

ADD STORM ISOMETRIC TO PLAN SET TO REFLECT CHANGES MADE ON FLOOR PLANS.

MECHANICAL Sheets (M)

M0000-1 SYMBOLS AND ABBREVIATIONS – HVAC
 ADD AFMS TO ABBREVIATIONS LIST

M1001-1 1ST FLR OVERALL – PHASE 1 – HVAC
 REVISE MAU-1 ELEVATION AND OUTSIDE AIR DUCT ROUTING
 ADD COOLING COIL CONDENSATE FROM FCU-1 TO HUB DRAIN
 ADD COOLING COIL CONDENSATE FROM FCU-3 TO HUB DRAIN
 ADD COOLING COIL CONDENSATE FROM FCU-4 TO HUB DRAIN

M1001-A-1 1ST FLR – ZONE A – PHASE 1 – HVAC
 ADD COOLING COIL CONDENSATE FROM FCU-1 TO HUB DRAIN

M1001-B-1 1ST FLR – ZONE B – PHASE 1 – HVAC
 REVISE MAU-1 ELEVATION AND OUTSIDE AIR DUCT ROUTING
 ADD COOLING COIL CONDENSATE FROM FCU-3 TO HUB DRAIN
 ADD COOLING COIL CONDENSATE FROM FCU-4 TO HUB DRAIN

M1002-1 P2 FLR OVERALL – PHASE 1 – HVAC
 REVISE OUTSIDE AIR DUCT ROUTING
 REVISE EXHAUST DUCT ON INLET OF EF-P2-2
 REVISE EXHAUST DUCT TO RESOLVE CONFLICT WITH BEAM

M1002-A-1 P2 FLR – ZONE A – PHASE 1 – HVAC
 REVISE EXHAUST DUCT ON INLET OF EF-P2-2
 REVISE EXHAUST DUCT TO RESOLVE CONFLICT WITH BEAM

M1002-B-1 P2 FLR – ZONE B – PHASE 1 – HVAC
 REVISE OUTSIDE AIR DUCT ROUTING

M1003-1 P3 FLR OVERALL – PHASE 1 – HVAC
 REVISE EXHAUST DUCT ON INLET OF EF-P3-2

M1003-A-1 P3 FLR – ZONE A – PHASE 1 – HVAC
 REVISE EXHAUST DUCT ON INLET OF EF-P3-2

M1004-1 P4 FLR OVERALL – PHASE 1 – HVAC

REVISE EXHAUST DUCT ON INLET OF EF-P4-2
REVISE EXHAUST DUCT TO RESOLVE CONFLICT WITH HOLLOW COLUMN

M1004-A-1 P4 FLR – ZONE A – PHASE 1 – HVAC
REVISE EXHAUST DUCT ON INLET OF EF-P4-2
REVISE EXHAUST DUCT TO RESOLVE CONFLICT WITH HOLLOW COLUMN

M1005-1 P5 FLR OVERALL – PHASE 1 – HVAC
REVISE EXHAUST DUCT ON INLET OF EF-P5-2
REVISE EXHAUST DUCT TO RESOLVE CONFLICT WITH HOLLOW COLUMN

M1005-A-1 P5 FLR – ZONE A – PHASE 1 – HVAC
REVISE EXHAUST DUCT ON INLET OF EF-P5-2
REVISE EXHAUST DUCT TO RESOLVE CONFLICT WITH HOLLOW COLUMN

M1006-1 P6 FLR OVERALL – PHASE 1 – HVAC
ADD COOLING COIL CONDENSATE FROM ACU-1 TO HUB DRAIN
ADD COOLING COIL CONDENSATE FROM ACU-2 TO HUB DRAIN
ADD EWH-15 TO 647 – ELEVATOR CONTROL ROOM
ADD EWH-16 TO 649 – ELEVATOR CONTROL ROOM

M1006-A-1 P6 FLR – ZONE A – PHASE 1 – HVAC
ADD COOLING COIL CONDENSATE FROM ACU-2 TO HUB DRAIN
ADD EWH-15 TO 647 – ELEVATOR CONTROL ROOM

M1006-B-1 P6 FLR – ZONE B – PHASE 1 – HVAC
ADD COOLING COIL CONDENSATE FROM ACU-1 TO HUB DRAIN
ADD EWH-16 TO 649 – ELEVATOR CONTROL ROOM

M4002-1 SECTIONS – HVAC
REVISE SECTION 1 OUTSIDE AIR DUCT ROUTING TO MAU-1

M5001-1 CONTROL DIAGRAMS, POINTS LISTS, SEQ – HVAC
REVISE SEQUENCE OF OPERATIONS TO INCLUDE OUTDOOR AIRFLOW MONITORING
REVISE POINTS LIST TO INCLUDE OUTDOOR AIRFLOW MEASUREMENT
REVISE CONTROL DIAGRAM TO INCLUDE OUTDOOR AIRFLOW MEASUREMENT

M8001-1 SCHEDULES – HVAC
REVISE ELECTRIC WALL HEATER SCHEDULE

REVISE ELECTRIC RADIANT HEATER SCHEDULE
REVISE DUCT SOUND ATTENUATOR SCHEDULE
REVISE SPLIT SYSTEM HEAT PUMP SCHEDULE

M8002-1 SCHEDULES – HVAC
ADD AIRFLOW MEASURING STATION SCHEDULE

ELECTRICAL Sheets (E)

E6000-1 ONE-LINE DIAGRAM – ELECTRICAL
REVISE PANEL H-BT TO BE FED FROM MG&E VAULT.

E8000-1 SCHEDULES – LIGHTING AND DEVICES
REVISE LIGHTING CONTROLS SCHEDULE MODEL SERIES.
ADD CONNECTIONS FOR LOT FULL SIGNAGE: LFS-1a, LFS-1b.

E8002-1 SCHEDULES – CONNECTIONS
ADD CONNECTIONS FOR CIRCULATION PUMPS: CP-1, CP-2, CP-3.
ADD CONNECTIONS FOR ELECTRIC WALL HEATERS: EWH-15, EWH-16.
REVISE ELECTRICAL REQUIREMENTS FOR ELECTRIC WALL HEATERS: EWH-5, EWH-6, EWH-7, EWH-12, EWH-14.
REMOVE CONNECTIONS FOR ELECTRIC WALL HEATERS: EWH-11, EWH-TB.
REVISE ELECTRICAL REQUIREMENTS FOR ELECTRIC RADIANT HEATERS: ERH-1a, ERH-1b, ERH-2a, ERH-2b, ERH-2c, ERH-2d, ERH-2e, ERH-2f.

E8003-1 SCHEDULES – PANELS
REVISE PANEL SCHEDULE FOR PANEL L-1A

E8004-1 SCHEDULES – PANELS
REVISE PANEL SCHEDULE FOR PANEL L-BT
REVISE PANEL SCHEDULE FOR PANEL H-BT

E8005-1 SCHEDULES – PANELS
REVISE PANEL SCHEDULE FOR PANEL L-P5

E8006-1 SCHEDULES – PANELS
REVISE PANEL SCHEDULE FOR PANEL OL-1A

E9000-1 DETAILS
ADD DETAIL 7/E9000-1 FOR ENTRY/EXIT CONDUIT/WIRE INSTALLATION.

EP1001-1 1ST FLR OVERALL – PHASE 1 – POWER/SYSTEMS

ADD CONNECTIONS FOR CP-1, CP-2, CP3.

ADD DETAIL CALLOUT 7/E9000-1.

REMOVE CONNECTIONS EWH-11, EWH-TB.

EP1001-A-1 1ST FLR – ZONE A – PHASE 1 – POWER/SYSTEMS

ADD CONNECTIONS FOR CP-1, CP-2.

EP1001-B-1 1ST FLR – ZONE B – PHASE 1 – POWER/SYSTEMS

ADD CONNECTIONS FOR CP-3.

ADD DETAIL CALLOUT 7/E9000-1.

REMOVE CONNECTIONS EWH-11, EWH-TB.

EP1006-1 P6 FLR OVERALL – PHASE 1 – POWER/SYSTEMS

ADD CONNECTION FOR EWH-15.

ADD CONNECTION FOR EWH-16.

EP1006-A-1 P6 FLR – ZONE A – PHASE 1 – POWER/SYSTEMS

ADD CONNECTION FOR EWH-15.

EP1006-B-1 P6 FLR – ZONE B – PHASE 1 – POWER/SYSTEMS

ADD CONNECTION FOR EWH-16.

EP1007-1 7TH FLR – OVERALL – PHASE 1 – POWER/SYSTEMS

ADD KEYED NOTE TO PROVIDE BONIDNG LEADS TO POOL REBAR DEPRESSION.

PARKING Sheets (PG)

PG1001-1 LOWER LEVEL STRIPING PLAN

REVISE ADA STALL LOCATION

REVISE STALL FROM COMPACT TO STANDARD STALL

PG1002-1 P2 STRIPING PLAN

ADD SCOS STALL

REVISE ADA STALL LOCATION LOSS OF ONE STANDARD
STALL

PG1003-1 P3 STRIPING PLAN

REVISE TWO STALL FROM COMPACT TO SCOS

ADD SCOS STALL

ADD SCOS STALL

REVISE ADA STALL LOCATION LOSS OF ONE STANDARD
STALL

PG1004-1 P4 STRIPING PLAN

REVISE TWO STALL FROM COMPACT TO SCOS

ADD SCOS STALL

REVISE ADA STALL LOCATION AND REVISE STALL FROM
STANDARD STALL TO COMPACT

REVISE ADA STALL LOCATION

PG1005-1 P5 STRIPING PLAN

REVISE TWO STALL FROM COMPACT TO SCOS

ADD SCOS STALL

REVISE ADA STALL LOCATION

PG1006-1 P6 STRIPING PLAN

REVISE TWO STALL FROM COMPACT TO SCOS

ADD SCOS STALL

REVISE ADA STALL LOCATION

*Penetration plan added for reference

END OF ADDENDUM

MATERIAL STRENGTHS
UNLESS NOTED OTHERWISE, THE FOLLOWING MATERIALS SHALL BE USED. REFER TO MATERIAL NOTES AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

CONCRETE MATERIALS SCHEDULE									
TYPE OF CONSTRUCTION	COMPRESSIVE STRENGTH (psi) (ASTM C39)	EQUIL. DENSITY (pcf)	EXPOSURE CATEGORIES				MAXIMUM w/c	AIR CONTENT	
			F	S	W	C			
FOOTINGS	3,000	145					--	--	
FROST WALLS	4,000	145	F1				0.55	5%	
BASEMENT WALLS	4,000	145	F1				0.55	--	
INTERIOR WALLS	4,000	145					--	--	
EXTERIOR WALLS	4,500	145	F2				0.45	6%	
INTERIOR COLUMNS AND SHEAR WALLS	REFER TO PLAN	145					--	--	
EXTERIOR COLUMNS AND SHEAR WALLS	4,500 MIN. REFER TO PLAN	145	F2				0.45	6%	
INTERIOR NON-PARKING SLAB ON GROUND	4,000	145					--	--	
INTERIOR PARKING SLAB ON GROUND	5,000	145				C2	0.4	--	
EXTERIOR SLAB ON GROUND	5,000	145	F3			C2	0.4	6%	
ELEVATED INTERIOR NON-PARKING SLABS AND BEAMS	6,000	145					--	--	
ELEVATED PARKING SLABS AND BEAMS	6,000	145	F3			C2	0.4	6%	
ELEVATED EXTERIOR SLABS AND BEAMS	6,000	145	F3			C2	0.4	6%	
INTERIOR CONCRETE TOPPING AND STAIR LANDINGS/TREADS	4,000	145					--	--	
EXTERIOR CONCRETE TOPPING AND STAIR LANDINGS/TREADS	5,000	145	F3			C2	0.4	6%	
SLABS ON METAL DECK	4,000	145					--	--	
LEAN CONCRETE	1,000	145					--	--	

- CONCRETE MATERIALS SCHEDULE NOTES:**
- CORROSION EXPOSURE SHALL BE F0, S0, W0, AND C0 UNLESS NOTED OTHERWISE IN THE EXPOSURE CATEGORIES COLUMN.
 - MAXIMUM AGGREGATE SIZE FOR ALL MIXES TO BE 3/4 INCHES. FOOTINGS MAY BE 1 1/2 INCHES.
 - PROVIDE 5% AIR CONTENT AT ALL EXPOSED CONDITIONS NOT EXPLICITLY INDICATED ABOVE. TOLERANCE OF AIR CONTENT AS DELIVERED SHALL BE +/- 1%.
 - PROVIDE CRYSTALLINE WATERPROOFING ADMIXTURE IN ALL PARKING SLABS AND BEAMS.
 - CONCRETE SUPPLIER AND FINISHER SHALL COORDINATE PROPERTIES OF PROPOSED MIX DESIGN UNDER VARIOUS WEATHER CONDITIONS TO COMPLETE PLACING AND FINISHING OF SLAB PER THE PROJECT REQUIREMENTS AND IN A TIMELY MANNER. APPROVED CHEMICAL ADMIXTURES MAY BE USED TO INCREASE WORKABILITY PROVIDED THE ADMIXTURE-TREATED CONCRETE HAS THE SAME OR LOWER WATER-CEMENT RATIO AND DOES NOT EXHIBIT SEGREGATION POTENTIAL OR EXCESSIVE BLEEDING. IF PROPOSED SLUMP WILL EXCEED 9", PROVIDE DOCUMENTATION OF PAST PERFORMANCE OF MIX DESIGN.
 - FOR CONCRETE FLOOR SLABS AND TOPPING, THE MINIMUM CEMENTITIOUS MATERIAL CONTENT SHALL BE 540 LBS/CYD UNLESS APPROVED BY ENGINEER OF RECORD.
 - CONCRETE COMPRESSIVE STRENGTH SHALL BE DETERMINED AT 28 DAYS FOR STRENGTH EQUAL TO OR LESS THAN 6000 PSI, AND AT 56 DAYS FOR STRENGTH GREATER THAN 6000 PSI.
 - FOR LIGHTWEIGHT CONCRETE HAVING EQUILIBRIUM DENSITY LESS THAN 145 pcf, LAMBDA (λ) HAS BEEN TAKEN AS 0.75.
 - FOR EXPOSURE CATEGORY F3, MAXIMUM PERCENT OF TOTAL CEMENTITIOUS MATERIALS BY MASS AS FOLLOWS:
 - FLY ASH OR OTHER POZZOLANS CONFORMING TO ASTM C618 - 25%
 - SLAG CEMENT CONFORMING TO ASTM C595 - 50%
 - SILICA FUME CONFORMING TO ASTM C1240 - 10%
 - TOTAL OF FLY ASH OR OTHER POZZOLANS AND SILICA FUME - 35%
 - TOTAL OF FLY ASH OR OTHER POZZOLANS, SLAG CEMENT, AND SILICA FUME - 50%
 - FOR EXPOSURE CLASSES S1, S2, AND S3, MINERAL FILLERS DERIVED FROM CARBONATE AGGREGATE ARE PROHIBITED. FOR EXPOSURE CLASSES S2 AND S3, DO NOT USE CEMENTITIOUS MATERIALS OTHER THAN PORTLAND CEMENT IN CONCRETE.
 - REFER TO MASS CONCRETE NOTES FOR ADDITIONAL REQUIREMENTS.
 - CONCRETE SUPPLIER, IN CONJUNCTION WITH THE GENERAL CONTRACTOR, TO PROVIDE CONCRETE MIX SUCH THAT THE MAXIMUM TEMPERATURE WILL NOT EXCEED 150 DEGREES FAHRENHEIT. UNLESS, A THERMAL GRADIENT FROM THE CENTER OF THE EDGE OF THE CONCRETE PLACEMENT THAT EXCEEDS 35 DEGREES FAHRENHEIT IS NOT PERMITTED.

MACROSYNTHETIC FIBERS ENGINEERED AND DESIGNED FOR USE IN CONCRETE SLABS COMPLYING WITH ASTM C 1116, TYPE III, 1 1/2" TO 1 1/2" LONG

GEOPFAM:

- AT LOCATIONS SUBJECTED TO LIGHT VEHICULAR TRAFFIC:
 - DURAFILL EP915 GEOPFAM (3 & COMPRESSIVE RESISTANCE AT 1% DEFORMATION)
- AT LOCATIONS BELOW SIDEWALKS AND AREAS SUBJECTED TO HEAVY TRUCKS AND BUS TRAFFIC:
 - DURAFILL EP915 GEOPFAM (3 & COMPRESSIVE RESISTANCE AT 1% DEFORMATION)

LIGHTWEIGHT RIGID FILL:

- AT LOCATIONS SUBJECTED TO LIGHT VEHICULAR TRAFFIC:
 - RIGID CELLULAR POLYSTYRENE WITH MINIMUM COMPRESSIVE RESISTANCE OF 40 PSI AT 10% DEFORMATION CONFORMING TO ASTM D6877 OR ASTM C578 OR APPROVED EQUIVALENT
- AT LOCATIONS BELOW SIDEWALKS AND AREAS SUBJECTED TO HEAVY TRUCKS AND BUS TRAFFIC:
 - RIGID CELLULAR POLYSTYRENE WITH MINIMUM COMPRESSIVE RESISTANCE OF 100 PSI AT 10% DEFORMATION CONFORMING TO ASTM D6877 OR ASTM C578 OR APPROVED EQUIVALENT

METAL / STEEL:

UNLESS NOTED OTHERWISE, THE FOLLOWING MATERIALS SHALL BE PROVIDED:

REINFORCING STEEL

- ASTM A615, DEFORMED, TYPICAL..... GRADE 60
- ASTM A615, DEFORMED, WHERE INDICATED..... GRADE 60
- ASTM A706, DEFORMED, WELDABLE..... GRADE 60
- STEEL WELDED WIRE REINFORCEMENT, FLAT SHEETS..... GRADE 60
- POST-TENSIONING TENDONS, ASTM A416..... GRADE 270
- STUD RAIL ASSEMBLIES, ASTM A104..... GRADE 60
- HEADED WELDED STUDS, ASTM A108..... GRADE 36
- STRUCTURAL STEEL:
 - ROLLED WIDE FLANGE SHAPES, ASTM A992..... GRADE 50
 - CHANNELS, ANGLES, AND S-SHAPES, ASTM A36..... GRADE 36
 - PLATES AND BARS, TYPICAL, ASTM A36..... GRADE 36
 - PLATES AND BARS, WHERE NOTED, ASTM A572..... GRADE 50
 - RECT. HSS SHAPES, ASTM A500, TYPICAL..... GRADE C (Fy = 50 KSI)
 - CIRCULAR HSS SHAPES, ASTM A500, TYPICAL..... GRADE C (Fy = 46 KSI)
 - ALL HSS SHAPES, ASTM A1085, WHERE NOTED..... (Fy = 50 KSI)
 - PIPE, ASTM A53, TYPE E OR S..... GRADE B
 - ALL OTHER ROLLED SHAPES, ASTM A36..... GRADE 36
- COLD FORMED METAL FRAMING:
 - GAUGE STEEL (ALL STUDS AND TRACKS), ASTM A1003..... GRADE 33
 - 16 GAUGE AND LIGHTER..... GRADE 55
 - 16 GAUGE AND HEAVIER..... G60
 - GALVANIZED COATING..... G60

- STRUCTURAL CONNECTORS:
 - ANCHOR RODS, ASTM F1554, TYPICAL..... GRADE 36
 - ANCHOR RODS, ASTM F1554, WHERE NOTED..... GRADE 55, S1
 - HIGH STRENGTH BOLTS, ASTM F312, TYPE 1, TYPICAL..... GROUP A (120 KSI)
 - HIGH STRENGTH BOLTS, ASTM F312, TYPE 1, WHERE NOTED..... GROUP B (150 KSI)
 - NUTS, ASTM A563..... GRADE 36
 - WASHERS, ASTM F438..... GRADE 36
 - OTB WASHERS, ASTM F569..... GRADE PER BOLT SPEC
- STEEL HEADED STUD ANCHORS, ASTM A108..... GRADE 36
- RODS, ASTM A36, TYPICAL..... GRADE 36
- RODS, ASTM F1554, WHERE NOTED..... GRADE 55, S1
- CLEVIS AND TURNBUCKLES, ASTM A108..... GRADE 1035
- HYBOLTS AND NUTS, ASTM A108..... GRADE 1030

- STAINLESS STEEL:
 - STAINLESS STEEL BOLTS, NUTS, AND WASHERS, ASTM F593..... GRADE 36
 - STAINLESS STEEL ANGLES, ASTM A276, S304..... Fy = 30,000 PSI
 - PLATE AND BAR, ASTM A276, S304..... Fy = 30,000 PSI
 - TUBE SHAPES, ASTM A554, S304..... Fy = 30,000 PSI
- WELDING ELECTRODES:
 - STRUCTURAL STEEL..... E70XX
 - WELDABLE REINFORCING STEEL..... E80XX
 - STAINLESS STEEL..... E70XX

- MASONRY:
 - ASSEMBLY..... fm = 2,500 PSI
 - BLOCK..... fcm = 3,250 PSI OR GREATER
 - GROUT..... fc = 2,500 PSI OR GREATER
 - MASONRY MORTAR..... TYPE "M" MORTAR BELOW GRADE
 - GROUT BELOW BASE PLATES AND BEARING PLATES..... TYPE "M" OR "S" ABOVE GRADE
 - NON-METALLIC, SHRINKAGE RESISTANT..... ASTM C1107

DESIGN DATA:

APPLICABLE CODES / STANDARDS:

- WISCONSIN COMMERCIAL BUILDING CODE, 2015 IBC AS MODIFIED BY CHAPTERS SP3 361-366, ADOPTED APRIL 1, 2018
- INTERNATIONAL EXISTING BUILDING CODE - 2015
- ASCE 7-10I MIN DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES, ASCSISE

STRUCTURAL DESIGN STANDARDS (DESIGN SHALL CONFORM TO THE CURRENT EDITION UNDER THE APPLICABLE CODE)

- ACI 318 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY
- ACI 508.30 BUILDING CODE REQUIREMENTS AND SPECS FOR MASONRY STRUCTURES (AND RELATED COMMENTARIES)
- ANSI/KSC 360 SPECIFICATIONS FOR STRUCTURAL STEEL BUILDINGS
- ANSI A 101.1W STRUCTURAL WELDING CODE - STEEL
- NDS NATIONAL DESIGN SPECIFICATIONS FOR WOOD CONSTRUCTION ASD/LRPD
- NDS NATIONAL DESIGN SPECIFICATION SUPPLEMENT, DESIGN VALUES FOR WOOD CONSTRUCTION
- ANSI 100 NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
- ANSI S213 NORTH AMERICAN SPECIFICATION FOR COLD-FORMED STEEL FRAMING - LATERAL DESIGN

BUILDING DESIGN LOADS / CRITERIA:

RISK CATEGORY..... II

DESIGN SUPERIMPOSED DEAD LOADS AND LIVE LOADS: REFER TO LOADING PLANS ON S010.

- DESIGN DEAD LOADS..... SELF-WEIGHT + 20 PSF SUPERIMPOSED
- RESIDENTIAL PARKING..... SELF-WEIGHT + 20 PSF SUPERIMPOSED

DESIGN LIVE LOADS:

- RETAIL OFFICE, RESTAURANT, RECREATIONAL..... 100 PSF
- LIGHT STORAGE..... 125 PSF
- RESIDENTIAL AREAS..... 40 PSF
- RESIDENTIAL STORAGE..... 80 PSF
- STAIRWAYS, CORRIDORS, LOBBIES (OTHER AREAS)..... 100 PSF
- PUBLIC SIDEWALKS..... 250 PSF
- BUS TERMINAL..... 250 PSF
- BUS WHEEL POINT LOAD..... 20,000 LBS
- PUBLIC GARAGES (PASSENGER VEHICLES)..... 40 PSF
- PRIVATE GARAGES..... 100 PSF
- CAR WHEEL POINT LOAD..... 3,000 LBS
- ROOF GARDEN..... 100 PSF
- AWNINGS AND CANOPIES (FABRIC)..... 5 PSF
- INTERIOR PARTITION WALLS (UNIFORMLY DISTRIBUTED WEIGHT)..... 15 PSF
- INTERIOR PARTITION WALLS (HORIZONTAL DESIGN LOADS)..... 5 PSF

HANDRAIL ASSEMBLIES AND GUARDS:

20 LB LOAD OR 50 LB LOAD APPLIED IN ANY DIRECTION AT TOP OF HANDRAIL ASSEMBLY OR GUARD AND TO TRANSFER THIS LOAD THROUGH SUPPORTS TO THE STRUCTURE

ROOF SNOW LOADS AND DESIGN DATA:

- DESIGN ROOF SNOW LOAD..... 21.0 PSF (BALANCED SNOW LOAD)
- FLAT ROOF SNOW LOAD (PSF) = (0.7 * Qi * Cs * Is * Pg)..... 21.0 PSF
- SNOW EXPOSURE (Ce)..... 1.0
- SNOW LOAD IMPORTANCE FACTOR (Is)..... 1.0
- ROOF THERMAL FACTOR (Ci)..... 1.0
- GROUND SNOW (Pg)..... 30 PSF
- RAIN ON SNOW SURCHARGE..... 0.0
- SLOPE ROOF FACTOR (Cs)..... 1.0

WIND DESIGN DATA:

- ULTIMATE WIND SPEED (3 SECOND GUST)..... 115 MPH
- NOMINAL WIND SPEED..... 89.1 MPH
- WIND DIRECTIONALITY FACTOR (Kd)..... 0.85
- MEAN ROOF HEIGHT..... 100 FT
- WIND EXPOSURE CATEGORY..... D
- WIND EXPOSURE CLASSIFICATION..... ENCLOSED
- INTERNAL PRESSURE COEFFICIENT..... -0.18
- BUILDING LENGTH (L)..... 265 FT
- LEAST WIDTH (B)..... 166 FT
- VELOCITY PRESSURE EXPOSURE COEFFICIENT Kz (CASE 1)..... 1.555
- VELOCITY PRESSURE EXPOSURE COEFFICIENT Kz (CASE 2)..... 1.555
- TOPOGRAPHIC FACTOR (Kzt)..... 1.0
- EDGE STIFF (Ks)..... 16.6 FT
- EDGE ZONE (Za)..... 33.2 FT
- DESIGN STIFF (Ks)..... 16.6 FT
- DESIGN PROCEDURE..... DIRECTIONAL

ULTIMATE WIND LOADS COMPONENTS & CLADDING:

ROOF SURFACE PRESSURE				
AREA	10 SF	50 SF	100 SF	500 SF
NEGATIVE ZONE 1	-70.7 PSF	-61.5 PSF	-57.5 PSF	-57.5 PSF
NEGATIVE ZONE 2	-111.1 PSF	-98.1 PSF	-92.5 PSF	-92.5 PSF
NEGATIVE ZONE 3	-151.2 PSF	-134.7 PSF	-127.5 PSF	-127.5 PSF
POSITIVE ZONE 1	16.0 PSF	16.0 PSF	16.0 PSF	16.0 PSF

WALL SURFACE PRESSURE				
AREA	10 SF	100 SF	500 SF	500 SF
NEGATIVE ZONE 1	-48.3 PSF	-43.8 PSF	-39.4 PSF	-39.4 PSF
NEGATIVE ZONE 2	-88.8 PSF	-77.7 PSF	-72.8 PSF	-72.8 PSF
POSITIVE ZONE 4AS	48.3 PSF	41.6 PSF	34.9 PSF	34.9 PSF

PARAPET SURFACE PRESSURE				
CASE		SOLID PARAPET PRESSURE		
		10 SF	100 SF	500 SF
CASE A: PRESSURE TOWARDS BUILDING	CASE A: INTERIOR ZONE	143.5 PSF	118.3 PSF	98.7 PSF
CASE A: PRESSURE TOWARDS BUILDING	CASE A: CORNER ZONE	183.9 PSF	153.4 PSF	130.1 PSF
CASE B: PRESSURE AWAY FROM BUILDING	CASE B: INTERIOR ZONE	-80.7 PSF	-69.5 PSF	-58.3 PSF
CASE B: PRESSURE AWAY FROM BUILDING	CASE B: CORNER ZONE	-121.1 PSF	-96.4 PSF	-77.8 PSF

EARTHQUAKE DESIGN DATA:

- SEISMIC IMPORTANCE FACTOR (Im)..... 1.0
- MAPPED SPECTRAL ACCELERATIONS AT SHORT PERIODS (Sa)..... 0.084
- MAPPED SPECTRAL ACCELERATIONS AT (1) SECOND PERIODS (S1)..... 0.046
- SITE CLASSIFICATION..... C
- DESIGN SPECTRAL RESPONSE COEFFICIENT AT SHORT PERIODS (Sa)..... 0.067
- DESIGN SPECTRAL RESPONSE COEFFICIENT AT (1) SECOND PERIODS (S1)..... 0.062
- SEISMIC DESIGN CATEGORY..... A
- BASIC SEISMIC FORCE-RESISTING SYSTEM..... ORDINARY REINFORCED CONCRETE SHEAR WALLS
- DESIGN BASE SHEAR..... 0.014W KIPS
- SEISMIC RESPONSE COEFFICIENT (Cn)..... 0.014
- RESPONSE MODIFICATION COEFFICIENT (R)..... 4
- ANALYSIS PROCEDURE FOR SEISMIC DESIGN..... EQUIVALENT LATERAL FORCE

SOIL DESIGN VALUES:

THE DESIGN VALUES BELOW HAVE BEEN USED AS THE BASIS OF THE FOUNDATION DESIGN. THESE VALUES SHALL BE CONFIRMED BY THE FOUNDATION CONTRACTOR AND THE GEOTECHNICAL ENGINEER OF RECORD PRIOR TO CONSTRUCTION. NOTIFY THE SEOR IF THE FINAL DESIGN OR INSTALLED VALUES DIFFER FROM THE VALUES NOTED BELOW.

- SOIL UNIT WEIGHT..... 120 PCF (UNCONFIRMED)
- LATERAL EARTH PRESSURE:
 - ACTIVE (RETAINING WALLS)..... 35 psf / ft OF DEPTH (UNCONFIRMED)
 - AT REST (BASEMENT WALLS)..... 55 psf / ft OF DEPTH
- PASSIVE..... 200 PSF (UNCONFIRMED)
- COEFFICIENT OF SLIDING FRICTION..... 15 (UNCONFIRMED)
- SUBGRADE MODULUS..... 150 PCF
- FROST DEPTH..... 48" BELOW EXTERIOR FINISH GRADE (UNCONFIRMED)
- ALLOWABLE SOIL BEARING PRESSURE..... 15,000 PSF
- MINIMUM BEARING DEPTH, EXTERIOR..... 48" BELOW EXTERIOR FINISH GRADE
- MINIMUM BEARING DEPTH, INTERIOR..... NO MINIMUM REQUIREMENT
- MAXIMUM TOTAL FOUNDATION SETTLEMENT..... NO MINIMUM REQUIREMENT
- MAXIMUM DIFFERENTIAL SETTLEMENT BETWEEN ADJACENT FOUNDATIONS..... 1/2"

DELEGATED DESIGN NOTES:

- ENGINEERING DESIGN, DETAILING, AND COORDINATION OF DELEGATED DESIGN ITEMS ARE DELEGATED TO THE CONTRACTOR PER THE SPECIFICATIONS AND CRITERIA INDICATED ON THE DRAWINGS. THE PRIMARY BASE BUILDING STRUCTURE HAS BEEN DESIGNED AS INDICATED HEREIN TO ACCEPT THE DELEGATED DESIGN ITEMS. THE CONTRACTOR SHALL COORDINATE THE WORK OF THE DELEGATED DESIGNERS WITH EACH OTHER AND THE PRIMARY BASE BUILDING STRUCTURE. IT IS SUGGESTED THAT DESIGN CRITERIA, LOAD PATHS, AND ATTACHMENT SCHEMES PROPOSED BY THE DELEGATED DESIGNER BE SUBMITTED FOR REVIEW BY THE ARCHITECT FOR COMPATIBILITY OF THE BASE BUILDING DESIGN TO FINAL DESIGN AND DETAILING OF THE DELEGATED DESIGN PACKAGE.
- STRUCTURAL SYSTEMS SHALL BE DESIGNED FOR THE DELEGATED DESIGN PERFORMANCE CRITERIA DEFLECTION LIMITS NOTED ON THIS SHEET AND TO LIMIT BUILDING MOVEMENTS TO LESS THAN THE VALUES INDICATED IN THE COORDINATION WITH OTHER TRADES AND BUILDING SYSTEMS NOTES ON S010.
- DOCUMENTS FOR DELEGATED DESIGN ITEMS SHALL BE STAMPED BY A QUALIFIED, PROFESSIONAL ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED. THE CONTRACTOR SHALL FORWARD THE REVIEWED DOCUMENTS TO THE ARCHITECT AND/OR ENGINEER OF RECORD WITH A NOTATION INDICATING THAT THE DELEGATED DESIGN DOCUMENTS HAVE BEEN REVIEWED AND BEEN FOUND TO BE IN GENERAL CONFORMANCE TO THE DESIGN OF THE BUILDING.
- DELEGATED DESIGN ITEMS INCLUDE ANY ITEMS NOT EXPLICITLY NOTED ON THE STRUCTURAL DRAWINGS, INCLUDING BUT NOT LIMITED TO:

- PRIMARY BASE BUILDING STRUCTURAL ELEMENTS**
 - SOIL IMPROVEMENT SYSTEMS, INCLUDING UPLIFT ANCHORS
 - TEMPORARY EARTH RETENTION SYSTEMS
 - SHORING AND/OR UNDERPINNING OF EXISTING STRUCTURES
 - LOAD-BEARING COLD-FORMED METAL FRAMING AND CONNECTIONS
 - PRE-ENGINEERED ROOF/FLOOR OPENING FRAMES
 - PRE-FABRICATED METAL BALCONIES
 - POST-TENSIONING SYSTEMS
- OTHER ITEMS SUPPORTED BY PRIMARY STRUCTURE (SECONDARY MEMBERS)**
 - NON-LOAD-BEARING COLD-FORMED METAL FRAMING AND CONNECTIONS
 - STAIRS, RAILINGS, HANDRAILS, GUARDRAIL, LADDERS, ETC. - REFER TO STAR DELEGATE DESIGN NOTES
 - BUILDING MAINTENANCE SYSTEMS, WINDOW WASHING DAVITS AND TIE BACKS
 - POOLS
 - CABLE BARRIERS, BOLLARDS, GUARDRAILS, TRAFFIC CONTROL DEVICES
 - CANOPIES AND AWNINGS
 - CLADDING SYSTEMS AND COMPONENTS, INCLUDING SUPPLEMENTAL SUPPORT, WHERE REQUIRED
 - FURNITURE, FIXTURES, AND OTHER MISCELLANEOUS ARCHITECTURAL FABRICATIONS
 - SITE UTILITY, PLAZA, AND LANDSCAPE ITEMS
 - SUPPORTS, BRACKETS, ATTACHMENTS, AND SUBFRAMING FOR SUPPORT OF OTHER TRADES AND BUILDING COMPONENTS. REFER TO MODIFICATIONS FOR COORDINATION WITH OTHER TRADES NOTES.

- DELEGATED DESIGN SUBMITTALS PERTAINING TO FOUNDATIONS AND OTHER GEOTECHNICAL ELEMENTS SHALL BE REVIEWED BY THE GEOTECHNICAL ENGINEER OF RECORD.
- ENGINEERING AND SYSTEMS REQUIRED BY THE CONTRACTOR TO SUPPORT CONSTRUCTION REMAIN THE PREROGATIVE AND RESPONSIBILITY OF THE CONTRACTOR. REFER TO GENERAL NOTES.

DELEGATED DESIGN STAR NOTES:

STARS NOT DETAILLED ON THE DRAWINGS ARE DELEGATED TO THE CONTRACTOR FOR DESIGN. REFER TO THE ARCHITECTURAL DRAWINGS AND PROJECT SPECIFICATIONS FOR ADDITIONAL PERFORMANCE CRITERIA AND FINISHING REQUIREMENTS. THE BASE BUILDING STRUCTURE HAS BEEN DESIGNED FOR SUPPORT OF STARS AS INDICATED HEREIN.

- STAIRS, HANDRAILS, AND GUARDRAILS SHALL BE DELEGATED DESIGN BY THE STEEL SUPPLIER. CONNECTIONS INTO SURROUNDING STRUCTURE SHALL BE APPROVED BY STRUCTURAL ENGINEER. CALCULATIONS OF ALL STAIR COMPONENTS MUST BE SUPPLIED WITH STAR SHOP DRAWINGS AND STAMPED BY THE PROFESSIONAL ENGINEER IN RESPONSIBLE CHARGE, IN THE STATE IN WHICH THE PROJECT IS LOCATED.

REFER TO ARCHITECTURAL DRAWINGS FOR STAIR FRAMING AND CONFIGURATION.

- LANDING BEAMS AND ANY ADDITIONAL SUPPORTS BEYOND WHAT IS SHOWN IN THE CONTRACT DOCUMENTS TO BE DESIGNED AND PROVIDED BY THE STAR SUPPLIER.

DESIGN LOADS:

- STAR LIVE LOAD SHALL BE 100 PSF, NON-REDUCIBLE.

- STAR CONSTRUCTION SHALL BE:

- WHERE SPECIFICALLY NOTED, PRECAST CONCRETE STAIRS WITH ARCHITECT-SPECIFIED FINISHING, HAVING A TOTAL AVERAGE DEAD LOAD OF NOT MORE THAN 150 PSF
- METAL PAN WITH 1/2" NORMAL WEIGHT CONCRETE FILL ON TREADS AND INTERMEDIATE LANDINGS, HAVING A TOTAL AVERAGE DEAD LOAD OF NOT MORE THAN 50 PSF
- METAL PAN WITH ARCHITECT-SPECIFIED FINISHES, HAVING A TOTAL AVERAGE DEAD LOAD OF NOT MORE THAN 50 PSF.

- CONNECTIONS TO BASE BUILDING STRUCTURE

- CONNECTION OF STAIRS TO THE BASE BUILDING STRUCTURE SHALL BE DESIGNED AND SUBMITTED BY THE STAR SUPPLIER SUBJECT TO THE CONDITIONS INDICATED HEREIN AND COORDINATED WITH ALL OTHER TRADES AND SUBCONSULTANTS. SIGNED AND SEALED STAR DESIGNS, INCLUDING CONNECTION LOCATIONS AND LOADS, SHALL BE PROVIDED PRIOR TO OR CONCURRENT WITH THE REVIEW OF SHOP DRAWINGS FOR THE SUPPORTING BASE BUILDINGS STRUCTURAL ELEMENTS. CONNECTION CALCULATIONS SHALL INCLUDE CONSIDERATION OF ALL LOCAL EFFECTS IMPOSED ON THE SUPPORTING MEMBERS.

- CONNECTIONS FOR INTERMEDIATE LANDINGS ARE ASSUMED TO BE MADE AT THE FAR END OF THE STAR STRINGER OPPOSITE THE CONNECTION AT THE FLOOR LEVELS, UNLESS NOTED OTHERWISE. IT IS SUGGESTED THAT ALTERNATE SUPPORT LOCATIONS BE SUBMITTED FOR REVIEW PRIOR TO COMPLETION OF THE STAR SHOP DRAWINGS.

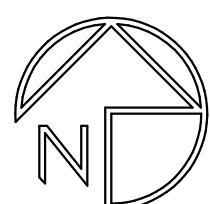
- ALL LOADS APPLIED TO BASE BUILDING SHALL BE ATTACHED SUCH THAT ROTATION OF THE BASE BUILDING STEEL FRAMING IS RESTRAINED, UNLESS NOTED OTHERWISE. PROVIDE CONCENTRIC CONNECTIONS WHERE POSSIBLE, OR DESIGN AND PROVIDE KICKERS OR OTHER MEANS OF RESTRAINT IF NECESSARY.

- POST-INSTALLED ATTACHMENT TO POST-TENSIONED BEAMS AND SLABS SHALL BE AVOIDED.

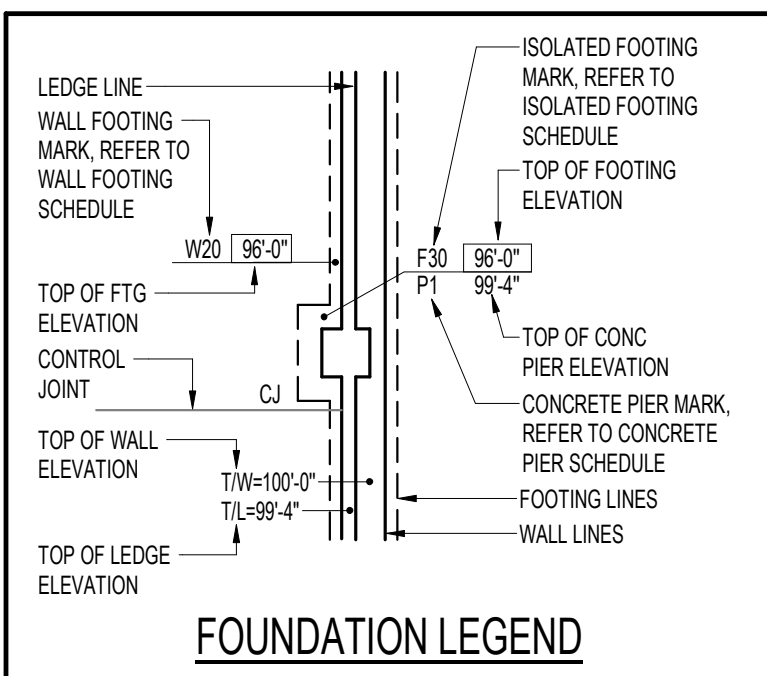
DELEGATED DESIGN PERFORMANCE CRITERIA DEFLECTION LIMITS				
MEMBERS	LIVE	SNOW OR WIND	DEAD + LIVE OR SNOW	
ROOF MEMBERS				
SUPPORTING GYPSUM BOARD CEILINGS	L/360	L/360	L/240	
SUPPORTING FLEXIBLE CEILINGS	L/360	L/360	L/240	
NOT SUPPORTING CEILINGS	L/240	L/240	L/180	
SUPPORTING RIGID MATERIALS (BRICK, MASONRY, ETC.)	L/600	L/600	L/600	
FLOOR MEMBERS				
SUPPORTING RIGID MATERIALS (BRICK, MASONRY, ETC.)	L/600	N/A	L/600	
SUPPORTING FLEXIBLE MATERIALS	L/360	N/A	L/240	
UNIT / HEADER / BEAM MEMBERS				
SUPPORTING RIGID MATERIALS (BRICK, MASONRY, ETC.)	L/600	L/600	L/600	
SUPPORTING FLEXIBLE MATERIALS	L/360	L/360	L/240	
EXTERIOR WALLS (LATERAL DEFLECTION)				
WITH RIGID FINISHES (BRICK, MASONRY, ETC.)	N/A	L/600	N/A	
WITH FLEXIBLE FINISHES (EIFS, SIDING, ETC.)	N/A	L/360	N/A	

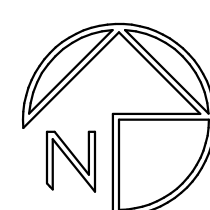
COORDINATION WITH OTHER TRADES:

- SUPPORT, SUBFRAMING, BRACING, AND ATTACHMENTS TO PRIMARY BASE BUILDING STRUCTURE FOR ALL NONSTRUCTURAL BUILDING COMPONENTS, INCLUDING ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING, AND FIRE PROTECTION ELEMENTS SHALL BE DESIGNED AND DETAILED BY THE MANUFACTURER, SUPPLIER, OR CONTRACTOR FURNISHING THOSE COMPONENTS. CONNECTIONS AND SUPPORTED LOADS TO STRUCTURAL MEMBERS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW. RESPONSIBILITY FOR THE PERFORMANCE OF THE SUPPLIED SYSTEM AND ASSOCIATED CONNECTIONS SHALL REMAIN THAT OF THE PARTY FURNISHING THE DESIGN AND DETAILING.
- SEISMIC SUPPORT, BRACING, AND ANCHORAGE OF NONSTRUCTURAL COMPONENTS SHALL BE DESIGNED AND INSTALLED BY THE CONTRACTOR AS REQUIRED BY GOVERNING CODE.
- THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES CONNECTING TO, REQUESTING OPENINGS IN, PENETRATIONS THROUGH OR ITEMS EMBEDDED WITHIN STRUCTURAL ELEMENTS, OR OTHERWISE IMPACTING THE BASE BUILDING STRUCTURE, UPON COMPLETION OF COORDINATION AND DESIGN. FULLY COORDINATED PLANS SHALL BE SUBMITTED FOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO FABRICATION AND INSTALLATION. THIS INCLUDES, BUT IS NOT LIMITED TO, SLEEVES, CONDUITS, CABLES, PIPES, ELECTRICAL BOXES, CAST-IN ATTACHMENTS, POST-INSTALLED ANCHORS, ETC. REFER TO TYPICAL DETAILS CONTAINED HEREIN FOR REINFORCEMENT REQUIRED TO ACCOMMODATE REQUESTED MODIFICATIONS TO THE PRIMARY BASE BUILDING STRUCTURE. UPON REVIEW, ADDITIONAL OR ALTERNATIVE MODIFICATIONS MAY BE REQUIRED AT THE DISCRETION AND DIRECTION OF THE STRUCTURAL ENGINEER OF RECORD.
- PENETRATIONS THROUGH, CONNECTIONS TO, AND ITEMS EMBEDDED WITHIN STRUCTURAL MEMBERS SHALL NOT NEGATIVELY IMPACT THE PERFORMANCE OF THE BASE BUILDING STRUCTURE.
- CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES, INCLUDING AS-BUILT CONDITIONS IMPACTING DESIGN AND COORDINATION. ADJACENCIES OF ITEMS PLANNED OR INSTALLED IN OR ON STRUCTURE SHALL BE IDENTIFIED AND CONSIDERED BY EACH TRADE FOR THE IMPACT OF SUCH ADJACENCIES TO THEIR SYSTEMS. VERIFY ALL MECHANICAL EQUIPMENT, WEIGHTS, SIZES, AND LOCATIONS PRIOR TO PREPARING SHOP DRAWINGS AND FABRICATING MATERIALS. COORDINATE ANY REQUIRED REVISIONS TO THE BASE BUILDING STRUCTURE WITH THE STRUCTURAL ENGINEER.
- MISCELLANEOUS ELEMENTS SUCH AS SHELF ANGLES, LINTELS, SUPPORTS FOR CURTAIN WALLS OR MASONRY, AND EDGE ANGLES AT OPENINGS AND PERIMETER CONDITIONS ARE INTENDED TO SUPPORT AND BE COORDINATED WITH MATERIALS FURNISHED BY OTHER TRADES. THESE MATERIALS ARE INTENDED TO BE FIELD ATTACHED TO MEET THE TOLERANCES REQUIRED BY OTHER TRADES, WHICH MAY BE MORE STRINGENT THAN THE TOLERANCES SPECIFIED BY THE RELEVANT CODE OF STANDARD PRACTICE FOR THE SUPPORTING ELEMENTS. THE CONTRACTOR SHALL COORDINATE THE WORK OF ALL TRADES AND COORDINATE THE INSTALLATION OF SUPPORTING ELEMENTS TO COMPLY WITH THE TOLERANCE CRITERIA REQUIRED FOR INSTALLATION OF MATERIALS BY OTHER TRADES.
- UNDERGROUND
 - THE INFLUENCE AREA OF A FOOTING OR MAT SHALL BE DEFINED AS THE FRUSTRUM OF SOIL LOCATED BELOW THE FOOTING OR MAT HAVING A 2:1 (HORIZONTAL:VERTICAL) SLOPE EMANATING FROM THE FOOTING OR MAT EDGE OR AS DEFINED BY THE GEOTECHNICAL ENGINEER OF RECORD.
 - PIPES, CONDUITS, AND BURIED ITEMS SHALL NOT BE PLACED WITHIN THE INFLUENCE AREA OF ADJACENT FOOTINGS OR MATS.
 - ALL STRUCTURES (e.g. TRIPLE BASINS, GREASE TRAPS, ETC.) SHALL NOT

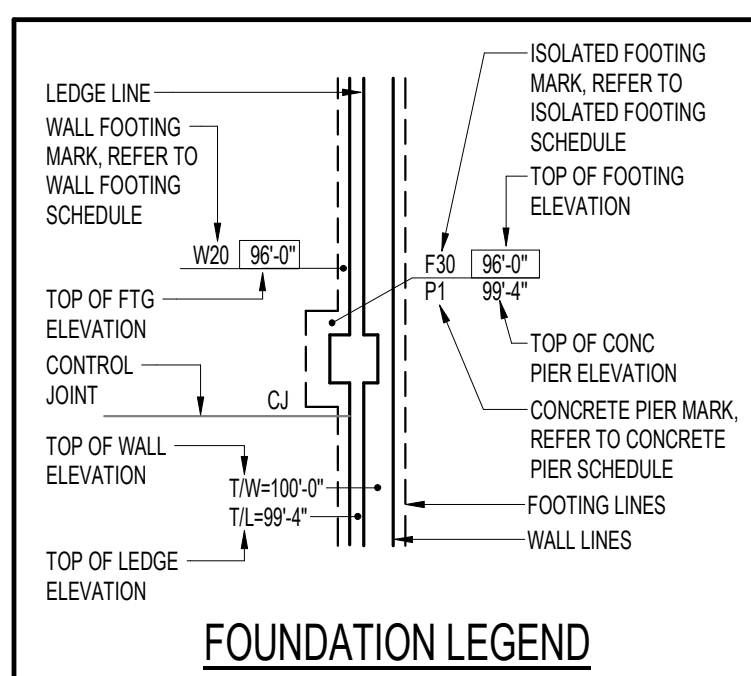


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PROJECT INFORMATION

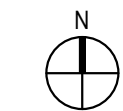
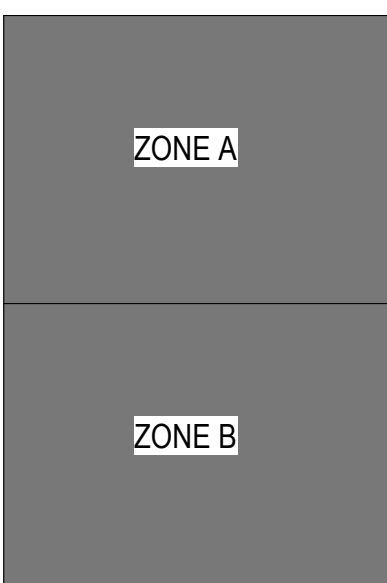
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

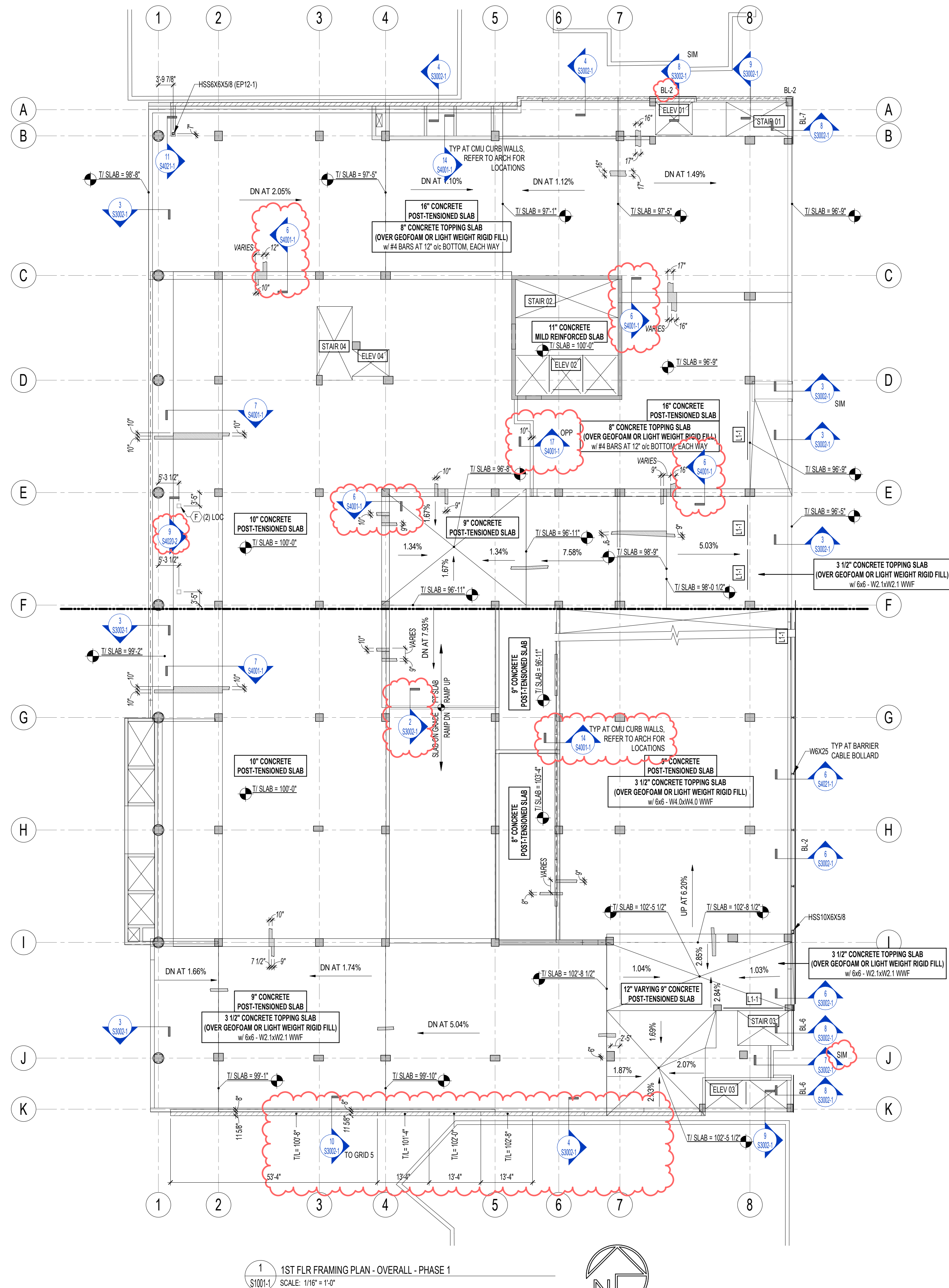
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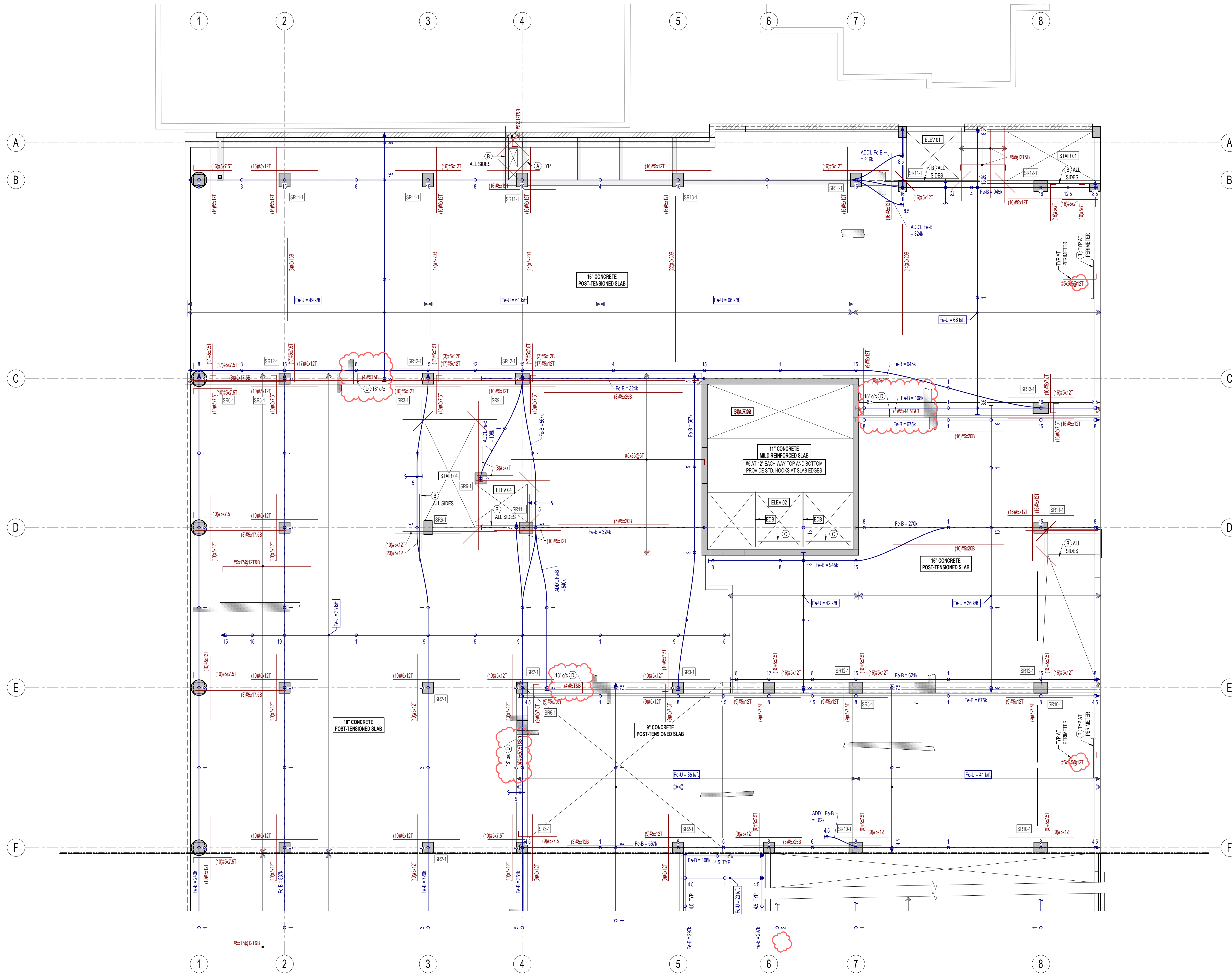
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1ST FLR FRAMING
PLAN - OVERALL -
PHASE 1

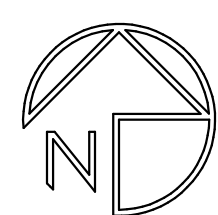
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1 1ST FLR FRAMING PLAN - ZONE A - PHASE 1
SCALE: 1/8" = 1'-0"

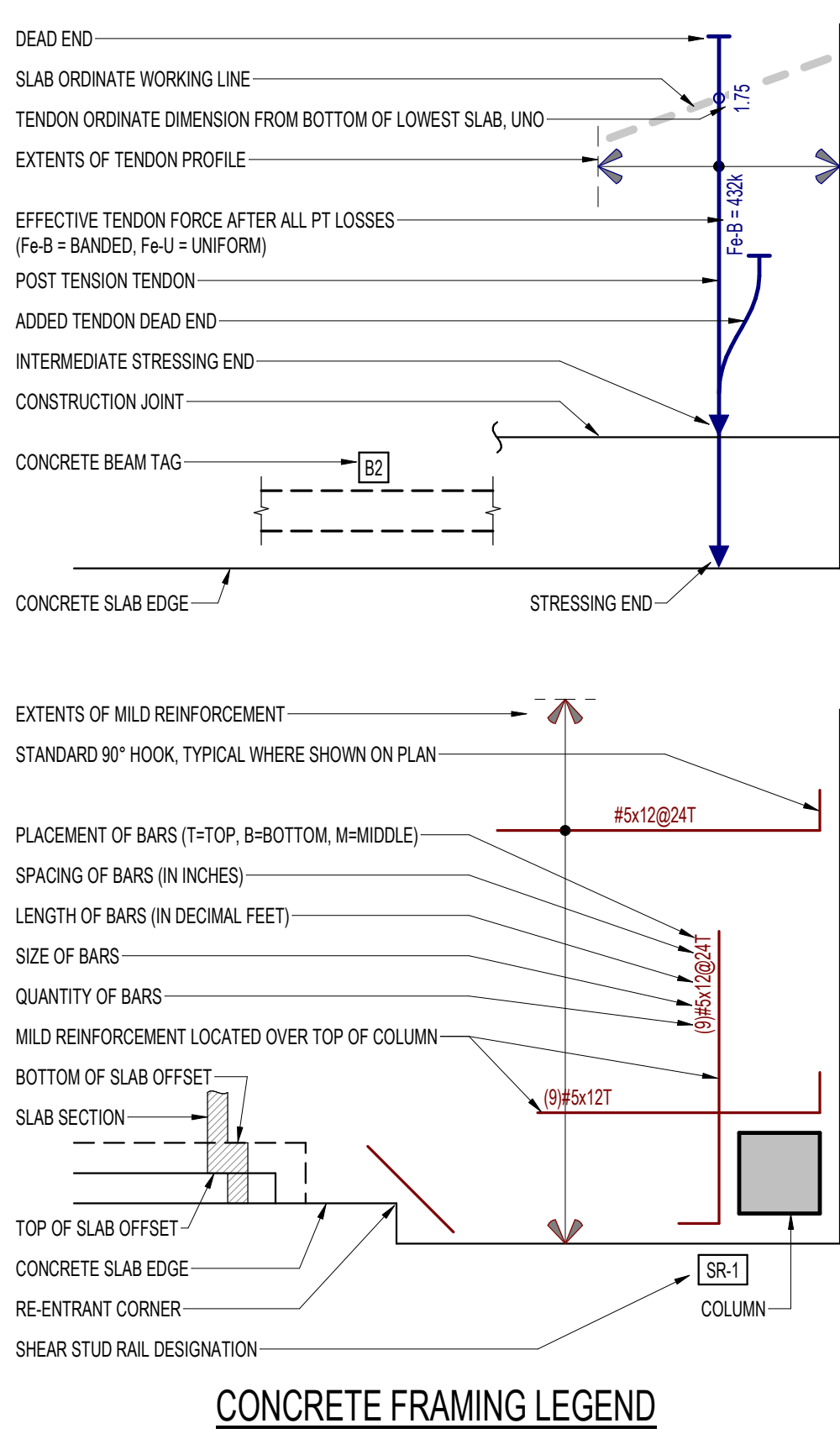


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT CUT ON PLAN.
 - REFER TO I154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
 - SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKEED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
 - "EDB" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 4S4001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRICKETS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPING). SHEAR STUD RAIRS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOTEXTILE OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 10S4001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54021-1.
- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- W12X9 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PROJECT INFORMATION

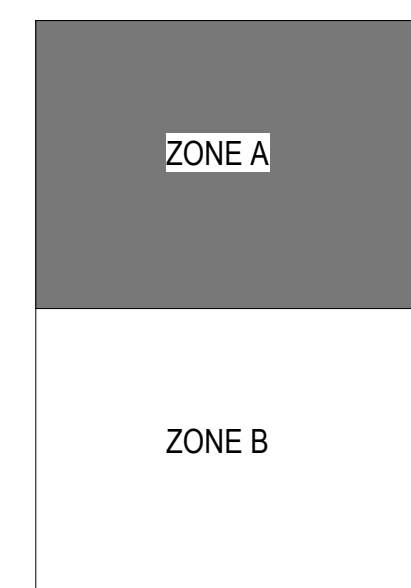
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



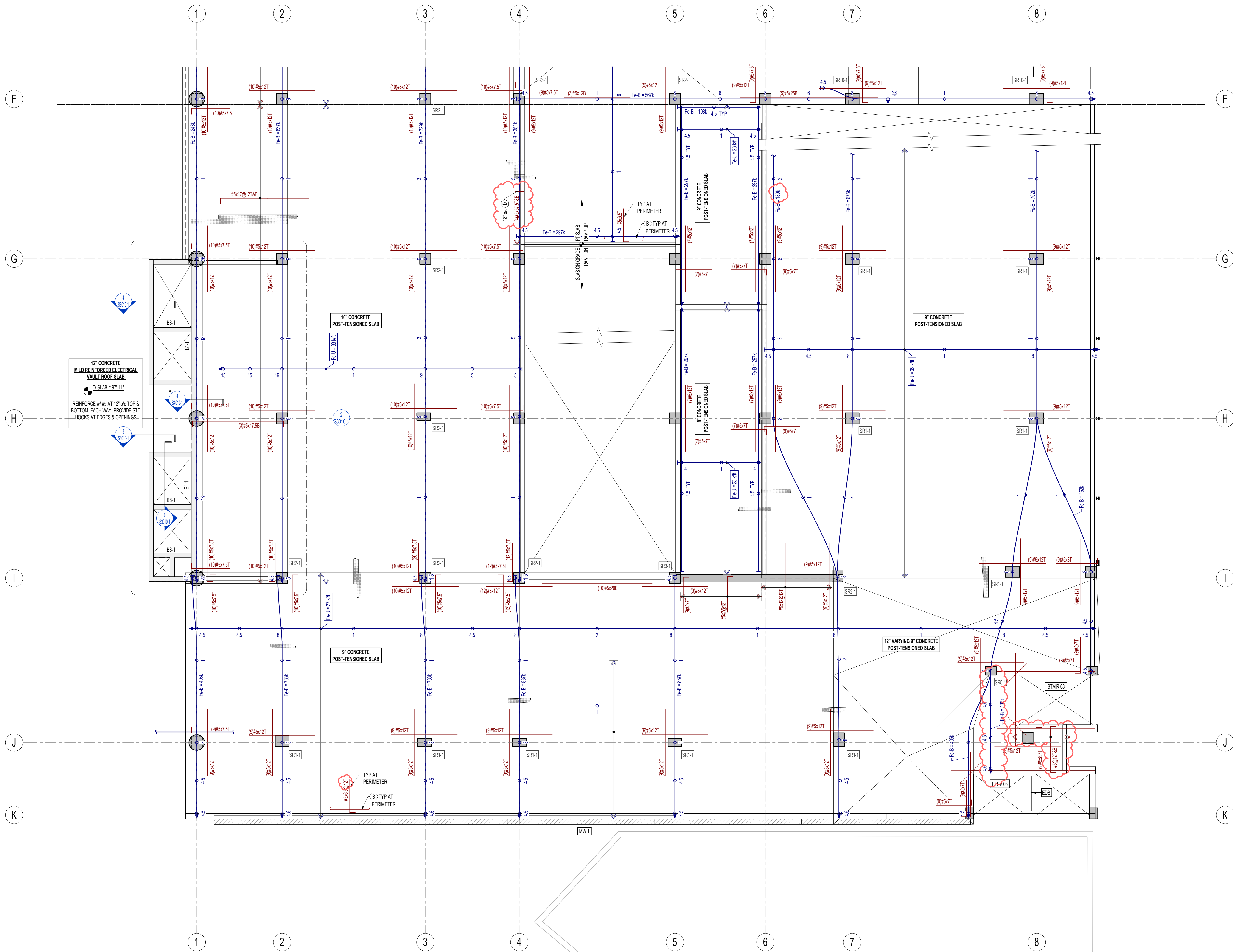
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PROJECT MANAGER
PROJECT NUMBER 720448

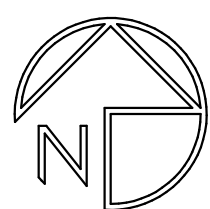
1ST FLR FRAMING
PLAN - ZONE A -
PHASE 1

S1001-A-1

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1 1ST FLR FRAMING PLAN - ZONE B - PHASE 1
SCALE: 1/8" = 1'-0"

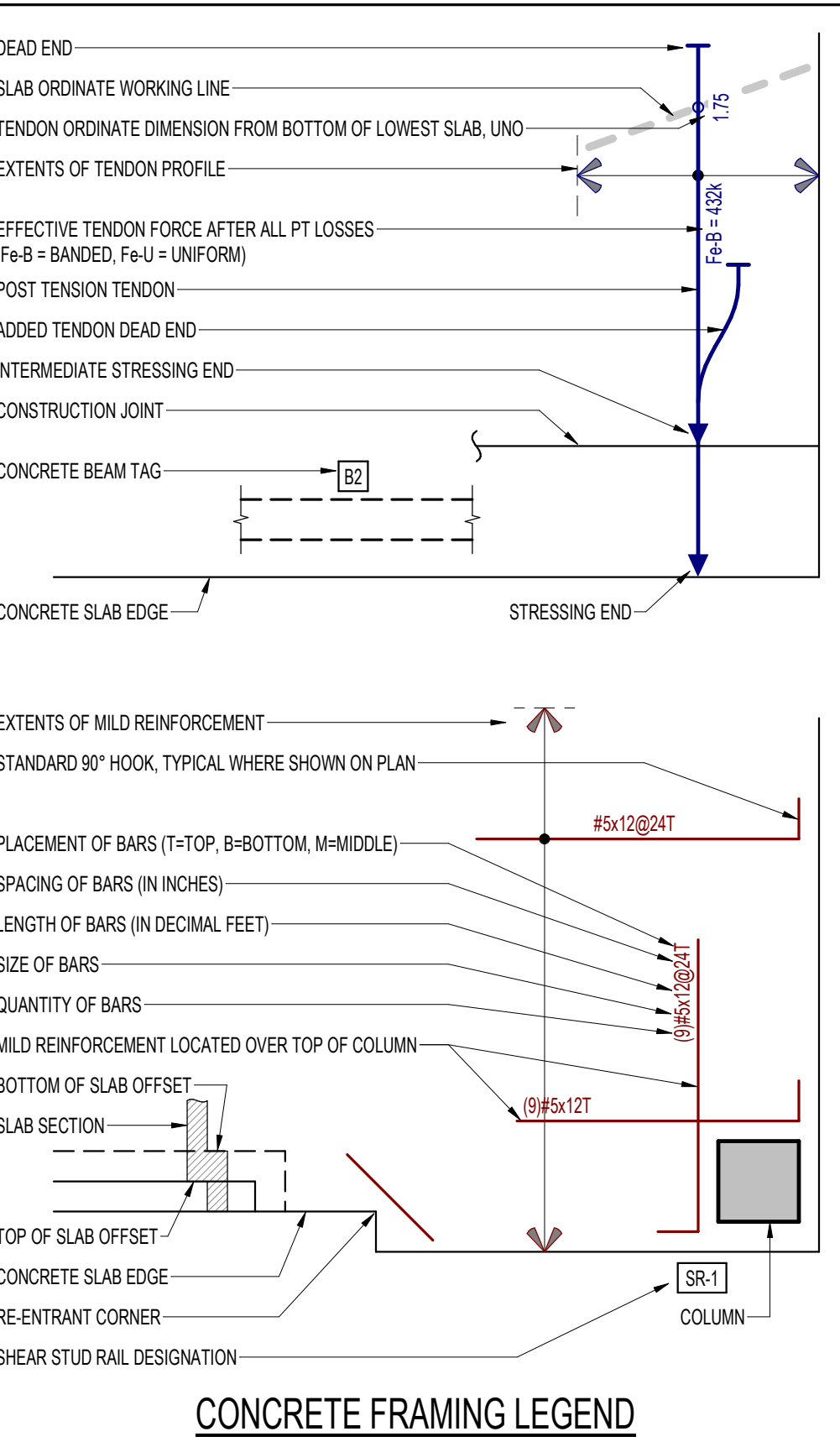


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | BE-0' | P4 | 136'-8" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-8" |
| P2 | 114'-0" | P6 | 154'-8" |
| P3 | 124'-8" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT OUT ON PLAN.
 - REFER TO 154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
 - SLAB TENSION AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
 - "EDB" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 454001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CROCKETS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MLD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPINGS). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOTEXTILE OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 1054001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 12" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54021-1.
- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- W12X59 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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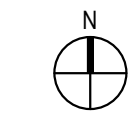
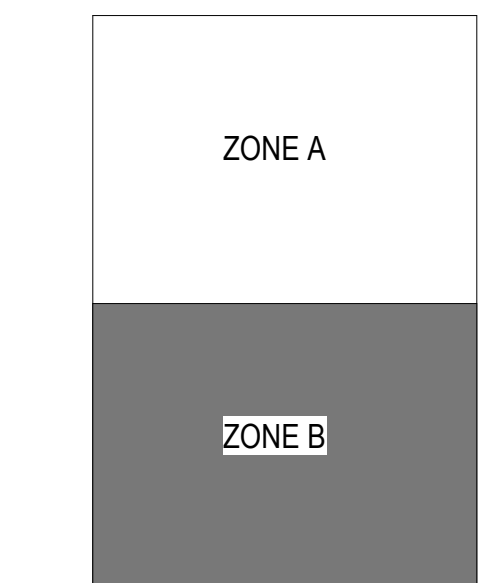
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

1ST FLR FRAMING
PLAN - ZONE B -
PHASE 1

S1001-B-1

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PE Project: 22019

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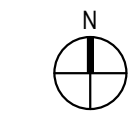
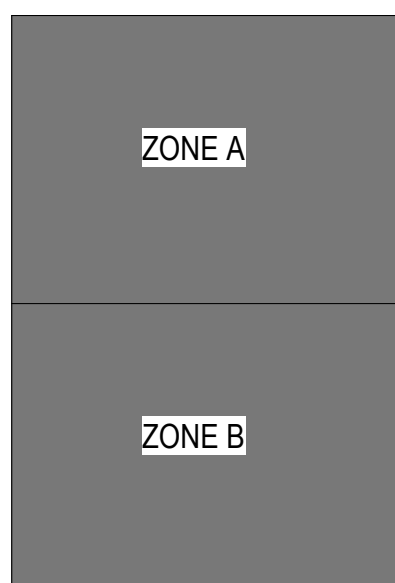
STATE STREET
CAMPUS GARAGE
MIXED-USE

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MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

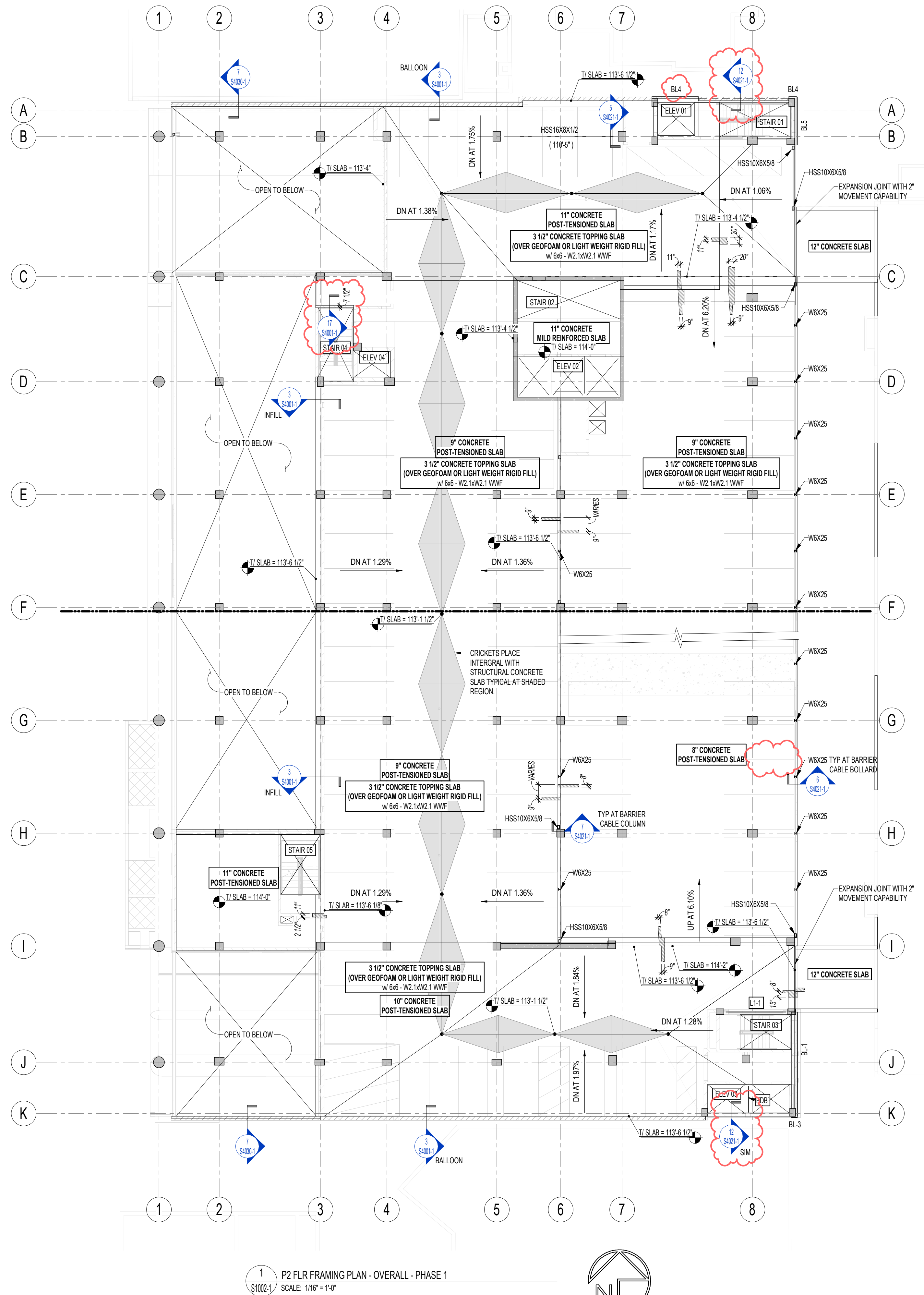
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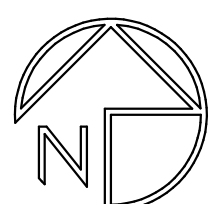
P2 FLR FRAMING
PLAN - OVERALL -
PHASE 1

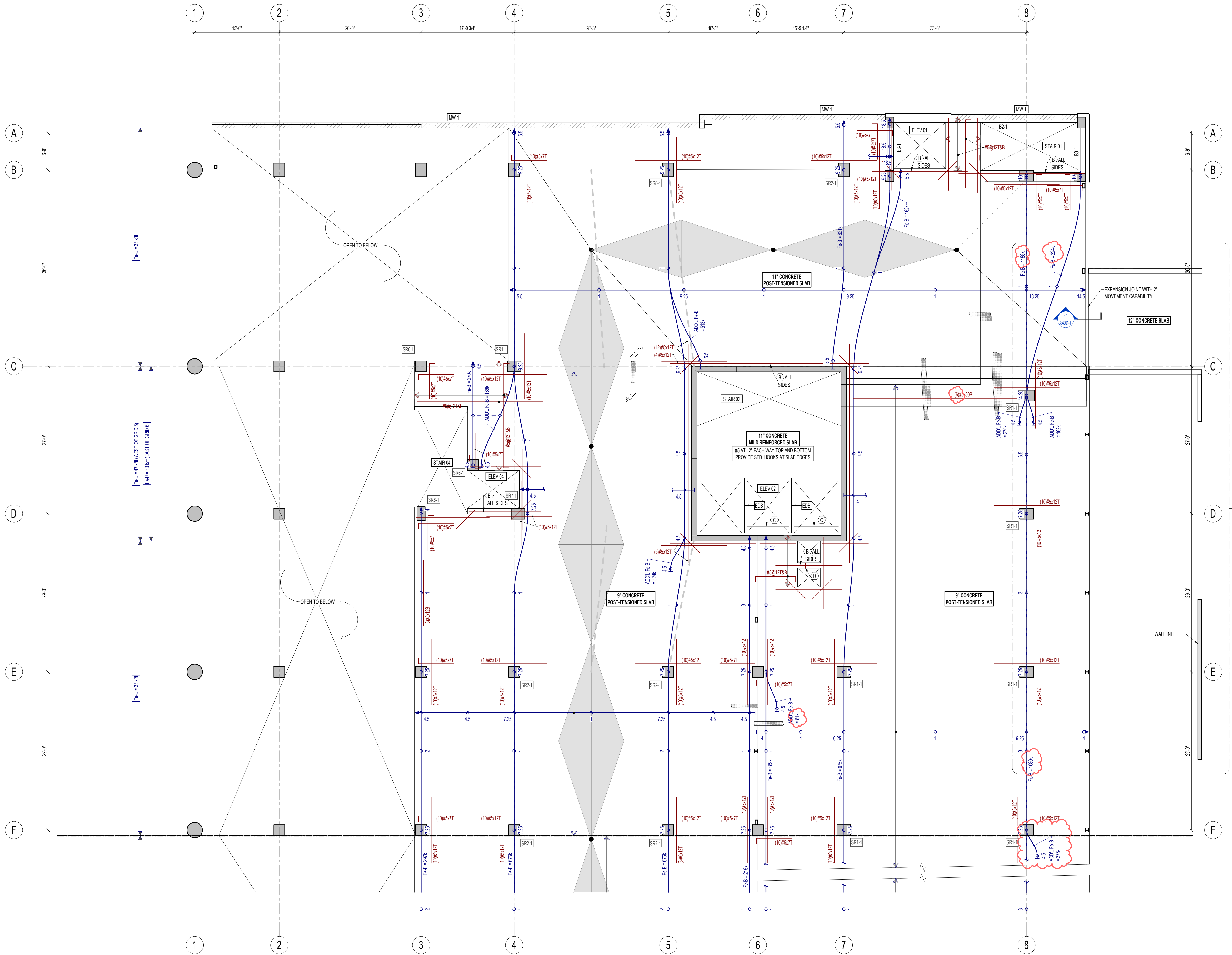
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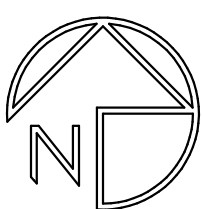


1 P2 FLR FRAMING PLAN - OVERALL - PHASE 1
S1002-1 SCALE: 1/16\" = 1'-0\"





1 P2 FLR FRAMING PLAN - ZONE A - PHASE 1
S1002-A-1 SCALE: 1/8" = 1'-0"

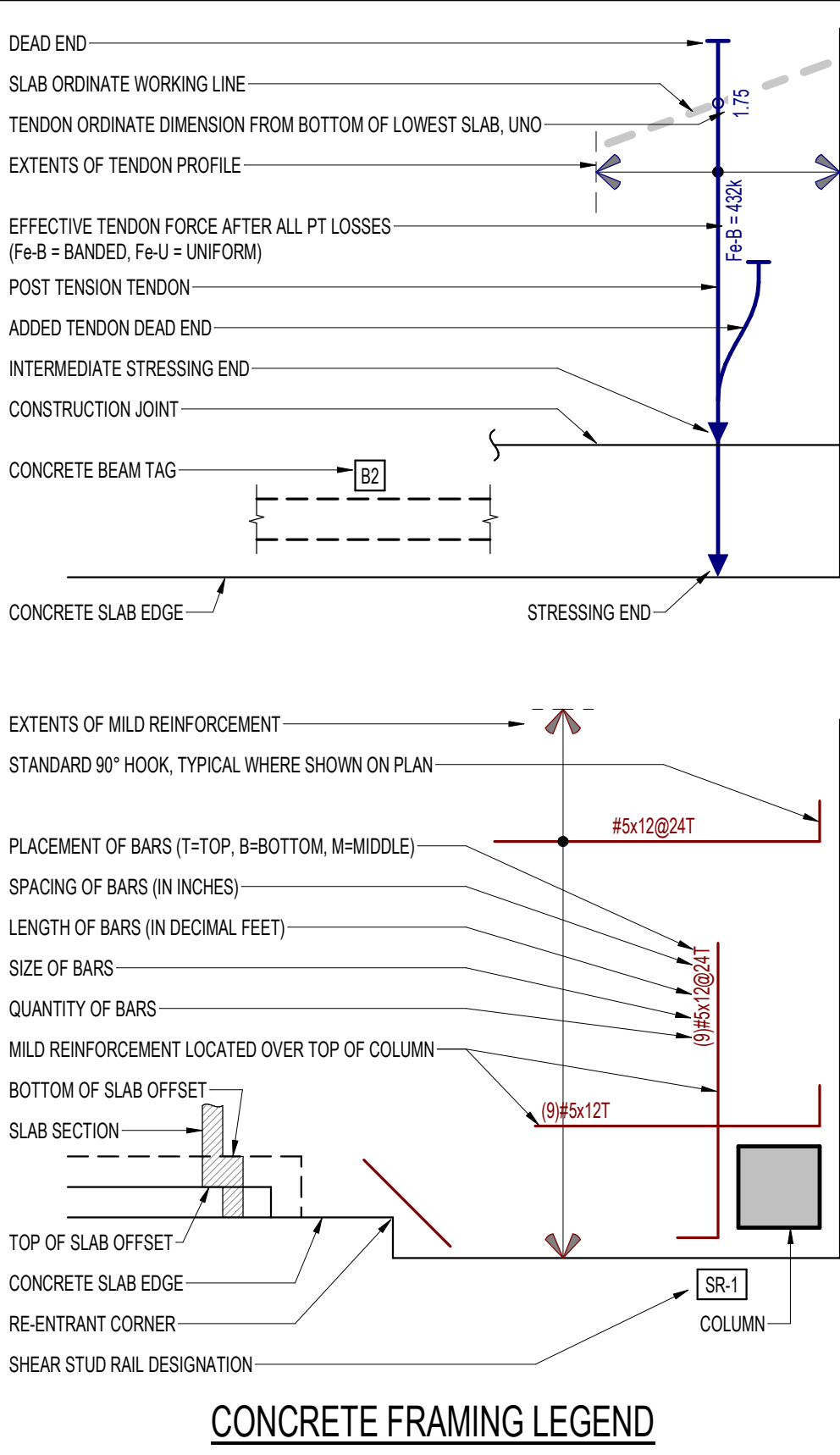


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

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- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
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 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
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 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOPOLAR OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 1054001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 12" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54021-1.
- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- W12X59 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT. REFER TO DETAILS.



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PE Project: 22019

PROJECT INFORMATION

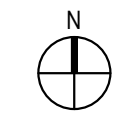
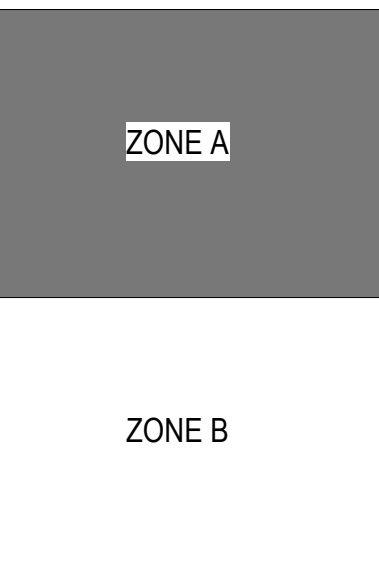
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

KEY PLAN



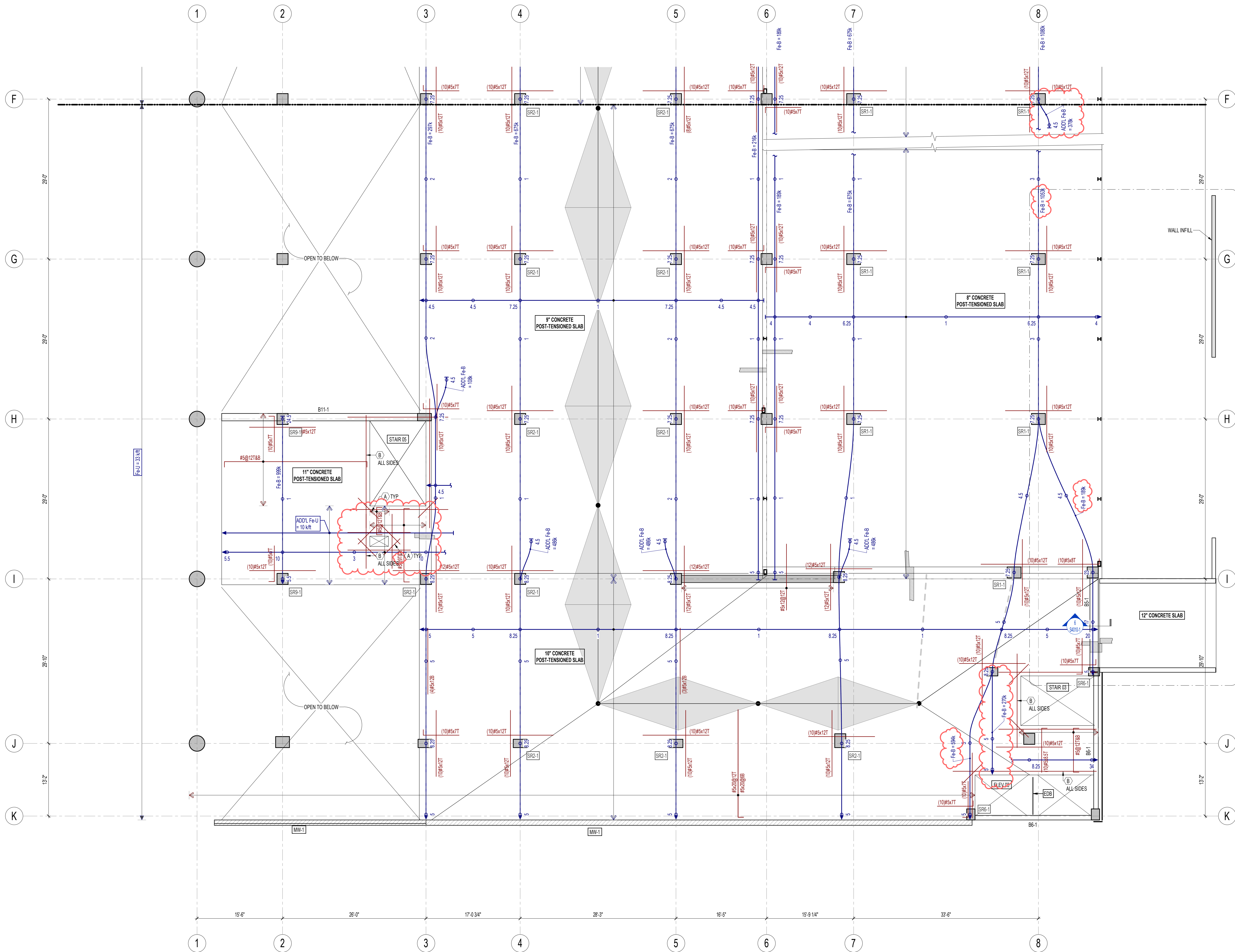
SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

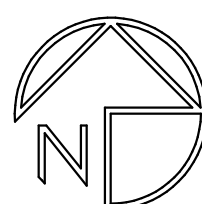
P2 FLR FRAMING
PLAN - ZONE A -
PHASE 1

S1002-A-1

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1 P2 FLR FRAMING PLAN - ZONE B - PHASE 1
S1002-B-1 SCALE: 1/8" = 1'-0"

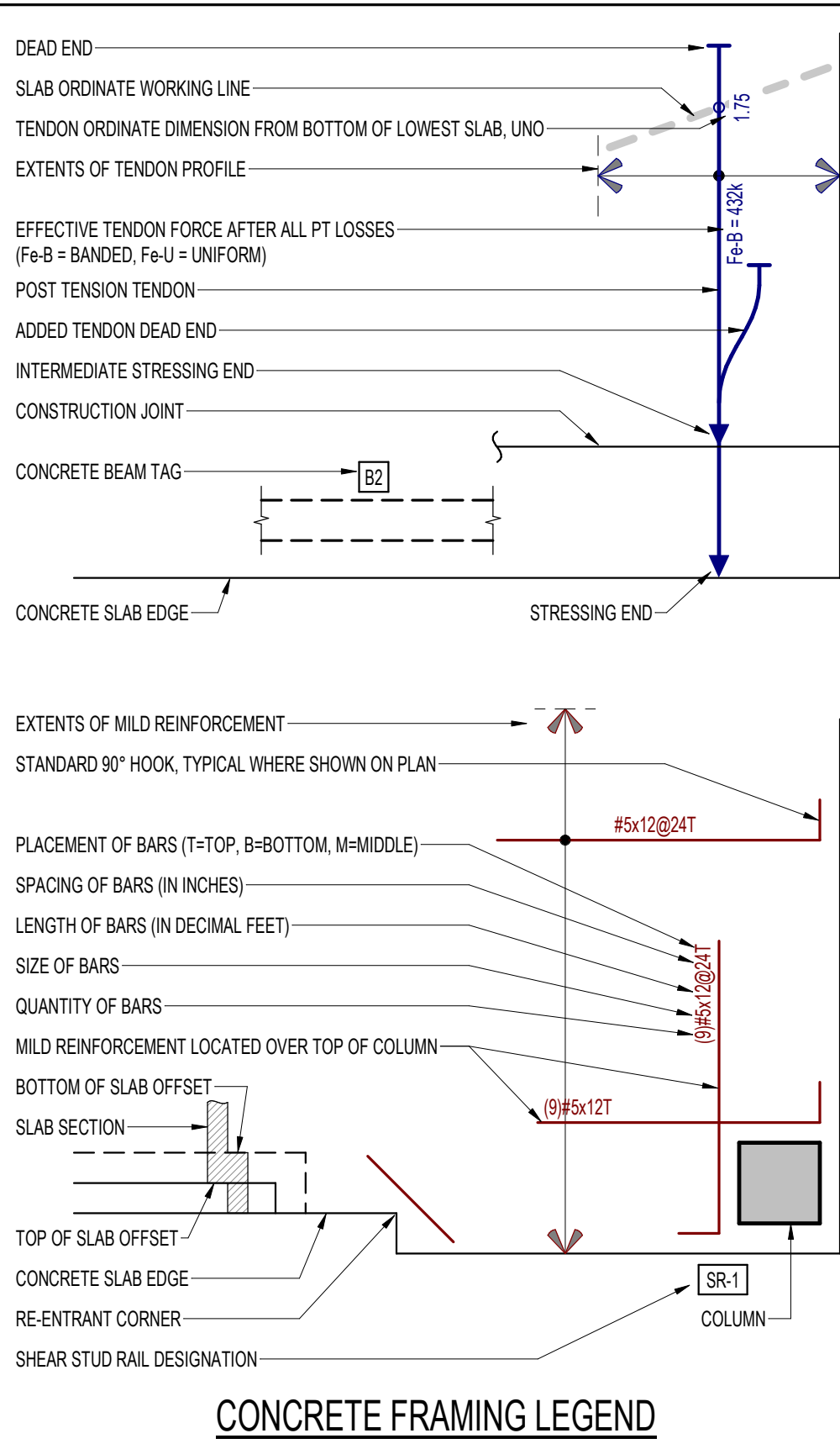


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT OUT ON PLAN.
 - REFER TO I154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
 - SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
 - "EDR" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 454001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRICKETS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPINGS). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOPOLAR OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 1054001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- (A) PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- (B) TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- (C) ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54002-1.
- (D) #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- (E) W12X59 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- (F) HALF-TONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1. SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PROJECT INFORMATION

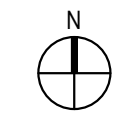
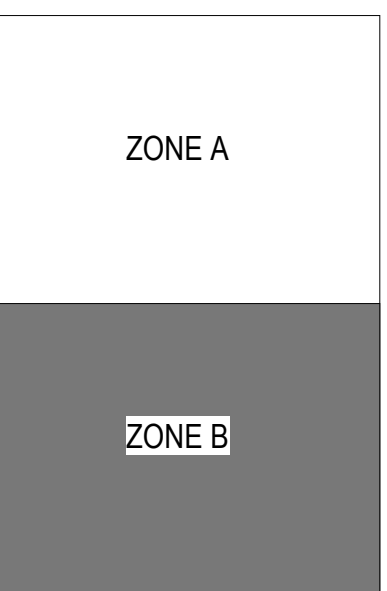
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
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ISSUANCE AND REVISIONS

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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

P2 FLR FRAMING
PLAN - ZONE B -
PHASE 1

S1002-B-1

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PROJECT INFORMATION

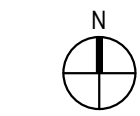
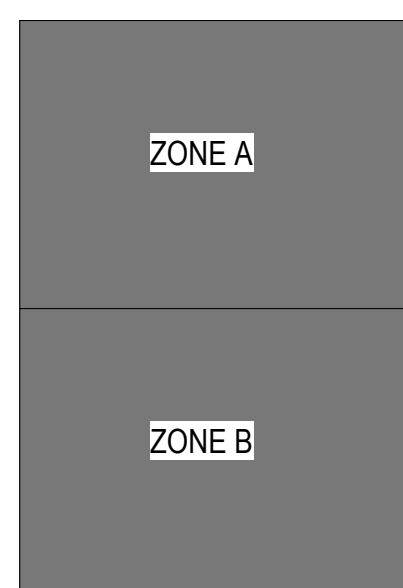
STATE STREET
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415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_AJ02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

PROJECT NUMBER 720448

P3 FLR FRAMING
PLAN - OVERALL -
PHASE 1

S1003-1

CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

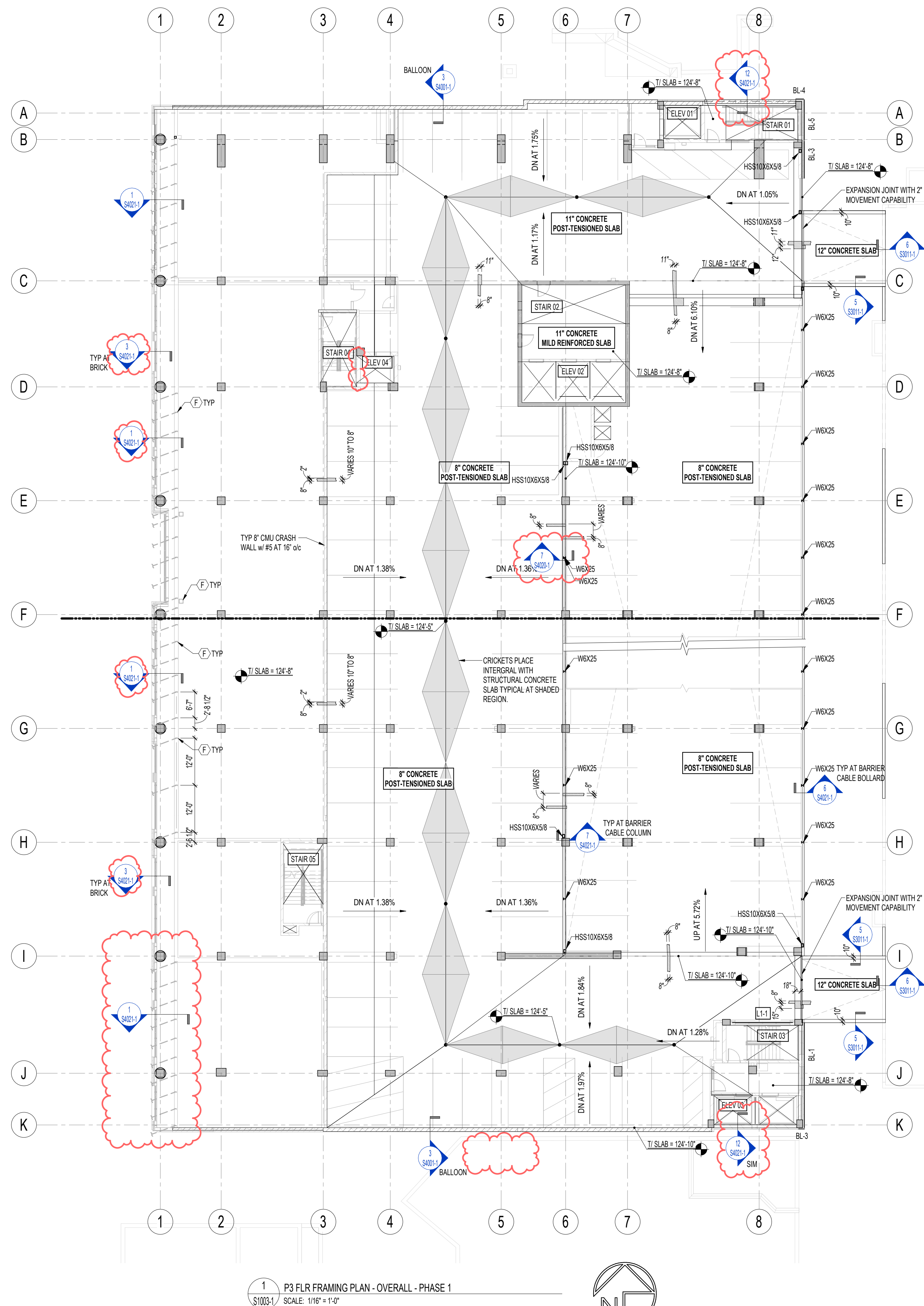
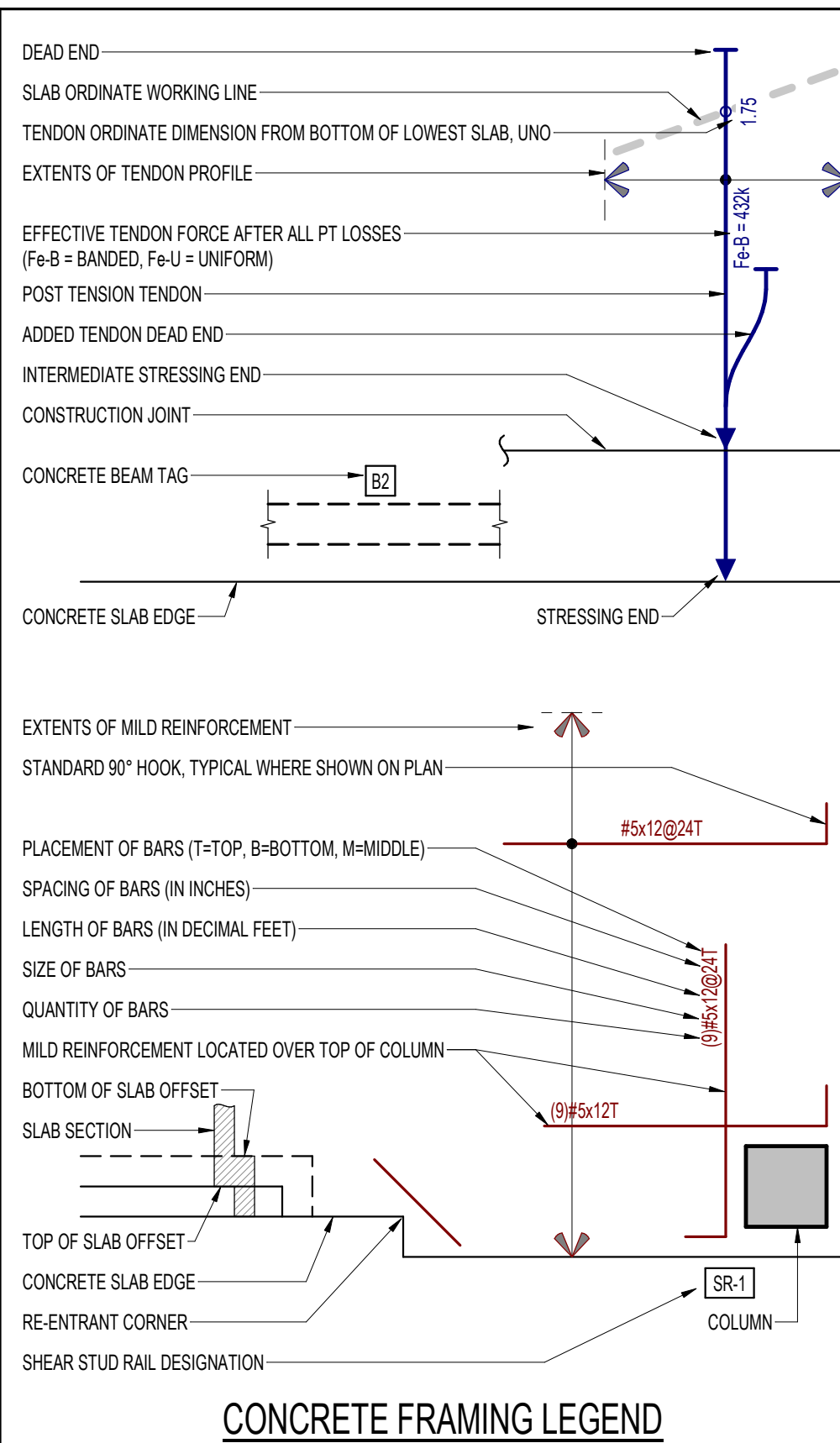
TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:

LL	86'-0"	P4	136'-0"
1ST FLR - LAKE ST	102'-0"	P5	144'-0"
P2	114'-0"	P6	154'-0"
P3	124'-0"	7TH FLR	167'-0"

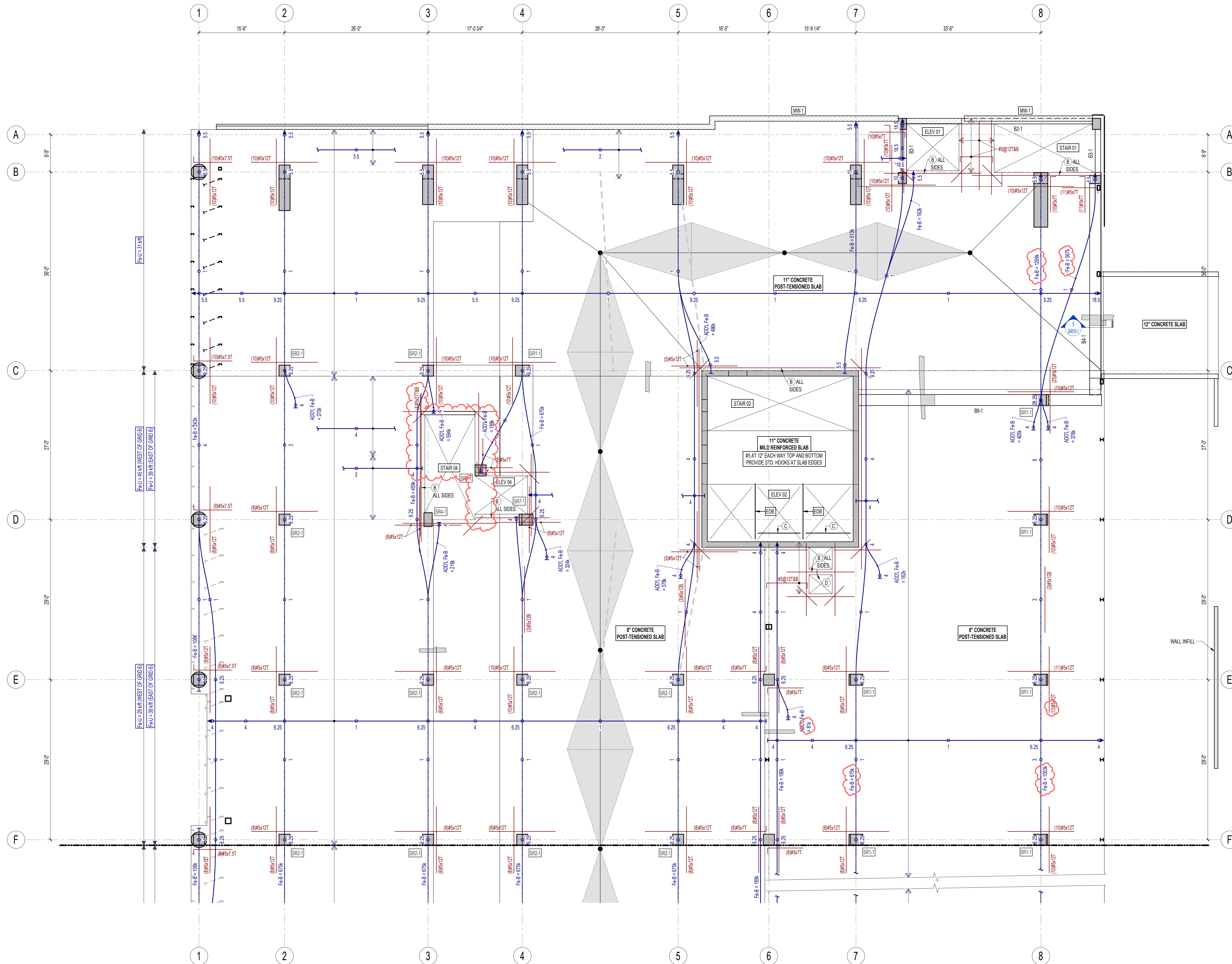
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
- REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
- REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
- REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT OUT ON PLAN.
- REFER TO I154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
- REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
- REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
- SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S154001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDINATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
- REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
- "E01" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S154001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
- PROVIDE CONCRETE WASH PER 4S4001-1 AT ALL PARKING SLABS.
- SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRICKETS ARE SHOWN).
- AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPING). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SLANE SEALER, REFER TO ARCHITECTURAL SPECIFICATIONS.
- REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOTEXTILE OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 10S4001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

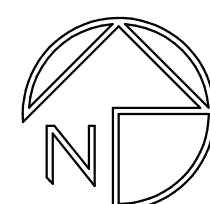
- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
 - SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
 - SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
 - SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
 - SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S154001-1. PROVIDE STEEL CONNECTIONS PER 2S4021-1.
- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- W12X59 ELEVATOR HOST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



1 P3 FLR FRAMING PLAN - OVERALL - PHASE 1
S1003-1 SCALE: 1/16\"/>



1 P3 FLR FRAMING PLAN - ZONE A - PHASE 1
S1003-A-1 SCALE: 1/8\"/>



CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT CUT ON PLAN.
 - REFER TO I154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
 - SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKE BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
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 - PROVIDE CONCRETE WASH PER 4S4001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRACKETS ARE SHOWN).
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CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
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- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54021-1.
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- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PE Project: 22019

PROJECT INFORMATION

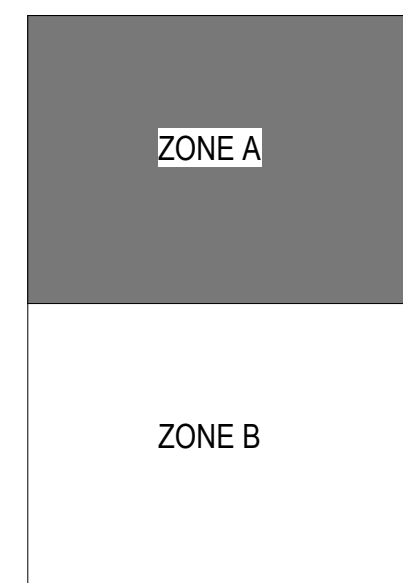
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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



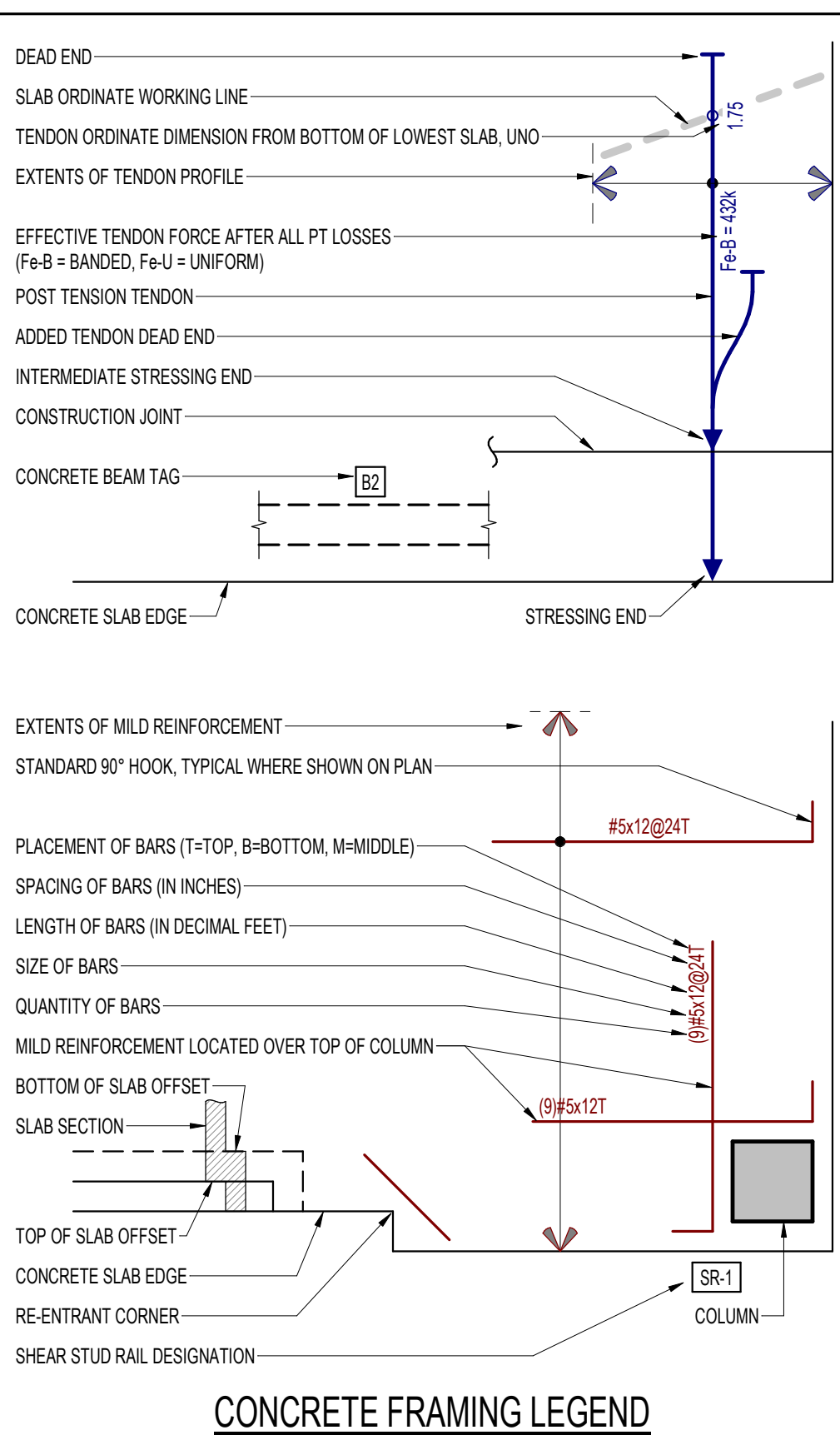
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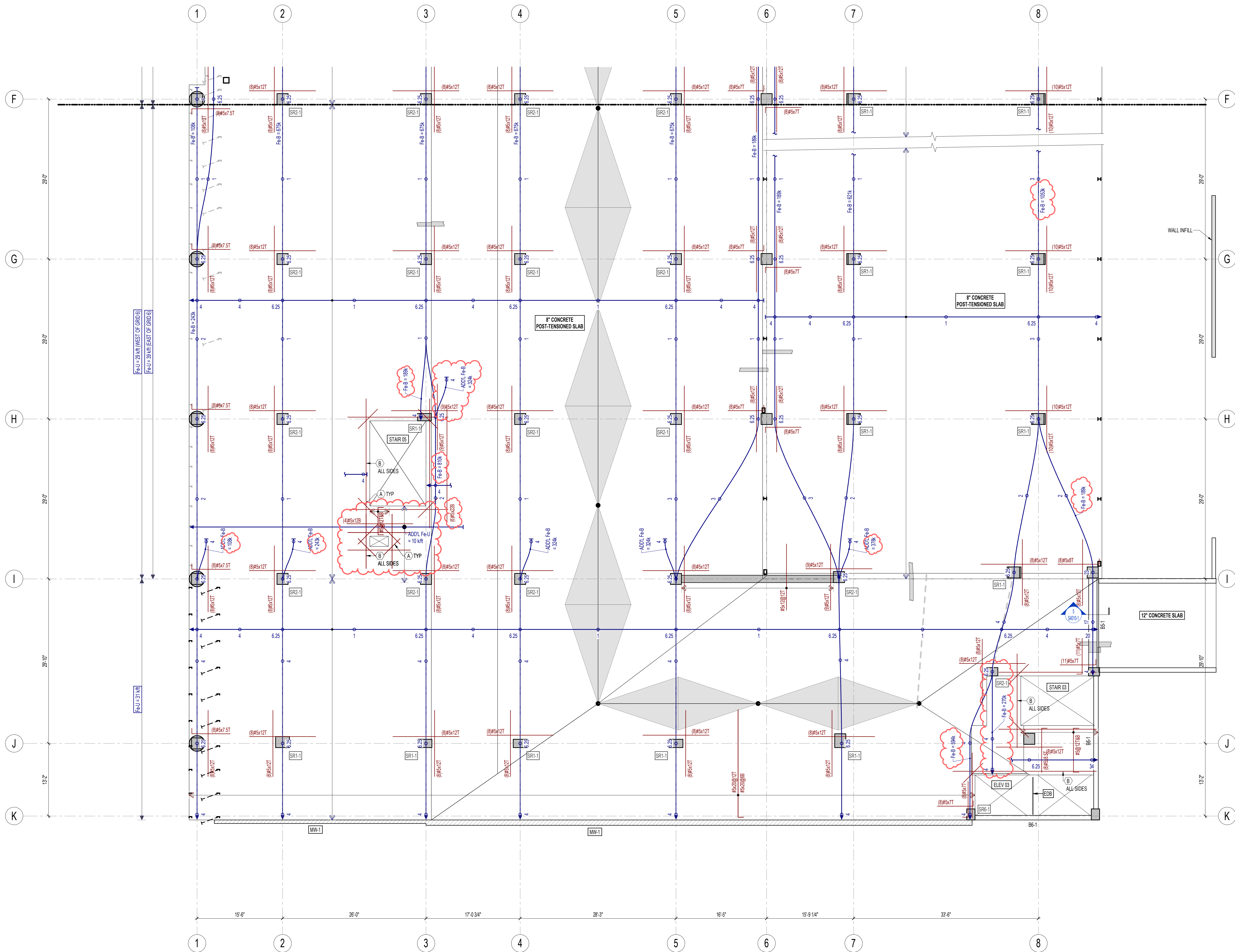
PROJECT MANAGER
PROJECT NUMBER 720448

P3 FLR FRAMING
PLAN - ZONE A -
PHASE 1

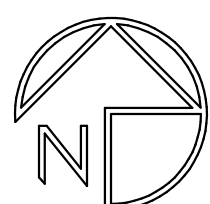
S1003-A-1

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1 P3 FLR FRAMING PLAN - ZONE B - PHASE 1
SCALE: 1/8" = 1'-0"

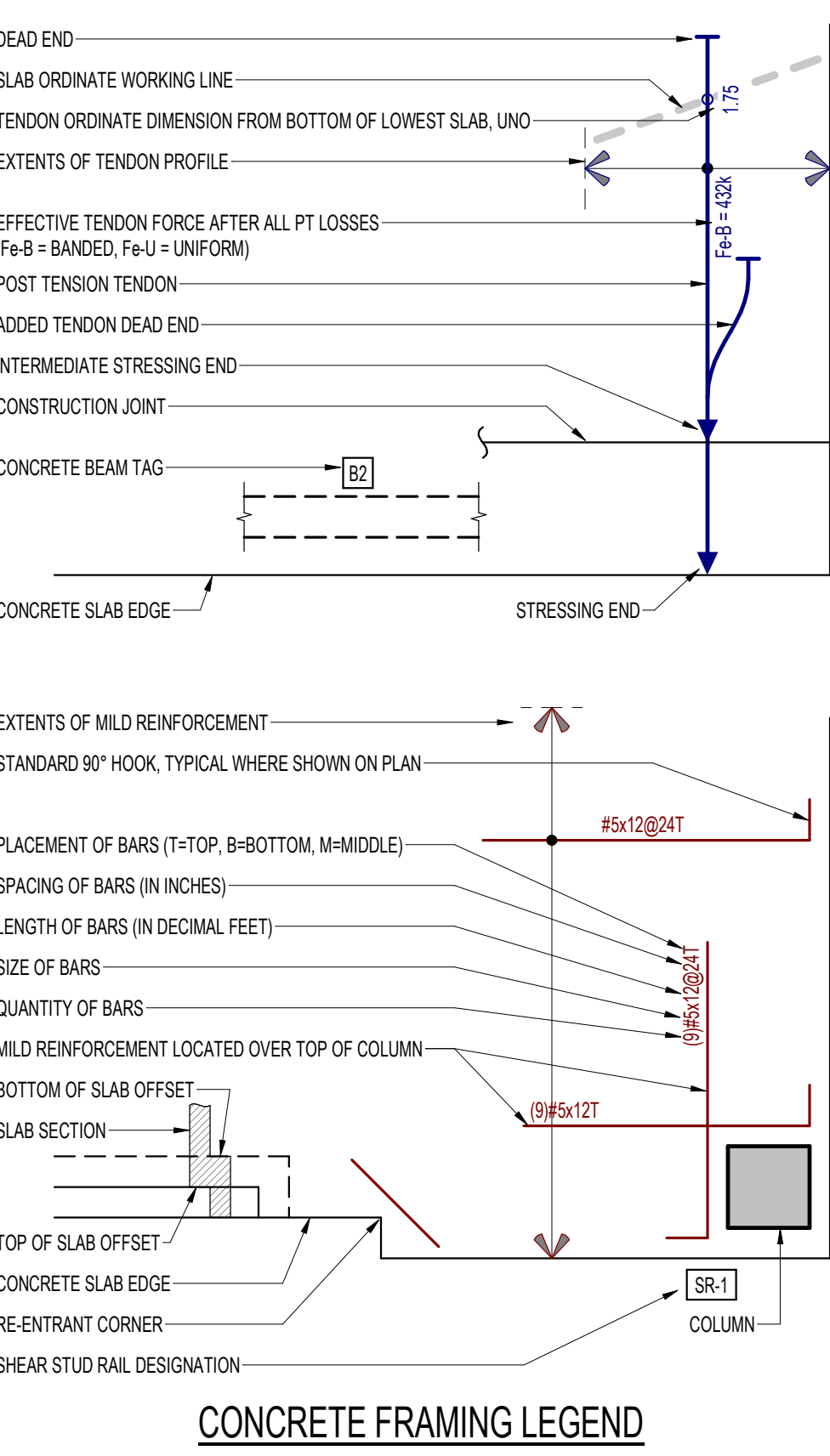


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT OUT ON PLAN.
 - REFER TO I154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
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 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S2002 FOR STAIR CONSTRUCTION.
 - "EDB" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S154011-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 4S401-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRICKETS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPINGS). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOMEM OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o/c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 10S4001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S154001-1. PROVIDE STEEL CONNECTIONS PER S154021-1.
- #3 STIRRUPS AT 12" o/c, FULL LENGTH OF OPENING.
- W12X9 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALF-TONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1. SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PE Project: 22019

PROJECT INFORMATION

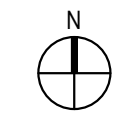
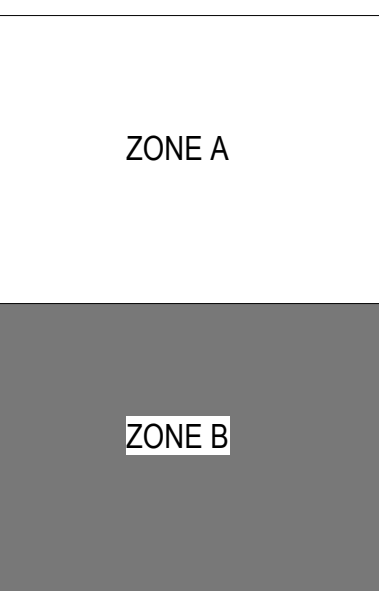
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

P3 FLR FRAMING
PLAN - ZONE B -
PHASE 1

S1003-B-1

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PROJECT INFORMATION

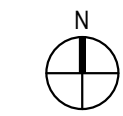
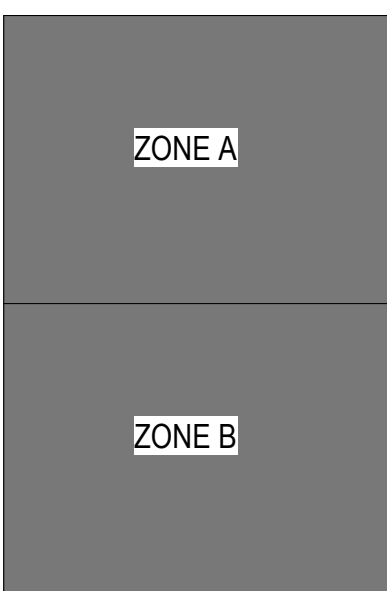
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN



SHEET INFORMATION

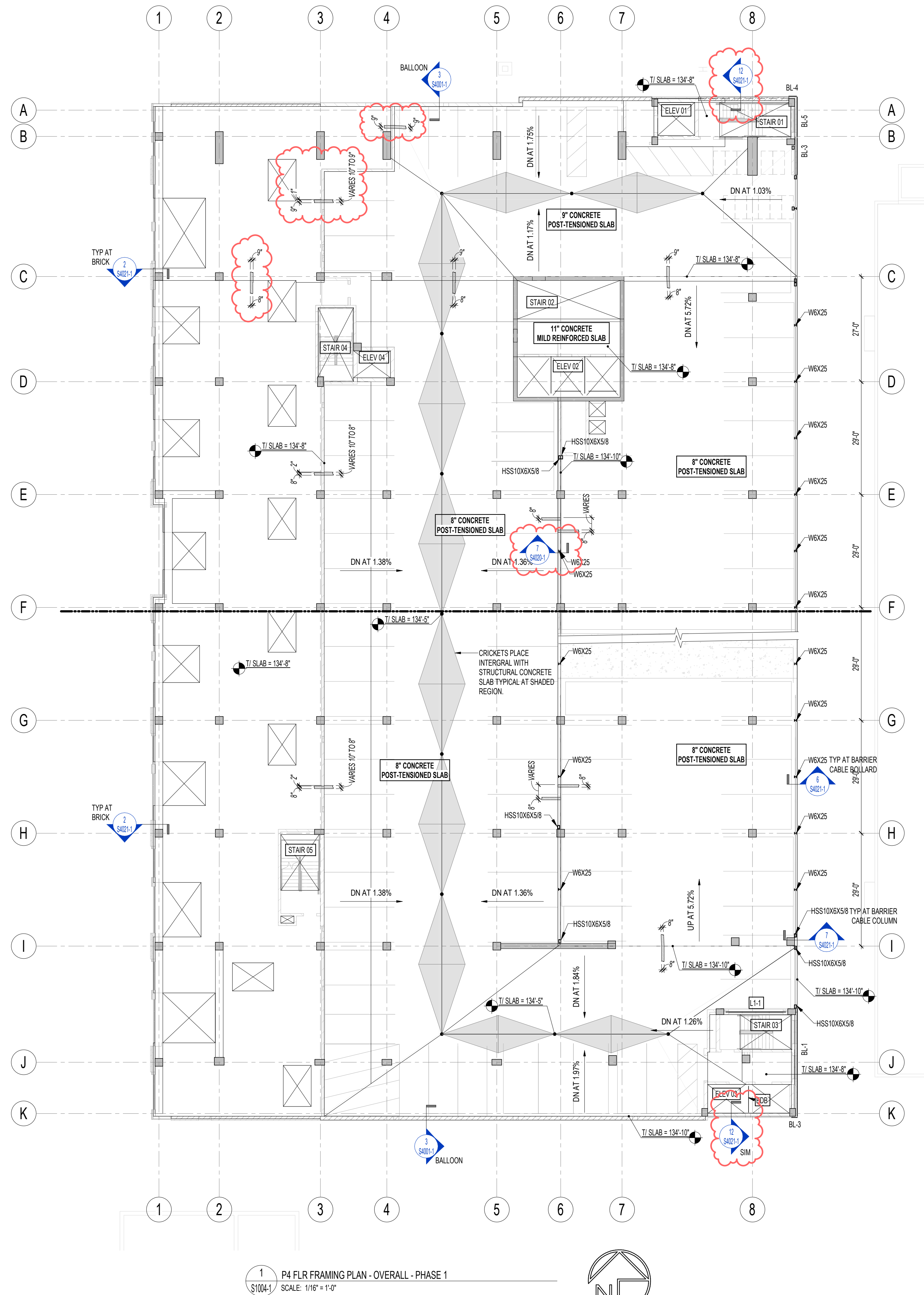
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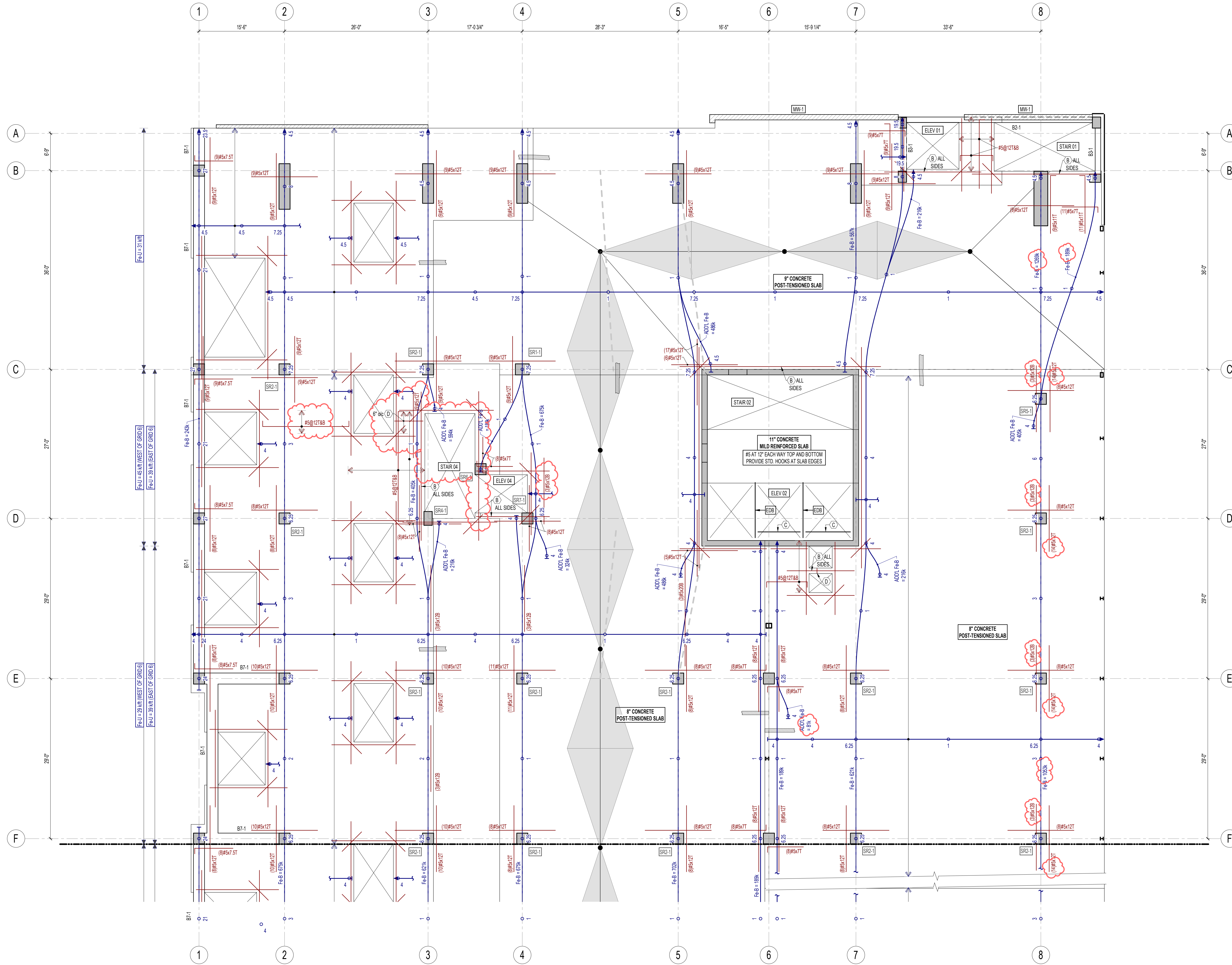
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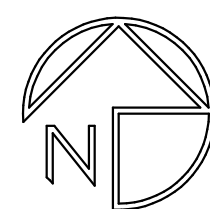
P4 FLR FRAMING
PLAN - OVERALL -
PHASE 1

S1004-1





1 P4 FLR FRAMING PLAN - ZONE A - PHASE 1
SCALE: 1/8" = 1'-0"



CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT CUT ON PLAN.
 - REFER TO 154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE, PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
 - SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKEED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
 - "EDR" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 454001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRICKETS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPING). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER, REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOTEXT OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 1054001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54002-1.
- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- WIDEX9 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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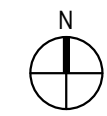
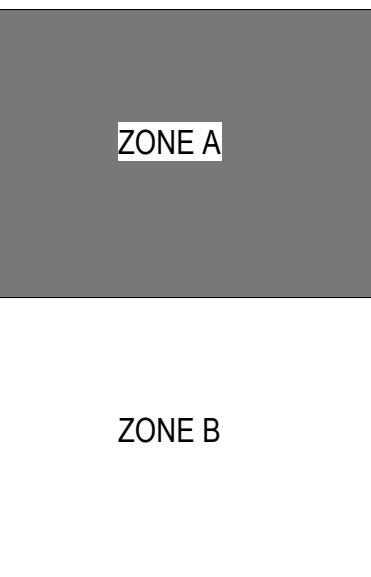
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



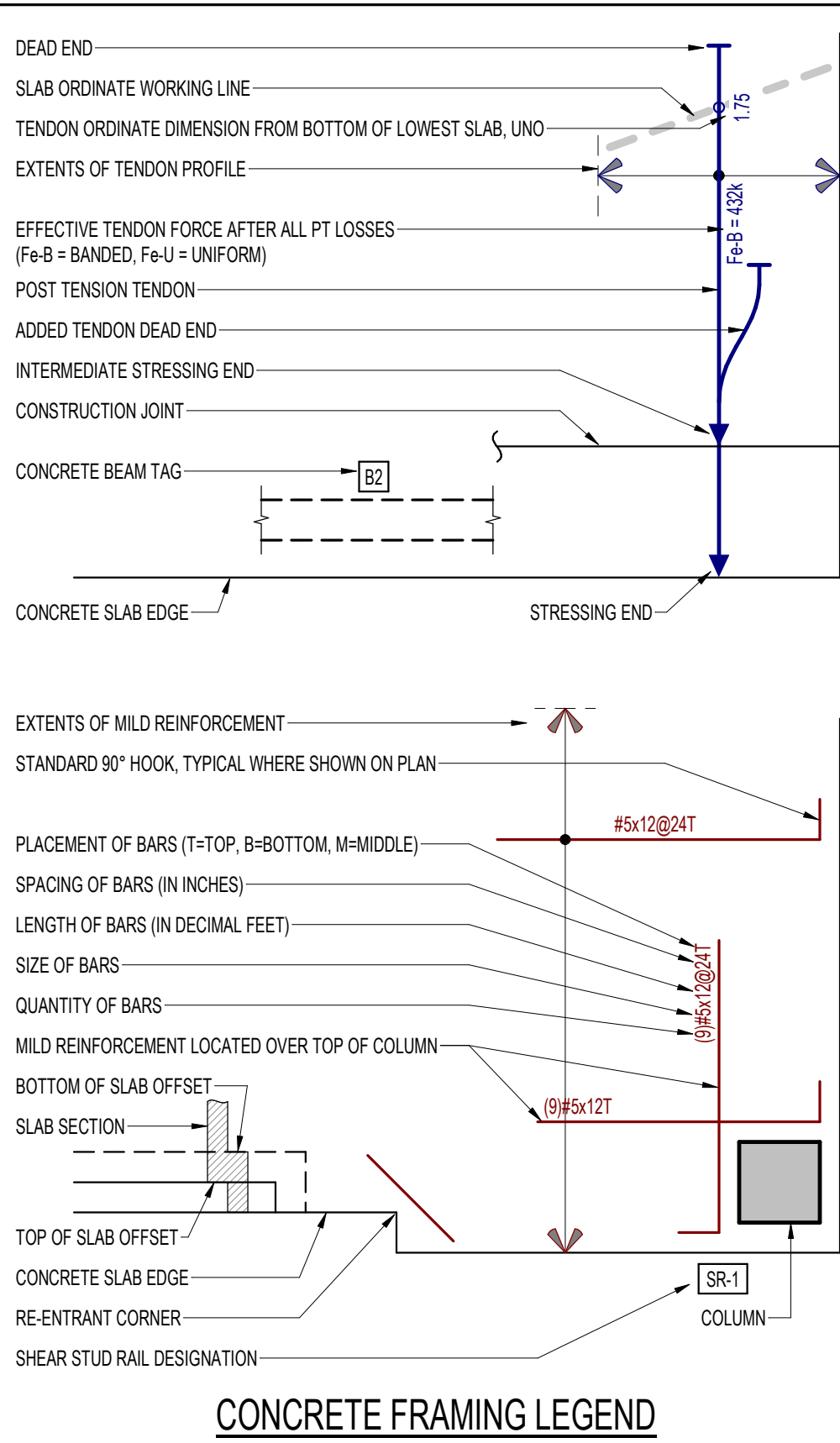
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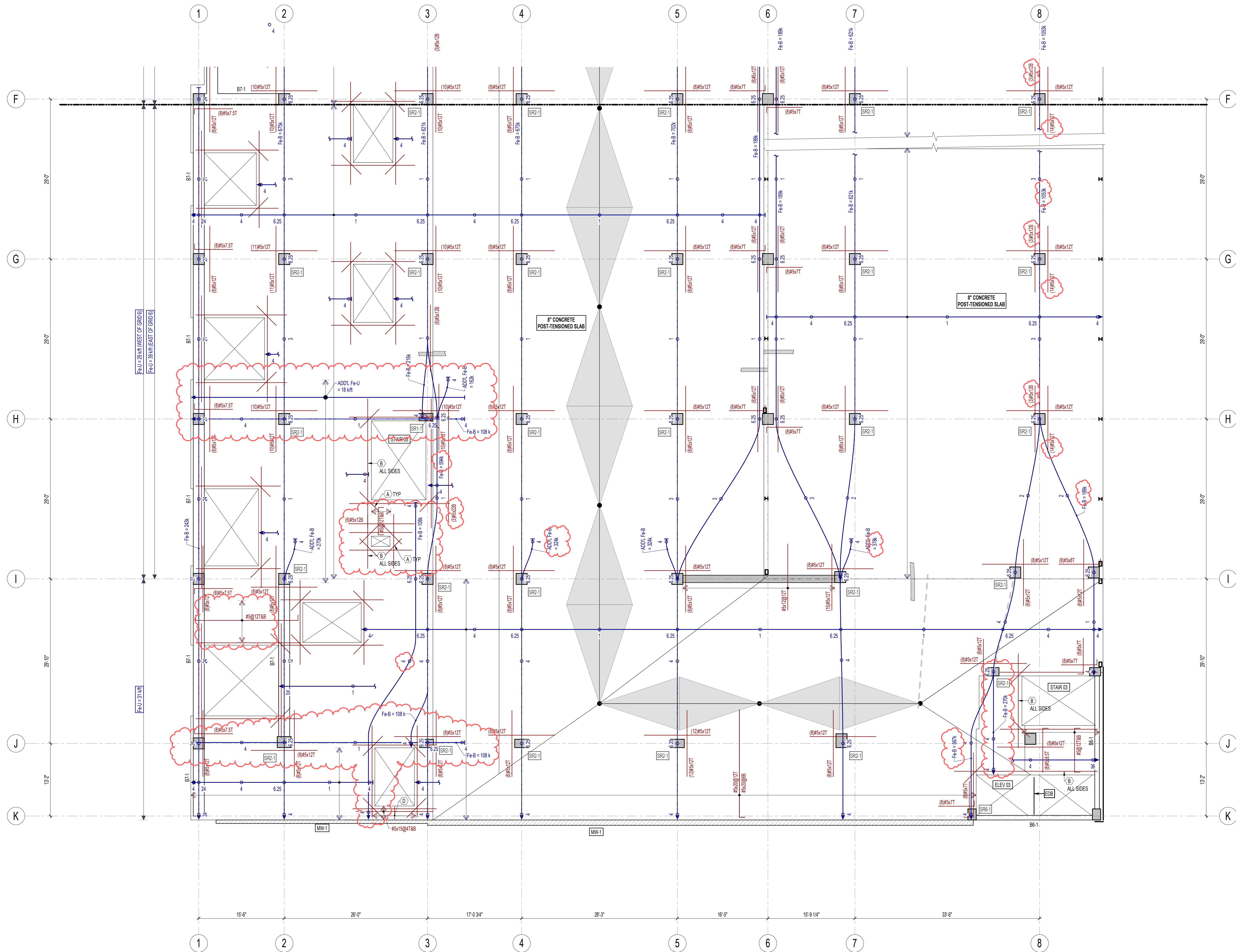
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PROJECT NUMBER 720448

P4 FLR FRAMING
PLAN - ZONE A -
PHASE 1

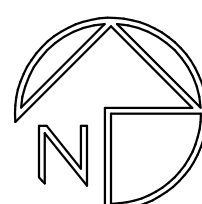
S1004-A-1

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1 P4 FLR FRAMING PLAN - ZONE B - PHASE 1
S1004-B-1 SCALE: 1/8" = 1'-0"

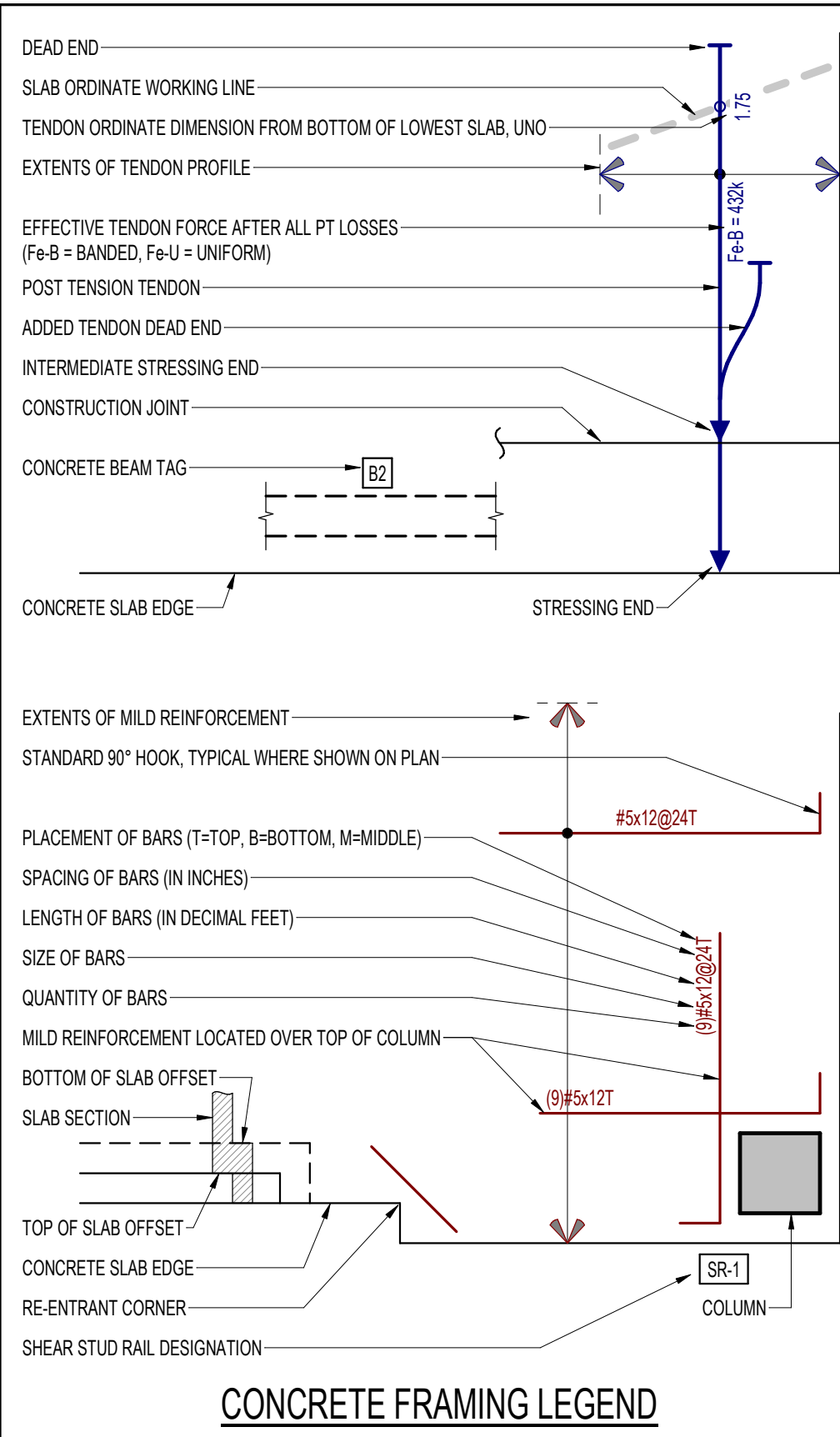


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | | | | |
|-------------------|---------|---------|---------|
| LL | 86'-0" | P4 | 136'-0" |
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT OUT ON PLAN.
 - REFER TO I1S4001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
 - SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
 - "EDR" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 4S4001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRACKS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPINGS). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOPOLAR OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 10S4001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54021-1.
- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- W12X59 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PROJECT INFORMATION

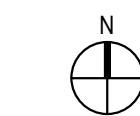
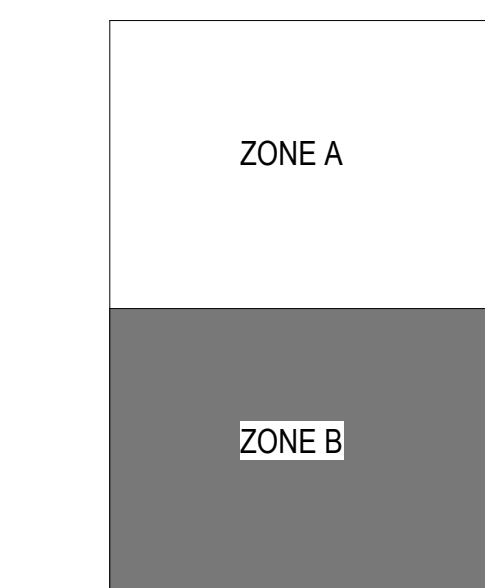
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

P4 FLR FRAMING
PLAN - ZONE B -
PHASE 1

S1004-B-1

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PROJECT INFORMATION

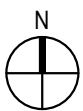
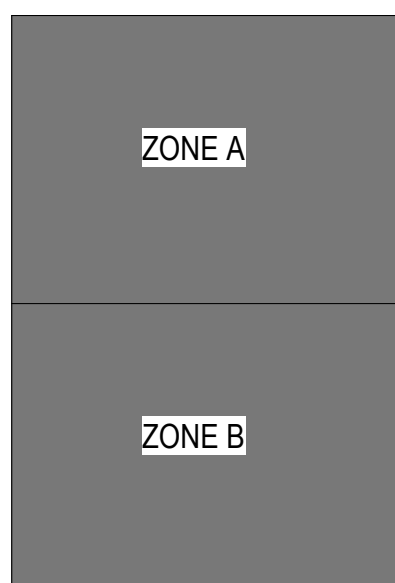
STATE STREET
CAMPUS GARAGE
MIXED-USE

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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN



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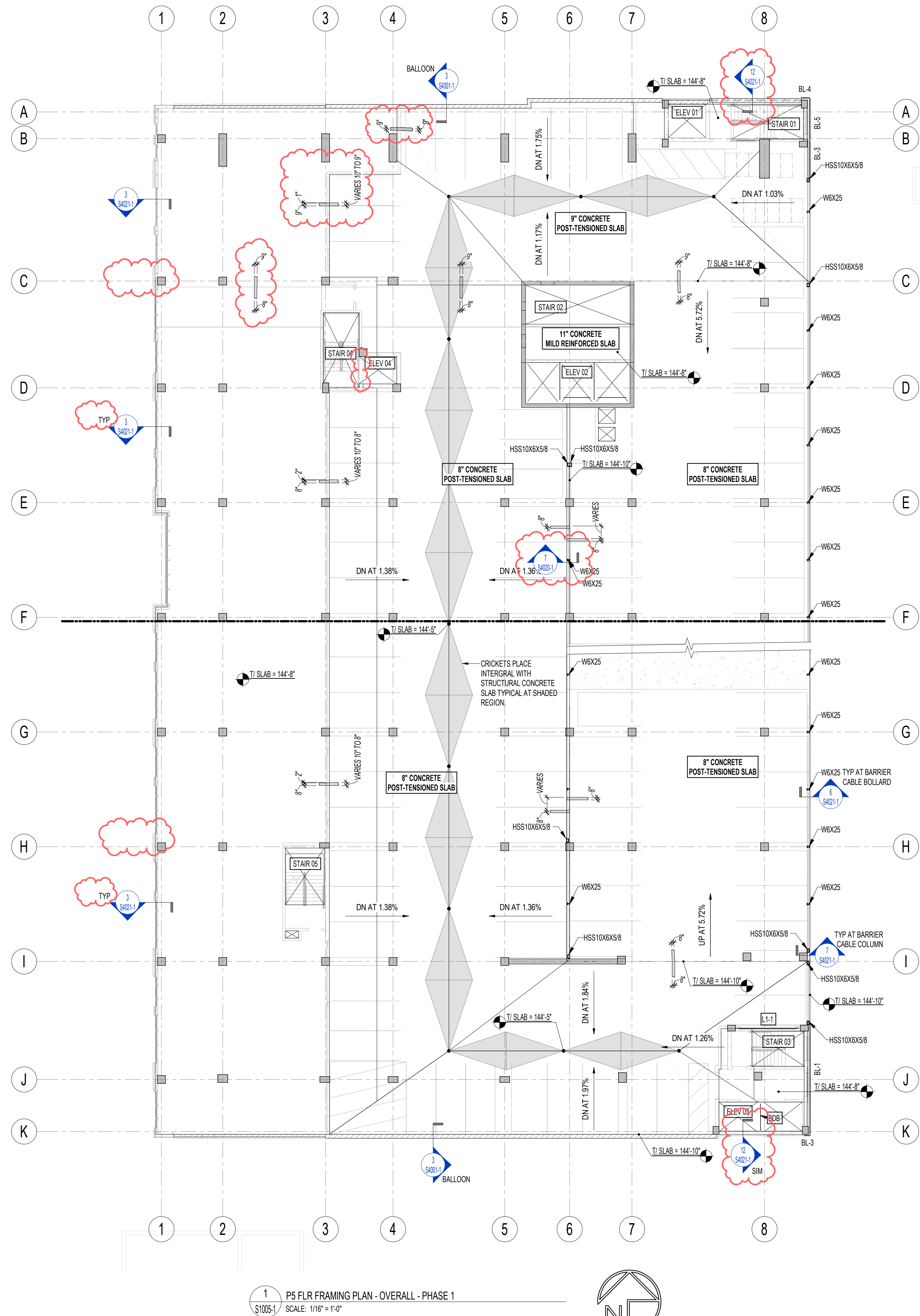
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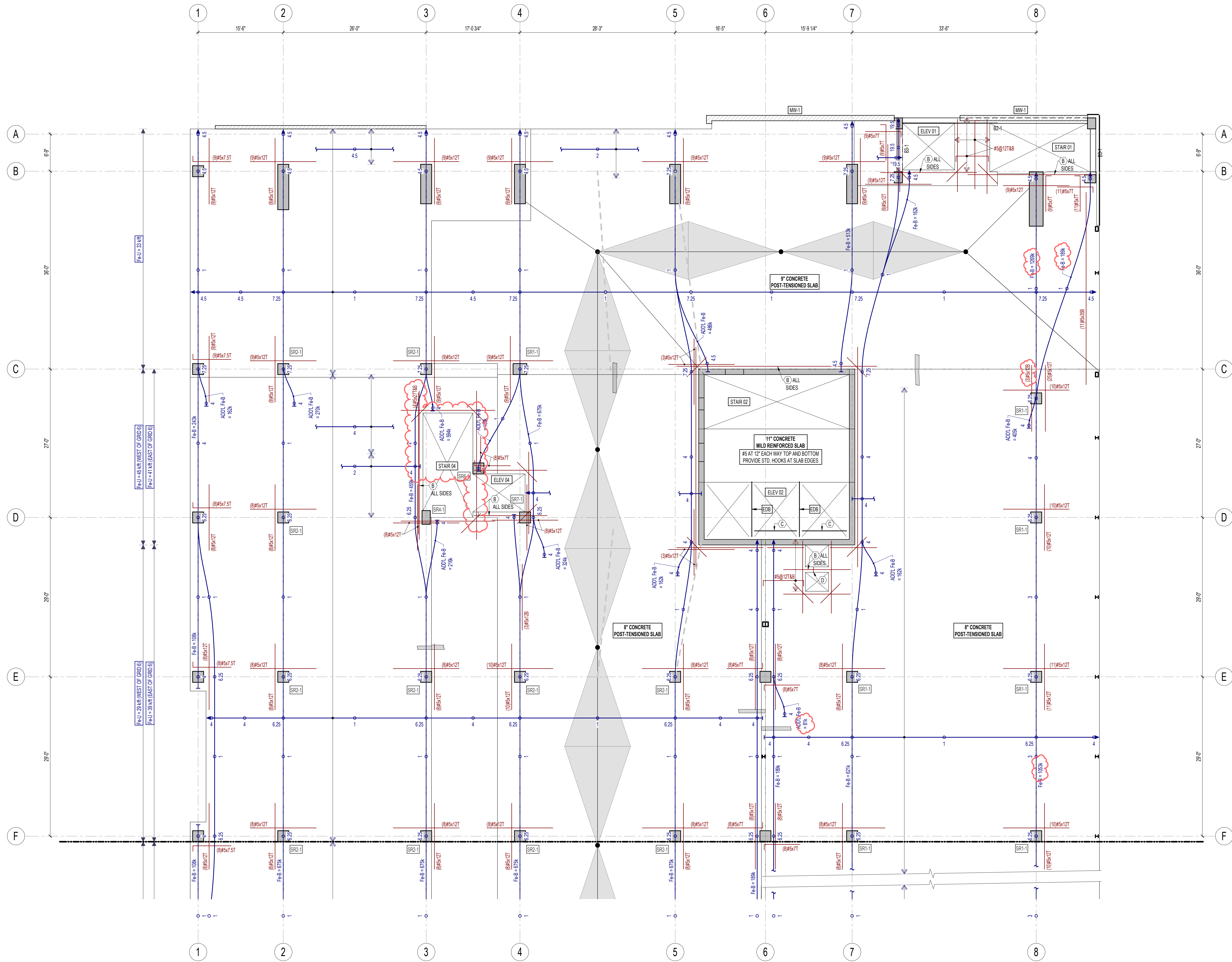
720448

P5 FLR FRAMING
PLAN - OVERALL -
PHASE 1

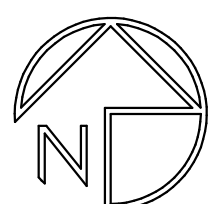
S1005-1



1 P5 FLR FRAMING PLAN - OVERALL - PHASE 1
S1005-1 SCALE: 1/16" = 1'-0"



1 P5 FLR FRAMING PLAN - ZONE A - PHASE 1
SCALE: 1/8" = 1'-0"



CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

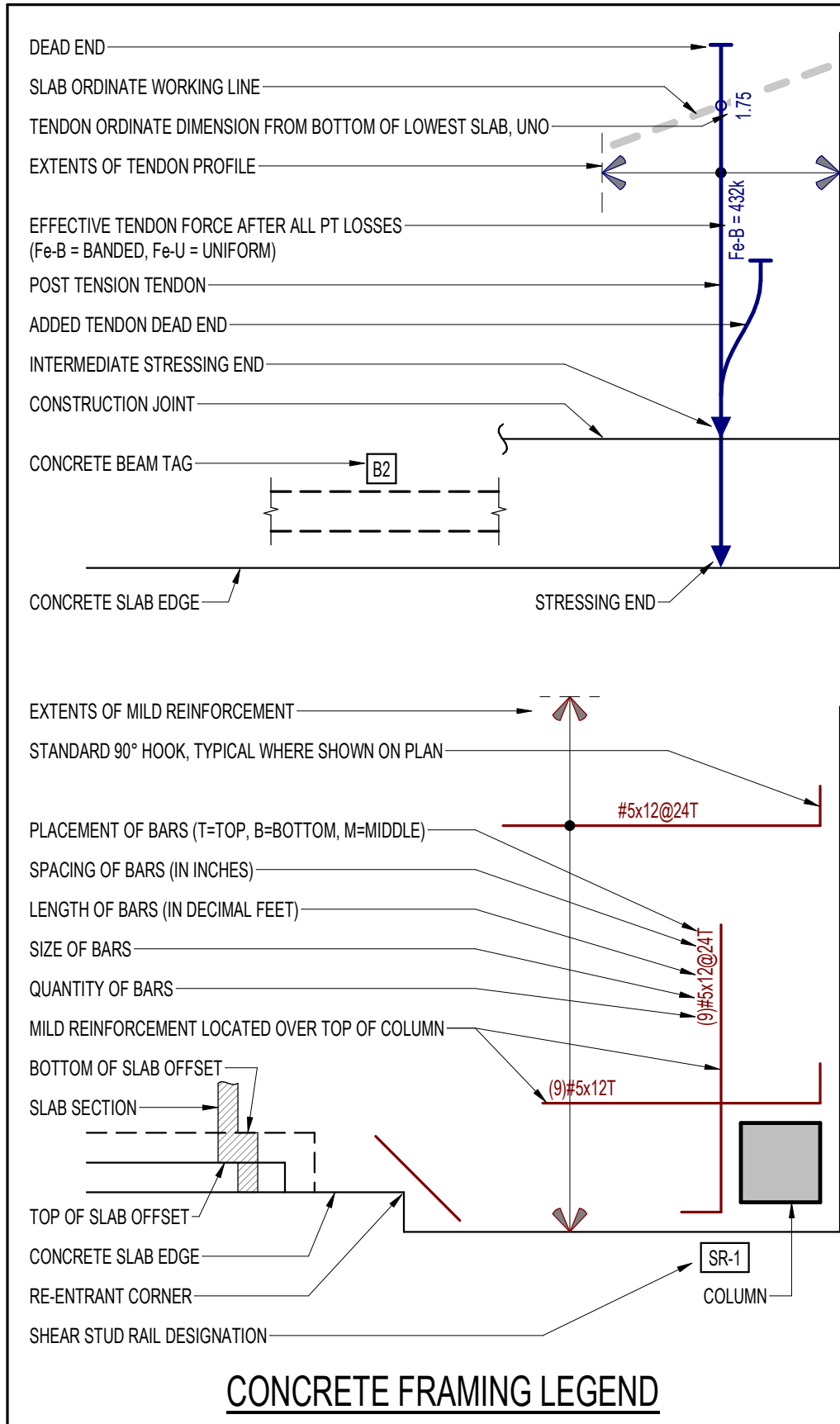
TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:

LL	86'-0"	P4	136'-0"
1ST FLR - LAKE ST	102'-0"	P5	144'-0"
P2	114'-0"	P6	154'-0"
P3	124'-0"	7TH FLR	167'-0"

- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
- REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
- REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
- REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT CUT ON PLAN.
- REFER TO 1S4001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
- REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
- REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
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 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
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CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
 - SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
 - SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
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- #3 STIRRUPS AT 12" o/c. FULL LENGTH OF OPENING.
- WIDEX9 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
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MIXED-USE

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11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

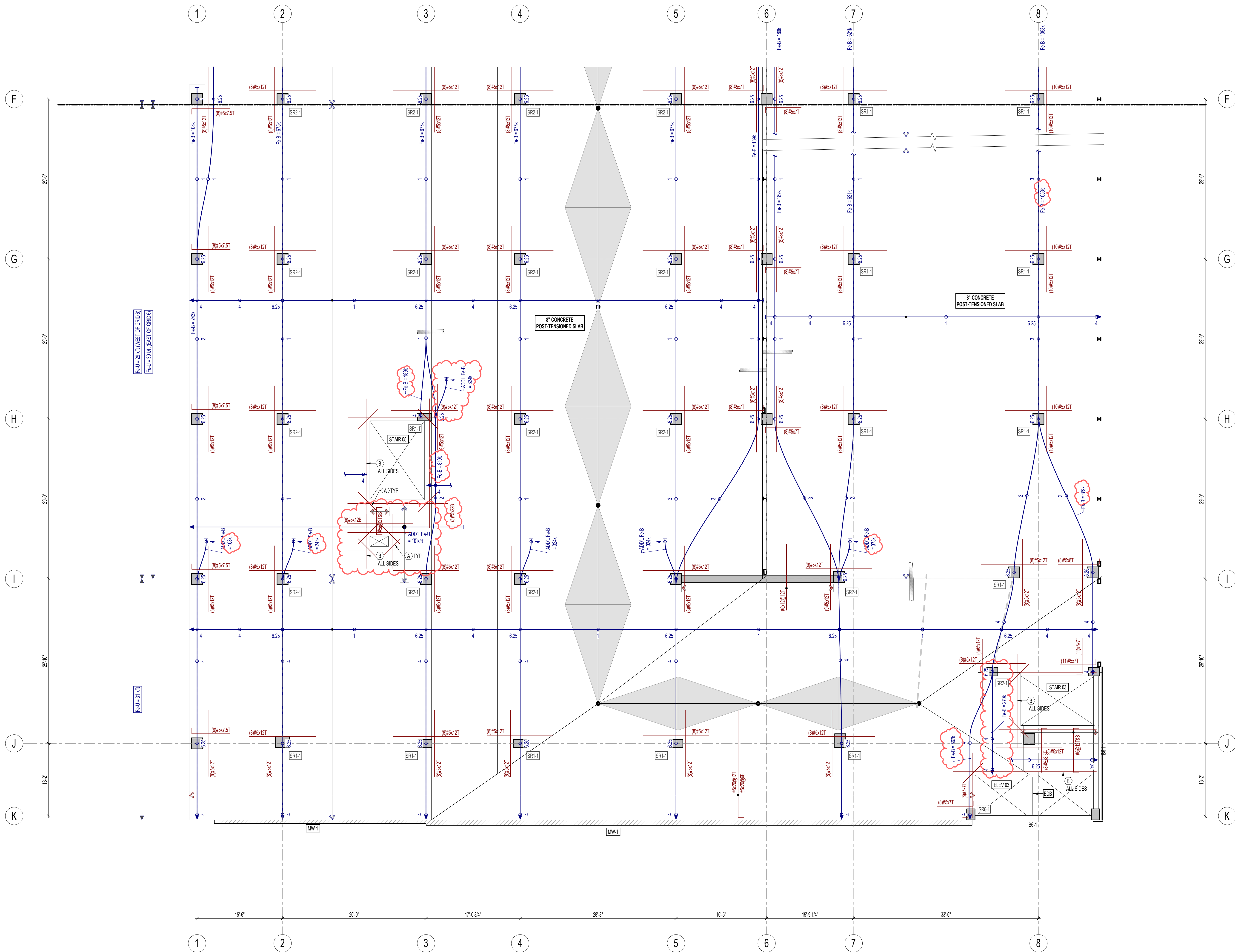
PROJECT MANAGER

PROJECT NUMBER 720448

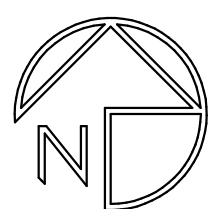
P5 FLR FRAMING
PLAN - ZONE A -
PHASE 1

S1005-A-1

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1 P5 FLR FRAMING PLAN - ZONE B - PHASE 1
S1005-B-1 SCALE: 1/8" = 1'-0"

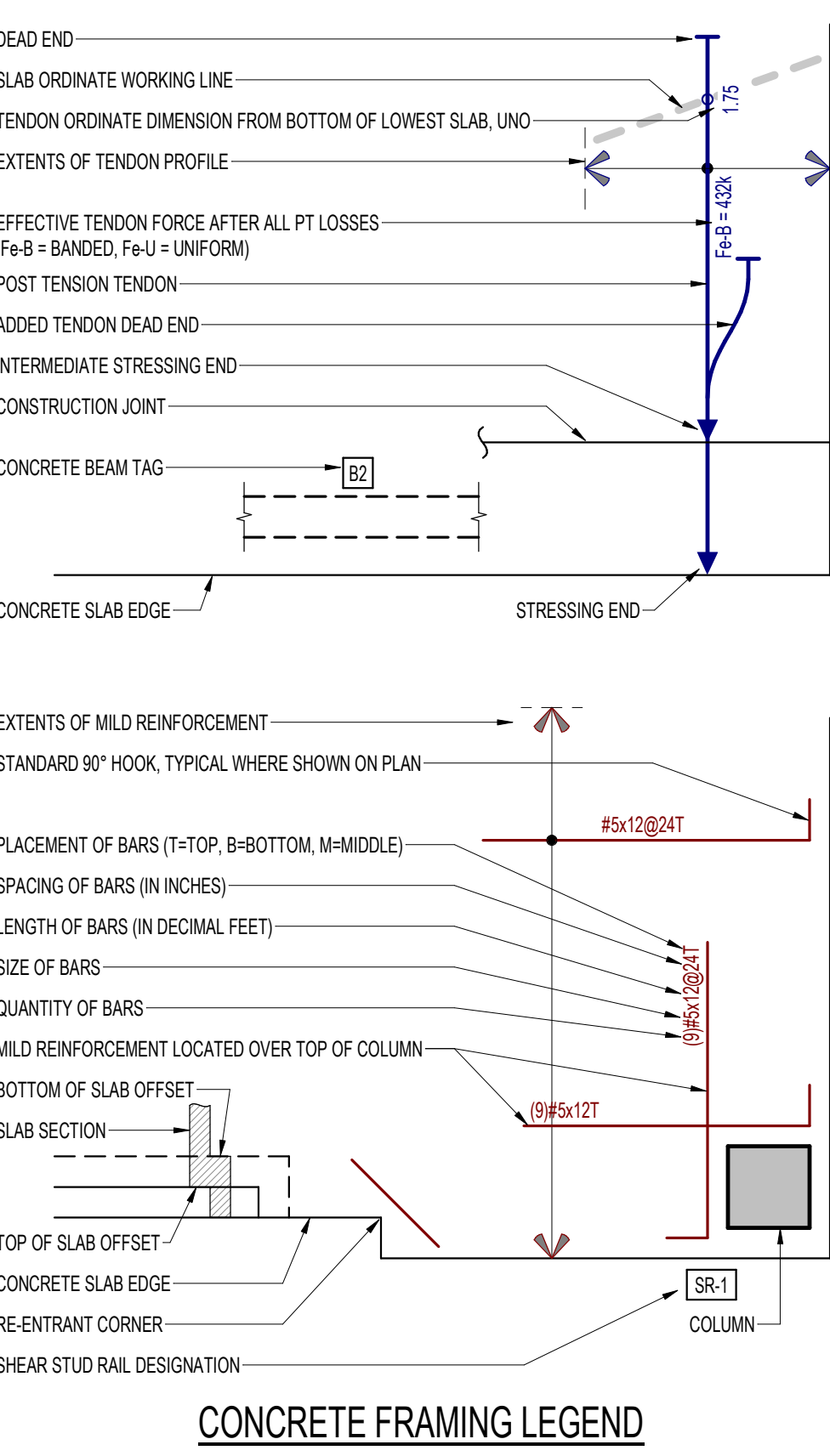


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT OUT ON PLAN.
 - REFER TO 154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES UNLESS NOTED OTHERWISE.
 - SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
 - "EDR" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 454001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRACKS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPINGS). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOMEM OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o/c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 1054001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54021-1.
- #3 STIRRUPS AT 12" o/c, FULL LENGTH OF OPENING.
- W12X59 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PE Project: 22019

PROJECT INFORMATION

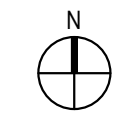
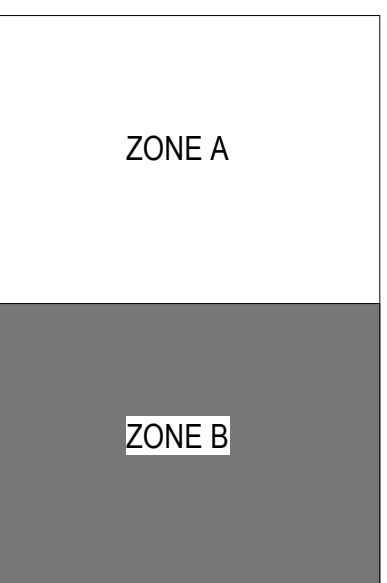
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

P5 FLR FRAMING
PLAN - ZONE B -
PHASE 1

S1005-B-1

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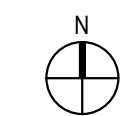
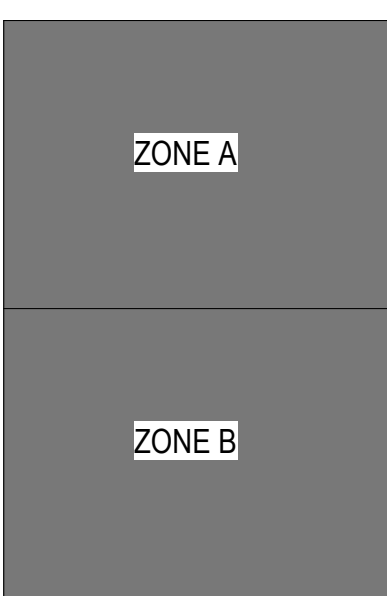
PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

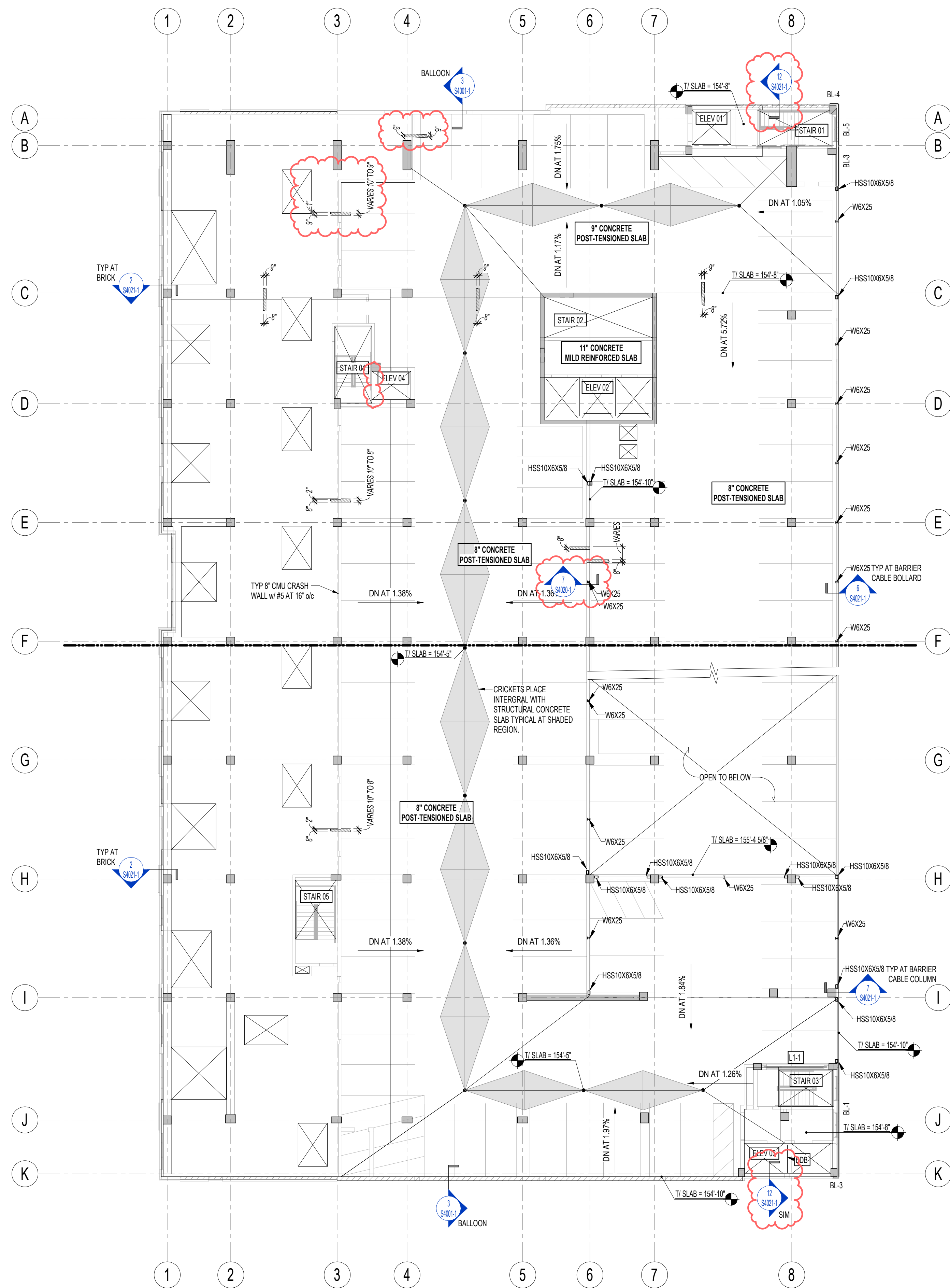
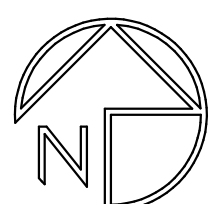
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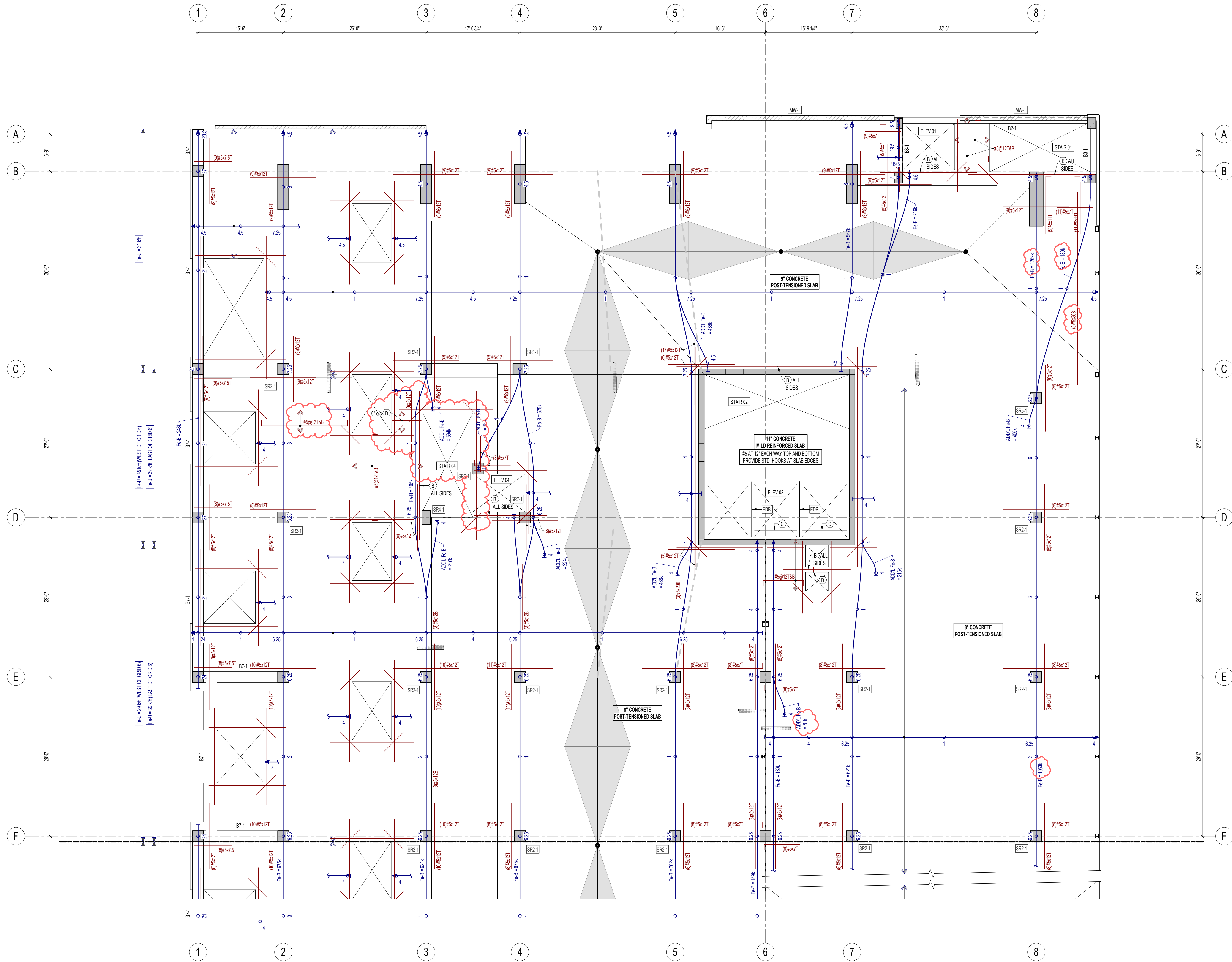
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P6 FLR FRAMING
PLAN - OVERALL -
PHASE 1

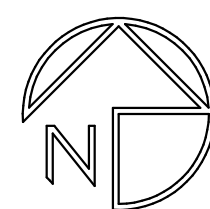
S1006-1

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1
S1006-1
P6 FLR FRAMING PLAN - OVERALL - PHASE 1
SCALE: 1/16\" = 1'-0\"



1 P6 FLR FRAMING PLAN - ZONE A - PHASE 1
S1006-A-1 SCALE: 1/8" = 1'-0"

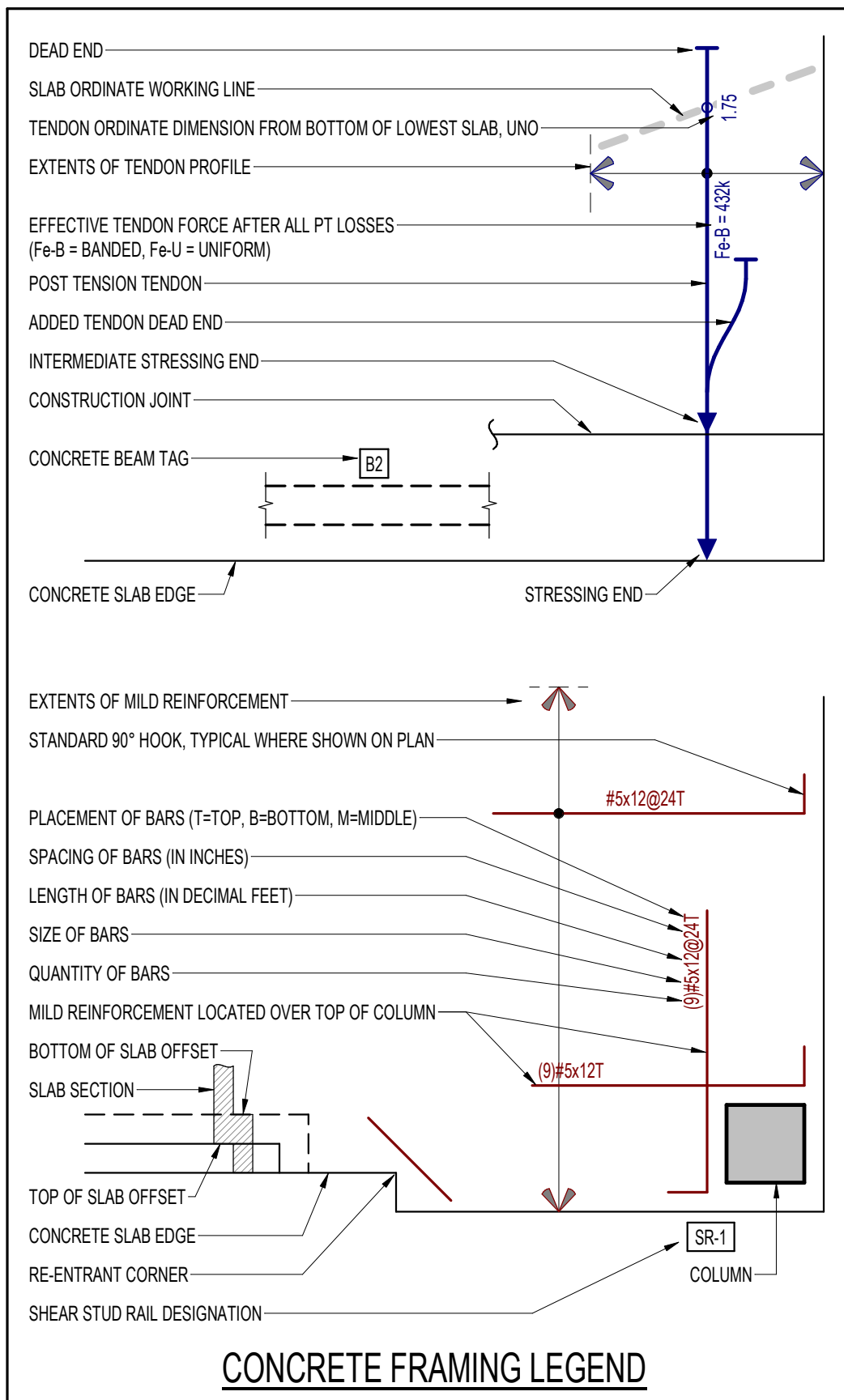


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT CUT ON PLAN.
 - REFER TO 154001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES UNLESS NOTED OTHERWISE.
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 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
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 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
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 - "EDR" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 454001-1 AT ALL PARKING SLABS.
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CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
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- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- W12X9 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PE Project: 22019

PROJECT INFORMATION

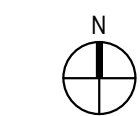
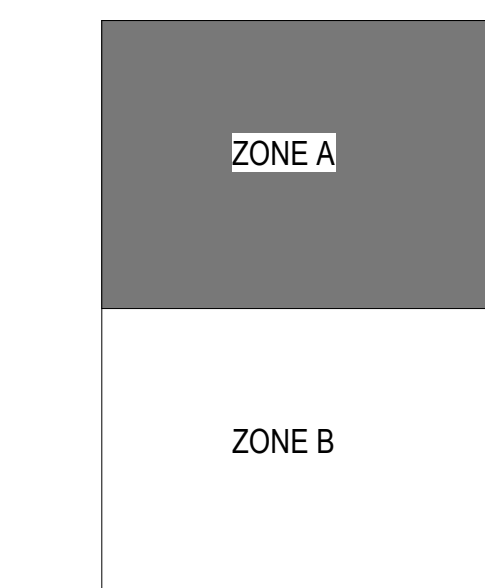
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



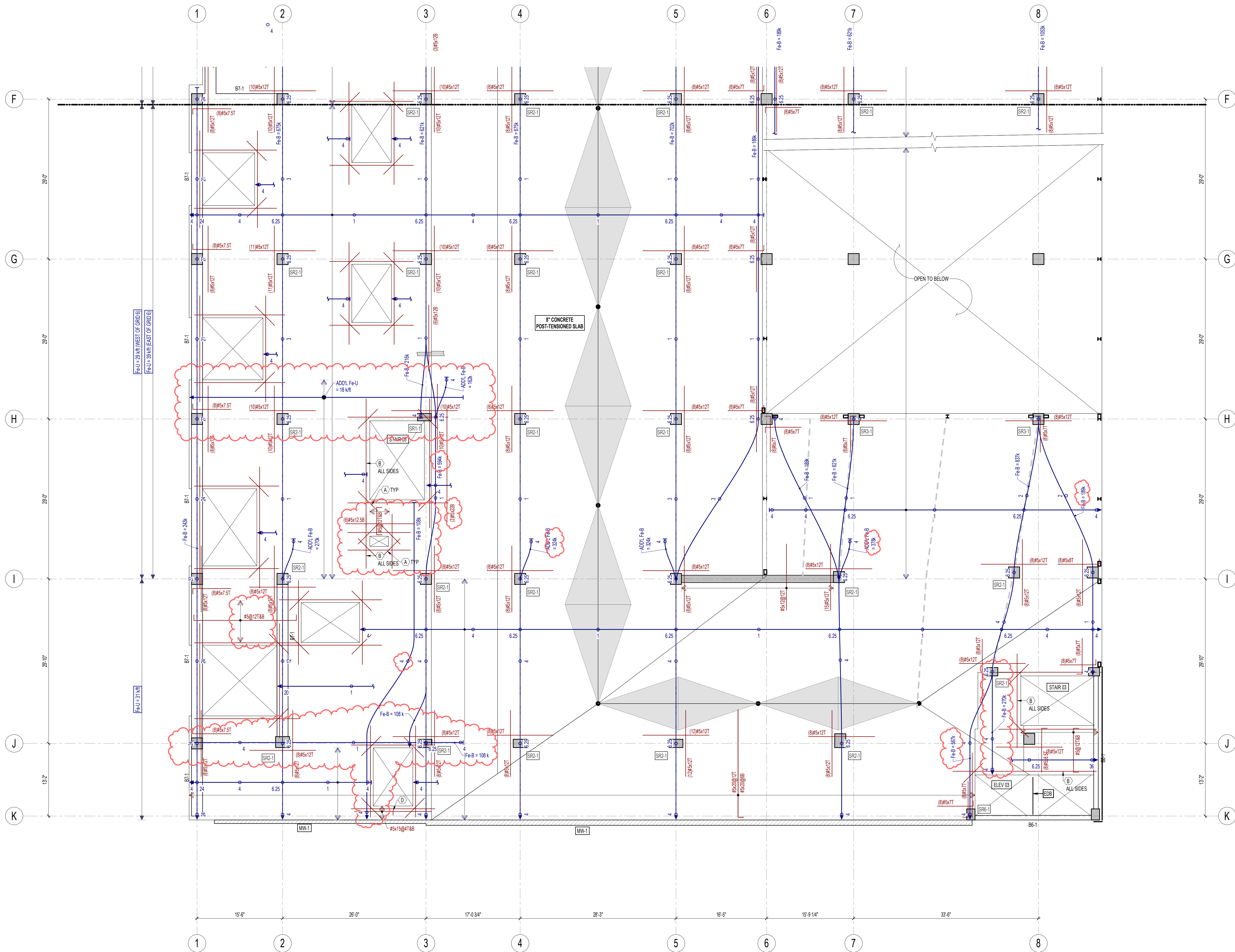
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PROJECT MANAGER
PROJECT NUMBER 720448

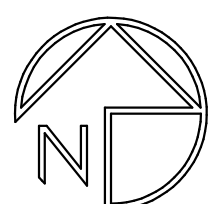
P6 FLR FRAMING
PLAN - ZONE A -
PHASE 1

S1006-A-1

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1 P6 FLR FRAMING PLAN - ZONE B - PHASE 1
S1006-B-1 SCALE: 1/8" = 1'-0"

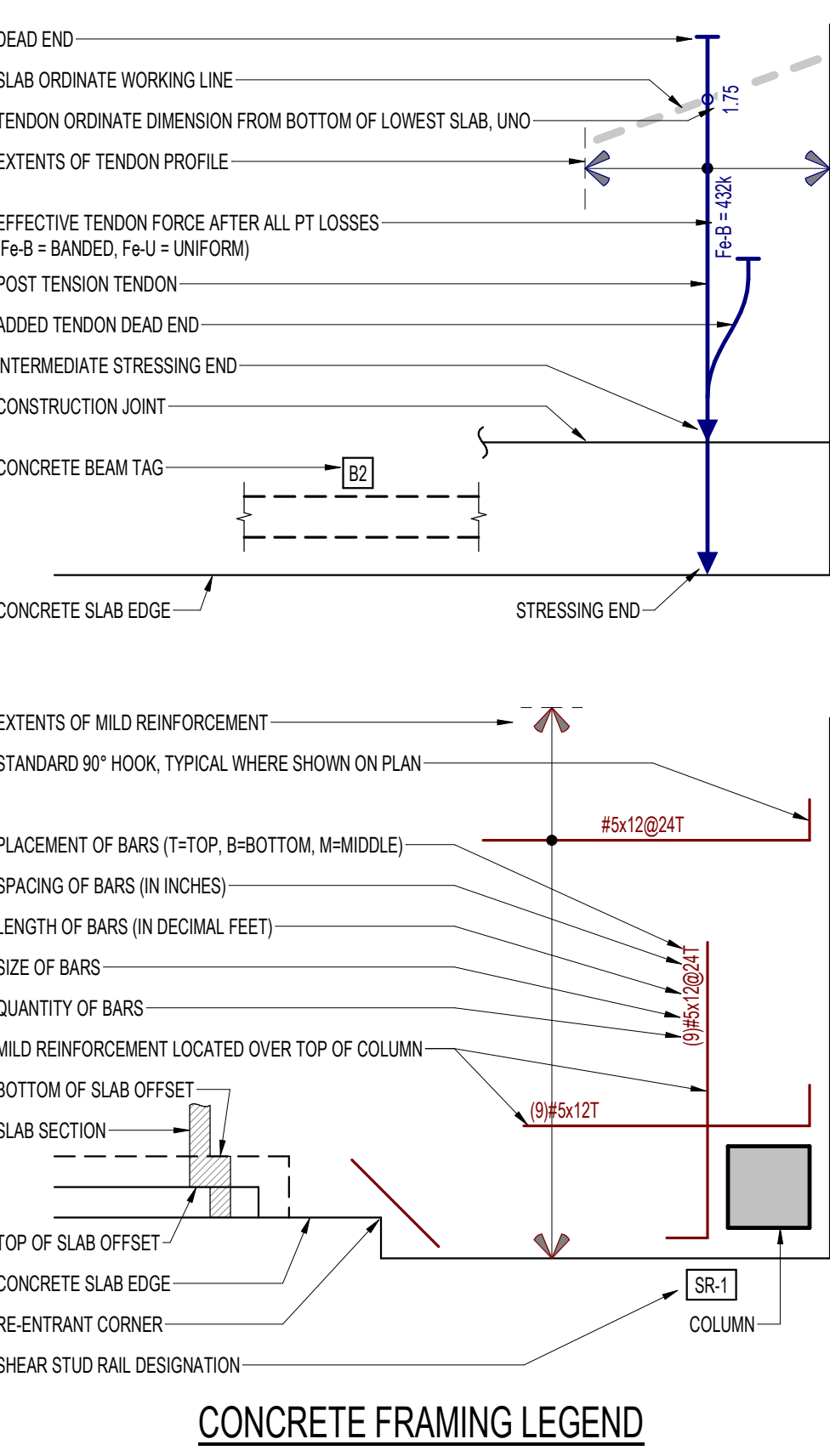


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
|-------------------|---------|---------|---------|
| 1ST FLR - LAKE ST | 102'-0" | P5 | 144'-0" |
| P2 | 114'-0" | P6 | 154'-0" |
| P3 | 124'-0" | 7TH FLR | 167'-0" |
- REFER TO S200x1 SERIES FOR GENERAL STRUCTURAL NOTES, INCLUDING COMPONENT DESIGN CRITERIA.
 - REFER TO S200x1 SERIES FOR CONCRETE COLUMN SCHEDULE.
 - REFER TO S201x1 SERIES FOR CONCRETE SHEAR WALL ELEVATIONS.
 - REFER TO S400x1 SERIES FOR CONCRETE SCHEDULES AND DETAILS NOT OUT ON PLAN.
 - REFER TO I14001-1 FOR REINFORCEMENT AT SLAB OPENINGS, UNO.
 - REFER TO ARCHITECTURAL, CIVIL, AND LANDSCAPE DRAWINGS FOR ALL EXTERIOR SITE CONCRETE INCLUDING PLANTERS, STAIRS, AND RAMPS.
 - REFER TO ARCHITECTURAL DRAWINGS FOR MASONRY WALL LOCATIONS, UNLESS NOTED OTHERWISE. PROVIDE MASONRY WALL REINFORCING PER MASONRY WALL SCHEDULES, UNLESS NOTED OTHERWISE.
 - SLAB TENDON AND REBAR PLACEMENT NOTES:
 - REFER TO S54001-1 FOR TYPICAL SLAB TOP REBAR PLACEMENT AT COLUMNS.
 - BOTTOM BARS BETWEEN COLUMNS SHALL BE CENTERED AT MID-SPAN.
 - HOOKED BARS SHOWN PERPENDICULAR TO SLAB EDGES, OPENINGS, OR WALLS SHALL BE PROVIDED ALONG ENTIRE LENGTH.
 - BANDED TENDON GROUPS SHALL BE CENTERED OVER COLUMNS TO THE GREATEST EXTENT POSSIBLE.
 - TENDON ANCHORS AT SLAB EDGES SHALL BE LOCATED AT SLAB MID-DEPTH, UNO.
 - ALL PT ORDNATES ARE REFERENCED FROM BOTTOM OF LOWEST SLAB, UNO.
 - REFER TO DELEGATED DESIGN NOTES ON S0002 FOR STAIR CONSTRUCTION.
 - "EDB" INDICATES HSS8X4X3/8 (LSV) ELEVATOR DIVIDER BEAM, UNO. PROVIDE EMBED EACH END PER S54001-1. GC TO COORDINATE BEAM SIZE, LOCATION, AND ADDITIONAL STEEL REQUIREMENTS w/ ELEVATOR SUPPLIER.
 - PROVIDE CONCRETE WASH PER 4S4001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRICKETS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPINGS). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOPOLAR OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT ±10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 10S4001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- (A) PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- (B) TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 13" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- (C) ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54002-1.
- (D) #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- (E) W12X59 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- (F) HALFTONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT, REFER TO DETAILS.



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PROJECT INFORMATION

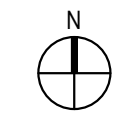
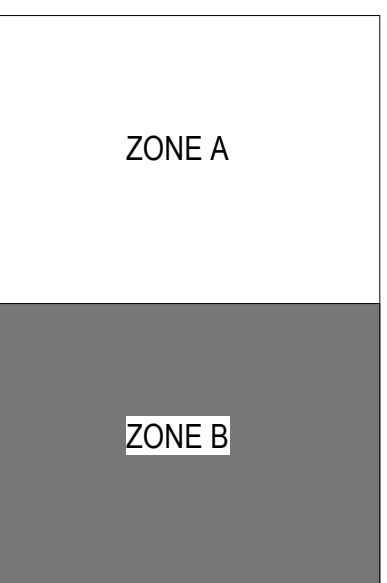
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

P6 FLR FRAMING
PLAN - ZONE B -
PHASE 1

S1006-B-1

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PE Project: 22019

PROJECT INFORMATION

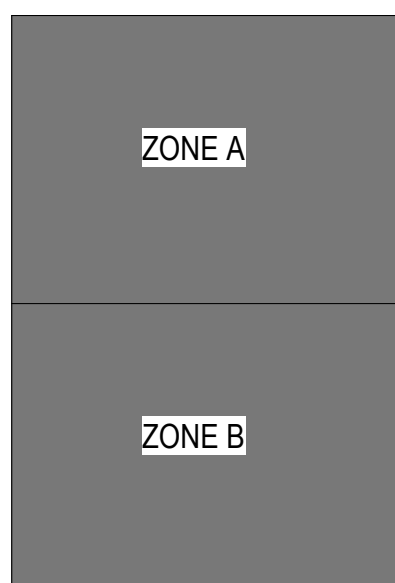
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
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11-02-2023	PH1_A002

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

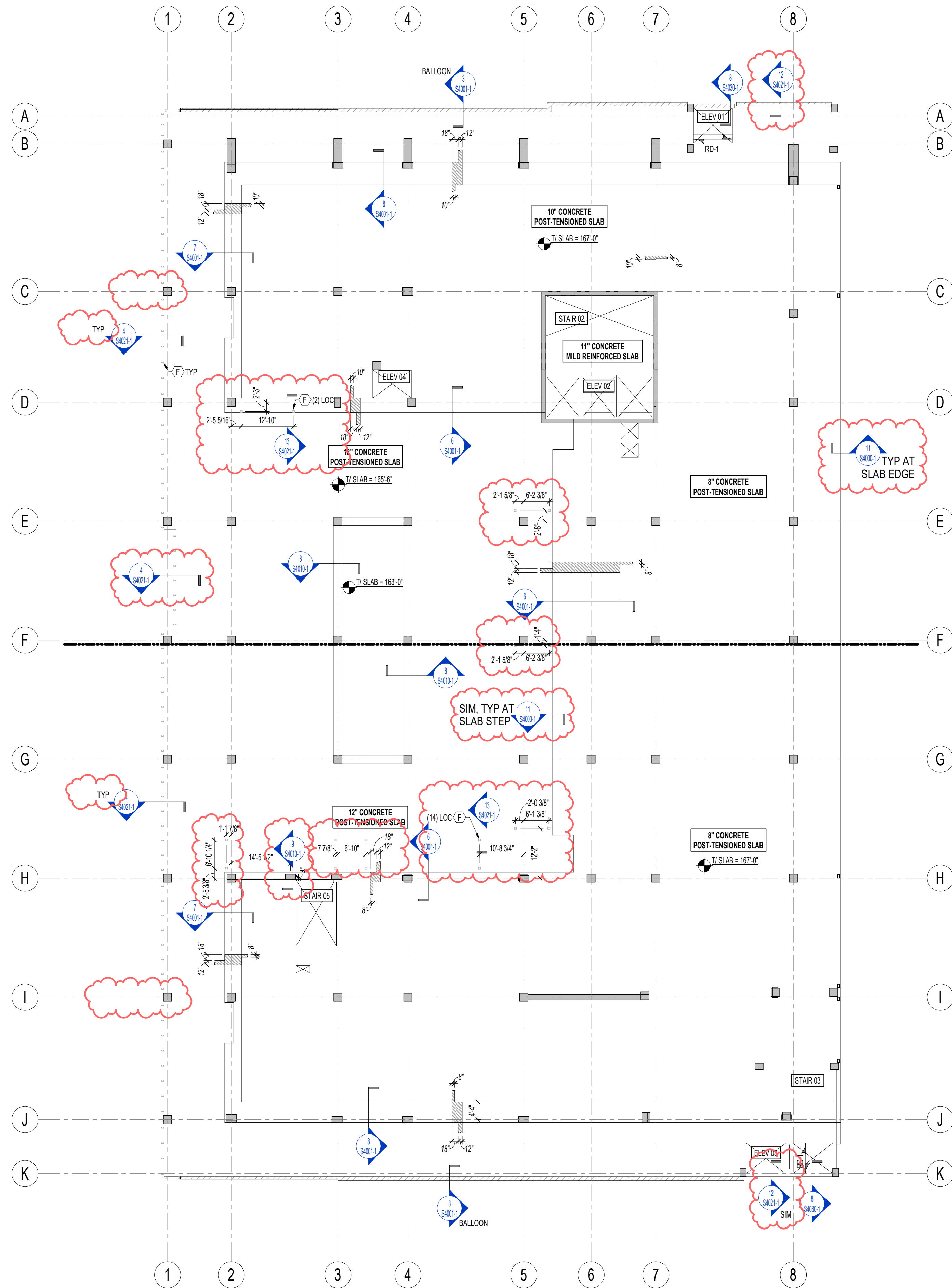
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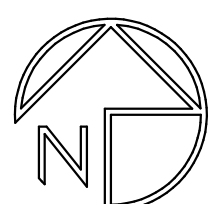
7TH FLR FRAMING
PLAN - OVERALL -
PHASE 1

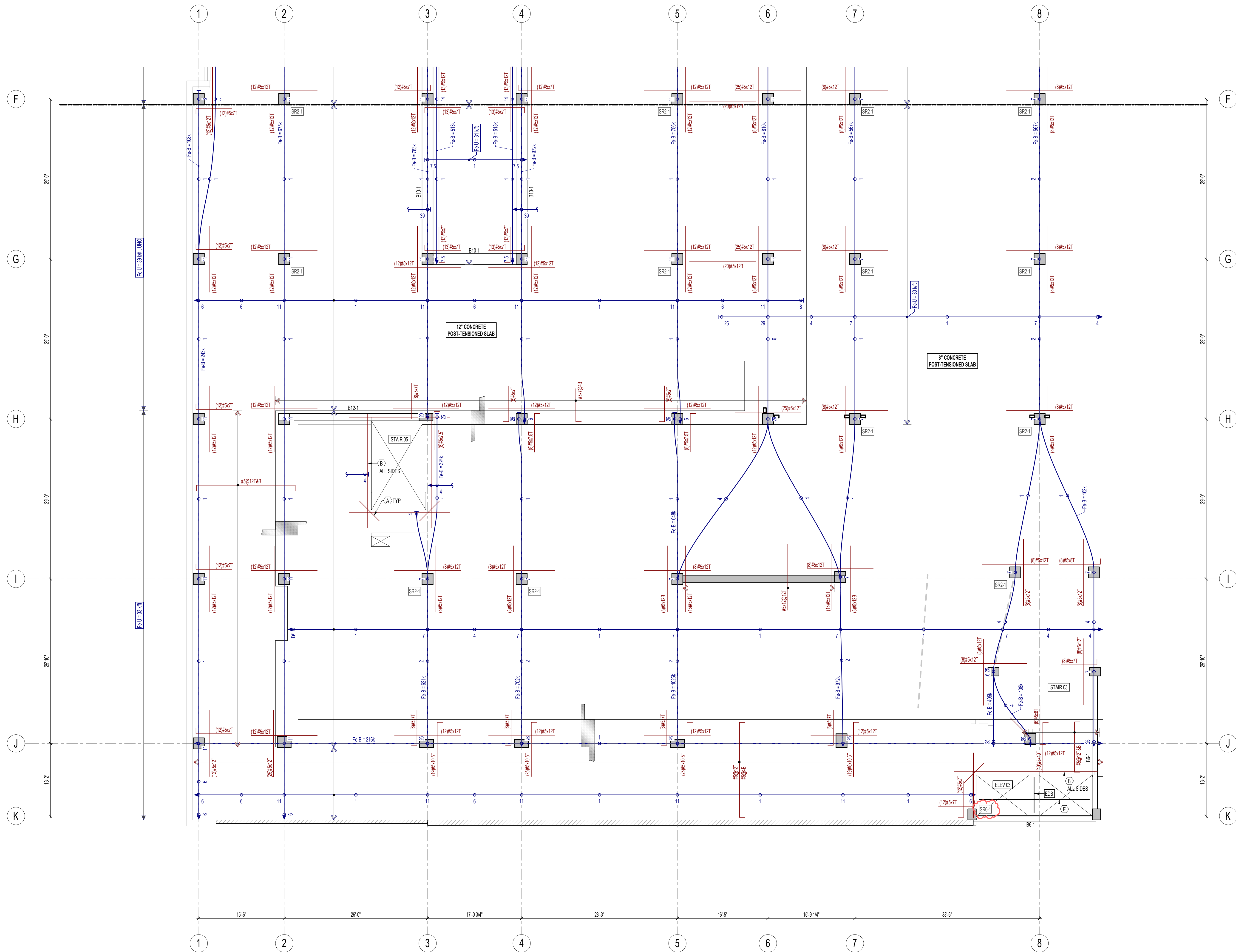
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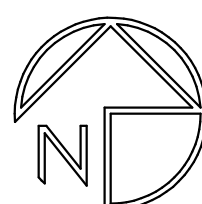


1 7TH FLR FRAMING PLAN - OVERALL - PHASE 1
S1007-1 SCALE: 1/16\" = 1'-0"





1 7TH FLR FRAMING PLAN - ZONE B - PHASE 1
S1007-B-1 SCALE: 1/8" = 1'-0"

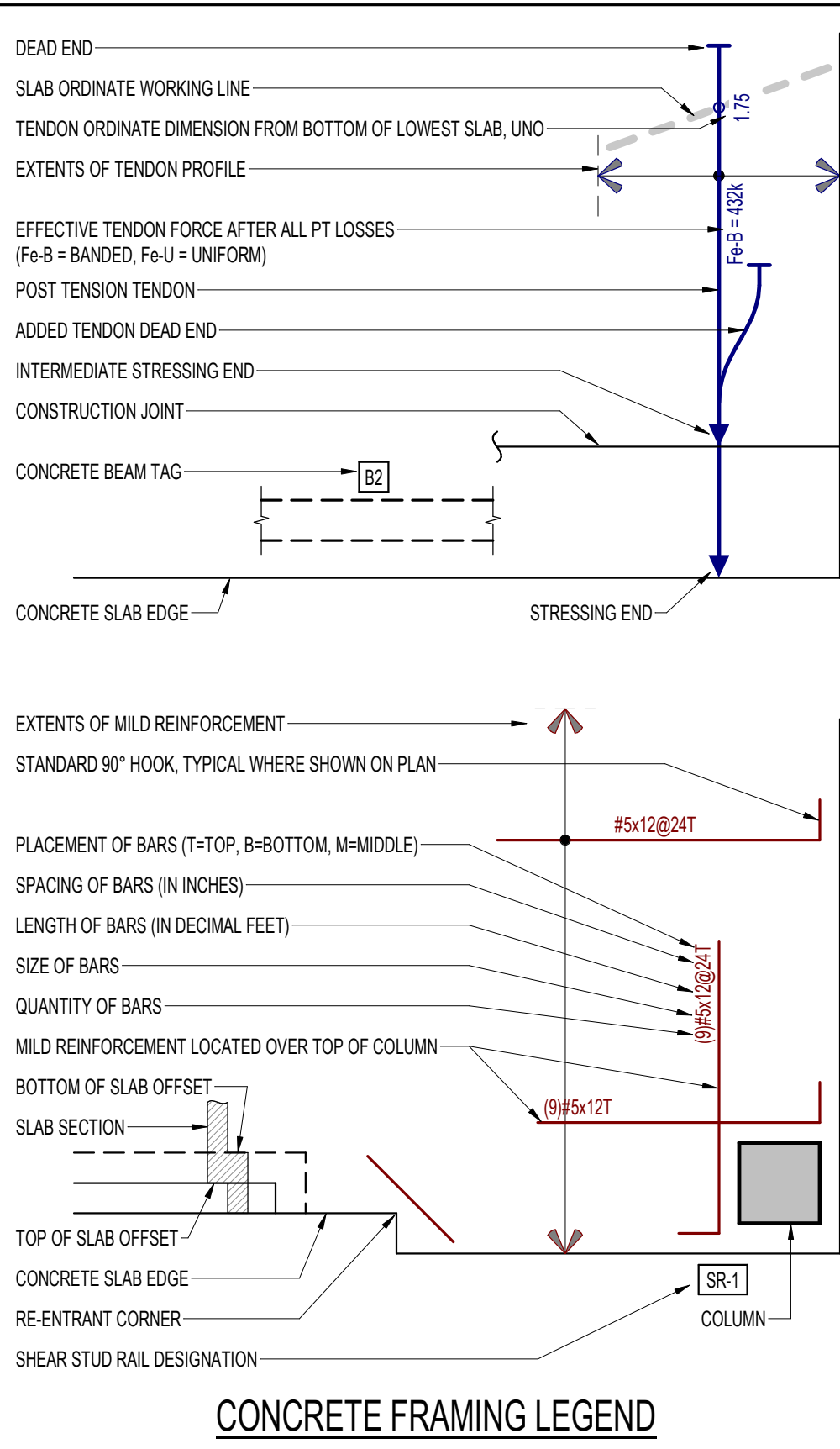


CONCRETE FRAMING PLAN GENERAL NOTES - PHASE 1

- TOP OF SLAB ELEVATIONS UNLESS NOTED OTHERWISE ON PLAN:
- | LL | 86'-0" | P4 | 136'-0" |
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 - PROVIDE CONCRETE WASH PER 4S4001-1 AT ALL PARKING SLABS.
 - SLOPE TOP AND BOTTOM OF PARKING SLABS FOR DRAINAGE (SLABS TO BE CONSTANT THICKNESS EXCEPT WHERE CRACKS ARE SHOWN).
 - AT PARKING AND EXTERIOR EXPOSED SLABS, ALL MILD STEEL SHALL BE EPOXY COATED (INCLUDING CARRY BARS, BACKUP BARS, AND HARPING). SHEAR STUD RAILS SHALL BE GALVANIZED. SLAB SHALL RECEIVE A SILANE SEALER. REFER TO ARCHITECTURAL SPECIFICATIONS.
 - REFER TO PLAN FOR BUILD-UP w/ TOPPING SLAB ON GEOTEXTILE OR LIGHTWEIGHT RIGID FILL TO ACHIEVE ARCHITECTURAL FINISH FLOOR ELEVATION. PROVIDE CONCRETE TOPPING AS INDICATED ON PLAN. PROVIDE CONTROL JOINTS IN TOPPING SLAB AT 10'-0" o.c. REFER TO ARCHITECTURAL FOR SPECIAL LAYOUTS. EDGES OF BUILD-UP TO RECEIVE CURB PER 10S4001-1, UNO.

CONCRETE FRAMING PLAN KEYED NOTES - PHASE 1

- PROVIDE DIAGONAL BARS AT ALL RE-ENTRANT CORNERS:
SLABS UP TO 13" THICK: (2) #5 x 5'-0" TOP AND BOTTOM
SLABS UP TO 22" THICK: (2) #7 x 7'-0" TOP AND BOTTOM
- TOP AND BOTTOM BARS ALONG ENTIRE LENGTH OF WALL OR OPENING PLUS 4'-0" EACH END WHERE POSSIBLE:
SLABS UP TO 12" THICK: (6) #5 (1/2 TOP AND 1/2 BOTTOM)
SLABS UP TO 22" THICK: (6) #7 (1/2 TOP AND 1/2 BOTTOM)
- ADDITIONAL HSS8X4X3/8 (LSV) BEAMS REQUIRED AT REAR OF ELEVATORS. BEAM SIZE TO BE VERIFIED. GC TO COORDINATE LOCATION AND ADDITIONAL REQUIREMENTS WITH ELEVATOR PROVIDER. PROVIDE EMBED PER S54001-1. PROVIDE STEEL CONNECTIONS PER S54002-1.
- #3 STIRRUPS AT 12" o.c. FULL LENGTH OF OPENING.
- W12X9 ELEVATOR HOIST BEAM. VERIFY LOCATION AND ORIENTATION OVER ELEVATOR SHAFT w/ ELEVATOR SUPPLIER. COORDINATE BOTTOM OF BEAM w/ ELEVATOR CLEARANCE REQUIREMENTS. BEAM HAS BEEN DESIGNED FOR A 15,000 LB POINT LOAD.
- HALF-TONE STEEL FRAMING PART OF PHASE 2. STEEL SHOWN FOR PHASE 1 SLAB EMBED PLACEMENT. REFER TO DETAILS.



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PE Project: 22019

PROJECT INFORMATION

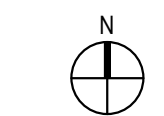
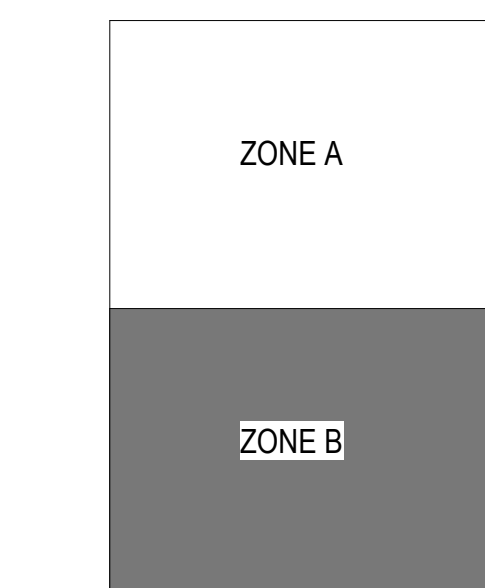
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

PROJECT NUMBER 720448

7TH FLR FRAMING
PLAN - ZONE B -
PHASE 1

S1007-B-1

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KEY PLAN

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CONCRETE
COLUMN SCHEDULE
- PHASE 1

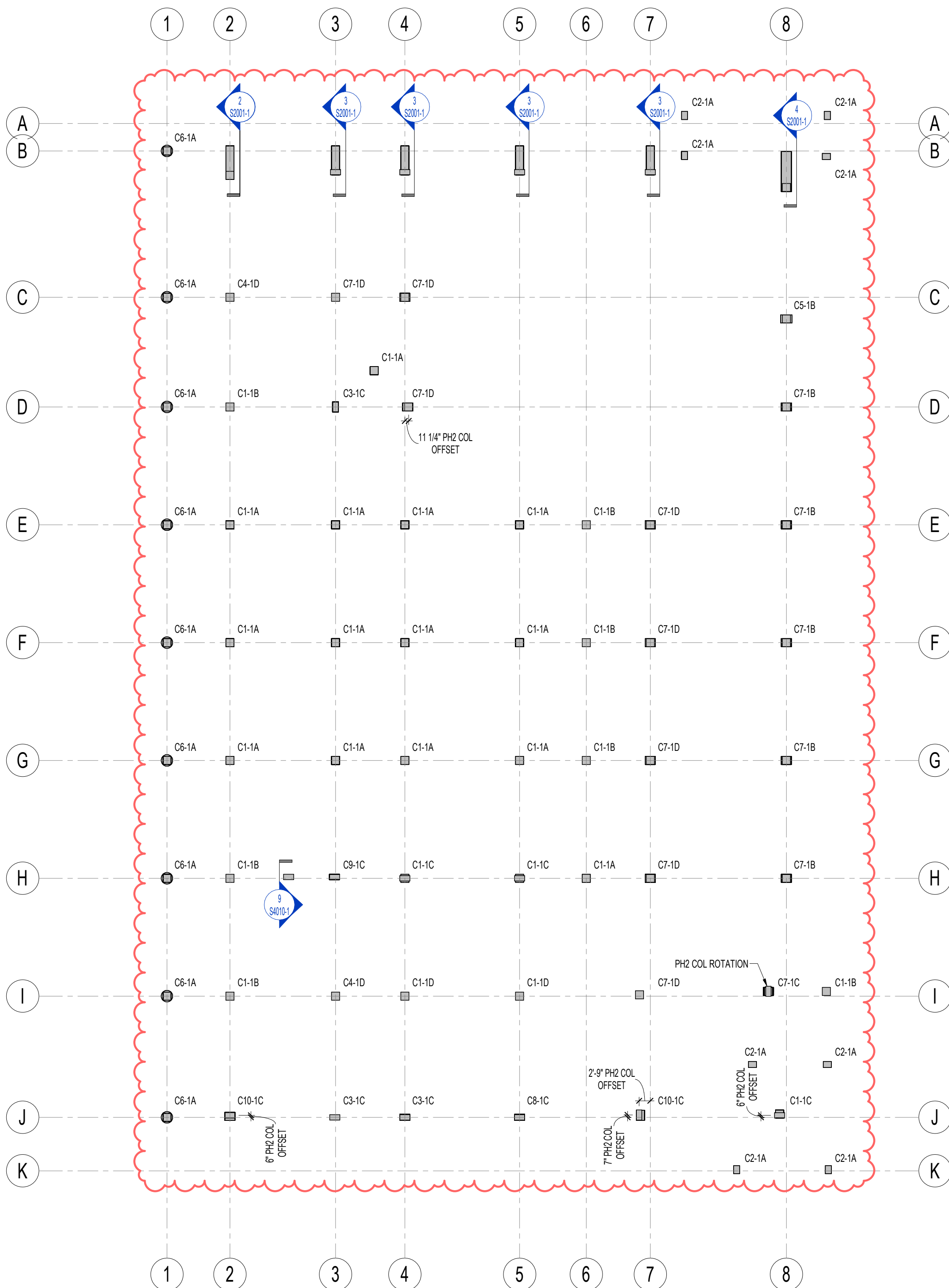
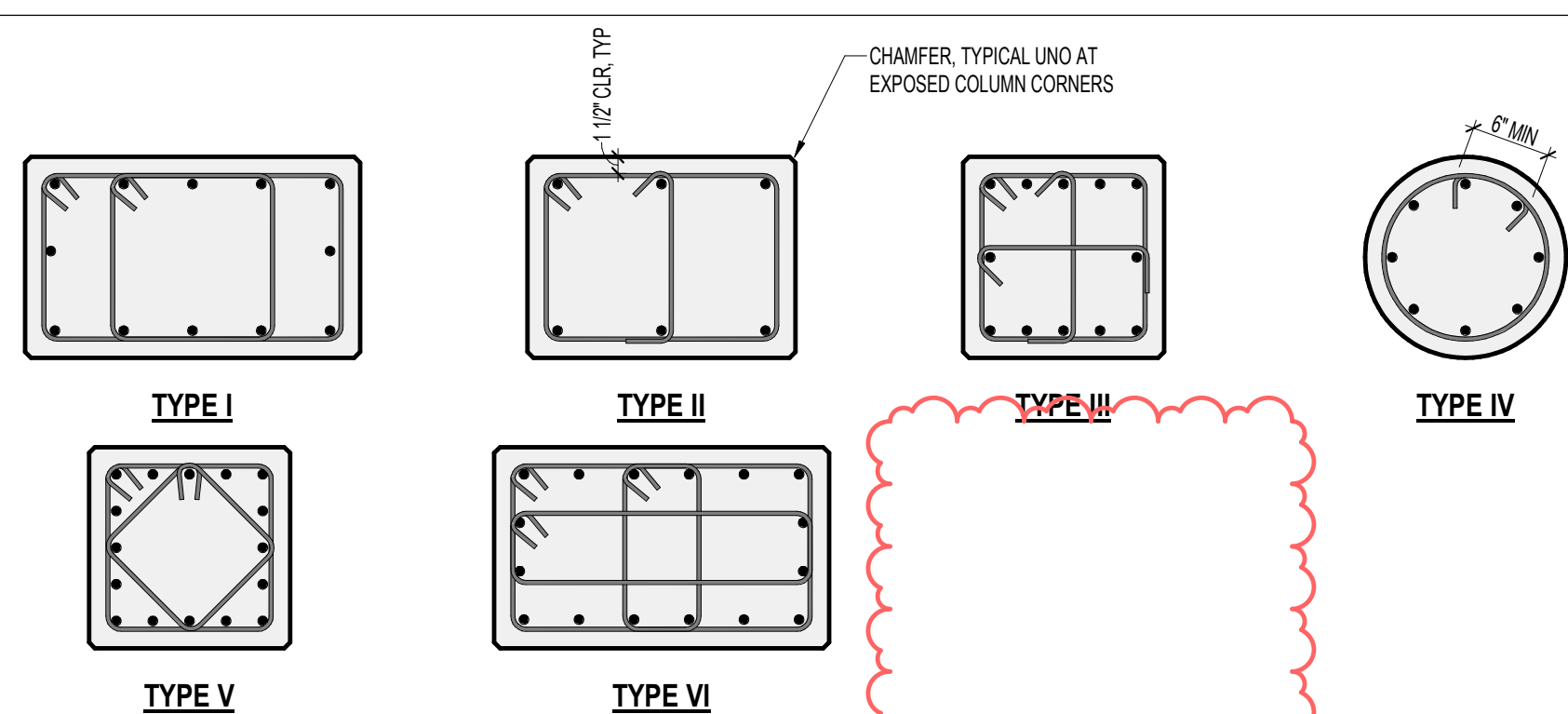
S2000-1

CONCRETE COLUMN SCHEDULE - PHASE 1																	
8TH FLOOR (E) PHASE 2	COLUMN MARK	C1-1A	C1-1B	C1-1C	C1-1D	C2-1A	C3-1C	C4-1D	C5-1B	C6-1A	C7-1B	C7-1C	C7-1D	C8-1C	C8-1D	C9-1C	C10-1C
VERTICAL TIES	SIZE		24" x 24" (12) #7	16" x 30" (16) #7	24" x 24" (16) #7		16" x 30" (16) #7	24" x 24" (16) #7	24" x 24" (12) #7		24" x 24" (12) #7	16" x 30" (16) #7	24" x 24" (16) #7	16" x 30" (16) #7	24" x 24" (16) #7	16" x 30" (16) #7	16" x 30" (16) #7
	TIES		#4 AT 12" o/c	#4 AT 12" o/c	#4 AT 12" o/c		#4 AT 12" o/c	#4 AT 12" o/c	#4 AT 12" o/c		#4 AT 12" o/c	#4 AT 12" o/c	#4 AT 12" o/c	#4 AT 12" o/c	#4 AT 12" o/c	#4 AT 12" o/c	#4 AT 12" o/c
	TIE TYPE			III	III		VI	III	III		III	VI	III	VI	III	VI	III
VERTICAL TIES	SIZE																
	TIES																
	TIE TYPE																
VERTICAL TIES	SIZE							24" x 24" (12) #7									
	TIES							#4 AT 12"									
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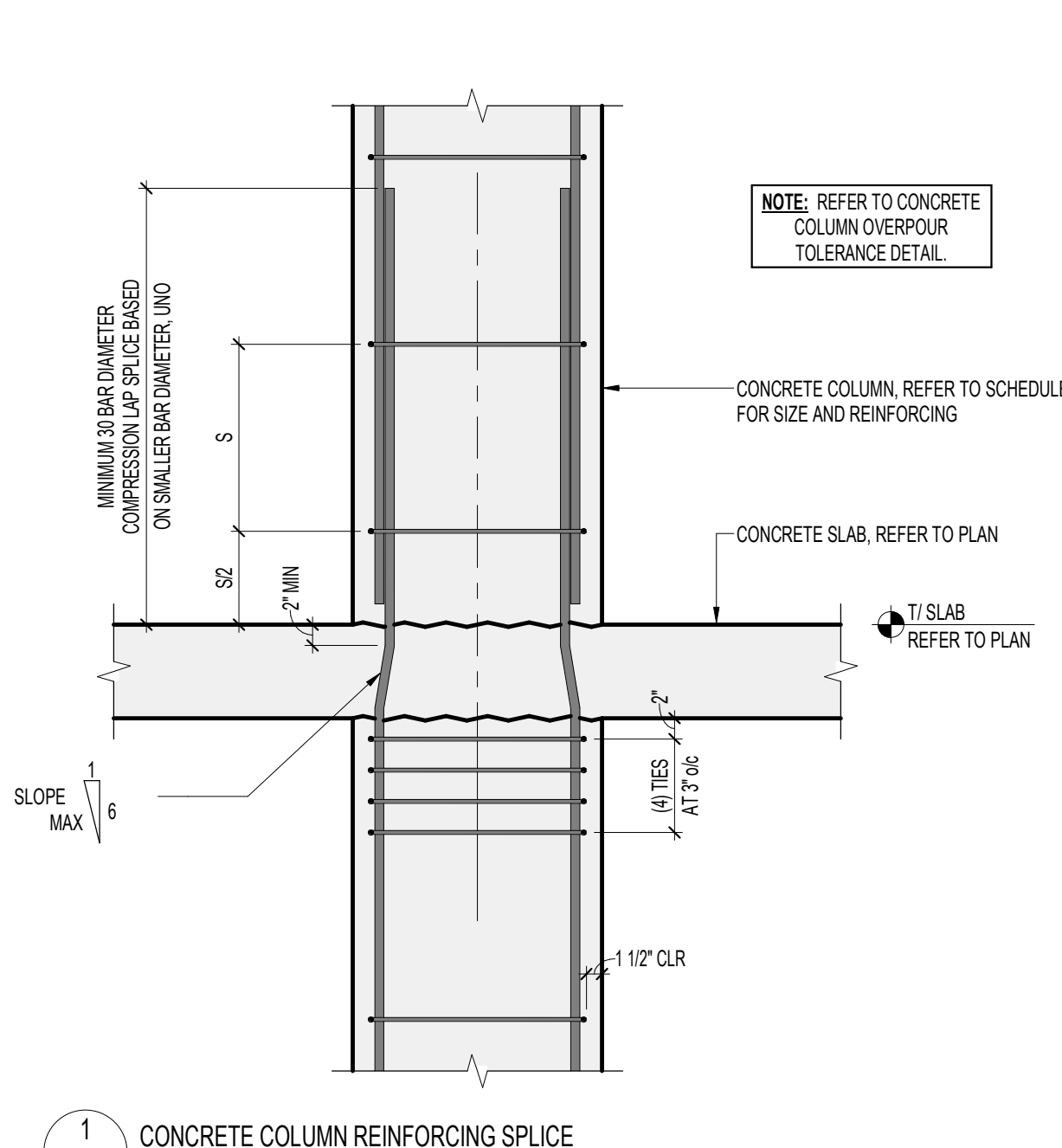
CONCRETE COLUMN SCHEDULE NOTES:

- REFER TO S2000-1 FOR COLUMN DOWELS AND TERMINATION AT FOOTING.
- REFER TO S2000-1 AND S2000-1 FOR COLUMN REINFORCEMENT SPLICES AND TERMINATION AT PT SLABS.
- PROVIDE EPOXY COATED VERTICALS AND TIES IN PARKING AREAS AND AREAS EXPOSED TO WEATHER.
- REFER TO ARCHITECT'S DRAWINGS FOR COLUMN SIZE/POSITIONS.
- FUTURE PHASE 2 COLUMNS AT 8TH FLOOR SHOWN FOR REFERENCE. REFER TO S2000-1 FOR COLUMN SPLICE DETAIL. ALL PHASE 2 COLUMNS CENTERED ON PHASE 1 COLUMNS UNO ON KEY PLAN. OFFSETS ON KEY PLAN ARE REFERENCED FROM NEAREST GRID LINE. REFER TO S2000-1 FOR COLUMN TOP REINFORCEMENT WHERE NO FUTURE COLUMN ABOVE.

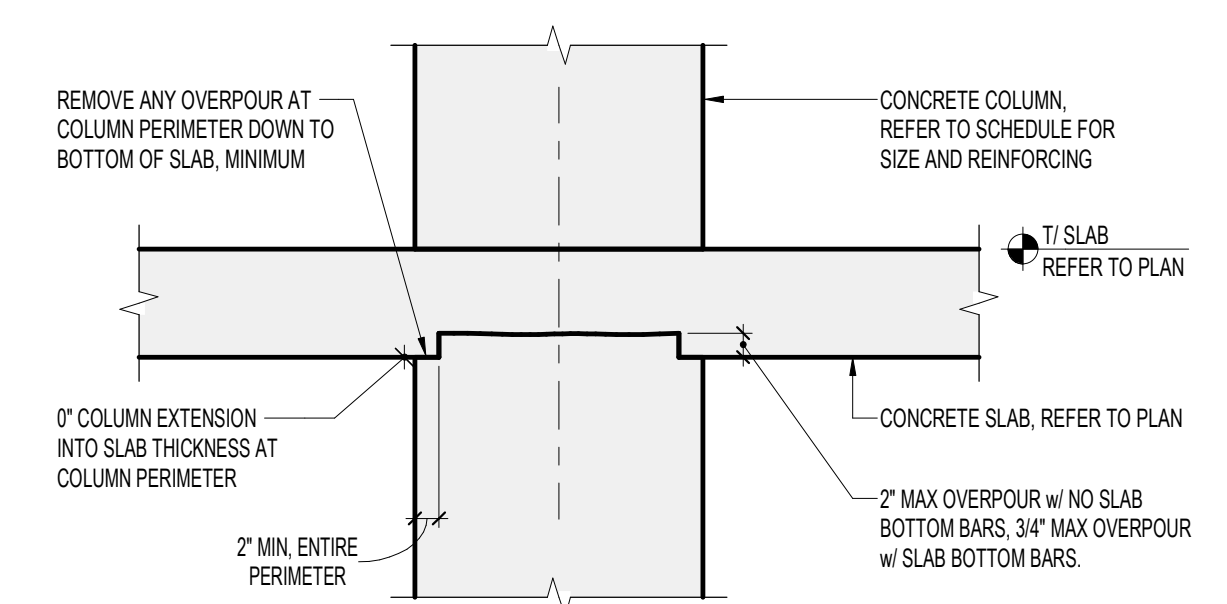
CONCRETE COLUMN TIE TYPES



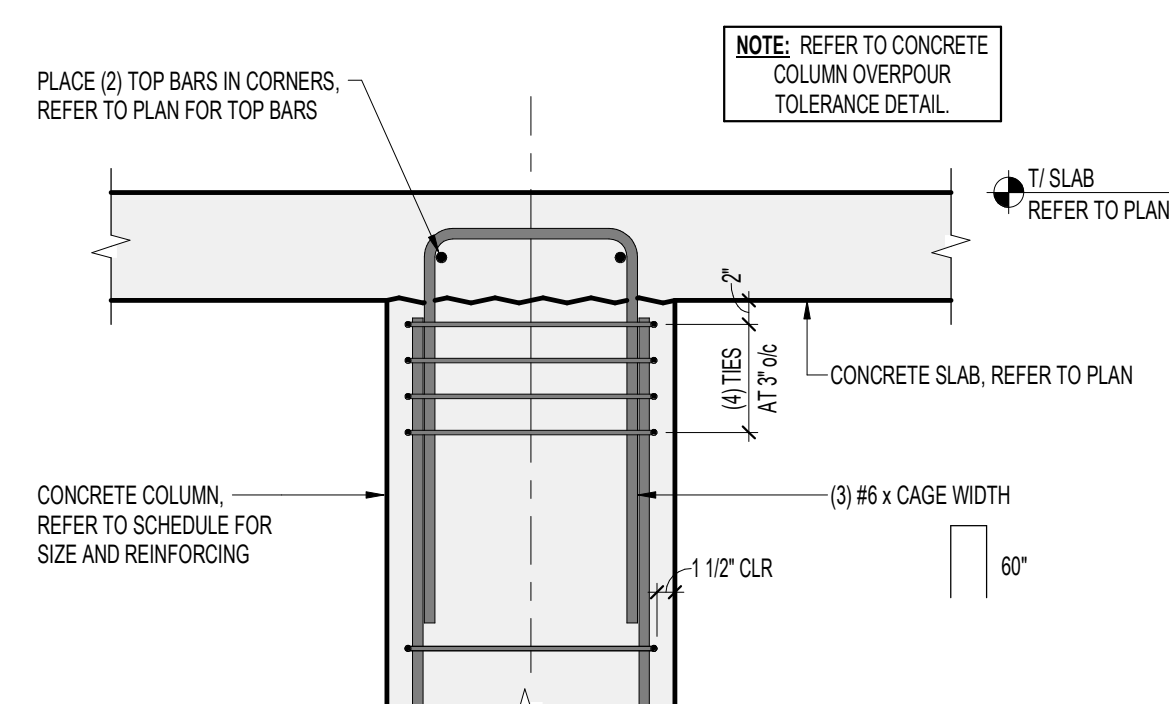
CONCRETE COLUMN KEY PLAN - PHASE 1



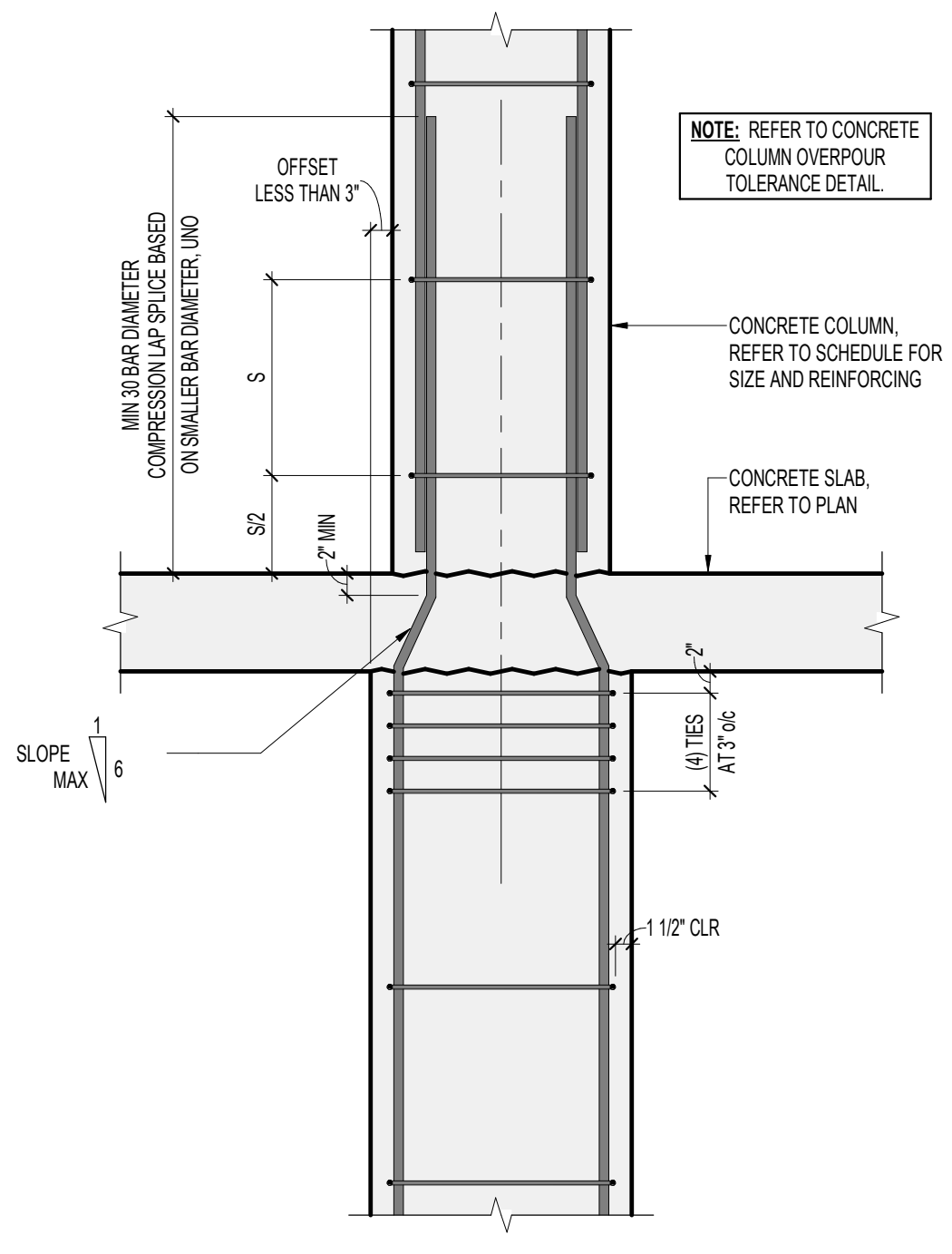
1 CONCRETE COLUMN REINFORCING SPLICE



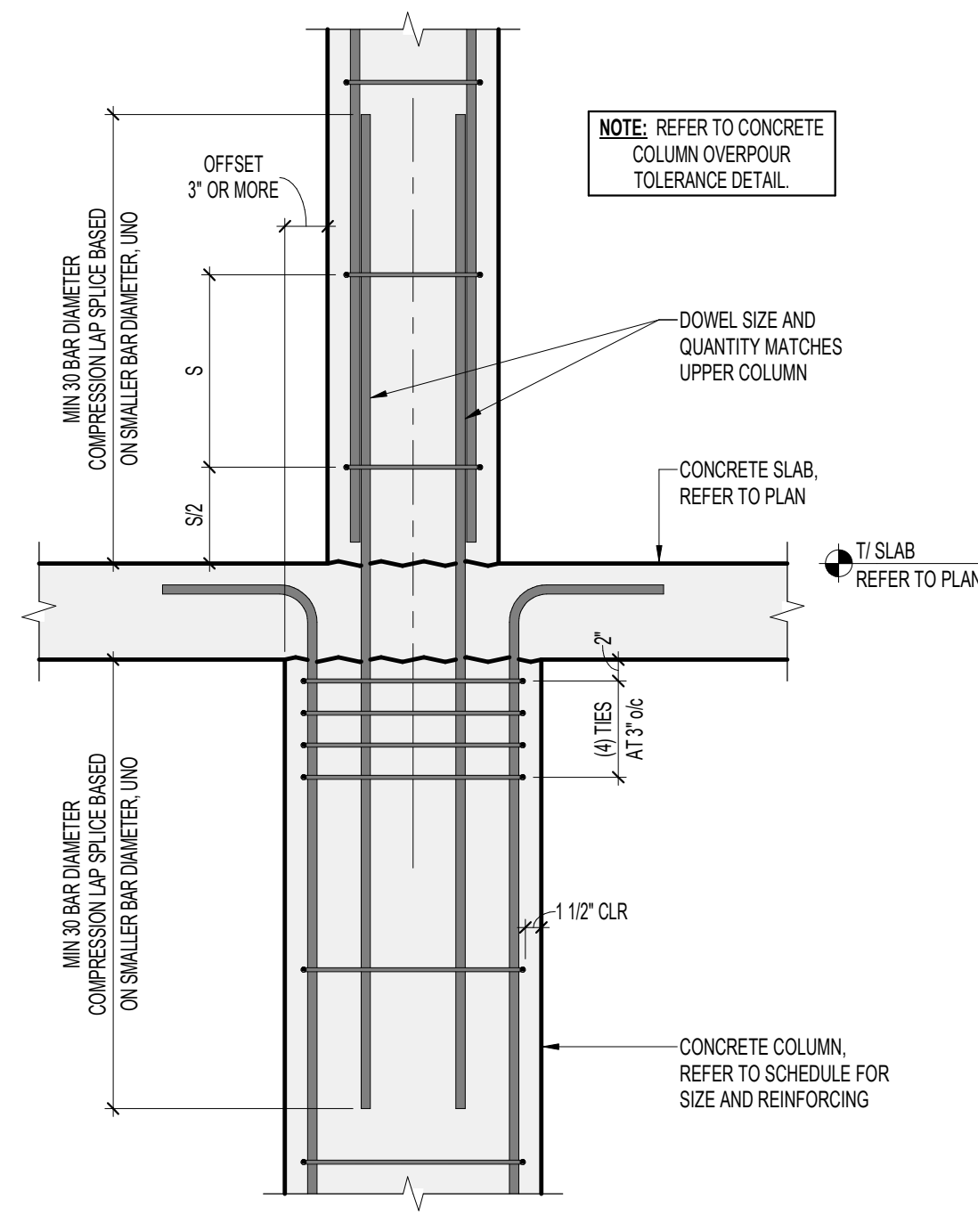
3 CONCRETE COLUMN OVERPOUR TOLERANCE



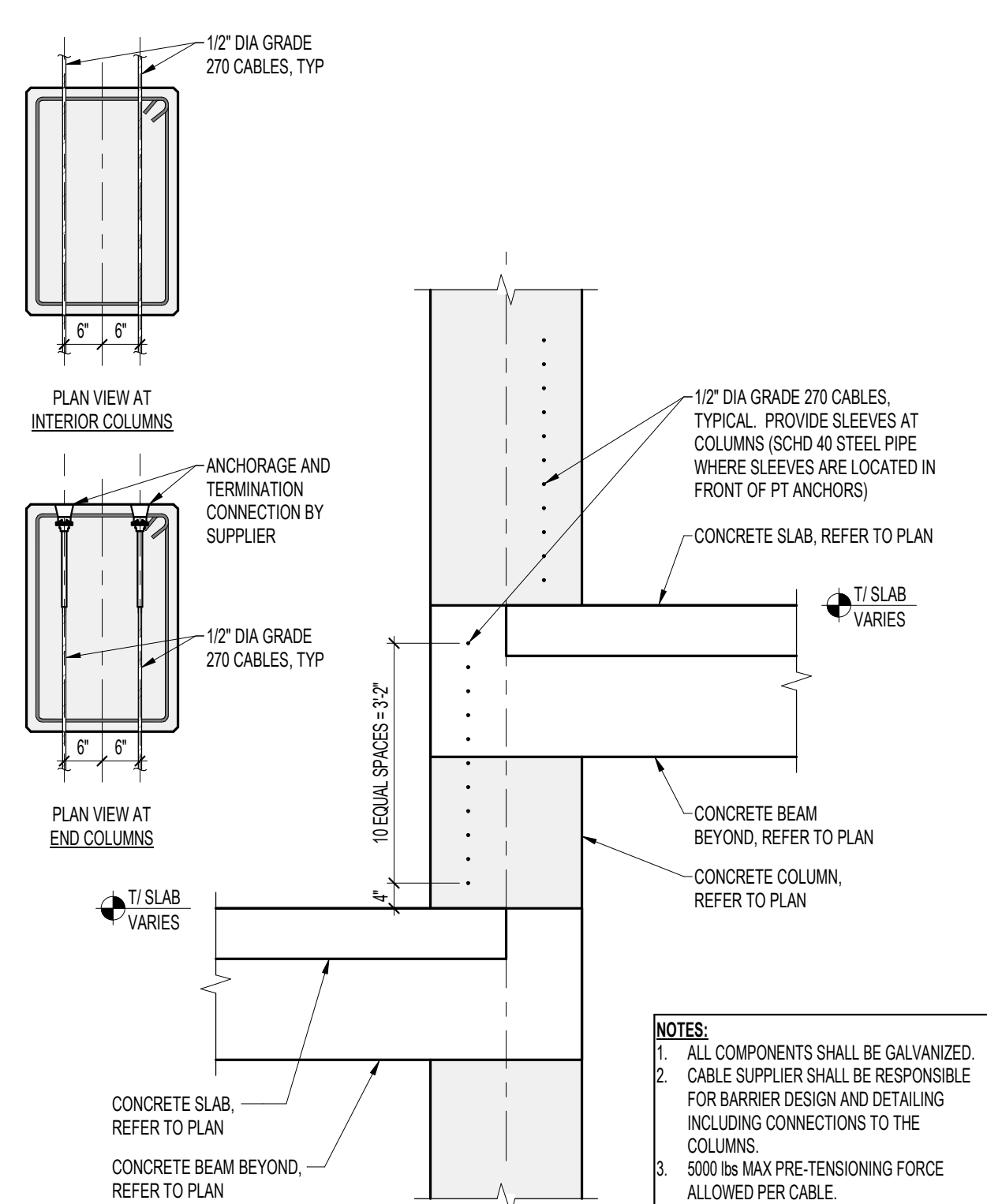
2 REINFORCING AT TOP OF COLUMN



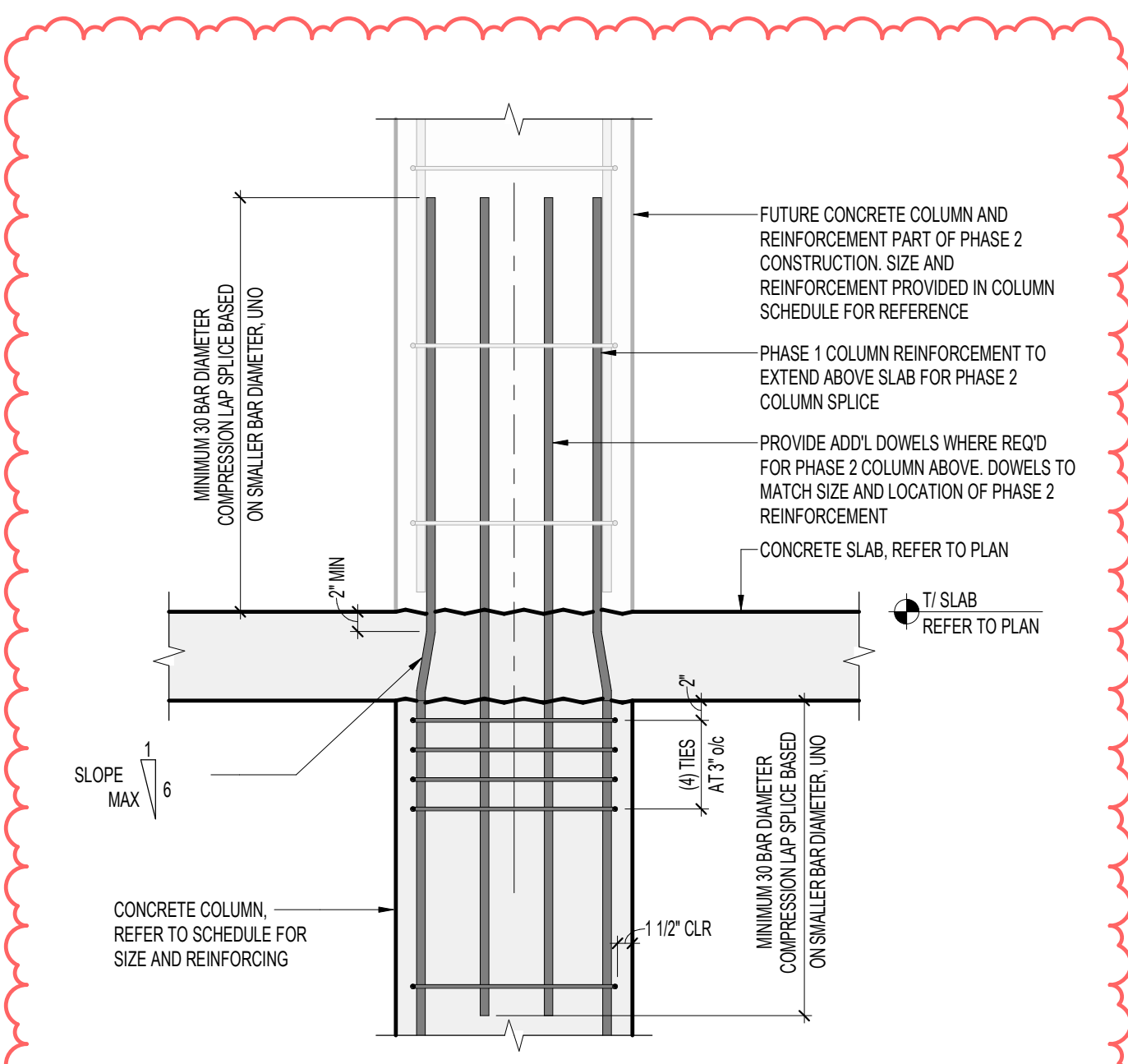
TYPICAL COLUMN OFFSET LESS THAN 3"



TYPICAL COLUMN OFFSET 3" OR MORE



5 BARRIER CABLE AT SPEED RAMP



6 REINFORCEMENT SPLICE FOR PHASE 2 COLUMN ABOVE

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KEY PLAN

SHEET INFORMATION

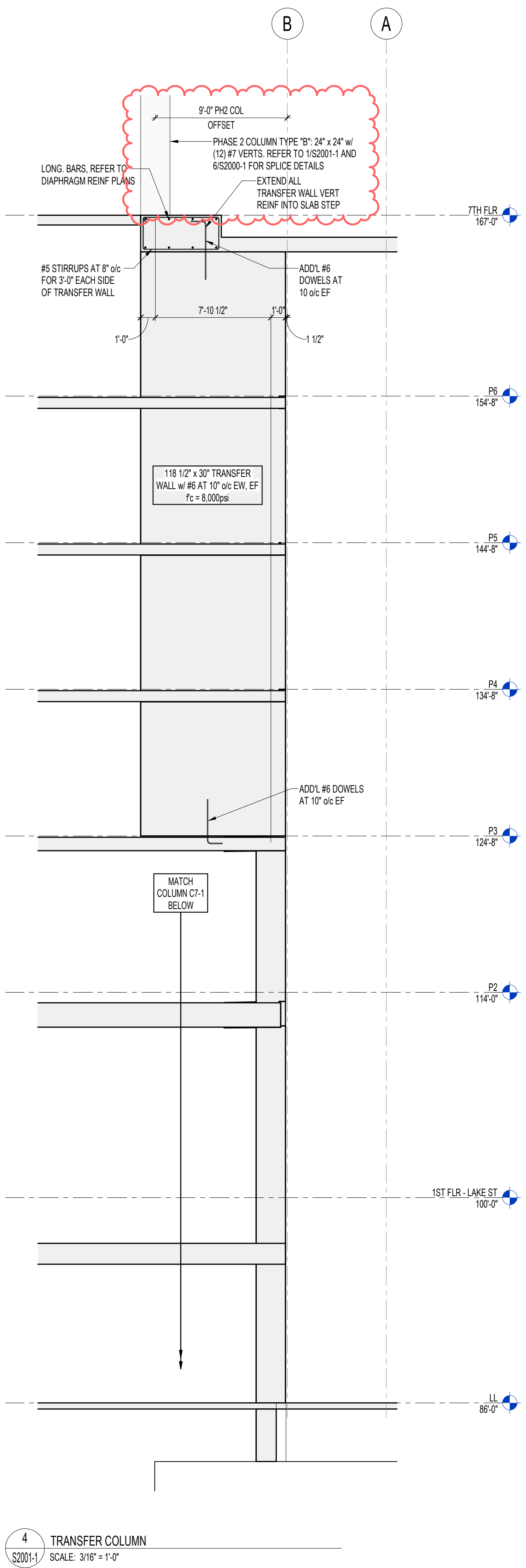
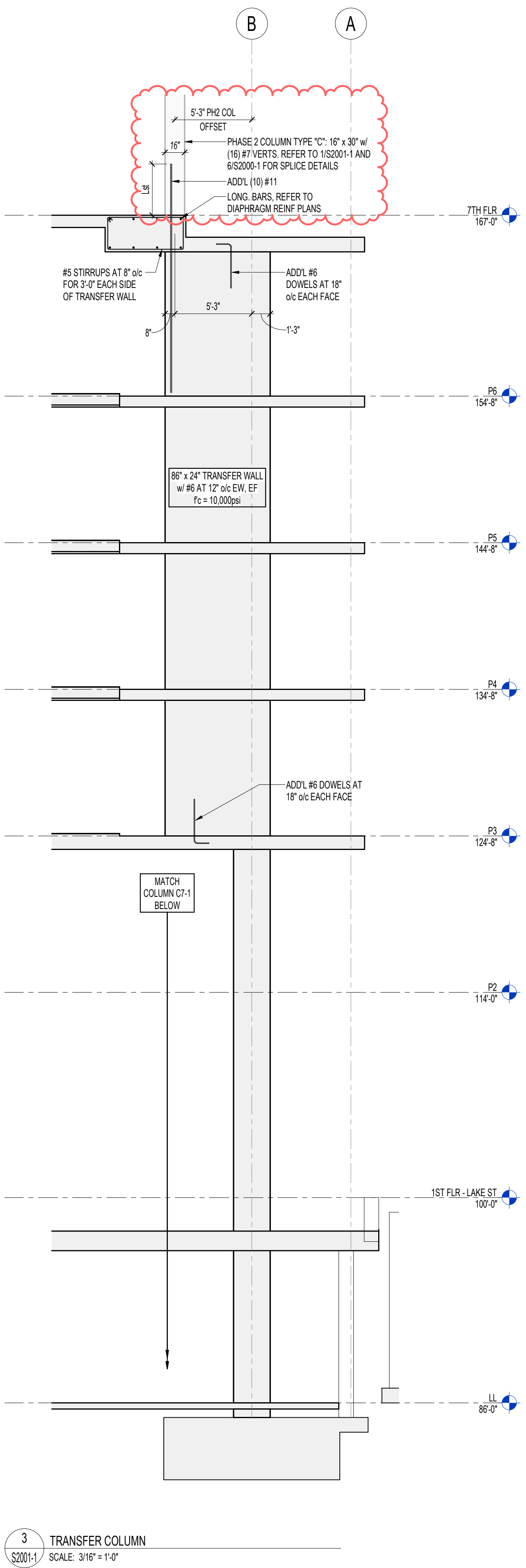
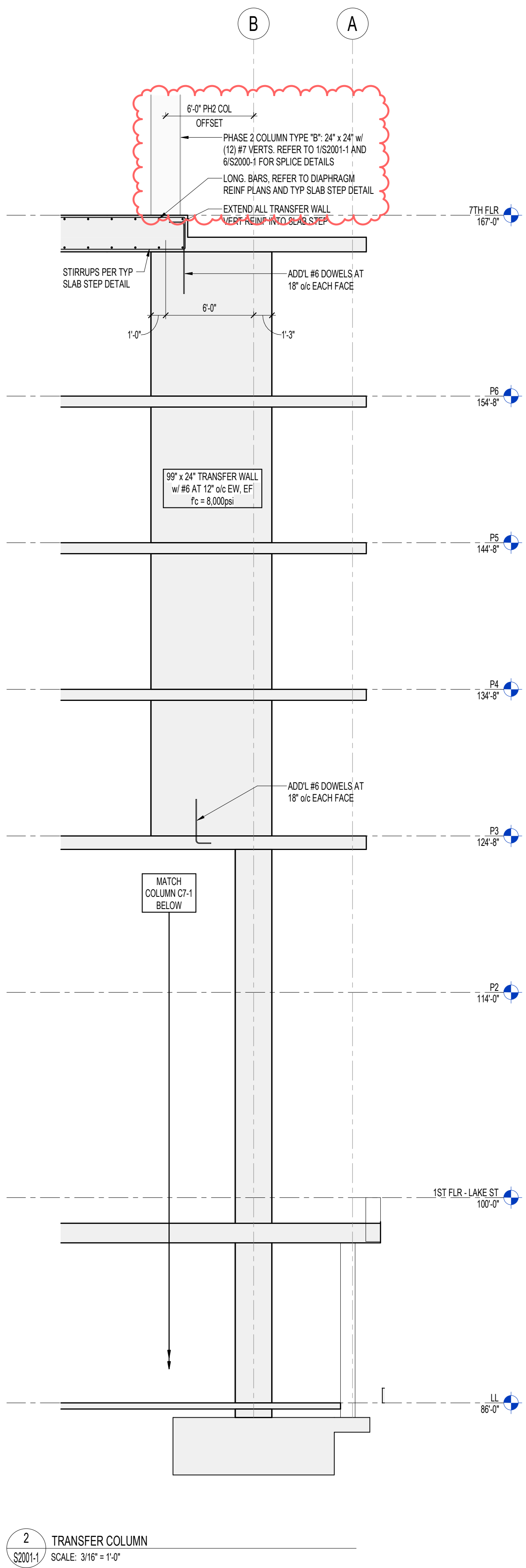
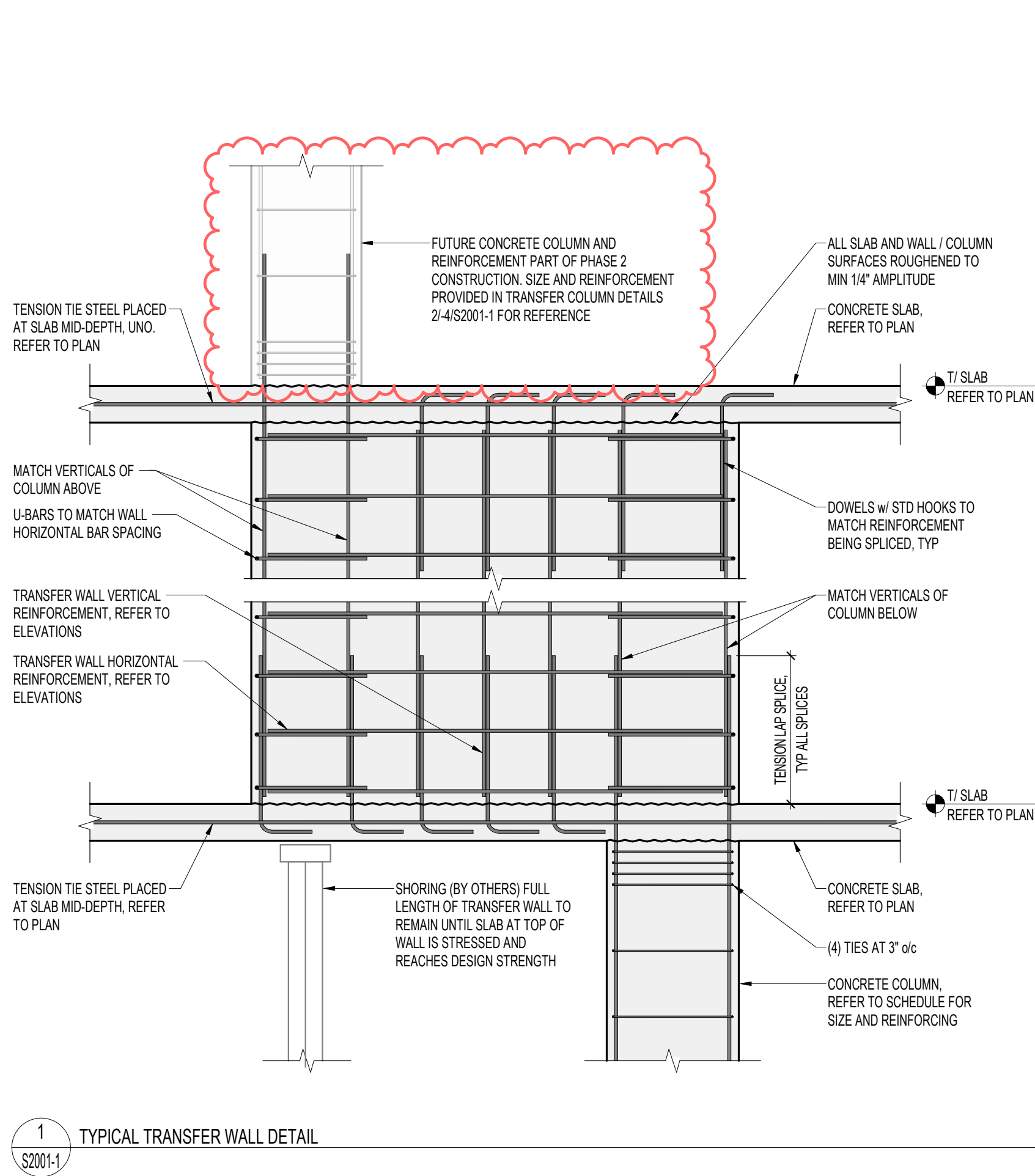
PROJECT MANAGER

PROJECT NUMBER

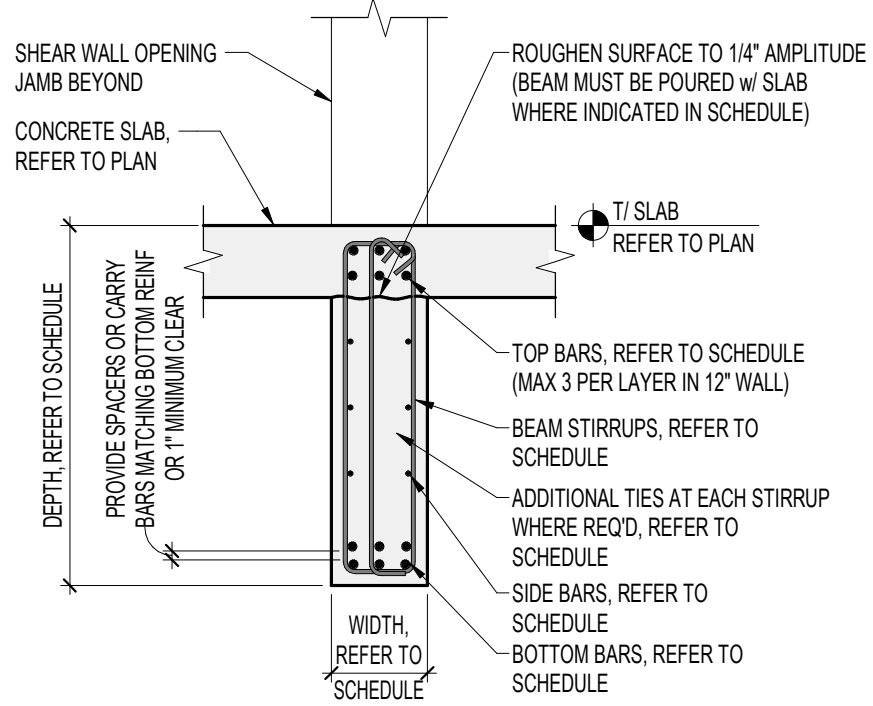
720448

TRANSFER COLUMN
ELEVATIONS -
PHASE 1

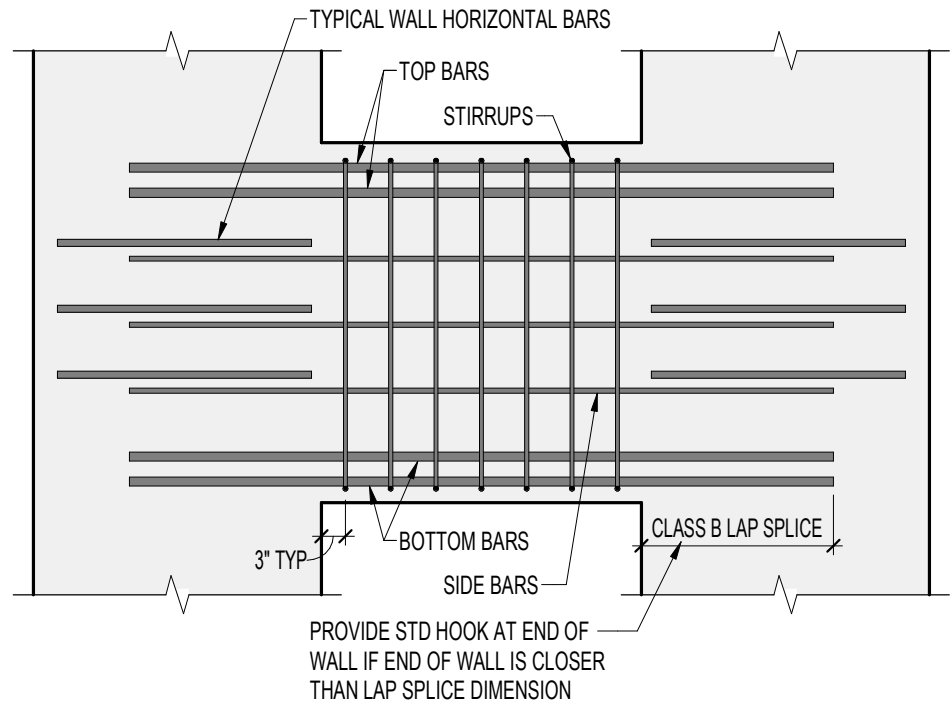
S2001-1



LINK BEAM SCHEDULE - PHASE 1									
MARK	DIMENSIONS		MILD REINFORCING		STIRRUPS	REMARKS			
	WIDTH	DEPTH	TOP BARS	BOTTOM BARS					
L81-1	12"	32"	(3) #9	(3) #9	#5 AT 12" o/c	#5	FULL LENGTH AT 6" o/c		
L82-1	12"	40"	(3) #9	(3) #9	#5 AT 12" o/c	#5	FULL LENGTH AT 6" o/c		
L83-1	12"	60"	(3) #9	(3) #9	#5 AT 12" o/c	#5	FULL LENGTH AT 6" o/c		
L84-1	12"	32"	(6) #9	(6) #9	#5 AT 12" o/c	#5	FULL LENGTH AT 4" o/c	(1) ADD'L #5 TIE	
L85-1	12"	40"	(6) #9	(6) #9	#5 AT 12" o/c	#5	FULL LENGTH AT 4" o/c	(1) ADD'L #5 TIE	
L86-1	12"	80"	(3) #9	(3) #9	#5 AT 12" o/c	#5	FULL LENGTH AT 6" o/c		



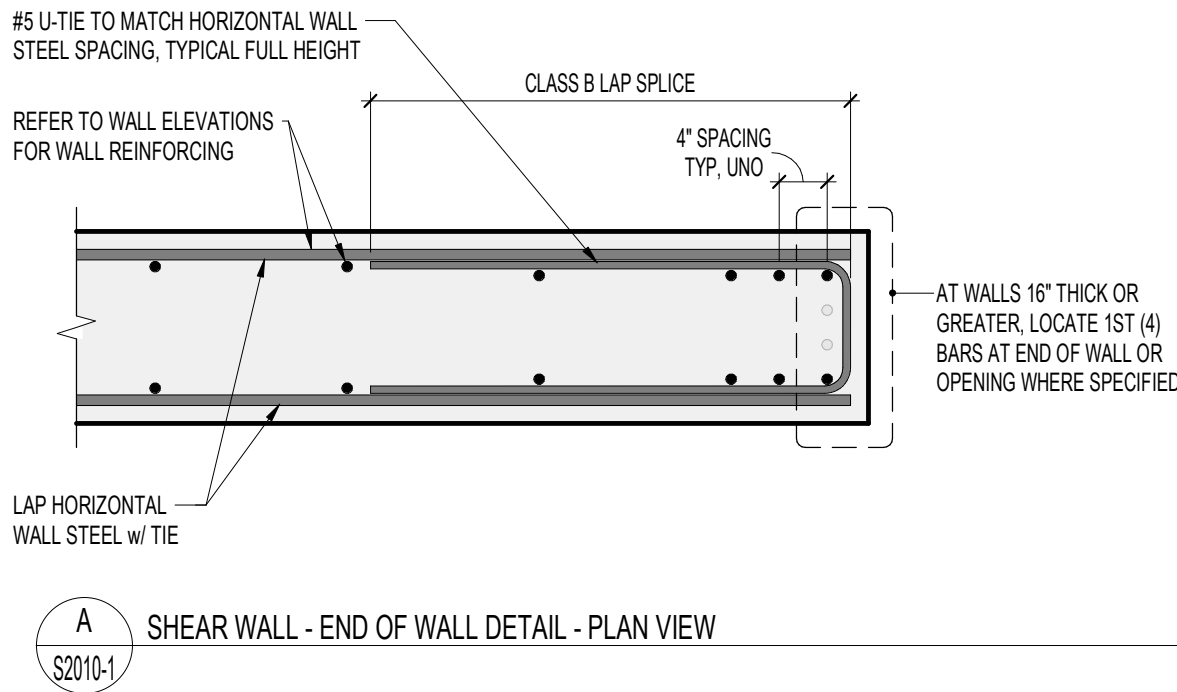
SECTION



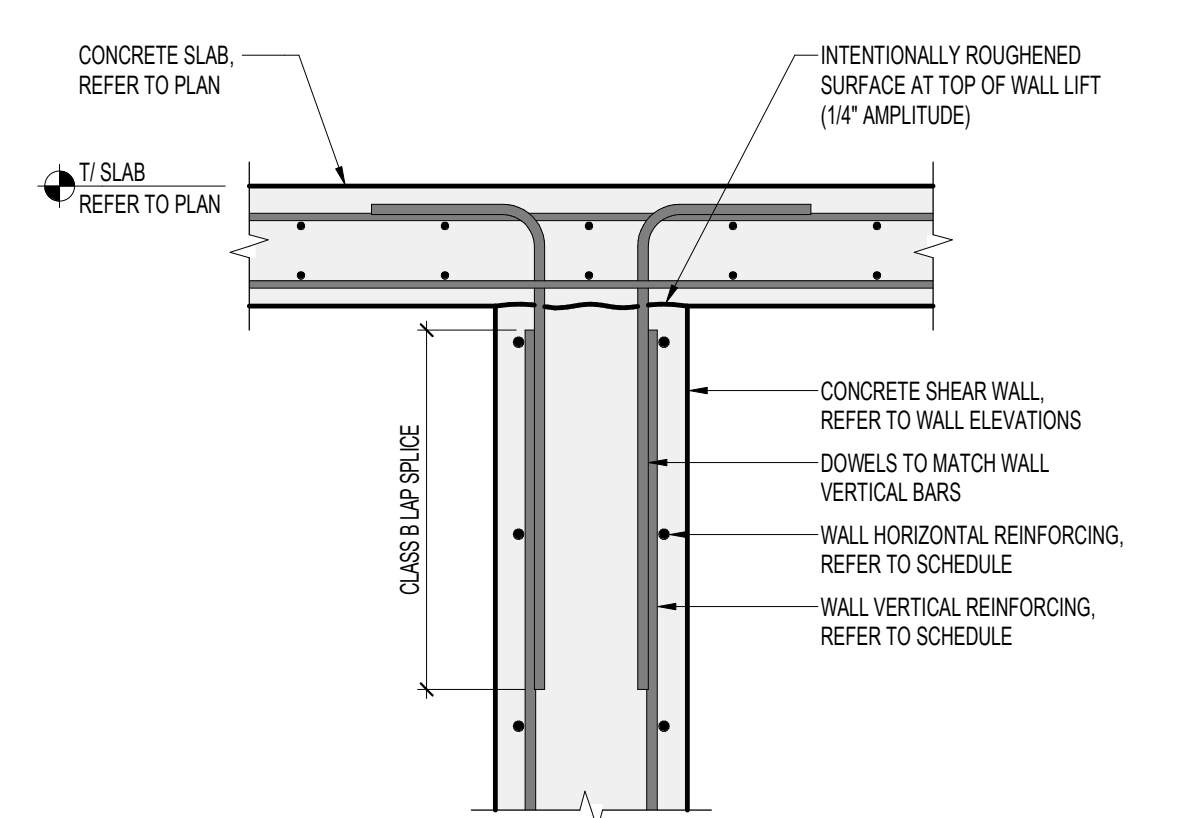
ELEVATION

- CONCRETE SHEAR WALL GENERAL NOTES - PHASE 1**
1. FOOTING DOWELS - PROVIDE AT SAME SIZE AND SPACING AS TYPICAL VERTICAL WALL REINFORCING AND/OR OVERTURNING STEEL QUANTITY PER NOTES. REFER TO EISS2010-1.
 2. REFER TO CS2010-1 FOR TYPICAL SECTION AT FOUNDATION.
 3. WALLS ARE $\phi_c = 5,000$ psi EXCEPT WHERE NOTED OTHERWISE.
 4. OPENING HEIGHT = 7'-0" ABOVE FLOOR ELEVATION, UNO.
 5. REFER TO ELEVATIONS FOR WALL REINFORCEMENT.
 6. REFER TO ELEVATIONS FOR ADDITIONAL OVERTURNING STEEL REQUIREMENTS. VERTICAL BARS SHALL BE LAP-SPLICED 12" AND HORIZONTAL BARS SHALL BE LAP-SPLICED 24" AT #5 BARS.
 7. PROVIDE #5 U-TIES AT 15" OR 18" o/c (MATCH HORIZONTAL BAR SPACING) AT END OF WALLS AND AT DOOR JAMBS PER AIS2010-1 TYPICAL, UNO. AT WALL CORNERS, (2) U-TIES REQUIRED w/ ONE GOING EACH DIRECTION.
 8. REFER TO B2010-1 FOR SLIP FORMED SHEAR WALL AT PT SLAB.

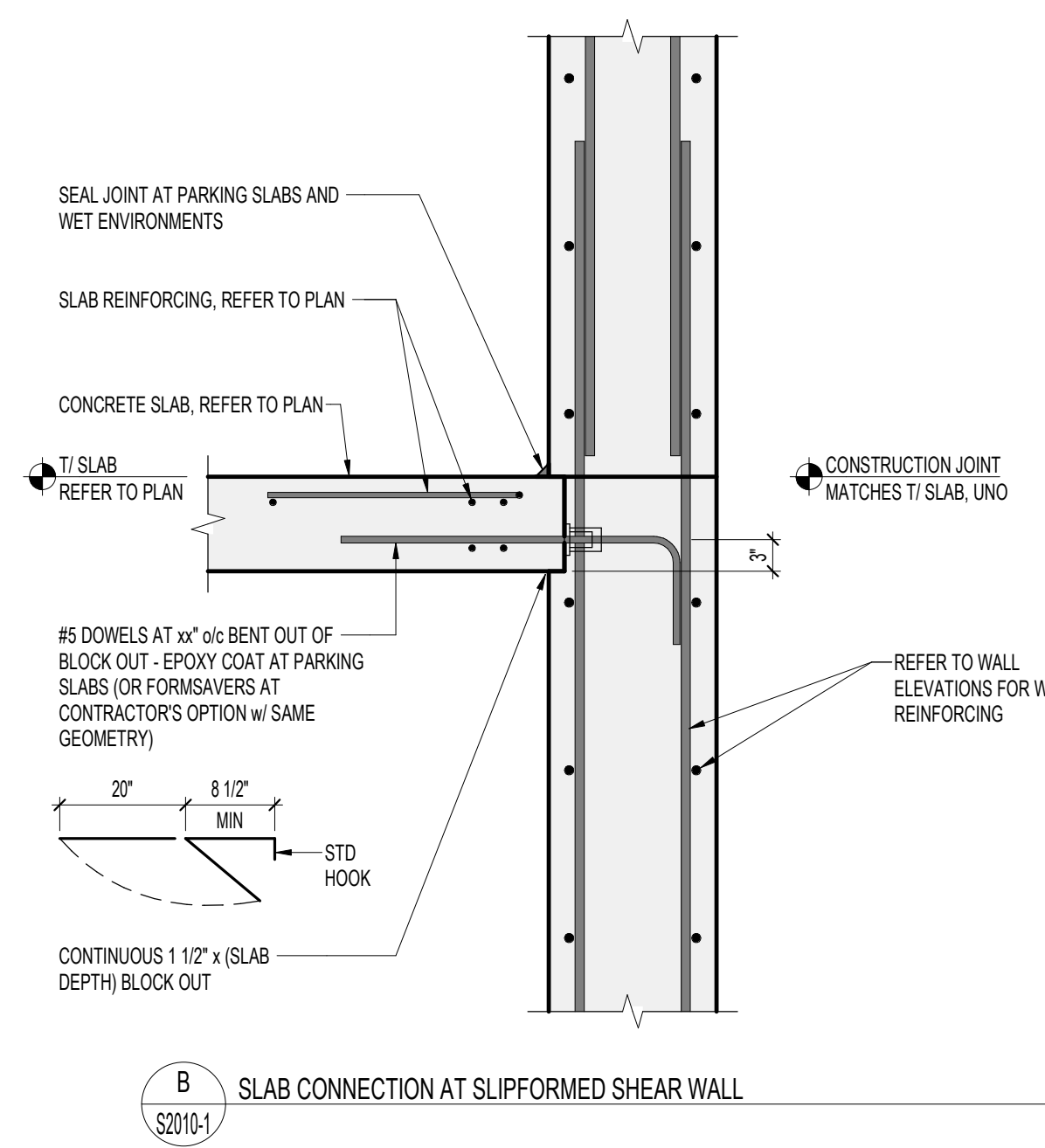
- CONCRETE SHEAR WALL ELEVATION KEYED NOTES - PHASE 1**
- (B) #9 VERTICAL (IF 9" LAP) - SHEAR WALL OVERTURNING STEEL. REFER TO ELEVATIONS FOR QUANTITY. REFER TO AIS2010-1 FOR SPACING, U-TIE, AND ADDITIONAL TIE REQUIREMENTS. PROVIDE CLASS B LAP SPICE LENGTHS AT CONSTRUCTION JOINTS.
- (C) TOP OF WALL #5 x 3/8" U-TIES. SET TOP 2" CLEAR OF TOP OF SLAB. MATCH VERTICAL WALL REINFORCING SPACING, UNO.
- (D) TOP OF BEAM = TOP OF SLAB. PROVIDE SLEEVES OR DRILL THROUGH WALLS AS NEEDED FOR PT TENDONS TO PASS THROUGH.
- (E) #4 x 4'-0" DIAGONAL CORNER BAR EACH FACE. TYPICAL AT ALL OPENINGS.



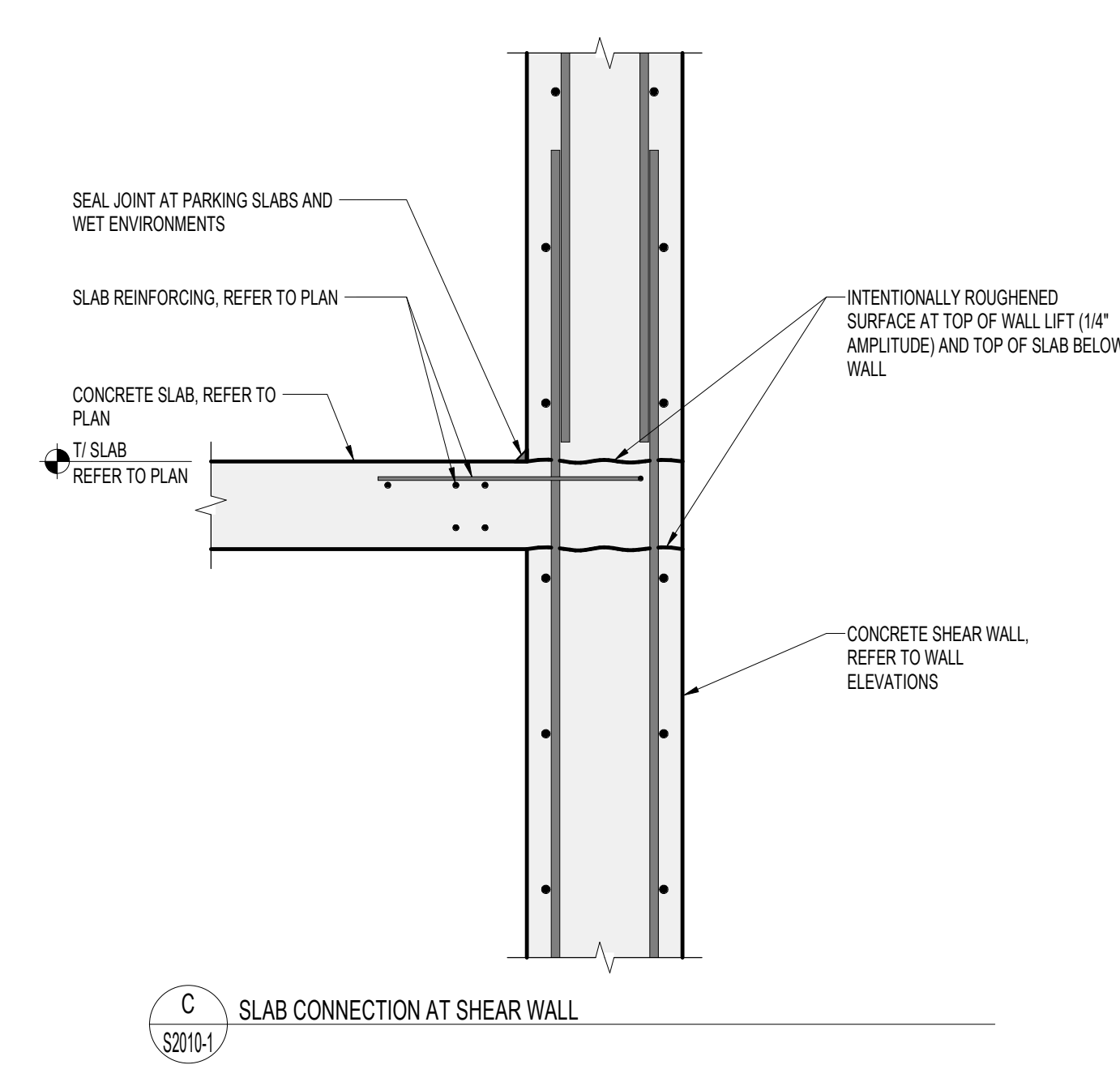
A SHEAR WALL - END OF WALL DETAIL - PLAN VIEW



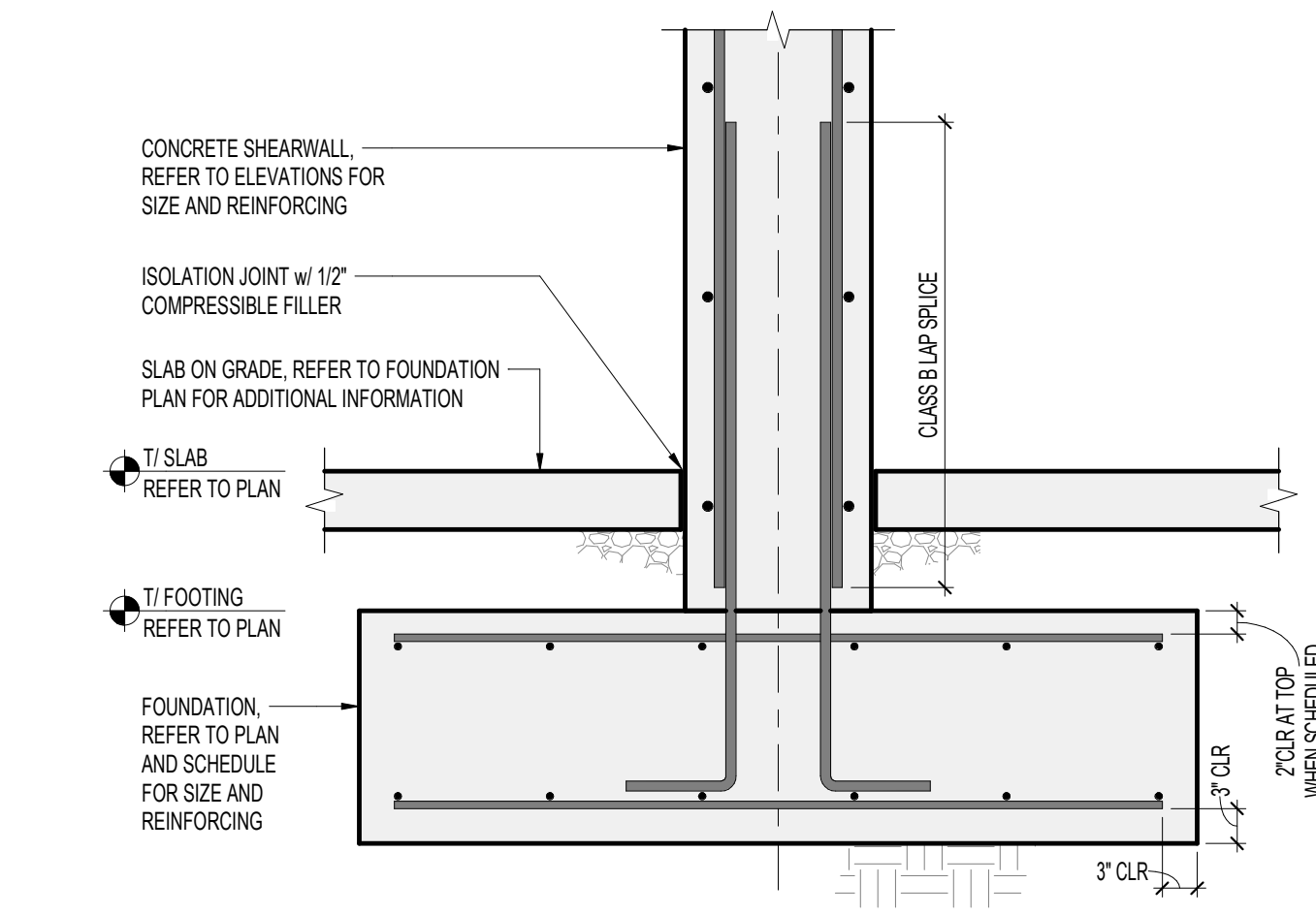
D SLAB CONNECTION AT SHEAR WALL



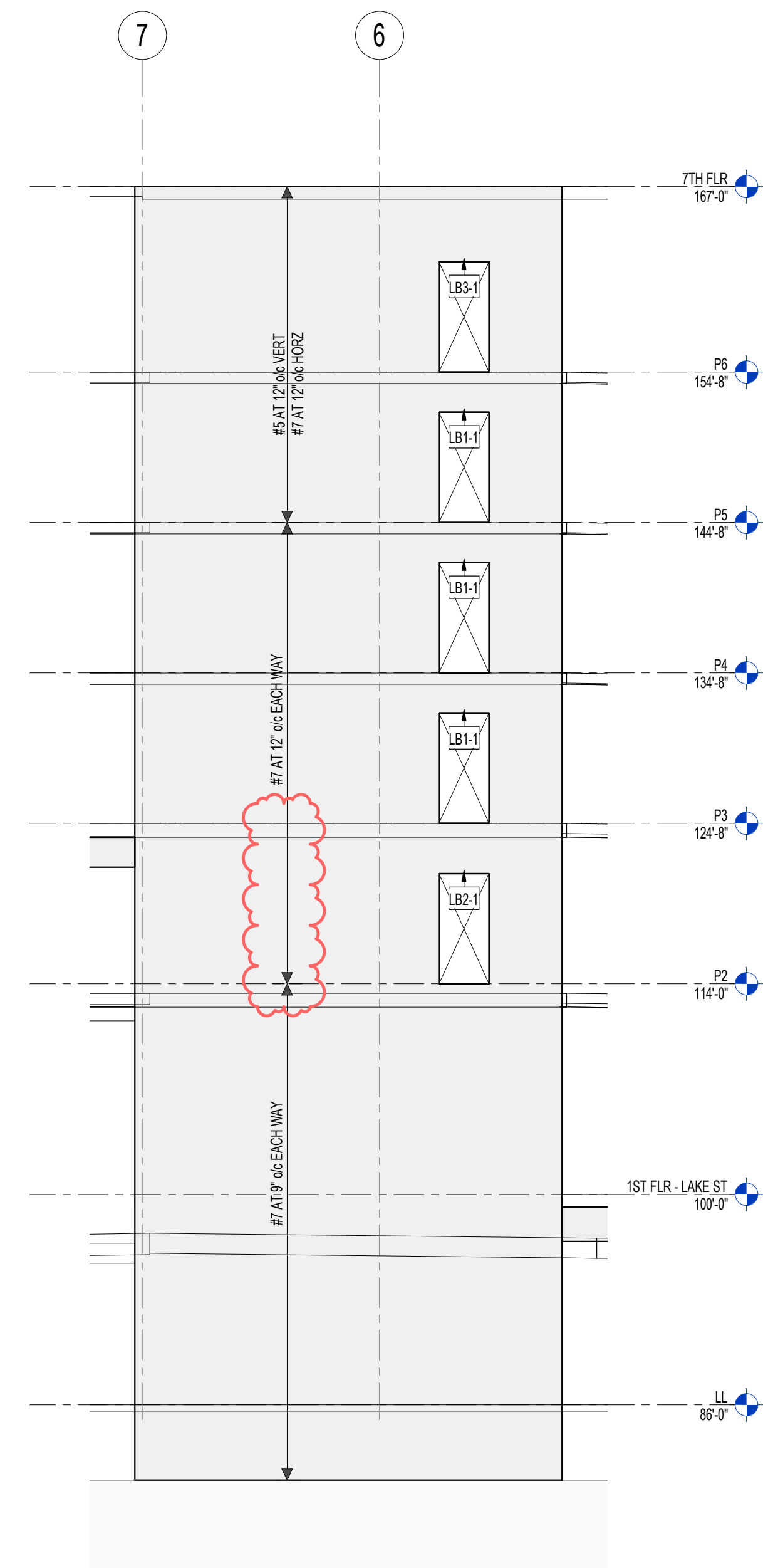
B SLAB CONNECTION AT SLIPFORMED SHEAR WALL



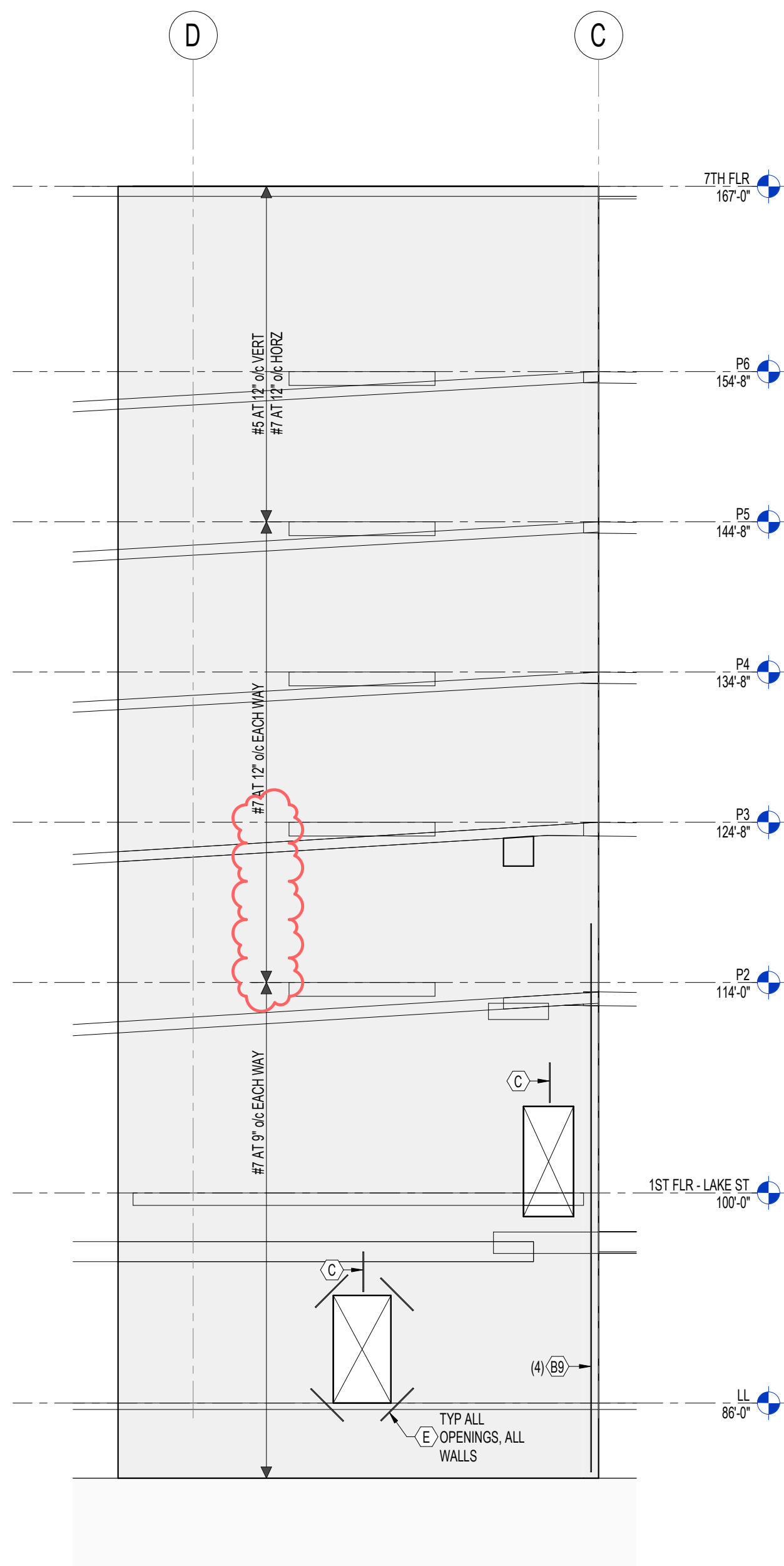
C SLAB CONNECTION AT SHEAR WALL



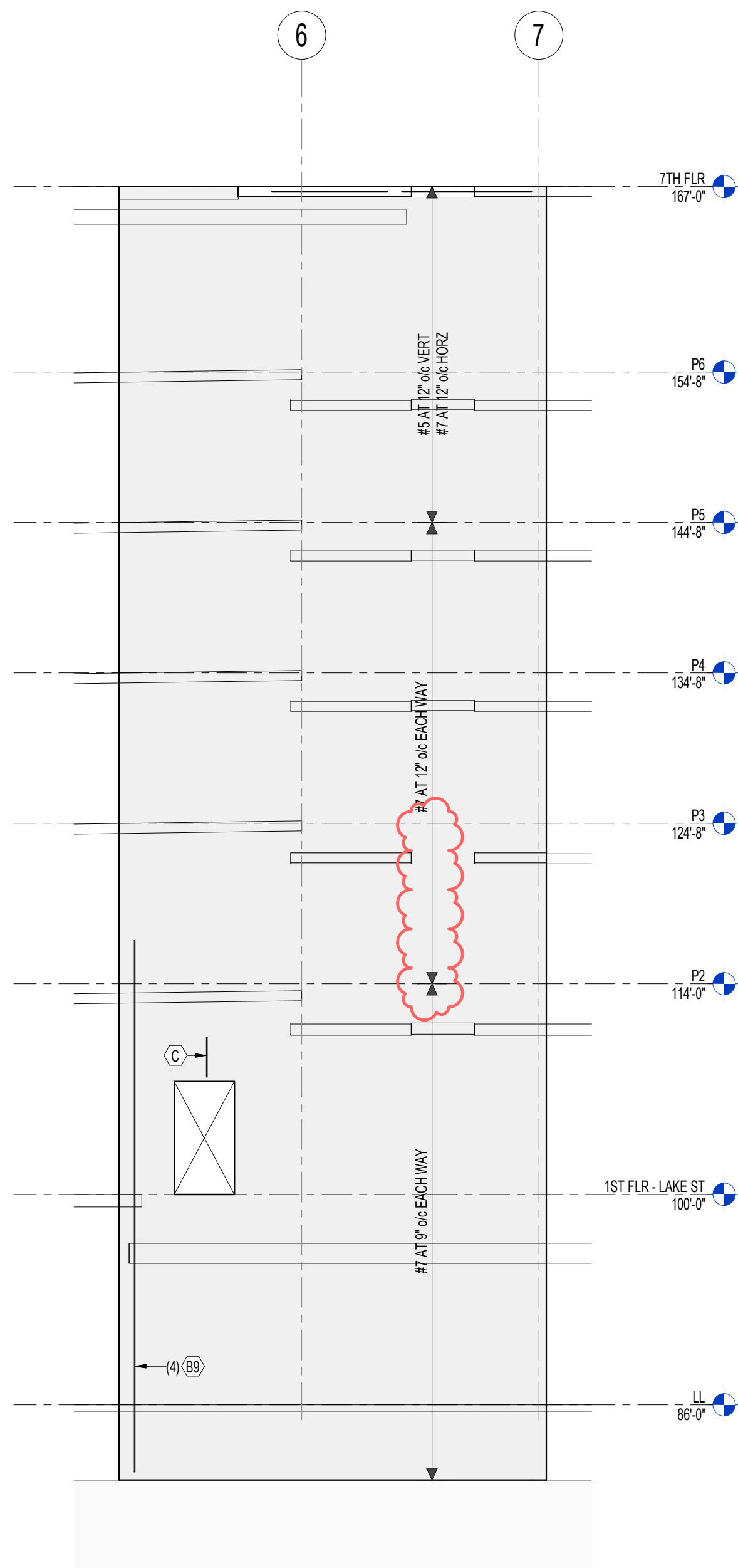
E SHEARWALL AT FOOTING



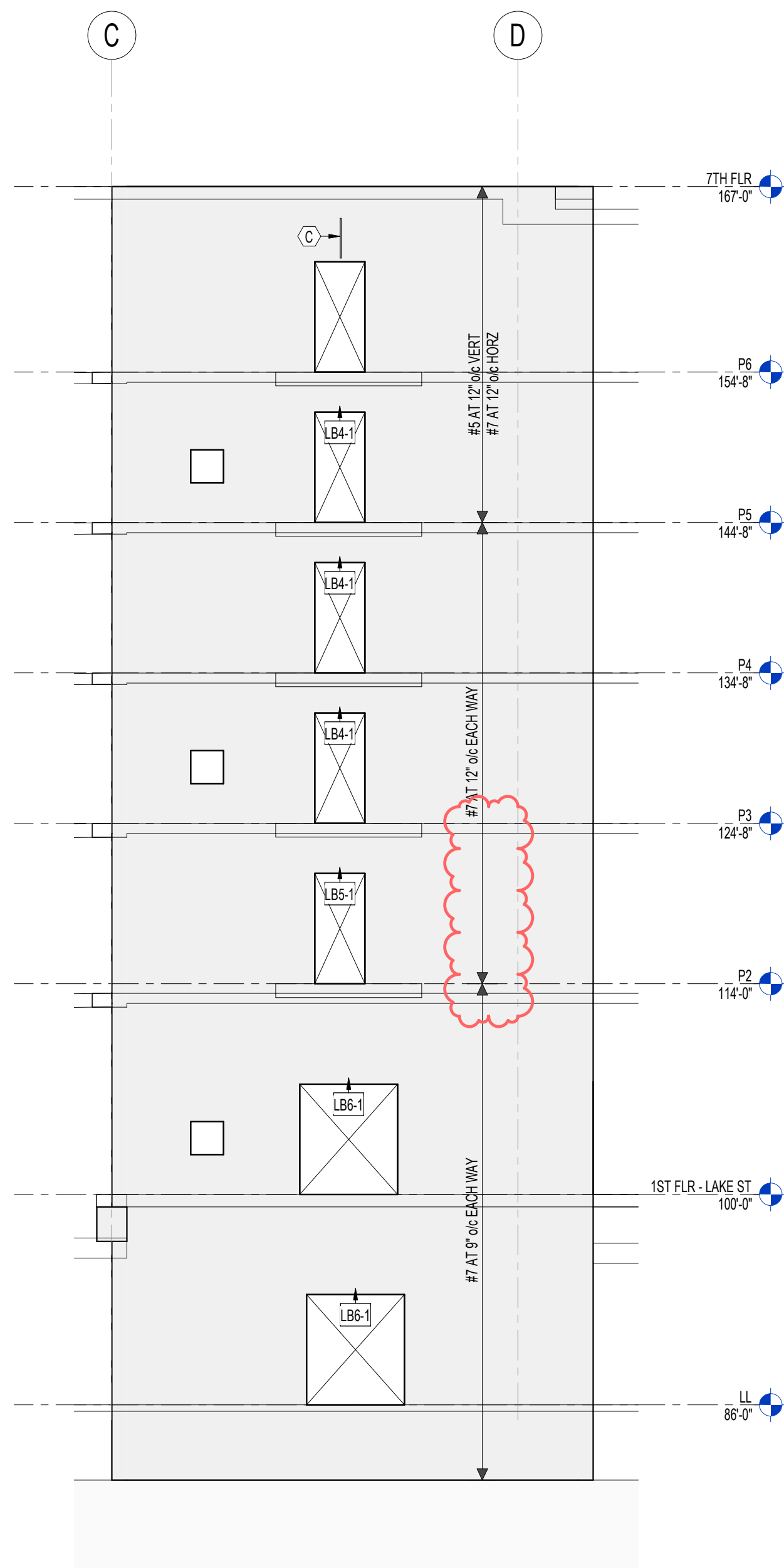
SW-A SHEAR WALL ELEVATION
S2010-1 SCALE: 1/8" = 1'-0"



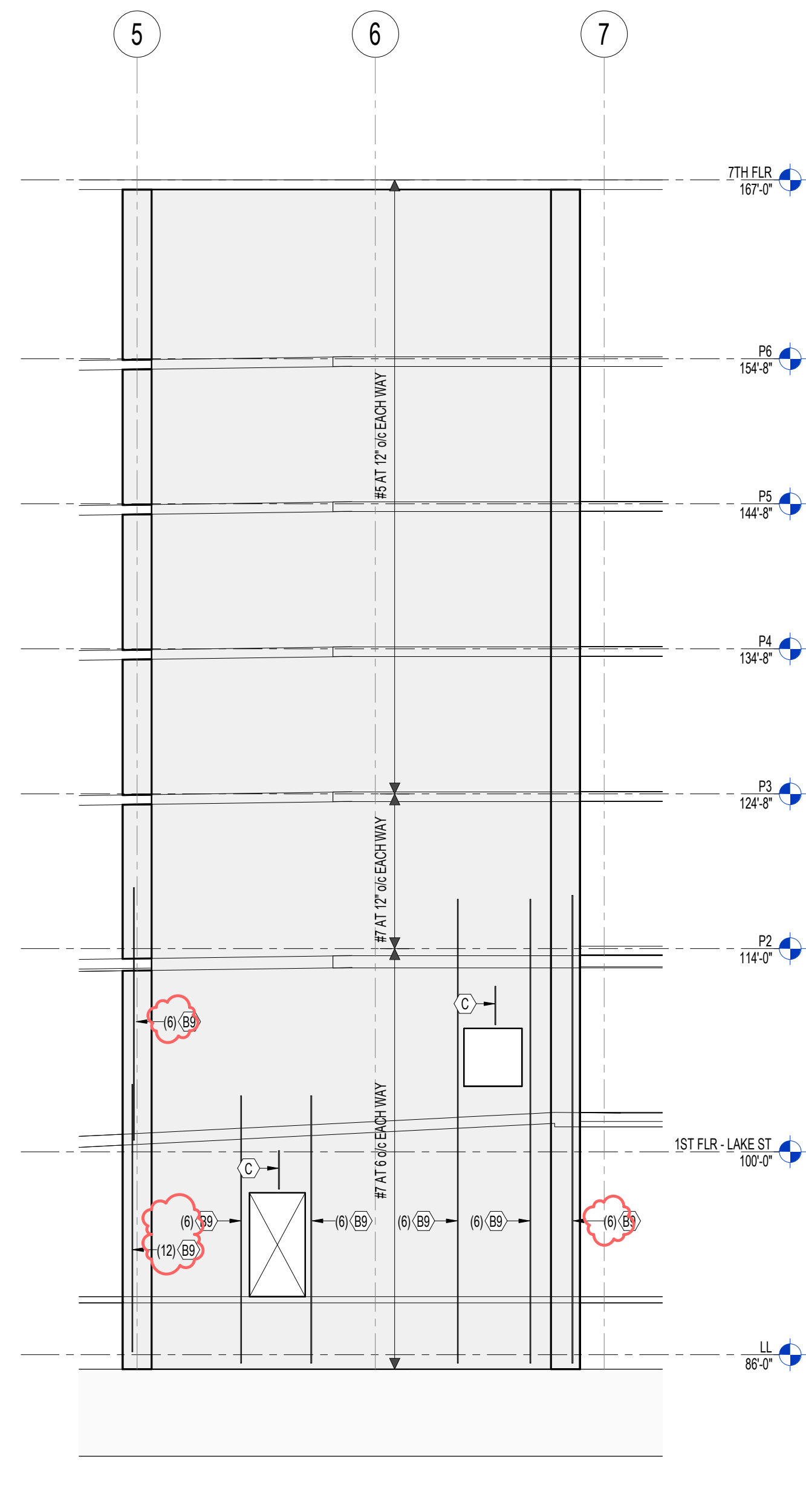
SW-B SHEAR WALL ELEVATION
S2010-1 SCALE: 1/8" = 1'-0"



SW-C SHEAR WALL ELEVATION
S2010-1 SCALE: 1/8" = 1'-0"



SW-D SHEAR WALL ELEVATION
S2010-1 SCALE: 1/8" = 1'-0"



SW-E SHEAR WALL ELEVATION
S2010-1 SCALE: 1/8" = 1'-0"



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PE Project: 22019

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11-02-2023	PH1, AD02

KEY PLAN

SHEET INFORMATION

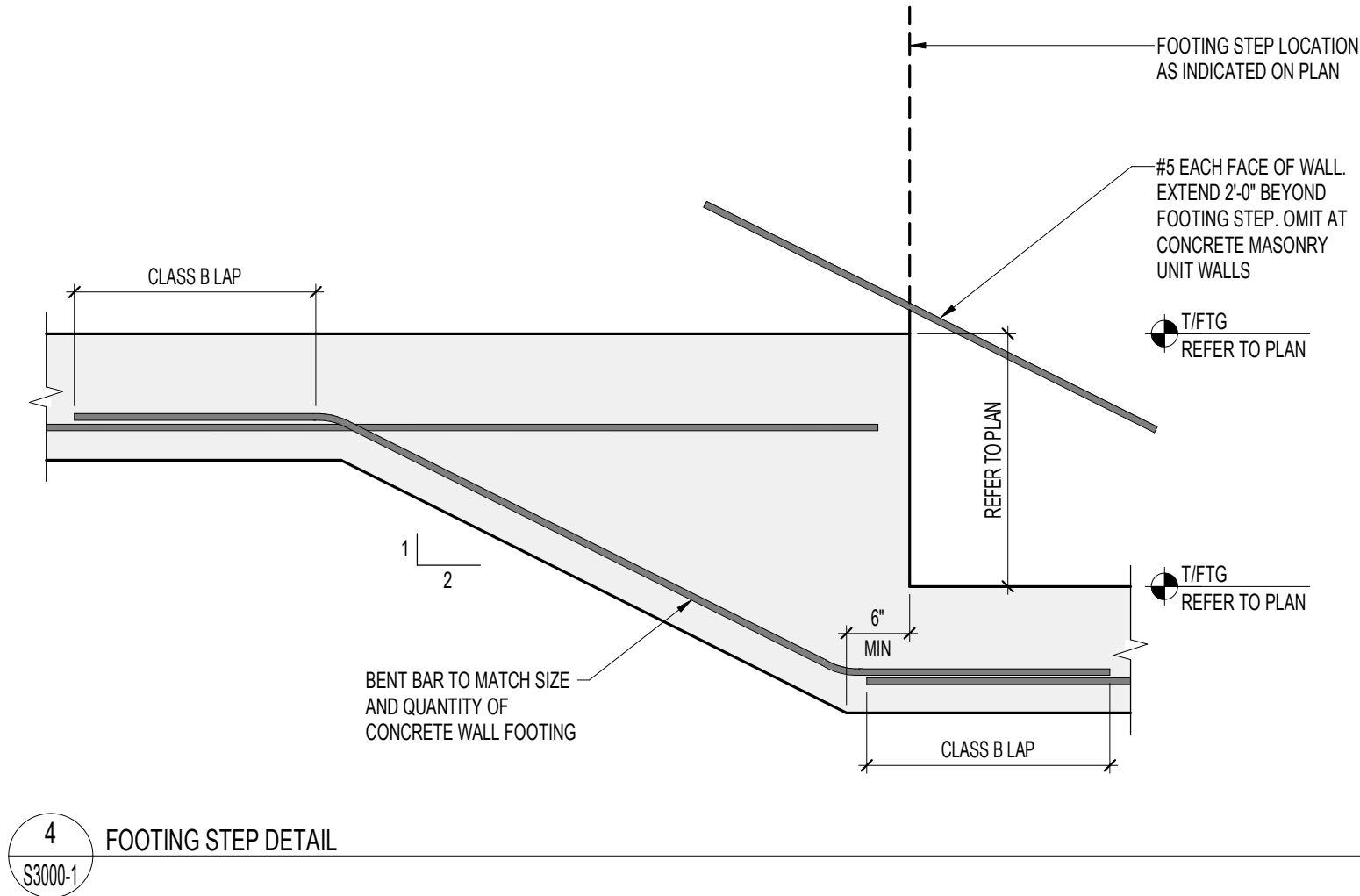
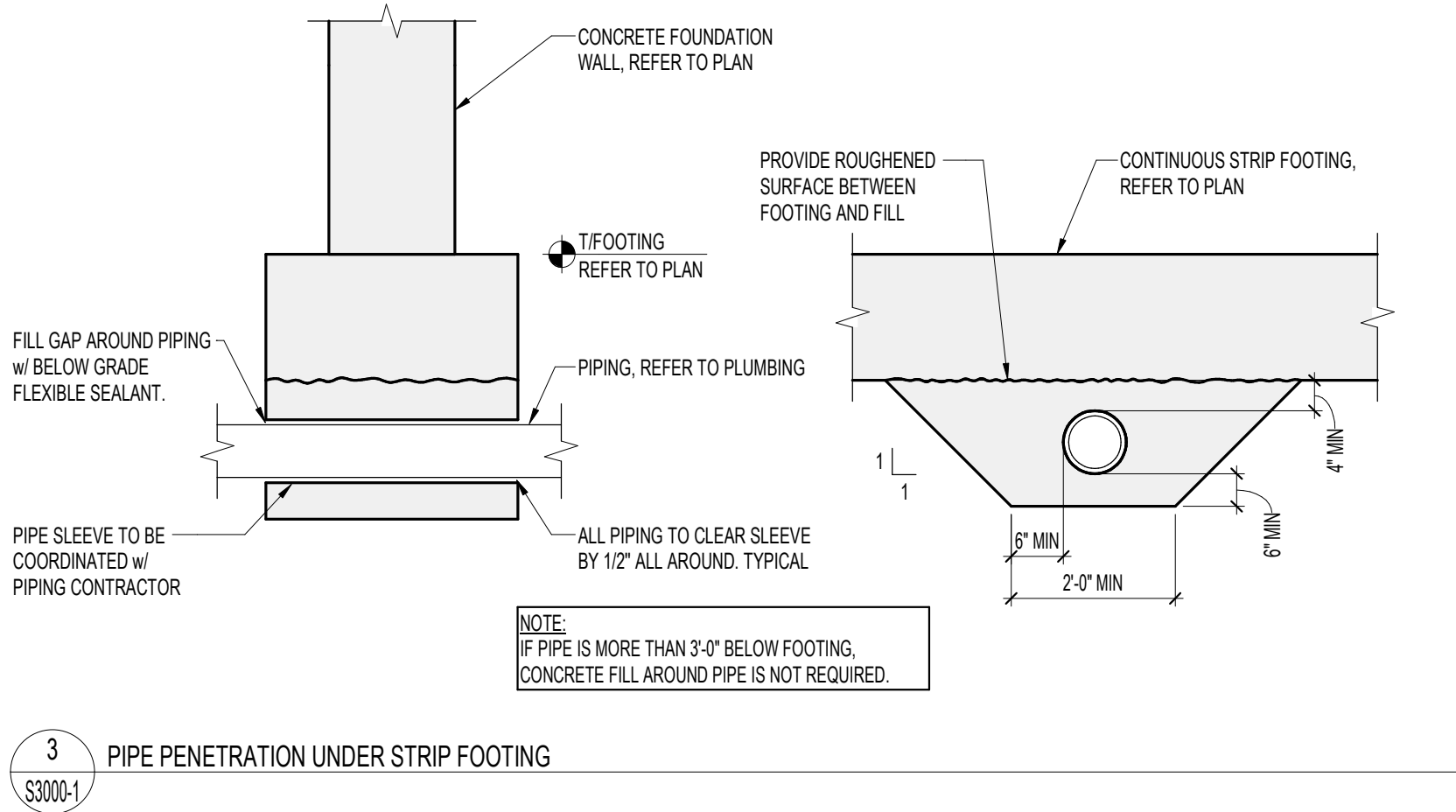
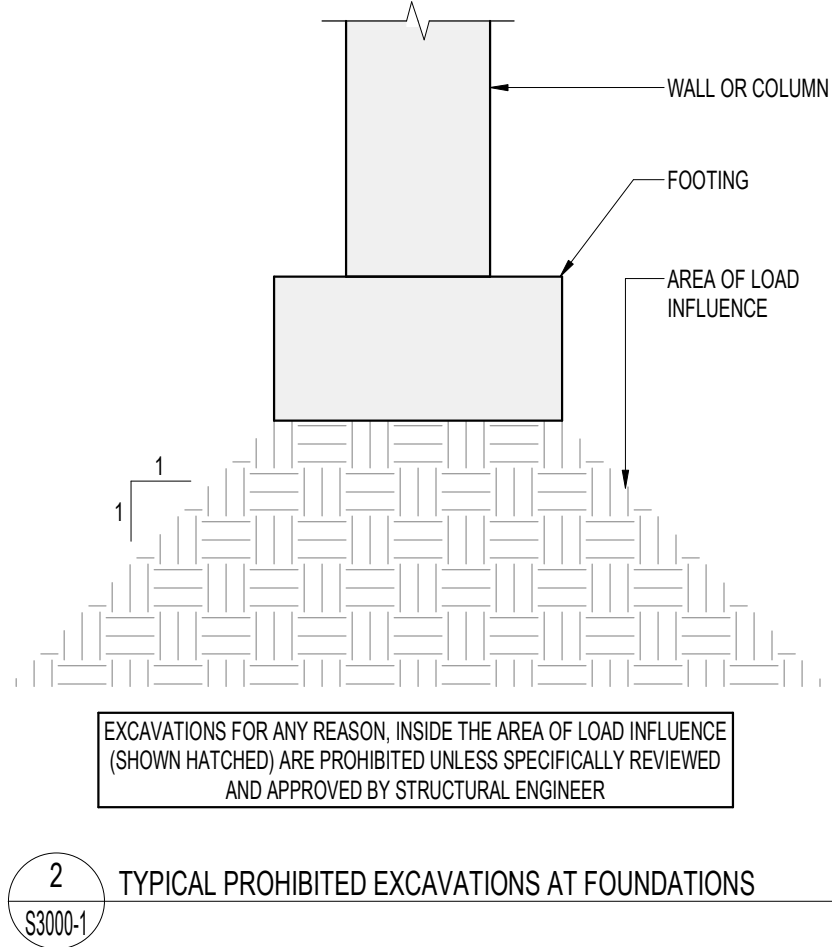
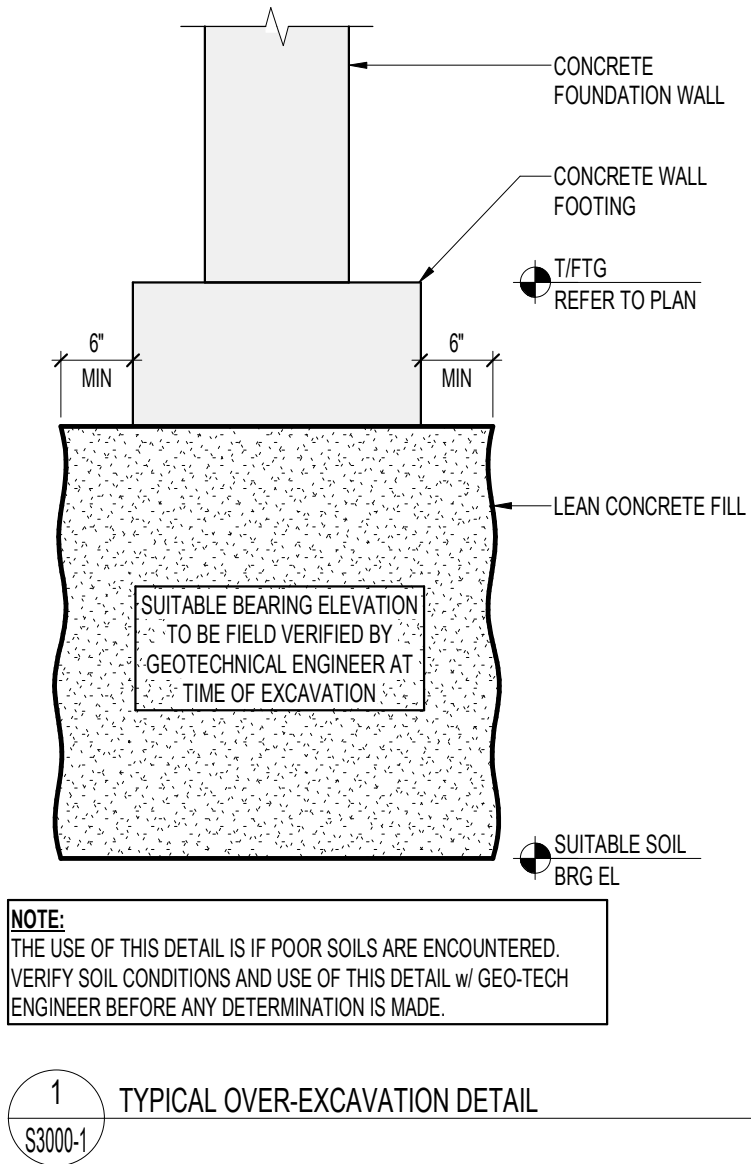
PROJECT MANAGER
PROJECT NUMBER 720448

CONCRETE SHEAR
WALL ELEVATIONS -
PHASE 1

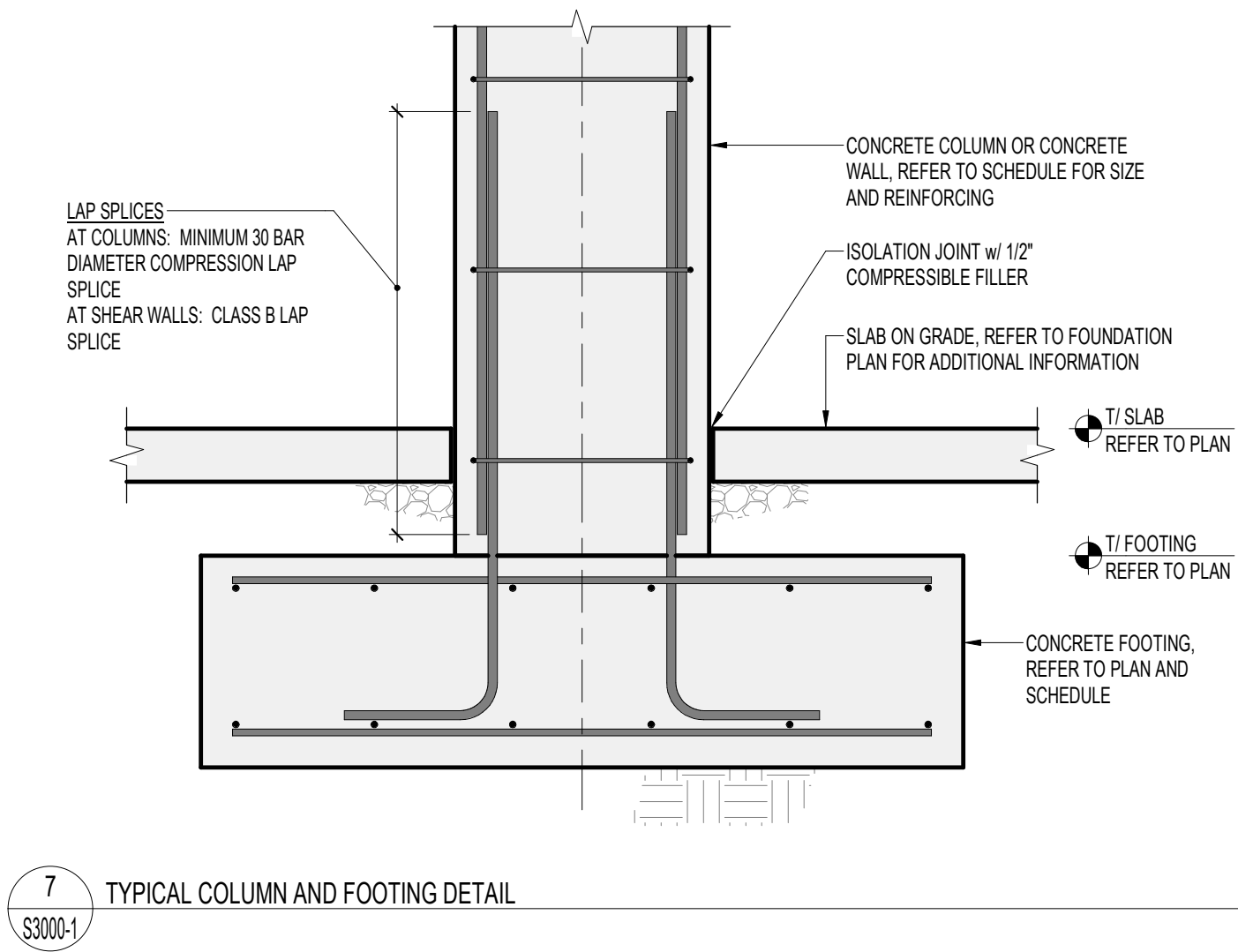
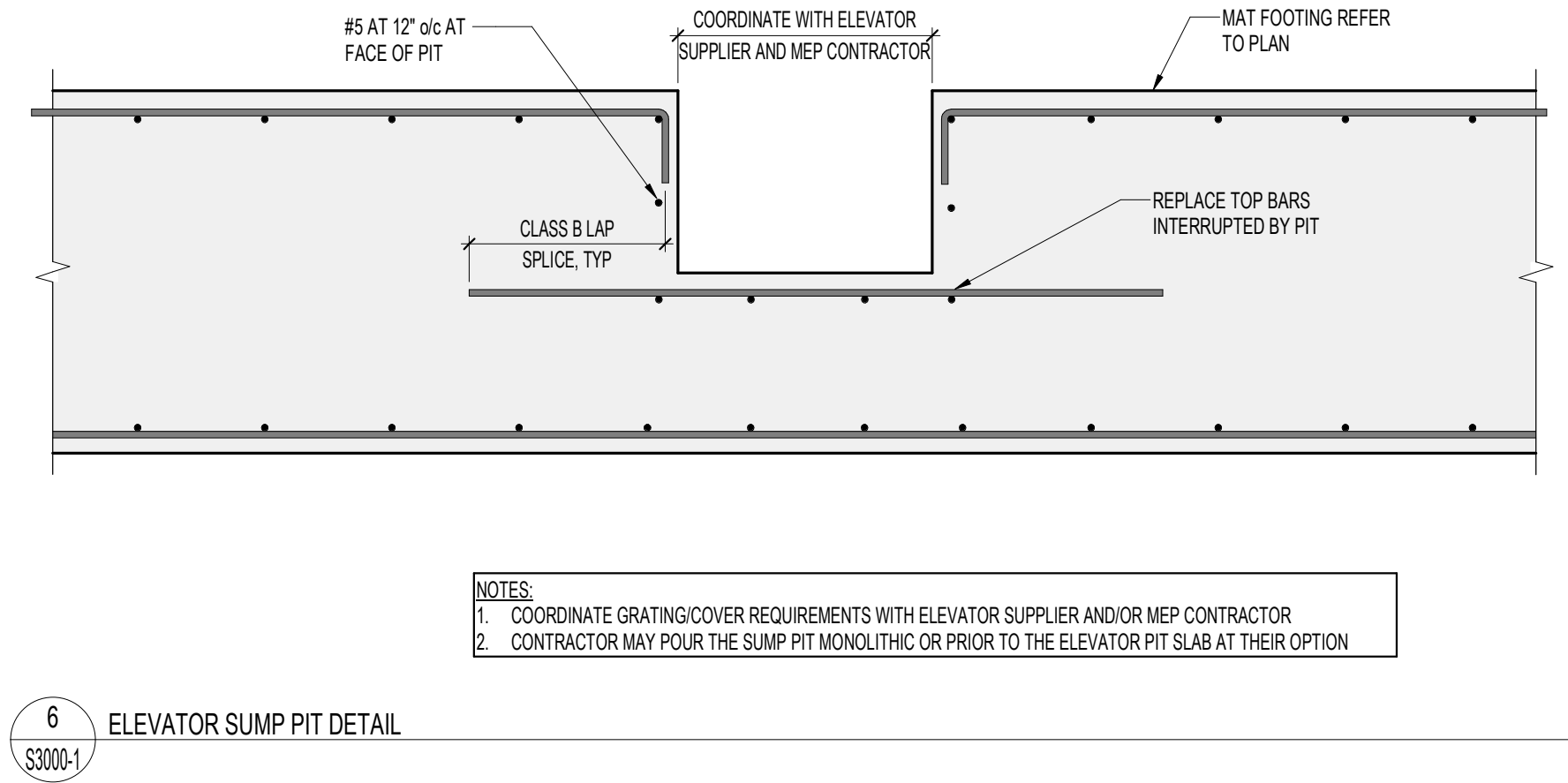
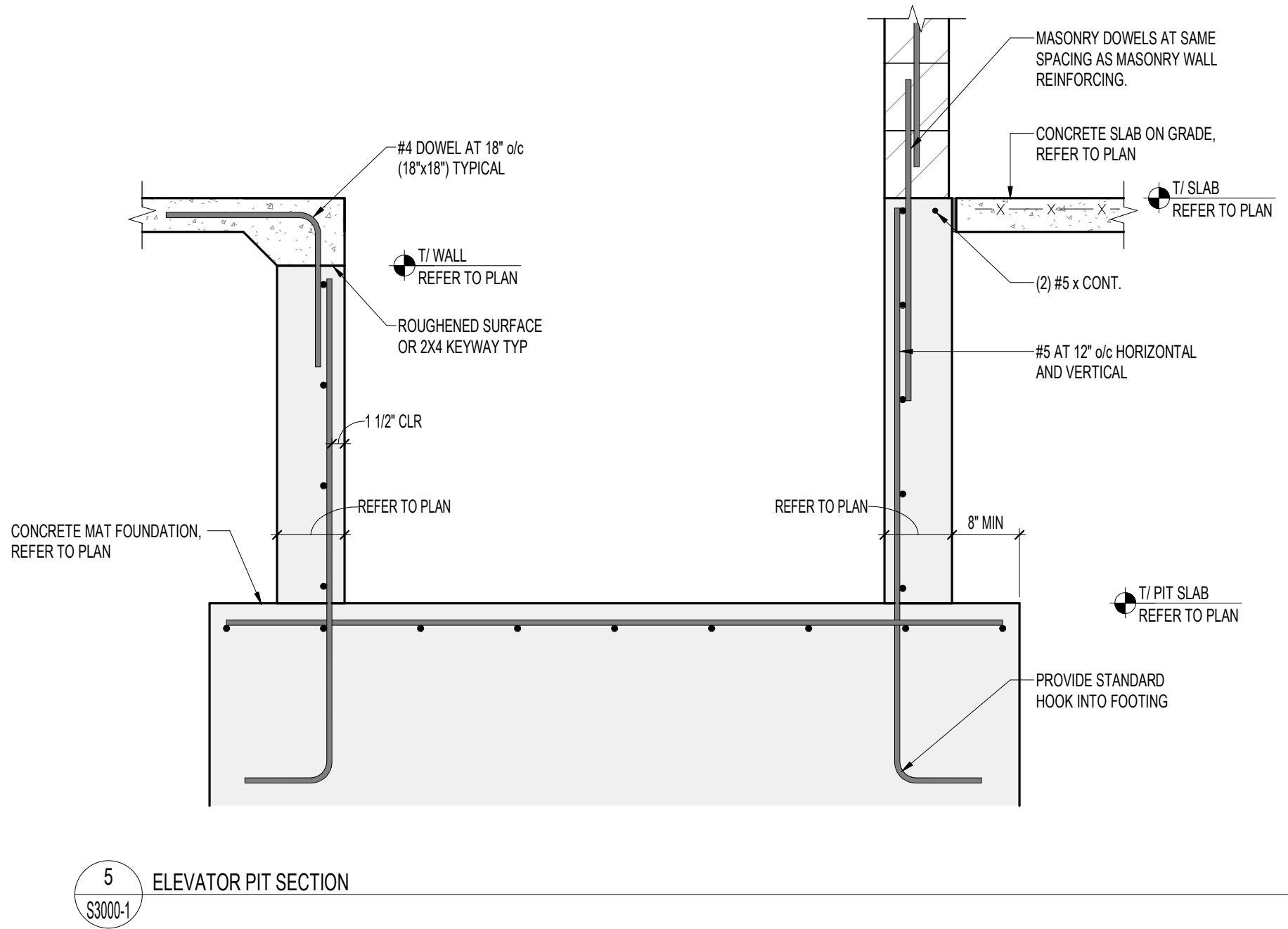
S2010-1

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ISOLATED FOOTING SCHEDULE									
MARK	DIMENSIONS		THICKNESS	BOTTOM REINFORCING		TOP REINFORCING		REMARKS	
	WIDTH	LENGTH		LONG	SHORT	LONG	SHORT		
F50	6'-0"	6'-0"	2'-4"	(8) #6	(8) #6				
F70	7'-0"	7'-0"	2'-6"	(11) #6	(11) #6				
F80	8'-0"	8'-0"	2'-11"	(15) #6	(15) #6				
F90	9'-0"	9'-0"	3'-3"	(14) #7	(14) #7				
F100	10'-0"	10'-0"	3'-7"	(10) #9	(10) #9				
F110	11'-0"	11'-0"	3'-11"	(8) #11	(8) #11				
F120	12'-0"	12'-0"	4'-3"	(10) #11	(10) #11				
F130	13'-0"	13'-0"	4'-7"	(11) #11	(11) #11				
F140	14'-0"	14'-0"	4'-11"	(13) #11	(13) #11				
F150	15'-0"	15'-0"	5'-3"	(15) #11	(15) #11				
F160	16'-0"	16'-0"	5'-6"	(17) #11	(17) #11				
ISOLATED FOOTING SCHEDULE NOTES: 1. REFER TO STRUCTURAL NOTES SHEET FOR MINIMUM COVER REQUIREMENTS. 2. REFER TO FOUNDATION PLAN FOR TOP OF FOOTING ELEVATIONS. 3. REFER TO FOUNDATION AND EARTHWORK GENERAL NOTES AND DESIGN CRITERIA FOR ADDITIONAL REQUIREMENTS. 4. ALL LAPS IN STEEL REINFORCING SHALL BE CLASS "B" LAP SPLICES UNLESS NOTED OTHERWISE.									



CONTINUOUS FOOTING SCHEDULE					
MARK	DIMENSIONS		REINFORCEMENT		REMARKS
	WIDTH (X CONT)	THICKNESS	LONGITUDINAL	TRANSVERSE	
W20	2'-0"	1'-0"	(2) #5		
W30	3'-0"	1'-0"	(3) #5		
W60	6'-0"	1'-2"	(6) #5	#5 @ 12" o.c.	
CONTINUOUS FOOTING SCHEDULE NOTES: 1. REFER TO STRUCTURAL NOTES SHEET FOR MINIMUM COVER REQUIREMENTS. 2. REFER TO FOUNDATION PLAN FOR TOP OF FOOTING ELEVATIONS. 3. REFER TO FOUNDATION AND EARTHWORK GENERAL NOTES AND DESIGN CRITERIA FOR ADDITIONAL REQUIREMENTS. 4. ALL LAPS IN STEEL REINFORCING SHALL BE CLASS "B" LAP SPLICES UNLESS NOTED OTHERWISE.					



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PE Project: 22019

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN

SHEET INFORMATION

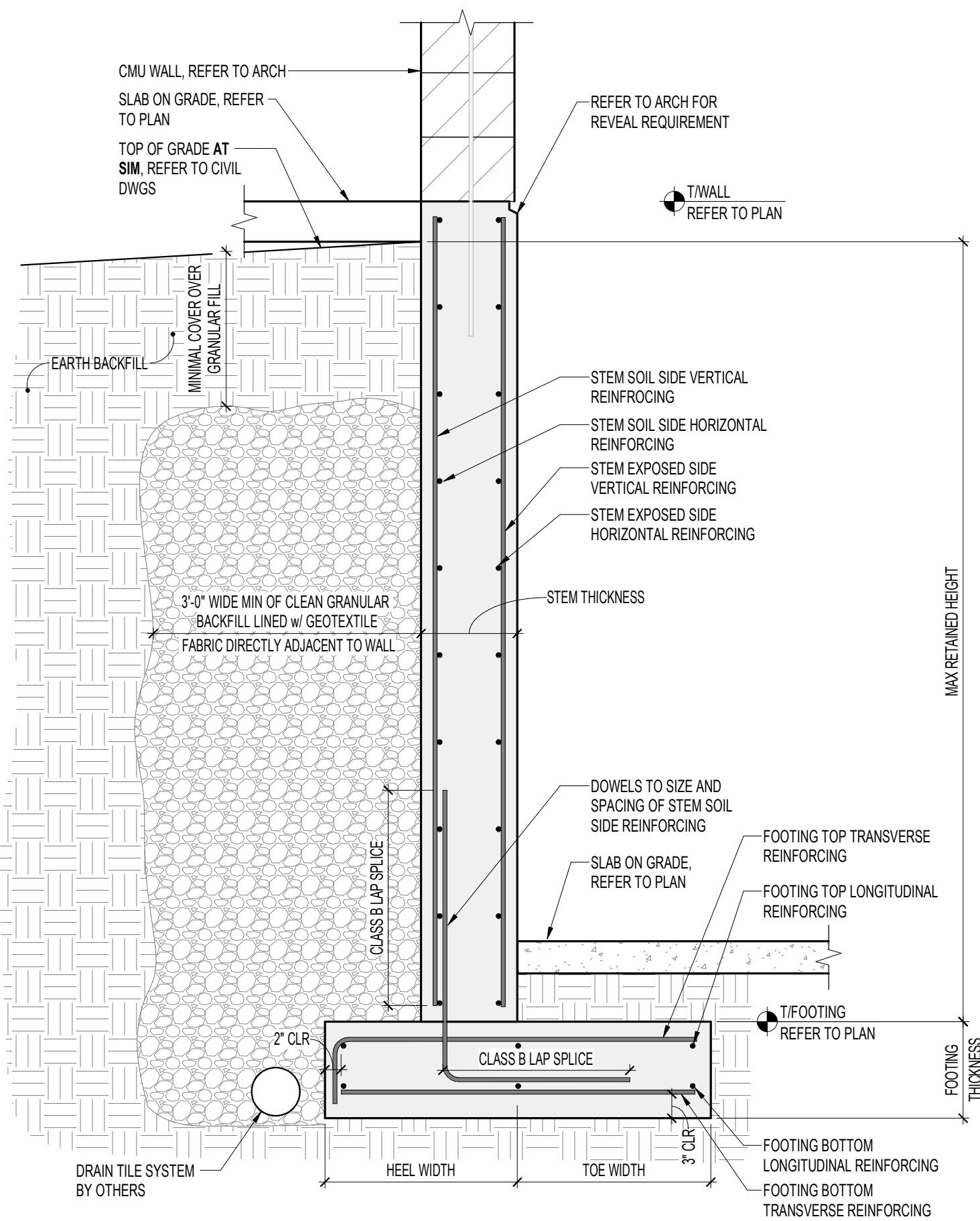
PROJECT MANAGER

PROJECT NUMBER720448

FOOTING
SCHEDULE AND
DETAILS

S3000-1

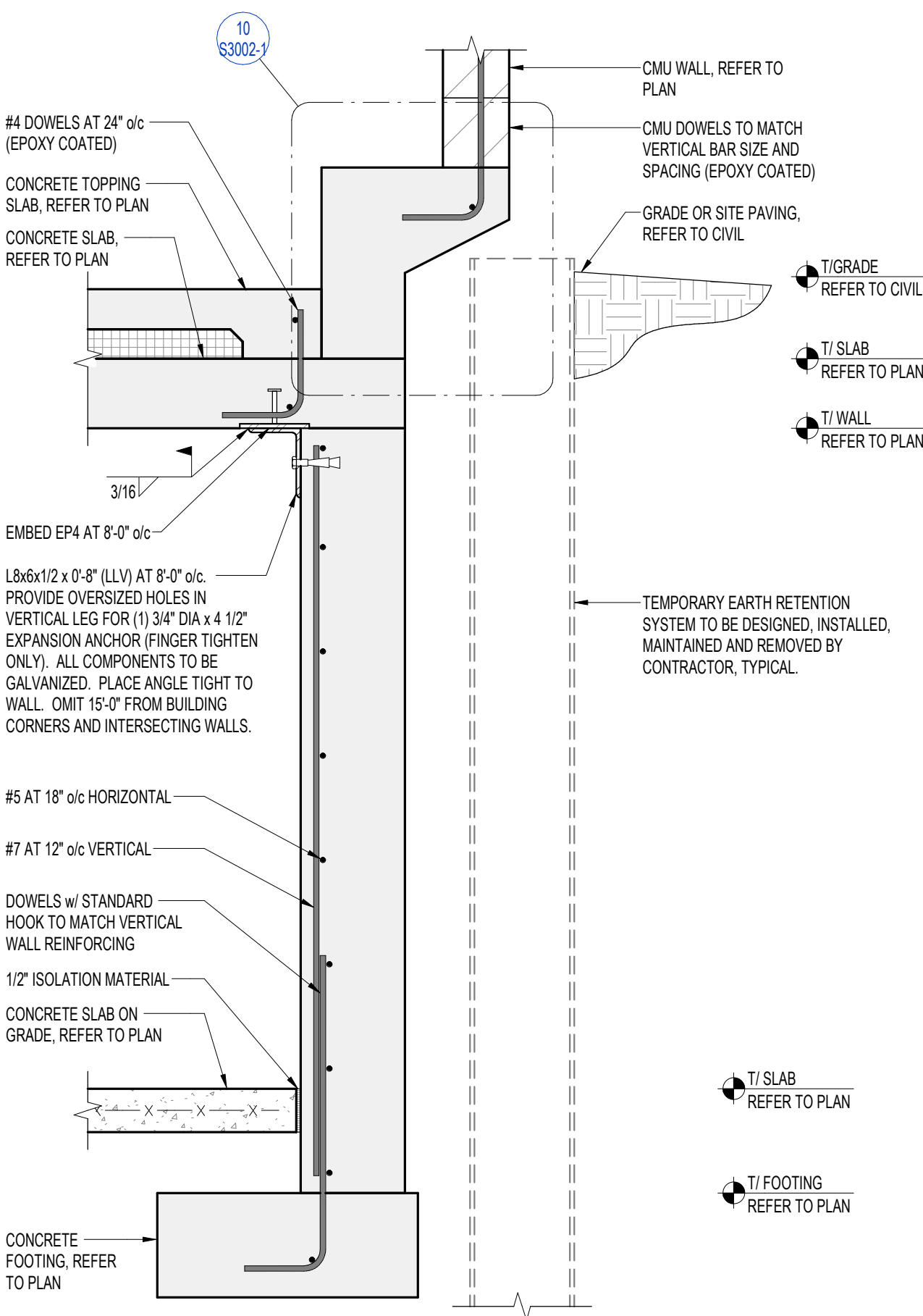
© 2022 Epstein Uhen Architects, Inc.



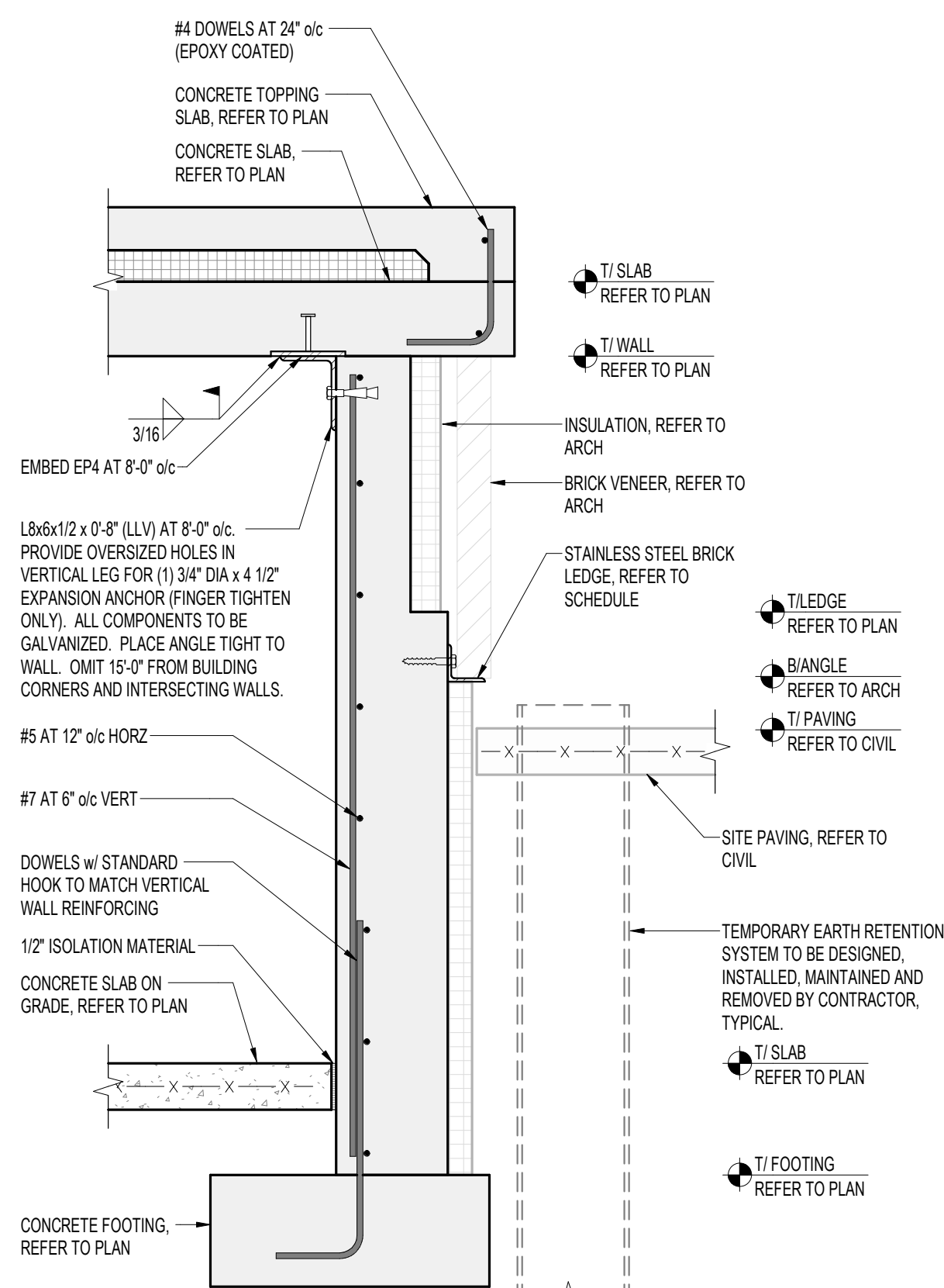
RETAINING WALL SCHEDULE			
RETAINING WALL MARK	RW-1		
MAX RETAINED HEIGHT	6'-0"		
FOOTING THICKNESS	18"		
HEEL WIDTH	3'-6"		
TOE WIDTH	2'-6"		
FOOTING BOTTOM TRANSVERSE REINFORCING	#5 AT 12" o/c		
FOOTING BOTTOM LONGITUDINAL REINFORCING	(4) #5 x CONT		
FOOTING TOP LONGITUDINAL REINFORCING	(4) #5 x CONT		
FOOTING TOP TRANSVERSE REINFORCING	#5 AT 12" o/c		
STEM THICKNESS, UNO	REFER TO PLAN		
STEM SOIL SIDE VERTICAL REINFORCING	#5 AT 9" o/c		
STEM SOIL SIDE HORIZONTAL REINFORCING	#5 AT 12" o/c x CONT		
STEM EXPOSED SIDE VERTICAL REINFORCING	NOT REQUIRED		
STEM EXPOSED SIDE HORIZONTAL REINFORCING	NOT REQUIRED		

SCHEDULE NOTES:
1. REFER TO GENERAL NOTES ON SHEET S0.1 FOR ADDITIONAL INFORMATION & CRITERIA.
2. REFER TO FOUNDATION PLAN FOR TOP OF FOOTING & TOP OF WALL ELEVATIONS.
3. REFER TO DESIGN CRITERIA FOR SOIL DESIGN VALUES SECTION FOR NET ALLOWABLE SOIL BEARING CAPACITY.
4. ALL LAPS IN STEEL REINFORCING SHALL BE CLASS "B" LAP SPLICES UNLESS NOTED OTHERWISE.

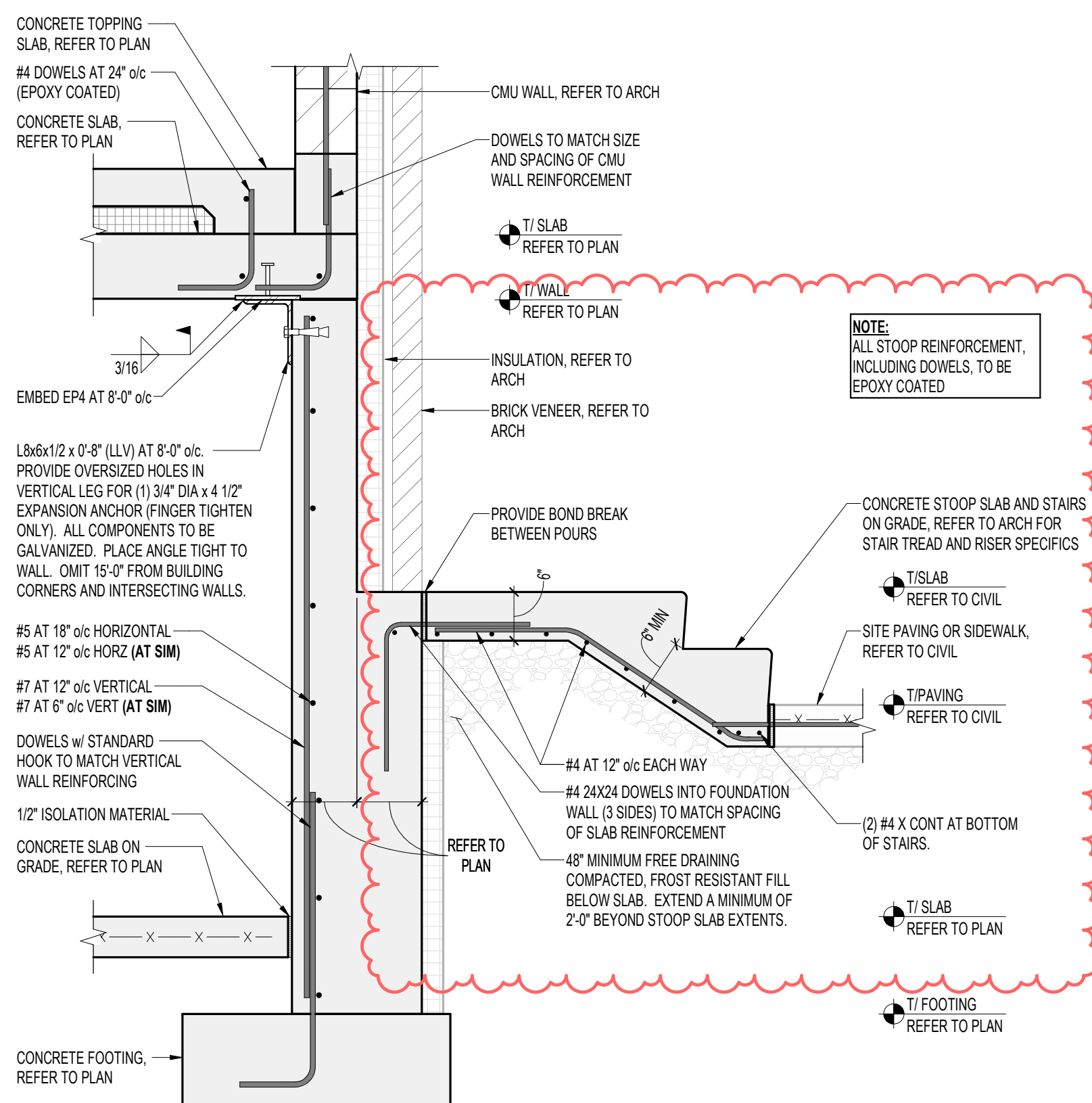
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S3002-1
RETAINING WALL DETAIL/SCHEDULE



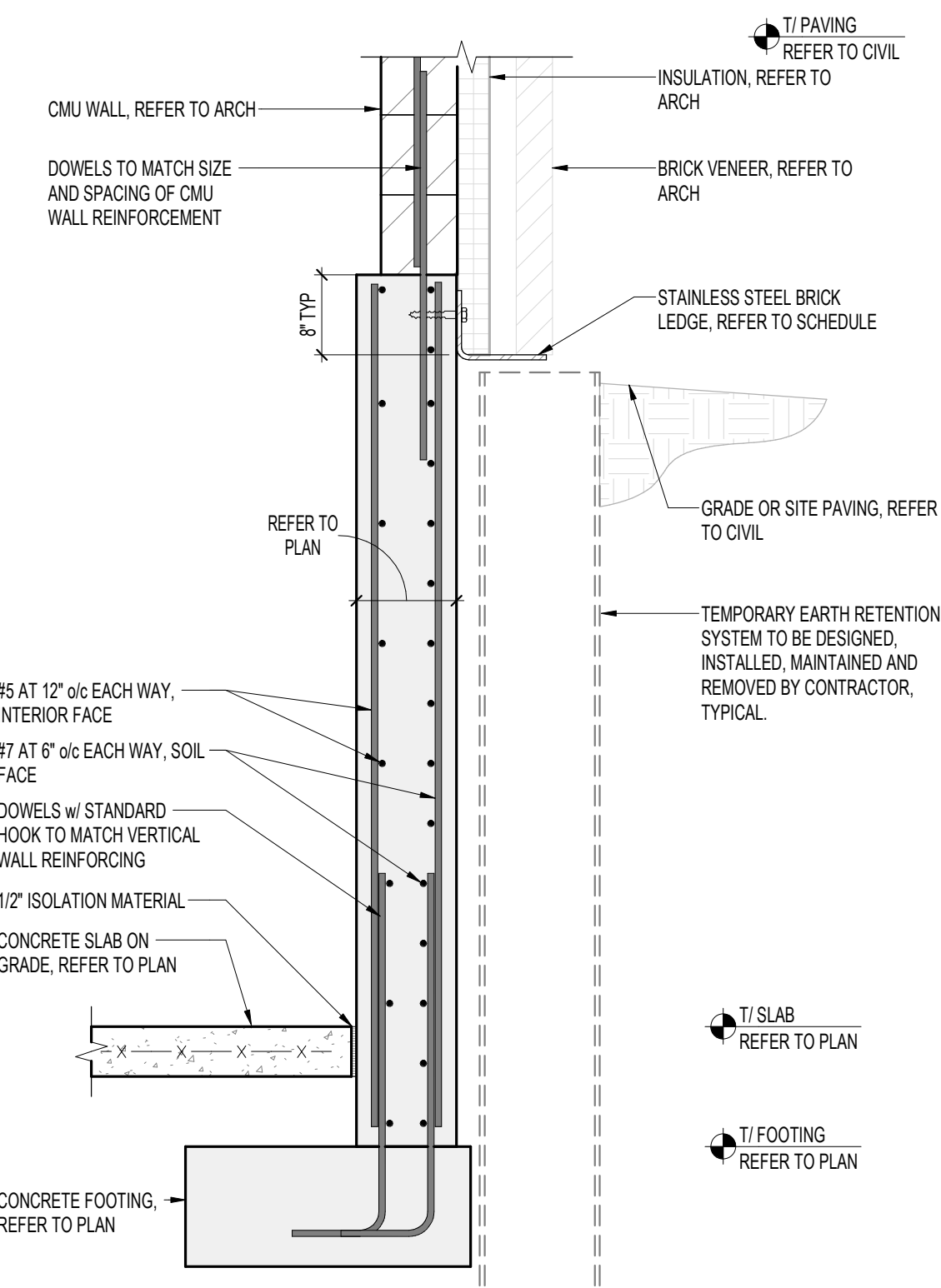
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BASEMENT WALL SECTION



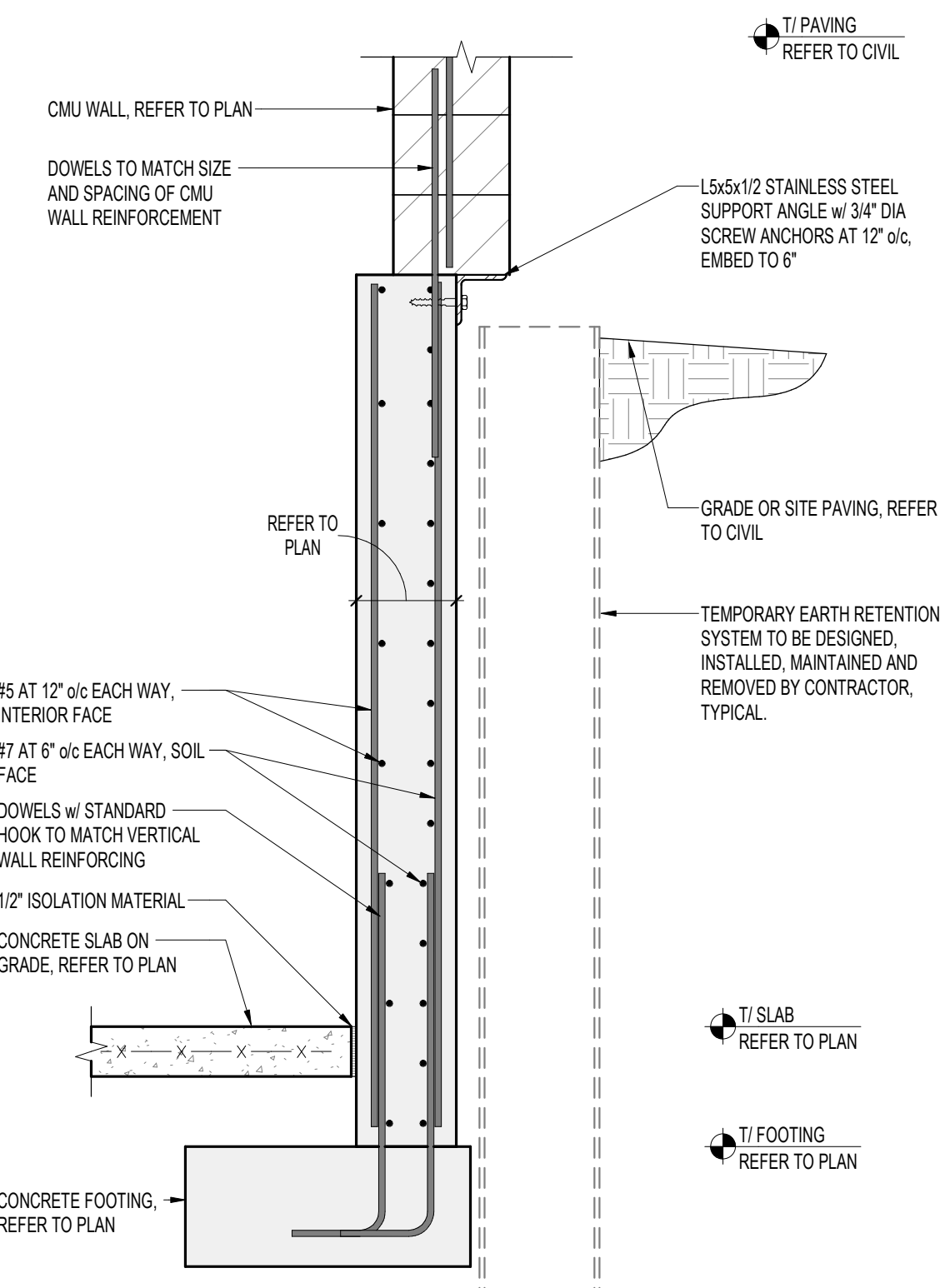
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BASEMENT WALL SECTION



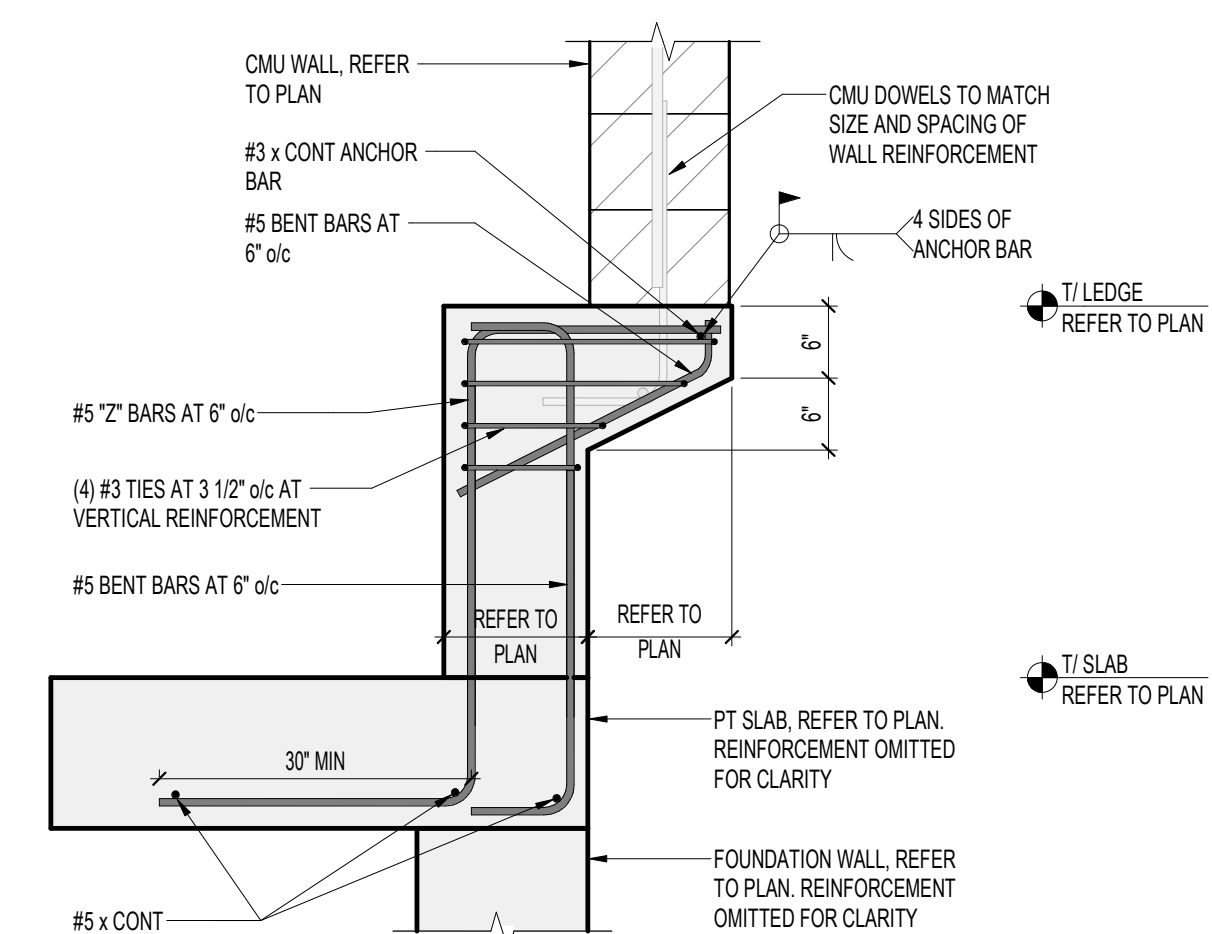
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BASEMENT WALL SECTION



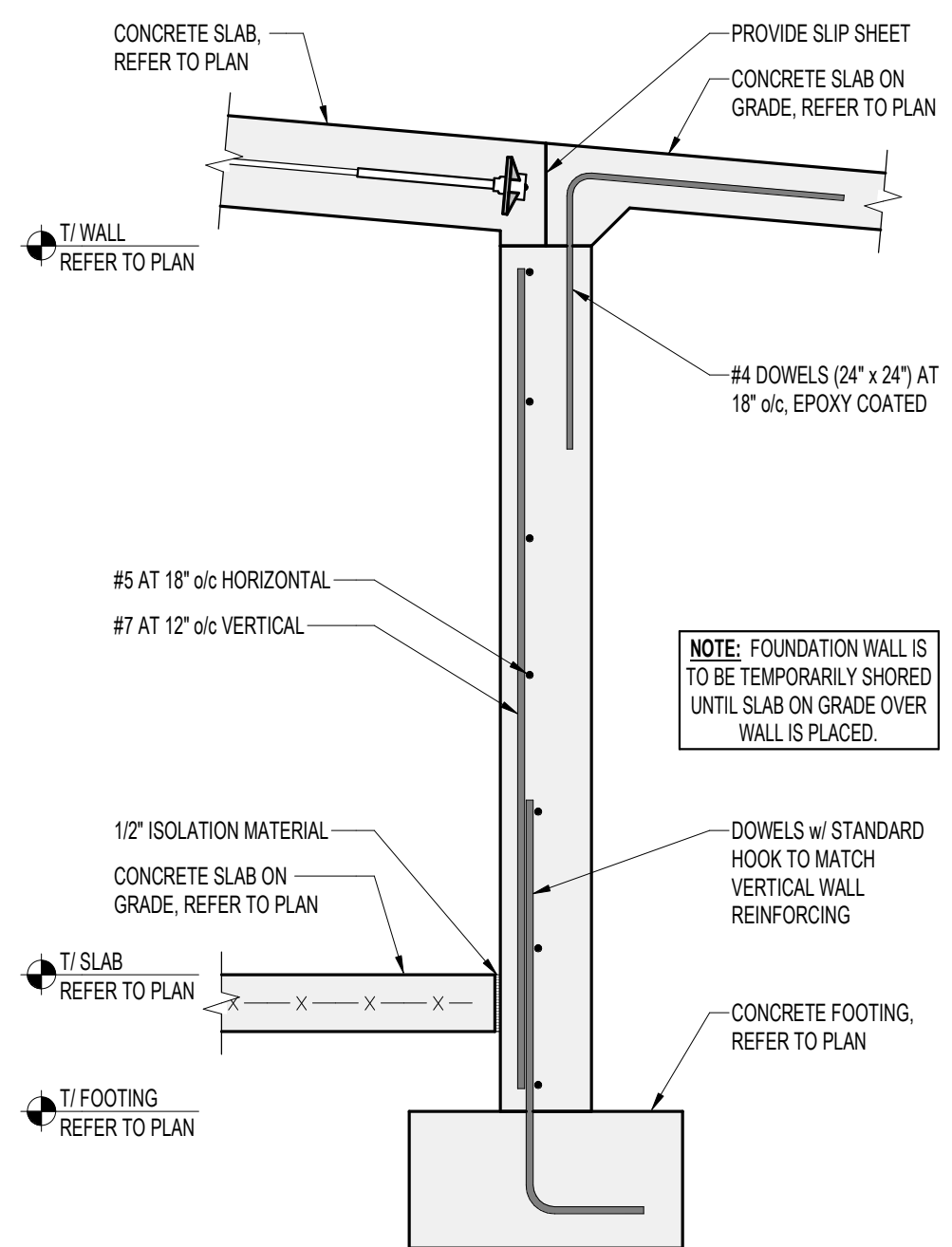
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BASEMENT WALL SECTION



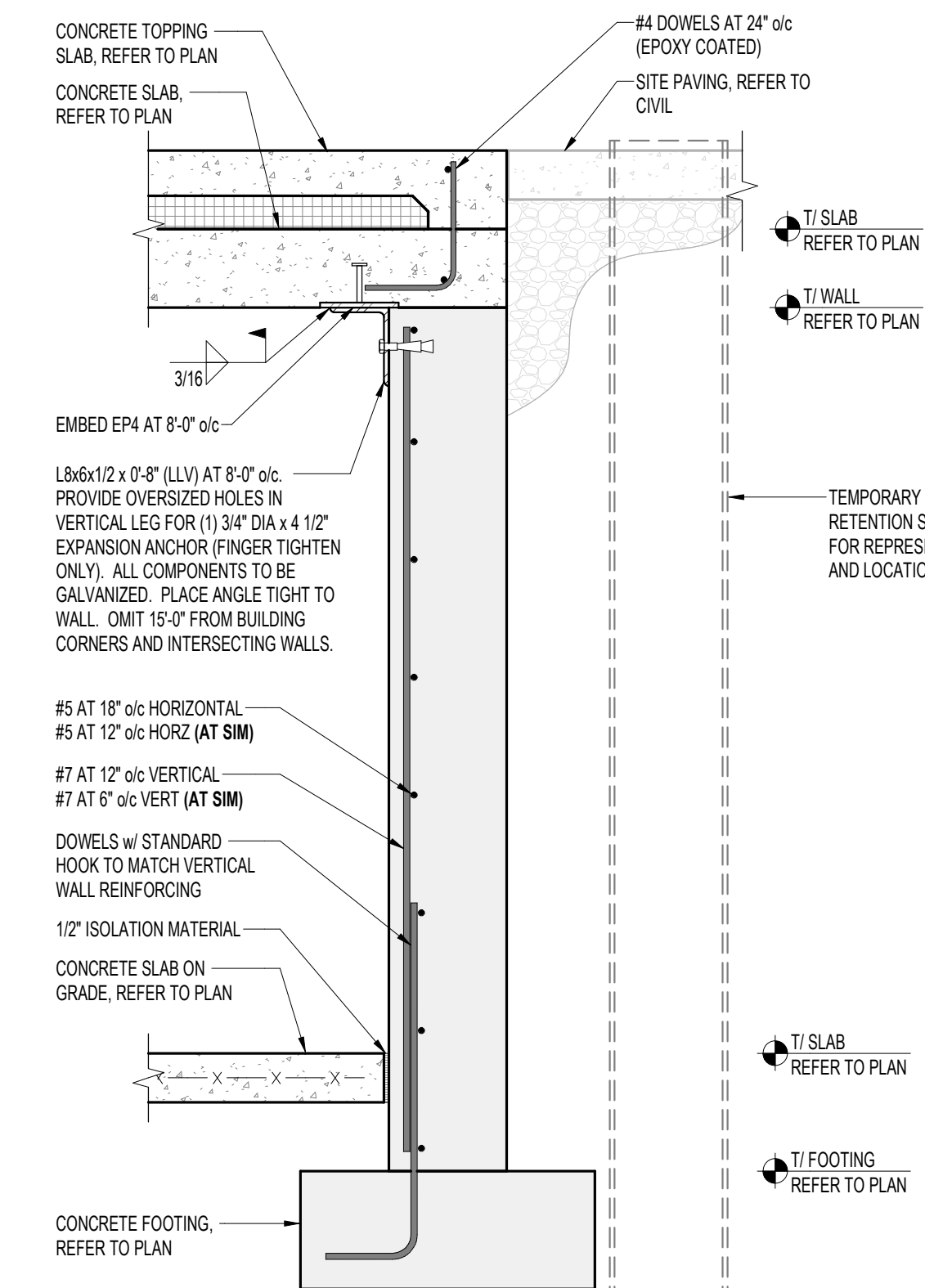
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BASEMENT WALL SECTION



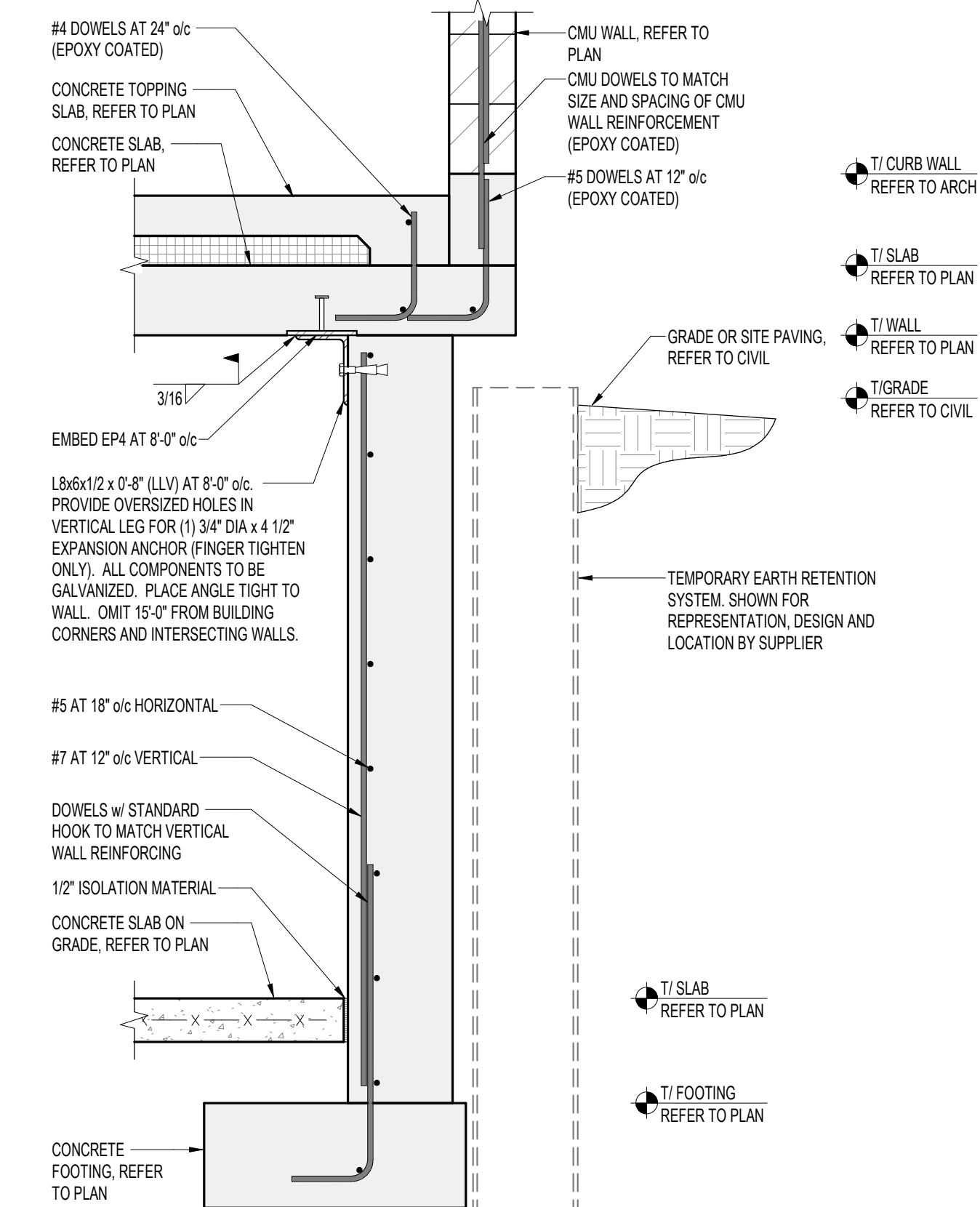
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S3002-1
CORBEL AT CONCRETE WALL



2
S3002-1
FOUNDATION WALL AT RAMP



3
S3002-1
BASEMENT WALL SECTION



4
S3002-1
BASEMENT WALL SECTION

PROJECT INFORMATION
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

415 N. LAKE STREET
MADISON, WI 53715

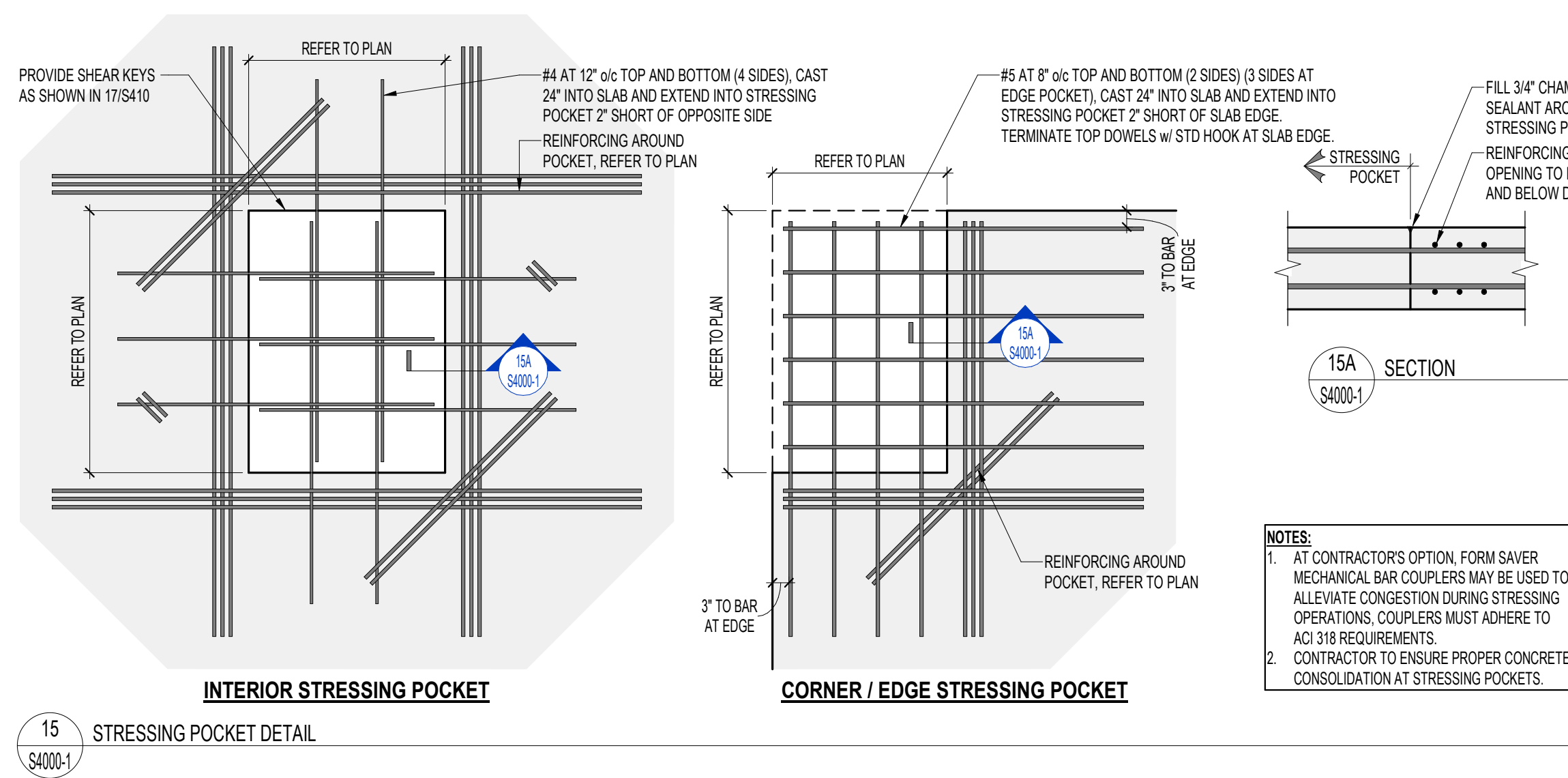
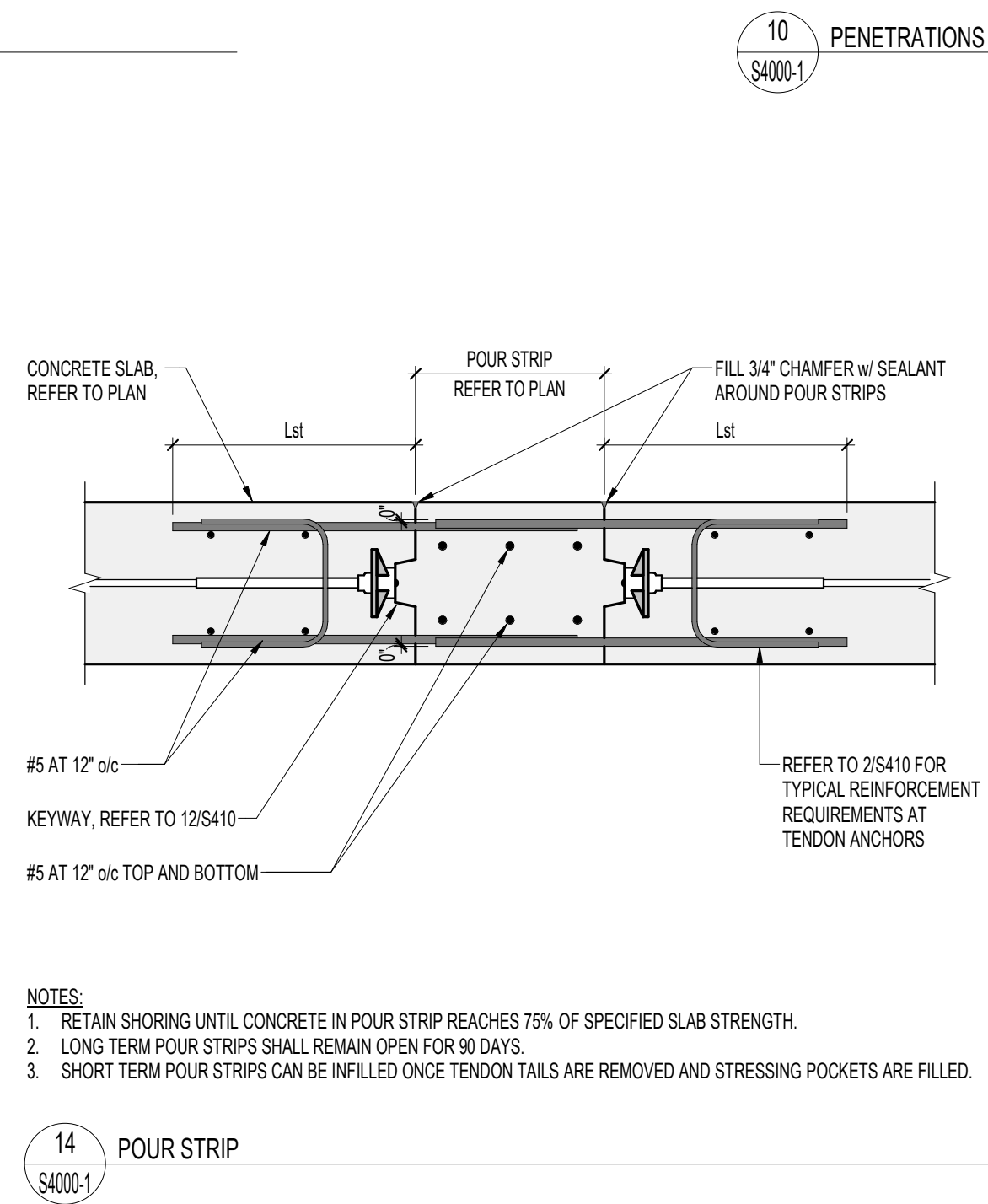
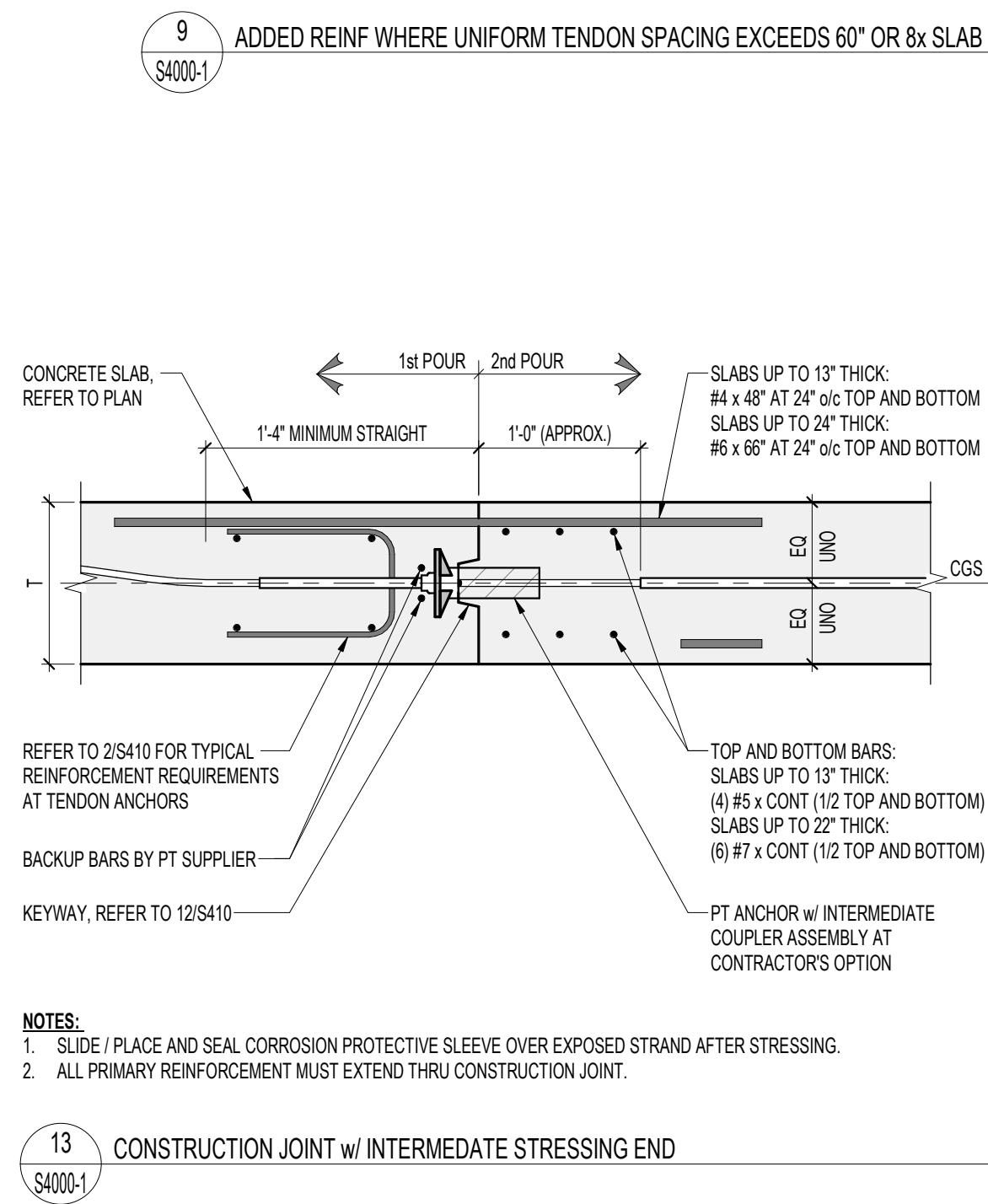
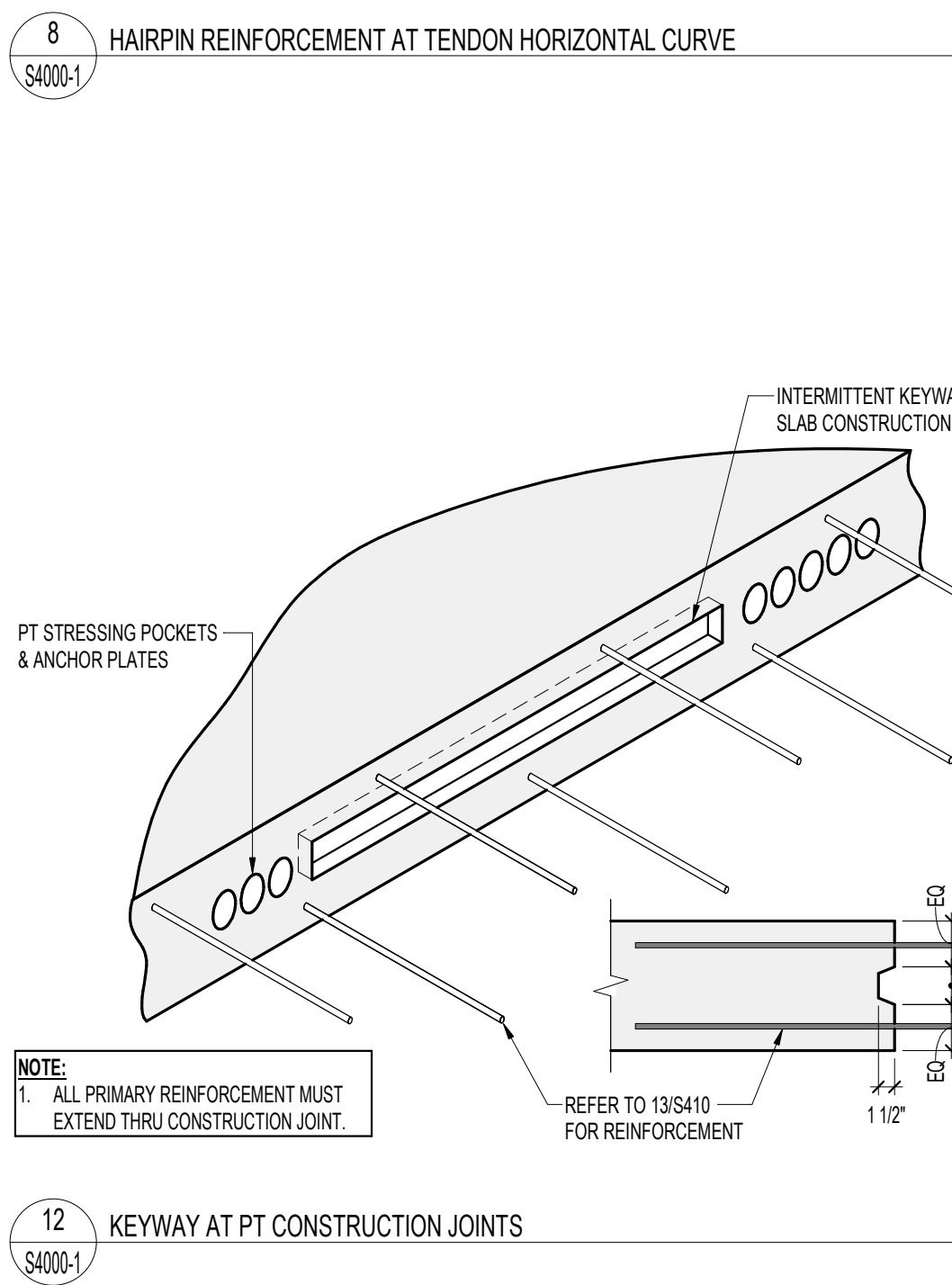
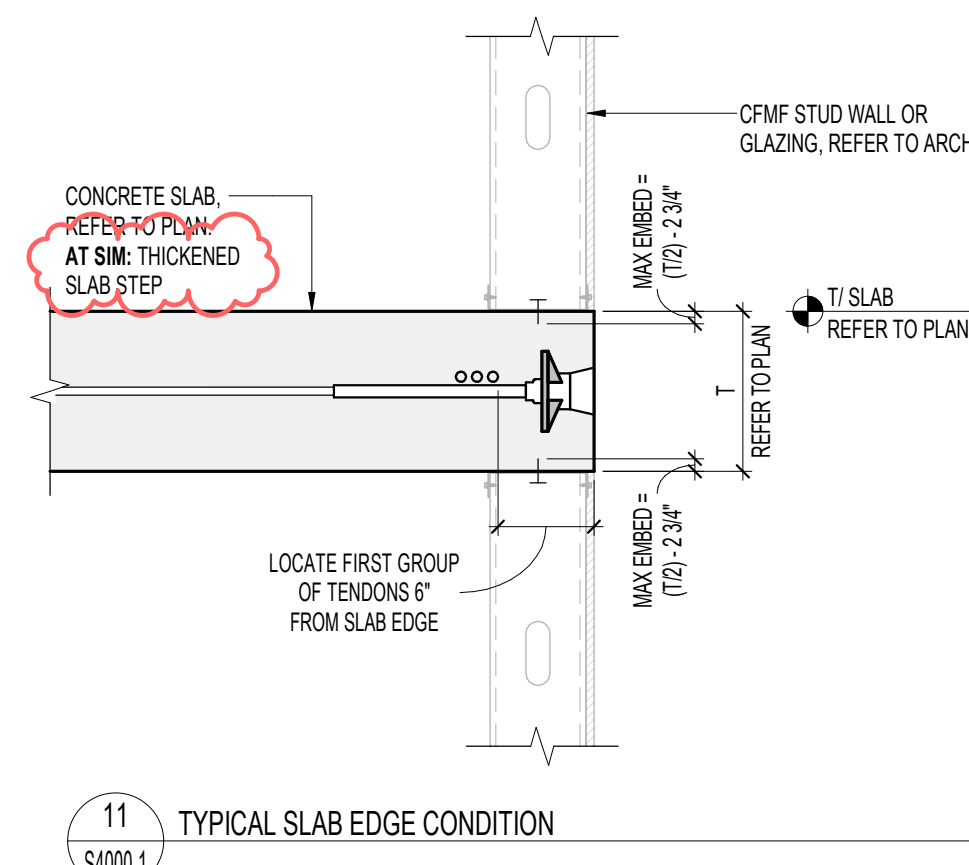
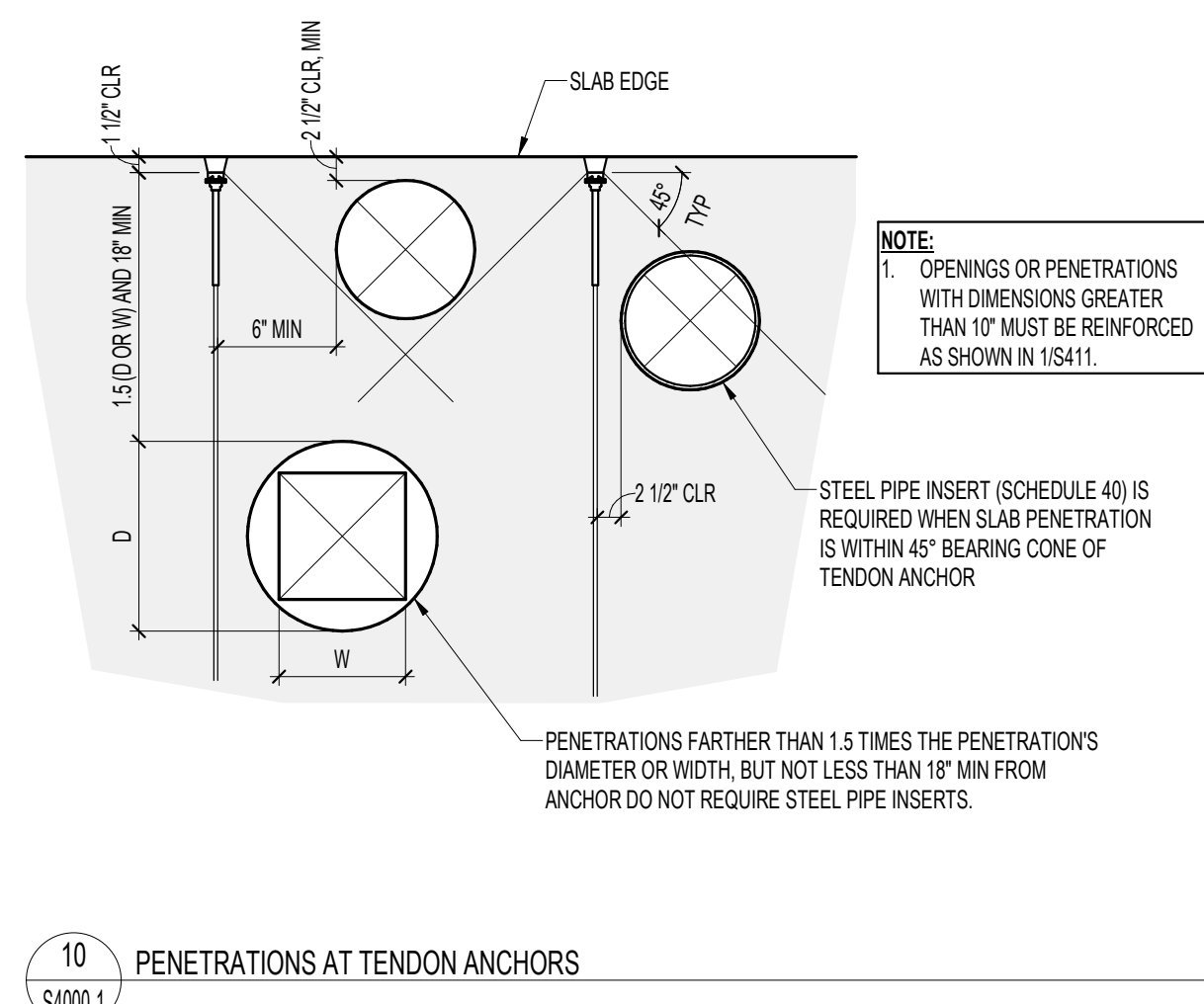
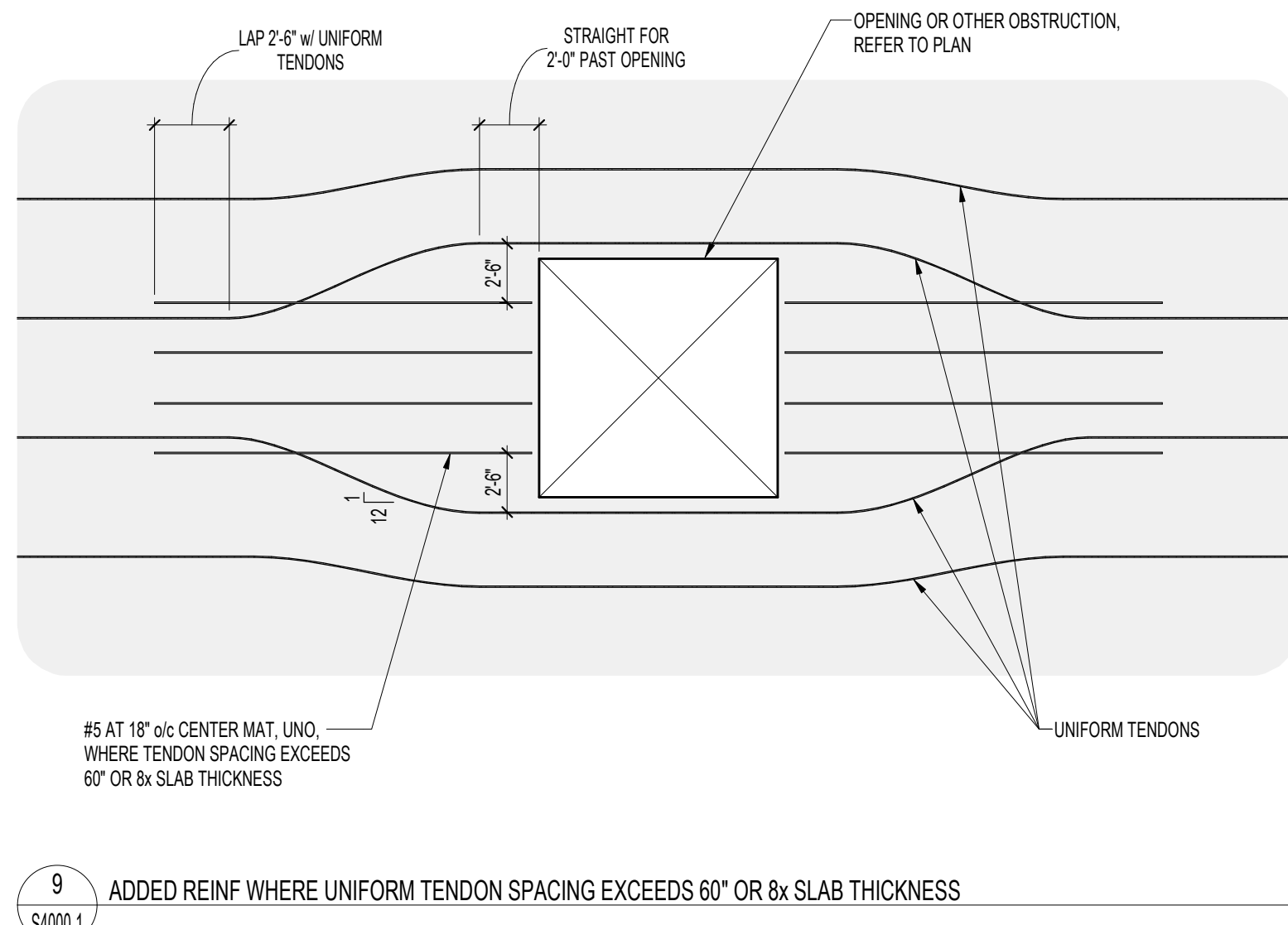
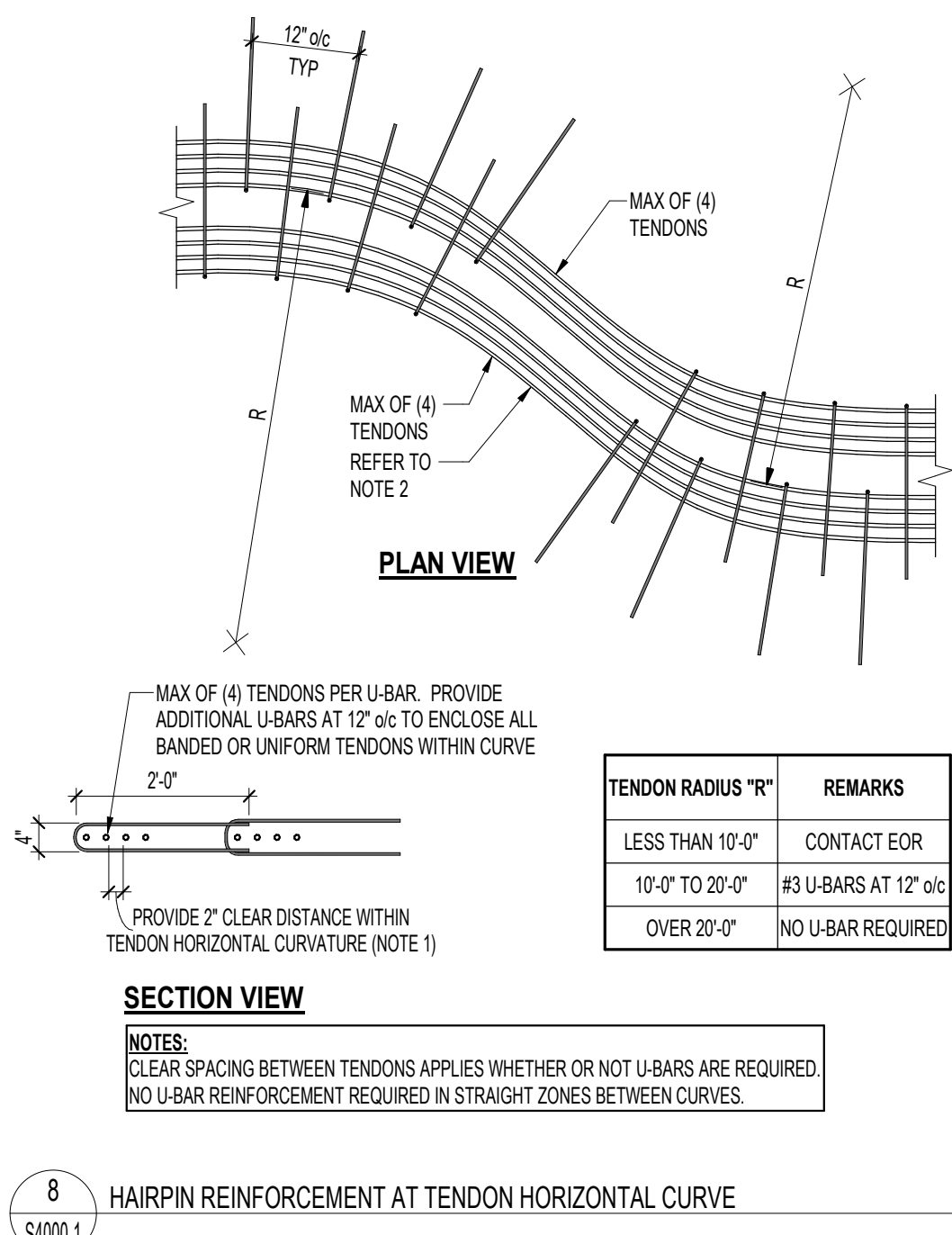
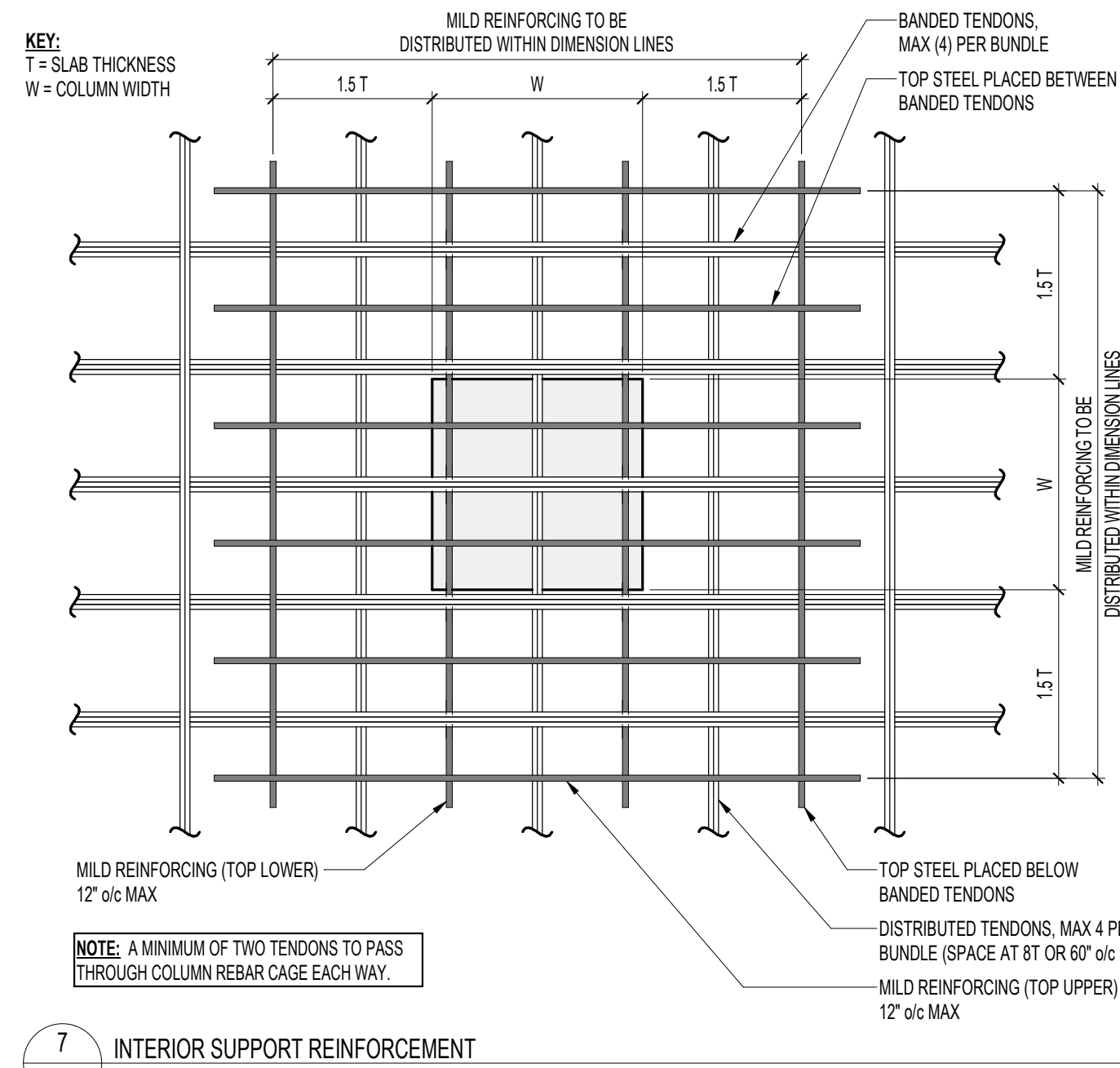
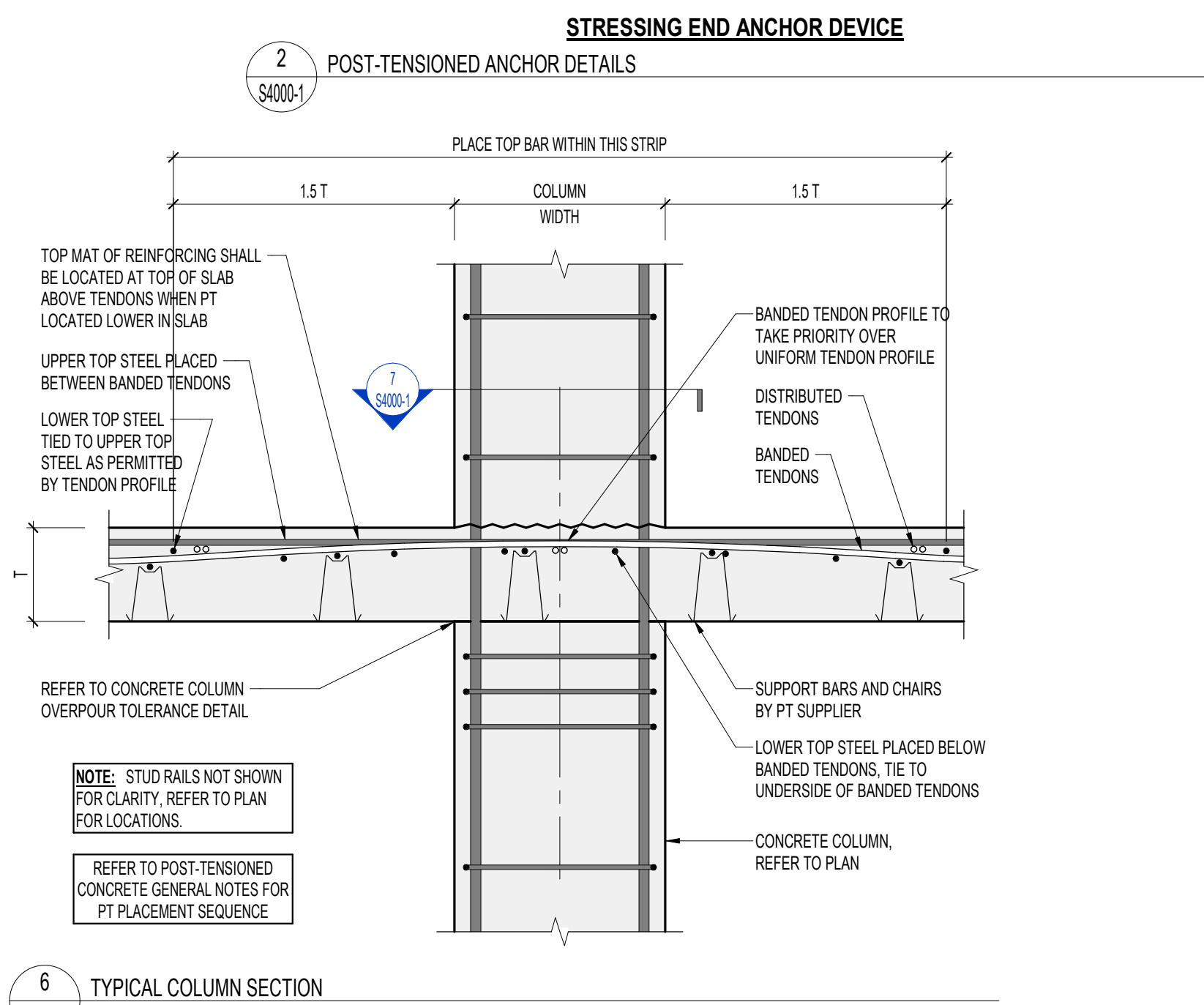
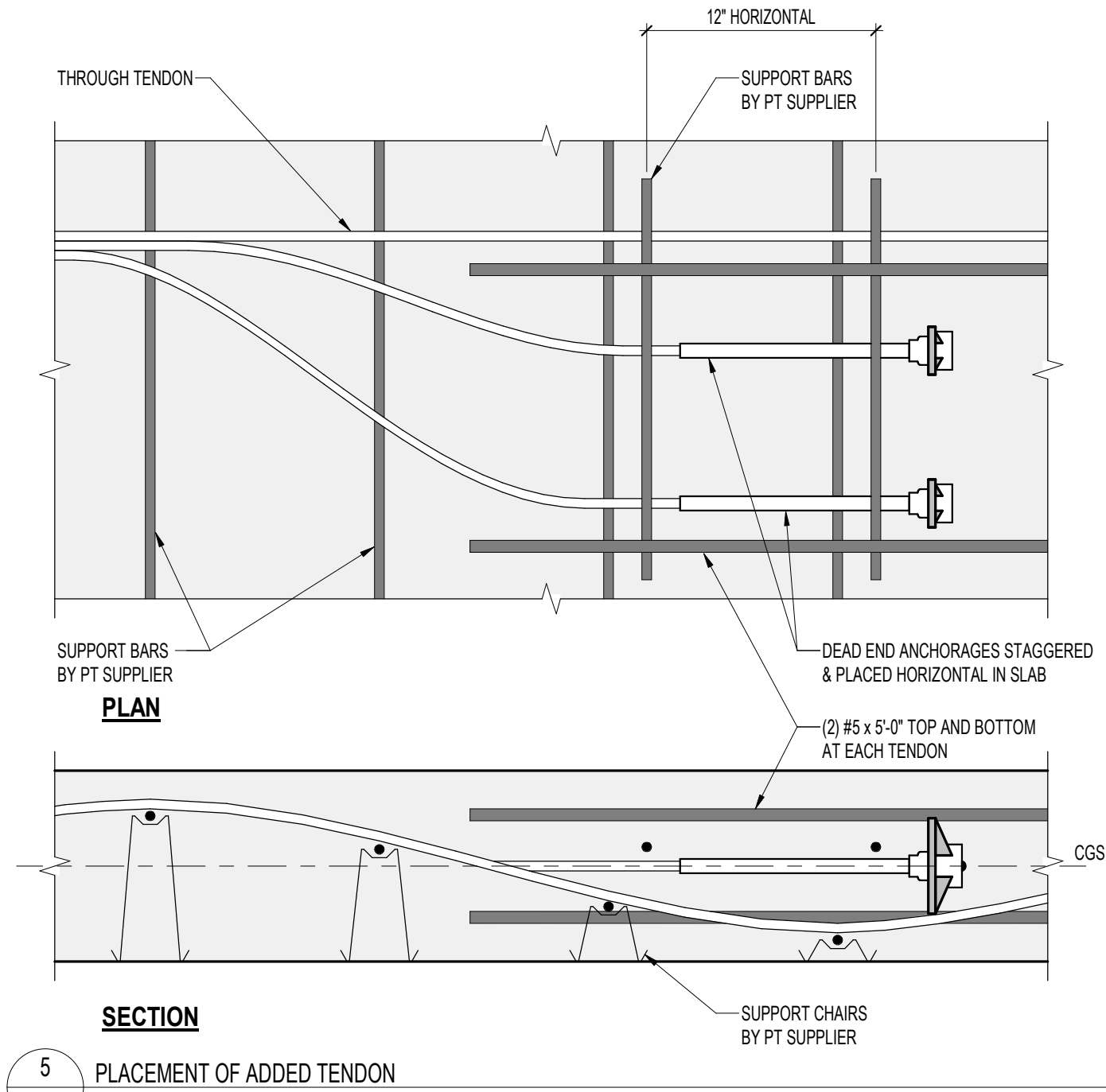
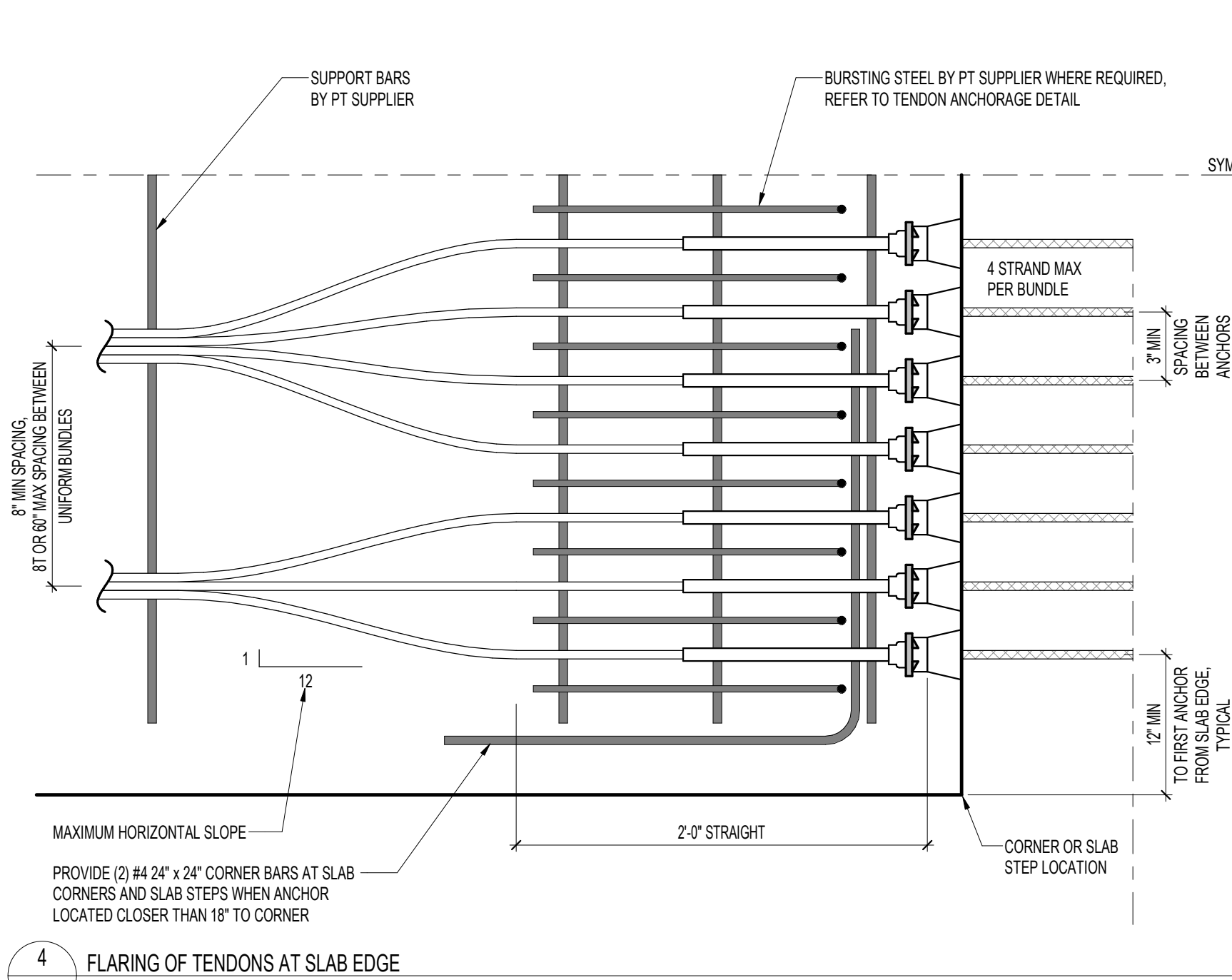
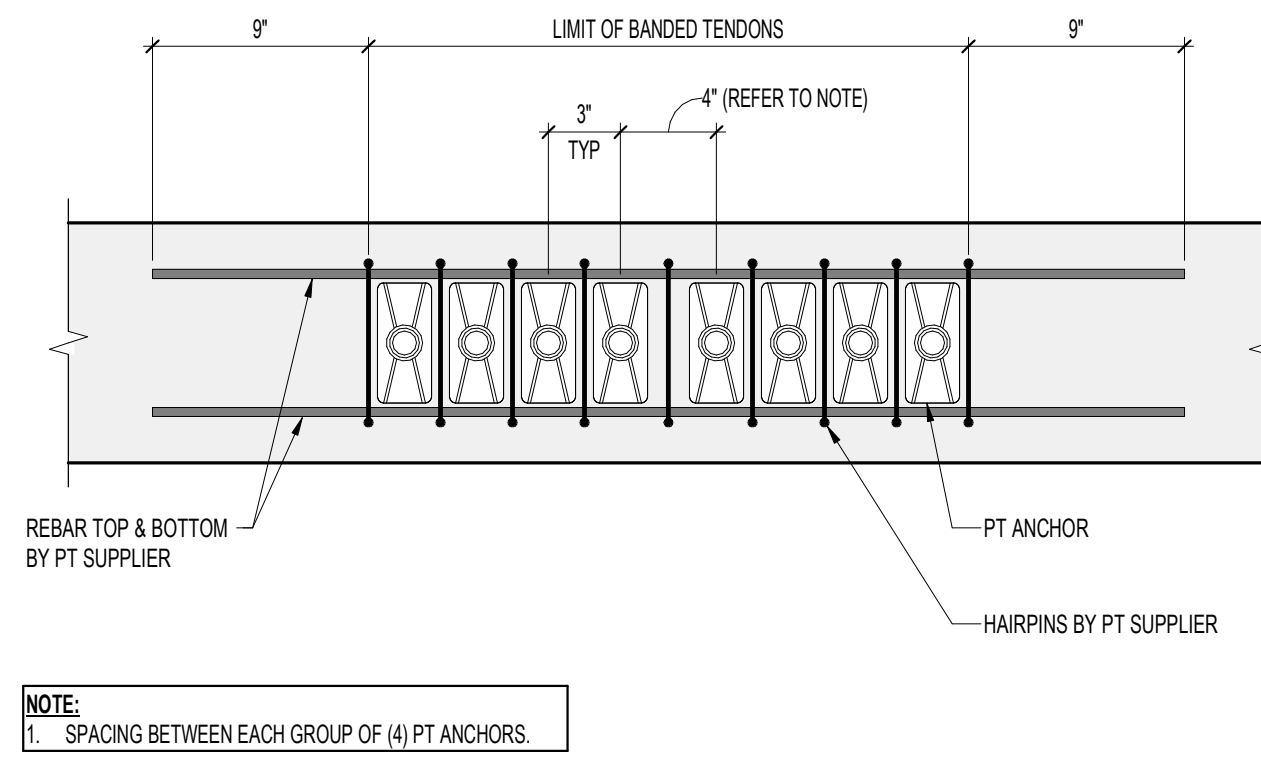
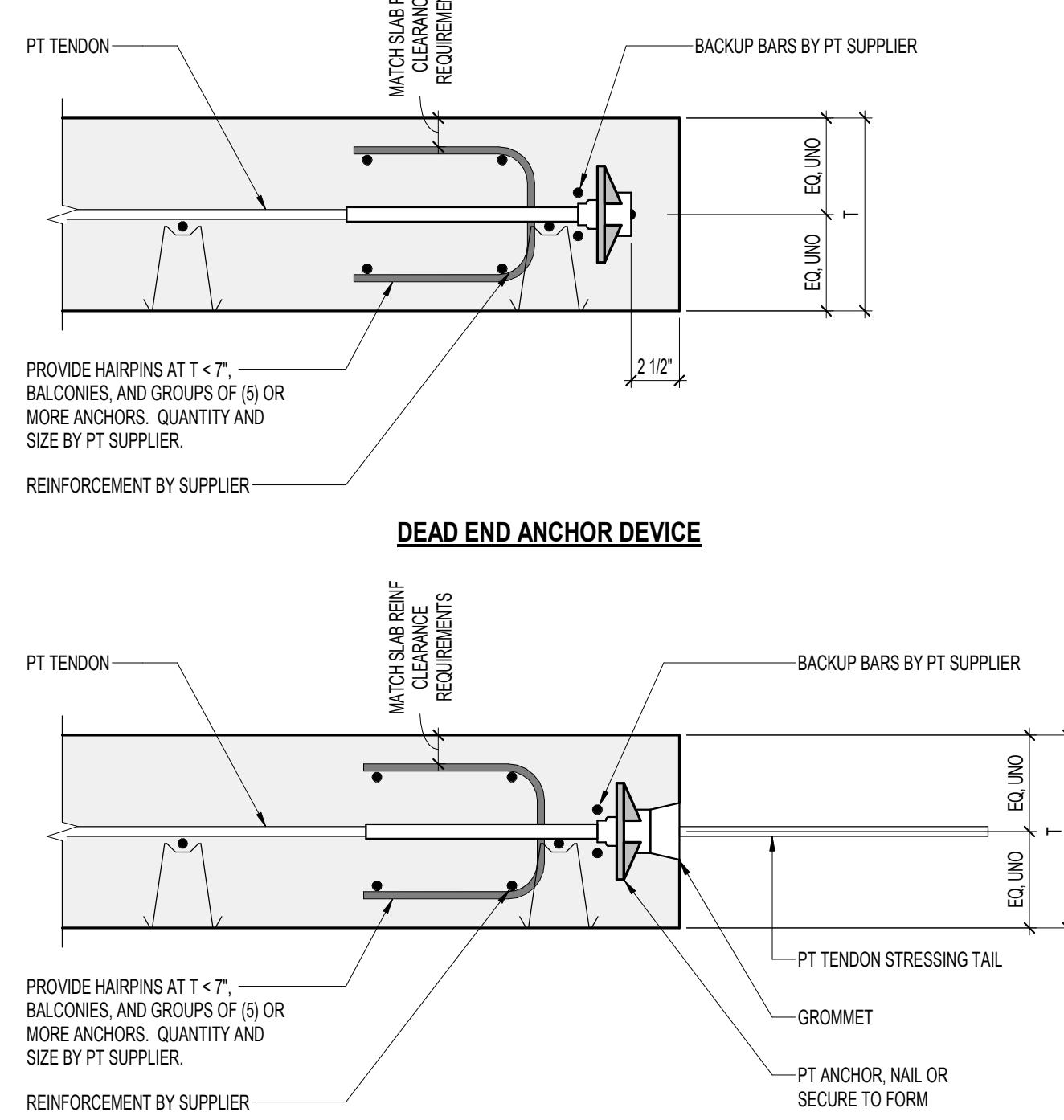
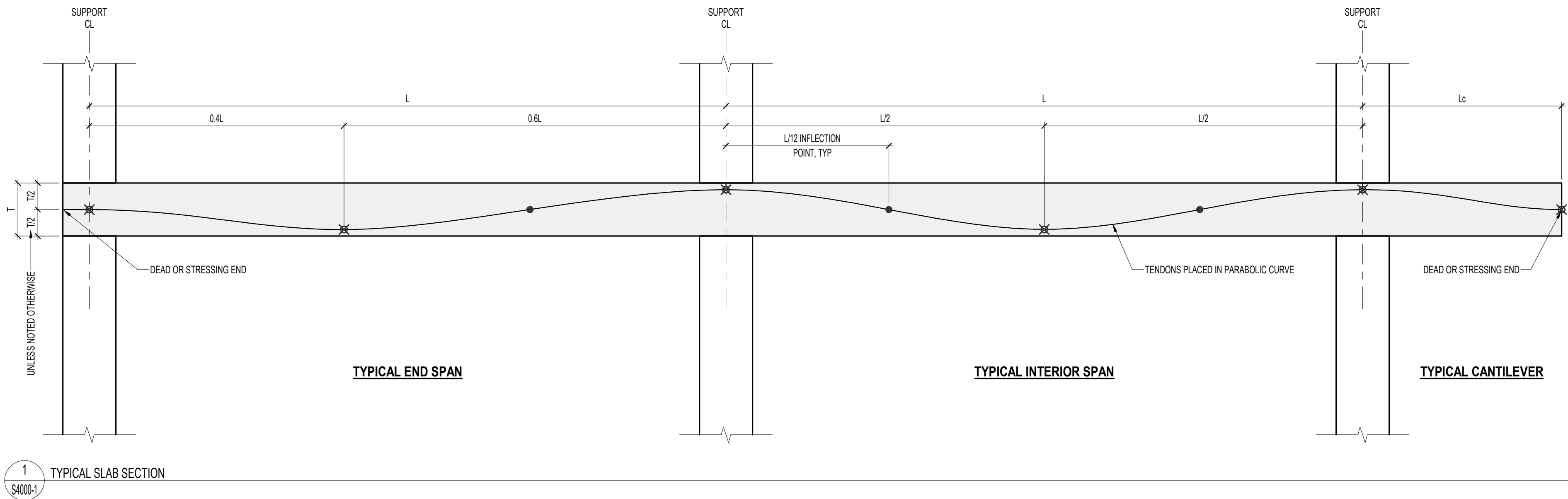
ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN

SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

FOUNDATION WALL
SECTIONS
S3002-1



PROJECT INFORMATION
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

KEY PLAN

SHEET INFORMATION

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

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07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN

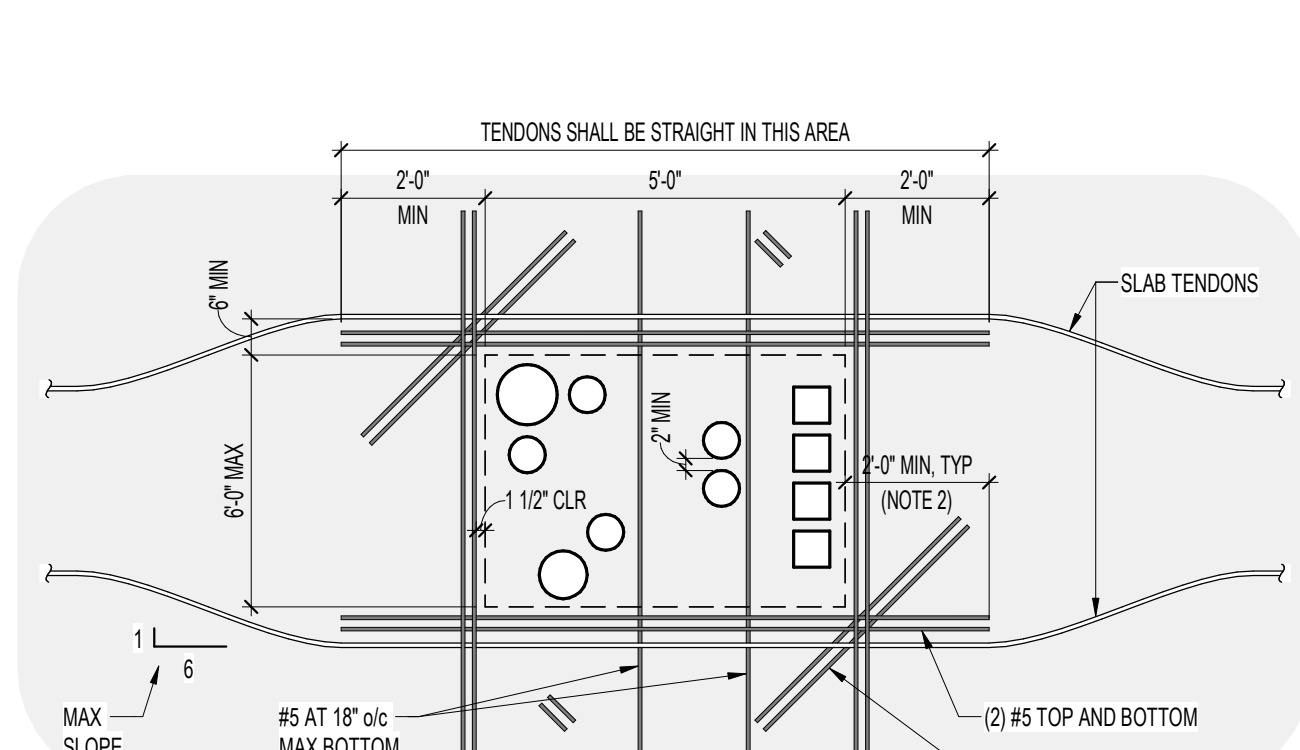
SHEET INFORMATION

PROJECT MANAGER

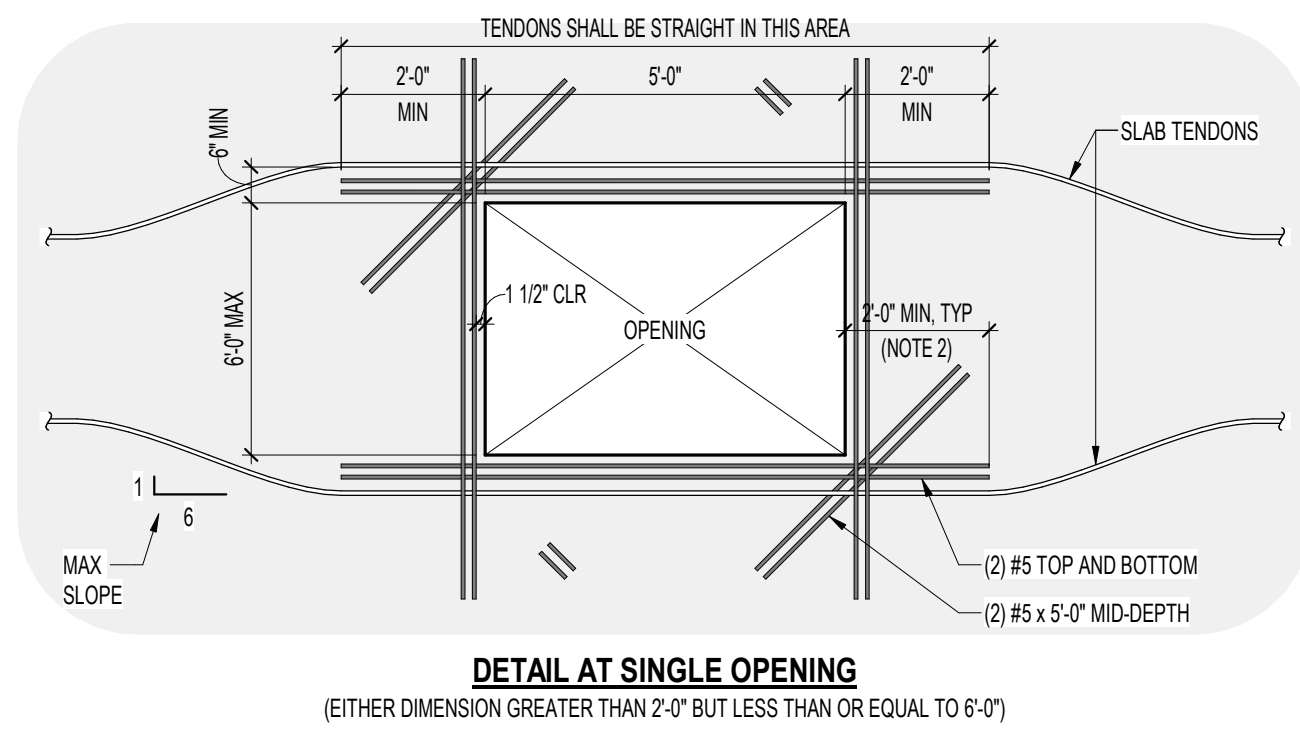
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CONCRETE
FRAMING DETAILS

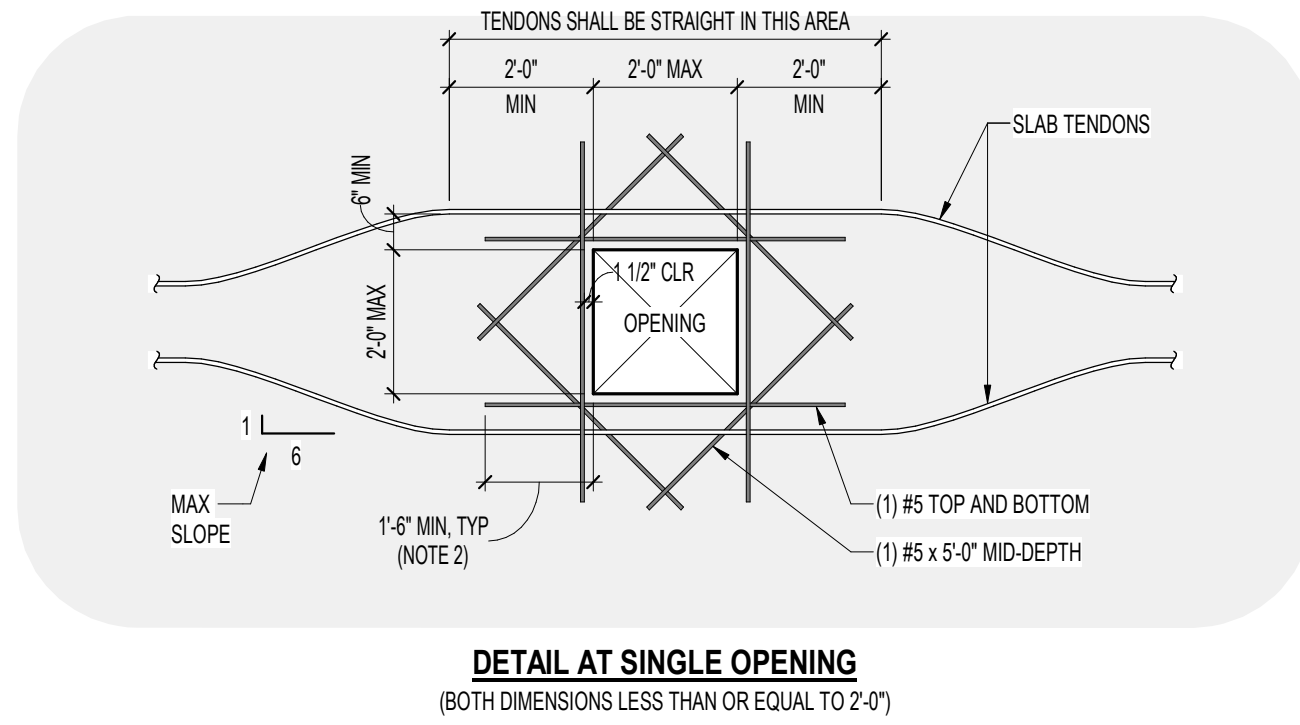
S4001-1



DETAIL AT MULTIPLE PENETRATIONS



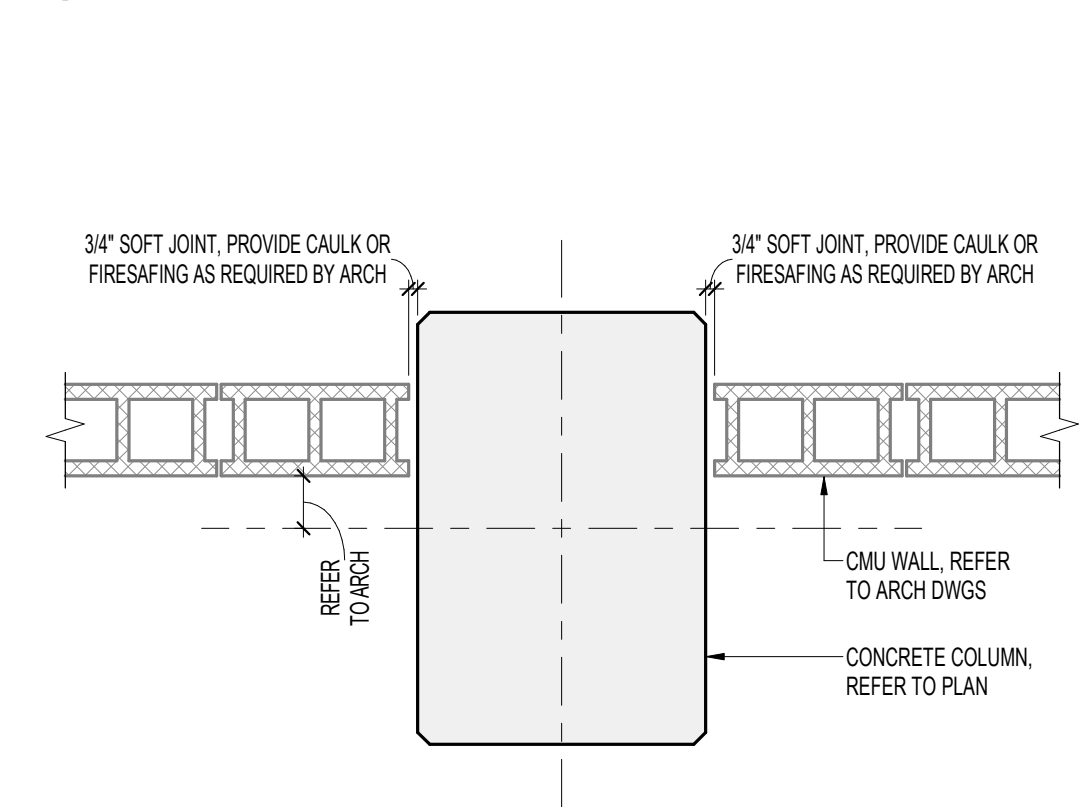
DETAIL AT SINGLE OPENING
(EITHER DIMENSION GREATER THAN 2'-0" BUT LESS THAN OR EQUAL TO 6'-0")



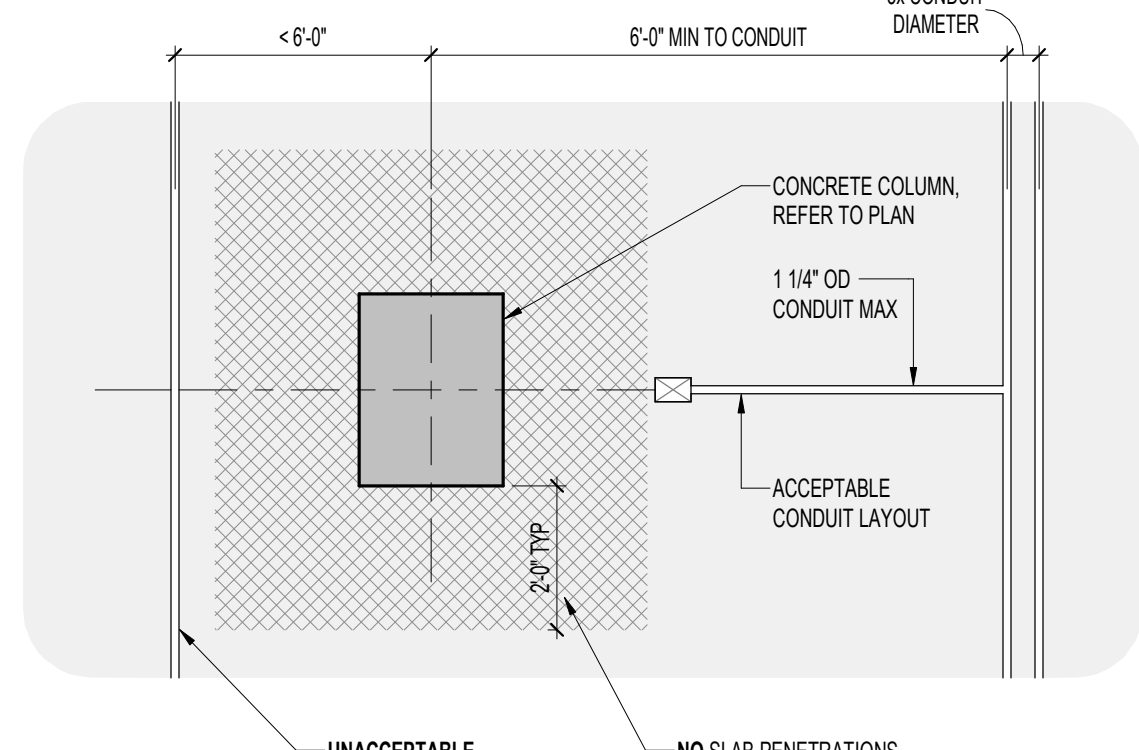
DETAIL AT SINGLE OPENING
(BOTH DIMENSIONS LESS THAN OR EQUAL TO 2'-0")

- NOTES:
1. NOTIFY EOR IN WRITING OF OPENINGS NOT SHOWN ON PLANS OR OF CONDITIONS NOT COVERED BY THESE DETAILS.
 2. PROVIDE STANDARD HOOK WHERE MINIMUM BAR EXTENSION PAST EDGE OF OPENING IS NOT POSSIBLE.
 3. ADDITIONAL REINFORCEMENT NOT REQUIRED FOR SLAB OPENINGS LESS THAN 1'-0" x 1'-0".
 4. NO OPENINGS TO BE LOCATED WITHIN 5'-0" OF COLUMN WITHOUT APPROVAL OF EOR.
 5. WHEN OPENING IS EQUAL TO OR GREATER THAN 4'-0", PROVIDE ADDITIONAL REINFORCEMENT PER 2S411.
 6. WHERE REINFORCEMENT IS INTERRUPTED BY OPENING, REFER TO 'REINFORCING AT CONCRETE OPENINGS' DETAIL ON S400.

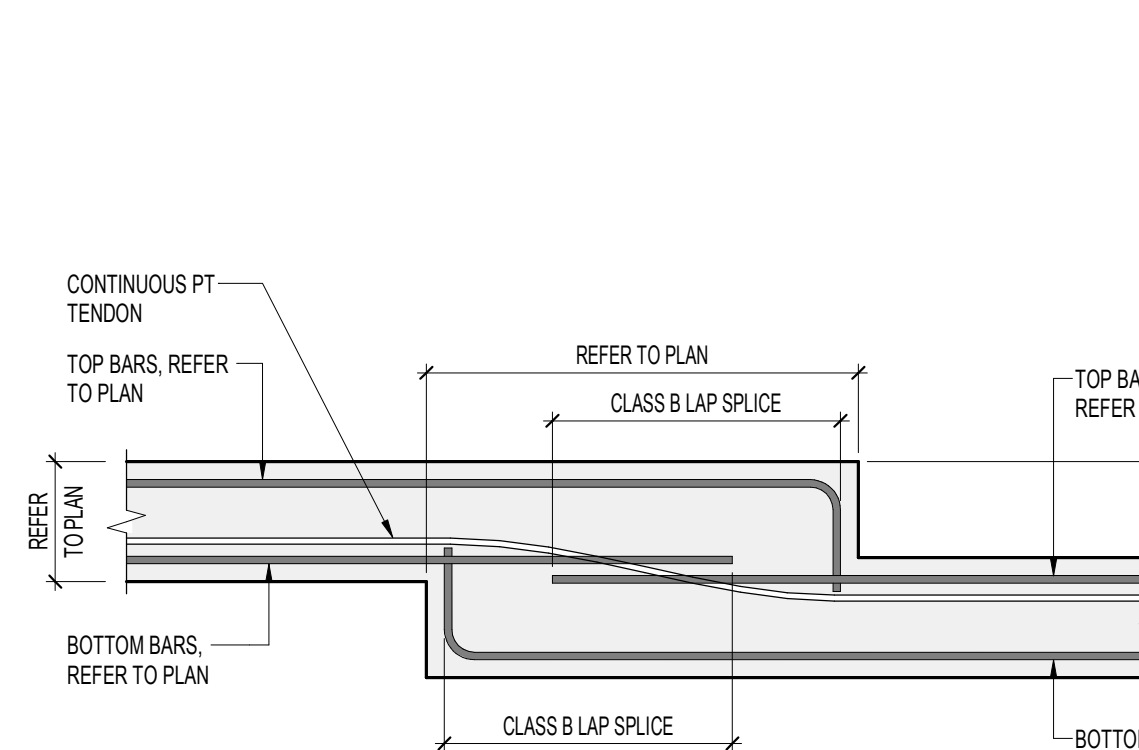
1 ADDED REINFORCEMENT AT OPENINGS IN PT SLAB



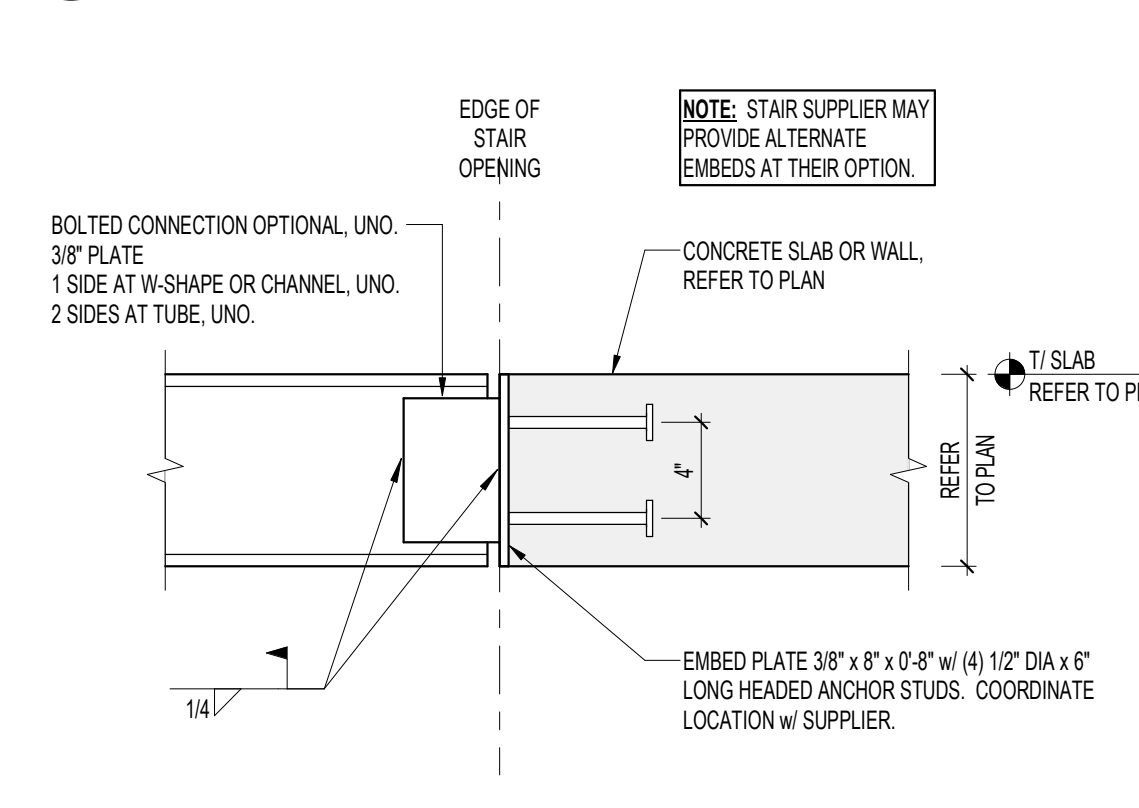
12 SOFT JOINT AT CMU TO COLUMN FACE



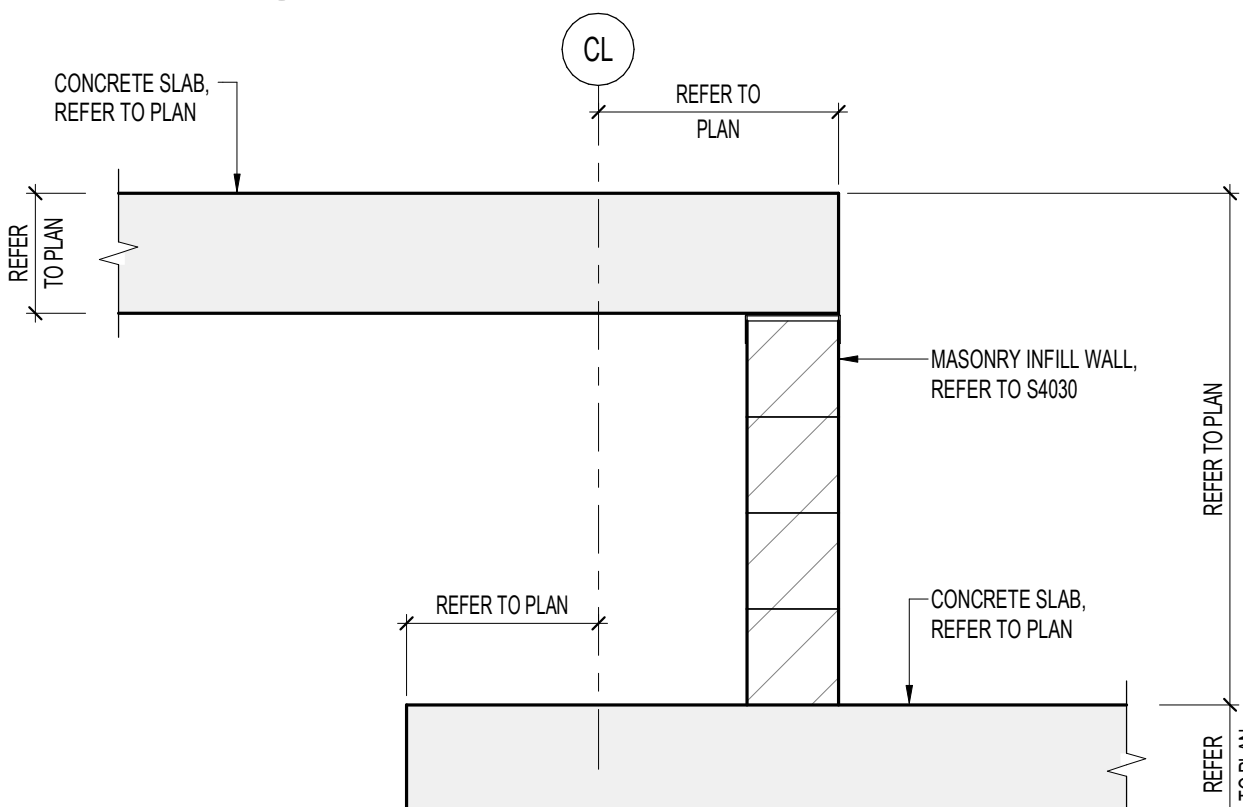
2 POST-TENSIONED SLAB PENETRATION AND CONDUIT PLACEMENT PLAN CRITERIA



5 REINFORCING AT SLAB ELEVATION TRANSITION w/ CONTINUOUS PT



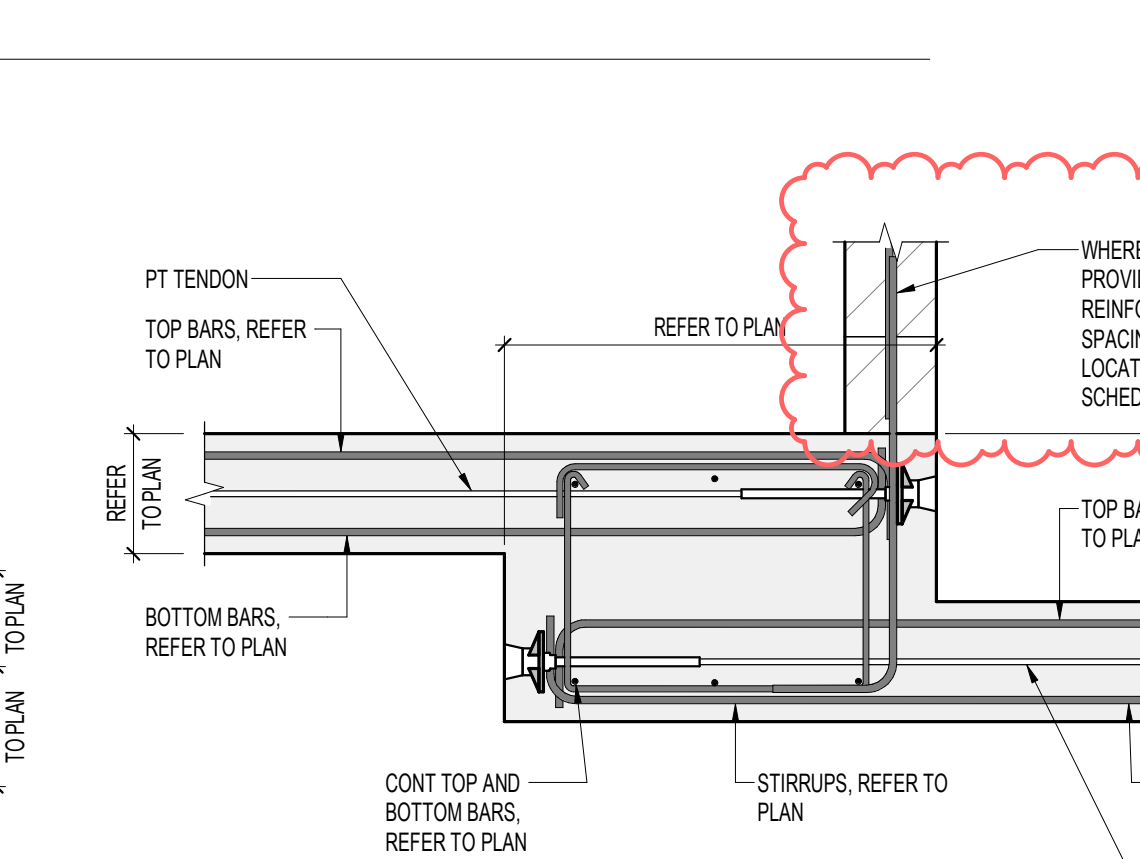
9 EMBED AT STAIR & ELEVATOR GIRT



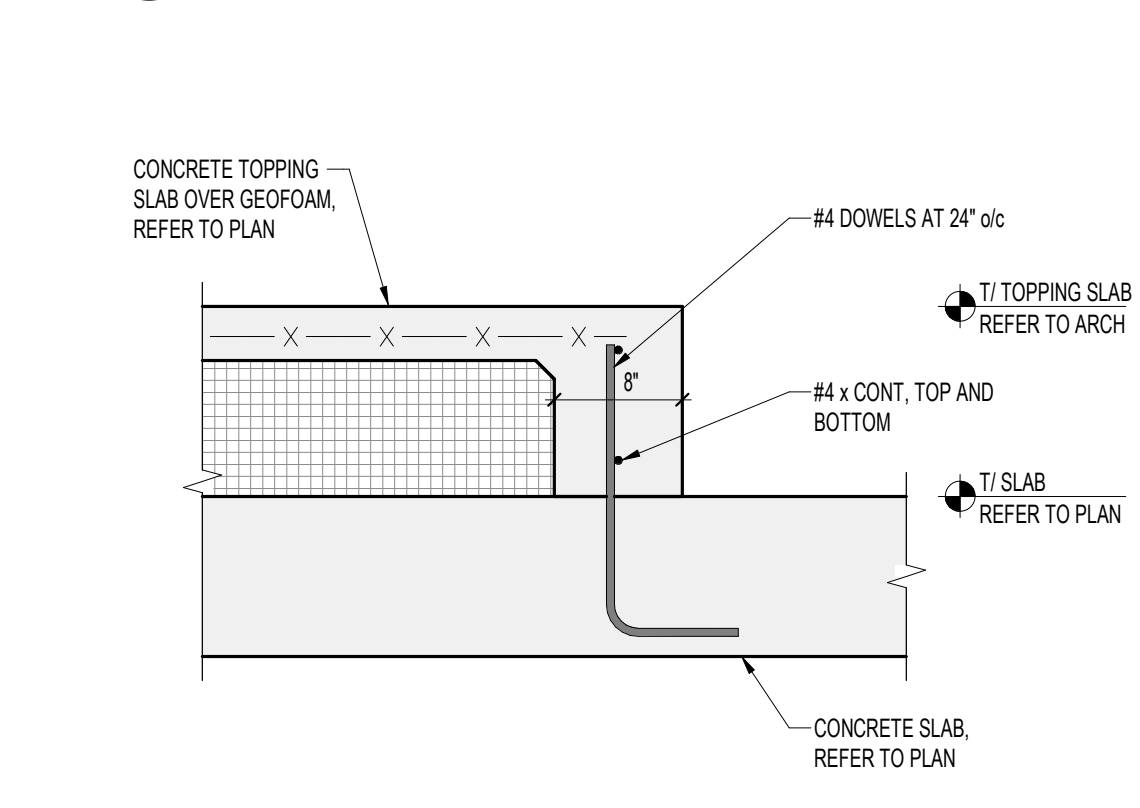
13 MASONRY INFILL AT SLAB ELEVATION TRANSITION w/ VOID

SLAB PENETRATIONS AND CAST IN CONDUIT / PIPING CRITERIA

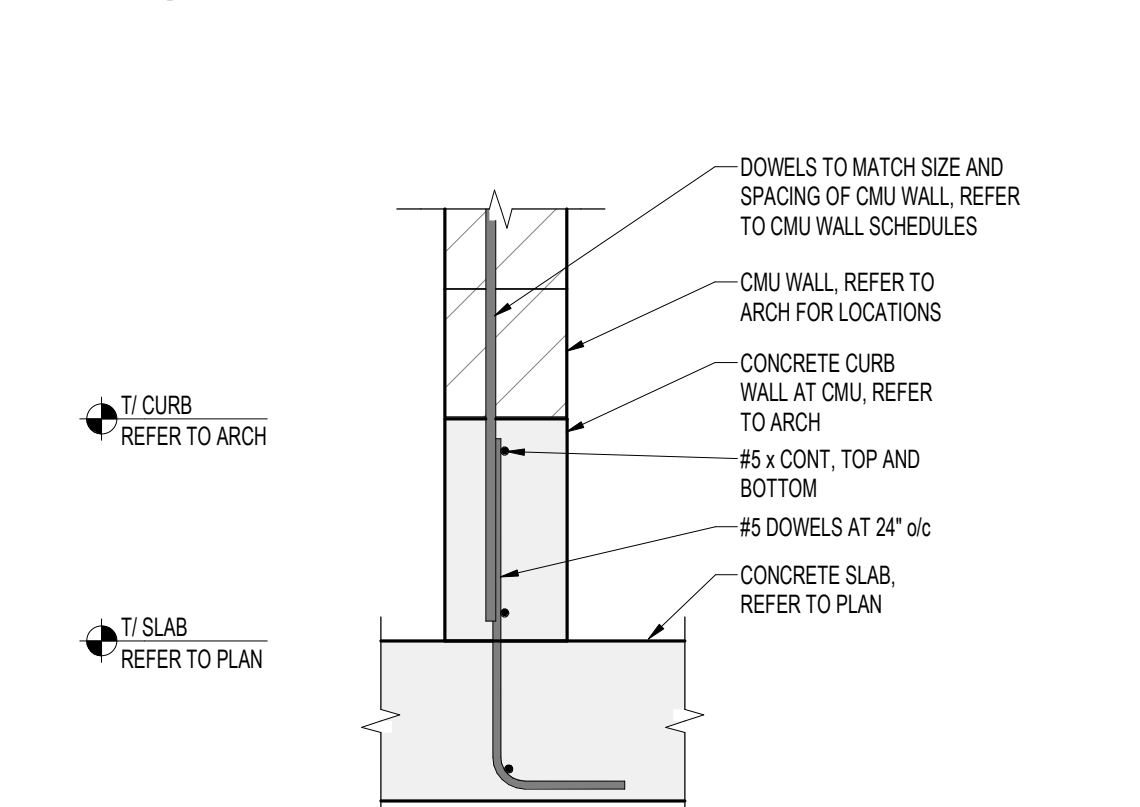
1. UNLESS SHOWN ON STRUCTURAL DRAWINGS, NO SLAB PENETRATIONS ARE PERMITTED WITHIN 2'-0" OF COLUMN FACE WITHOUT PRIOR WRITTEN APPROVAL FROM SEOR.
2. EMBEDDED CONDUIT / PIPING NOTES:
 - a. MAINTAIN A MINIMUM 6'-0" DISTANCE FROM COLUMN CENTERLINE TO CONDUIT LOCATION, WHERE CONDUIT IS REQUIRED NEAR A COLUMN, ROUTE CONDUIT SUCH THAT IT APPROACHES PERPENDICULAR TO COLUMN FACE.
 - b. CONDUIT SHALL BE IN THE MIDDLE 1/3 OF THE SLAB DEPTH.
 - c. CENTER TO CENTER SPACING BETWEEN EACH CONDUIT SHALL BE AT LEAST 3 CONDUIT DIAMETERS.
 - d. MAXIMUM OF (6) CONDUITS PER 6'-0" OF SLAB WIDTH PERMITTED.
 - e. CONDUIT OUTSIDE DIAMETER SHALL NOT EXCEED 1 1/4".
 - f. ALUMINUM CONDUIT OR OTHER ACCESSORIES SHALL NOT BE PERMITTED.
3. POST-TENSIONING, MILD REINFORCING, AND STUD RAIL PLACEMENT TAKES PRECEDENCE OVER CONDUIT AND PENETRATION PLACEMENT IN ALL CASES. MINOR HORIZONTAL SHIFTING OF TENDONS IS PERMISSIBLE WITH PRIOR APPROVAL FROM SEOR.
4. REFER TO TYPICAL DETAILS FOR REINFORCEMENT AT OPENINGS.
5. REFER TO 10S4001-1 FOR ADDITIONAL REQUIREMENTS AT OPENINGS NEAR TENDON ANCHORS.



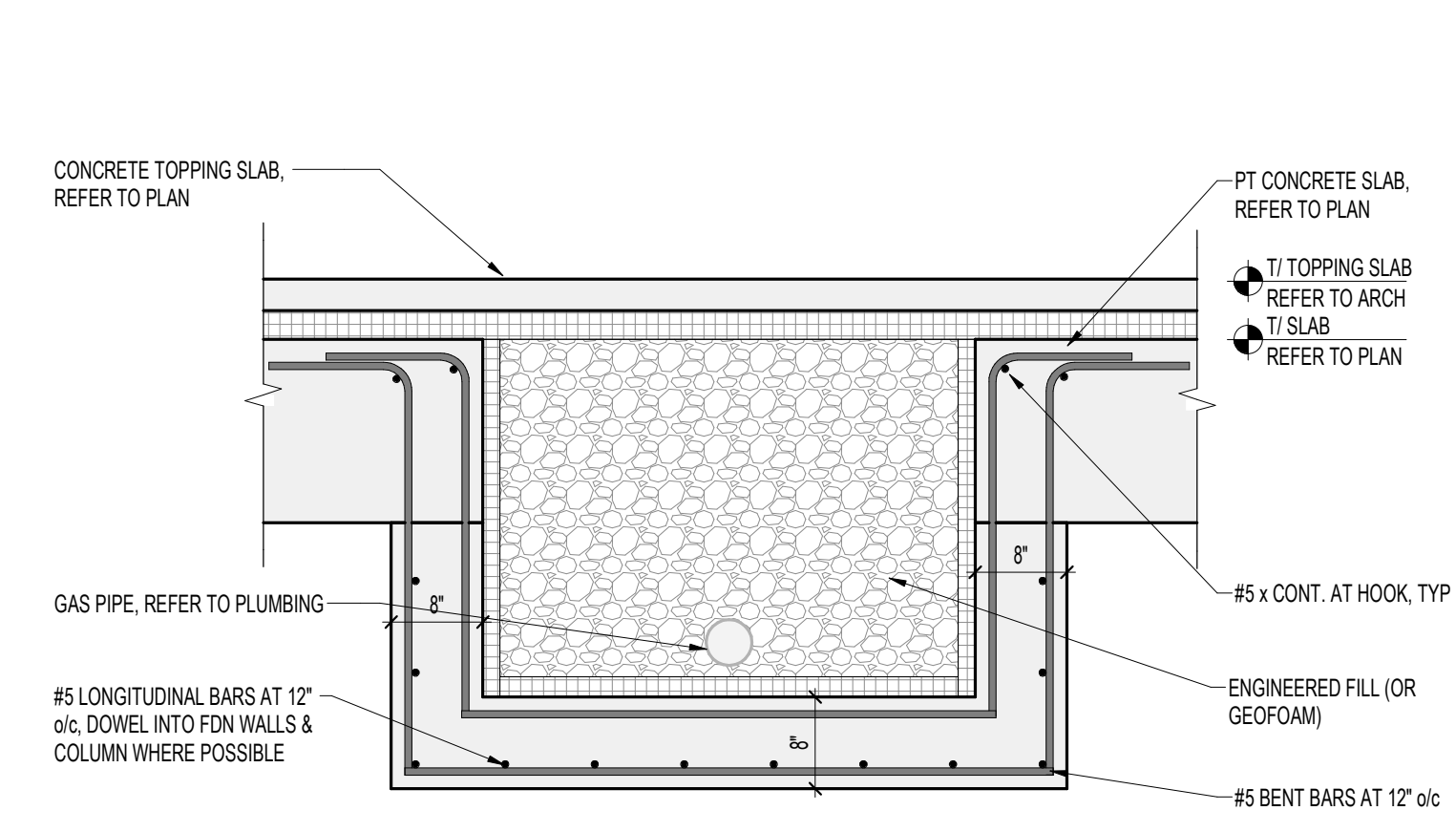
6 REINFORCING AT SLAB ELEVATION TRANSITION w/ DISCONTINUOUS PT



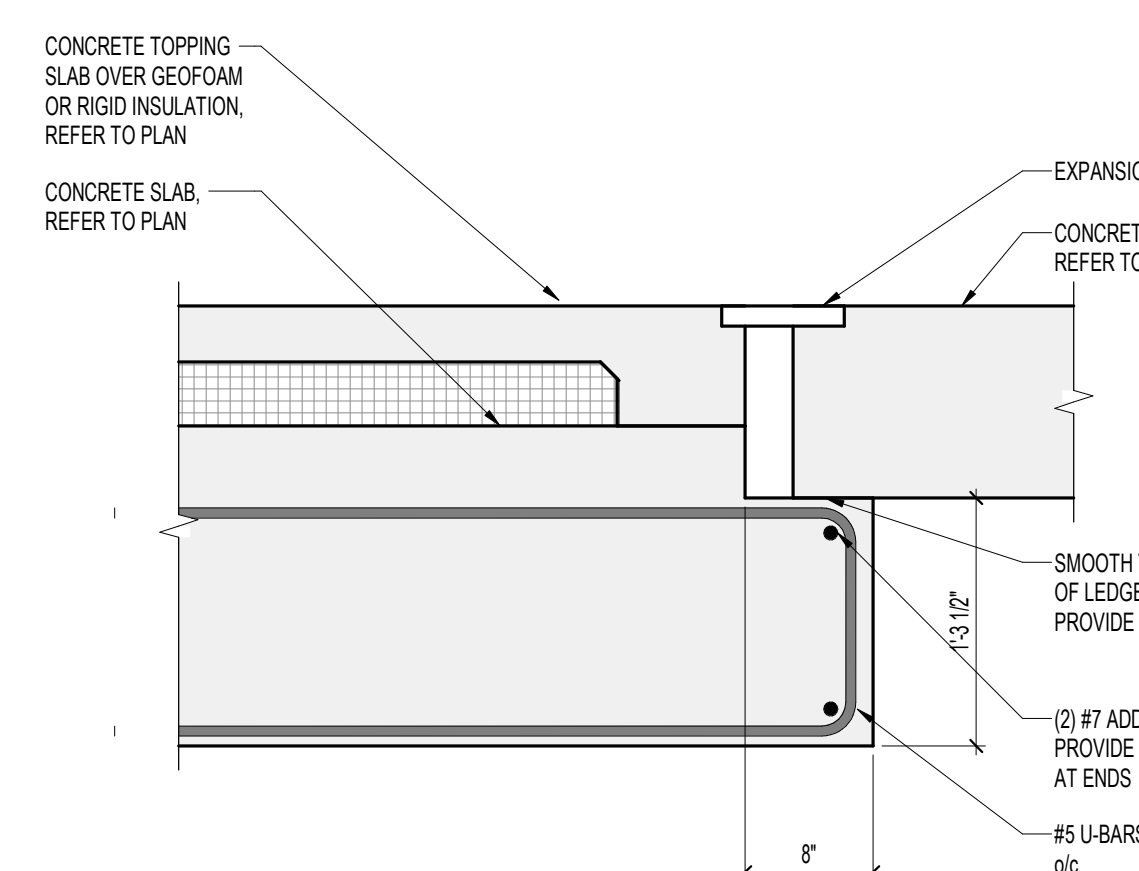
10 TYPICAL TOPPING SLAB TO PT SLAB



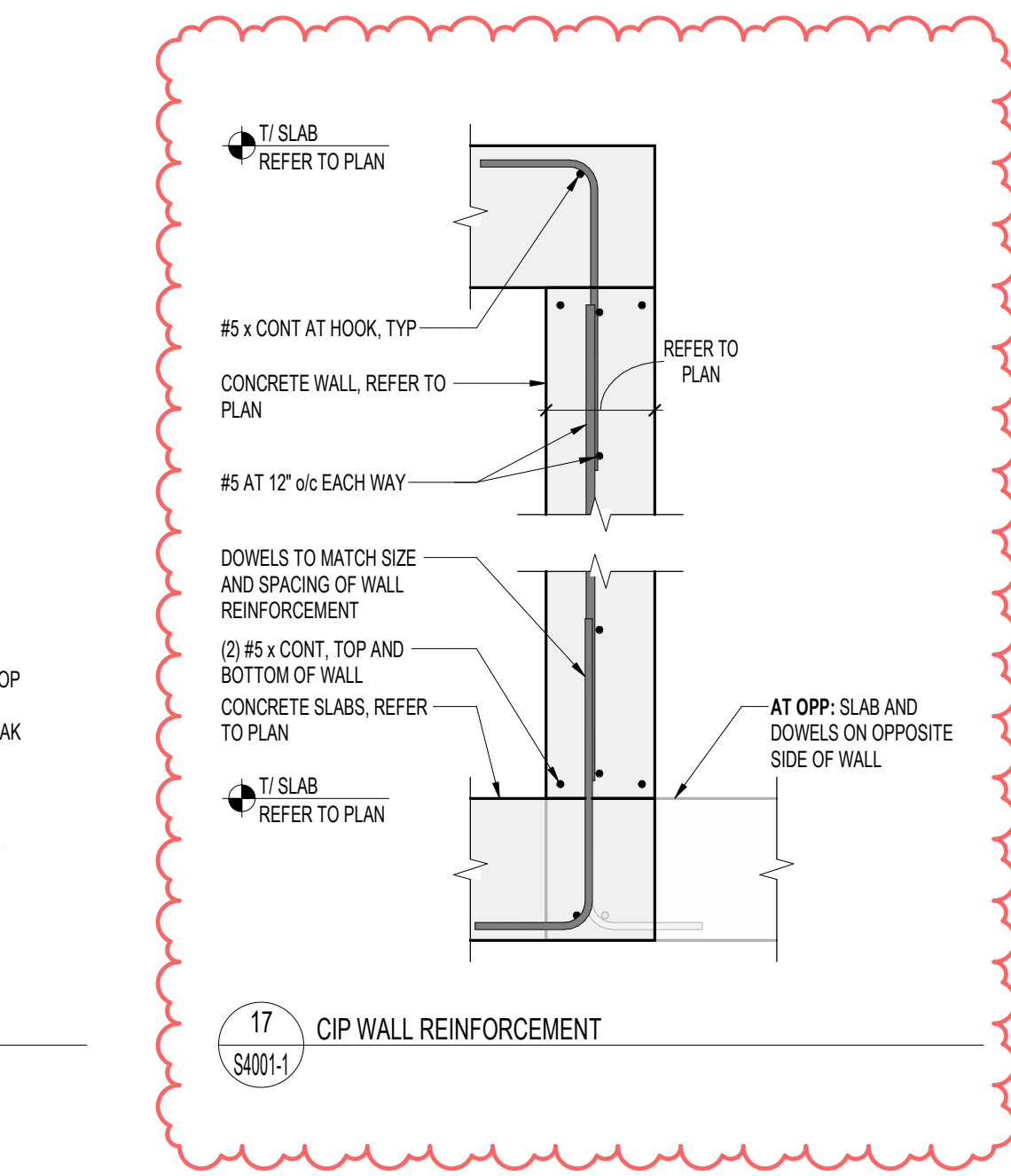
14 TYPICAL CURB WALL REINFORCEMENT



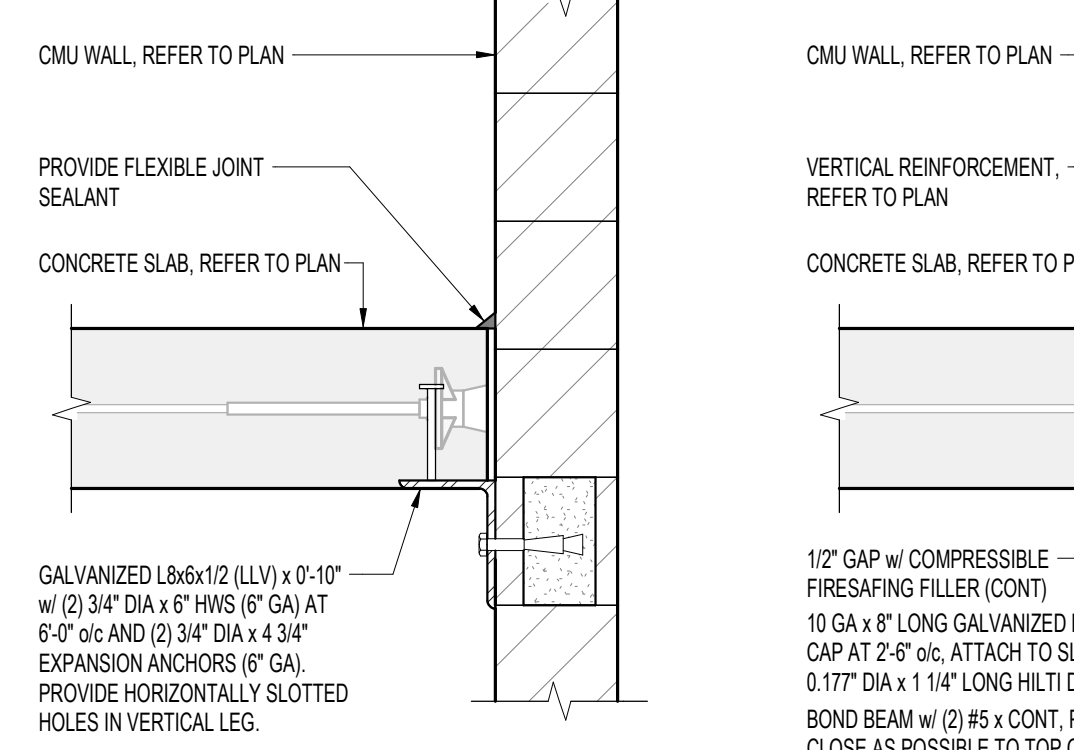
15 CONCRETE TROUGH DETAIL



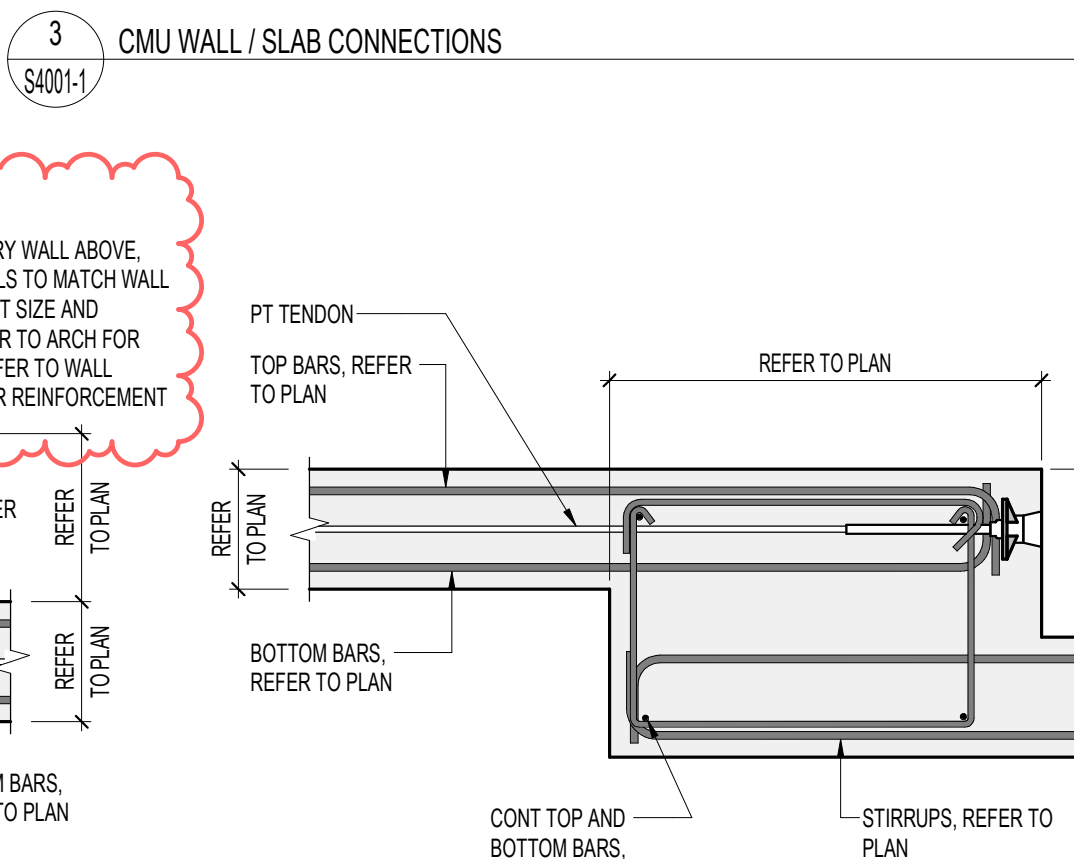
16 SLAB AT BRIDGE SUPPORT



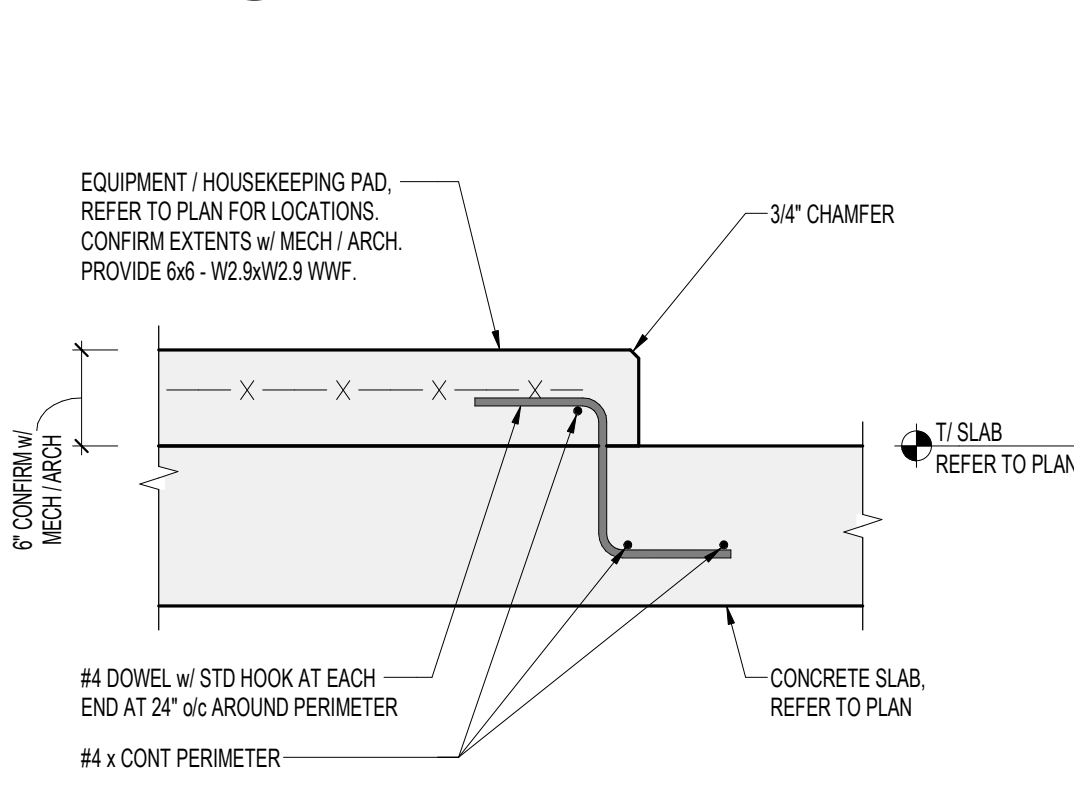
17 CIP WALL REINFORCEMENT



AT BALLOON FRAMED WALLS



3 CMU WALL / SLAB CONNECTIONS

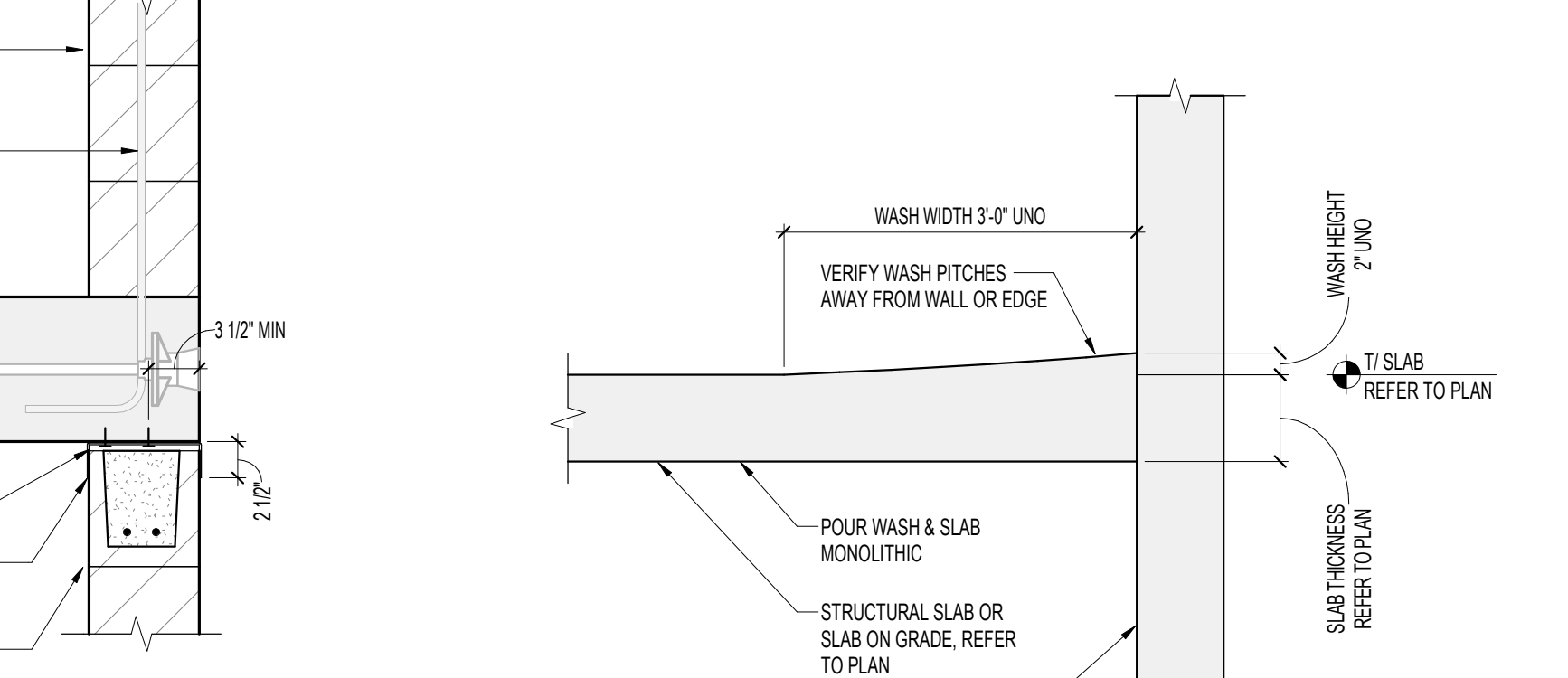


11 HOUSEKEEPING PAD ON CONCRETE SLAB

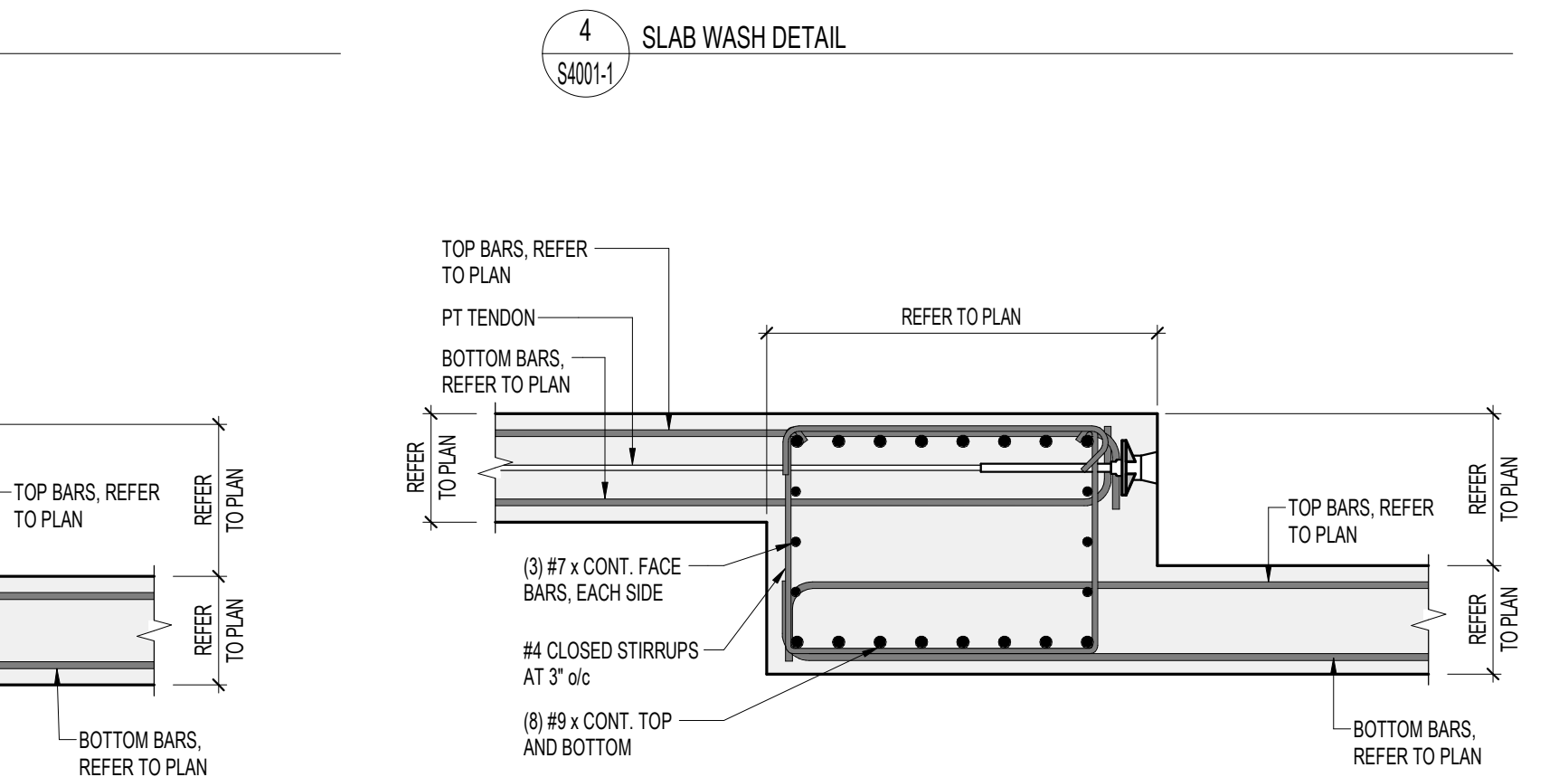
MARK	PLATE / ANGLE	CONNECTORS	CONFIGURATION
EP1-1	PLATE 1/2" x 2'-4" x 1'-8"	(4) 3/4" DIA x 5" HWS	22" GAGE
EP2-1	PLATE 1/2" x 10' x 0'-6"	(2) 1/2" DIA x 4" HWS	1 1/2" 7"
EP3-1	PLATE 3/4" x 8' x 1'-0"	(4) 1/2" DIA x 6" HWS	5" GAGE
EP4-1	PLATE 1/2" x 8' x 0'-8"	(2) 3/4" DIA x 6" HWS	1 1/2" 5' 1 1/2"
EP5-1	PLATE 3/4" x 12' x 0'-6"	(4) 1/2" DIA x 6" HWS	1 1/2" 6' 9" 1 1/2"
EP6-1	PLATE 3/4" x 14' x 1'-2"	(4) 7/8" DIA x 8" HWS	10" 7"
EP7-1	PLATE 3/4" x 12' x 1'-0"	(4) 3/4" DIA x 8" HWS	8" 8"
EP8-1	PLATE 1" x 13' x 1'-1"	(4) 3/4" DIA x 6 1/2" HWS	9" 8"
EP9-1	PLATE 3/4" x 12' x 1'-2"	(4) 5/8" DIA x 9" HWS	10" 8"
EP10-1	PLATE 1/2" x 10' x 1'-0"	(2) 3/4" DIA x 1 1/2" HWS	7" 6"
EP11-1	PLATE 3/4" x 16' x 1'-4"	(4) 7/8" DIA x 9" HWS	13" 8"
EP12-1	PLATE 1" x 12' x 1'-0"	(4) 7/8" DIA x 12" HWS	8" 8"
EP13-1	PLATE 3/4" x 9' x 1'-0"	(4) 5/8" DIA x 30"	9" 8"
EP14-1	PLATE 1/2" x 12' x 1'-0"	(4) 1/2" DIA x 5" HWS	8" 8"

EMBED SCHEDULE - PHASE 1

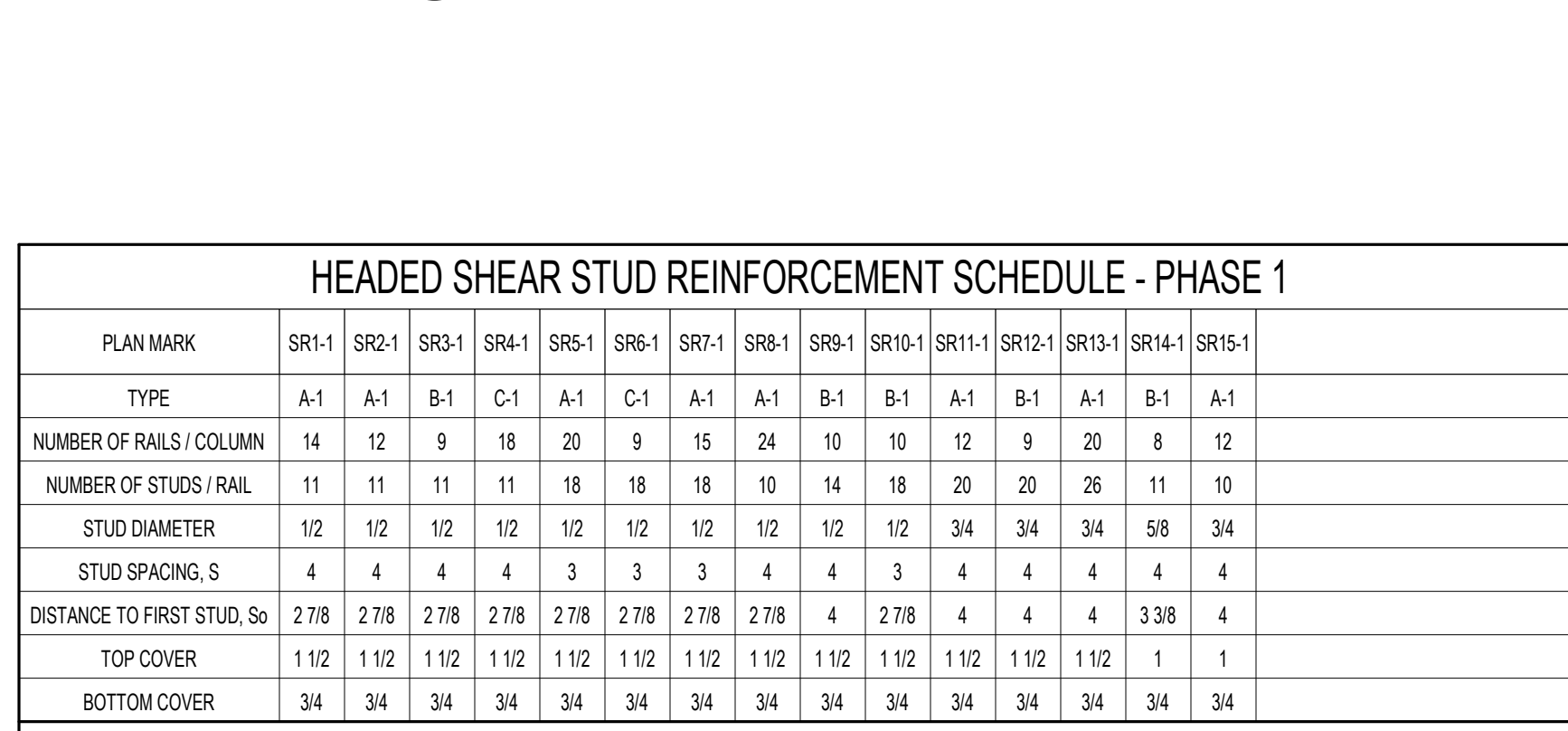
- NOTES:
1. SUPPLIER TO PROVIDE EMBED LAYOUT DRAWINGS FOR ALL EMBEDS.
 2. ALL EMBEDS IN PARKING SLABS, BALCONIES, AND EXPOSED TO WEATHER SHALL BE GALVANIZED.
 3. REFER TO TYPICAL DETAILS ON S400 AND S401 FOR TYPICAL EMBEDS NOT SCHEDULED.



AT INFILL WALLS



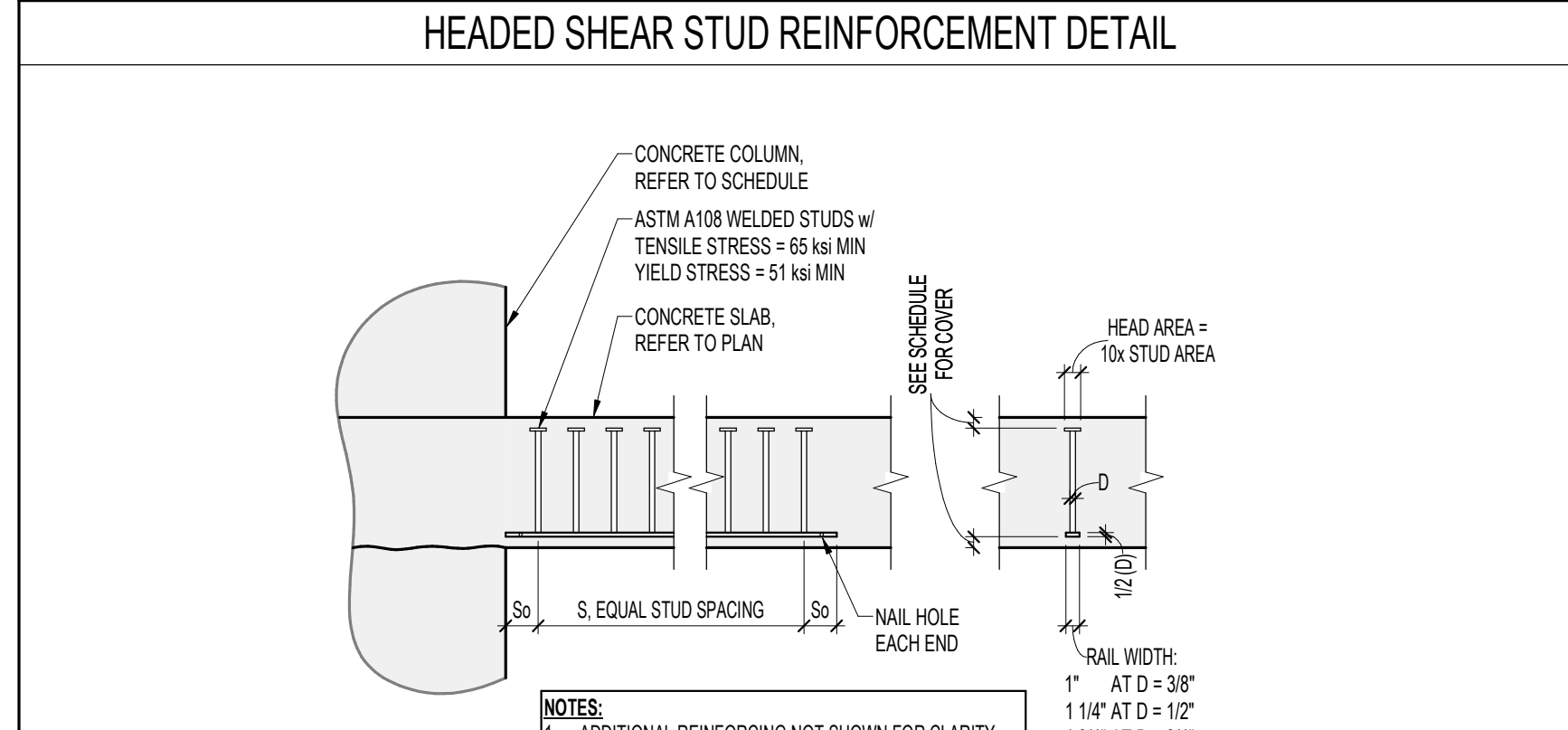
4 SLAB WASH DETAIL



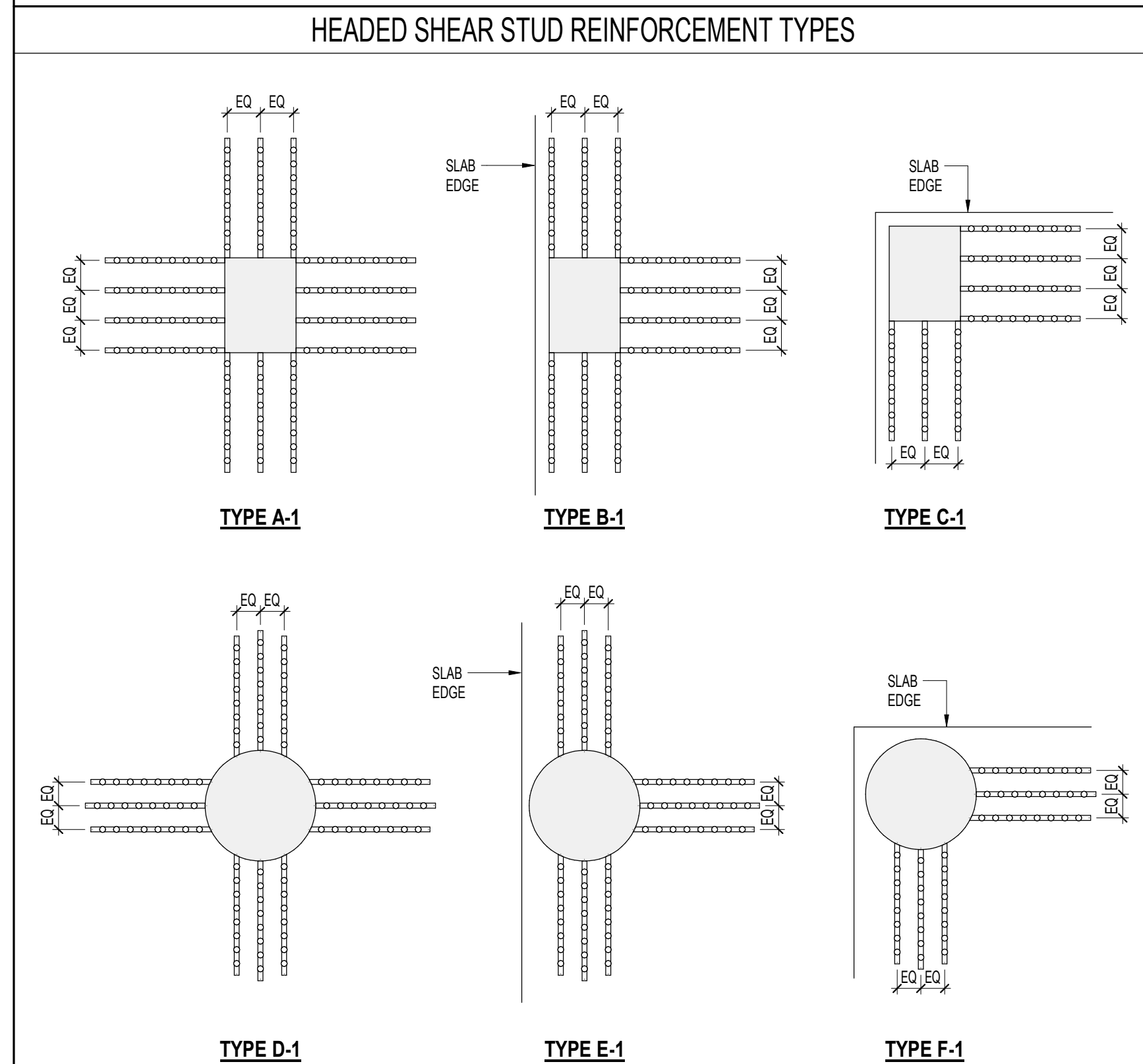
8 REINFORCING AT SLAB ELEVATION TRANSITION w/ DISCONTINUOUS PT

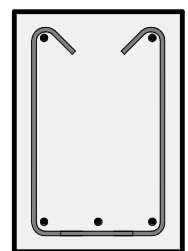
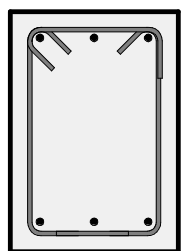
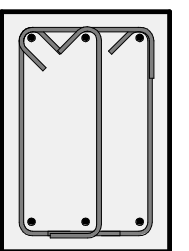
PLAN MARK	SR1-1	SR2-1	SR3-1	SR4-1	SR5-1	SR6-1	SR7-1	SR8-1	SR9-1	SR10-1	SR11-1	SR12-1	SR13-1	SR14-1	SR15-1
TYPE	A-1	A-1	B-1	C-1	A-1	C-1	A-1	A-1	B-1	B-1	A-1	B-1	A-1	B-1	A-1
NUMBER OF RAILS / COLUMN	14	12	9	18	20	9	15	24	10	10	12	9	20	8	12
NUMBER OF STUDS / RAIL	11	11	11	11	18	18	18	18	10	14	18	20	26	11	10
STUD DIAMETER	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	1/2	3/4	3/4	3/4	5/8	3/4	3/4
STUD SPACING, S	4	4	4	4	3	3	3	4	4	3	4	4	4	4	4
DISTANCE TO FIRST STUD, So	2/8	2/8	2/8	2/8	2/8	2/8	2/8	2/8	4	2/8	4	4	4	3/8	4
TOP COVER	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1 1/2	1	1
BOTTOM COVER	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4	3/4

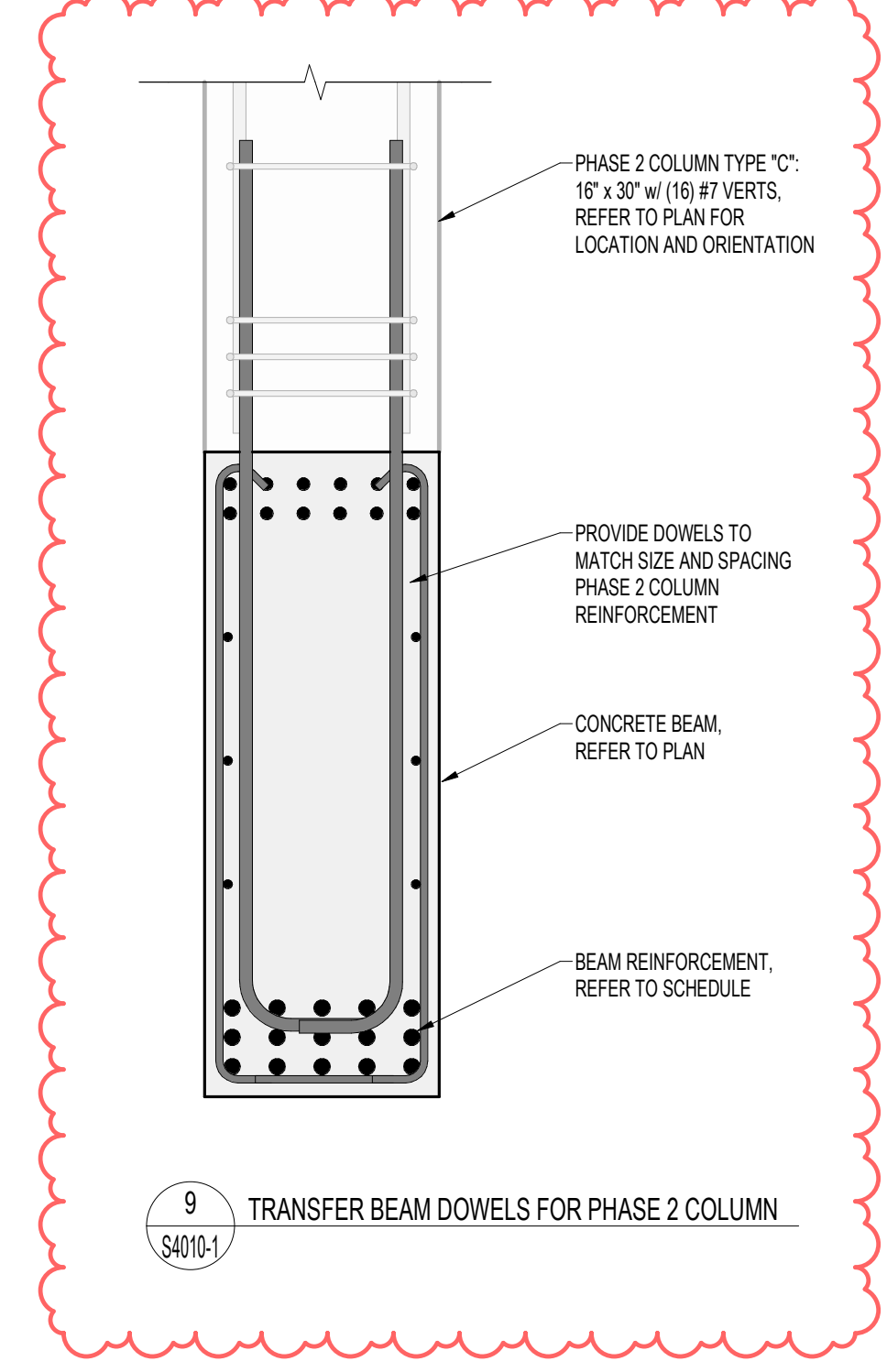
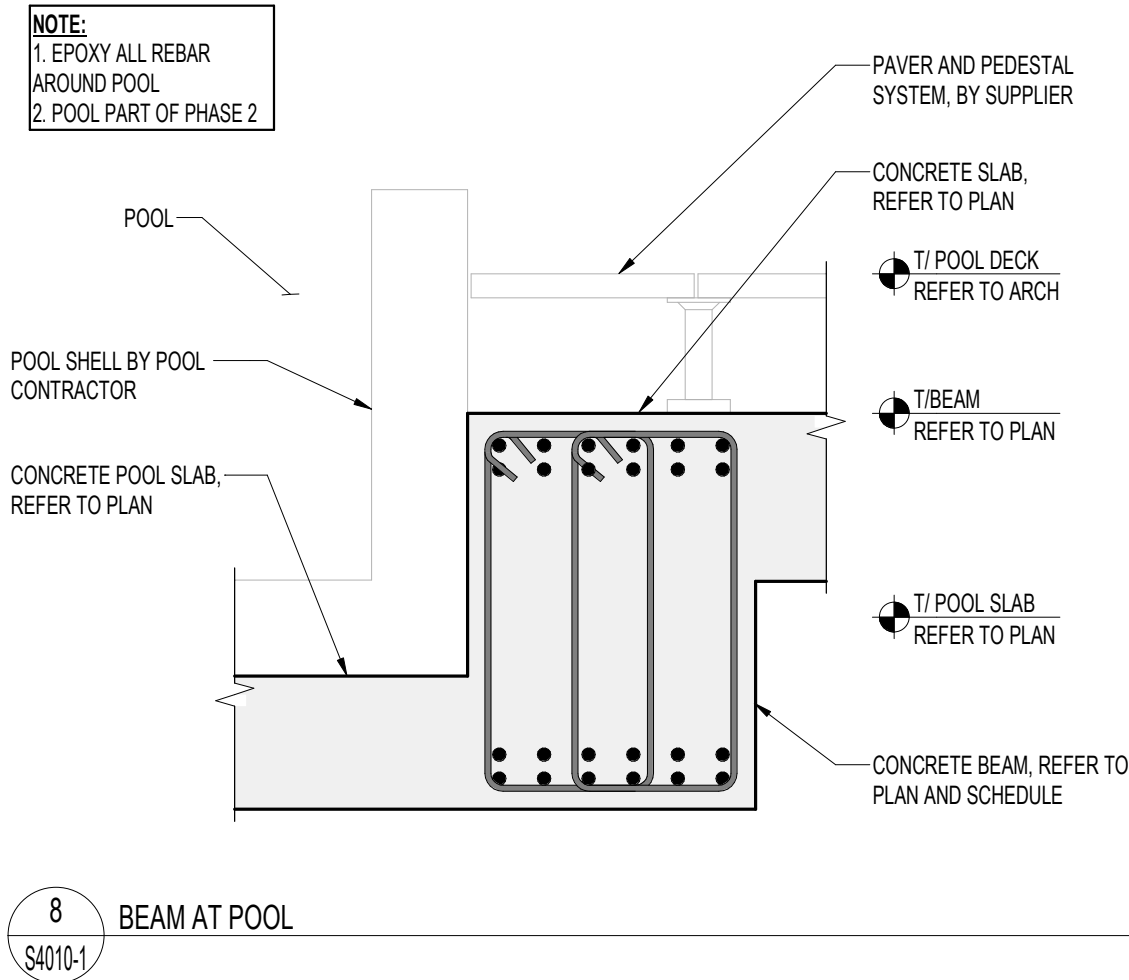
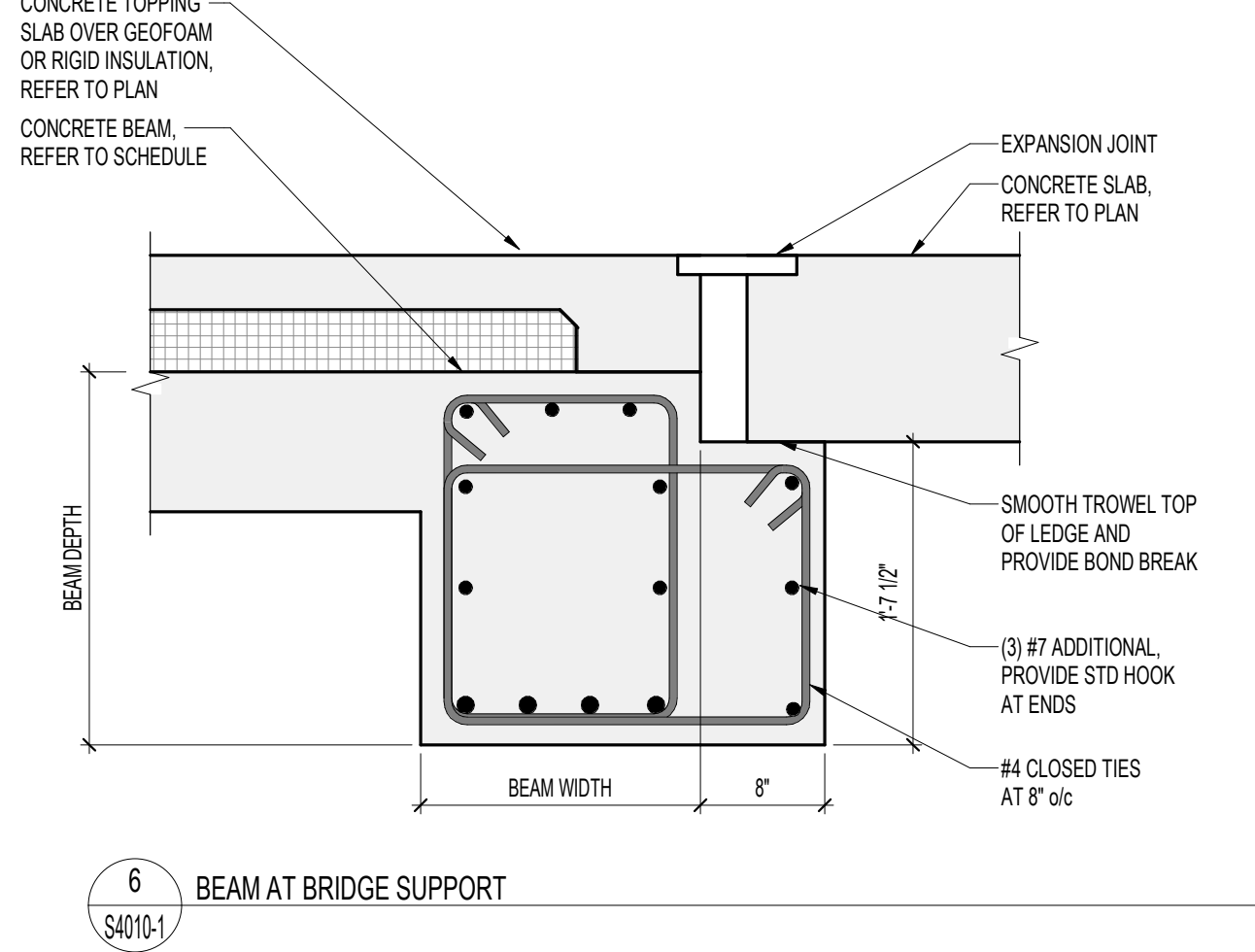
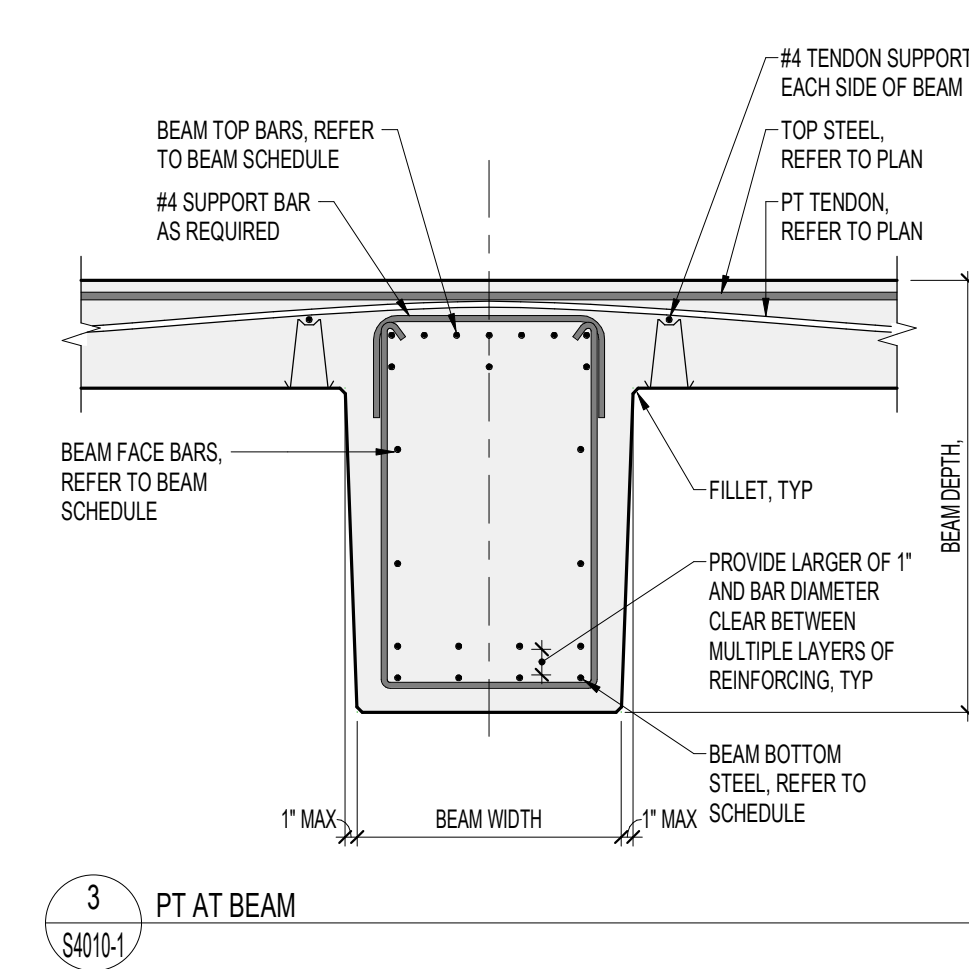
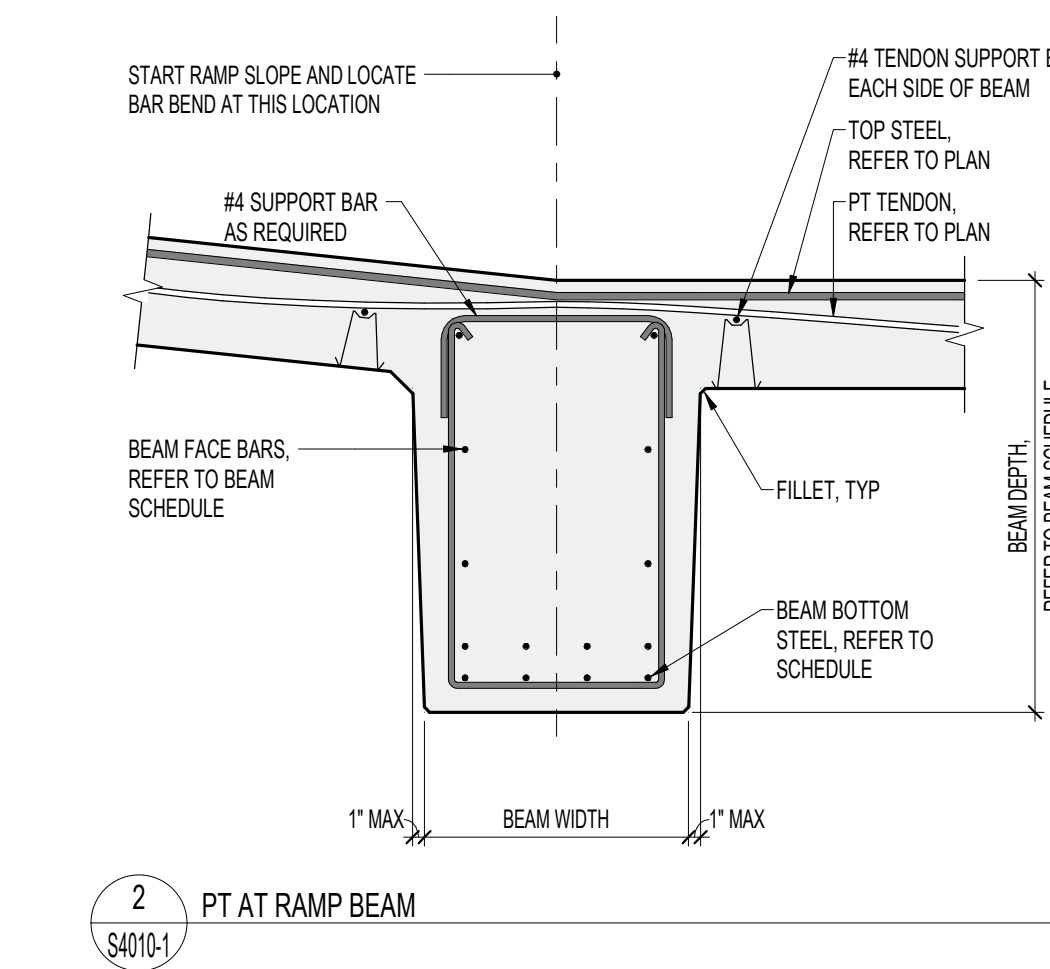
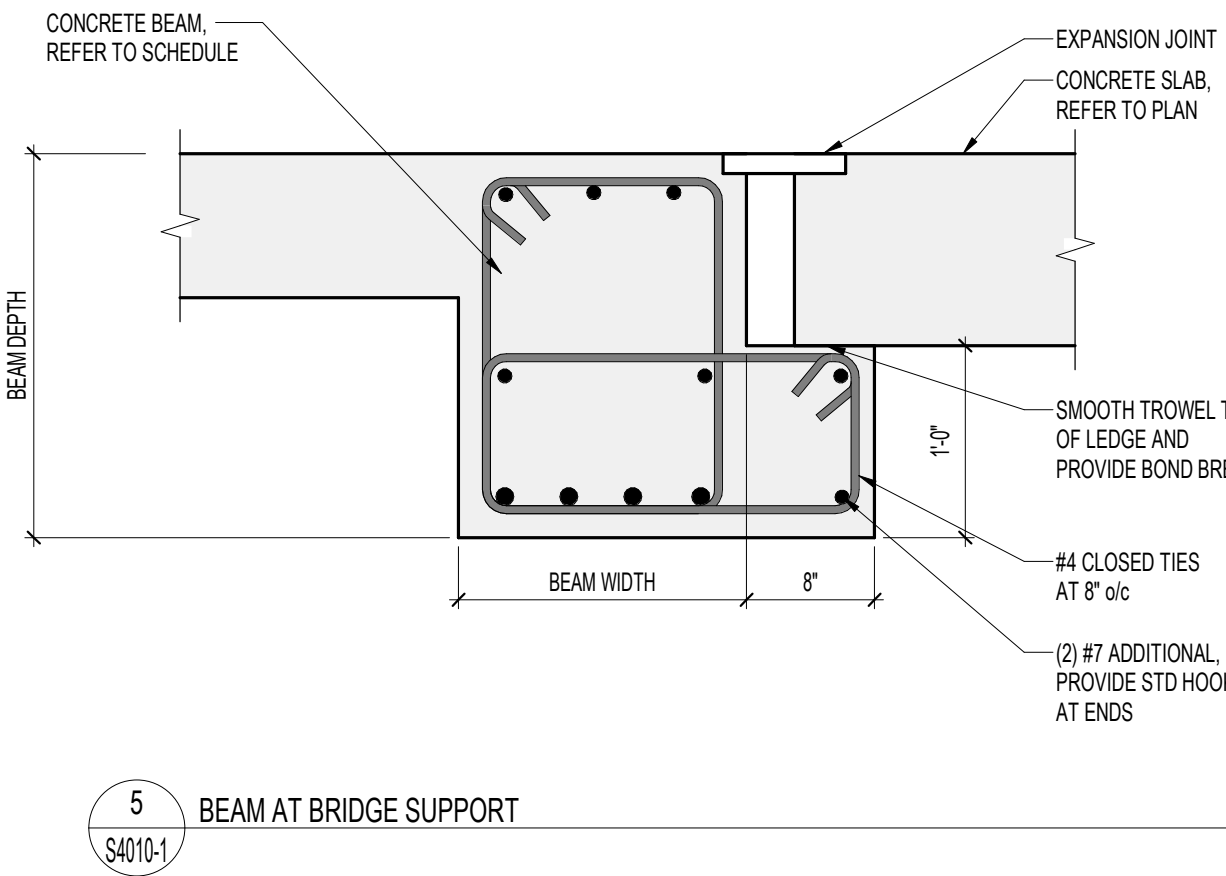
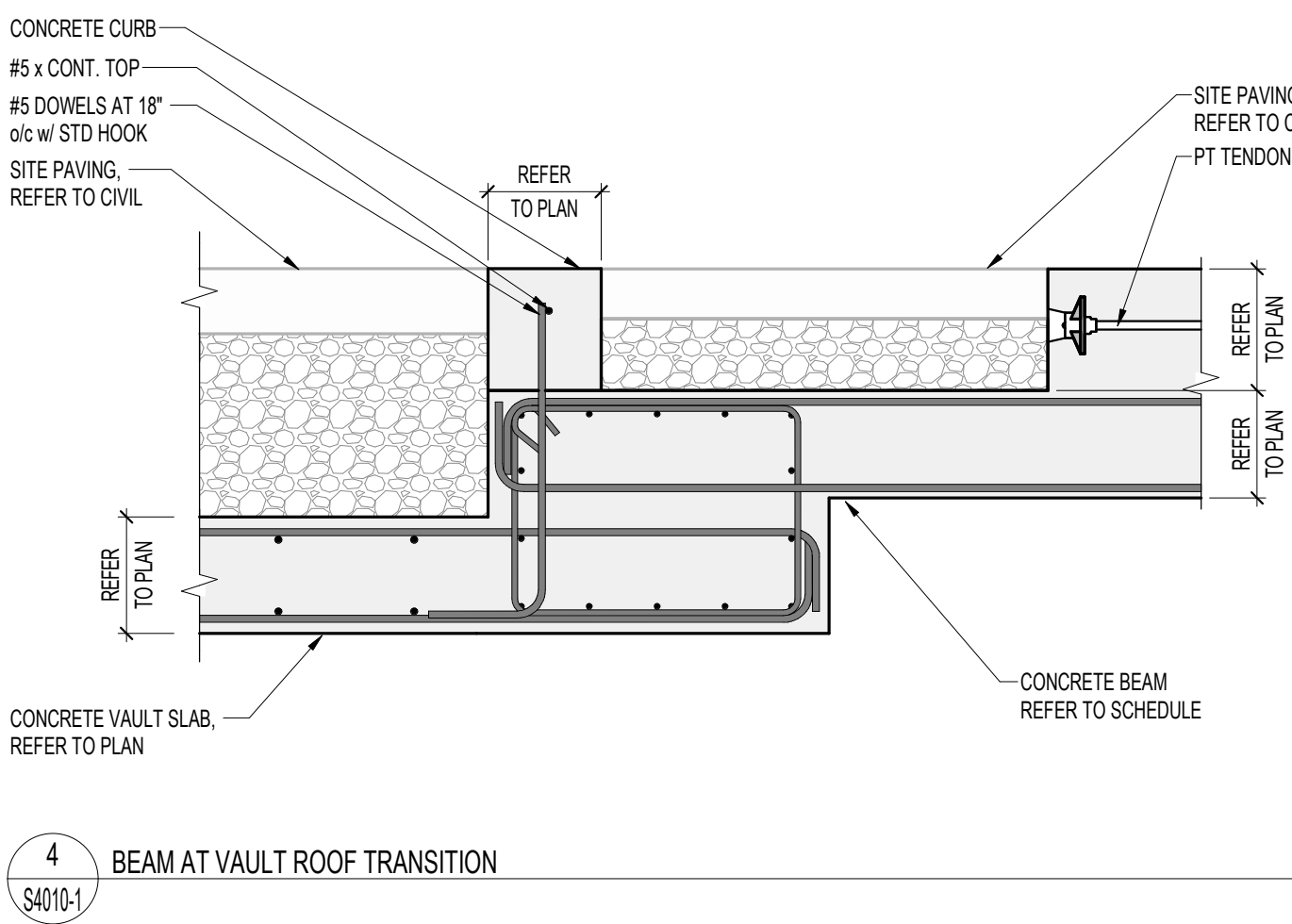
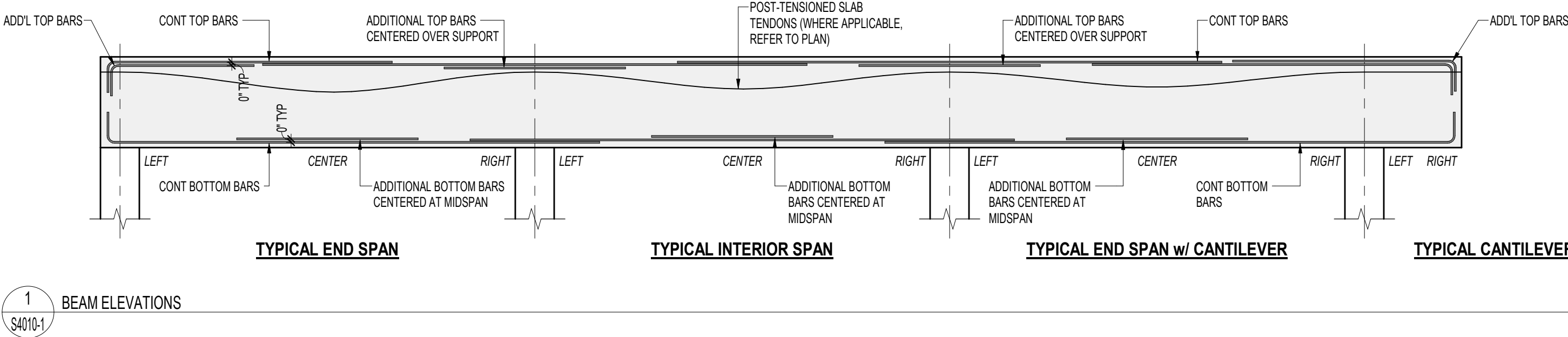
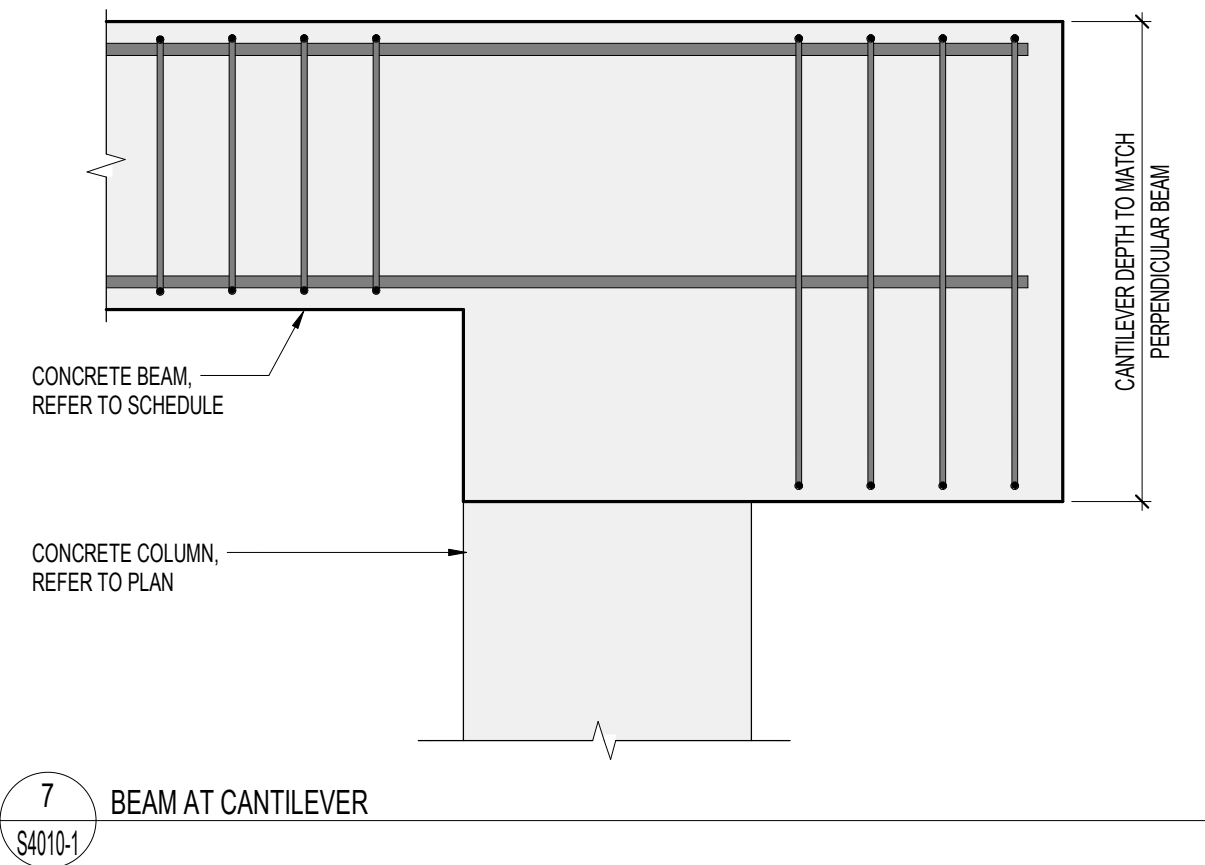
- HEADED SHEAR STUD REINFORCEMENT SCHEDULE NOTES:
1. GALVANIZE ALL STUD RAILS AT PARKING SLABS AND LOCATIONS FALLING IN BALCONY.
 2. PROVIDE 1 1/2" TOP COVER AT GALVANIZED STUD RAILS.



- NOTES:
1. ADDITIONAL REINFORCING NOT SHOWN FOR CLARITY.
 2. STUD RAIL ASSEMBLY TO CONFORM TO ASTM A1044.



CONCRETE BEAM SCHEDULE - PHASE 1									
MARK	BEAM DIMENSIONS			STIRRUPS	LONGITUDINAL REINFORCEMENT			REMARKS	
	WIDTH	DEPTH	SIZE		TOP BARS ₂₀	BOTTOM BARS ₂₀	BEAM FACE BARS ₂₀		
B1-1	24"	27"	#4	FULL LENGTH AT 4" o/c	(6) #9	(6) #9	#7 AT 8" o/c	REFER TO 4S4010-1	
B2-1	12"	48"	#4	FULL LENGTH AT 10" o/c	(5) #7	(3) #9	#5 AT 8" o/c	REFER TO 7S4010-1	
B3-1	12"	24"	#4	FULL LENGTH AT 4" o/c	(4) #7	(3) #9	#5 AT 7" o/c	REFER TO 7S4010-1	
B4-1	24"	30"	#4	FULL LENGTH AT 10" o/c	(6) #7	(5) #9	#7 AT 6" o/c	REFER TO 5S4010-1	
B5-1	18"	24"	#4	FULL LENGTH AT 10" o/c	(4) #7	(4) #9	#7 AT 10" o/c	REFER TO 5S4010-1 AND 6S4010-1	
B6-1	10"	38"	#3	FULL LENGTH AT 4" o/c	(3) #7	(4) #9	#5 AT 4" o/c	BOTTOM BARS IN (2) LAYERS	
B7-1	24"	28"	#4	FULL LENGTH AT 10" o/c	(10) #7	(8) #9	N/A		
B8-1	10"	34"	#3	FULL LENGTH AT 4" o/c	(2) #7	(2) #7	N/A	EPOXY COATED BARS	
B9-1	24"	30"	#4	FULL LENGTH AT 4" o/c	(16) #9	(6) #9	N/A	TOP BARS IN (2) LAYERS	
B10-1	24"	45"	#4	FULL LENGTH AT 4" o/c	(8) #7	(8) #9	#5 AT 9" o/c	EPOXY COATED BARS REFER TO 8S4010-1	
B11-1	16"	24"	#4	FULL LENGTH AT 4" o/c	(5) #9	(5) #9	N/A		
B12-1	16"	44"	#4	FULL LENGTH AT 4" o/c	(12) #7	(15) #9	#5 AT 9" o/c	TOP BARS IN (2) LAYERS BOTTOM BARS IN (3) LAYERS	
<div>CONCRETE BEAM SCHEDULE NOTES:</div> <div>1. CONCRETE STRENGTH TO MATCH SLAB CONCRETE STRENGTH, UNO.</div> <div>2. SPLICE TOP AND SIDE BARS AT BEAM MIDSPAN. PROVIDE STD HOOKS AT BEAM ENDS.</div> <div>3. SPLICE BOTTOM BARS AT COLUMN LOCATIONS. PROVIDE STD HOOKS AT EVERY OTHER BAR.</div> <div>4. BEAM FACE BARS SHALL BE PLACED ALONG EACH FACE OF BEAM AND SPACED EQUALLY BETWEEN TOP AND BOTTOM BARS. BARS SHALL BE CONTINUOUS w/ CLASS B LAP SPLICES AS REQUIRED.</div> <div>5. EPOXY COAT ALL BEAM REINFORCEMENT IN PARKING AREAS AND EXPOSED CONDITIONS.</div> <div>6. WHERE REQUIRED, BARS IN (2) LAYERS SHALL HAVE A GREATER OF 1" OR BAR DIAMETER CLEAR BETWEEN LAYERS.</div> <div>7. UNO, BEAM DEPTH INCLUDES SLAB THICKNESS.</div>									
<div><div><div>TYPE I</div></div><div><div>TYPE II</div></div><div><div>TYPE III</div></div></div>									





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PE Project: 22019

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN

SHEET INFORMATION

PROJECT MANAGER

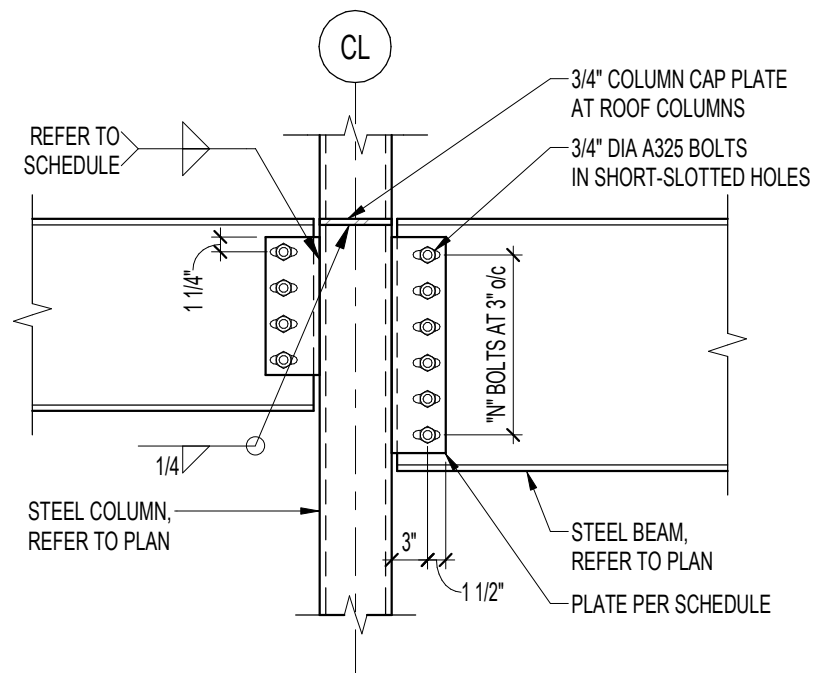
PROJECT NUMBER720448

CONCRETE BEAM
SCHEDULE AND
DETAILS

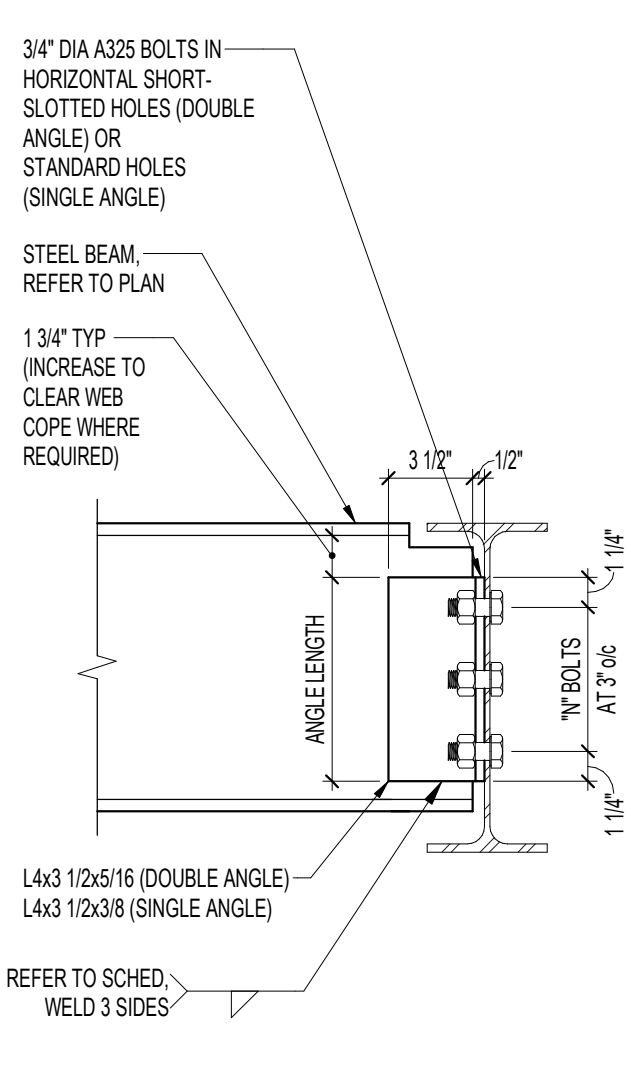
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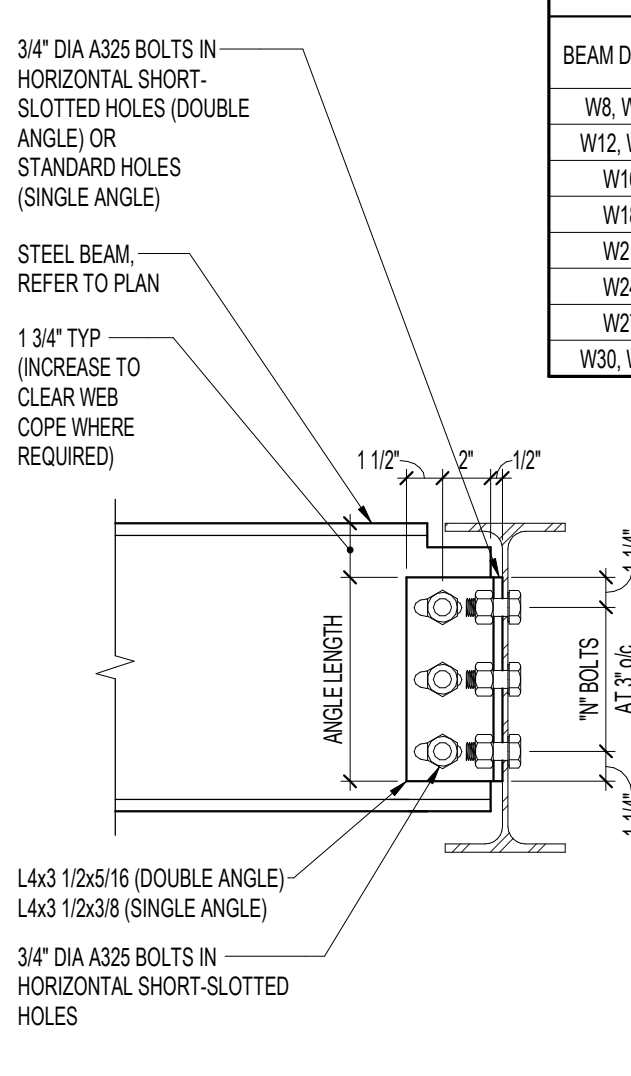
BEAM DEPTH	N	PLATE	WELD
WB, W10	2	5/16" x 4 1/2" x 0-5 1/2"	1/4"
W12, W14	3	5/16" x 4 1/2" x 0-8 1/2"	1/4"
W16	4	5/16" x 4 1/2" x 0-11 1/2"	1/4"
W18	5	5/16" x 4 1/2" x 1-2 1/2"	1/4"
W21	6	5/16" x 4 1/2" x 1-5 1/2"	1/4"
W24	7	5/16" x 4 1/2" x 1-8 1/2"	1/4"
W27	8	5/16" x 4 1/2" x 1-11 1/2"	1/4"
W30, W33	9	5/16" x 4 1/2" x 2-2 1/2"	1/4"



1 TYPICAL SHEAR PLATE CONNECTION



WELDED CONNECTION



BOLTED CONNECTION

CONNECTION SCHEDULE			
BEAM DEPTH	N	ANGLE LENGTH	WELD SIZE
WB, W10	2	5 1/2"	1/4"
W12, W14	3	8 1/2"	1/4"
W16	4	11 1/2"	1/4"
W18	5	14 1/2"	1/4"
W21	6	17 1/2"	1/4"
W24	7	20 1/2"	1/4"
W27	8	23 1/2"	1/4"
W30, W33	9	26 1/2"	1/4"

- CONNECTION SCHEDULE NOTES
- PROVIDE DOUBLE ANGLE CONNECTION AT ALL BEAMS TO W/F COLUMNS.
 - PROVIDE DOUBLE ANGLE CONNECTION AT ALL BEAMS WITH BOTTOM FLANGE COPE, UNO.

METAL DECK SCHEDULE - PHASE 1

MARK/LOCATION	STEEL DECK PROFILE	GAUGE ²	DECK THICKNESS (T _d)	F _y (MIN)	FINISHING	STEEL DECK ATTACHMENT ¹	
						DECK TO INTERMEDIATE SUPPORTS	DECK EDGE ATTACHMENT
RD-1/ELEVATOR ROOF	DR	18	3"	40 KSI	GALVANIZED	5/8" DIA PUDDLE WELDS IN 32-4 PATTERN	(4) #10 TEK SCREWS 5/8" DIA PUDDLE WELDS 8" o/c

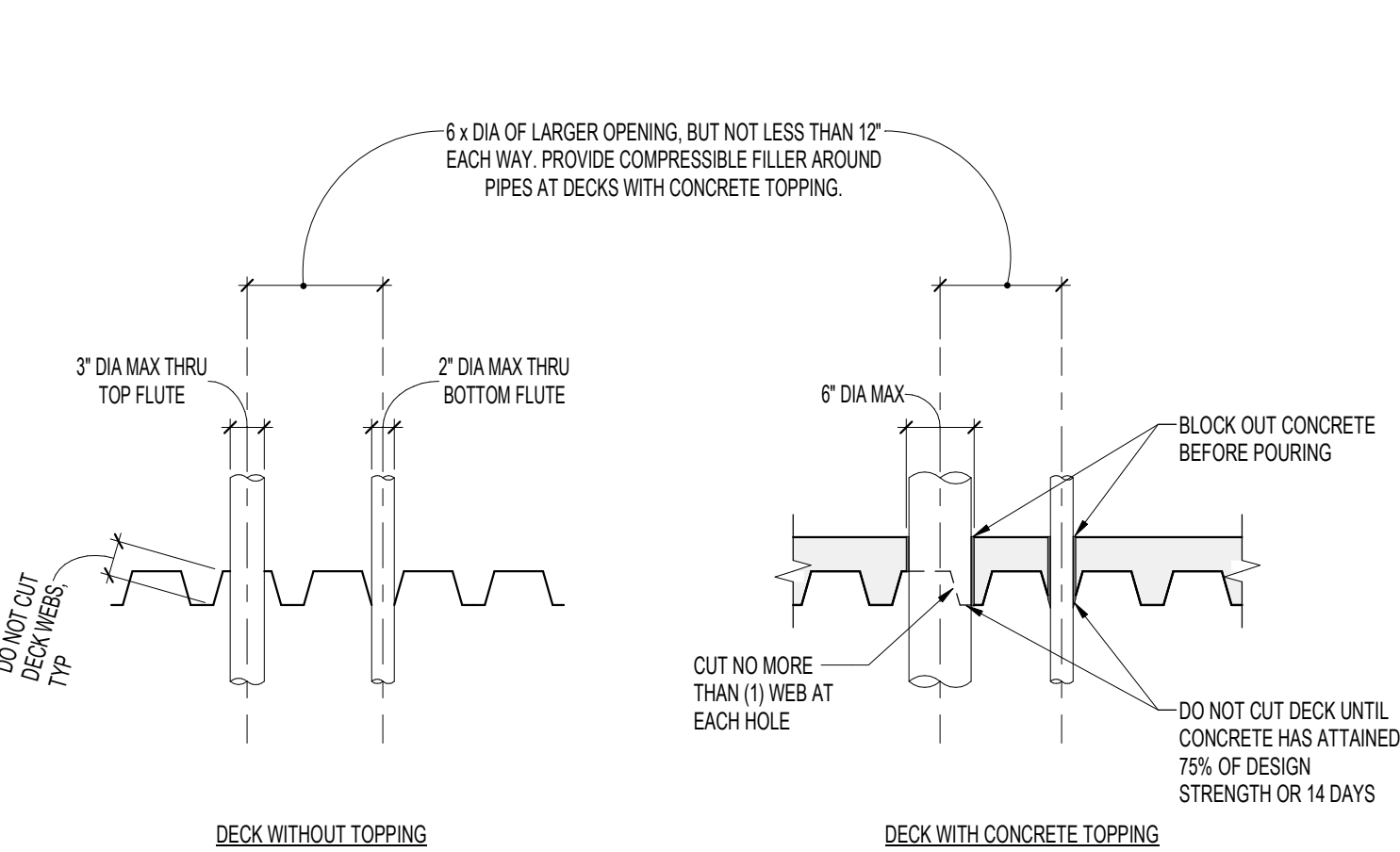
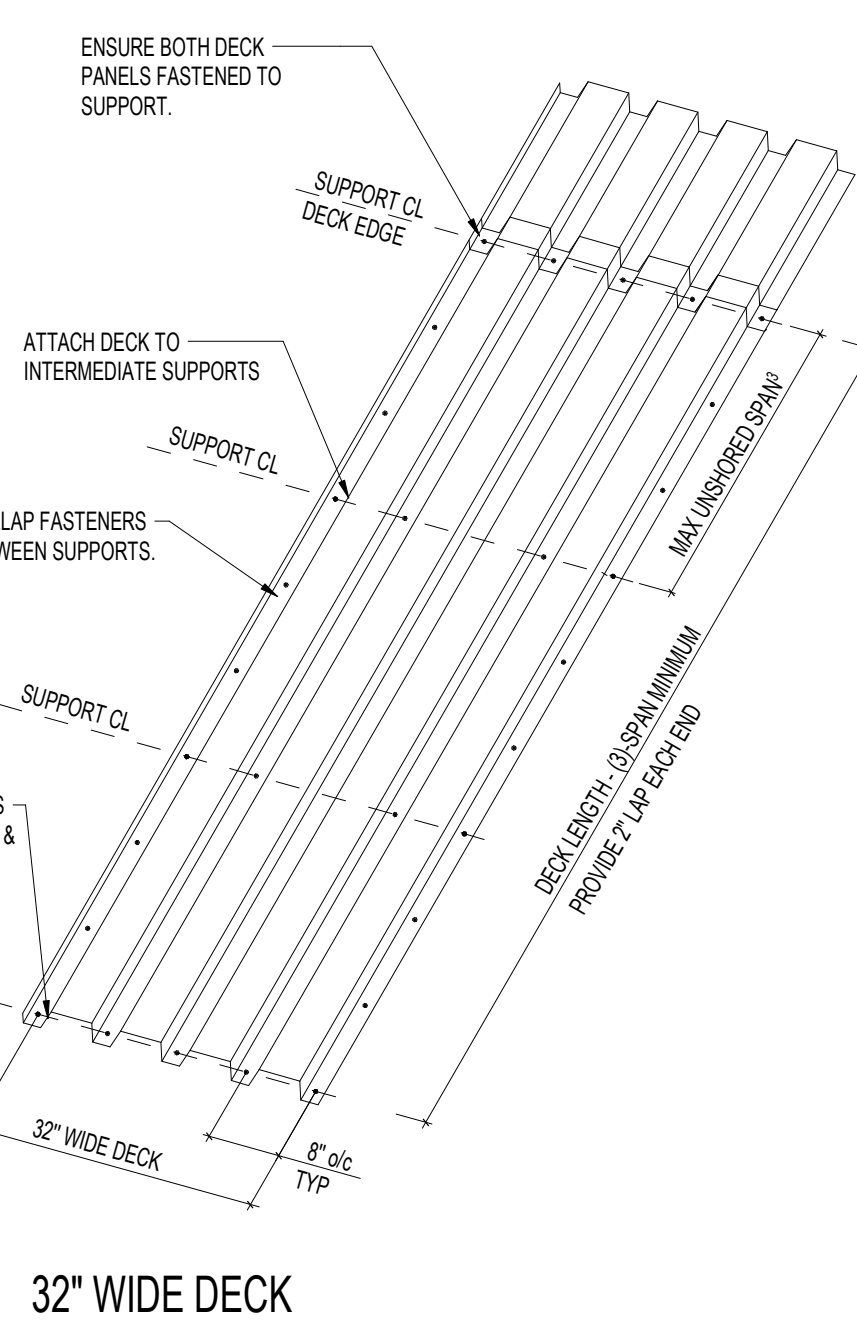
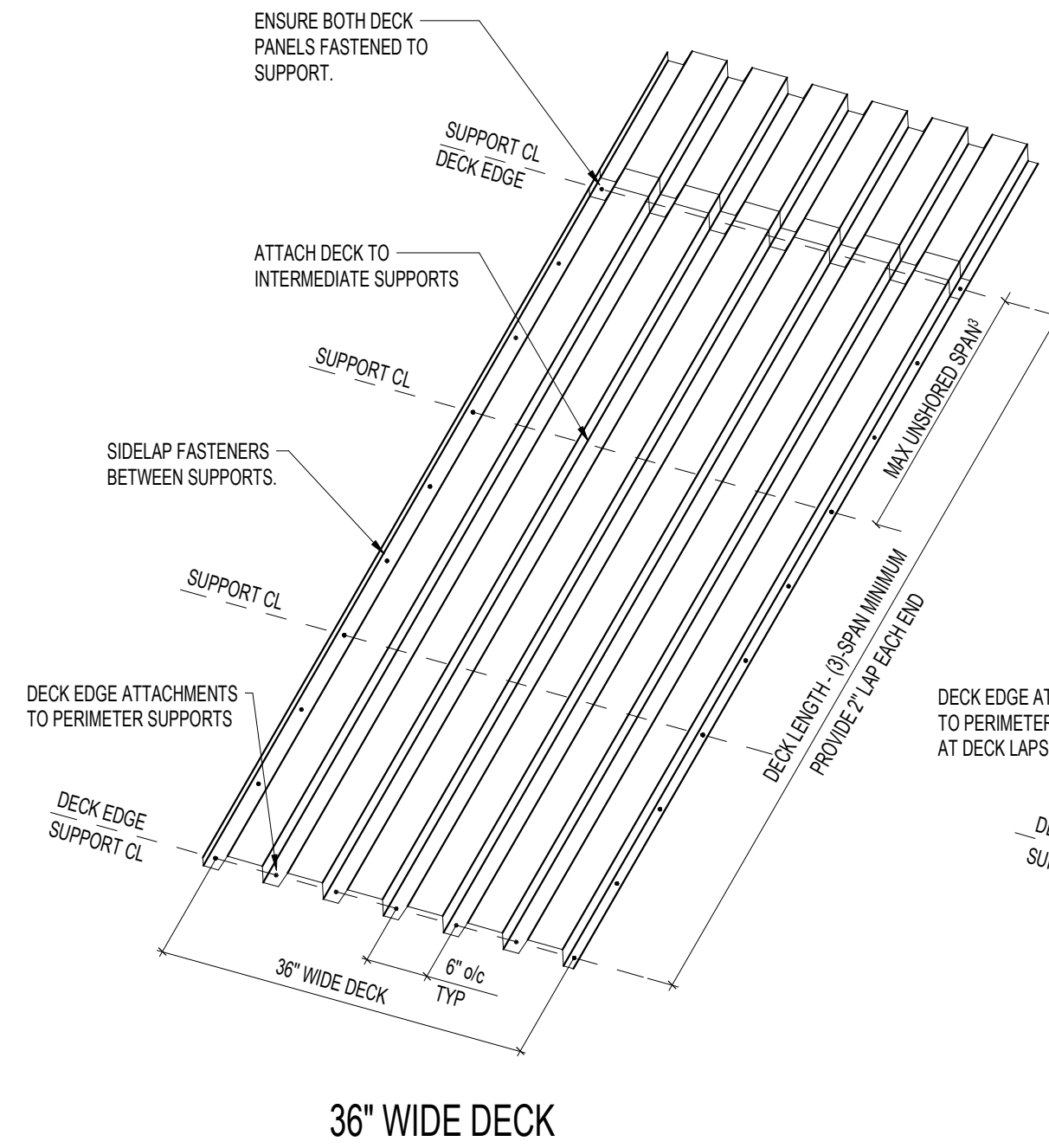
NOTES:

- REFER TO GENERAL NOTES FOR ADDITIONAL INFORMATION
- UNLESS NOTED OTHERWISE ON PLAN
- GO TO REFER TO SDI REQUIREMENTS FOR MAXIMUM UNSHORED DECK SPAN AND PROVIDE SHORING AS REQUIRED
- AT CONTRACTOR OPTION: DECK SUPPLIER MAY PROVIDE HLT1 OR OTHER PROPRIETARY POWDER ACTUATED FASTENER LAYOUT TO MEET OR EXCEED DIAPHRAGM ATTACHMENT STRENGTH, STIFFNESS, AND REQUIRED WIND UPLIFT RESISTANCE PER VALUES STATED ON SDI DIAPHRAGM DESIGN MANUAL, FOURTH EDITION. ALL PERSONNEL INSTALLING PROPRIETARY FASTENERS SHALL BE TRAINED AND CERTIFIED BY THE FASTENER SYSTEM MANUFACTURER AND FOLLOW ALL MANUFACTURER'S REQUIREMENTS. ADDITIONAL CARE MUST BE TAKEN IN THE EVENT THAT THE SUPPORTING MATERIAL BELOW THE DECK IS NOT HOT-ROLLED STEEL (E.G. COLD-FORMED TOP AND BOTTOM JOIST CHORDS). CONTRACTOR SHALL SUBMIT VALID CERTIFICATION FROM THE MANUFACTURER ON ALL PERSONNEL.
- REFER TO METAL DECK PROPERTY TABLES FOR MINIMUM SECTION PROPERTIES.

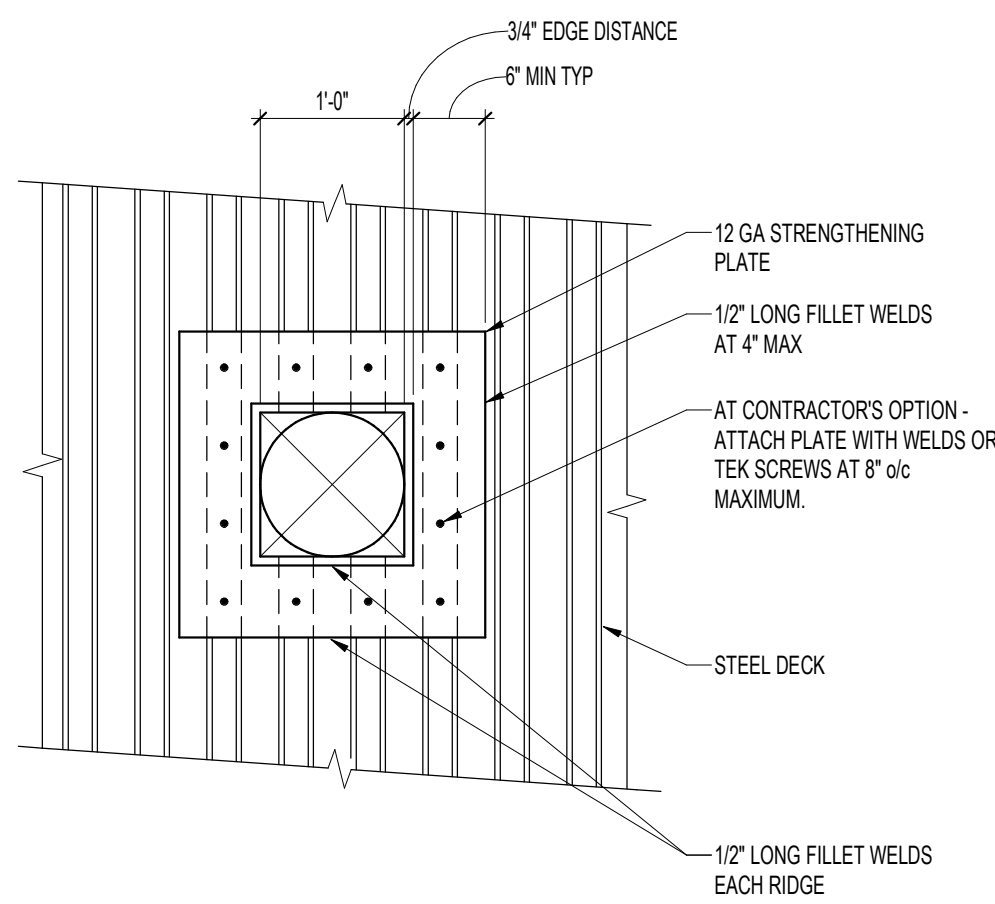
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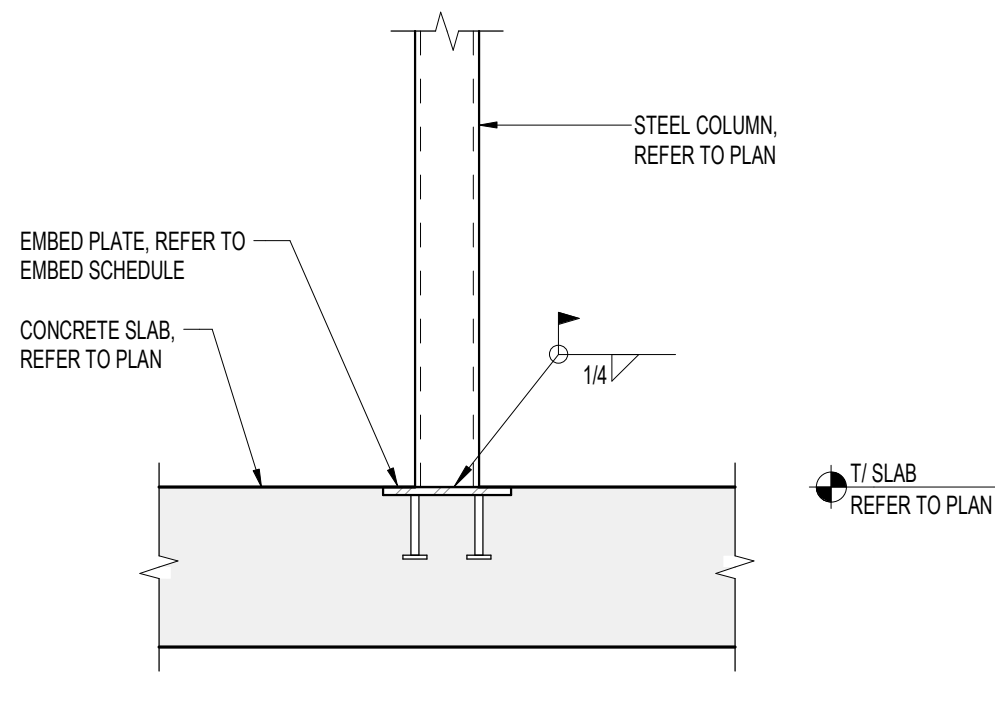
3 METAL DECK SCHEDULE



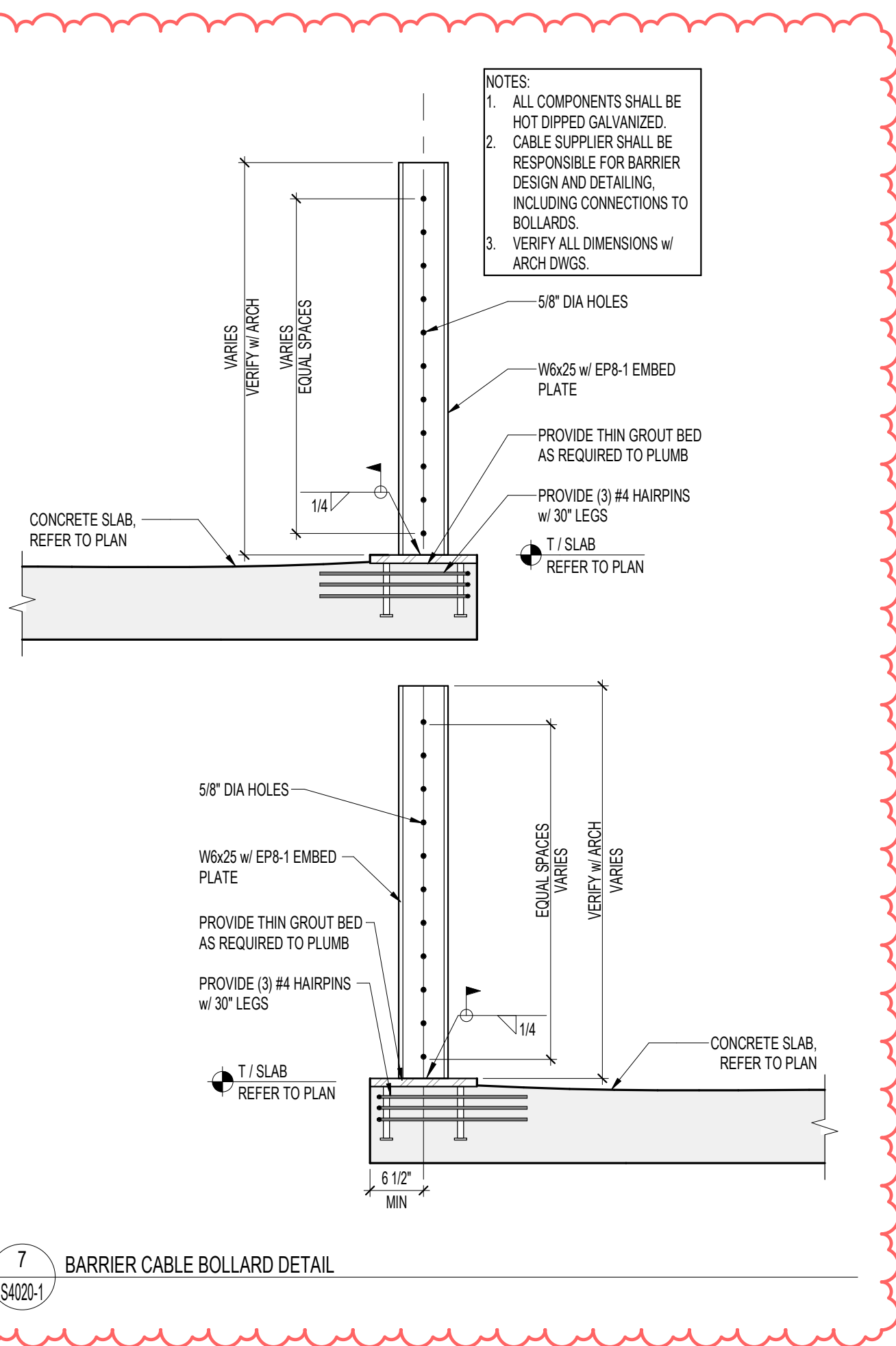
4 FLOOR DECK OPENINGS LESS THAN 6"



5 FLOOR DECK OPENINGS 6" TO 12"



6 TYPICAL COLUMN EMBED CONNECTION



7 BARRIER CABLE BOLLARD DETAIL



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KEY PLAN

SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

STEEL FRAMING
DETAILS - PHASE 1

S4020-1

PROJECT INFORMATION

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415 N. LAKE STREET
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KEY PLAN

SHEET INFORMATION

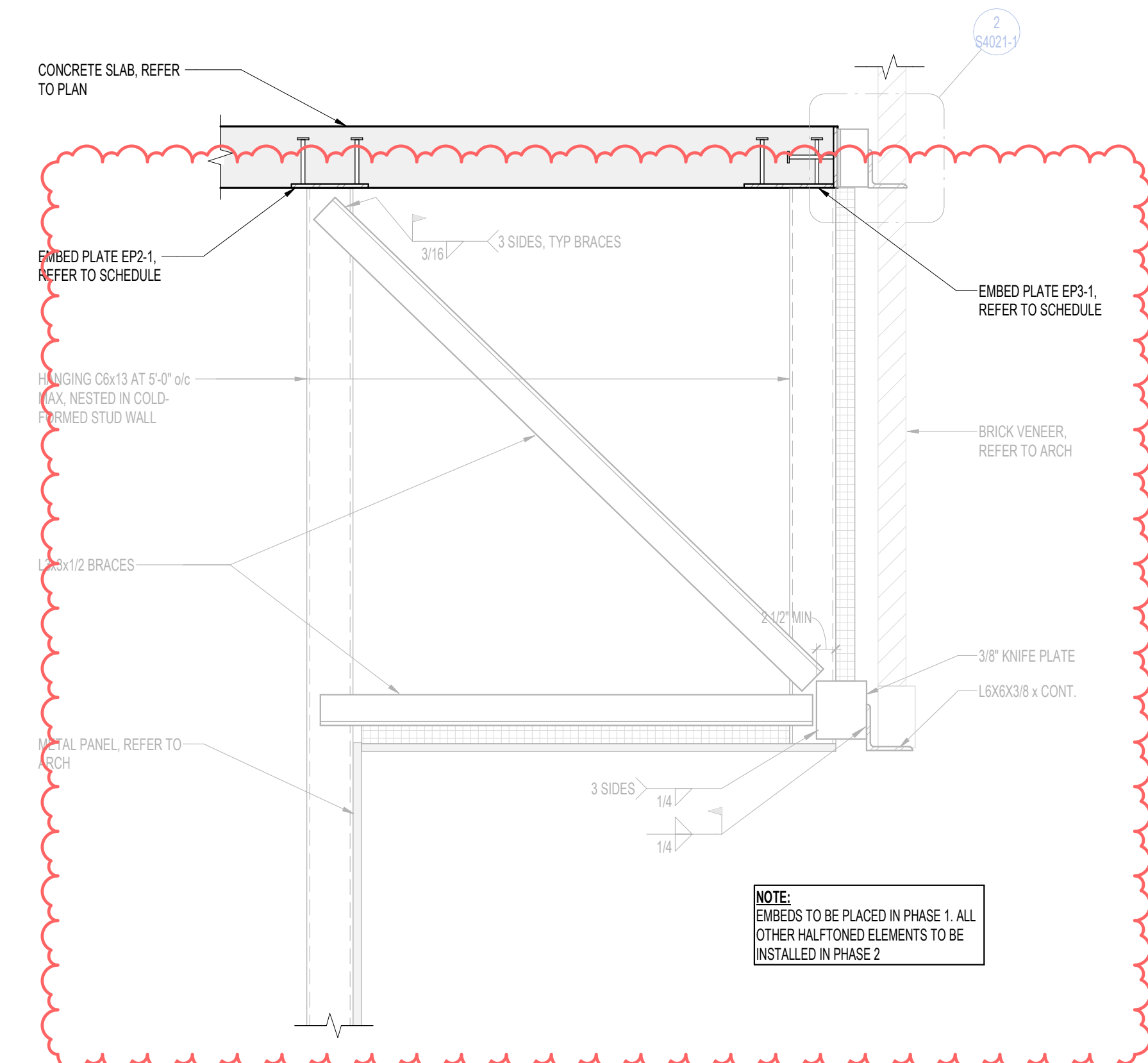
PROJECT MANAGER

PROJECT NUMBER

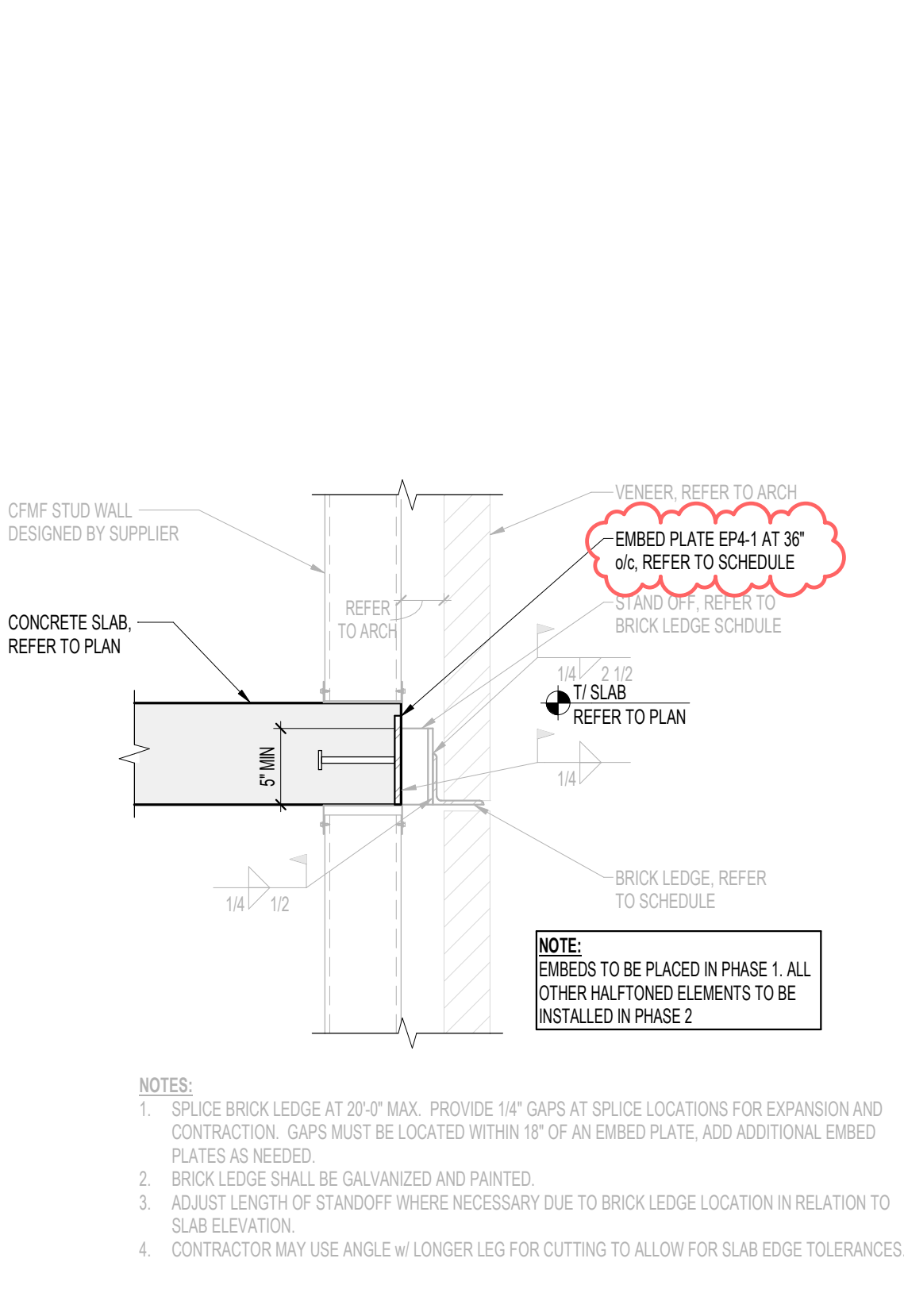
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STEEL FRAMING
DETAILS - PHASE 1

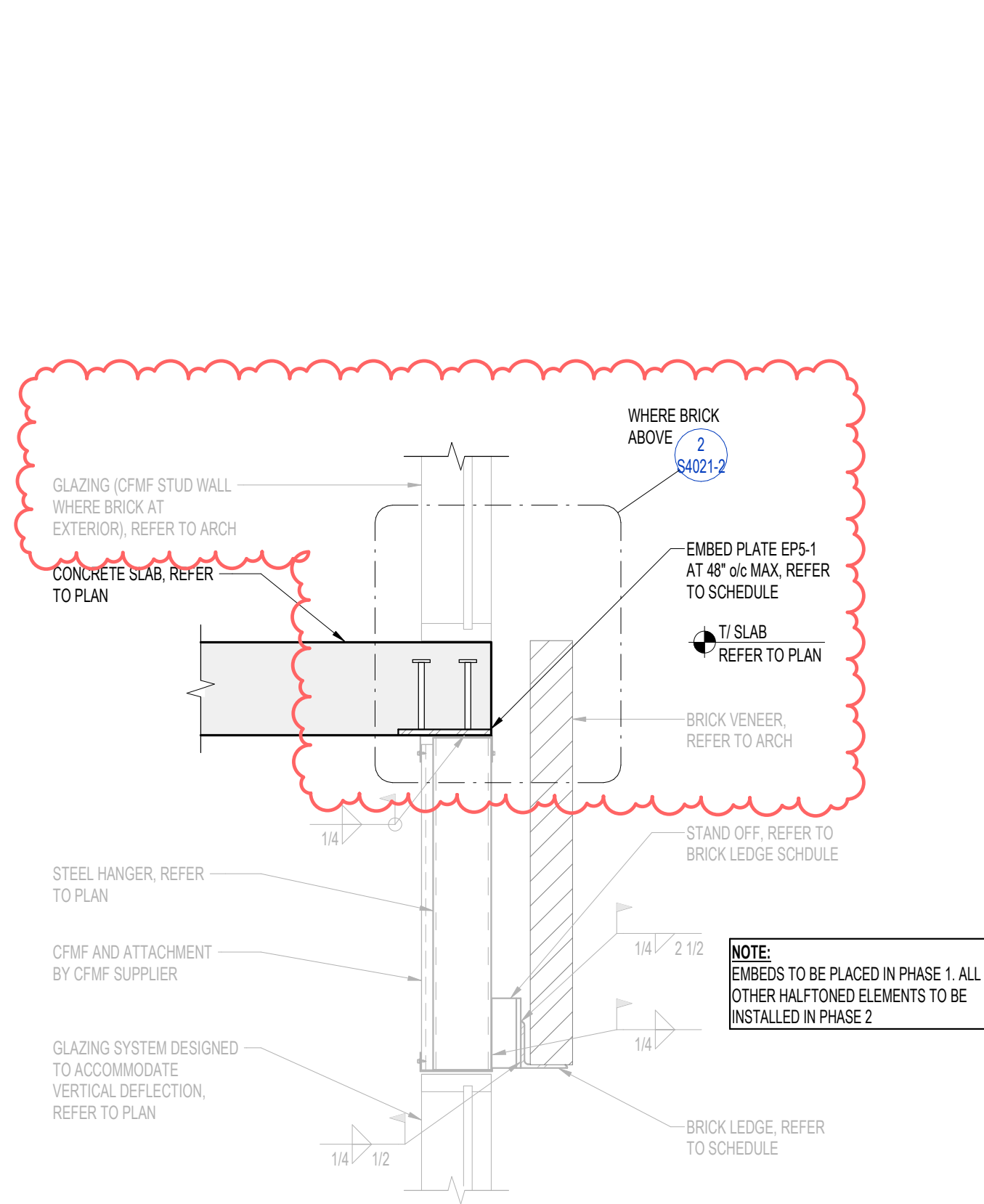
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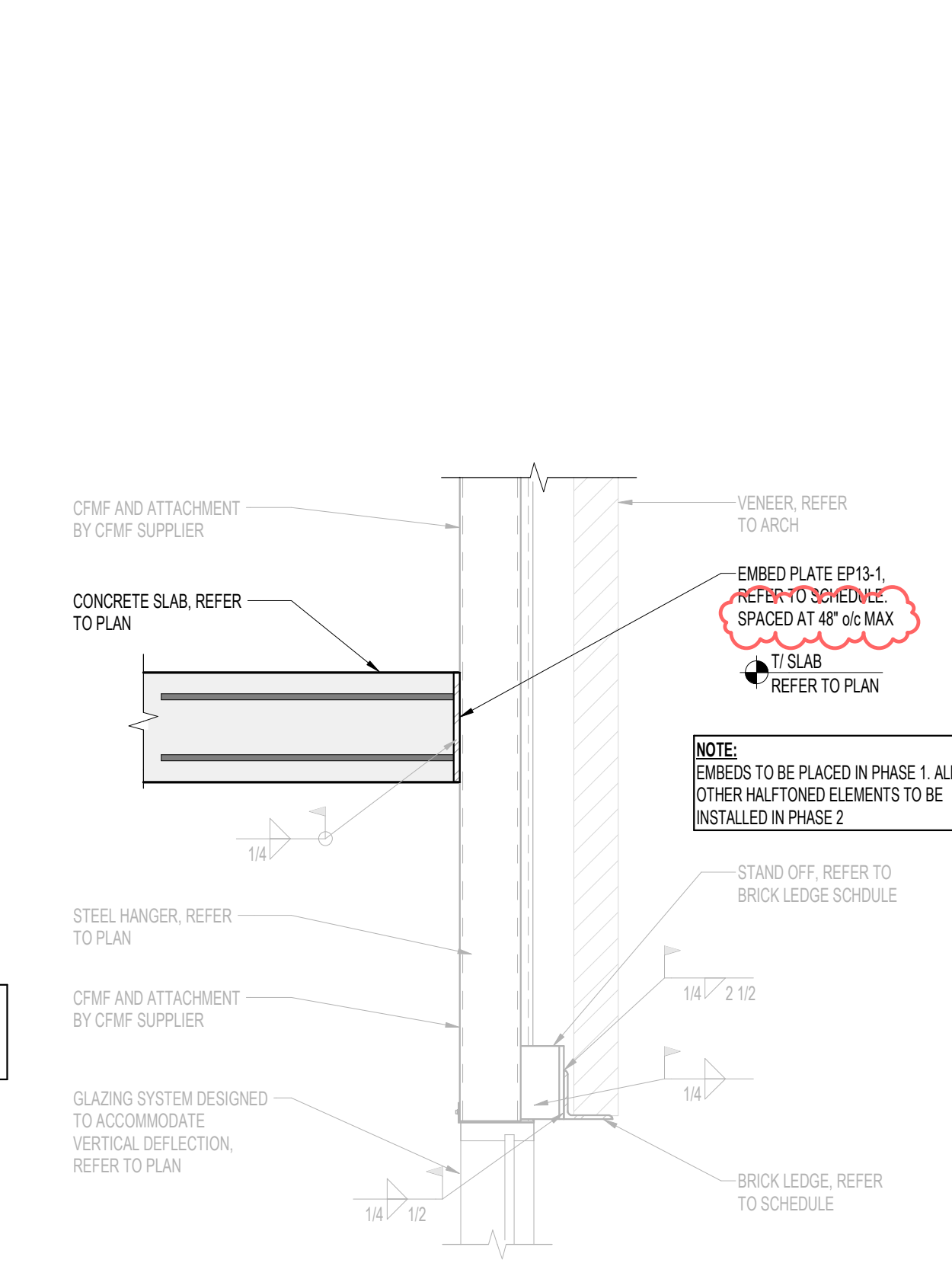
1 STEEL BRACING DETAIL



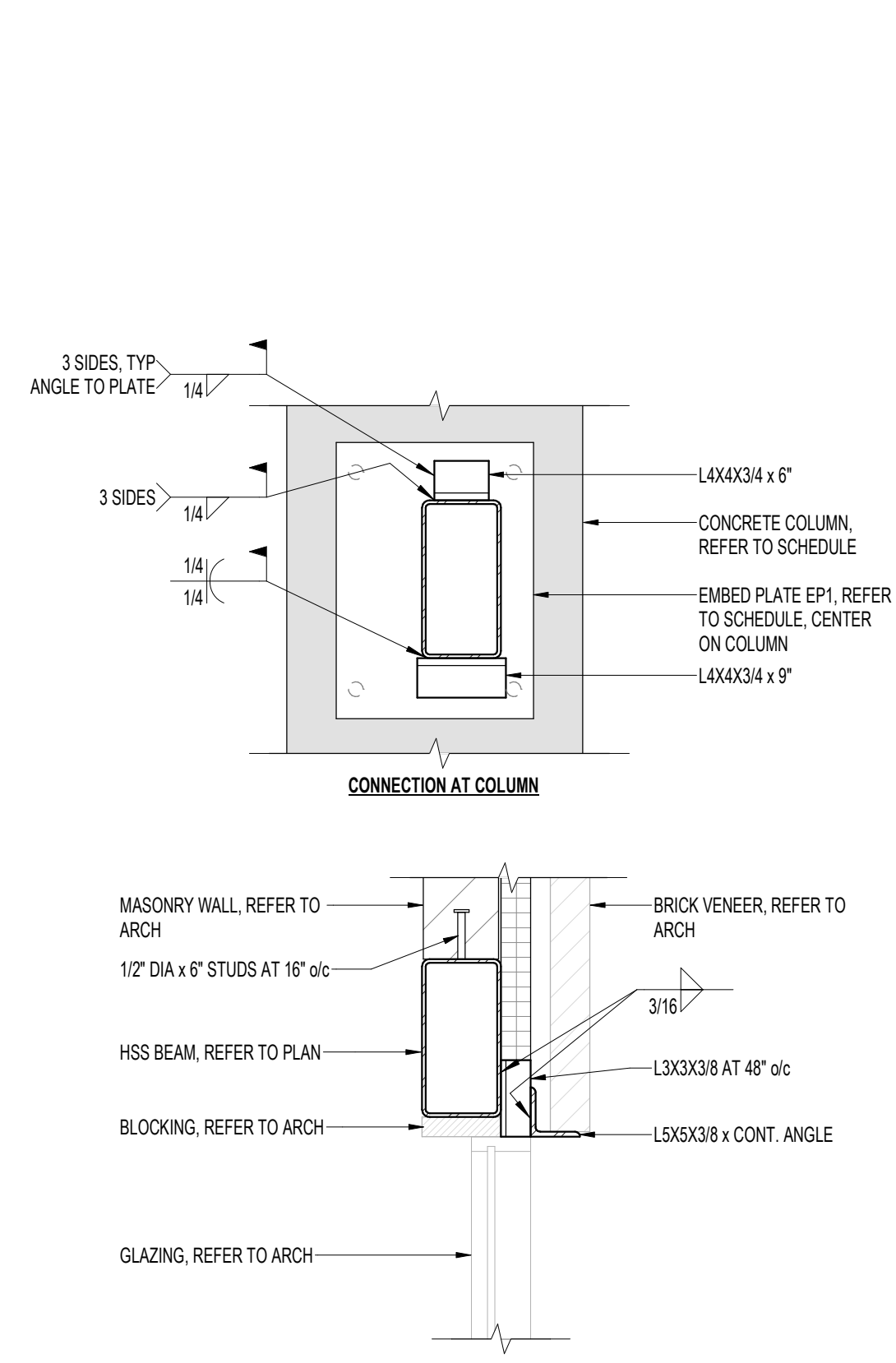
2 SLAB EMBED FOR PHASE 2 FRAMING



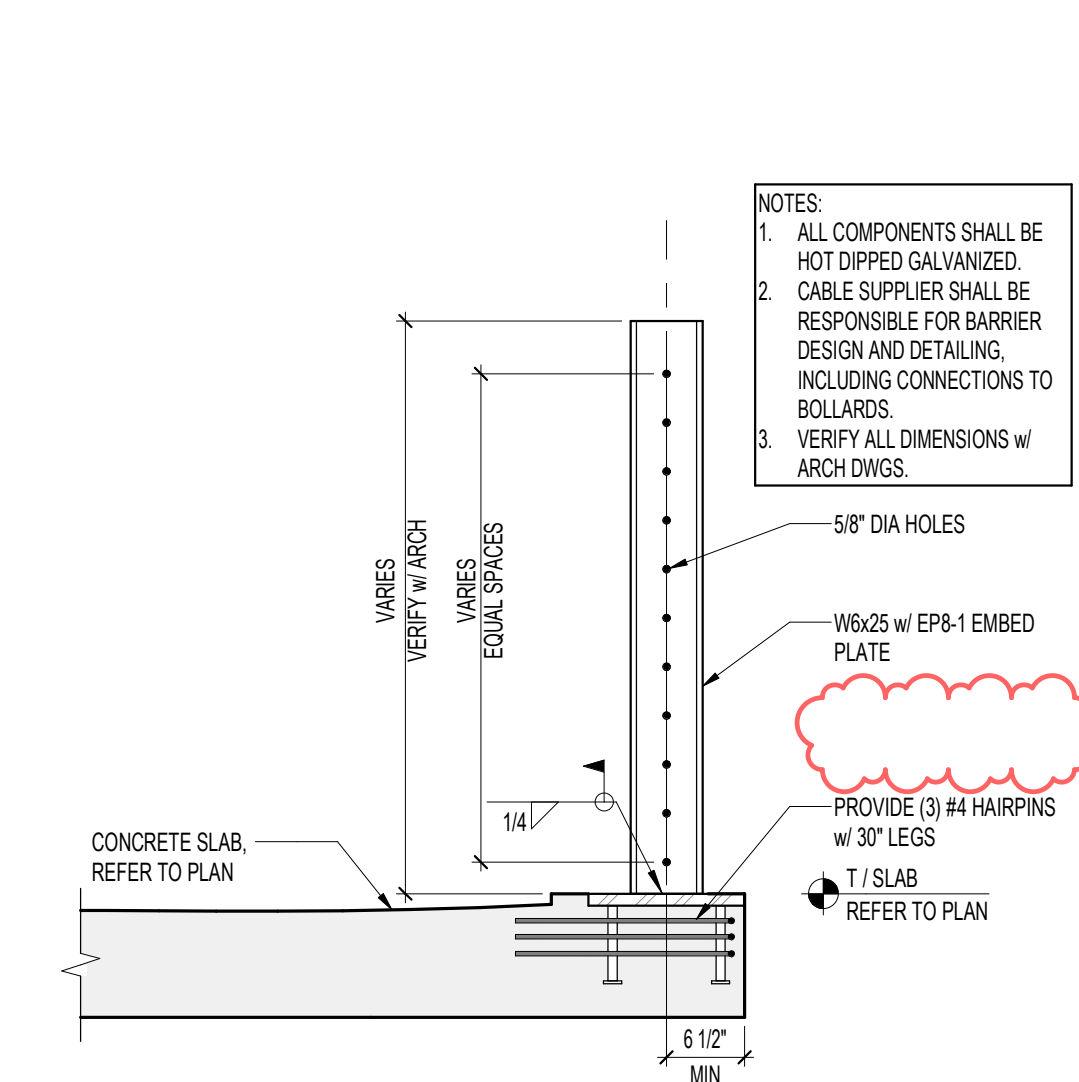
3 BRICK LEDGE DETAIL



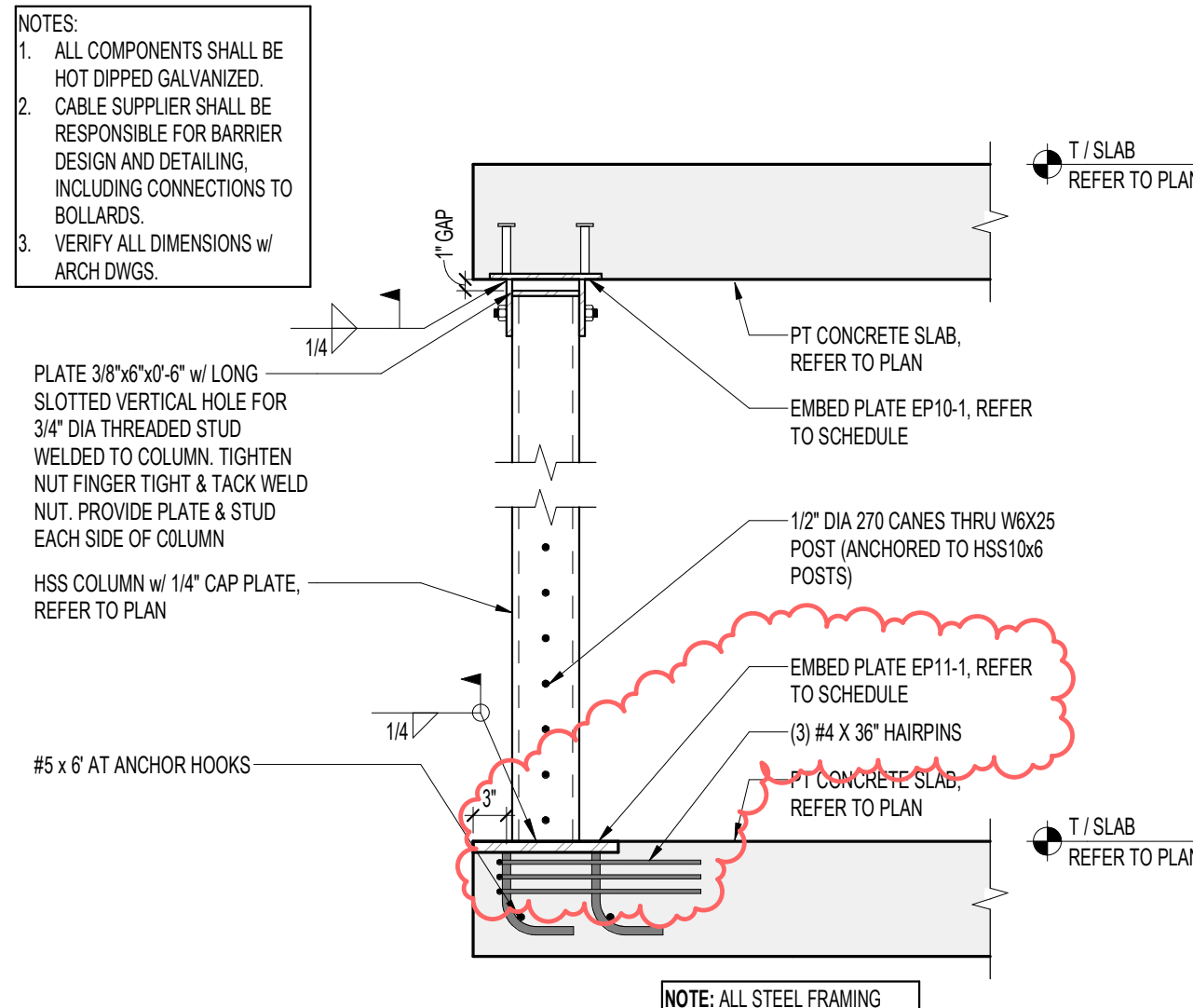
4 SLAB EMBED FOR PHASE 2 FRAMING



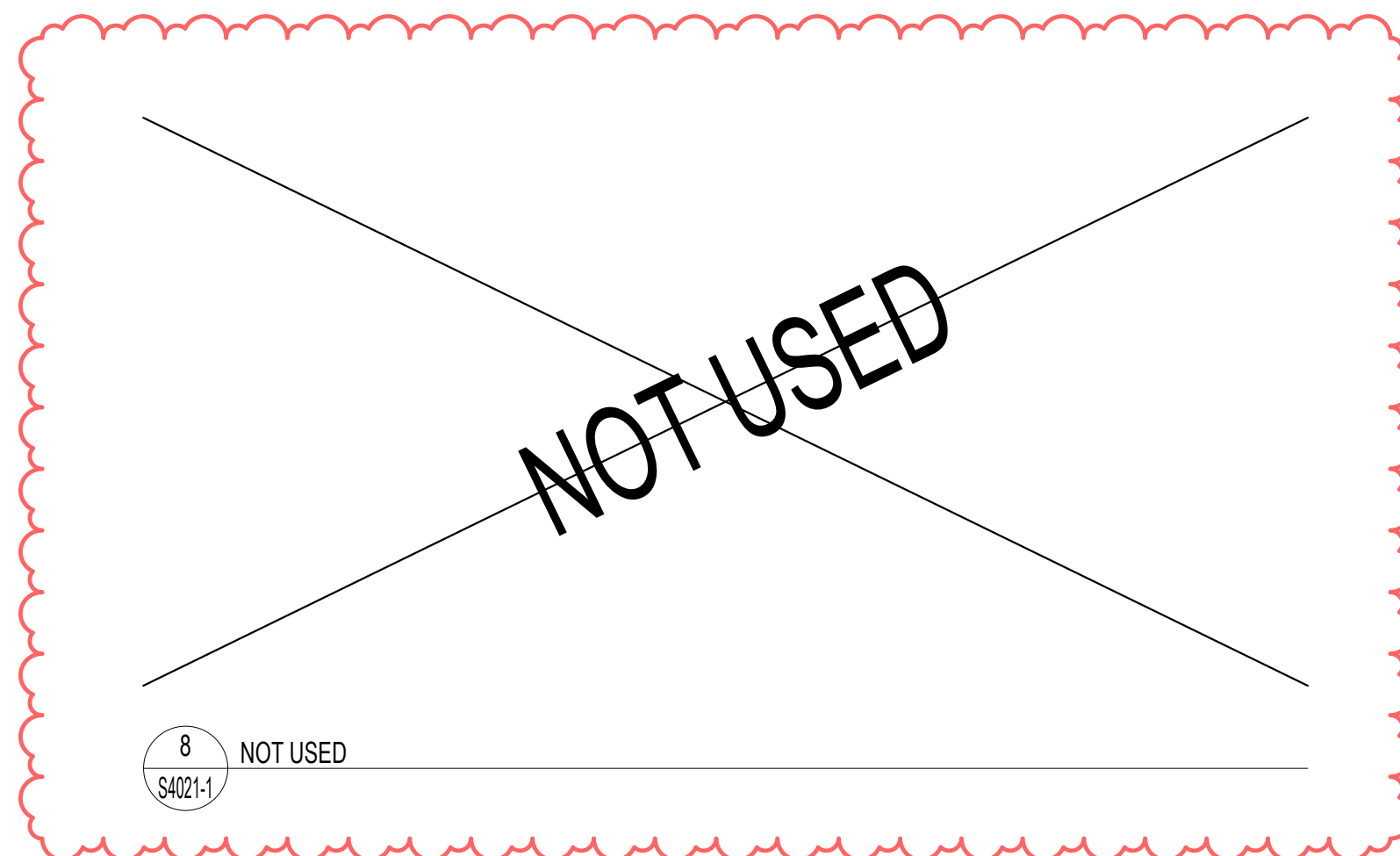
5 BEAM DETAIL



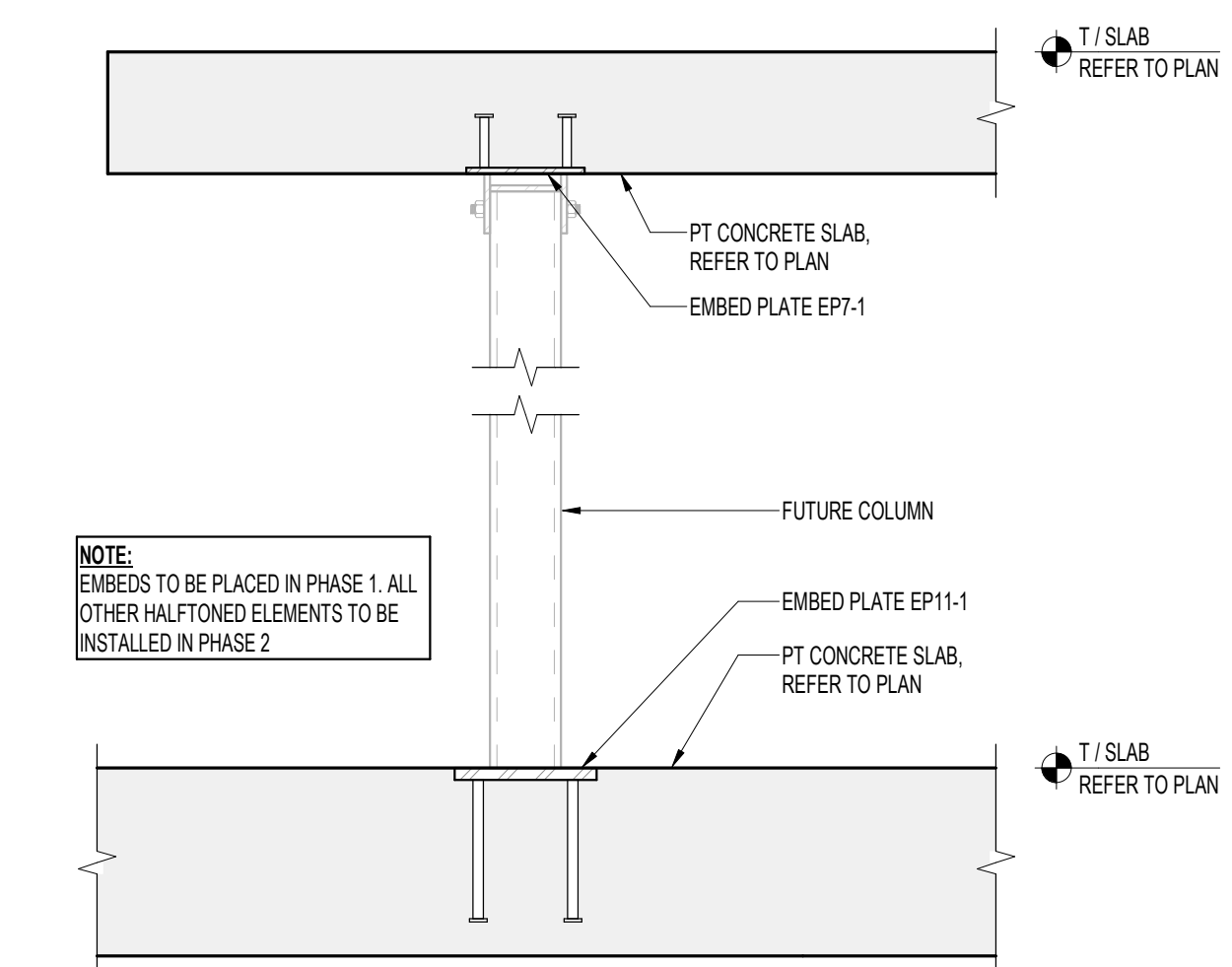
6 BARRIER CABLE BOLLARD DETAIL



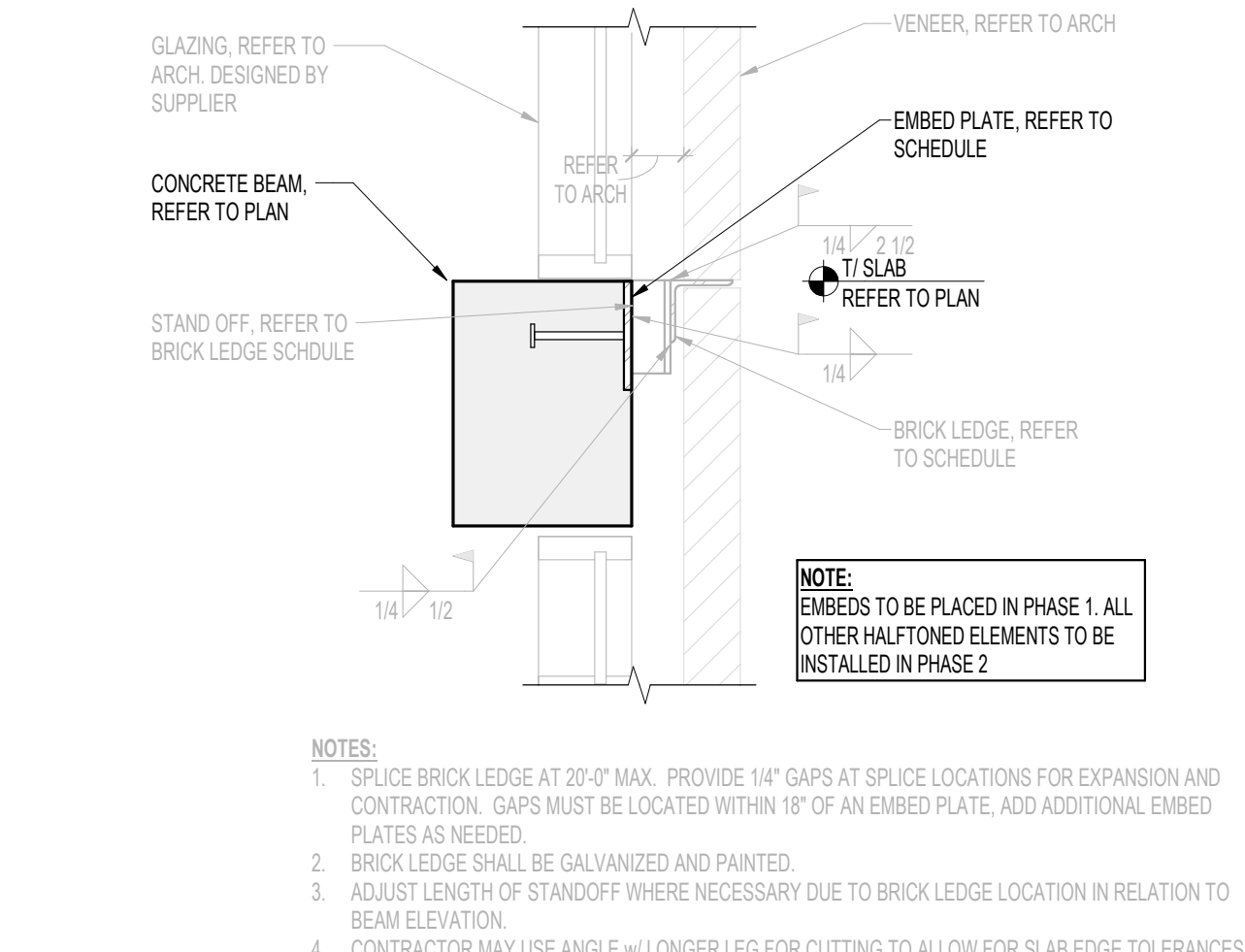
7 BARRIER CABLE ANCHOR COLUMN



8 NOT USED



9 SLAB EMBEDS FOR PHASE 2 FRAMING

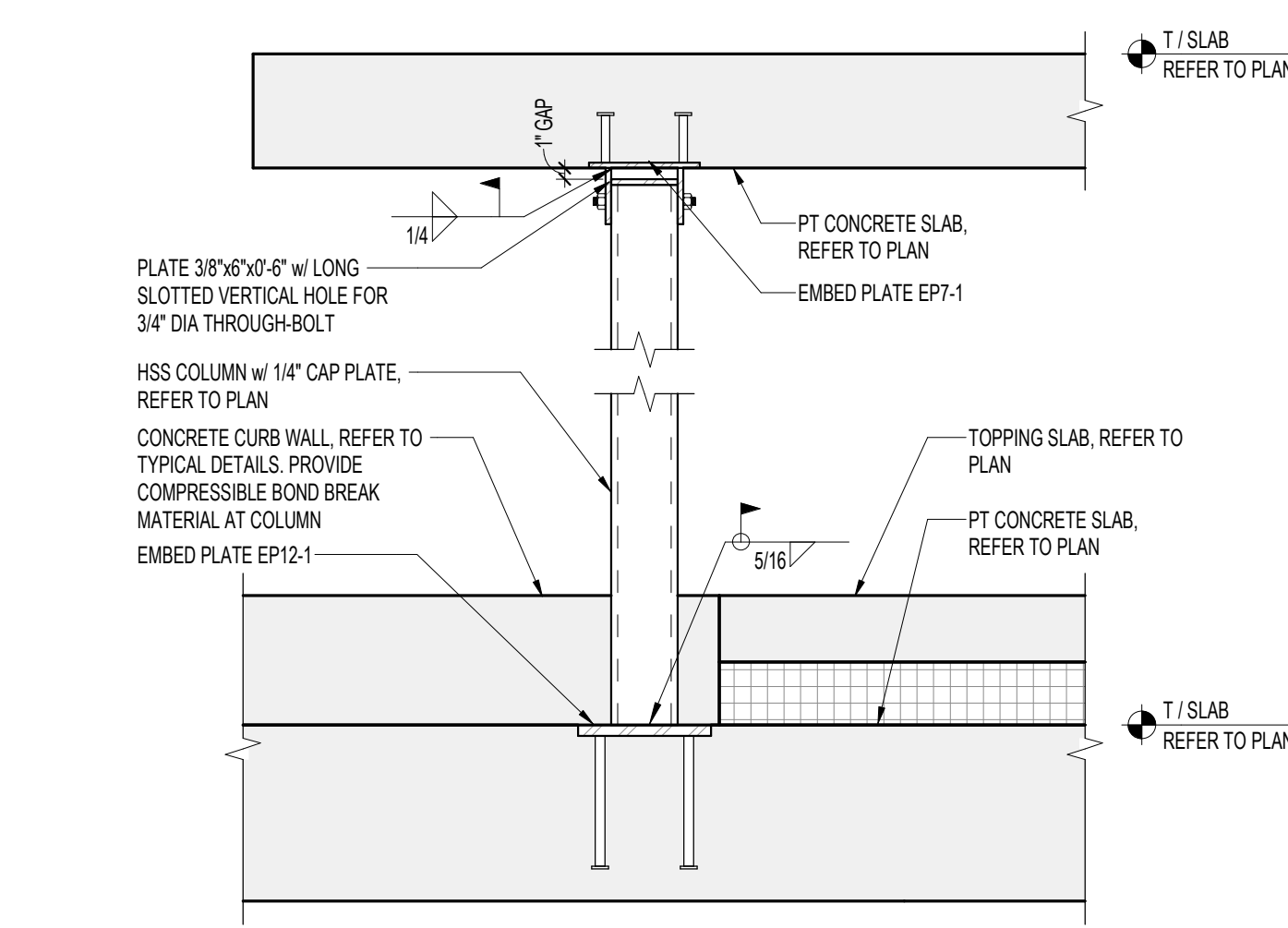


10 BEAM EMBED

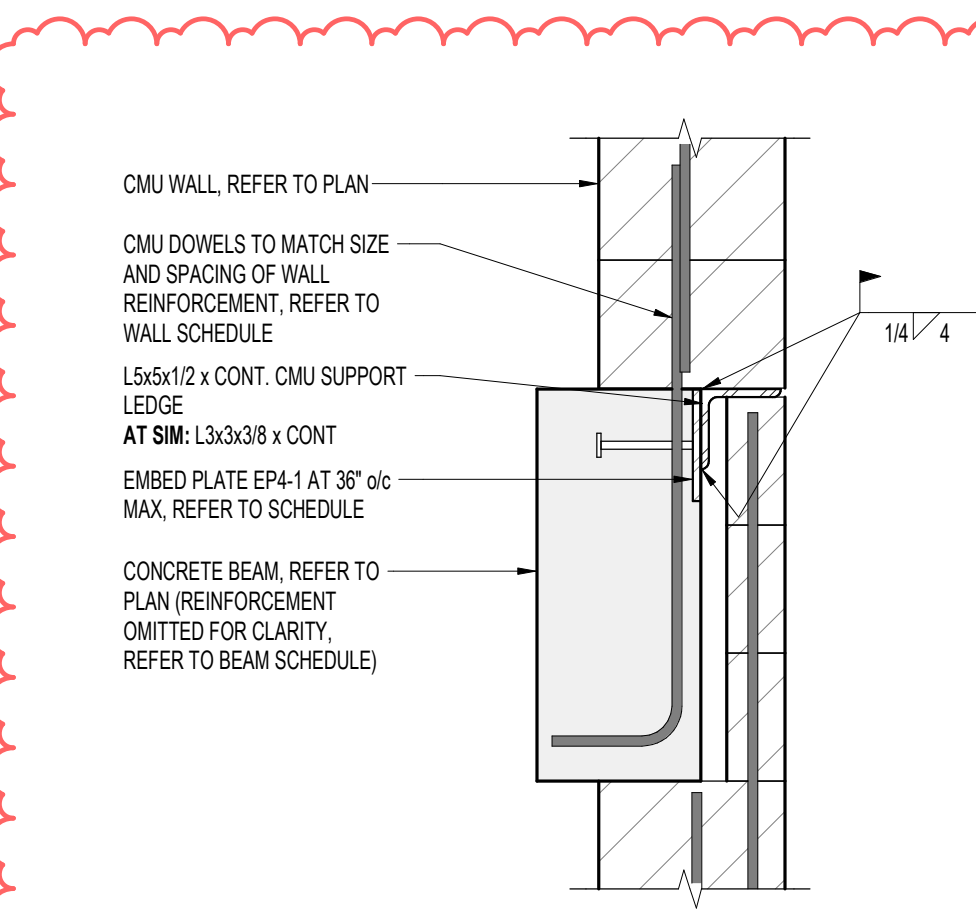
BRICK LEDGE SCHEDULE				
MARK	SIZE	EMBED PLATE/ANCHOR	STANDOFF	REMARKS
BL1	L5x5x1/2	EP4-1 AT 3'-0" o/c	L4x4x3/8	2'10" - S4021-1
BL2	L5x5x1/2	5/8" TITEN HD ANCHOR AT 3'-0" o/c, EMBED TO 4" MIN		10" - S4021-1
BL3	L6x4x1/2	EP4-1 AT 3'-0" o/c		2" - S4021-1
BL4	L5x5x1/2	EP4-1 AT 3'-0" o/c		2" - S4021-1
BL5	1/2" BENT PLATE 5'-2"	EP4-1 AT 3'-0" o/c		2'10" - S4021-1
BL6	1/2" BENT PLATE 12'-8"	5/8" TITEN HD ANCHOR AT 3'-0" o/c, EMBED TO 4" MIN		8" - S3002-1
BL7	L6x6x1/2	5/8" TITEN HD ANCHOR AT 3'-0" o/c, EMBED TO 4" MIN		8" - S3002-1

BRICK LEDGE SCHEDULE NOTES:

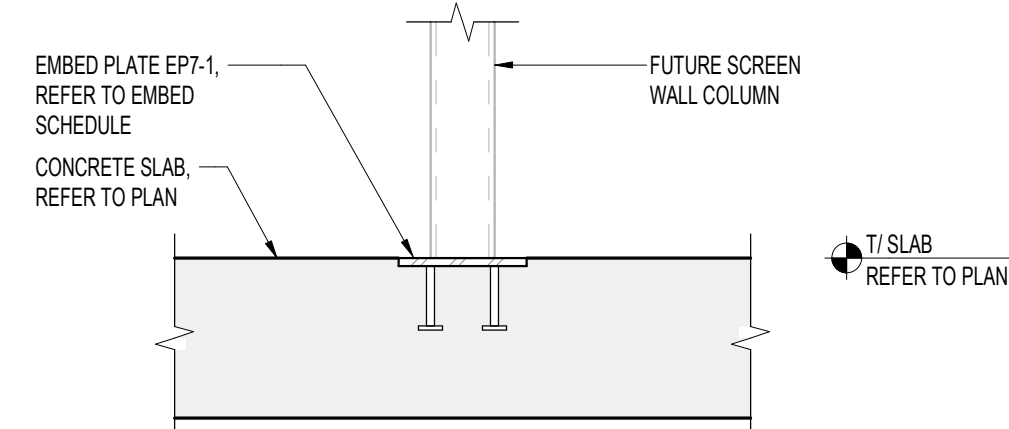
- AT BRICK LEDGE, RUN CONTINUOUS BUT LEAVE 1/4" GAPS AT 20'-0" o/c MAX FOR EXPANSION AND CONTRACTION. GAPS MUST BE LOCATED WITHIN 18" OF AN EMBED PLATE. ADD ADDITIONAL EMBED PLATES AS NEEDED.
- ALL LEDGES SHALL BE GALVANIZED AND PAINTED.
- STAINLESS STEEL BRICK LEDGES REQUIRED WHERE CALLED OUT IN DETAILS.
- ADJUST LENGTH OF STANDOFF WHERE NECESSARY DUE TO BRICK LEDGE LOCATION IN RELATION TO SLAB ELEVATION. AT CONTRACTOR'S OPTION, ANGLE WITH A LONGER LEG MAY BE USED TO ALLOW FOR CUTTING TO ADJUST FOR SLAB EDGE TOLERANCES.



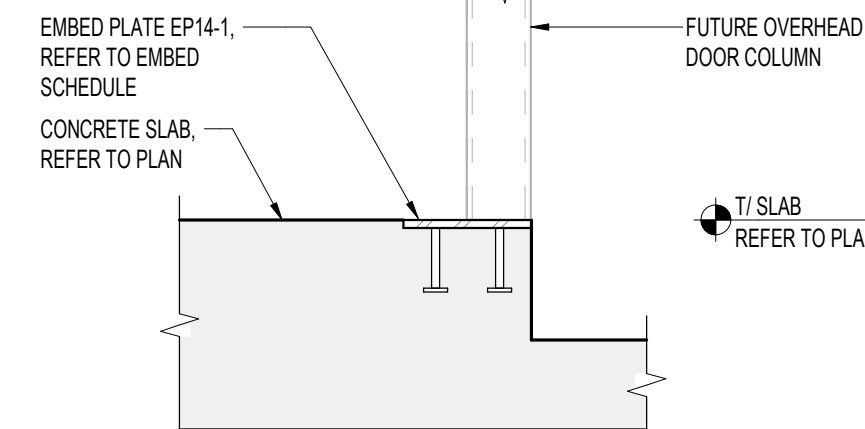
11 COLUMN DETAIL



12 CMU SUPPORT LEDGE AT BEAM



13 SLAB EMBED FOR PHASE 2 FRAMING



14 SLAB EMBED FOR PHASE 2 FRAMING

[illegible][illegible]

PROJECT SITE

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	<p>ARCHITECTURAL EPPSTEIN UHEN ARCHITECTS, INC.</p> <p>309 West Johnson Street, Suite 202 Madison, WI 53703 PHONE: 608.442.5350 www.eua.com</p>	<p>ARCHITECT: PROJECT CONTACT: DIRECT PHONE: EMAIL ADDRESS:</p> <p>John Chapman Mike Oates , PM (414) 298-2222 mikeo@eua.com</p>
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VOLUME 1			VOLUME 2		
GENERAL			GENERAL		
G0000-1.1	INDEX VOLUME 1 - PHASE 1	A1203-1	P3 FLR OVERALL FINISH PLANS - PHASE 1	M9001-1	DETAILS - HVAC
G1000	LOWER LEVEL FLR LIFE SAFETY PLAN	A1204-1	P4 FLR OVERALL FINISH PLANS - PHASE 1	M9002-1	DETAILS - HVAC
G1001	1ST FLR FLR LIFE SAFETY PLAN	A1205-1	P5 FLR OVERALL FINISH PLANS - PHASE 1		
G1002	P3 & P6 FLR LIFE SAFETY PLAN	A1206-1	P6 FLR OVERALL FINISH PLANS - PHASE 1	ELECTRICAL - PHASE 1	
G1003	P5 & P6 FLR LIFE SAFETY PLAN	A2000-1	EXTERIOR ELEVATIONS - PHASE 1	E0000-1	SYMBOLS & ABBREVIATIONS - ELECTRICAL
G1004	7TH & 8TH FLR LIFE SAFETY PLAN	A2001-1	EXTERIOR ELEVATIONS - PHASE 1	E0001-1	SITE PLAN - ELECTRICAL
G1005	9TH-15TH FLR LIFE SAFETY PLAN	A2002-1	EXTERIOR ELEVATIONS - PHASE 1	EL1000-1	LOWER LEVEL OVERALL - PHASE 1 - LIGHTING
G1012	ROOF LIFE SAFETY PLAN	A2003-1	EXTERIOR ELEVATIONS - PHASE 1	EL1000-B-1	LOWER LEVEL - ZONE B - PHASE 1 - LIGHTING
G3000	LIFE SAFETY SECTION	A2004-1	EXTERIOR ELEVATIONS - PHASE 1	EL1001-1	1ST FLR OVERALL - PHASE 1 - LIGHTING
G3001	LIFE SAFETY SECTION	A2005-1	EXTERIOR ELEVATIONS - PHASE 1	EL1001-A-1	1ST FLR - ZONE A - PHASE 1 - LIGHTING
G4000	CODE CALCS	A2200-1	EXTERIOR FRAME TYPES - PHASE 1	EL1001-B-1	1ST FLR - ZONE B - PHASE 1 - LIGHTING
G4001	CODE CALCS	A2300-1	INTERIOR ELEVATIONS - PHASE 1	EL1002-1	P2 FLR OVERALL - PHASE 1 - LIGHTING
G4002	CODE CALCS	A3000-1	BUILDING SECTIONS - PHASE 1	EL1002-A-1	P2 FLR - ZONE A - PHASE 1 - LIGHTING
		A3001-1	BUILDING SECTIONS - PHASE 1	EL1002-B-1	P2 FLR - ZONE B - PHASE 1 - LIGHTING
		A3002-1	BUILDING SECTIONS - PHASE 1	EL1003-1	P3 FLR OVERALL - PHASE 1 - LIGHTING
CIVIL - PHASE 1		A3100-1	WALL SECTIONS - PHASE 1	EL1003-A-1	P3 FLR - ZONE A - PHASE 1 - LIGHTING
C100	EXISTING CONDITIONS PLAN	A3101-1	WALL SECTIONS - PHASE 1	EL1003-B-1	P3 FLR - ZONE B - PHASE 1 - LIGHTING
C200	DEMOLITION PLAN	A3102-1	WALL SECTIONS - PHASE 1	EL1004-1	P4 FLR OVERALL - PHASE 1 - LIGHTING
C300	SITE PLAN	A3200-1	STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1	EL1004-A-1	P4 FLR - ZONE A - PHASE 1 - LIGHTING
C400	GRADING PLANS	A3201-1	STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1	EL1004-B-1	P4 FLR - ZONE B - PHASE 1 - LIGHTING
C500	EROSION CONTROL PLAN	A3202-1	STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1	EL1005-1	P5 FLR OVERALL - PHASE 1 - LIGHTING
C600	UTILITY PLAN	A3203-1	STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1	EL1005-A-1	P5 FLR - ZONE A - PHASE 1 - LIGHTING
C900	DETAILS 1	A3204-1	STAIR & ELEVATOR PLANS & SECTIONS - PHASE 1	EL1005-B-1	P5 FLR - ZONE B - PHASE 1 - LIGHTING
C901	DETAILS 2	A3210-1	RAILING TYPES AND DETAILS	EL1006-1	P6 FLR OVERALL - PHASE 1 - LIGHTING
C902	DETAILS 3	A4001-1	ENLARGED FLOOR PLANS	EL1006-A-1	P6 FLR - ZONE A - PHASE 1 - LIGHTING
L10	LANDSCAPE PLAN	A4002-1	ENLARGED FLOOR PLANS	EL1006-B-1	P6 FLR - ZONE B - PHASE 1 - LIGHTING
L11	LANDSCAPE PLAN	A5100-1	EXTERIOR DETAILS - PHASE 1	EP1000-1	LOWER LEVEL OVERALL - PHASE 1 - POWERSYSTEMS
		A5101-1	EXTERIOR DETAILS - PHASE 1	EP1000-A-1	LOWER LEVEL - ZONE A - PHASE 1 - POWERSYSTEMS
STRUCTURAL - PHASE 1		A5102-1	EXTERIOR DETAILS - PHASE 1	EP1000-B-1	LOWER LEVEL - ZONE B - PHASE 1 - POWERSYSTEMS
S0001-1	GENERAL NOTES	A5103-1	EXTERIOR DETAILS - PHASE 1	EP1001-1	1ST FLR OVERALL - PHASE 1 - POWERSYSTEMS
S0002-1	DESIGN CRITERIA	A5104-1	EXTERIOR DETAILS - PHASE 1	EP1001-A-1	1ST FLR - ZONE A - PHASE 1 - POWERSYSTEMS
S0010-1	LOADING PLANS	A5105-1	EXTERIOR DETAILS - PHASE 1	EP1001-B-1	1ST FLR - ZONE B - PHASE 1 - POWERSYSTEMS
S0011-1	LOADING PLANS	A5106-1	EXTERIOR DETAILS - PHASE 1	EP1001-A-2	1ST FLR - ZONE A - PHASE 2 - POWERSYSTEMS
S1000-1	FOUNDATION PLAN - OVERALL - PHASE 1	A5107-1	EXTERIOR DETAILS - PHASE 1	EP1001-B-2	1ST FLR - ZONE B - PHASE 2 - POWERSYSTEMS
S1000-A-1	FOUNDATION PLAN - ZONE A - PHASE 1	A5110-1	EXTERIOR DETAILS - PHASE 1	EP1002-1	P2 FLR OVERALL - PHASE 1 - POWERSYSTEMS
S1000-B-1	FOUNDATION PLAN - ZONE B - PHASE 1	A6000-1	DOOR AND FRAME SCHEDULE - PHASE 1	EP1002-A-1	P2 FLR - ZONE A - PHASE 1 - POWERSYSTEMS
S1001-1	1ST FLR FRAMING PLAN - OVERALL - PHASE 1	VT1000-1	ELEVATOR EL1 - PHASE 1	EP1002-B-1	P2 FLR - ZONE B - PHASE 1 - POWERSYSTEMS
S1001-A-1	1ST FLR FRAMING PLAN - ZONE A - PHASE 1	VT1000-2	ELEVATOR EL2, EL3 - PHASE 1	EP1003-1	P3 FLR OVERALL - PHASE 1 - POWERSYSTEMS
S1001-B-1	1ST FLR FRAMING PLAN - ZONE B - PHASE 1			EP1003-A-1	P3 FLR - ZONE A - PHASE 1 - POWERSYSTEMS
S1002-1	P2 FLR FRAMING PLAN - OVERALL - PHASE 1			EP1003-B-1	P3 FLR - ZONE B - PHASE 1 - POWERSYSTEMS
S1002-A-1	P2 FLR FRAMING PLAN - ZONE A - PHASE 1	PARKING		EP1003-A-2	P4 FLR OVERALL - PHASE 1 - POWERSYSTEMS
S1002-B-1	P2 FLR FRAMING PLAN - ZONE B - PHASE 1	PG1000-1	LOWER LEVEL STRIPING PLAN	EP1003-B-2	P4 FLR - ZONE B - PHASE 2 - POWERSYSTEMS
S1003-1	P3 FLR FRAMING PLAN - OVERALL - PHASE 1	PG1001-1	1ST FLOOR STRIPING PLAN	EP1004-1	P4 FLR OVERALL - PHASE 1 - POWERSYSTEMS
S1003-A-1	P3 FLR FRAMING PLAN - ZONE A - PHASE 1	PG1002-1	P3 STRIPING PLAN	EP10	

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ABBREVIATIONS

A AC A/E ACT	air conditioning Architect/Engineer acoustical	C CLR CM CMU CO CONC CORR CPT CSWK CT CW CDB	clear construction management concrete masonry unit concrete corridor copper casework ceramic tile cold water ceramic tile base	F F FA FAB FC FED FEC	female filter fire alarm fabric file cabinet fire alarm fire extinguisher fire extinguisher cabinet fire hose cabinet fire hose factory mutual floor finished opening fire protection fireplace fireproof fireproof fire retardant treated foam	I ID INSUL INT J JS L LAM LAV LF LL LJ LW LX LY LZ L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 L11 L12 L13 L14 L15 L16 L17 L18 L19 L20 L21 L22 L23 L24 L25 L26 L27 L28 L29 L30 L31 L32 L33 L34 L35 L36 L37 L38 L39 L40 L41 L42 L43 L44 L45 L46 L47 L48 L49 L50 L51 L52 L53 L54 L55 L56 L57 L58 L59 L60 L61 L62 L63 L64 L65 L66 L67 L68 L69 L70 L71 L72 L73 L74 L75 L76 L77 L78 L79 L80 L81 L82 L83 L84 L85 L86 L87 L88 L89 L90 L91 L92 L93 L94 L95 L96 L97 L98 L99 L100 L101 L102 L103 L104 L105 L106 L107 L108 L109 L110 L111 L112 L113 L114 L115 L116 L117 L118 L119 L120 L121 L122 L123 L124 L125 L126 L127 L128 L129 L130 L131 L132 L133 L134 L135 L136 L137 L138 L139 L140 L141 L142 L143 L144 L145 L146 L147 L148 L149 L150 L151 L152 L153 L154 L155 L156 L157 L158 L159 L160 L161 L162 L163 L164 L165 L166 L167 L168 L169 L170 L171 L172 L173 L174 L175 L176 L177 L178 L179 L180 L181 L182 L183 L184 L185 L186 L187 L188 L189 L190 L191 L192 L193 L194 L195 L196 L197 L198 L199 L200 L201 L202 L203 L204 L205 L206 L207 L208 L209 L210 L211 L212 L213 L214 L215 L216 L217 L218 L219 L220 L221 L222 L223 L224 L225 L226 L227 L228 L229 L230 L231 L232 L233 L234 L235 L236 L237 L238 L239 L240 L241 L242 L243 L244 L245 L246 L247 L248 L249 L250 L251 L252 L253 L254 L255 L256 L257 L258 L259 L260 L261 L262 L263 L264 L265 L266 L267 L268 L269 L270 L271 L272 L273 L274 L275 L276 L277 L278 L279 L280 L281 L282 L283 L284 L285 L286 L287 L288 L289 L290 L291 L292 L293 L294 L295 L296 L297 L298 L299 L300 L301 L302 L303 L304 L305 L306 L307 L308 L309 L310 L311 L312 L313 L314 L315 L316 L317 L318 L319 L320 L321 L322 L323 L324 L325 L326 L327 L328 L329 L330 L331 L332 L333 L334 L335 L336 L337 L338 L339 L340 L341 L342 L343 L344 L345 L346 L347 L348 L349 L350 L351 L352 L353 L354 L355 L356 L357 L358 L359 L360 L361 L362 L363 L364 L365 L366 L367 L368 L369 L370 L371 L372 L373 L374 L375 L376 L377 L378 L379 L380 L381 L382 L383 L384 L385 L386 L387 L388 L389 L390 L391 L392 L393 L394 L395 L396 L397 L398 L399 L400 L401 L402 L403 L404 L405 L406 L407 L408 L409 L410 L411 L412 L413 L414 L415 L416 L417 L418 L419 L420 L421 L422 L423 L424 L425 L426 L427 L428 L429 L430 L431 L432 L433 L434 L435 L436 L437 L438 L439 L440 L441 L442 L443 L444 L445 L446 L447 L448 L449 L450 L451 L452 L453 L454 L455 L456 L457 L458 L459 L460 L461 L462 L463 L464 L465 L466 L467 L468 L469 L470 L471 L472 L473 L474 L475 L476 L477 L478 L479 L480 L481 L482 L483 L484 L485 L486 L487 L488 L489 L490 L491 L492 L493 L494 L495 L496 L497 L498 L499 L500 L501 L502 L503 L504 L505 L506 L507 L508 L509 L510 L511 L512 L513 L514 L515 L516 L517 L518 L519 L520 L521 L522 L523 L524 L525 L526 L527 L528 L529 L530 L531 L532 L533 L534 L535 L536 L537 L538 L539 L540 L541 L542 L543 L544 L545 L546 L547 L548 L549 L550 L551 L552 L553 L554 L555 L556 L557 L558 L559 L560 L561 L562 L563 L564 L565 L566 L567 L568 L569 L570 L571 L572 L573 L574 L575 L576 L577 L578 L579 L580 L581 L582 L583 L584 L585 L586 L587 L588 L589 L590 L591 L592 L593 L594 L595 L596 L597 L598 L599 L600 L601 L602 L603 L604 L605 L606 L607 L608 L609 L610 L611 L612 L613 L614 L615 L616 L617 L618 L619 L620 L621 L622 L623 L624 L625 L626 L627 L628 L629 L630 L631 L632 L633 L634 L635 L636 L637 L638 L639 L640 L641 L642 L643 L644 L645 L646 L647 L648 L649 L650 L651 L652 L653 L654 L655 L656 L657 L658 L659 L660 L661 L662 L663 L664 L665 L666 L667 L668 L669 L670 L671 L672 L673 L674 L675 L676 L677 L678 L679 L680 L681 L682 L683 L684 L685 L686 L687 L688 L689 L690 L691 L692 L693 L694 L695 L696 L697 L698 L699 L700 L701 L702 L703 L704 L705 L706 L707 L708 L709 L710 L711 L712 L713 L714 L715 L716 L717 L718 L719 L720 L721 L722 L723 L724 L725 L726 L727 L728 L729 L730 L731 L732 L733 L734 L735 L736 L737 L738 L739 L740 L741 L742 L743 L744 L745 L746 L747 L748 L749 L750 L751 L752 L753 L754 L755 L756 L757 L758 L759 L760 L761 L762 L763 L764 L765 L766 L767 L768 L769 L770 L771 L772 L773 L774 L775 L776 L777 L778 L779 L780 L781 L782 L783 L784 L785 L786 L787 L788 L789 L790 L791 L792 L793 L794 L795 L796 L797 L798 L799 L800 L801 L802 L803 L804 L805 L806 L807 L808 L809 L810 L811 L812 L813 L814 L815 L816 L817 L818 L819 L820 L821 L822 L823 L824 L825 L826 L827 L828 L829 L830 L831 L832 L833 L834 L835 L836 L837 L838 L839 L840 L841 L842 L843 L844 L845 L846 L847 L848 L849 L850 L851 L852 L853 L854 L855 L856 L857 L858 L859 L860 L861 L862 L863 L864 L865 L866 L867 L868 L869 L870 L871 L872 L873 L874 L875 L876 L877 L878 L879 L880 L881 L882 L883 L884 L885 L886 L887 L888 L889 L890 L891 L892 L893 L894 L895 L896 L897 L898 L899 L900 L901 L902 L903 L904 L905 L906 L907 L908 L909 L910 L911 L912 L913 L914 L915 L916 L917 L918 L919 L920 L921 L922 L923 L924 L925 L926 L927 L928 L929 L930 L931 L932 L933 L934 L935 L936 L937 L938 L939 L940 L941 L942 L943 L944 L945 L946 L947 L948 L949 L950 L951 L952 L953 L954 L955 L956 L957 L958 L959 L960 L961 L962 L963 L964 L965 L966 L967 L968 L969 L970 L971 L972 L973 L974 L975 L976 L977 L978 L979 L980 L981 L982 L983 L984 L985 L986 L987 L988 L989 L990 L991 L992 L993 L994 L995 L996 L997 L998 L999 L1000 L1001 L1002 L1003 L1004 L1005 L1006 L1007 L1008 L1009 L1010 L1011 L1012 L1013 L1014 L1015 L1016 L1017 L1018 L1019 L1020 L1021 L1022 L1023 L1024 L1025 L1026 L1027 L1028 L1029 L1030 L1031 L1032 L1033 L1034 L1035 L1036 L1037 L1038 L1039 L1040 L1041 L1042 L1043 L1044 L1045 L1046 L1047 L1048 L1049 L1050 L1051 L1052 L1053 L1054 L1055 L1056 L1057 L1058 L1059 L1060 L1061 L1062 L1063 L1064 L1065 L1066 L1067 L1068 L1069 L1070 L1071 L1072 L1073 L1074 L1075 L1076 L1077 L1078 L1079 L1080 L1081 L1082 L1083 L1084 L1085 L1086 L1087 L1088 L1089 L1090 L1091 L1092 L1093 L1094 L1095 L1096 L1097 L1098 L1099 L1100 L1101 L1102 L1103 L1104 L1105 L1106 L1107 L1108 L1109 L1110 L1111 L1112 L1113 L1114 L1115 L1116 L1117 L1118 L1119 L1120 L1121 L1122 L1123 L1124 L1125 L1126 L1127 L1128 L1129 L1130 L1131 L1132 L1133 L1134 L1135 L1136 L1137 L1138 L1139 L1140 L1141 L1142 L1143 L1144 L1145 L1146 L1147 L1148 L1149 L1150 L1151 L1152 L1153 L1154 L1155 L1156 L1157 L1158 L1159 L1160 L1161 L1162 L1163 L1164 L1165 L1166 L1167 L1168 L1169 L1170 L1171 L1172 L1173 L1174 L1175 L1176 L1177 L1178 L1179 L1180 L1181 L1182 L1183 L1184 L1185 L1186 L1187 L1188 L1189 L1190 L1191 L1192 L1193 L1194 L1195 L1196 L1197 L1198 L1199 L1200 L1201 L1202 L1203 L1204 L1205 L1206 L1207 L1208 L1209 L1210 L1211 L1212 L1213 L1214 L1215 L1216 L1217 L1218 L1219 L1220 L1221 L1222 L1223 L1224 L1225 L1226 L1227 L1228 L1229 L1230 L1231 L1232 L1233 L1234 L1235 L1236 L1237 L1238 L1239 L1240 L1241 L1242 L1243 L1244 L1245 L1246 L1247 L1248 L1249 L1250 L1251 L1252 L1253 L1254 L1255 L1256 L1257 L1258 L1259 L1260 L1261 L1262 L1263 L1264 L1265 L1266 L1267 L1268 L1269 L1270 L1271 L1272 L1273 L1274 L1275 L1276 L1277 L1278 L1279 L1280 L1281 L1282 L1283 L1284 L1285 L1286 L1287 L1288 L1289 L1290 L1291 L1292 L1293 L1294 L1295 L1296 L1297 L1298 L1299 L1300 L1301 L1302 L1303 L1304 L1305 L1306 L1307 L1308 L1309 L1310 L1311 L1312 L1313 L1314 L1315 L1316 L1317 L1318 L1319 L1320 L1321 L1322 L1323 L1324 L1325 L1326 L1327 L1328 L1329 L1330 L1331 L1332 L1333 L1334 L1335 L1336 L1337 L1338 L1339 L1340 L1341 L1342 L1343 L1344 L1345 L1346 L1347 L1348 L1349 L1350 L1351 L1352 L1353 L1354 L1355 L1356 L1357 L1358 L1359 L1360 L1361 L1362 L1363 L1364 L1365 L1366 L1367 L1368 L1369 L1370 L1371 L1372 L1373 L1374 L1375 L1376 L1377 L1378 L1379 L1380 L1381 L1382 L1383 L1384 L1385 L1386 L1387 L1388 L1389 L1390 L1391 L1392 L1393 L1394 L1395 L1396 L1397 L1398 L1399 L1400 L1401 L1402 L1403 L1404 L1405 L1406 L1407 L1408 L1409 L1410 L1411 L1412 L1413 L1414 L1415 L1416 L1417 L1418 L1419 L1420 L1421 L1422 L1423 L1424 L1425 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L1592 L1593 L1594 L1595 L1596 L1597 L1598 L1599 L1600 L1601 L1602 L1603 L1604 L1605 L1606 L1607 L1608 L1609 L1610 L1611 L1612 L1613 L1614 L1615 L1616 L1617 L1618 L1619 L1620 L1621 L1622 L1623 L1624 L1625 L1626 L1627 L1628 L1629 L1630 L1631 L1632 L1633 L1634 L1635 L1636 L1637 L1638 L1639 L1640 L1641 L1642 L1643 L1644 L1645 L1646 L1647 L1648 L1649 L1650 L1651 L1652 L1653 L1654 L1655 L1656 L1657 L1658 L1659 L1660 L1661 L1662 L1663 L1664 L1665 L1666 L1667 L1668 L1669 L1670 L1671 L1672 L1673 L1674 L1675 L1676 L1677 L1678 L1679 L1680 L1681 L1682 L1683 L1684 L1685 L1686 L1687 L1688 L1689 L1690 L1691 L1692 L1693 L1694 L1695 L1696 L1697 L1698 L1699 L1700 L1701 L1702 L1703 L1704 L1705 L1706 L1707 L1708 L1709 L1710 L1711 L1712 L1713 L1714 L1715 L1716 L1717 L1718 L1719 L1720 L1721 L1722 L1723 L1724 L1725 L1726 L1727 L1728 L1729 L1730 L1731 L1732 L1733 L1734 L1735 L1736 L1737 L1738 L1739 L1740 L1741 L1742 L1743 L1744 L1745 L1746 L1747 L1748 L1749 L1750 L1751 L1752 L1753 L1754 L1755 L1756 L1757 L1758 L1759 L1760 L1761 L1762 L1763 L1764 L1765 L1766 L1767 L1768 L1769 L1770 L1771 L1772 L1773 L1774 L1775 L1776 L1777 L1778 L1779 L1780 L1781 L1782 L1783 L1784 L1785 L1786 L1787 L1788 L1789 L1790 L1791 L1792 L1793 L1794 L1795 L1796 L1797 L1798 L1799 L1800 L1801 L1802 L1803 L1804 L1805 L1806 L1807 L1808 L1809 L1810 L1811 L1812 L1813 L1814 L1815 L1816 L1817 L1818 L1819 L1820 L1821 L1822 L1823 L1824 L1825 L1826 L1827 L1828 L1829 L1830 L1831 L1832 L1833 L1834 L1835 L1836 L1837 L1838 L1839 L1840 L1841 L1842 L1843 L1844 L1845 L1846 L1847 L1848 L1849 L1850 L1851 L1852 L1853 L1854 L1855 L1856 L1857 L1858 L1859 L1860 L1861 L1862 L1863 L1864 L1865 L1866 L1867 L1868 L1869 L1870 L1871 L1872 L1873 L187
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KEYNOTES PER SHEET	
1044-01	SURFACE MOUNTED FIRE EXTINGUISHER CABINET
1044-02	SEMI-RECESSED FIRE EXTINGUISHER CABINET

FIRE RESISTIVE LEGEND

FIRE WALLS	4 HOUR FIRE WALL
4FW 4FW 4FW 4FW 4FW 4FW	3 HOUR FIRE WALL
3FW 3FW 3FW 3FW 3FW 3FW	2 HOUR FIRE WALL
2FW 2FW 2FW 2FW 2FW 2FW	
FIRE BARRIERS	4 HOUR FIRE BARRIER
4FB 4FB 4FB 4FB 4FB 4FB	3 HOUR FIRE BARRIER
3FB 3FB 3FB 3FB 3FB 3FB	2 HOUR FIRE BARRIER
2FB 2FB 2FB 2FB 2FB 2FB	1 HOUR FIRE BARRIER
1FB 1FB 1FB 1FB 1FB 1FB	
SHAFT ENCLOSURES	2 HOUR SHAFT ENCLOSURE
2SE 2SE 2SE 2SE 2SE 2SE	1 HOUR SHAFT ENCLOSURE
1SE 1SE 1SE 1SE 1SE 1SE	
SMOKE BARRIERS	4 HOUR SMOKE BARRIER
4SB 4SB 4SB 4SB 4SB 4SB	3 HOUR SMOKE BARRIER
3SB 3SB 3SB 3SB 3SB 3SB	2 HOUR SMOKE BARRIER
2SB 2SB 2SB 2SB 2SB 2SB	1 HOUR SMOKE BARRIER
1SB 1SB 1SB 1SB 1SB 1SB	
FIRE PARTITIONS	1 HOUR FIRE PARTITION
1FP 1FP 1FP 1FP 1FP 1FP	0.5 HOUR FIRE PARTITION
0.5FP 0.5FP 0.5FP 0.5FP 0.5FP 0.5FP	0.5 HOUR CORRIDOR PARTITION (FOR EXISTING HOSPITAL CONSTRUCTION ONLY)
0.5 0.5 0.5 0.5 0.5 0.5	
SMOKE TIGHT PARTITIONS	SMOKE TIGHT PARTITION
X X X X X X X X	SMOKE TIGHT PARTITION (TO SMOKE TIGHT CEILING)
X X X X X X X X	SMOKE TIGHT PARTITION (WITHIN PLENUM ABOVE CEILING)
X X X X X X X X	SMOKE TIGHT PARTITION (SEPARATION OF INTERSTITIAL SPACES)
XI XI XI XI XI XI XI	
BEARING WALLS	2 HOUR BEARING WALL
2BW 2BW 2BW 2BW 2BW 2BW	1 HOUR BEARING WALL
1BW 1BW 1BW 1BW 1BW 1BW	

MEANS OF EGRESS

FROM ROOM OR LEVEL	AREA OF RESCUE ASSISTANCE	VERTICAL EXIT ENCLOSURE
X = CLEAR WIDTH OF OPENING IN INCHES	ACCESSIBLE EGRESS COMPONENT	STAIRWAY (NON-REQUIRED MEANS OF EGRESS)
EXIT DISCHARGE	EXIT ACCESS CORRIDOR	HORIZONTAL RATED ASSEMBLY
X = CLEAR WIDTH OF OPENING IN INCHES	EXIT PASSAGEWAY	
NUMBER REQUIRED	EXIT PASSAGE - SUITE	
HORIZONTAL 1-WAY	SUITE DESIGNATIONS	
HORIZONTAL 2-WAY		



PROJECT INFORMATION

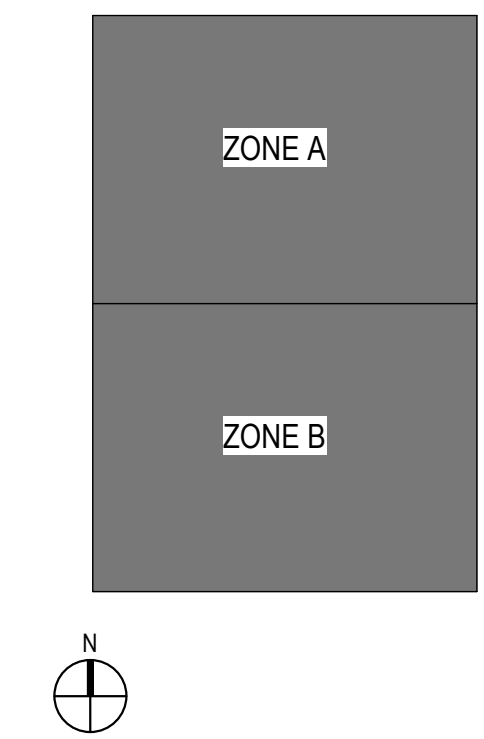
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
05-12-2023	SCHEMATIC DESIGN PH2
07-28-2023	DESIGN DEVELOPMENT PH1
09-01-2023	DESIGN DEVELOPMENT PH2
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

P3 & P4 FLR LIFE
SAFETY PLAN

G1002

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P3 FLR LIFE SAFETY PLAN
1/16" = 1'-0"

P4 FLR LIFE SAFETY PLAN
1/16" = 1'-0"

KEYNOTES PER SHEET	
1044-01	SURFACE MOUNTED FIRE EXTINGUISHER CABINET
1044-02	SEMI-RECESSED FIRE EXTINGUISHER CABINET

FIRE RESISTIVE LEGEND

FIRE WALLS 4FW 4FW 4FW 4FW 4FW 4FW 3FW 3FW 3FW 3FW 3FW 3FW 2FW 2FW 2FW 2FW 2FW 2FW FIRE BARRIERS 4FB 4FB 4FB 4FB 4FB 4FB 3FB 3FB 3FB 3FB 3FB 3FB 2FB 2FB 2FB 2FB 2FB 2FB 1FB 1FB 1FB 1FB 1FB 1FB SHAFT ENCLOSURES 2SE 2SE 2SE 2SE 2SE 2SE 1SE 1SE 1SE 1SE 1SE 1SE SMOKE BARRIERS 4SB 4SB 4SB 4SB 4SB 4SB 3SB 3SB 3SB 3SB 3SB 3SB 2SB 2SB 2SB 2SB 2SB 2SB 1SB 1SB 1SB 1SB 1SB 1SB	4 HOUR FIRE WALL 3 HOUR FIRE WALL 2 HOUR FIRE WALL 4 HOUR FIRE BARRIER 3 HOUR FIRE BARRIER 2 HOUR FIRE BARRIER 1 HOUR FIRE BARRIER 2 HOUR SHAFT ENCLOSURE 1 HOUR SHAFT ENCLOSURE 4 HOUR SMOKE BARRIER 3 HOUR SMOKE BARRIER 2 HOUR SMOKE BARRIER 1 HOUR SMOKE BARRIER
FIRE PARTITIONS 1FP 1FP 1FP 1FP 1FP 1FP 0.5FP 0.5FP 0.5FP 0.5FP 0.5FP 0.5FP 0.5 0.5 0.5 0.5 0.5 0.5 SMOKE TIGHT PARTITIONS X X X X X X X XC XC XC XC XC XC XP XP XP XP XP XP XI XI XI XI XI XI BEARING WALLS 2BW 2BW 2BW 2BW 2BW 2BW 1BW 1BW 1BW 1BW 1BW 1BW	1 HOUR FIRE PARTITION 0.5 HOUR FIRE PARTITION 0.5 HOUR CORRIDOR PARTITION (FOR EXISTING HOSPITAL CONSTRUCTION ONLY) SMOKE TIGHT PARTITION SMOKE TIGHT PARTITION (TO SMOKE TIGHT CEILING) SMOKE TIGHT PARTITION (WITHIN PLENUM ABOVE CEILING) SMOKE TIGHT PARTITION (SEPARATION OF INTERSTITIAL SPACES) 2 HOUR BEARING WALL 1 HOUR BEARING WALL

MEANS OF EGRESS

FROM ROOM OR LEVEL X = CLEAR WIDTH OF OPENING IN INCHES EXIT DISCHARGE X = CLEAR WIDTH OF OPENING IN INCHES NUMBER REQUIRED HORIZONTAL 1-WAY HORIZONTAL 2-WAY	AREA OF RESCUE ASSISTANCE ACCESSIBLE EGRESS COMPONENT EXIT ACCESS CORRIDOR EXIT PASSAGEWAY EXIT PASSAGE - SUITE SUITE DESIGNATIONS	VERTICAL EXIT ENCLOSURE STAIRWAY (NON-REQUIRED MEANS OF EGRESS) HORIZONTAL RATED ASSEMBLY
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PROJECT INFORMATION

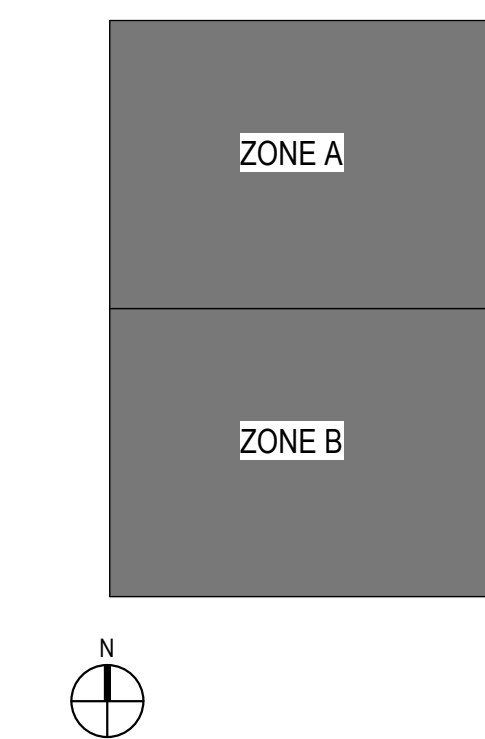
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
05-12-2023	SCHEMATIC DESIGN PH2
07-28-2023	DESIGN DEVELOPMENT PH1
09-01-2023	DESIGN DEVELOPMENT PH2
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



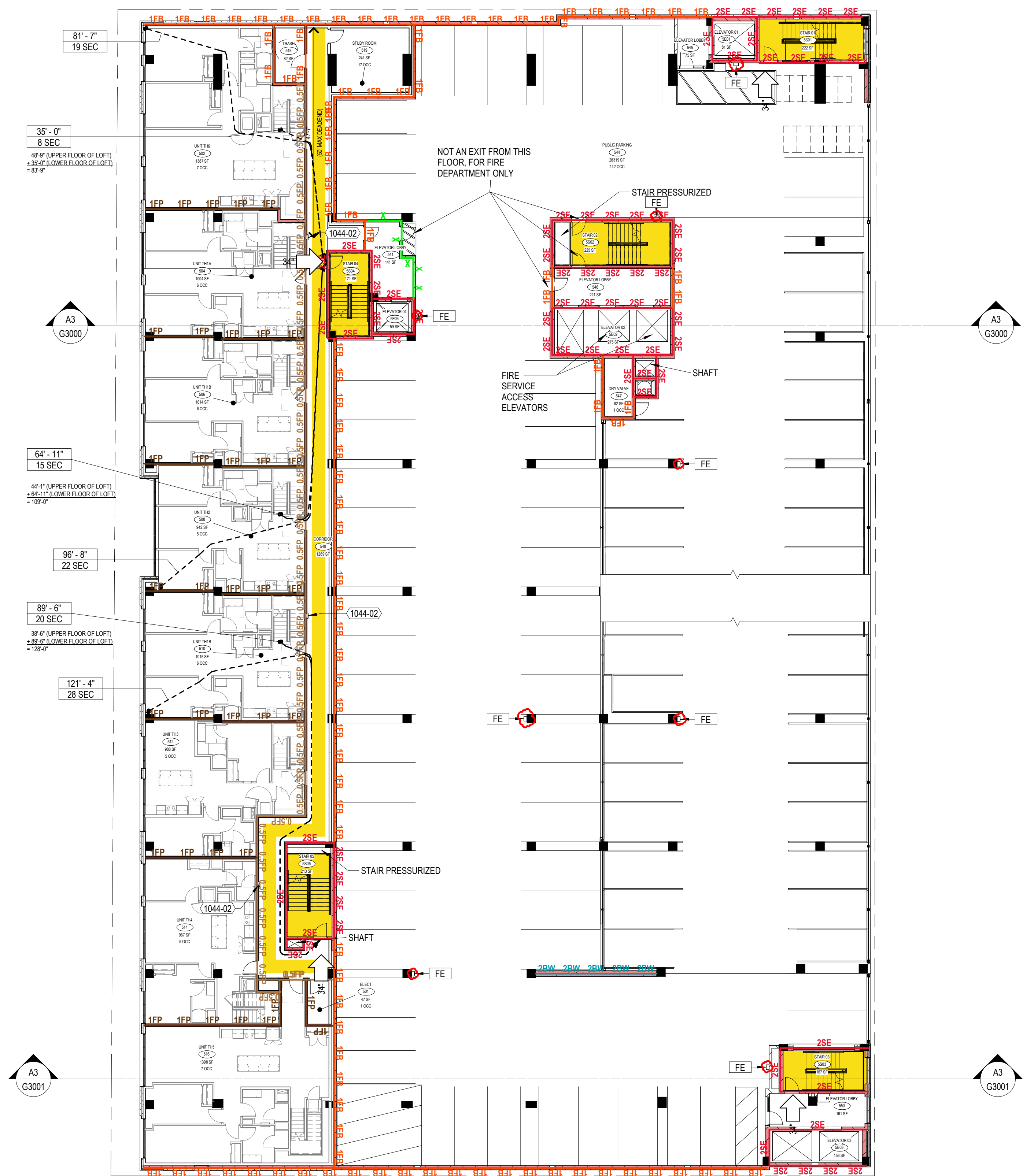
SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

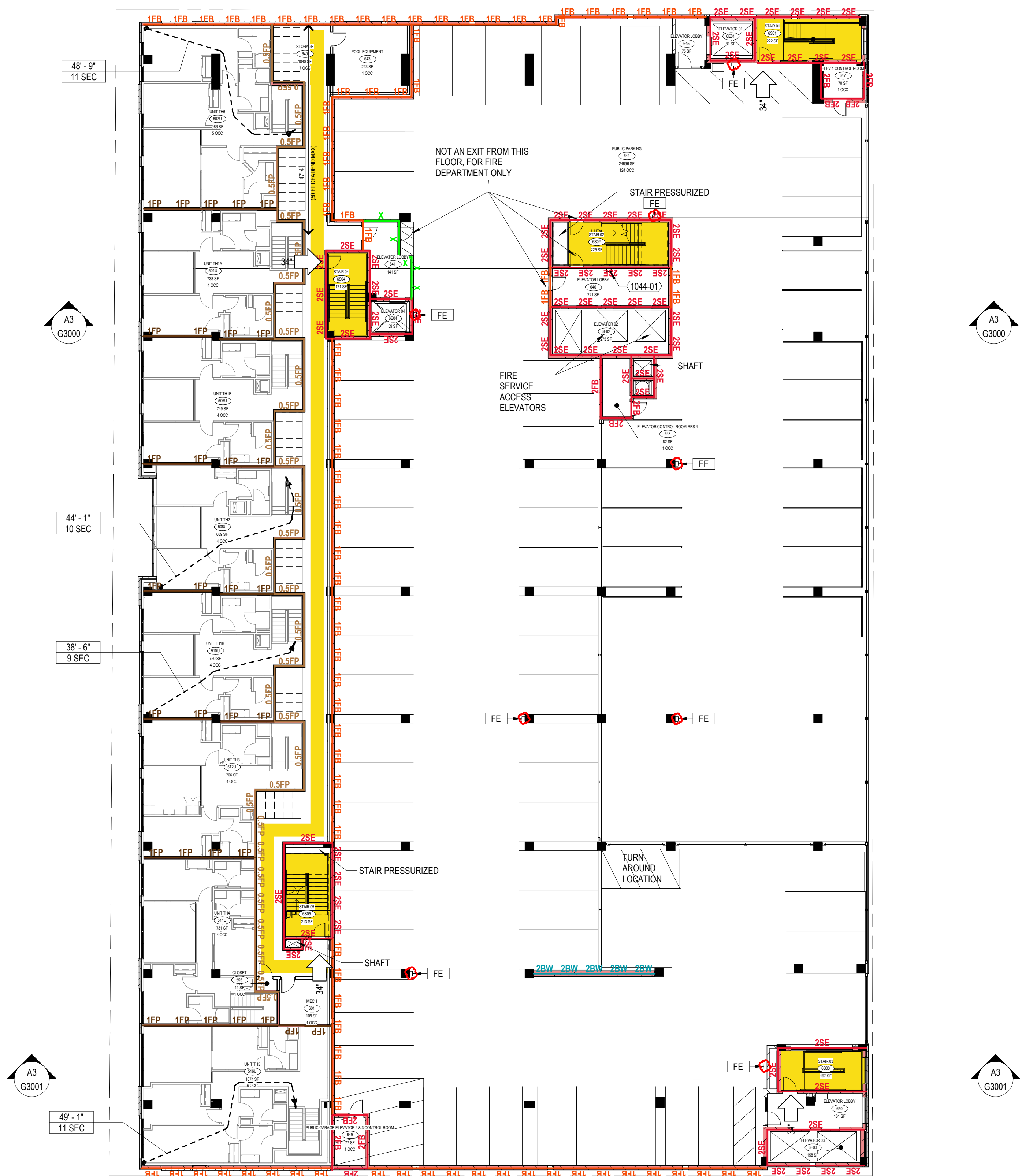
P5 & P6 FLR LIFE
SAFETY PLAN

G1003

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P5 LIFE SAFETY PLAN
1/16" = 1'-0"



P6 FLR LIFE SAFETY PLAN
1/16" = 1'-0"

1

2

3

4

5

6

7

KEYNOTES PER SHEET

1044-02 SEMI-RECESSED FIRE EXTINGUISHER CABINET

FIRE RESISTIVE LEGEND

FIRE WALLS	4 HOUR FIRE WALL	4FW 4FW 4FW 4FW 4FW 4FW
	3 HOUR FIRE WALL	3FW 3FW 3FW 3FW 3FW 3FW
	2 HOUR FIRE WALL	2FW 2FW 2FW 2FW 2FW 2FW
FIRE BARRIERS	4 HOUR FIRE BARRIER	4FB 4FB 4FB 4FB 4FB 4FB
	3 HOUR FIRE BARRIER	3FB 3FB 3FB 3FB 3FB 3FB
	2 HOUR FIRE BARRIER	2FB 2FB 2FB 2FB 2FB 2FB
	1 HOUR FIRE BARRIER	1FB 1FB 1FB 1FB 1FB 1FB
SHAFT ENCLOSURES	2 HOUR SHAFT ENCLOSURE	2SE 2SE 2SE 2SE 2SE 2SE
	1 HOUR SHAFT ENCLOSURE	1SE 1SE 1SE 1SE 1SE 1SE
SMOKE BARRIERS	4 HOUR SMOKE BARRIER	4SB 4SB 4SB 4SB 4SB 4SB
	3 HOUR SMOKE BARRIER	3SB 3SB 3SB 3SB 3SB 3SB
	2 HOUR SMOKE BARRIER	2SB 2SB 2SB 2SB 2SB 2SB
	1 HOUR SMOKE BARRIER	1SB 1SB 1SB 1SB 1SB 1SB
FIRE PARTITIONS	1 HOUR FIRE PARTITION	1FP 1FP 1FP 1FP 1FP 1FP
	0.5 HOUR FIRE PARTITION	0.5FP 0.5FP 0.5FP 0.5FP 0.5FP 0.5FP
	0.5 HOUR CORRIDOR PARTITION (FOR EXISTING HOSPITAL CONSTRUCTION ONLY)	0.5 0.5 0.5 0.5 0.5 0.5
SMOKE TIGHT PARTITIONS	SMOKE TIGHT PARTITION	X X X X X X X X
	SMOKE TIGHT PARTITION (TO SMOKE TIGHT CEILING)	XC XC XC XC XC XC XC XC
	SMOKE TIGHT PARTITION (WITHIN PLENUM ABOVE CEILING)	XP XP XP XP XP XP XP XP
	SMOKE TIGHT PARTITION (SEPARATION OF INTERSTITIAL SPACES)	XI XI XI XI XI XI XI XI
BEARING WALLS	2 HOUR BEARING WALL	2BW 2BW 2BW 2BW 2BW 2BW
	1 HOUR BEARING WALL	1BW 1BW 1BW 1BW 1BW 1BW

MEANS OF EGRESS

FROM ROOM OR LEVEL X = CLEAR WIDTH OF OPENING IN INCHES	AREA OF RESCUE ASSISTANCE	VERTICAL EXIT ENCLOSURE
EXIT DISCHARGE X = CLEAR WIDTH OF OPENING IN INCHES	ACCESSIBLE EGRESS COMPONENT	STAIRWAY (NON-REQUIRED MEANS OF EGRESS)
NUMBER REQUIRED	EXIT ACCESS CORRIDOR	HORIZONTAL RATED ASSEMBLY
HORIZONTAL 1-WAY	EXIT PASSAGEWAY	
HORIZONTAL 2-WAY	EXIT PASSAGE - SUITE	
	SUITE DESIGNATIONS	



PROJECT INFORMATION

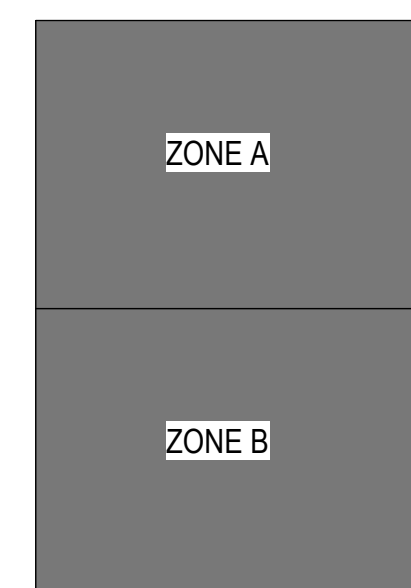
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
05-12-2023	SCHEMATIC DESIGN PH2
07-28-2023	DESIGN DEVELOPMENT PH1
09-01-2023	DESIGN DEVELOPMENT PH2
10-02-2023	CONSTRUCTION DOCUMENTS PH 1

KEY PLAN



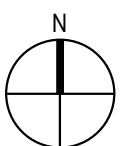
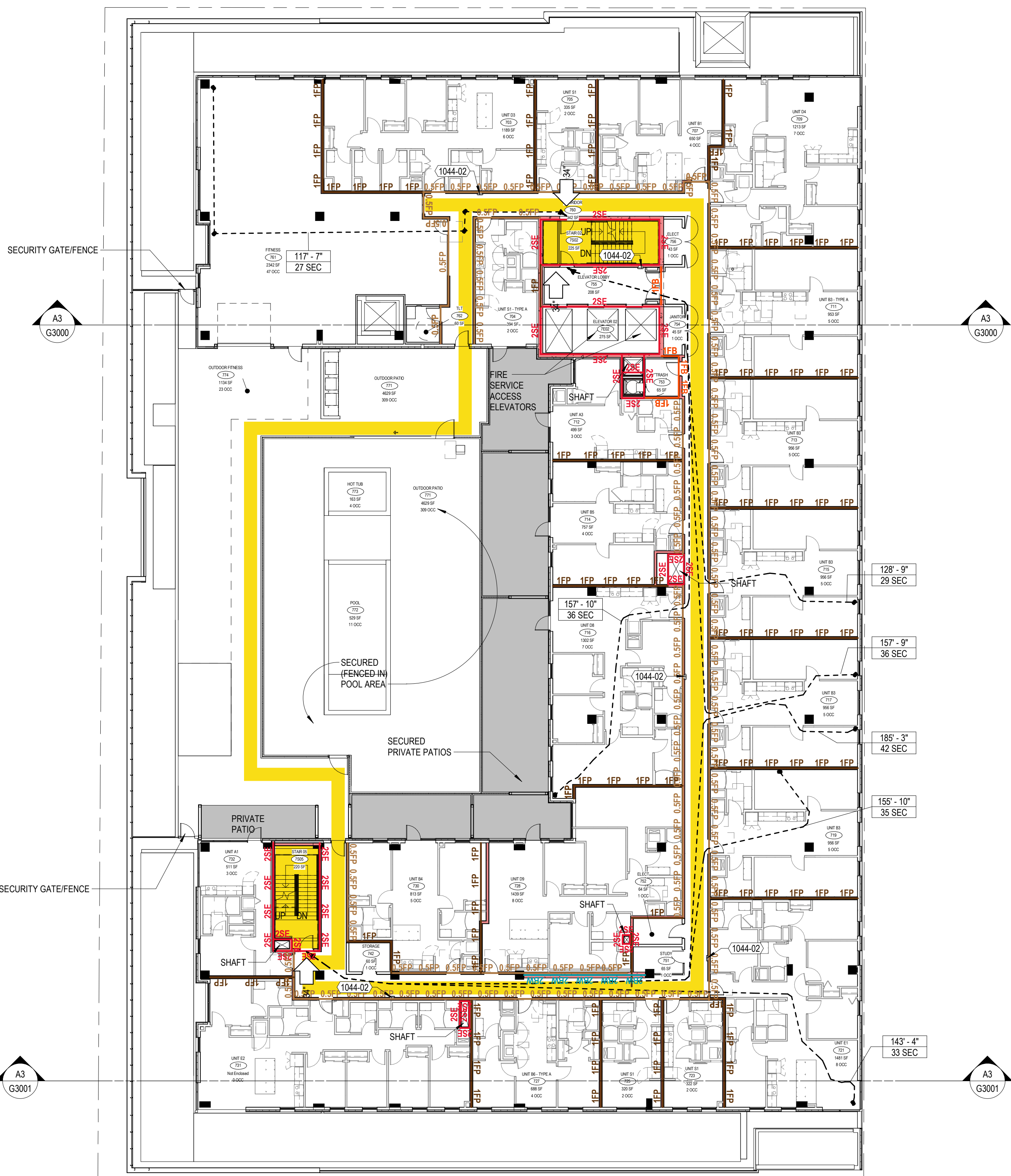
SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

7TH & 8TH FLR LIFE
SAFETY PLAN

G1004

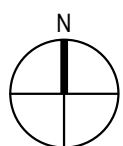
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A1

7TH FLR LIFE SAFETY PLAN

1/16" = 1'-0"



A5

8TH FLR LIFE SAFETY PLAN

1/16" = 1'-0"

E

D

C

B

A

BIKE STALLS			
LEVEL	TYPE	COUNT	Phase Created
LL		2	Phase 1
		12	Phase 2
LL	BIKE STALL-GROUND MOUNTED CORRAL STYLE BIKE RACK	135	Phase 2
		149	
1ST FLR - LAKE ST	BIKE STALL-GROUND MOUNTED CORRAL STYLE BIKE RACK	26	Phase 2
		26	
P4	BIKE STALL - STRUCTURED	84	Phase 2
		84	
P6	BIKE STALL - STRUCTURED	84	Phase 2
		84	
		343	
Grand total: 343		343	

MOPED STALL				
LEVEL	TYPE	COUNT	STALL SIZE	PHASE CREATED
LL	MOPED PARKING	12	3'-0" WIDTH X 6'-0" LENGTH	Phase 2
		11		
P4	MOPED PARKING	11	3'-0" WIDTH X 6'-0" LENGTH	Phase 1
		11		
		34		
Grand total: 34				

LEVEL	TYPE	COUNT
LL	ADA	3
LL	ADA EV READY	1
LL	COMPACT	12
LL	COMPACT EV	2
LL	EV	11
LL	EV READY	9
LL	SHORT COMPACT	15
LL	SHORT COMPACT EV	5
LL	STANDARD PARKING	33
LL: 91		91
1ST FLR - LAKE ST	COMPACT	3
1ST FLR - LAKE ST	EV	5
1ST FLR - LAKE ST	EV READY	7
1ST FLR - LAKE ST	STANDARD PARKING	16
1ST FLR - LAKE ST: 31		31
P2		3
P2	ADA	2
P2	COMPACT	9
P2	EV READY	23
P2	SHORT COMPACT	2
P2	STANDARD PARKING	37
P2: 76		76
P3	ADA	2
P3	COMPACT	6
P3	EV READY	23
P3	SHORT COMPACT	9
P3	STANDARD PARKING	39
P3: 79		79
P4	ADA	3
P4	COMPACT	10
P4	EV READY	23
P4	SHORT COMPACT	7
P4	STANDARD PARKING	40
P4: 84		84
P5	ADA	1
P5	COMPACT	8
P5	EV READY	4
P5	SHORT COMPACT	9
P5	STANDARD PARKING	62
P5: 84		84
P6	ADA	1
P6	COMPACT	10
P6	SHORT COMPACT	7
P6	STANDARD PARKING	42
P6: 60		60
		505
Grand total: 505		

UPPER FLOORS OF LOFT UNITS, WHICH DOES NOT COUNT TOWARD TO TOTAL NUMBER OF UNITS BUT ARE INCLUDED IN THE TOTAL NUMBER FOR SF AREA AND BED/BATHROOM COUNT

UNIT SCHEDULE P4					
LEVEL	NUMBER	ROOM NAME	BED COUNT	BATHROOM COUNT	AREA
P4	304U	UNIT TH1A	2	2	738 SF
P4	309U	UNIT TH1B	2	2	740 SF
P4	310U	UNIT TH1B	2	2	750 SF
P4	308U	UNIT TH2	2	2	688 SF
P4	312U	UNIT TH3	2	2	706 SF
P4	314U	UNIT TH4	3	3	731 SF
P4	319U	UNIT TH5	3	3	1,074 SF
P4	302U	UNIT TH6	3	3	986 SF
P4: 8			19	19	
			19	19	
Grand total: 8					

UNIT SCHEDULE P6					
LEVEL	NUMBER	ROOM NAME	BED COUNT	BATHROOM COUNT	AREA
P6	504U	UNIT TH1A	2	2	738 SF
P6	509U	UNIT TH1B	2	2	740 SF
P6	510U	UNIT TH1B	2	2	750 SF
P6	508U	UNIT TH2	2	2	688 SF
P6	512U	UNIT TH3	2	2	706 SF
P6	514U	UNIT TH4	3	3	731 SF
P6	516U	UNIT TH5	3	3	1,074 SF
P6	502U	UNIT TH6	3	3	986 SF
P6: 8			19	19	
			19	19	
Grand total: 8					

UNIT SCHEDULE

LEVEL	NUMBER	ROOM NAME	BED COUNT	BATHROOM COUNT	AREA
P3	302	UNIT TH6	2	2	1,387 SF
P3	304	UNIT TH1A	2	2	1,004 SF
P3	306	UNIT TH1B	2	2	1,014 SF
P3	308	UNIT TH2	2	2	942 SF
P3	310	UNIT TH1B	2	2	1,015 SF
P3	312	UNIT TH3	2	2	986 SF
P3	314	UNIT TH4	2	2	967 SF
P3	316	UNIT TH5	2	2	1,386 SF
P3: 8			16	16	
P5	502	UNIT TH6	2	2	1,387 SF
P5	504	UNIT TH1A	2	2	1,004 SF
P5	506	UNIT TH1B	2	2	1,014 SF
P5	508	UNIT TH2	2	2	942 SF
P5	510	UNIT TH1B	2	2	1,015 SF
P5	512	UNIT TH3	2	2	986 SF
P5	514	UNIT TH4	2	2	967 SF
P5	516	UNIT TH5	2	2	1,386 SF
P5: 8			16	16	
7TH FLR	703	UNIT D3	4	4	1,189 SF
7TH FLR	704	UNIT S1 - TYPE A	1	1	394 SF
7TH FLR	705	UNIT S1	1	1	336 SF
7TH FLR	707	UNIT B1	2	1	650 SF
7TH FLR	709	UNIT D4	4	3	1,213 SF
7TH FLR	711	UNIT B3 - TYPE A	4	2	965 SF
7TH FLR	712	UNIT A3	1	1	499 SF
7TH FLR	713	UNIT B3	4	2	956 SF
7TH FLR	714	UNIT B5	3	2	757 SF
7TH FLR	715	UNIT B3	4	2	956 SF
7TH FLR	716	UNIT D8	5	4	1,305 SF
7TH FLR	717	UNIT B3	4	2	956 SF
7TH FLR	719	UNIT B3	4	2	956 SF
7TH FLR	721	UNIT E1	5	5	1,481 SF
7TH FLR	723	UNIT S1	1	1	320 SF
7TH FLR	725	UNIT B3	1	1	320 SF
7TH FLR	727	UNIT B6 - TYPE A	2	2	688 SF
7TH FLR	728	UNIT D9	5	4	1,439 SF
7TH FLR	730	UNIT B4	2	2	813 SF
7TH FLR	731	UNIT E2	5	5	Not Enclosed
7TH FLR	732	UNIT A1	1	1	511 SF
7TH FLR: 21			63	48	
8TH FLR	807	UNIT B6	2	2	688 SF
8TH FLR	801	UNIT D2	4	4	1,210 SF
8TH FLR	802	UNIT D5	4	4	1,277 SF
8TH FLR	804	UNIT B2	2	2	872 SF
8TH FLR	805	UNIT D3	4	4	1,188 SF
8TH FLR	807	UNIT B1	2	1	650 SF
8TH FLR	809	UNIT D4	4	3	1,213 SF
8TH FLR	811	UNIT B3	4	2	954 SF
8TH FLR	812	UNIT A3 - TYPE A	1	1	501 SF
8TH FLR	813	UNIT B3	4	2	956 SF
8TH FLR	814	UNIT B5	3	2	756 SF
8TH FLR	815	UNIT B3	4	2	956 SF
8TH FLR	816	UNIT D8 - TYPE A	5	4	1,304 SF
8TH FLR	817	UNIT B3	4	2	956 SF
8TH FLR	819	UNIT B3	4	2	956 SF
8TH FLR	821	UNIT E1	5	5	1,488 SF
8TH FLR	823	UNIT S1	1	1	320 SF
8TH FLR	825	UNIT S1	1	1	317 SF
8TH FLR	828	UNIT D9	5	4	1,439 SF
8TH FLR	830	UNIT D1	4	2	1,061 SF
8TH FLR	831	UNIT E2	5	5	1,542 SF
8TH FLR	832	UNIT A1	1	1	502 SF
8TH FLR: 22			73	56	
9TH FLR	901	UNIT D2	4	4	1,212 SF
9TH FLR	902	UNIT D5	4	4	1,277 SF
9TH FLR	904	UNIT B2	2	2	872 SF
9TH FLR	907	UNIT D3	4	4	1,188 SF
9TH FLR	907	UNIT B1	2	1	650 SF
9TH FLR	909	UNIT D4	4	3	1,215 SF
9TH FLR	911	UNIT B3	4	2	956 SF
9TH FLR	912	UNIT A3	1	1	491 SF
9TH FLR	913	UNIT B3	4	2	956 SF
9TH FLR	914	UNIT B5	3	2	756 SF
9TH FLR	915	UNIT B3	4	2	956 SF
9TH FLR	916	UNIT D8	5	4	1,305 SF
9TH FLR	917	UNIT B3	4	2	956 SF
9TH FLR	919	UNIT B3	4	2	956 SF
9TH FLR	921	UNIT E1	5	5	1,488 SF
9TH FLR	923	UNIT S1	1	1	320 SF
9TH FLR	925	UNIT S1	1	1	320 SF
9TH FLR	927	UNIT B6	2	2	691 SF
9TH FLR	928	UNIT D9	5	4	1,439 SF
9TH FLR	930	UNIT D1	4	2	1,061 SF
9TH FLR	931	UNIT E2	5	5	1,542 SF
9TH FLR	932	UNIT A1	1	1	502 SF
9TH FLR: 22			73	56	
10TH FLR	1001	UNIT D2	4	4	1,210 SF
10TH FLR	1002	UNIT D5	4	4	1,277 SF
10TH FLR	1004	UNIT B2	2	2	872 SF
10TH FLR	1005	UNIT D3	4	4	1,188 SF
10TH FLR	1007	UNIT B1	2	1	650 SF
10TH FLR	1009	UNIT D4	4	3	1,215 SF
10TH FLR	1011	UNIT B3	4	2	956 SF
10TH FLR	1012	UNIT A3	1	1	491 SF
10TH FLR	1013	UNIT B3	4	2	956 SF
10TH FLR	1014	UNIT B5	3	2	756 SF
10TH FLR	1015	UNIT B3	4	2	956 SF
10TH FLR	1016	UNIT D8	5	4	1,305 SF
10TH FLR	1017	UNIT B3	4	2	956 SF
10TH FLR	1019	UNIT B3	4	2	956 SF
10TH FLR	1021	UNIT E1	5	5	1,488 SF
10TH FLR	1023	UNIT S1	1	1	320 SF
10TH FLR	1025	UNIT S1	1	1	317 SF
10TH FLR	1027	UNIT B6	2	2	691 SF
10TH FLR	1028	UNIT D9	5	4	1,439 SF
10TH FLR	1030	UNIT D1	4	2	1,061 SF
10TH FLR	1031	UNIT E2	5	5	1,542 SF
10TH FLR	1032	UNIT A1	1	1	502 SF
10TH FLR: 22			73	56	
11TH FLR	1101	UNIT D2	4	4	1,210 SF
11TH FLR	1102	UNIT D5	4	4	1,277 SF
11TH FLR	1104	UNIT B2	2	2	872 SF
11TH FLR	1105	UNIT D3	4	4	1,188 SF
11TH FLR	1107	UNIT B1	2	1	650 SF
11TH FLR	1109	UNIT D4	4	3	1,215 SF
11TH FLR	1111	UNIT B3	4	2	956 SF
11TH FLR	1112	UNIT A3	1	1	499 SF
11TH FLR	1113	UNIT B3	4	2	956 SF
11TH FLR	1114	UNIT B5	3	2	756 SF
11TH FLR	1115	UNIT B3	4	2	956 SF
11TH FLR	1116	UNIT D8	5	4	1,305 SF
11TH FLR	1117	UNIT B3	4	2	956 SF
11TH FLR	1119	UNIT B3	4	2	956 SF
11TH FLR	1121	UNIT E1	5	5	1,488 SF
11TH FLR	1123	UNIT S1	1	1	320 SF
11TH FLR	1125	UNIT S1	1	1	317 SF
11TH FLR	1127	UNIT B6	2	2	691 SF
11TH FLR	1128	UNIT D9	5	4	1,439 SF
11TH FLR	1130	UNIT D1	4	2	1,061 SF
11TH FLR	1131	UNIT E2	5	5	1,542 SF
11TH FLR	1132	UNIT A1	1	1	502 SF
11TH FLR: 22			73	56	

UNIT SCHEDULE

LEVEL	NUMBER	ROOM NAME	BED COUNT	BATHROOM COUNT	AREA
12TH FLR	1201	UNIT D2	4	4	1,210 SF
12TH FLR	1202	UNIT D5	4	4	1,277 SF
12TH FLR	1204	UNIT B2	2	2	872 SF
12TH FLR	1205	UNIT D3	4	4	1,188 SF
12TH FLR	1207	UNIT B1	2	1	650 SF
12TH FLR	1209	UNIT D4	4	3	1,215 SF
12TH FLR	1211	UNIT B3	4	2	956 SF
12TH FLR	1212	UNIT A3	1	1	499 SF
12TH FLR	1213	UNIT B3	4	2	956 SF
12TH FLR	1214	UNIT B5	3	2	756 SF
12TH FLR	1215	UNIT B3	4	2	956 SF
12TH FLR	1216	UNIT D8	5	4	1,305 SF
12TH FLR	1217	UNIT B3	4	2	956 SF
12TH FLR	1219	UNIT B3	4	2	956 SF
12TH FLR	1221	UNIT E1	5	5	1,488 SF
12TH FLR	1223	UNIT S1	1	1	320 SF
12TH FLR	1225	UNIT S1	1	1	317 SF
12TH FLR	1227	UNIT B6	2	2	691 SF
12TH FLR	1228	UNIT D9	5	4	1,439 SF
12TH FLR	1230	UNIT D1	4	2	1,061 SF
12TH FLR	1231	UNIT E2	5	5	1,542 SF
12TH FLR	1232	UNIT A1	1	1	502 SF
12TH FLR: 22			73	56	
13TH FLR	1301	UNIT D2	4	4	1,210 SF
13TH FLR	1302	UNIT D5	4	4	1,277 SF
13TH FLR	1304	UNIT B2	2	2	872 SF
13TH FLR	1305	UNIT D3	4	4	1,188 SF
13TH FLR	1307	UNIT B1	2	1	650 SF
13TH FLR	1309	UNIT D4	4	3	1,215 SF
13TH FLR	1311	UNIT B3	4	2	956 SF
13TH FLR	1312	UNIT A3	1	1	499 SF
13TH FLR	1313	UNIT B3	4	2	956 SF
13TH FLR	1314	UNIT B5	3	2	756 SF
13TH FLR	1315	UNIT B3	4	2	956 SF
13TH FLR	1316	UNIT D8	5	4	1,305 SF
13TH FLR	1317	UNIT B3	4	2	956 SF
13TH FLR	1319	UNIT B3	4	2	956 SF
13TH FLR	1321	UNIT E1	5	5	1,488 SF
13TH FLR	1323	UNIT S1	1	1	320 SF
13TH FLR	1325	UNIT S1	1	1	317 SF
13TH FLR	1327	UNIT B6	2	2	691 SF
13TH FLR	1328	UNIT D9	5	4	1,439 SF
13TH FLR	1330	UNIT D1	4	2	1,061 SF
13TH FLR	1331	UNIT E2	5	5	1,542 SF
13TH FLR	1332	UNIT A1	1	1	502 SF
13TH FLR: 22			73	56	
14TH FLR	1401	UNIT D2	4	4	1,210 SF
14TH FLR	1402	UNIT D5	4	4	1,280 SF
14TH FLR	1404	UNIT B2	2	2	872 SF
14TH FLR	1405	UNIT D3	4	4	1,188 SF
14TH FLR	1407	UNIT B1	2	1	650 SF
14TH FLR	1409	UNIT D4	4	3	1,218 SF
14TH FLR	1411	UNIT B3	4	2	956 SF
14TH FLR	1412	UNIT A3	1	1	499 SF
14TH FLR	1413	UNIT B3	4	2	956 SF
14TH FLR	1414	UNIT B5	2	3	756 SF
14TH FLR	1415	UNIT B3	4	2	956 SF
14TH FLR	1416	UNIT D8	5	4	1,306 SF
14TH FLR	1417	UNIT B3	4	2	956 SF
14TH FLR	1419	UNIT B3	4	2	956 SF
14TH FLR	1421	UNIT E1	5	5	1,485 SF
14TH FLR	1423	UNIT S1	1	1	320 SF
14TH FLR	1425	UNIT S1	1	1	317 SF
14TH FLR	1427	UNIT B6	2	2	691 SF
14TH FLR	1428	UNIT D9	5	4	1,439 SF
14TH FLR	1430	UNIT D1	4	2	1,061 SF
14TH FLR	1431	UNIT E2	5	5	1,552 SF
14TH FLR	1432	UNIT A1	1	1	525 SF
14TH FLR: 22			73	56	
15TH FLR	1501	UNIT D2	4	4	1,210 SF
15TH FLR	1502	UNIT D5	4	4	1,280 SF
15TH FLR	1504	UNIT B2	2	2	872 SF
15TH FLR	1505	UNIT D3	4	4	1,188 SF
15TH FLR	1507	UNIT B1	2	1	650 SF
15TH FLR	1509	UNIT D4	4	3	1,218 SF
15TH FLR	1511	UNIT B3	4	2	956 SF
15TH FLR	1512	UNIT A3	1	1	499 SF
15TH FLR	1513	UNIT B3	4	2	956 SF
15TH FLR	1514	UNIT B5	3	2	756 SF
15TH FLR	1515	UNIT B3	4	2	956 SF
15TH FLR	1516	UNIT D8	5	4	1,306 SF
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15TH FLR	1519	UNIT B3	2	2	956 SF
15TH FLR	1521	UNIT E1	5	5	1,485 SF
15TH FLR	1523	UNIT S1	1	1	320 SF
15TH FLR	1525	UNIT S1	1	1	317 SF
15TH FLR	1527	UNIT B6	2	2	691 SF
15TH FLR	1528	UNIT D9	5	4	1,439 SF
15TH FLR	1530	UNIT D1	4	2	1,061 SF
15TH FLR	1531	UNIT E2	5	5	1,552 SF
15TH FLR	1532	UNIT A1	1	1	514 SF
15TH FLR: 22			73	56	
Grand Total: 213			679	528	

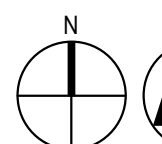
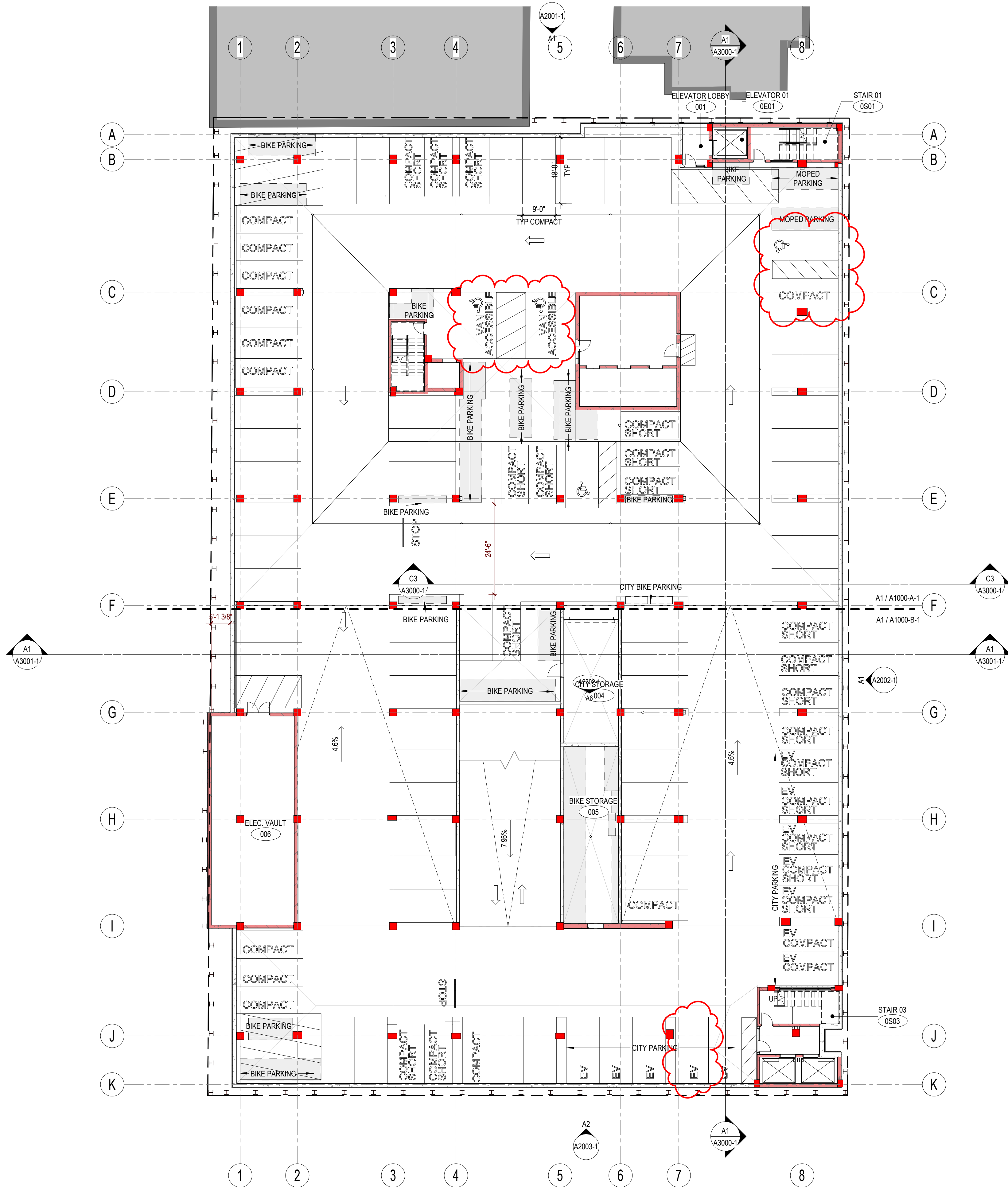
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A3

LOWER LEVEL OVERALL - PHASE 1
1/16" = 1'-0"

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
- NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
- VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
- REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
- ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
- SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
- REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
- LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
- WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL, AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
- PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
- PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
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DIMENSIONING NOTES

- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
- EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
- CMU WALLS ARE DIMENSIONED TO FACE OF CMU.

WALL NOTES

- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
- ALL UNIT DIVISION WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
- ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET



milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

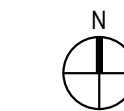
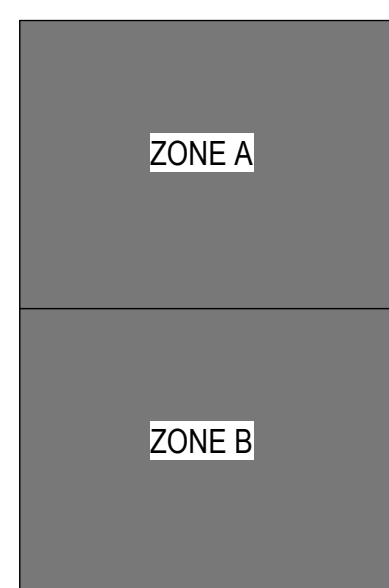
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER MO

PROJECT NUMBER 720448

LOWER LEVEL
OVERALL - PHASE 1

A1000-1

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milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

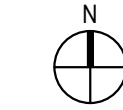
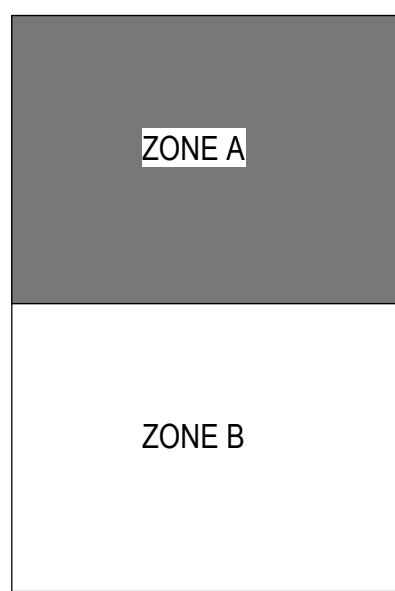
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

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07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_A002

KEY PLAN



SHEET INFORMATION

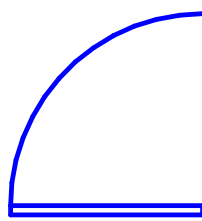
PROJECT MANAGER MO
PROJECT NUMBER 720448

LOWER LEVEL -
ZONE A - PHASE 1

A1000-A-1

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PHASE 2 - DOOR COORDINATION



DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

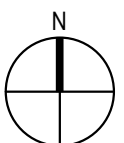
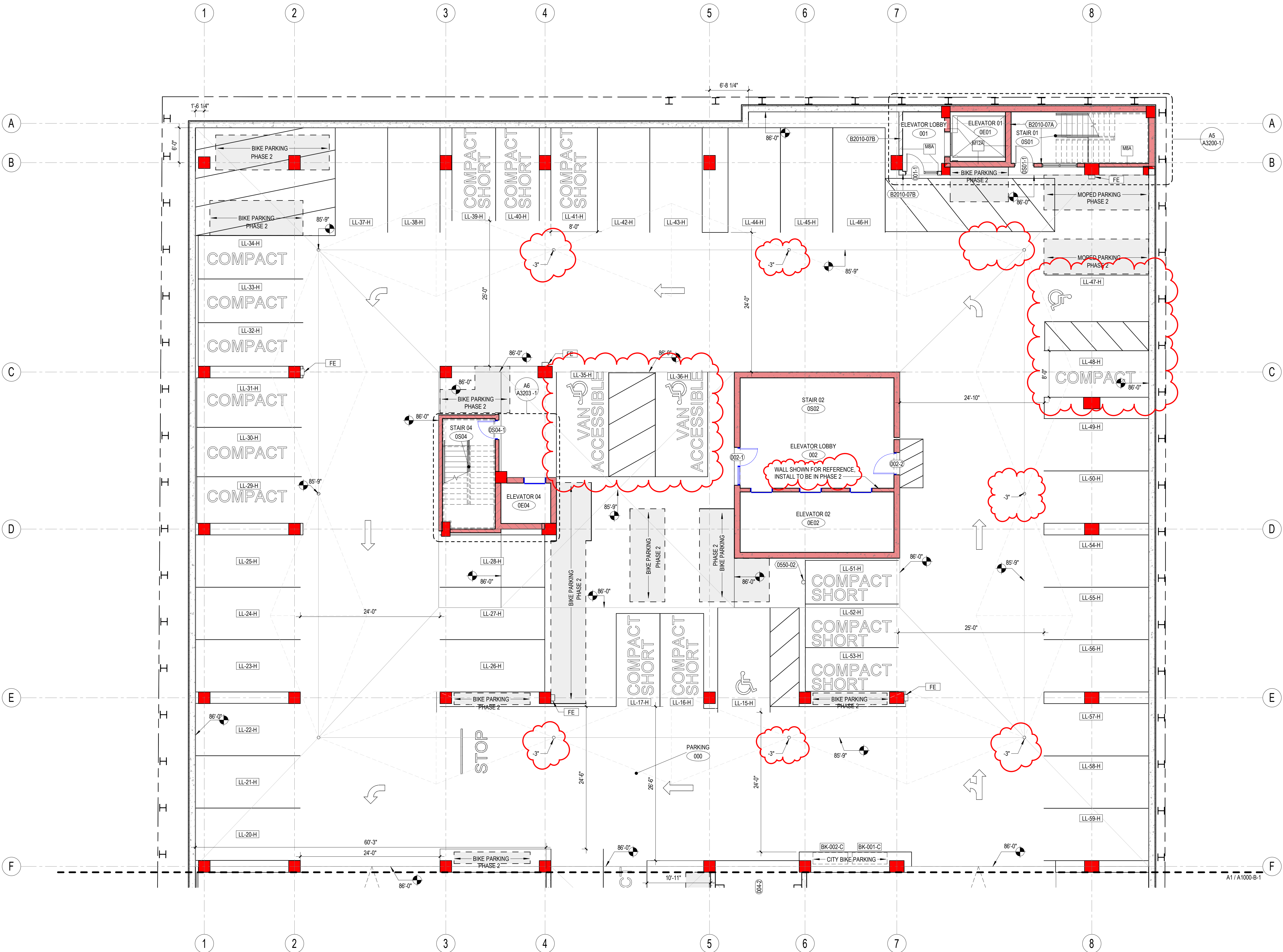
SEE 'DOOR SCHEDULE - PHASE 1 / PHASE 2' ON A600-1 FOR MORE INFORMATION

SHEET NOTES - FLOOR PLAN

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KEYNOTES PER SHEET

0550-02	BOLLARD
B2010-07A	SINGLE WYTHE STANDARD CMU WALL W/ INSULATED CORES - SEE BUILDING ASSEMBLIES SHEET
B2010-07B	SINGLE WYTHE STANDARD CMU WALL W/ NON-INSULATED CORES - SEE BUILDING ASSEMBLIES SHEET



A1 LOWER LEVEL - ZONE A - PHASE 1
1/8" = 1'-0"

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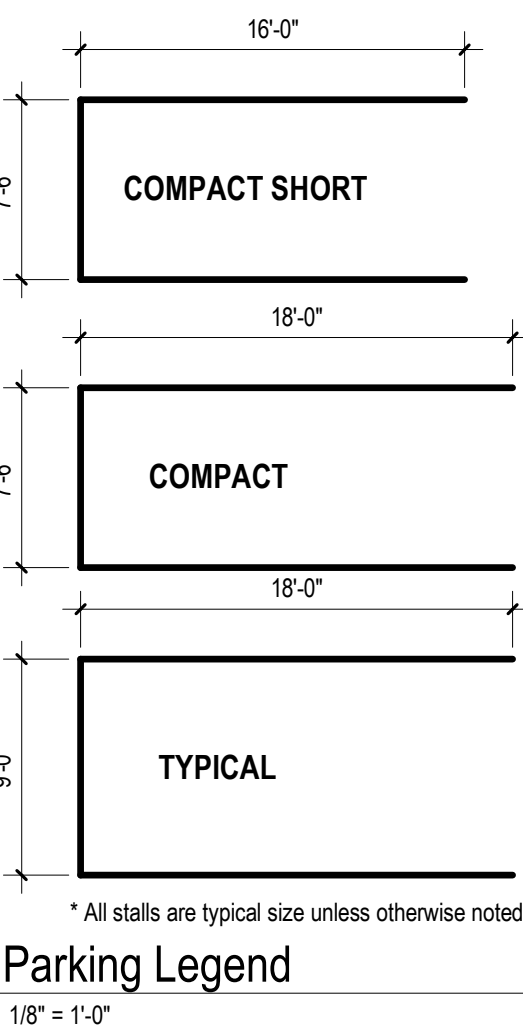
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* All stalls are typical size unless otherwise noted

Parking Legend

1/8" = 1'-0"

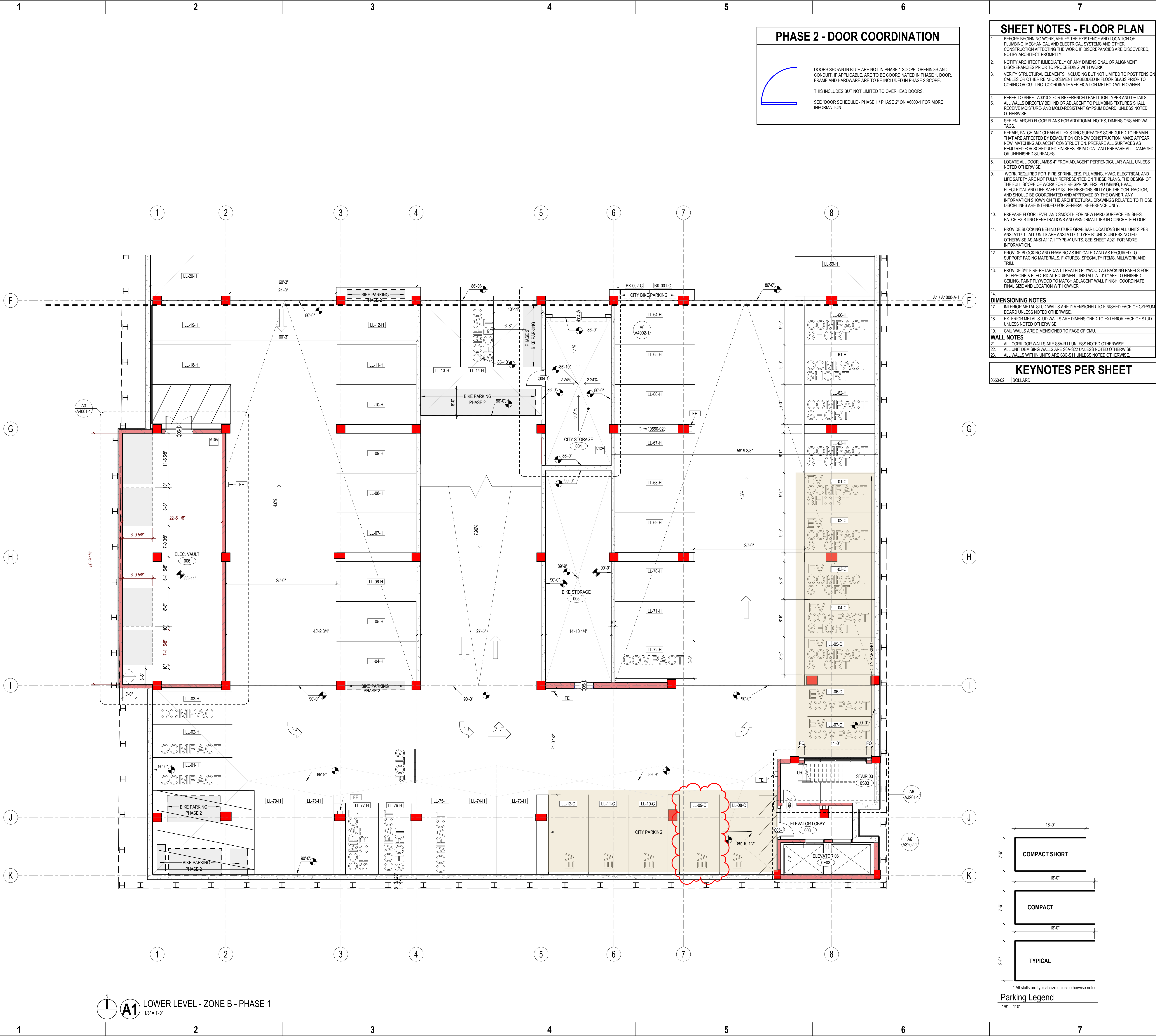
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SHEET NOTES - FLOOR PLAN

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KEYNOTES PER SHEET

0550-02	BOLLARD
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milwaukee | madison | green bay | denver | atlanta

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PROJECT INFORMATION

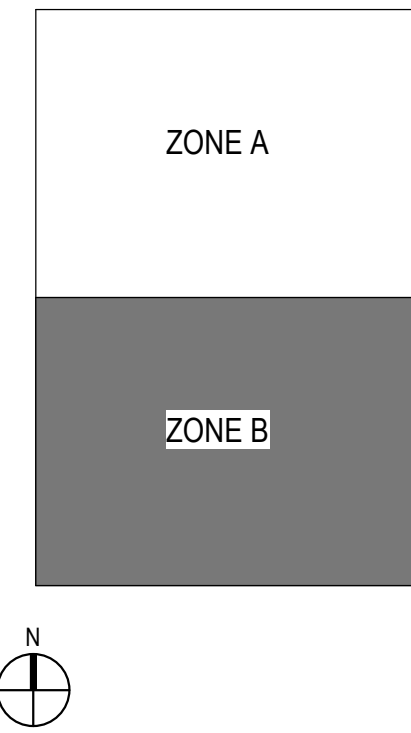
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_A020

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

LOWER LEVEL -
ZONE B - PHASE 1

A1000-B-1

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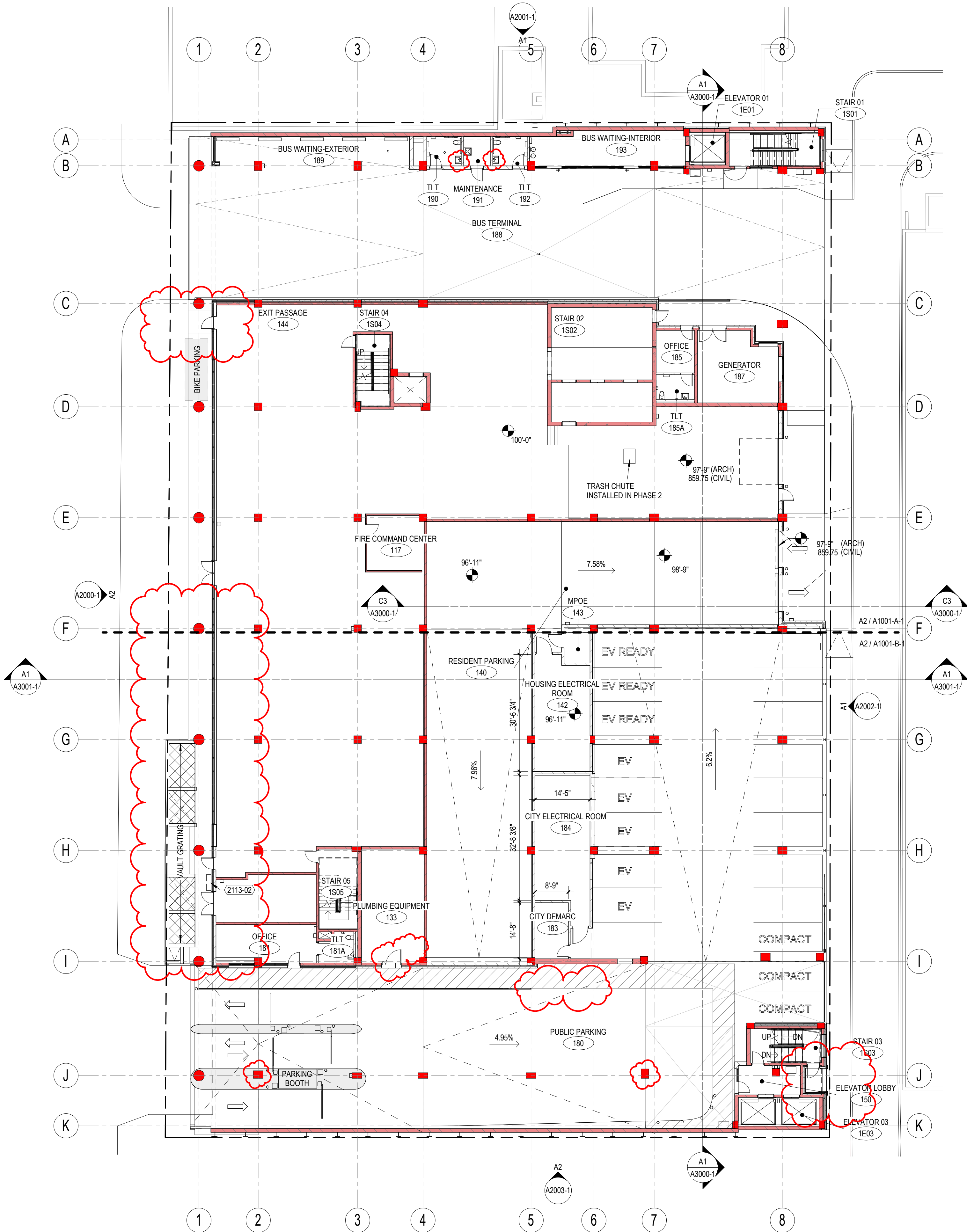
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A3 1ST FLR OVERALL - PHASE 1
1/16" = 1'-0"

SHEET NOTES - FLOOR PLAN

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 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

- 2113-02 FIRE PROTECTION TEST, HEADER AND VALVES, SEE PLUMBING DRAWINGS (PHASE 1)



milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

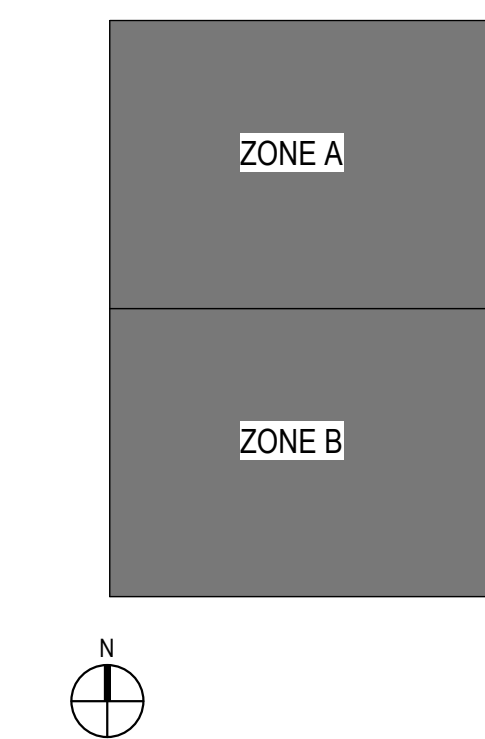
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

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10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

1ST FLR OVERALL -
PHASE 1

A1001-1

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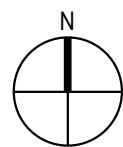
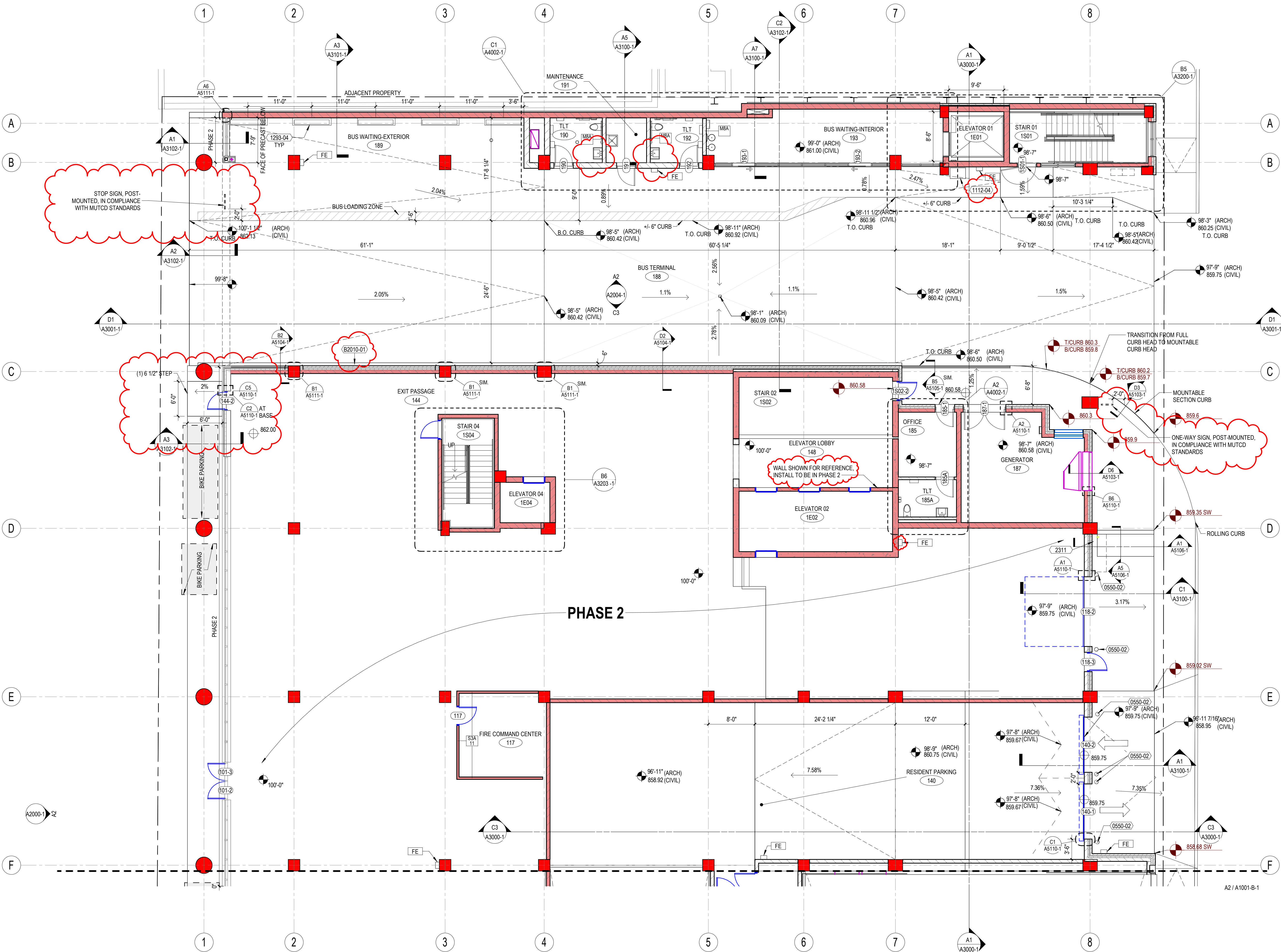
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A2 1ST FLR - ZONE A - PHASE 1
1/8" = 1'-0"

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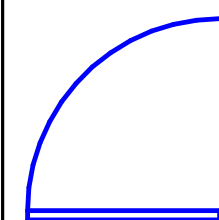
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PHASE 2 - DOOR COORDINATION



DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE. THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

SEE 'DOOR SCHEDULE - PHASE 1 / PHASE 2' ON A6000-1 FOR MORE INFORMATION

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- ### WALL NOTES
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

- 0550-02 ROLLER
- 1112-04 WALK-UP PAY STATION, OWNER FURNISHED, OWNER INSTALLED
- 0550-04 ROLLER
- 2311 GAS METERING, REFER TO MECHANICAL
- B2010-01 MASONRY VENEER ON CMU BACKUP WALL (INSUL) - SEE BUILDING ASSEMBLIES SHEET

PROJECT INFORMATION

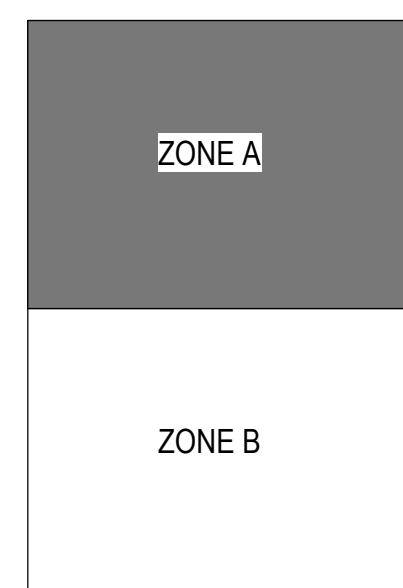
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_A002

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

1ST FLR - ZONE A -
PHASE 1

A1001-A-1

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DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION

1.	BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
2.	NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
3.	FOR ALL PLUMBING ELEMENTS, THE WORK SHALL NOT BE LIMITED TO TEST PENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
4.	REFER TO SHEET A001022.90 FOR REFERENCED PARTITION TYPES AND DETAILS.
5.	ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOIST-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
6.	SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
7.	REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES DESIGNED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR OTHER CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
8.	LOCATE ALL DOOR JAMBS "A" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
9.	WORK REQUIRED FOR FIRE REPRESENTERS, PLUMBING, HVAC, ELECTRICAL, AND LIFE SAFETY ARE NOT FULLY SHOWN ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE REPRESENTERS, PLUMBING, HVAC, ELECTRICAL, AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL COORDINATE AND APPROVE BY THE OWNER, ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
10.	PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH AND REPAIR CRACKS AND DISINTEGRATION TEST IN CONCRETE FLOOR.
11.	PREPARE FLOOR BEHIND FUTURE GRAB BAR LOCATIONS IN ALL FINISH UNITS AND ALLIN A117.1. ALL UNITS ARE ALLIN A117.1 TYPE-B; ALL UNITS UNLESS NOTED OTHERWISE ARE ALLIN A117.1 TYPE-A; UNITS: SEE SHEET A21 FOR MORE INFORMATION.
12.	PREPARE BLOCKING AND FRAMING AS SPECIFIED AND AS REQUIRED TO SUPPORT BACKING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
13.	PREPARE 3/4" FIRE-RETARDANT TREATED 1/2"X4"X8" AS BACKING FINISHES FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1/4" GAP TO FINISHED CEILING. PAINT 1/2"X4"X8" TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
14.	
DIMENSIONING NOTES	
1.	INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
2.	EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
3.	CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
WALL NOTES	
21.	ALL CORRIDOR WALLS ARE SGA-A111 UNLESS NOTED OTHERWISE.
22.	ALL BATHING WALLS ARE SGA-B22 UNLESS NOTED OTHERWISE.
23.	ALL WALLS WITHIN UNITS ARE SGA-S11 UNLESS NOTED OTHERWISE.

0550-02	BOLLARD
0551-09	STEEL PIPE HANDRAIL
1112-04	WALK-UP PAY STATION, OWNER FURNISHED, OWNER INSTALLED
2113-02	PIRE PROTECTION TEST, HEADER AND VALVES, SEE PLUMBING DRAWINGS (PHASE 1)



* All stalls are typical size unless otherwise noted

Parking Legend

1/8" = 1'-0"

* All stalls are typical size unless otherwise noted

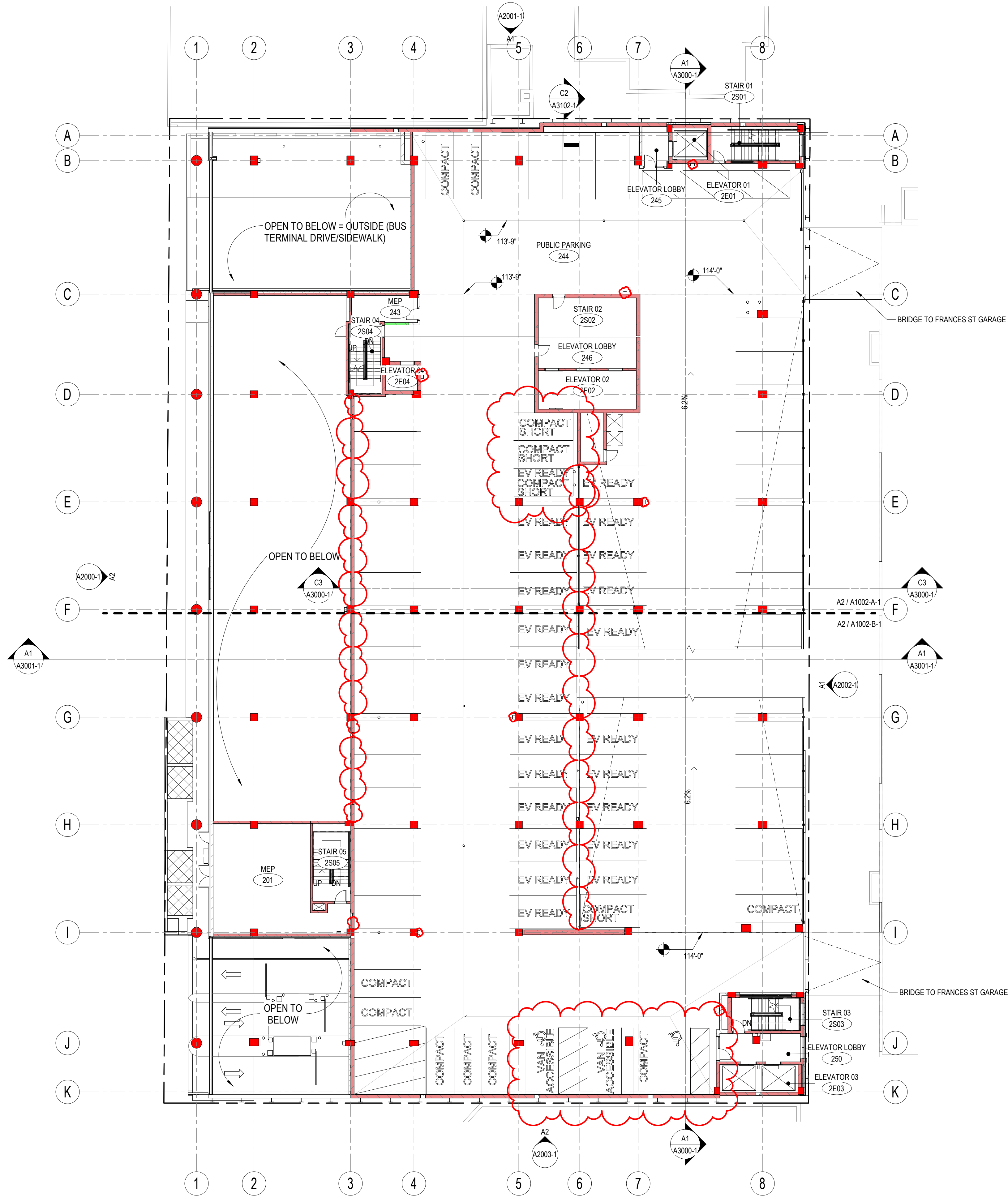
E

D

C

B

A



A3 P2 FLR OVERALL - PHASE 1
1/16" = 1'-0"

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 - PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
- DIMENSIONING NOTES**
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET



milwaukee | madison | green bay | denver | atlanta

E

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

D

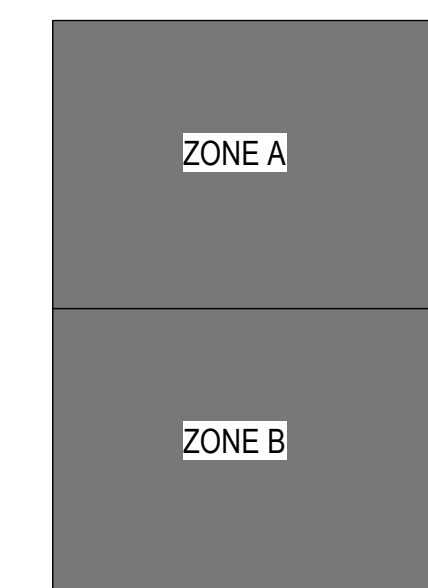
415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

C

KEY PLAN



B



SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

A

P2 FLR OVERALL -
PHASE 1

A1002-1

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1

2

3

4

5

6

7



milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

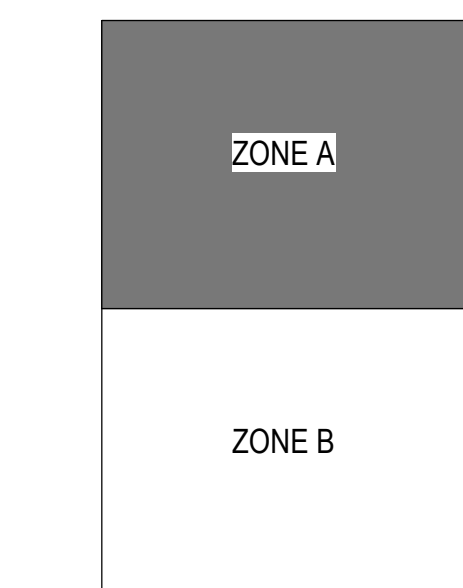
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_A002

KEY PLAN



SHEET INFORMATION

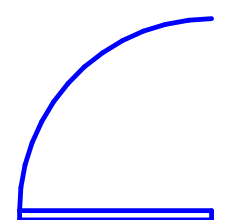
PROJECT MANAGER MO
PROJECT NUMBER 720448

P2 FLR - ZONE A -
PHASE 1

A1002-A-1

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PHASE 2 - DOOR COORDINATION



DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL, AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
 -
- DIMENSIONING NOTES**
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

0105	VEHICLE CABLE BARRIER. REFER TO STRUCTURAL.
0550-02	BOLLARD.
0551-05	VERTICAL STEEL PIPE RAILING OR HORIZONTAL CABLE RAILING, TO BE DETERMINED - 3'-0" HEIGHT.
1112-05	FUTURE WALK-UP PAY STATION, OWNER FURNISHED, CONTRACTOR INSTALLED.

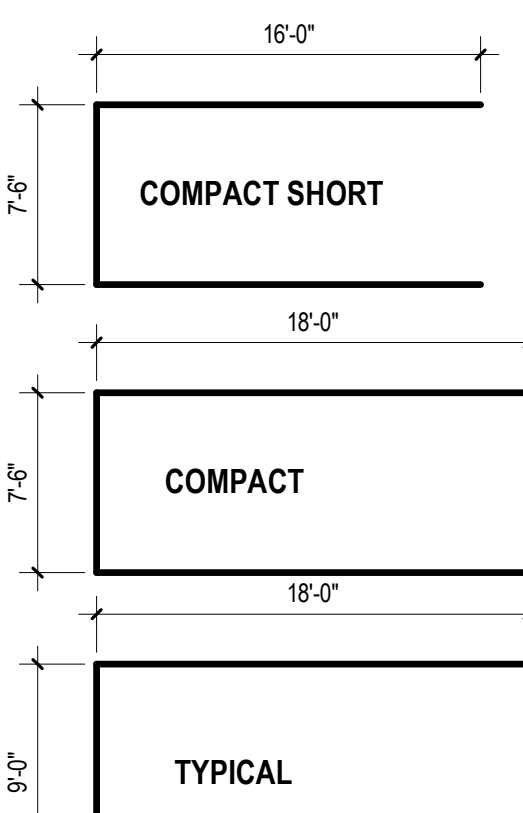
OPEN TO BELOW =
OUTSIDE (BUS
TERMINAL
DRIVE/SIDEWALK)

OPEN TO
BELOW

COMPACT
SHORT
EV READY
COMPACT
EV READY
SHORT

EV READY
EV READY
EV READY
EV READY

N
A2 P2 FLR - ZONE A - PHASE 1
1/8" = 1'-0"



* All stalls are typical size unless otherwise noted
Parking Legend
1/8" = 1'-0"

PROJECT INFORMATION

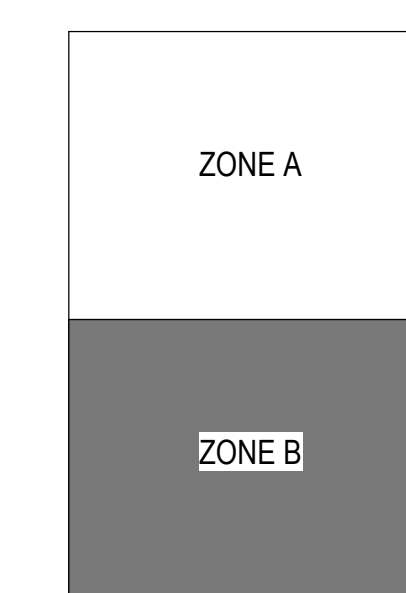
STATE STREET
CAMPUS GARAGE
MIXED-USE

D 415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1 ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER MC

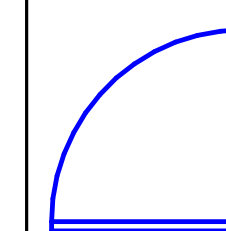
PROJECT NUMBER 720448

P2 FLR - ZONE B -
PHASE 1

A1002-B-1

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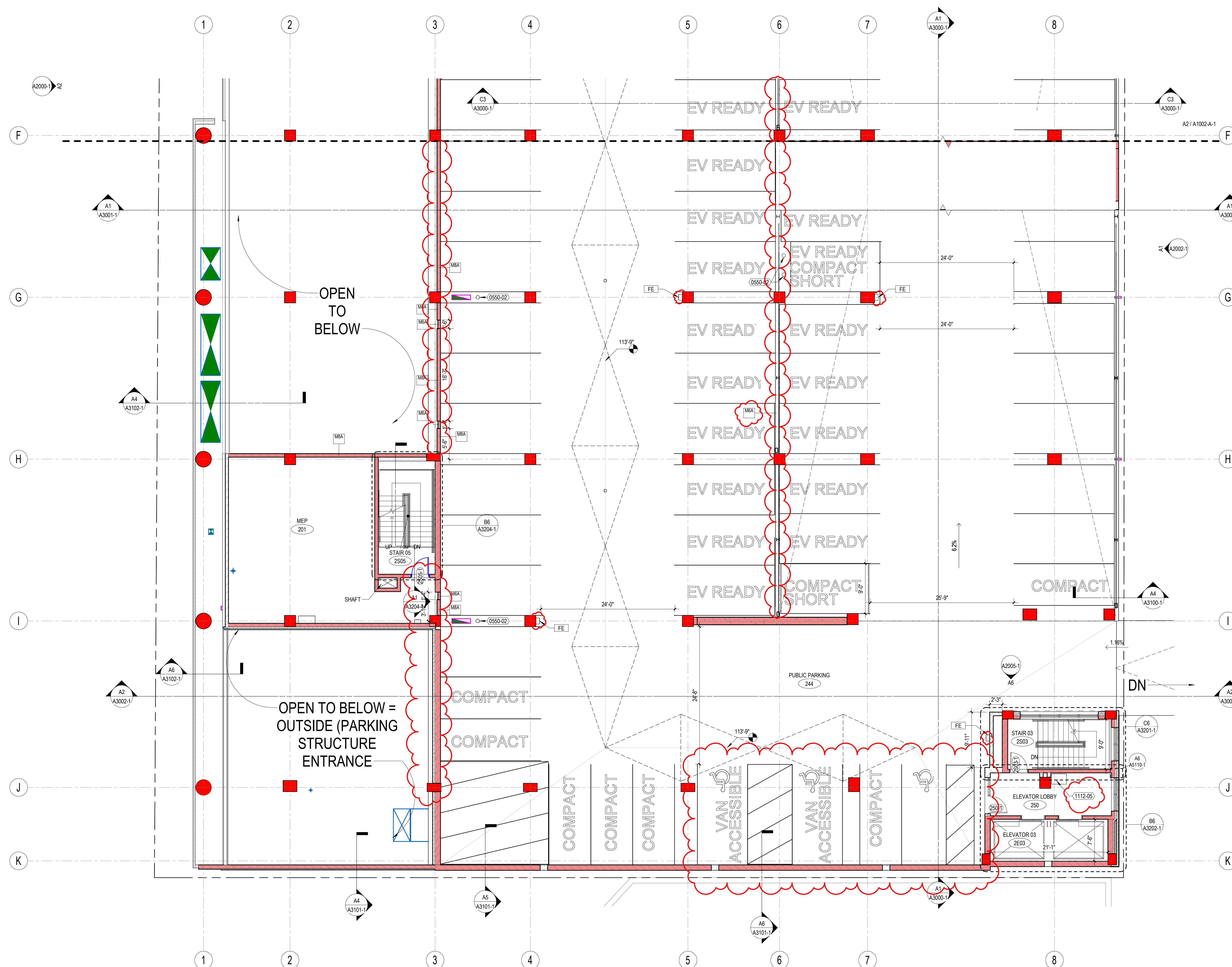
PHASE 2 - DOOR COORDINATION



DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION



A2 P2 FLR - ZONE B - PHASE 1

PZ FL
4101 - 4102

SHEET NOTES - FLOOR PLAN

1. BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND SURFACES CONSTRUCTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, IMMEDIATELY STOP THE PROJECT AND NOTIFY ARCHITECT.
2. NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
3. VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSIONING, REINFORCING BARS, AND JOINTS, ARE CORRECT FOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
4. REFER TO SECT A0107 FOR PRE-REFERENCED PARTITION TYPES AND DETAILS. ALL WALLS DIRECTLY ADJACENT OR ADJACENT TO PLUMBING FLOOR SHALL RECEIVE MASTOBS, AND MOLD-STRIPPED GYPSUM BOARD, UNLESS NOTED OTHERWISE.
5. SEE ENLARGED FLOOR PLANS FOR PARTITIONS, DIMENSIONS AND WALL THICKNESS.
6. REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN. THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APEX REPAIRS AND ADJUSTMENTS TO CONSTRUCTION PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
7. LOCATE ALL LOWER JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
8. WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE SYSTEMS OF WORK OR THE LOCATION OF THE SYSTEMS ARE THE RESPONSIBILITY OF THE CONTRACTOR, AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY DISCREPANCY OR CHANGES TO THE SYSTEMS OR THE LOCATION OF THE SYSTEMS ARE INTENDED FOR GENERAL REFERENCE ONLY.
9. PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
10. PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE III UNITS UNLESS NOTED OTHERWISE. UNITS A117.1 TYPE IV UNITS. SEE SHEET A0201 FOR MORE INFORMATION.
11. PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FINISHES, SPECIALTY ITEMS, MILLWORK AND TRIM.
12. PROVIDE 3/4" FIRE-RATED PARTIAL TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1/4" GAP TO FINISHED TREATED PLYWOOD TO PROVIDE ADJACENT WALL FINISH. COORDINATE PANEL SIZE AND LOCATION WITH OWNER.

14. DIMENSIONING NOTES

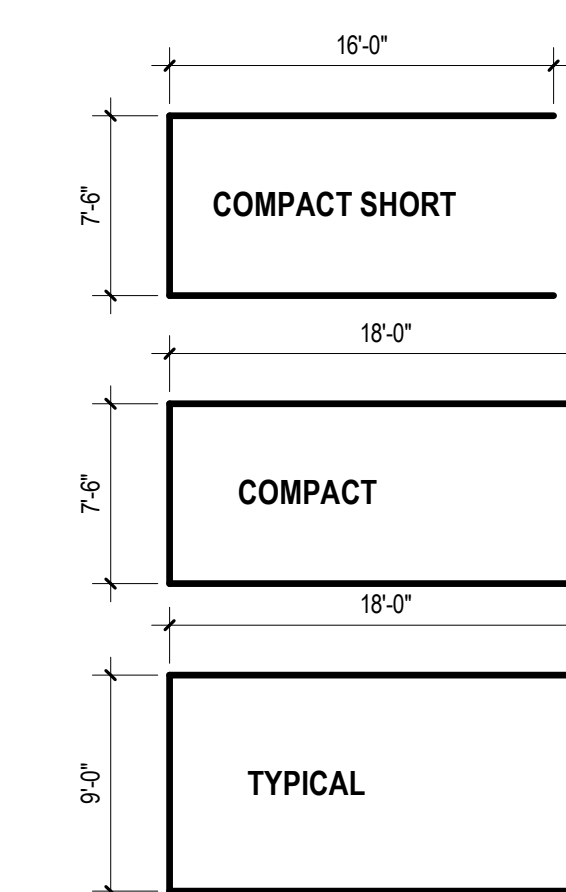
- | DIMENSIONING NOTES | |
|--------------------|--|
| 17. | INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE. |
| 18. | EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE. |
| 19. | CMU WALLS ARE DIMENSIONED TO FACE OF CMU. |

WALL NOTES

- | | |
|-----|---|
| 21. | ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE. |
| 22. | ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE. |
| 23. | ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE. |

KEYNOTES PER SHEET

0550-02	BOLLARD
1112-05	FUTURE WALK-UP PAY STATION, OWNER FURNISHED, CONTRACTOR



* All stalls are typical size unless otherwise noted.

Parking Legend

$$1/8'' = 1'-0''$$

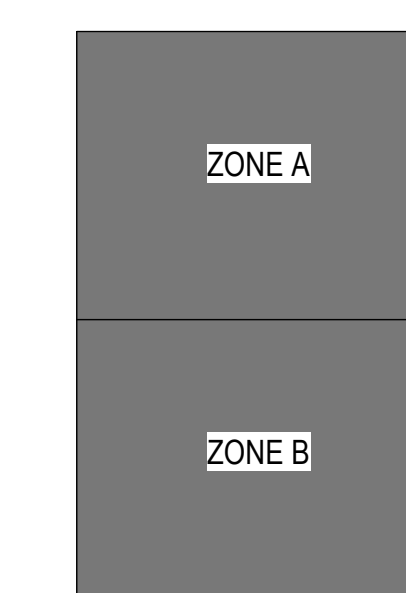
STATE STREET
CAMPUS GARAGE
MIXED-USE

D 415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1 ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER MO

PROJECT NUMBER	720448
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P3 FLR OVERALL -
PHASE 1

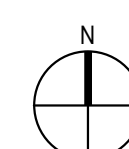
A1003-1

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SHEET NOTES - FLOOR PLAN

- [illegible]

KEYNOTES PER SHEET



A3 P3 FLR OVERALL - PHASE 1
1/16" = 1'-0"

KEY PLAN



SHEET INFORMATION

P3 FLR - ZONE A -
PHASE 1

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DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

SEE "DOOR SCHEDULE - PHASE 1/ PHASE 2" ON A6000-1 FOR MORE INFORMATION

0550-02	BOLLARD
0551-05	VERTICAL STEEL PIPE RAILING OR HORIZONTAL CABLE RAILING, TO BE DETERMINED, 3' 6" HEIGHT
1112-05	FUTURE WALK-UP PAY STATION, OWNER FURNISHED, CONTRACTOR INSTALLED



Parking Legend

$$1/8^* = 1^*-0$$

E

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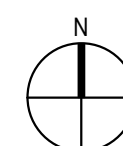
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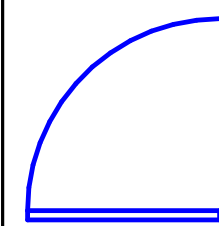


A2

P3 FLR - ZONE B - PHASE 1

1/8" = 1'-0"

PHASE 2 - DOOR COORDINATION



DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

SEE 'DOOR SCHEDULE - PHASE 1 / PHASE 2' ON A6000-1 FOR MORE INFORMATION

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIN COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 - PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
- ### DIMENSIONING NOTES
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- ### WALL NOTES
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DIVISION WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

- 0550-02 BOLLARD
1112-04 WALK-UP PAY STATION, OWNER FURNISHED, OWNER INSTALLED



milwaukee | madison | green bay | denver | atlanta

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PROJECT INFORMATION

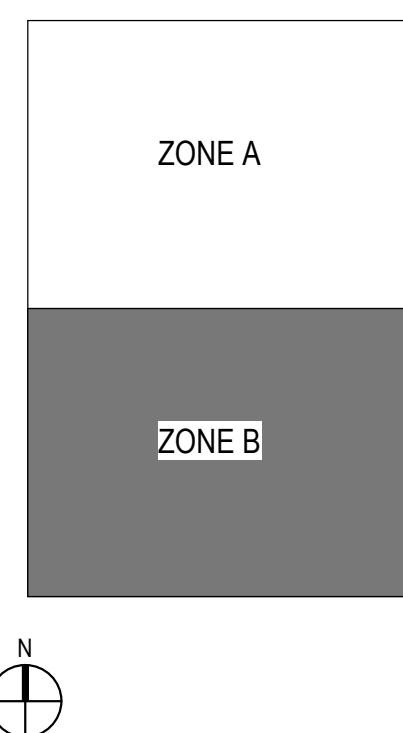
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_A020

KEY PLAN



SHEET INFORMATION

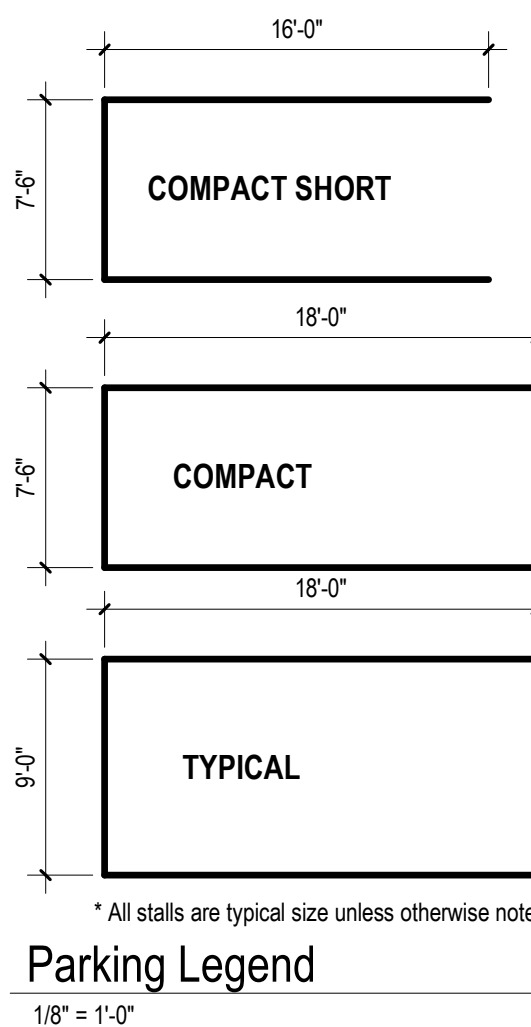
PROJECT MANAGER MO

PROJECT NUMBER 720448

P3 FLR - ZONE B -
PHASE 1

A1003-B-1

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Parking Legend

1/8" = 1'-0"

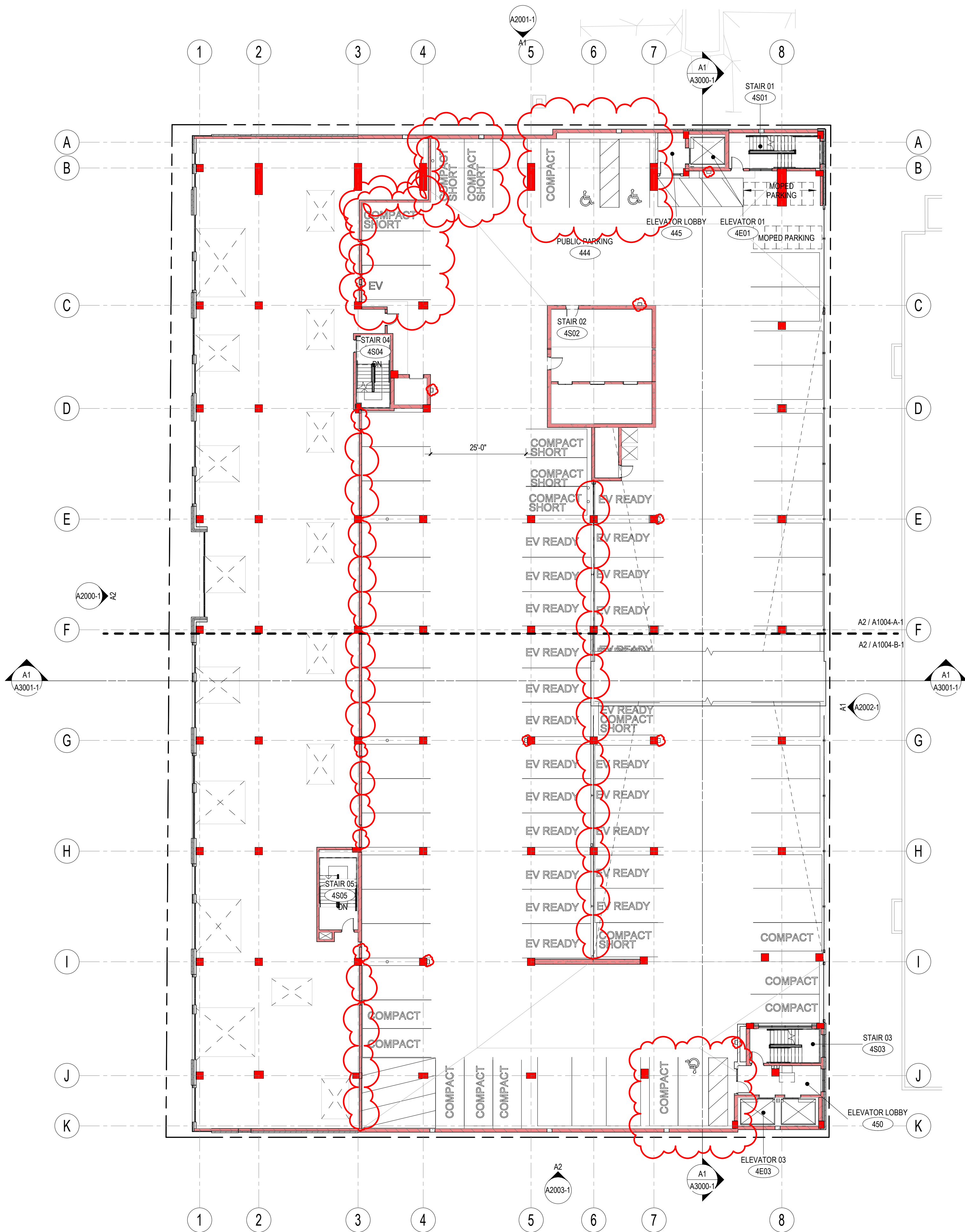
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A3 P4 FLR OVERALL - PHASE 1
1/16" = 1'-0"

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 - PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
14. DIMENSIONING NOTES
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
15. WALL NOTES
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET



milwaukee | madison | green bay | denver | atlanta

E

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

D

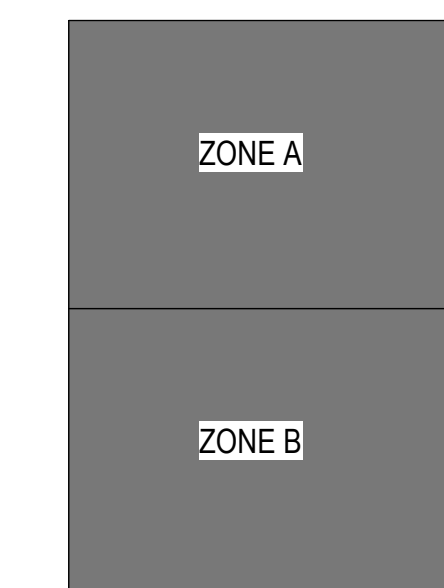
415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

P4 FLR OVERALL -
PHASE 1

A1004-1

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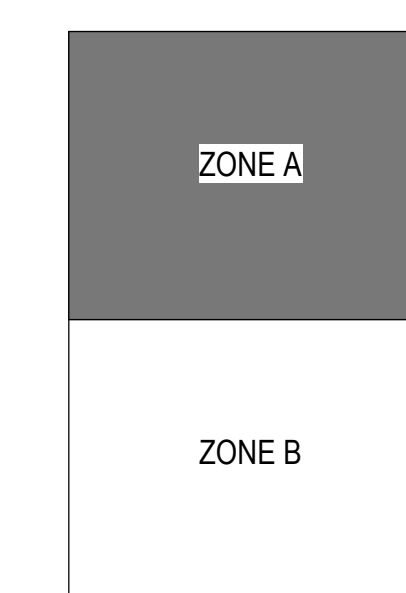
STATE STREET
CAMPUS GARAGE
MIXED-USE

D 415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1 AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER	MC
PROJECT NUMBER	720448

P4 FLR - ZONE A -
PHASE 1

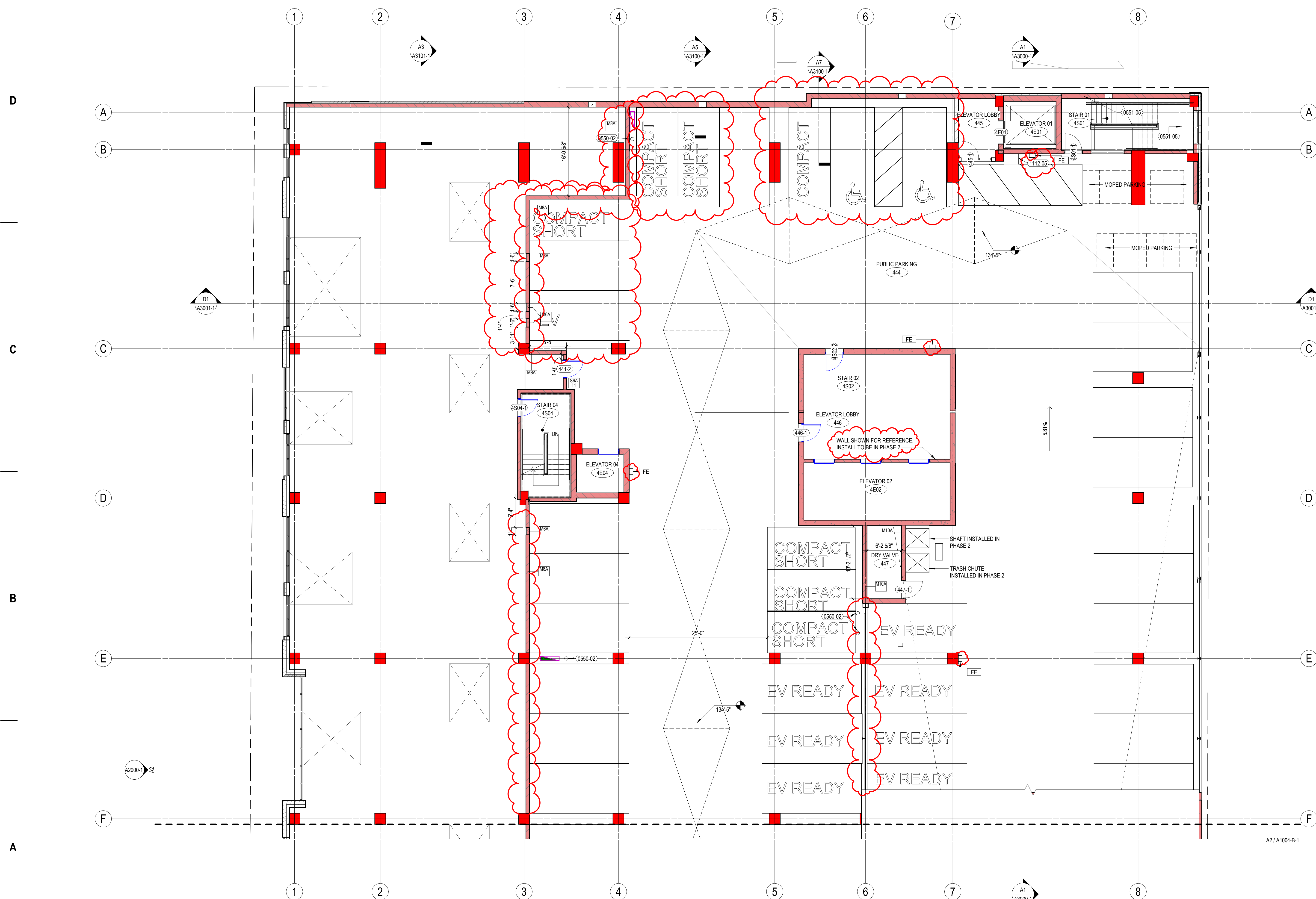
A1004-A-1

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DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION



A2 P4 FLR - ZONE A - PHASE 1

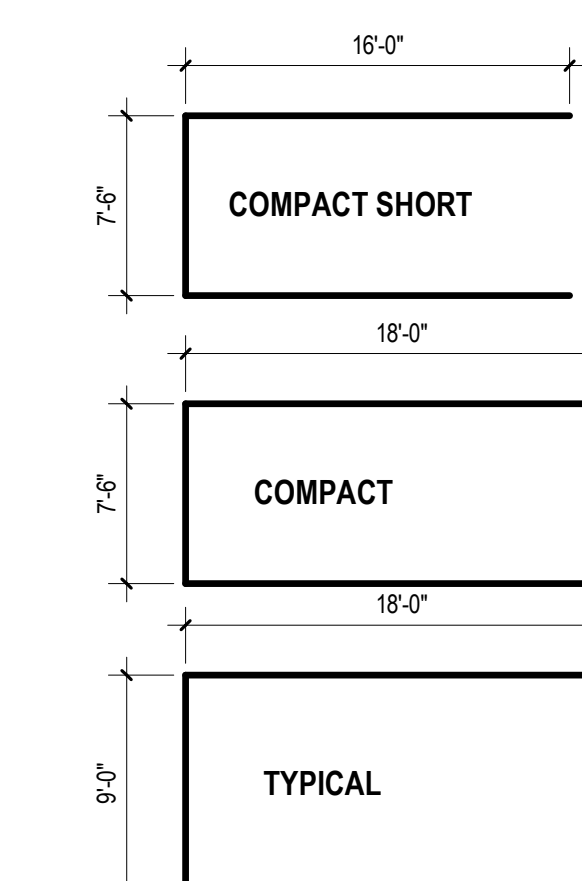
 $1/8" = 1'-0"$

SHEET NOTES - FLOOR PLAN

1. BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT IMMEDIATELY.
 2. NOTIFY ARCHITECT IMMEDIATELY IF ANY DIMENSIONAL OR ALIGNED DISCREPANCIES PREVENT PROCEEDING WITH WORK.
 3. VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION BEAMS OR OTHER REINFORCED CONCRETE ENCASED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE REFERENCE METHOD WITH OWNER.
 4. REFER TO SHEET A010-0 FOR VERIFICATION PARTITION TYPES AND DETAILS.
 5. ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MASTOISE, AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 6. ALL FINISHED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 7. REPAIR, PATCH AND CLEAN ALL EXISTINGS SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEARANCE MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR CRACKED SURFACES.
 8. LOCATE ALL DOOR JAMBS (IF FROM ADJACENT PERIPHERAL WALL), UNLESS NOTED OTHERWISE.
 9. WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF SUCH ITEMS IS OUTSIDE THE SCOPE OF THIS CONTRACT. THE CONTRACTOR, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY CHANGES TO THE DESIGN OR POSITION ON THE PLANS WILL BE RELAYED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 10. PREPARE FLOOR LEVEL AND SMOOTH FOR HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 11. PROVIDE B.O.B. BEHIND BRIDGE FRAME GRAB BAR LOCATIONS IN ALL UNITS PER SEPARATE UNIT LAYOUTS. PROVIDE B.O.B. BEHIND HANDRAIL LOCATIONS IN ALL UNITS PER SEPARATE UNITS A111-T1 TYPE UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 12. PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT VARIOUS FINISHES, FITTINGS, SPLYWOOD, MILLWORK AND TRIM.
 13. PROVIDE 3/4" FIRE-RATED/TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE AND ELECTRONIC EQUIPMENT. INSTALL AT 1'-0" AFF. FINISHED FACE. PROVIDE 1/2" VPOK TO MATCH ADJACENT WALL AND CEILING. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
- ## DIMENSIONING NOTES
1. ALL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 2. EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISH FACE OF STUD UNLESS NOTED OTHERWISE.
 3. ALL STUDS ARE DIMENSIONED FOR FACE CMU.
- ## WALL NOTES
1. ALL CORRIDOR WALLS ARE SEA-SIRT UNLESS NOTED OTHERWISE.
 2. ALL UNIT DEMISING WALLS ARE SEA-SIRT UNLESS NOTED OTHERWISE.
 3. ALL INTERIOR WALLS ARE SEA-SIRT UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

0550-02	BOLLARD
0551-05	VERTICAL STEEL PIPE RAILING OR HORIZONTAL CABLE RAILING, TO DETERMINED - 3'6" HEIGHT
1112-05	FUTURE WALK-UP PAY STATION, OWNER FURNISHED, CONTRACTOR INSTALLED



* All stalls are typical size unless otherwise noted

Parking Legend

$$1/8'' = 1'-0''$$

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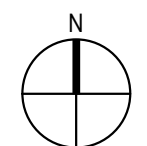
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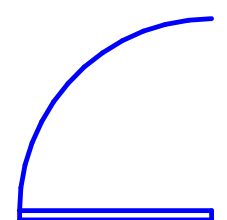
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7



A2 P4 FLR - ZONE B - PHASE 1
1/8" = 1'-0"

PHASE 2 - DOOR COORDINATION



DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

SEE 'DOOR SCHEDULE - PHASE 1 / PHASE 2' ON A600-1 FOR MORE INFORMATION

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIN COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 - PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
- ### DIMENSIONING NOTES
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- ### WALL NOTES
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

- 0550-02 BOLLARD
- 1112-05 FUTURE WALK-UP PAY STATION, OWNER-FURNISHED, CONTRACTOR-INSTALLED



milwaukee | madison | green bay | denver | atlanta

E

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

D

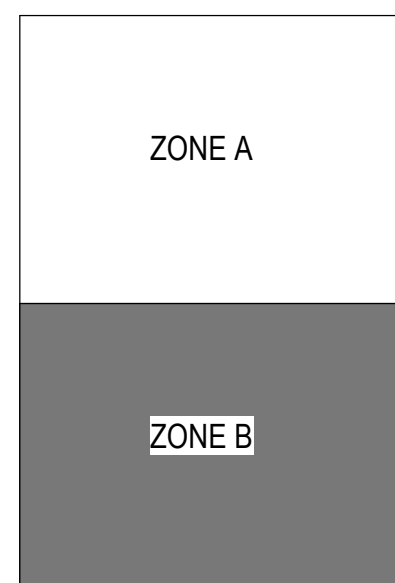
415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_A02

C

KEY PLAN



B



SHEET INFORMATION

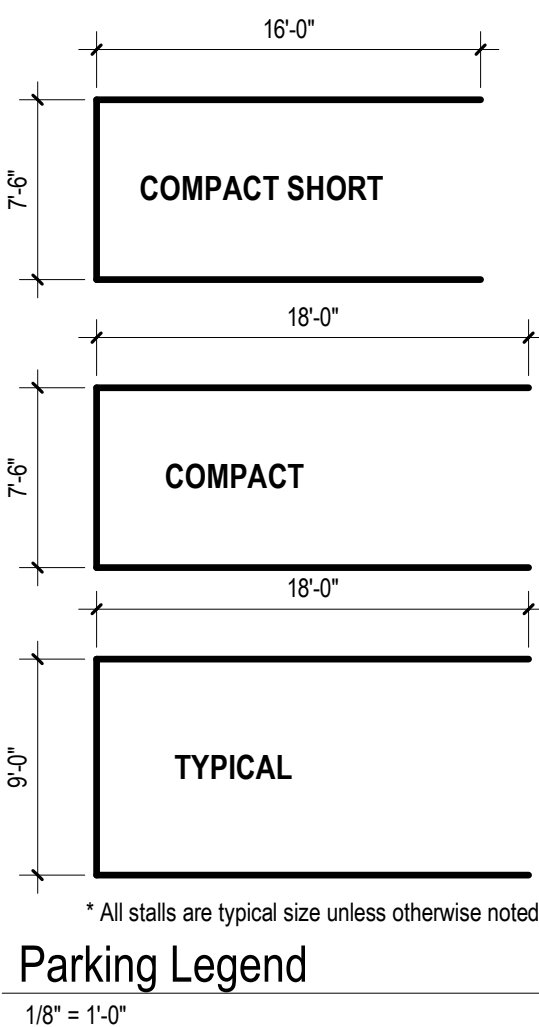
PROJECT MANAGER MO
PROJECT NUMBER 720448

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P4 FLR - ZONE B -
PHASE 1

A1004-B-1

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Parking Legend

1/8" = 1'-0"

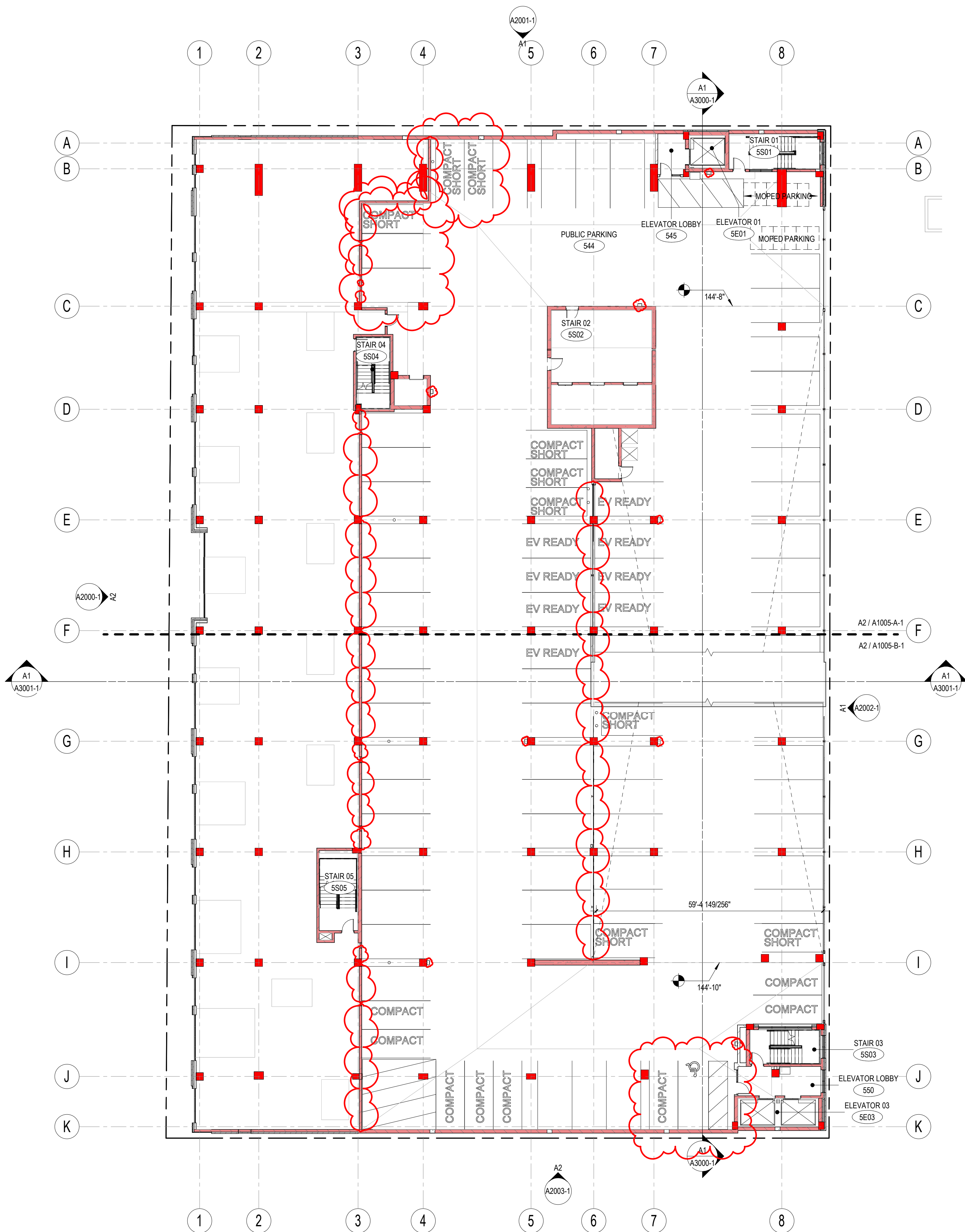
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A3 P5 FLR OVERALL - PHASE 1
1/16" = 1'-0"

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
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 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
- DIMENSIONING NOTES**
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET



milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

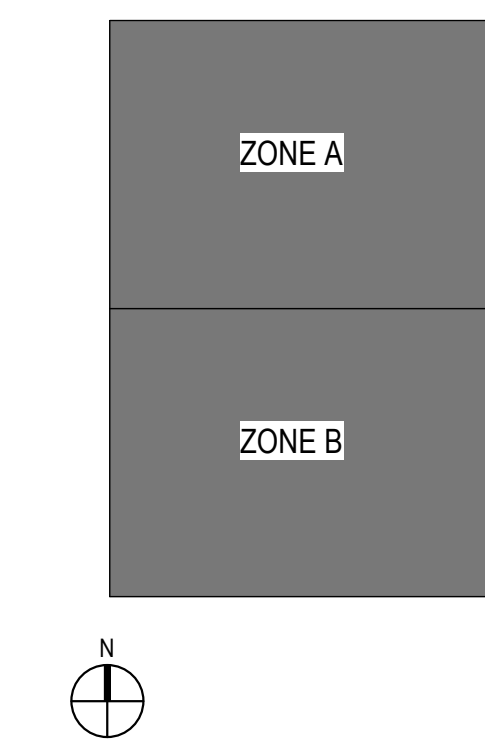
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**D 415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER **MO**
PROJECT NUMBER **720448**

**P5 FLR OVERALL -
PHASE 1**

A1005-1

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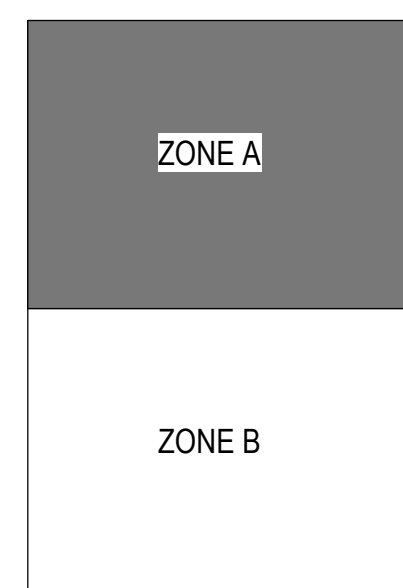
STATE STREET
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D 415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
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10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1 AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER	MO
PROJECT NUMBER	72044

P5 FLR - ZONE A -
PHASE 1

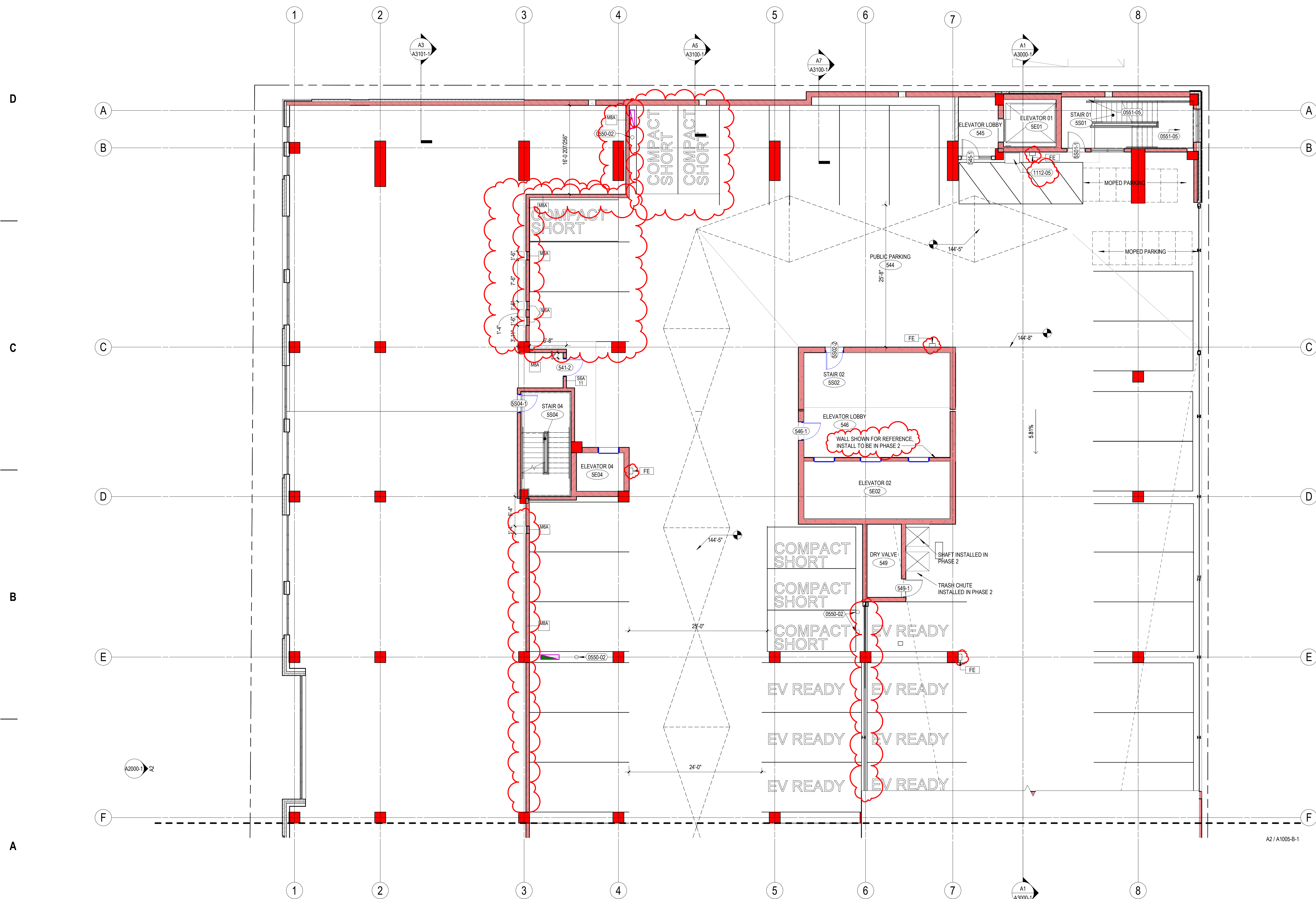
A1005-A-1

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DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION



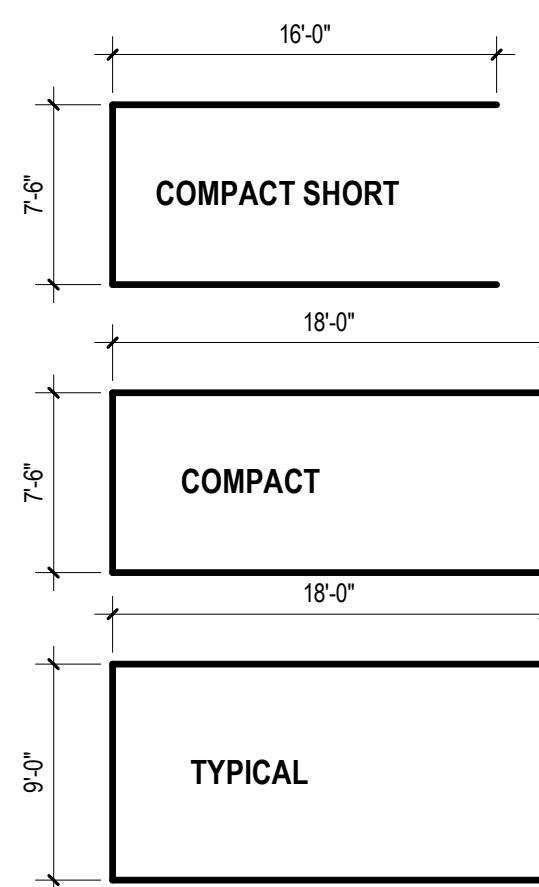
 A2 P5 FLR - ZONE A - PHASE 1
1/8" = 1'-0"

SHEET NOTES - FLOOR PLAN

1. BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 2. NOTIFY ARCHITECT IMMEDIATELY IF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PREVENT PROCEEDING WITH WORK.
 3. VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 4. REFER TO SHEET A801.0 FOR REFERENCED PARTITION TYPES AND DETAILS.
 5. ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOUTHEAST- AND MOIST-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 6. SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 7. REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEARANCE OF ALL ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR CRACKED SURFACES.
 8. LOCATE ALL DOOR LAMBS # FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 9. WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE SYSTEMS OF WORK, INCLUDING SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY DISCREPANCIES SHOWN ON THESE PLANS SHALL BE REFERRED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 10. PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ANOMALIES IN CONCRETE FLOOR.
 11. PROVIDE BLOCKING BEHIND FIRE GRADE BAR ABG LADDERS IN ALL UNITS PER SUBMITTAL. UNITS AND ABG LADDERS SHALL BE INSTALLED TO MEET PROVIDE AS ANSI A117.1 TYPE "A" UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 12. PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT 3" FACING MATERIALS, FIXTURES, SPECIALTY TILES, MILLWORK AND TRIM.
 13. PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS SACKING PANELS FOR THE BACK OF ELECTRICAL EQUIPMENT RACKS AT 1" TO 4" AFF WITH 2" CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
- 14. DIMENSIONING NOTES**
17. INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 18. EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 19. CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
21. ALL CORRIDOR WALLS ARE SRA-811 UNLESS NOTED OTHERWISE.
 22. ALL UNIT DEMISING WALLS ARE SRA-122 UNLESS NOTED OTHERWISE.
 23. ALL WALLS WITHIN UNIT ARE SRA-122 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

0550-02	BOLLARD
0551-05	VERTICAL STEEL PIPE RAILING OR HORIZONTAL CABLE RAILING, TO BE DETERMINED - 3'-6" HEIGHT
1112-05	FUTURE WALK-UP PAY STATION, OWNER FURNISHED, CONTRACTOR INSTALLED



* All stalls are typical size unless otherwise noted.

Parking Legend

$$1/8^{\circ} = 1'-0$$

E

D

C

B

A

1

2

3

4

5

6

7

1

2

3

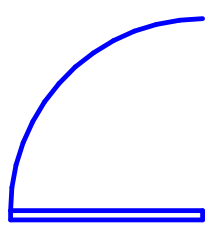
4

5

6

7

PHASE 2 - DOOR COORDINATION



DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR, FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS.

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION.

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIN COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 - PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
- ### DIMENSIONING NOTES
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- ### WALL NOTES
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

- 0550-02: WALL LATCH
1112-04: WALK-UP PAY STATION, OWNER FURNISHED, OWNER INSTALLED



milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

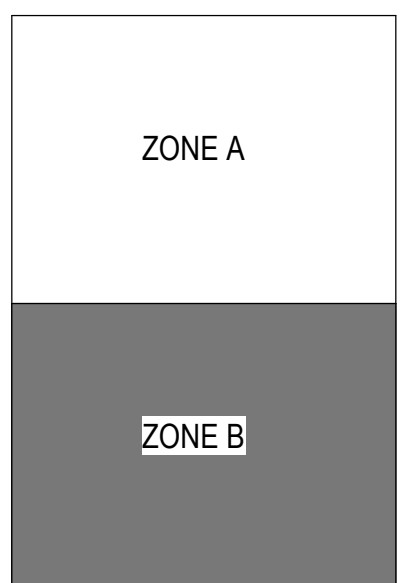
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



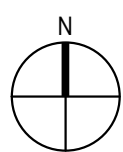
SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

P5 FLR - ZONE B -
PHASE 1

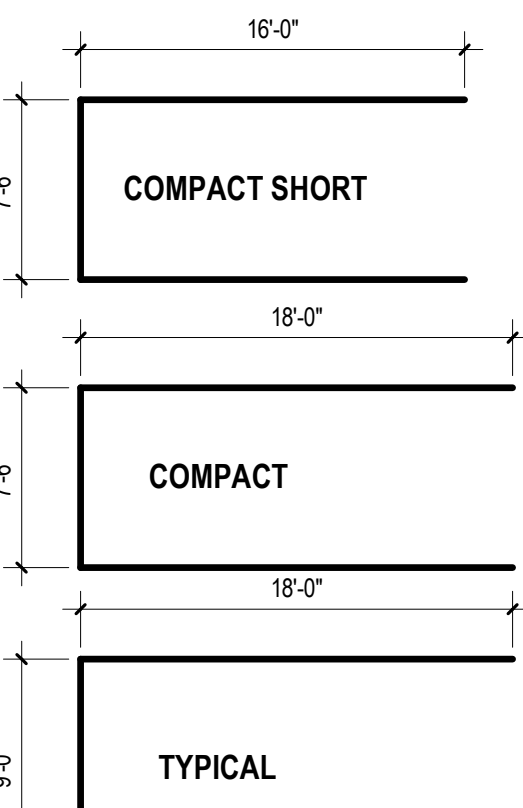
A1005-B-1

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A2 P5 FLR - ZONE B - PHASE 1

1/8" = 1'-0"



* All stalls are typical size unless otherwise noted

Parking Legend

1/8" = 1'-0"

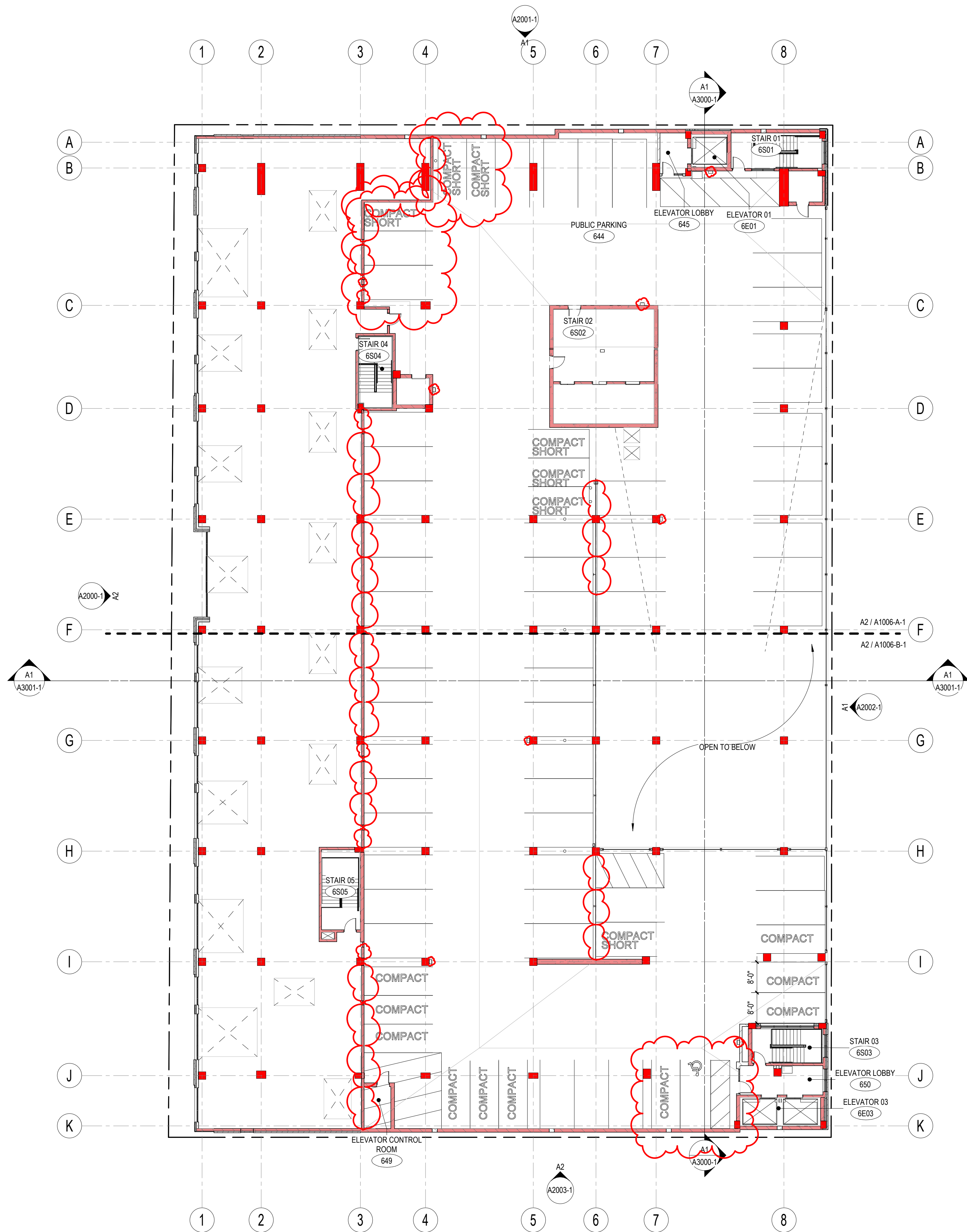
E

D

C

B

A



A3 P6 FLR OVERALL - PHASE 1
1/16" = 1'-0"

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
 - NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
 - VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
 - REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
 - ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
 - SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
 - REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
 - LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
 - WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
 - PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
 - PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
 - PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
 - PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
 -
- DIMENSIONING NOTES**
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DEMISING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET



milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

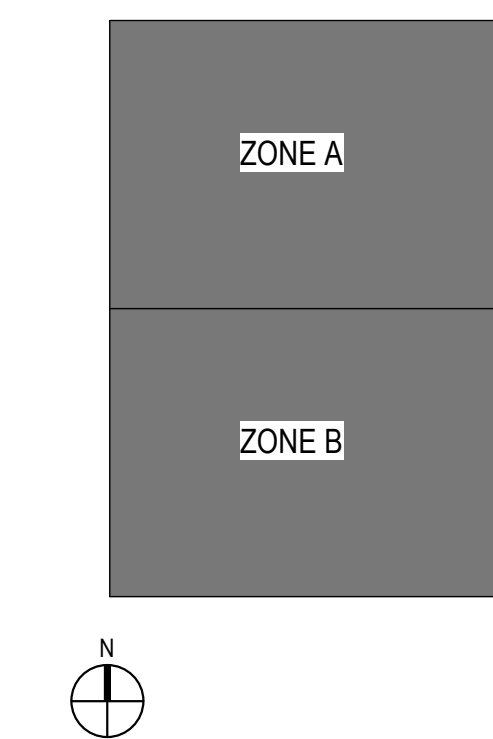
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



SHEET INFORMATION

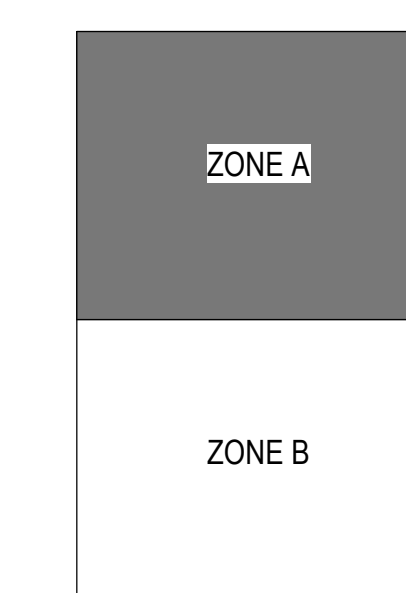
PROJECT MANAGER MO
PROJECT NUMBER 720448

**P6 FLR OVERALL -
PHASE 1**

A1006-1

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DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1 ADD2



PROJECT MANAGER	MO
PROJECT NUMBER	72044

P6 FLR - ZONE A -
PHASE 1

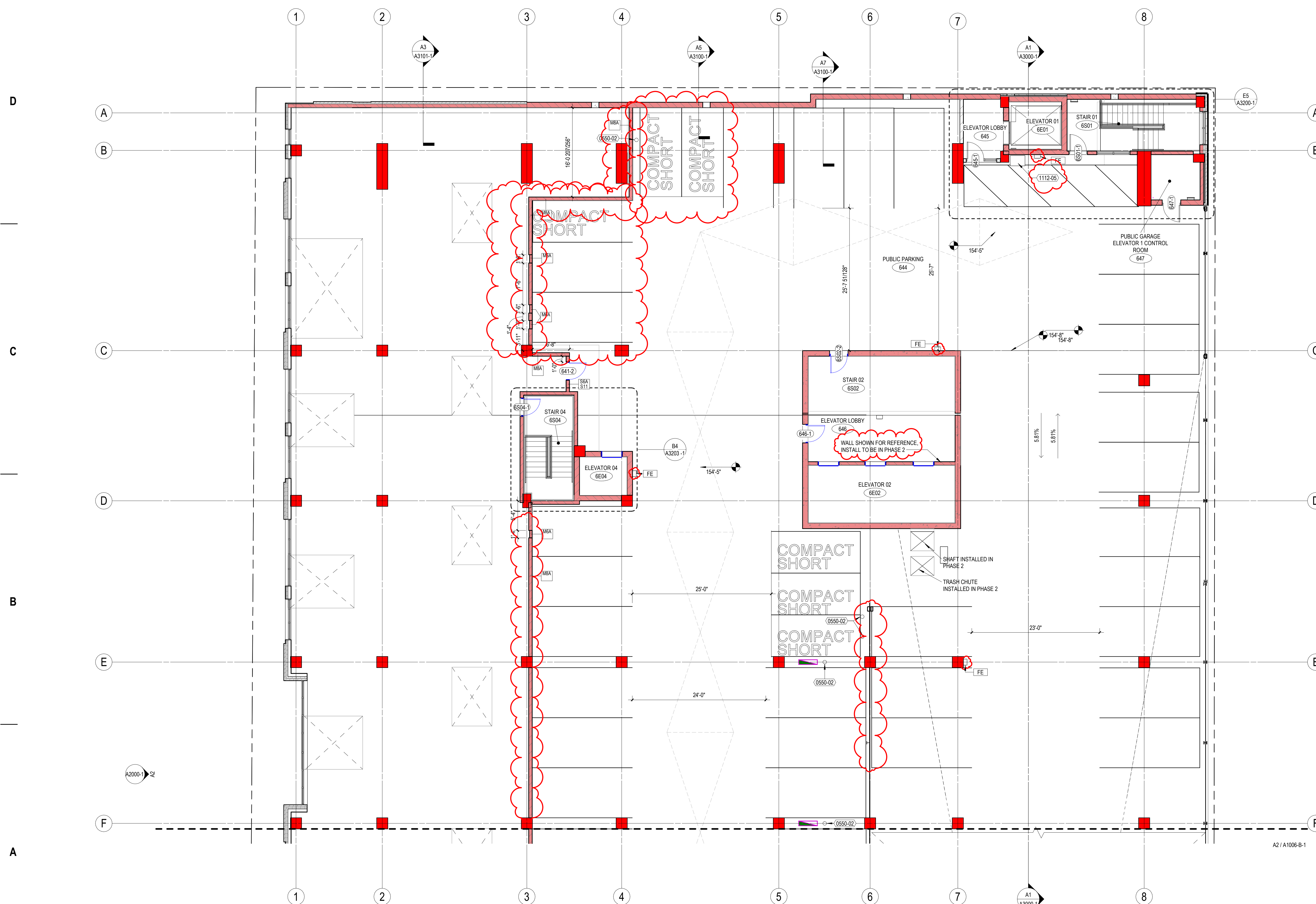
A1006-A-1

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DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION



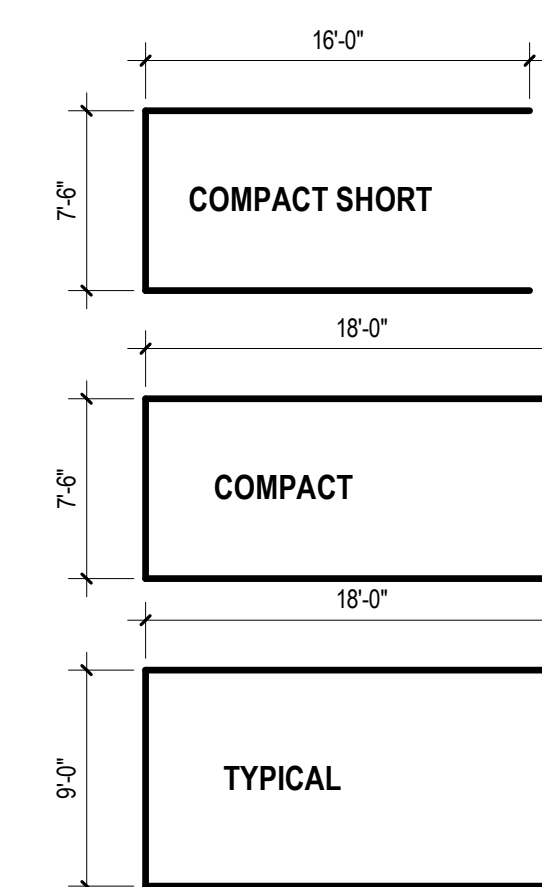
A2 P6 FLR - ZONE A - PHASE 1
1/8" = 1'-0"

SHEET NOTES - FLOOR PLAN

1. BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT IMMEDIATELY BY PROJECT PHONE OR E-MAIL.
2. NOTIFY ARCHITECT IMMEDIATELY IF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PREVENT PROCEEDING WITH WORK.
3. VERIFY STRUCTURE ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION BEAMS OR OTHER NON-BEARING SUBJECTED IN FLOOR SLAB PRIOR TO CORING OR CUTTING. CONSULT VERIFICATION METHOD WITH OWNER.
4. REFER TO SHEET A010-1 FOR REFERENCED PARTITION TYPES AND DETAILS. REPAIR ALL CRACKS, CHIPS, OR ADJACENT TO PLUMBING FIXTURES. SHALL REMOVE INTERIOR, AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
5. MATCH ADJACENT FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
6. REPAIR PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION MAKE APPEAR LIKE NEW. MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKILL COAT AND PREPARE ALL DAMAGED CORNERS AND SURFACES.
7. SCOTCH ALL DOOR LAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
8. WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF SUCH INSTALLATION OF WORK IS THE RESPONSIBILITY OF THE CONTRACTOR, AND ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY DAMAGE TO EXISTING CONSTRUCTION OR FINISHES DURING CONSTRUCTION RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REPAIR ONLY.
9. PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
10. PROVIDE BLOCKING AND FRAMING ABOVE GRAB BAR LOCATIONS IN ALL UNITS PER SHEET A11 UNITS TYPE "A" UNITS PER SHEET A11 UNITS TYPE "B" UNITS PER SHEET A11 UNITS TYPE "C" UNITS PER SHEET A11 UNITS TYPE "D" UNITS PER SHEET A11 UNITS TYPE "E" UNITS PER SHEET A11 UNITS TYPE "F" UNITS PER SHEET A11 UNITS TYPE "G" UNITS PER SHEET A11 UNITS TYPE "H" UNITS PER SHEET A11 UNITS TYPE "I" UNITS PER SHEET A11 UNITS TYPE "J" UNITS PER SHEET A11 UNITS TYPE "K" UNITS PER SHEET A11 UNITS TYPE "L" UNITS PER SHEET A11 UNITS TYPE "M" UNITS PER SHEET A11 UNITS TYPE "N" UNITS PER SHEET A11 UNITS TYPE "O" UNITS PER SHEET A11 UNITS TYPE "P" UNITS PER SHEET A11 UNITS TYPE "Q" UNITS PER SHEET A11 UNITS TYPE "R" UNITS PER SHEET A11 UNITS TYPE "S" UNITS PER SHEET A11 UNITS TYPE "T" UNITS PER SHEET A11 UNITS TYPE "U" UNITS PER SHEET A11 UNITS TYPE "V" UNITS PER SHEET A11 UNITS TYPE "W" UNITS PER SHEET A11 UNITS TYPE "X" UNITS PER SHEET A11 UNITS TYPE "Y" UNITS PER SHEET A11 UNITS TYPE "Z" UNITS PER SHEET A11 UNITS 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PER SHEET A11 UNITS TYPE "CE" UNITS PER SHEET A11 UNITS TYPE "CF" UNITS PER SHEET A11 UNITS TYPE "CG" UNITS PER SHEET A11 UNITS TYPE "CH" UNITS PER SHEET A11 UNITS TYPE "CI" UNITS PER SHEET A11 UNITS TYPE "CJ" UNITS PER SHEET A11 UNITS TYPE "CK" UNITS PER SHEET A11 UNITS TYPE "CL" UNITS PER SHEET A11 UNITS TYPE "CM" UNITS PER SHEET A11 UNITS TYPE "CN" UNITS PER SHEET A11 UNITS TYPE "CO" UNITS PER SHEET A11 UNITS TYPE "CP" UNITS PER SHEET A11 UNITS TYPE "CQ" UNITS PER SHEET A11 UNITS TYPE "CR" UNITS PER SHEET A11 UNITS TYPE "CS" UNITS PER SHEET A11 UNITS TYPE "CT" UNITS PER SHEET A11 UNITS TYPE "CU" UNITS PER SHEET A11 UNITS TYPE "CV" UNITS PER SHEET A11 UNITS TYPE "CW" UNITS PER SHEET A11 UNITS TYPE "CX" UNITS PER SHEET A11 UNITS TYPE "CY" UNITS PER SHEET A11 UNITS TYPE "CZ" UNITS PER SHEET A11 UNITS TYPE "DA" UNITS PER SHEET A11 UNITS TYPE "DB" UNITS PER SHEET A11 UNITS TYPE "DC" UNITS PER SHEET A11 UNITS TYPE "DD" UNITS PER SHEET A11 UNITS TYPE "DE" UNITS PER SHEET A11 UNITS TYPE 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KEYNOTES PER SHEET

- | | |
|---------|---|
| 8650-02 | DOLLARD |
| 1112-05 | FUTURE WALK-UP PAY STATION, OWNER FURNISHED, CONTRACTOR |



* All stalls are typical size unless otherwise noted.

Parking Legend

DOORS SHOWN IN BLUE ARE NOT IN PHASE 1 SCOPE. OPENINGS AND CONDUIT, IF APPLICABLE, ARE TO BE COORDINATED IN PHASE 1. DOOR FRAME AND HARDWARE ARE TO BE INCLUDED IN PHASE 2 SCOPE.

THIS INCLUDES BUT NOT LIMITED TO OVERHEAD DOORS

SEE "DOOR SCHEDULE - PHASE 1 / PHASE 2" ON A6000-1 FOR MORE INFORMATION

1.	BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL, AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT IMMEDIATELY.
2.	NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
3.	VERIFY STRUCTURE, ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSIONING, AND OTHER REINFORCING MATERIALS TO BE PLACED PRIOR TO CURING OR CURTAINING. COORDINATE PUMPING METHOD WITH OWNER.
4.	REFER TO SHEET A0010 FOR REPRESENTATIVE PARTITION TYPES AND DETAILS. ALL WALLS OBJECTS BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MISTONE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
5.	SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL THICKS.
6.	REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APROPRIATE ADJUSTMENTS TO CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
7.	LOCATE ALL LOBBY DAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
8.	WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONSULTING ENGINEER, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY DISCREPANCIES OR UNKNOWN CONDITIONS NOTED ON THESE PLANS RELATED TO THE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
9.	PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FLOORS. PATCH EXISTING PENETRATIONS AND ANOMALIES IN CONCRETE FLOOR.
10.	PROVIDE BOLDING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE. UNITS ARE ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
11.	NOTIFY BOLDING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TILE.
12.	PROVIDE 3/4" FIRE-RATED/ RATED TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT. INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE WITH ELECTRICAL CONTRACTOR.

0550-02	BOLLARD
1112-05	FUTURE WALK-UP PAY STATION, OWNER FURNISHED, CONTRACTOR INSTALLED

STATE STREET
CAMPUS GARAGE
MIXED-USE

D 415 N. LAKE STREET
MADISON, WI 53715

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1 AD02

Diagram illustrating a two-zone system:

- ZONE A** (Top Zone, White background)
- ZONE B** (Bottom Zone, Dark Gray background)



Diagram illustrating three typical stall sizes with dimensions:

- COMPACT SHORT:** 7'-6" high, 16'-0" wide.
- COMPACT:** 7'-6" high, 18'-0" wide.
- TYPICAL:** 9'-0" high, 18'-0" wide.

* All stalls are typical size unless otherwise noted.

Parking Legend

* All stalls are typical size unless otherwise noted.

Parking Legend

PROJECT MANAGER MO

PROJECT NUMBER	720448
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P6 FLR - ZONE B -
PHASE 1

A1006-B-1

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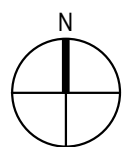
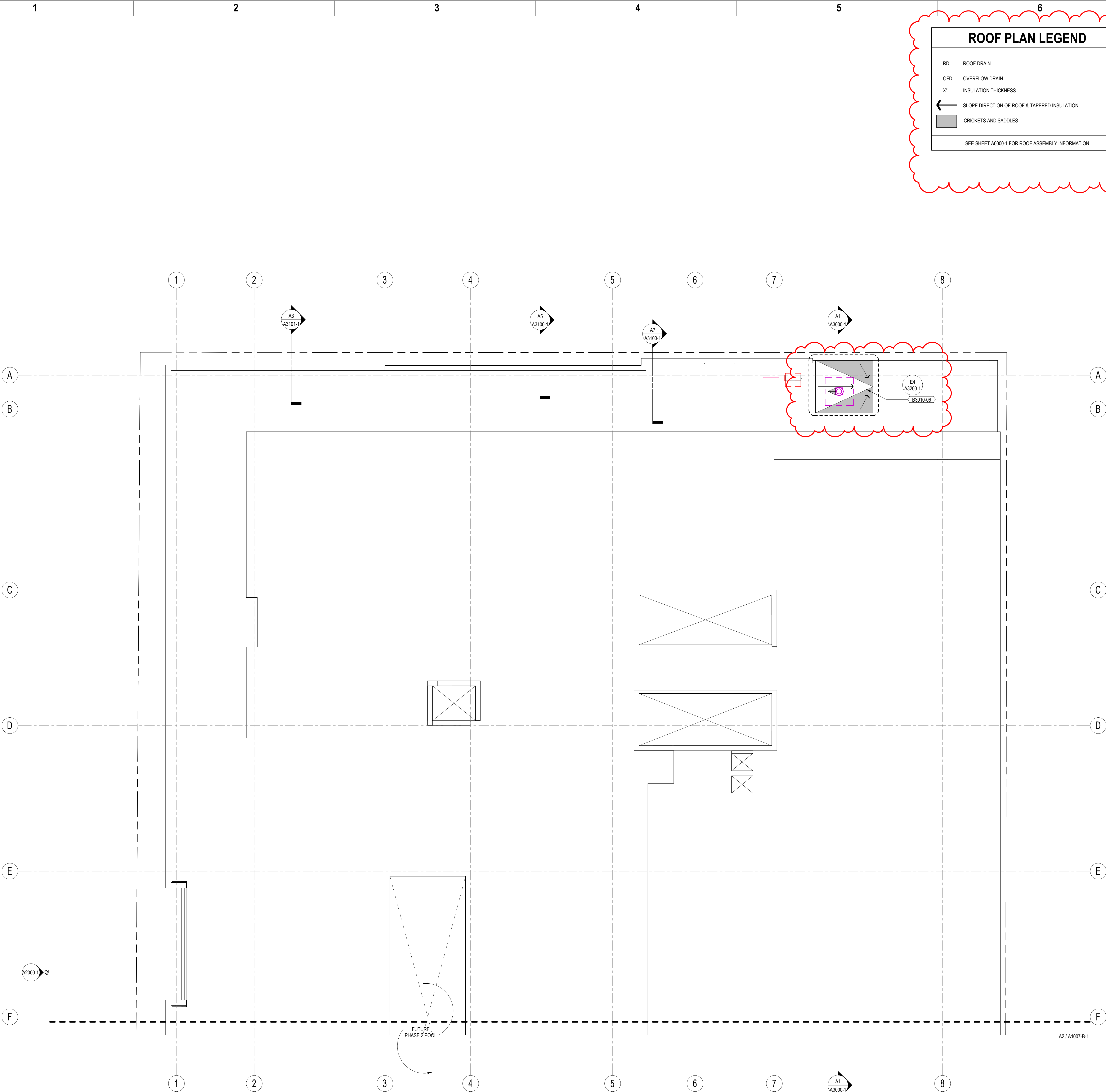
E

D

C

B

A



A2

7TH FLR - ZONE A - PHASE 1

1/8" = 1'-0"

ROOF PLAN LEGEND

- RD ROOF DRAIN
OFD OVERFLOW DRAIN
X" INSULATION THICKNESS
← SLOPE DIRECTION OF ROOF & TAPERED INSULATION
CRICKETS AND SADDLES

SEE SHEET A0000-1 FOR ROOF ASSEMBLY INFORMATION

SHEET NOTES - FLOOR PLAN

- BEFORE BEGINNING WORK, VERIFY THE EXISTENCE AND LOCATION OF PLUMBING, MECHANICAL AND ELECTRICAL SYSTEMS AND OTHER CONSTRUCTION AFFECTING THE WORK. IF DISCREPANCIES ARE DISCOVERED, NOTIFY ARCHITECT PROMPTLY.
- NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
- VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
- REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
- ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
- SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
- REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIM COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
- LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
- WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
- PREPARE FLOOR LEVEL AND SMOOTH FOR NEW HARD SURFACE FINISHES. PATCH EXISTING PENETRATIONS AND ABNORMALITIES IN CONCRETE FLOOR.
- PROVIDE BLOCKING BEHIND FUTURE GRAB BAR LOCATIONS IN ALL UNITS PER ANSI A117.1. ALL UNITS ARE ANSI A117.1 TYPE-B UNITS UNLESS NOTED OTHERWISE AS ANSI A117.1 TYPE-A UNITS. SEE SHEET A021 FOR MORE INFORMATION.
- PROVIDE BLOCKING AND FRAMING AS INDICATED AND AS REQUIRED TO SUPPORT FACING MATERIALS, FIXTURES, SPECIALTY ITEMS, MILLWORK AND TRIM.
- PROVIDE 3/4" FIRE-RETARDANT TREATED PLYWOOD AS BACKING PANELS FOR TELEPHONE & ELECTRICAL EQUIPMENT INSTALL AT 1'-0" AFF TO FINISHED CEILING. PAINT PLYWOOD TO MATCH ADJACENT WALL FINISH. COORDINATE FINAL SIZE AND LOCATION WITH OWNER.
-
- DIMENSIONING NOTES**
- INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
- EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
- CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
- ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
- ALL UNIT BATHING WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
- ALL WALLS WITH LINING ARE S2-S4 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

- B3010-06 FULLY ADHERED EPDM MEMBRANE ON TAPERED INSULATION OVER STEEL ROOF DECK - SEE BUILDING ASSEMBLIES SHEET



milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

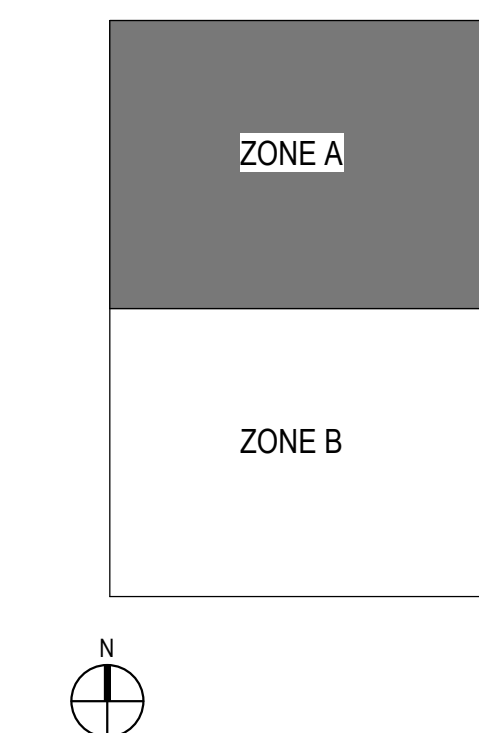
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
11-02-2023	P1_A002

KEY PLAN



SHEET INFORMATION

**PROGRESS DOCUMENTS
NOT FOR CONSTRUCTION**

These documents reflect progress and intent and may be subject to change, including additional detail. These are not final construction documents and shall not be used for final bidding or construction-related purposes.

PROJECT MANAGER MO

PROJECT NUMBER 720448

7TH FLR - ZONE A -
PHASE 1

A1007-A-1

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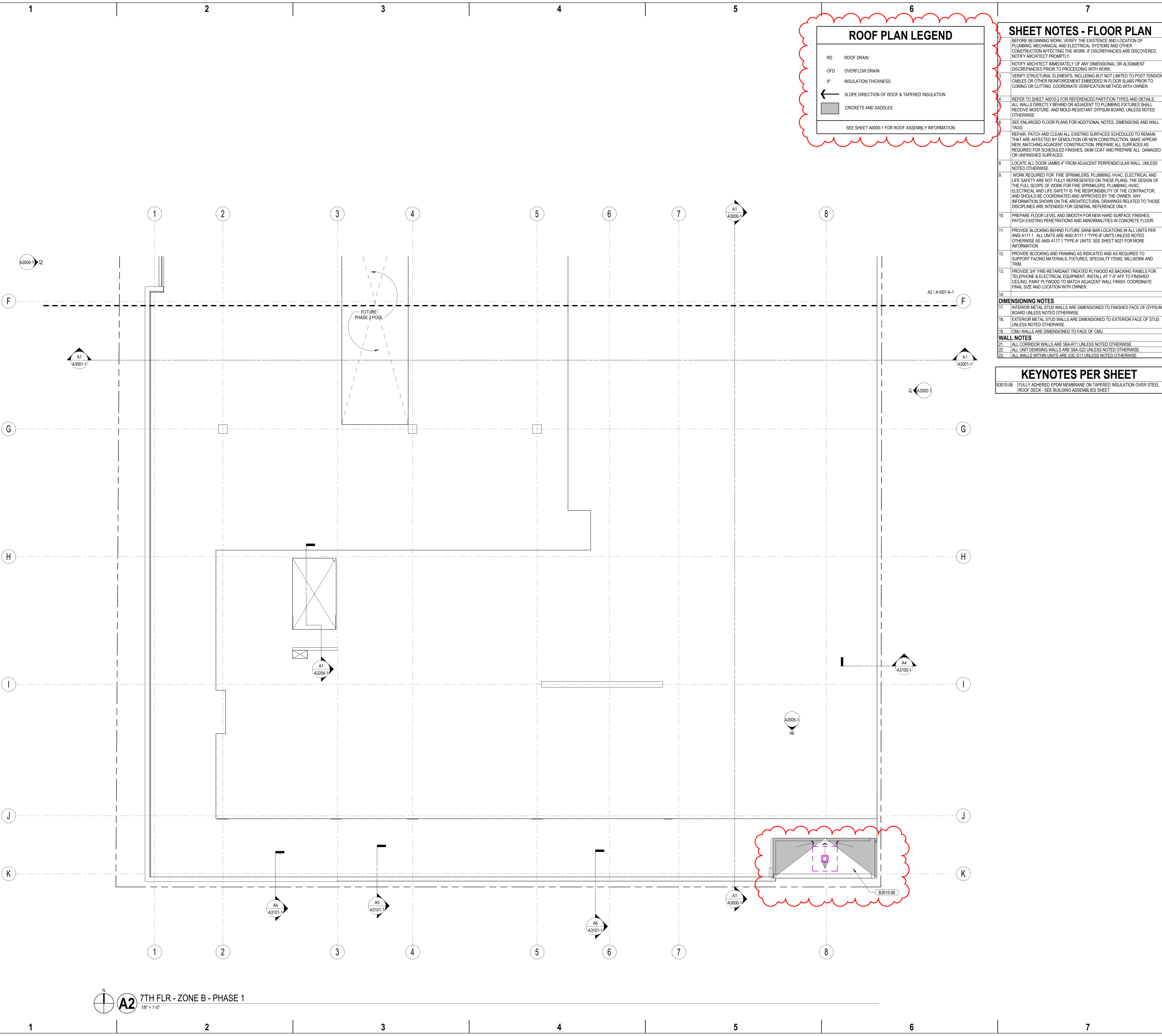
E

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ROOF PLAN LEGEND

RD	ROOF DRAIN
OFD	OVERFLOW DRAIN
X"	INSULATION THICKNESS
←	SLOPE DIRECTION OF ROOF & TAPERED INSULATION
■	CRICKETS AND SADDLES
SEE SHEET A0000-1 FOR ROOF ASSEMBLY INFORMATION	

SHEET NOTES - FLOOR PLAN

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- NOTIFY ARCHITECT IMMEDIATELY OF ANY DIMENSIONAL OR ALIGNMENT DISCREPANCIES PRIOR TO PROCEEDING WITH WORK.
- VERIFY STRUCTURAL ELEMENTS, INCLUDING BUT NOT LIMITED TO POST TENSION CABLES OR OTHER REINFORCEMENT EMBEDDED IN FLOOR SLABS PRIOR TO CORING OR CUTTING. COORDINATE VERIFICATION METHOD WITH OWNER.
- REFER TO SHEET A0010-2 FOR REFERENCED PARTITION TYPES AND DETAILS.
- ALL WALLS DIRECTLY BEHIND OR ADJACENT TO PLUMBING FIXTURES SHALL RECEIVE MOISTURE- AND MOLD-RESISTANT GYPSUM BOARD, UNLESS NOTED OTHERWISE.
- SEE ENLARGED FLOOR PLANS FOR ADDITIONAL NOTES, DIMENSIONS AND WALL TAGS.
- REPAIR, PATCH AND CLEAN ALL EXISTING SURFACES SCHEDULED TO REMAIN THAT ARE AFFECTED BY DEMOLITION OR NEW CONSTRUCTION. MAKE APPEAR NEW, MATCHING ADJACENT CONSTRUCTION. PREPARE ALL SURFACES AS REQUIRED FOR SCHEDULED FINISHES. SKIN COAT AND PREPARE ALL DAMAGED OR UNFINISHED SURFACES.
- LOCATE ALL DOOR JAMBS 4" FROM ADJACENT PERPENDICULAR WALL, UNLESS NOTED OTHERWISE.
- WORK REQUIRED FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY ARE NOT FULLY REPRESENTED ON THESE PLANS. THE DESIGN OF THE FULL SCOPE OF WORK FOR FIRE SPRINKLERS, PLUMBING, HVAC, ELECTRICAL AND LIFE SAFETY IS THE RESPONSIBILITY OF THE CONTRACTOR, AND SHOULD BE COORDINATED AND APPROVED BY THE OWNER. ANY INFORMATION SHOWN ON THE ARCHITECTURAL DRAWINGS RELATED TO THOSE DISCIPLINES ARE INTENDED FOR GENERAL REFERENCE ONLY.
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-
- DIMENSIONING NOTES**
 - INTERIOR METAL STUD WALLS ARE DIMENSIONED TO FINISHED FACE OF GYPSUM BOARD UNLESS NOTED OTHERWISE.
 - EXTERIOR METAL STUD WALLS ARE DIMENSIONED TO EXTERIOR FACE OF STUD UNLESS NOTED OTHERWISE.
 - CMU WALLS ARE DIMENSIONED TO FACE OF CMU.
- WALL NOTES**
 - ALL CORRIDOR WALLS ARE S6A-R11 UNLESS NOTED OTHERWISE.
 - ALL UNIT DIVISION WALLS ARE S6A-S22 UNLESS NOTED OTHERWISE.
 - ALL WALLS WITHIN UNITS ARE S3C-S11 UNLESS NOTED OTHERWISE.

KEYNOTES PER SHEET

B3010-06	FULLY ADHERED EPDM MEMBRANE ON TAPERED INSULATION OVER STEEL ROOF DECK - SEE BUILDING ASSEMBLIES SHEET
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milwaukee | madison | green bay | denver | atlanta

PROJECT INFORMATION

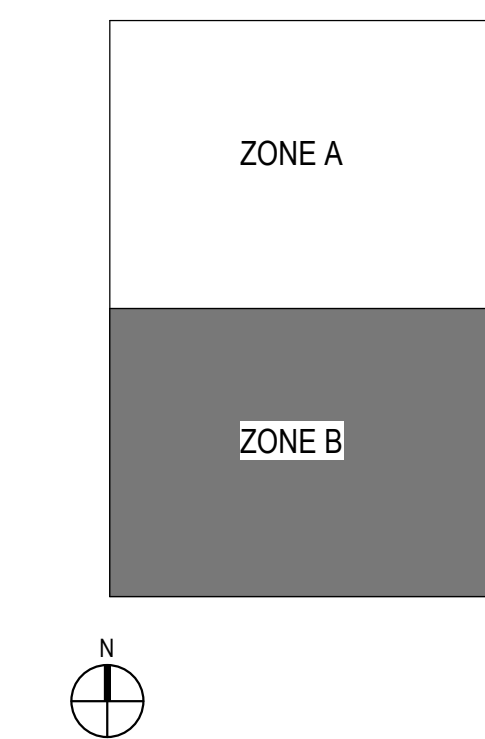
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
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07-28-2023	DESIGN DEVELOPMENT PH1
11-02-2023	P1_A002

KEY PLAN



SHEET INFORMATION

**PROGRESS DOCUMENTS
NOT FOR CONSTRUCTION**

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PROJECT MANAGER MO

PROJECT NUMBER 720448

7TH FLR - ZONE B -
PHASE 1

A1007-B-1

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SHEET NOTES - CEILING PLAN	
1.	CONTRACTOR SHALL NOTIFY ARCHITECT OF ANY MEP CONFLICTS WHICH IMPACT CEILING CONSTRUCTION PRIOR TO EXECUTING ANY WORK.
2.	MINIMUM SIZE FOR PERIMETER CEILING TILES SHALL NOT BE LESS THAN 4" IN ALL DIRECTIONS.
3.	LIGHTING AND/OR MEP ELEMENTS ARE INDICATED FOR SCOPE AND CONCEPT ONLY.



KEYNOTES PER SHEET

PROJECT INFORMATION

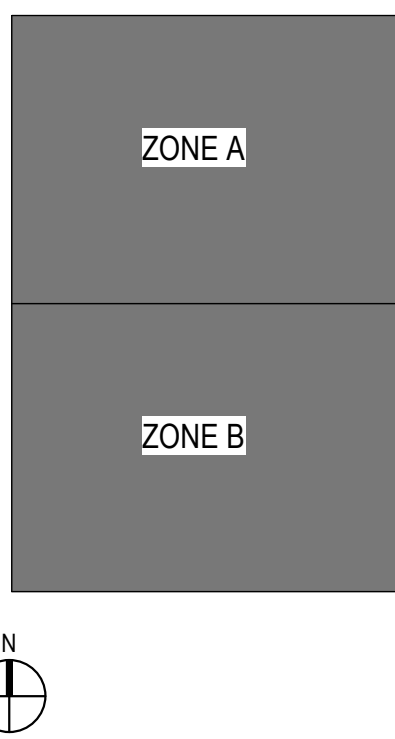
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN



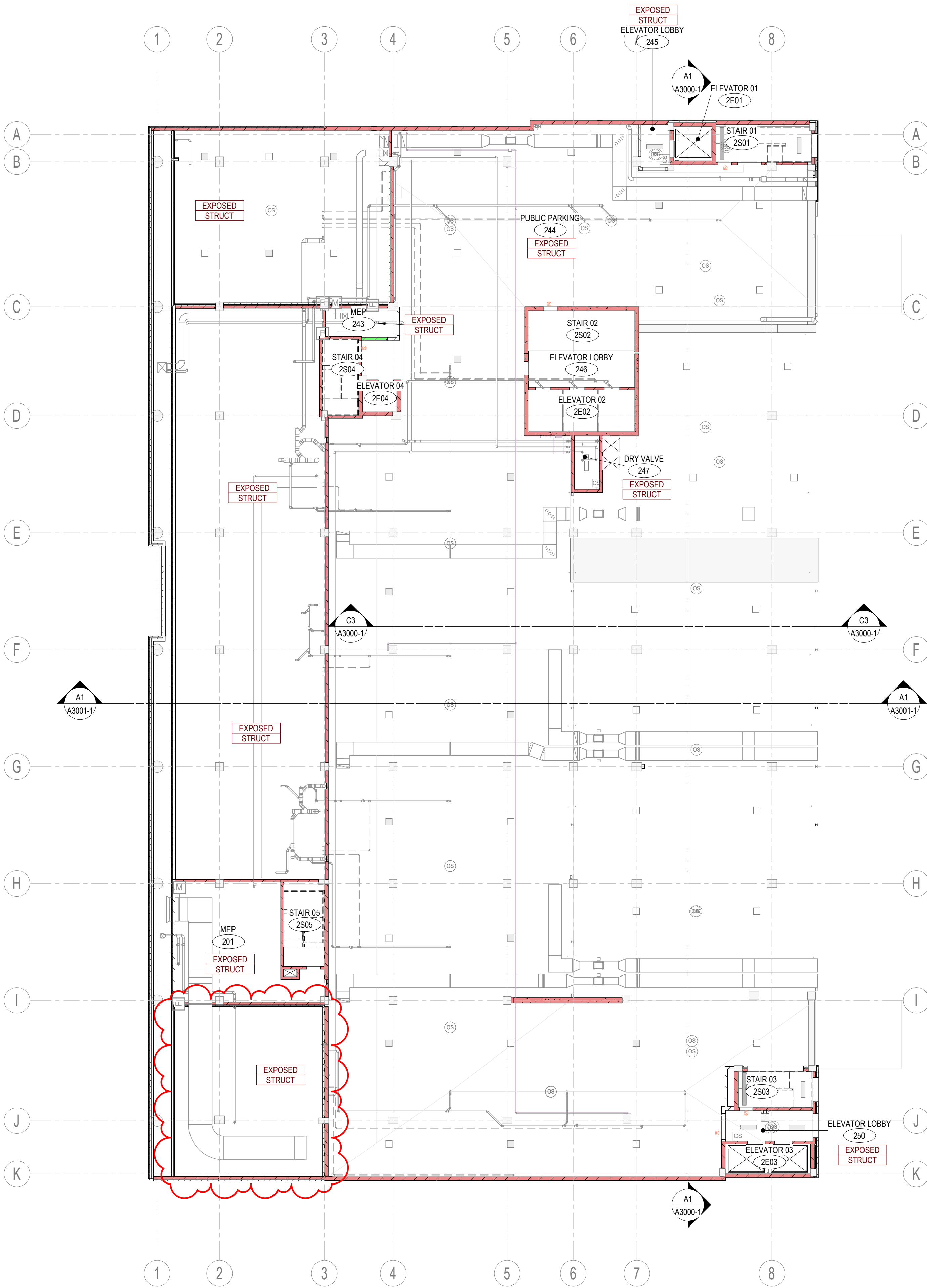
SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

P2 FLR OVERALL
CEILING PLAN -
PHASE 1

A1102-1

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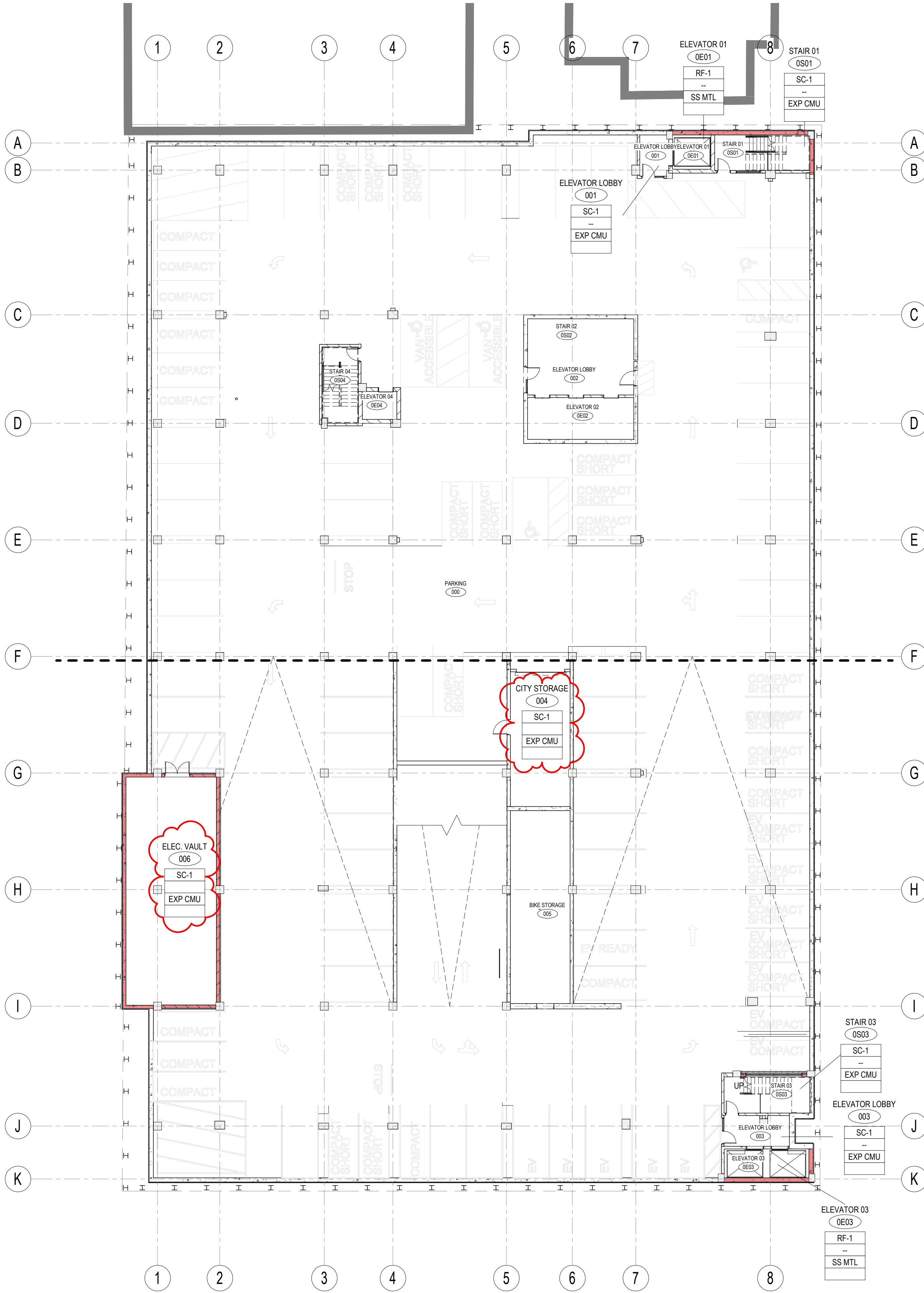
A3 P2 FLR CEILING PLAN - PHASE 1
1/16" = 1'-0"

MATERIAL SCHEDULE									
CODE	DESCRIPTION	MANUFACTURER	PRODUCT #	COLOR	FINISH	SIZE	CONTACT	COMMENTS	
A	ACT-1	ACQUSTICAL CEILING TILE	USG	86185	WHITE	2X2	TINA PACENTE (847) 830-5383		
P	ACT-2	ACQUSTICAL CEILING TILE	USG	3260	WHITE	2X2	TINA PACENTE (847) 830-5383		
PT-1	PAINT - WAYFINDING	SHERWIN WILLIAMS	SW 6868	REAL RED			SUSAN SIENKOWSKI (800) 321-8194		
PT-2	PAINT - WAYFINDING	SHERWIN WILLIAMS	SW 6950	CALYPSO			SUSAN SIENKOWSKI (800) 321-8194		
PT-3	PAINT - WAYFINDING	SHERWIN WILLIAMS	SW 6905	GOLDFINCH			SUSAN SIENKOWSKI (800) 321-8194		
PT-4	PAINT - WAYFINDING	SHERWIN WILLIAMS	SW 6916	HUMOROUS GREEN			SUSAN SIENKOWSKI (800) 321-8194		
PT-5	PAINT - WAYFINDING	SHERWIN WILLIAMS	SW 6981	PASSIONATE PURPLE			SUSAN SIENKOWSKI (800) 321-8194		
PT-6	PAINT - WAYFINDING	SHERWIN WILLIAMS	SW 6887	NAVEL			SUSAN SIENKOWSKI (800) 321-8194		
PT-7	PAINT - GYP CEILING	SHERWIN WILLIAMS	SW 7551	GREEK VILLA			SUSAN SIENKOWSKI (800) 321-8194		
PT-8	PAINT - DOORS	SHERWIN WILLIAMS	SW 7048	URBANE BRONZE			SUSAN SIENKOWSKI (800) 321-8194		
PT-9	PAINT - EXTERIOR DOORS	SHERWIN WILLIAMS	SW 7070	SITE WHITE			SUSAN SIENKOWSKI (800) 321-8194	DOORS ADJACENT TO DECORATIVE CMU	
PT-10	PAINT - INTERIOR DOORS	SHERWIN WILLIAMS	SW 7644	GATEWAY GRAY			SUSAN SIENKOWSKI (800) 321-8194	DOORS ADJACENT TO EXPOSED CMU OR WAYFINDING	
PT-11	PAINT - HANDRAILS	SHERWIN WILLIAMS	SW 7674	PEPPERCORN			SUSAN SIENKOWSKI (800) 321-8194		
R									
RB-1	RESILIENT BASE	TARKETT	S102236-TG2-WB0004-DCT4	TG2 SHARK FIN CG		4" TOELESS	MELISSA SMITH (414) 298-0156		
RF-1	RUBBER FLOORING	NORA	GRAND	5303 FRANKINCENSE		2X2	KYLE REYNOLDS (856) 863-3692		
S									
SC-1	SEALED CONCRETE	SEE SPEC SECTION 03.35.11						DENSIFIER HARDENER / SEALER	
SC-2	SEALED CONCRETE	SEE SPEC SECTION 03.35.11						CLEAR COATING	
SS MTL	STAINLESS STEEL METAL	SEE SPEC SECTION 03.35.11						MANUFACTURERS STANDARD STAINLESS STEEL WALL PANEL. FINISH AS SELECTED BY ARCHITECT.	
STC-1	STAINED CMU	KEIM	TRANSLUCENT MINERAL STAIN	9531			STEVE SLACK (704) 588-4811 EXT 202	STAIN TO BE USED ON EXPOSED CMU WHERE INDICATED. DECORATIVE CMU TO REMAIN FACTORY FINISHED.	

FINISH PLAN SYMBOLS	
<div><div>FLOOR</div><div>BASE</div><div>WALL</div><div>REMARKS</div></div>	FINISH TAG
<div><div></div><div></div><div></div></div>	EXTENT OF MATERIAL AT ACCENT WALL
<div><div></div><div></div></div>	INSTALLATION DIRECTION
<div><div>CPT-01</div><div>CPT-02</div></div>	MATERIAL TRANSITION
<div><div>MJ</div></div>	MOVEMENT JOINT

SHEET NOTES - FINISHES	
1.	REFER TO SHEET G000-1.1 FOR ADDITIONAL TAG AND SYMBOL DEFINITIONS.
2.	SEE SHEET A000-1 FOR PROPER ACCESSIBLE MOUNTING HEIGHTS OF WALL MOUNTED FIXTURES AND ACCESSORIES.
3.	SEE SHEET A1200-1 FOR INTERIOR MATERIAL SCHEDULE.
4.	REFER TO ENLARGED FLOOR PLAN ON SHEET A4002-1 FOR INTERIOR ELEVATION TAGS.
5.	ALL GYPSUM BOARD CEILINGS TO BE PAINTED PT-7 UNLESS NOTED OTHERWISE.
6.	PAINT ALL GRILLES, DIFFUSERS AND REGISTERS TO MATCH ADJACENT CEILING OR WALL COLOR UNLESS NOTED OTHERWISE.
7.	ELECTRICAL OUTLET AND SWITCH PLATE COLORS AS SELECTED BY ARCHITECT FROM MANUFACTURERS STANDARD OFFERINGS.
8.	ALL STEEL STAIR PARTS & HANDRAILS TO BE PAINTED PT-11.
9.	ALL FLOORING TRANSITIONS BETWEEN ROOMS ARE TO OCCUR CENTERED BELOW THE DOOR. SEE DETAIL D2A5102-1.
10.	CONCRETE FLOORING TO BE SMOOTH AND LEVEL BEFORE INSTALLING RF-1.

KEYNOTES PER SHEET

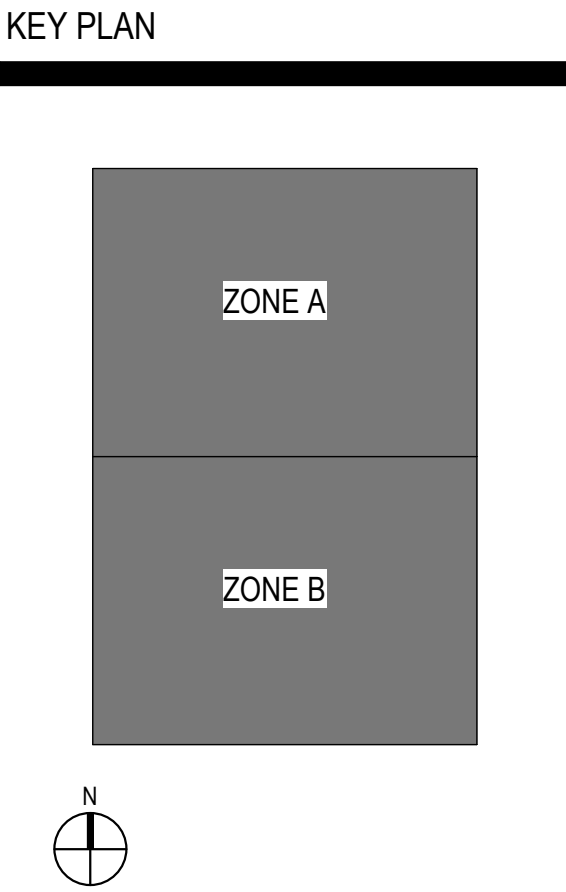


A3 LOWER LEVEL OVERALL FINISH PLAN - PHASE 1
1/16" = 1'-0"

PROJECT INFORMATION
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
11-02-2023	P1_AD02



SHEET INFORMATION

PROJECT MANAGER **MO**
PROJECT NUMBER **720448**

**LOWER LEVEL
OVERALL FINISH
PLANS - PHASE 1**

A1200-1

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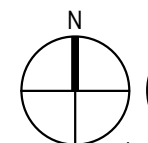
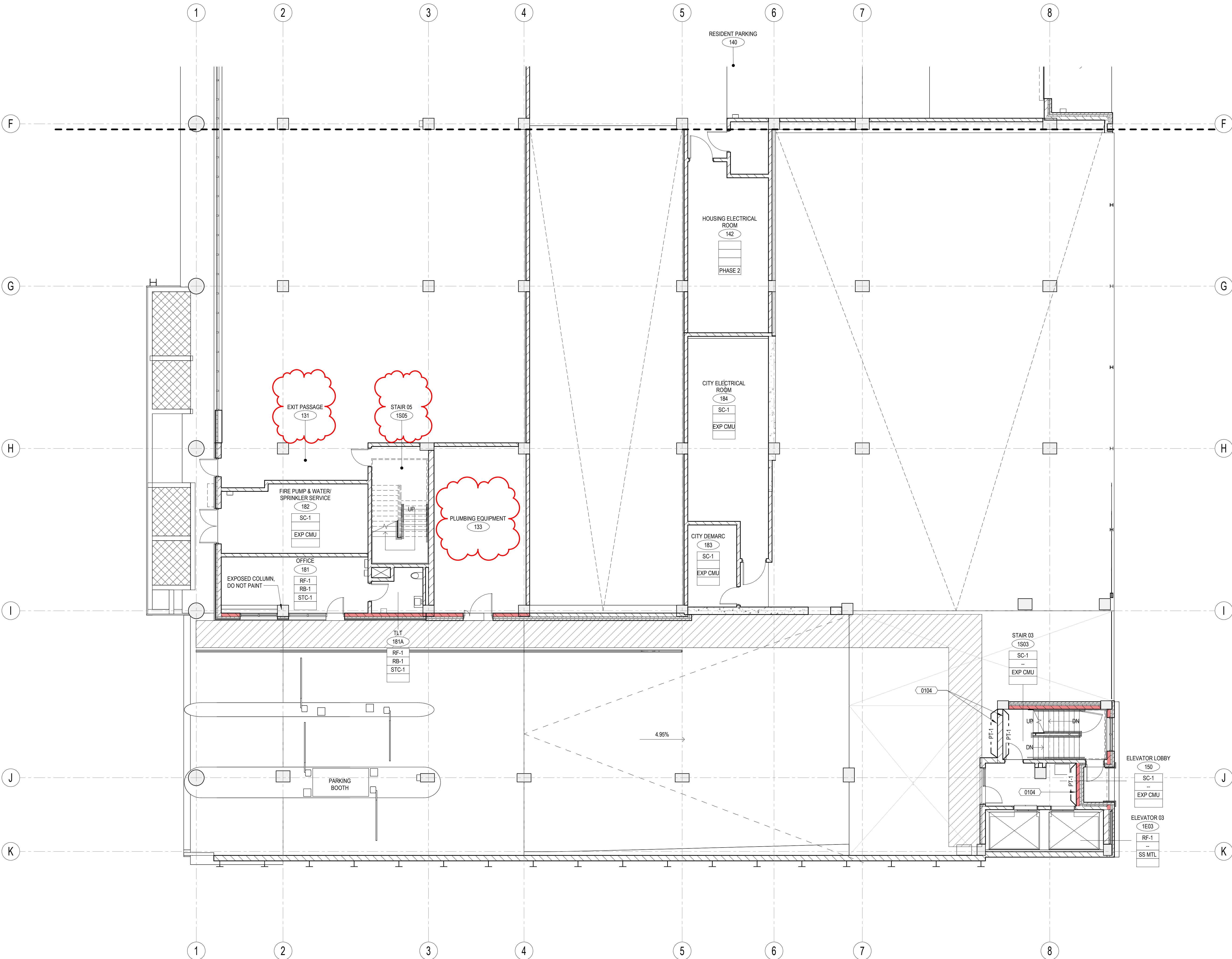
E

D

C

B

A



A2

1ST FLR OVERALL FINISH PLAN - PHASE 1

1/8" = 1'-0"

FINISH PLAN SYMBOLS

FLOOR	FINISH TAG
BASE	
WALL	
REMARKS	
	EXTENT OF MATERIAL AT ADJACENT WALL
	INSTALLATION DIRECTION
CPT-01	CPT-02
	MATERIAL TRANSITION
MJ	MOVEMENT JOINT

SHEET NOTES - FINISHES

- REFER TO SHEET 0000-1.1 FOR ADDITIONAL TAG AND SYMBOL DEFINITIONS.
- SEE SHEET A4000-1 FOR PROPER ACCESSIBLE MOUNTING HEIGHTS OF WALL MOUNTED FIXTURES AND ACCESSORIES.
- SEE SHEET A1200-1 FOR INTERIOR MATERIAL SCHEDULE.
- REFER TO ENLARGED FLOOR PLAN ON SHEET A4002-1 FOR INTERIOR ELEVATION TAGS.
- ALL GYPSUM BOARD CEILINGS TO BE PAINTED PT-7 UNLESS NOTED OTHERWISE.
- PAINT ALL GRILLES, DIFFUSERS AND REGISTERS TO MATCH ADJACENT CEILING OR WALL COLOR UNLESS NOTED OTHERWISE.
- ELECTRICAL OUTLET AND SWITCH PLATE COLORS AS SELECTED BY ARCHITECT FROM MANUFACTURERS STANDARD OFFERINGS.
- ALL STEEL STAIR PARTS & HANDRAILS TO BE PAINTED PT-11.
- ALL FLOORING TRANSITIONS BETWEEN ROOMS ARE TO OCCUR CENTERED BELOW THE DOOR. SEE DETAIL 02A5102-1.
- CONCRETE FLOORING TO BE SMOOTH AND LEVEL BEFORE INSTALLING RF-1.

KEYNOTES PER SHEET

- | | |
|------|--|
| 0104 | WAYFINDING PAINT/GRAPHIC TO BE ADDED AT PARKING LOBBIES AND STAIRS |
|------|--|

PROJECT INFORMATION

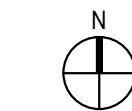
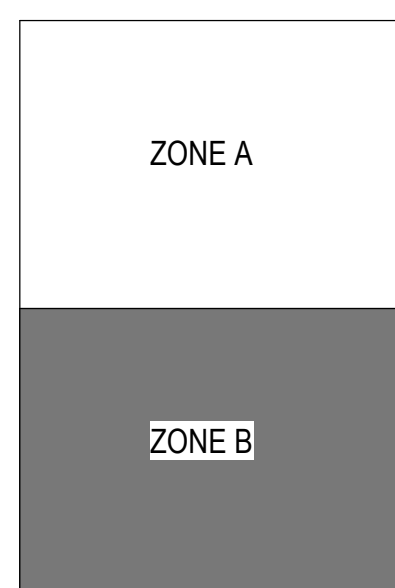
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PH1_AD02

KEY PLAN



SHEET INFORMATION

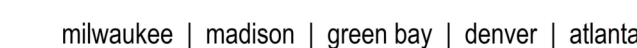
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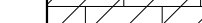

PROJECT NUMBER 720448

1ST FLR FINISH
PLAN - ZONE B -
PHASE 1

A1201-B-1

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	METAL PANEL - COLOR 1		METAL PANEL - COLOR 2		BRICK		DECORATIVE BLOCK		PRECAST CONCRETE
	FIBER CEMENT - COLOR 1		FIBER CEMENT - COLOR 2		MECHANICAL SCREENING		TEMPERED GLASS		

1014-01	PUBLIC PARKING BLADE SIGNAGE, BY OTHERS - CONFIRM WITH OWNER
1014-02	PUBLIC PARKING CHANNEL/HANGING SIGNAGE, BY OTHERS - CONFIRM WITH OWNER
1014-03	BUS TERMINAL BLADE SIGNAGE, BY OTHERS - CONFIRM WITH OWNER
2113-02	FIRE PROTECTION TEST, HEADER AND VALVES, SEE PLUMBING DRAWING (PHASE 1)
B210-04	METAL PANEL ON CMU BACKUP WALL (INSUL) - SEE BUILDING ASSEMBLIES SHEET
B210-04A	PRECAST CONCRETE VENEER ON CMU BACKUP WALL - SEE BUILDING ASSEMBLIES SHEET.

1.	SEE SHEET A2200-1 FOR EXTERIOR FRAME TYPES AND DIMENSIONS.
2.	PROVIDE CONTINUOUS SEALANT AND BACKER ROD AT ALL PRECAST CONCRETE JOINTS.
3.	ALL INSIDE AND OUTSIDE CORNERS OF PRECAST TRIM TO NOT BE MITERED.
4.	EXTERIOR SIGNAGE ON BUILDING TO BE COORDINATED AND VERIFIED WITH ARCHITECT, OWNER AND SIGNAGE VENDOR.
5.	ALL VERTICAL INSIDE CORNERS TO HAVE 1/2" MOVEMENT JOINT.
6.	MJ = INDICATES MOVEMENT JOINT - 1/2" GAP
7.	PI = INDICATES METAL PANEL JOINT - 1/2" GAP



STATE STREET
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11-02-2023	P1 ADD2

KEY PLAN

SHEET INFORMATION

PROJECT MANAGER MO

PROJECT NUMBER	720448
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EXTERIOR
ELEVATIONS -
PHASE 1

A2000-1

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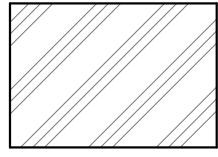
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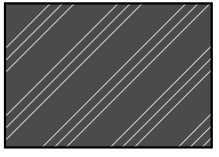
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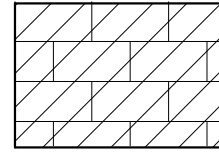
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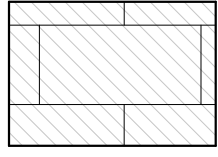
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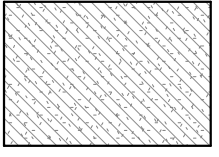
EXTERIOR MATERIAL

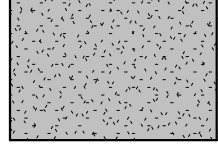
METAL PANEL - COLOR 1

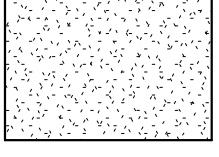
METAL PANEL - COLOR 2


BRICK

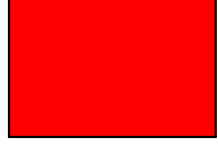
DECORATIVE BLOCK

PRECAST

FIBER CEMENT - COLOR 1

FIBER CEMENT - COLOR 2

MECHANICAL SCREENING

TEMPERED GLASS

KEYNOTES PER SHEET	
2632-01	GENERATOR HOOKUP. SEE ELECTRICAL DRAWINGS
B2010-01	MASONRY VENEER ON CMU BACKUP WALL (INSUL) - SEE BUILDING ASSEMBLIES SHEET
B2010-04	METAL PANEL ON CMU BACKUP WALL (INSUL) - SEE BUILDING ASSEMBLIES SHEET
B2010-04A	PRECAST CONCRETE VENEER ON CMU BACKUP WALL - SEE BUILDING ASSEMBLIES SHEET

SHEET NOTES - EXTERIOR ELEVATIONS	
1.	SEE SHEET A2200-1 FOR EXTERIOR FRAME TYPES AND DIMENSIONS.
2.	PROVIDE CONTINUOUS SEALANT AND BACKER ROD AT ALL PRECAST CONCRETE JOINTS.
3.	ALL INSIDE AND OUTSIDE CORNERS OF PRECAST TRIM TO NOT BE MITERED.
4.	EXTERIOR SIGNAGE ON BUILDING TO BE COORDINATED AND VERIFIED WITH ARCHITECT, OWNER AND SIGNAGE VENDOR.
5.	ALL VERTICAL INSIDE CORNERS TO HAVE 1/2" MOVEMENT JOINT.
6.	MJ = INDICATES MOVEMENT JOINT - 1/2" GAP.
7.	PJ = INDICATES METAL PANEL JOINT - 1/2" GAP.



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E

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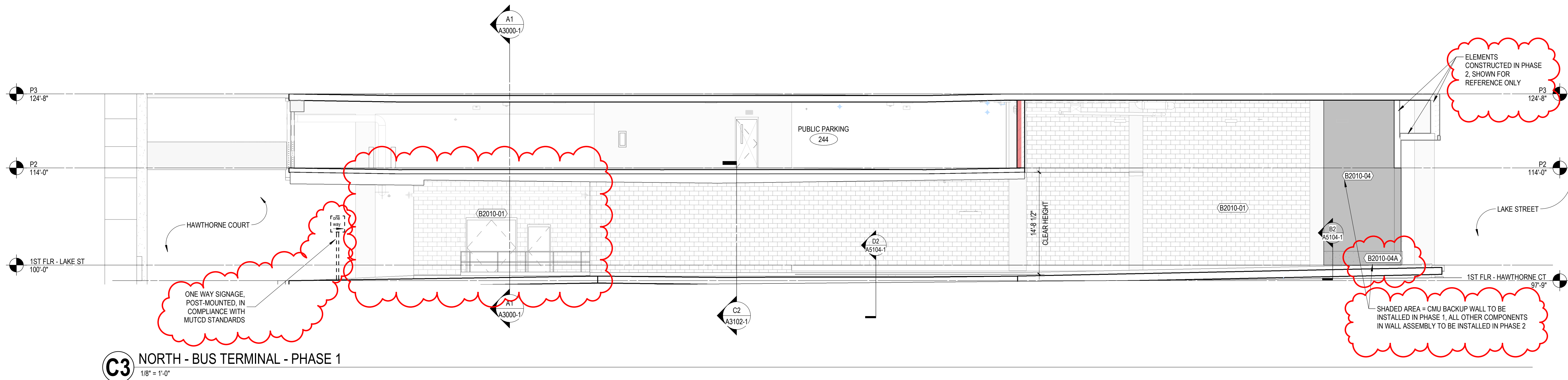
415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

C

KEY PLAN



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EXTERIOR MATERIAL

METAL PANEL - COLOR 1

METAL PANEL - COLOR 2

BRICK

DECORATIVE BLOCK

PRECAST

FIBER CEMENT - COLOR 1

FIBER CEMENT - COLOR 2

MECHANICAL SCREENING

TEMPERED GLASS

KEYNOTES PER SHEET

0551-03 STEEL PIPE GUARDRAIL

1187-01

Frames

B2010-00A SINGLE WYTHE DECORATIVE CMU WALL W/ INSULATED CORES - SEE BUILDING ASSEMBLIES SHEET

B2010-01 MASONRY VENEER ON CMU BACKUP WALL (INSUL) - SEE BUILDING ASSEMBLIES SHEET

B2010-04 METAL PANEL ON CMU BACKUP WALL (INSUL) - SEE BUILDING ASSEMBLIES SHEET

B2010-04A PRECAST CONCRETE VENEER ON CMU BACKUP WALL - SEE BUILDING ASSEMBLIES SHEET

B2010-07A SINGLE WYTHE STANDARD CMU WALL W/ INSULATED CORES - SEE BUILDING ASSEMBLIES SHEET

SHEET NOTES - EXTERIOR ELEVATIONS

1. SEE SHEET A2200-1 FOR EXTERIOR FRAME TYPES AND DIMENSIONS.

2. PROVIDE CONTINUOUS SEALANT AND BACKER ROD AT ALL PRECAST CONCRETE JOINTS.

3. ALL INSIDE AND OUTSIDE CORNERS OF PRECAST TRIM TO NOT BE MITERED.

4. EXTERIOR SIGNAGE ON BUILDING TO BE COORDINATED AND VERIFIED WITH ARCHITECT, OWNER AND SIGNAGE VENDOR.

5. ALL VERTICAL INSIDE CORNERS TO HAVE 1/2" MOVEMENT JOINT.

6. MJ = INDICATES MOVEMENT JOINT - 1/2" GAP.

7. PJ = INDICATES METAL PANEL JOINT - 1/2" GAP.

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D4 SOUTH ELEVATION - PUBLIC PARKING
1/8" = 1'-0"

PROJECT INFORMATION

STATE STREET
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ISSUANCE AND REVISIONS

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10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN

A4 SOUTH ELEVATION - STAIR 01
1/8" = 1'-0"

A6 NORTH ELEVATION - STAIR 03
1/8" = 1'-0"

SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

EXTERIOR
ELEVATIONS -
PHASE 1

A2005-1

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PROJECT INFORMATION

STATE STREET
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MADISON, WI 53715

ISSUANCE AND REVISIONS

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07-28-2023	DESIGN DEVELOPMENT PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

KEY PLAN

SHEET INFORMATION

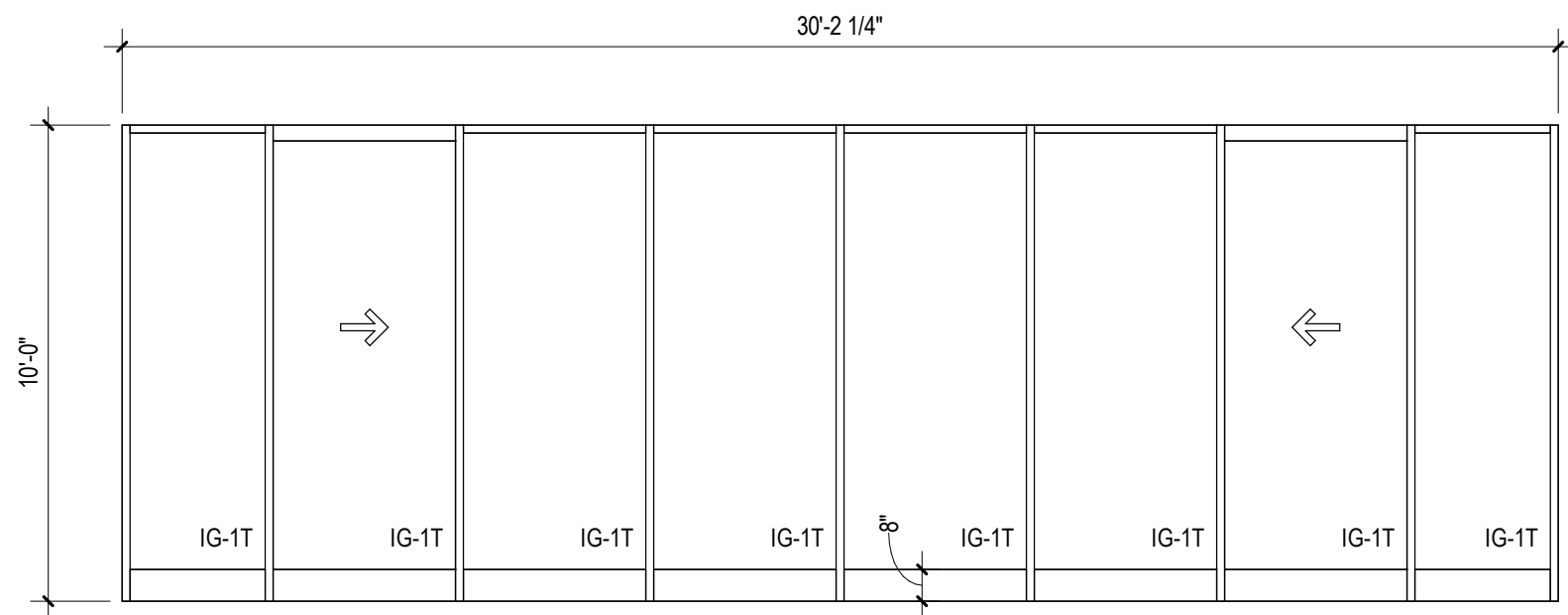
PROJECT MANAGER MO

PROJECT NUMBER 720448

EXTERIOR FRAME
TYPES - PHASE 1

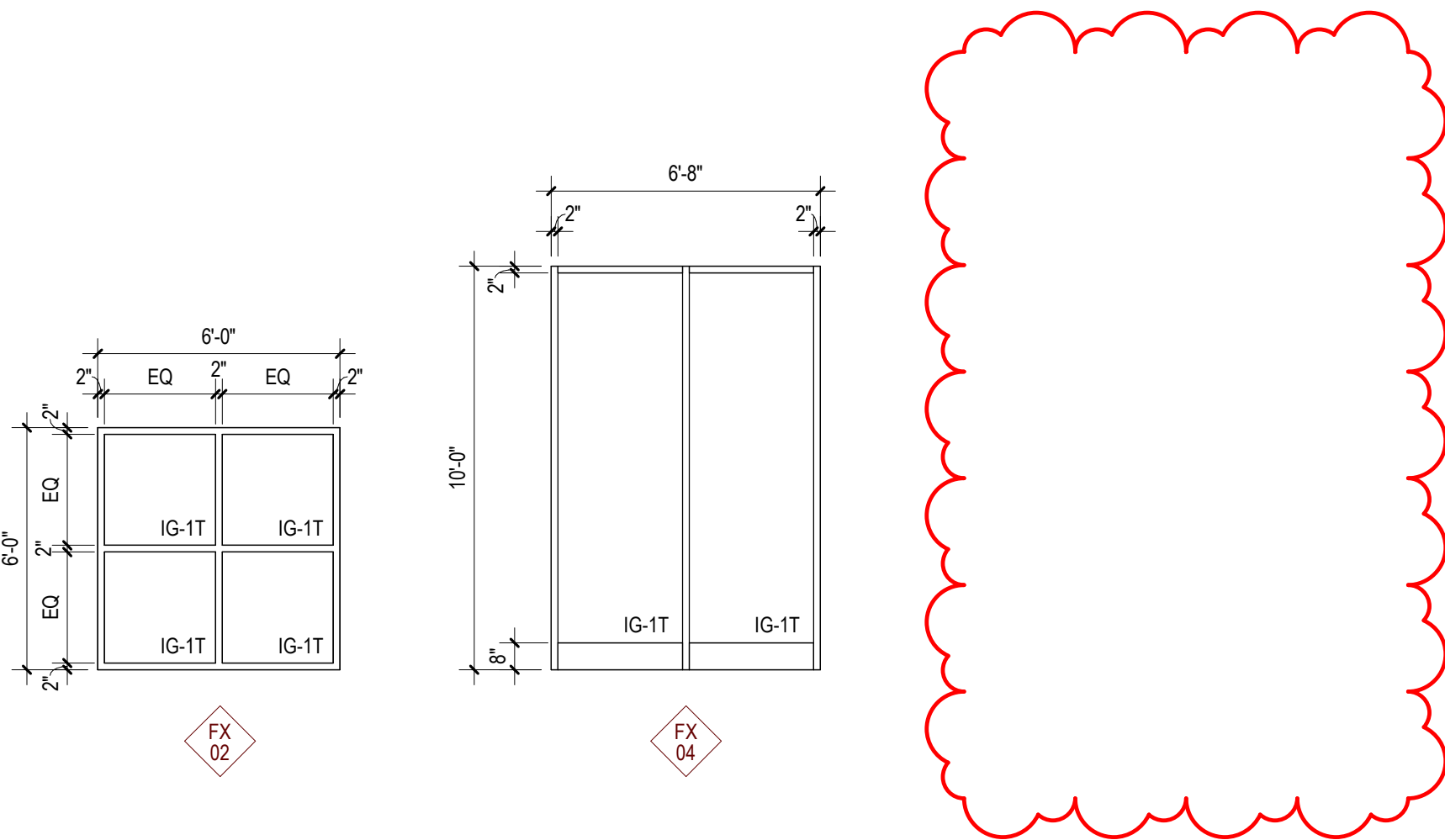
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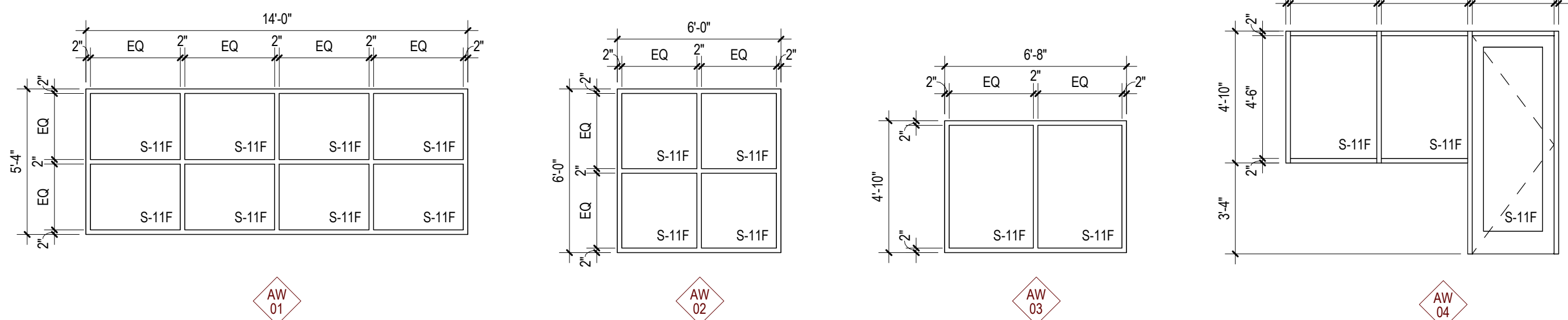


XX08

1/4" = 1'-0"



ALUMINUM WINDOW WALL



FIRE RATED ALUMINUM WINDOWS

WINDOW TYPES - PHASE 1

1/4" = 1'-0"

* WHERE LOCATED IN RATED WALL PROVIDED RATED GLASS
* TEMPERED GLASS WHERE REQUIRED BY CODE

KEYNOTES PER SHEET	
B1010-01	SPLIT SLAB TYPICAL - INSULATION AND TOPPING SLAB ON POST-TENSIONED CONCRETE SLAB - SEE BUILDING ASSEMBLIES SHEET
B1010-02	SPLIT SLAB AT BUS LANE SIDEWALK - INSULATION AND TOPPING SLAB ON POST-TENSIONED CONCRETE SLAB - SEE BUILDING ASSEMBLIES SHEET
B1010-03	SPLIT SLAB AT BUS DRIVE LANE - INSULATION AND TOPPING SLAB ON POST-TENSIONED CONCRETE SLAB - SEE BUILDING ASSEMBLIES SHEET
B1010-04	SPLIT SLAB AT SIDEWALK - INSULATION AND TOPPING SLAB ON POST-TENSION CONCRETE SLAB - SEE BUILDING ASSEMBLIES SHEET



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PROJECT INFORMATION

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11-02-2023	P1_AD02

KEY PLAN

SHEET INFORMATION

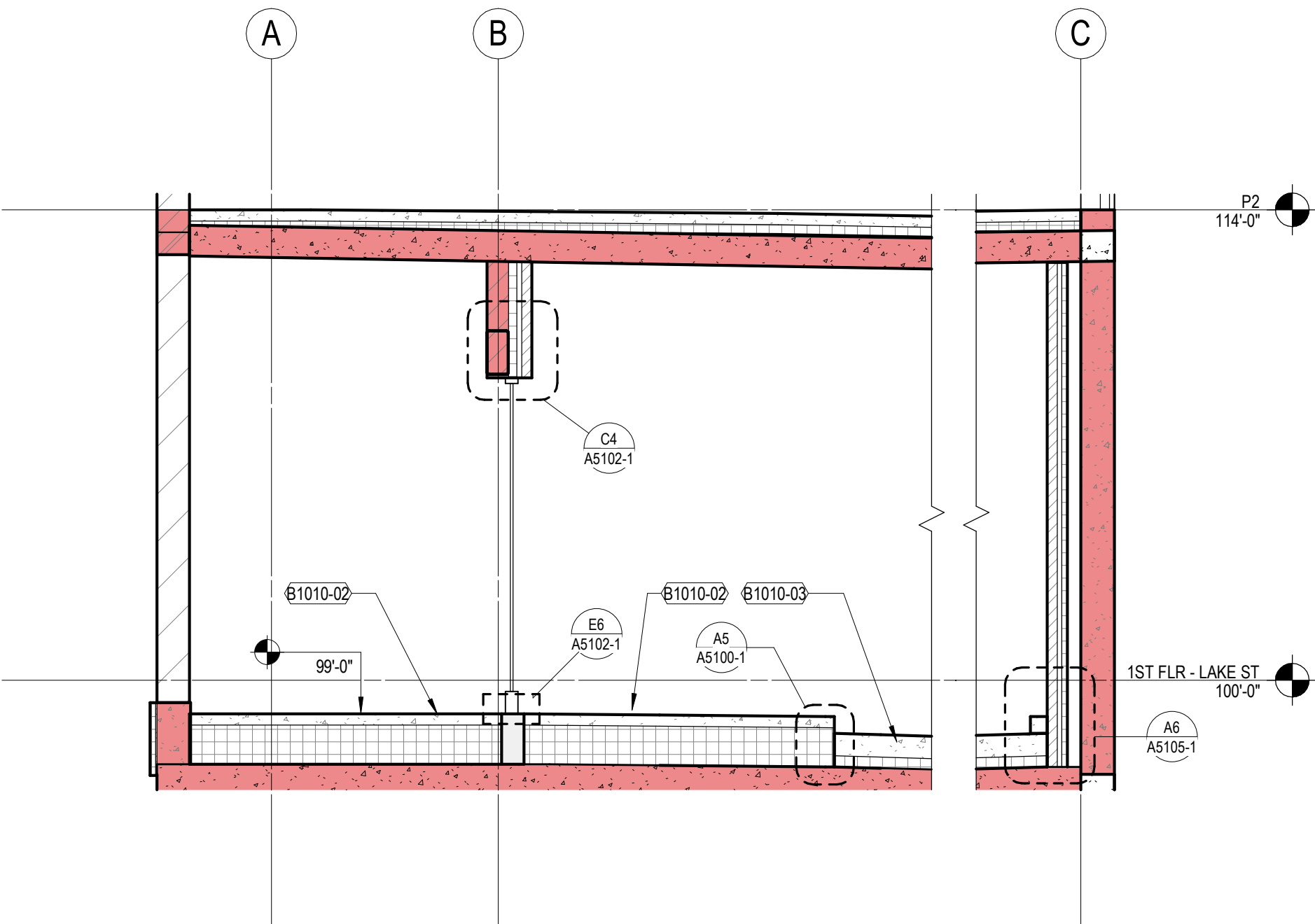
PROJECT MANAGER MO
PROJECT NUMBER 720448

WALL SECTIONS -
PHASE 1

A3102-1

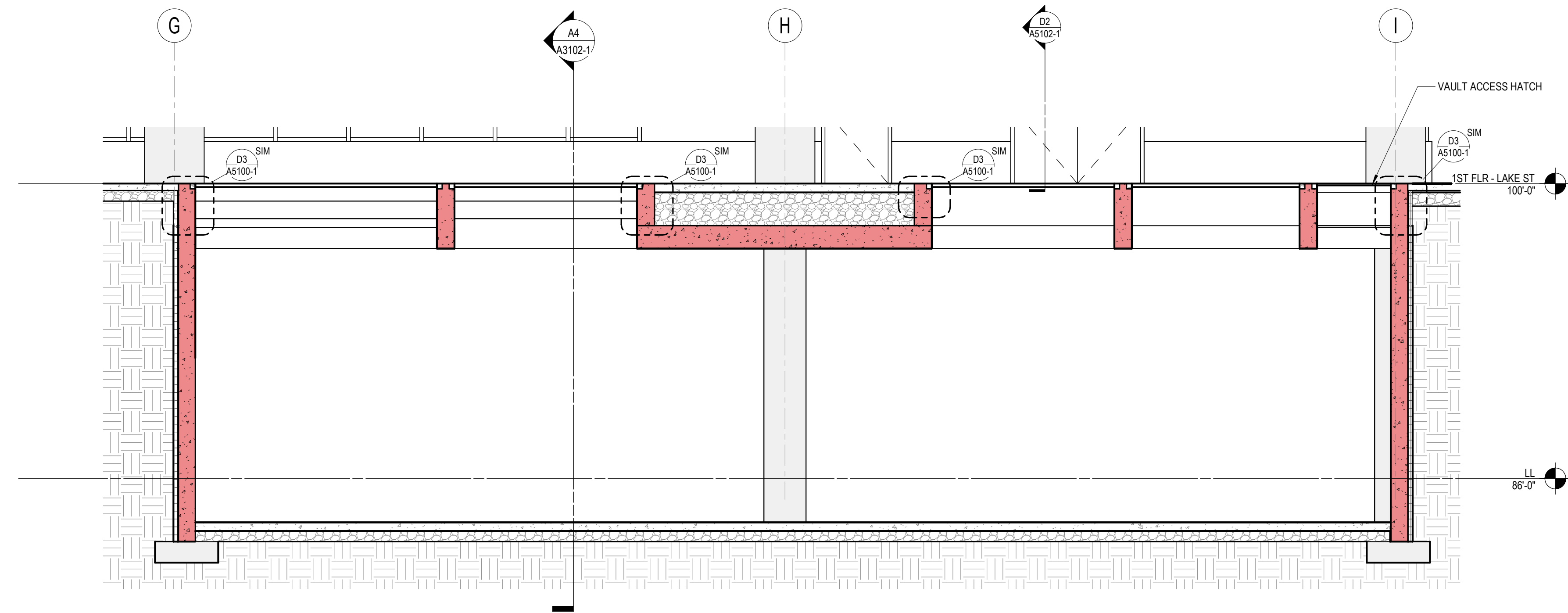
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E



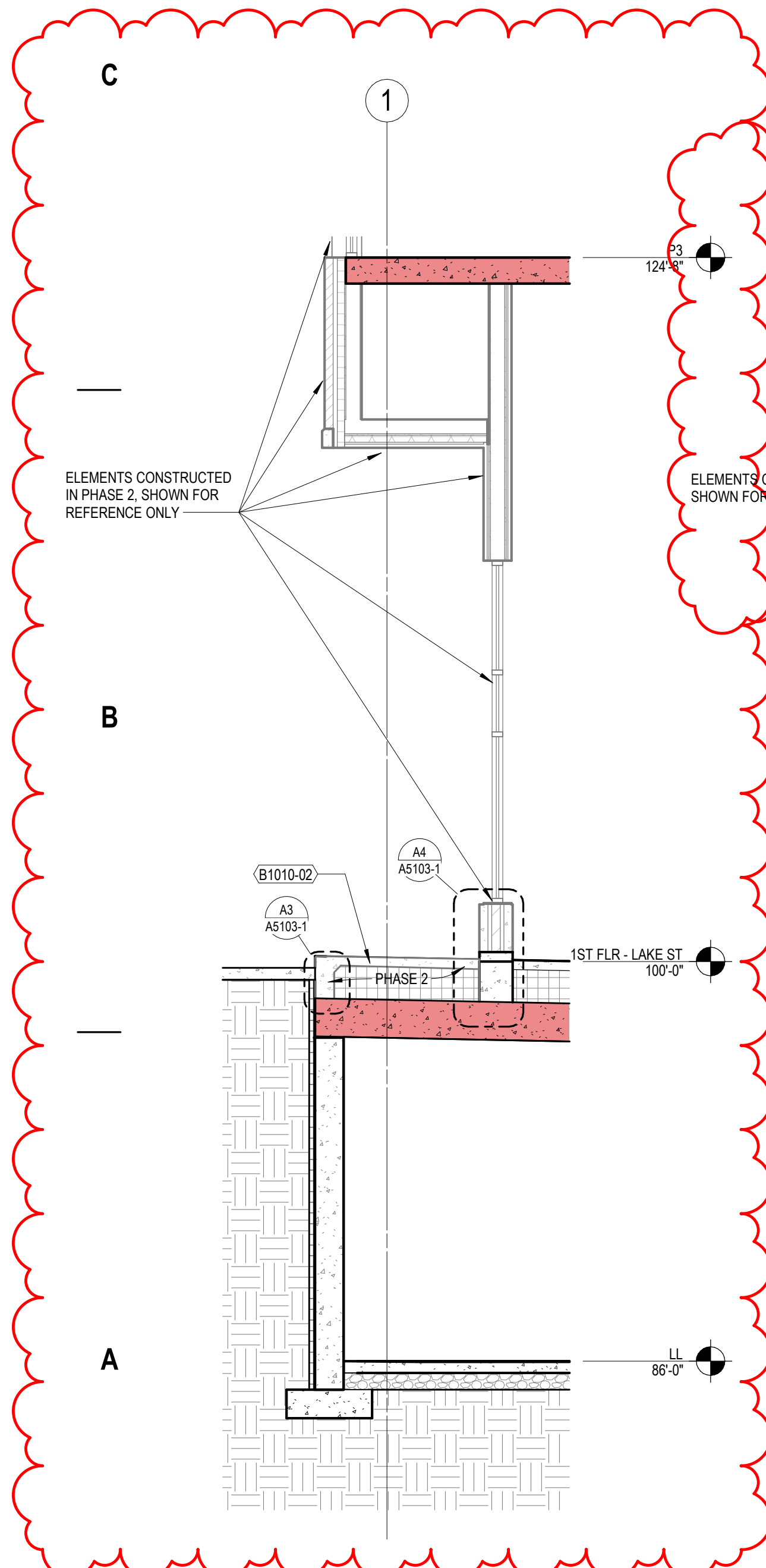
C2 NORTH-SOUTH SECTION @ BUS TERMINAL
1/4" = 1'-0"

E



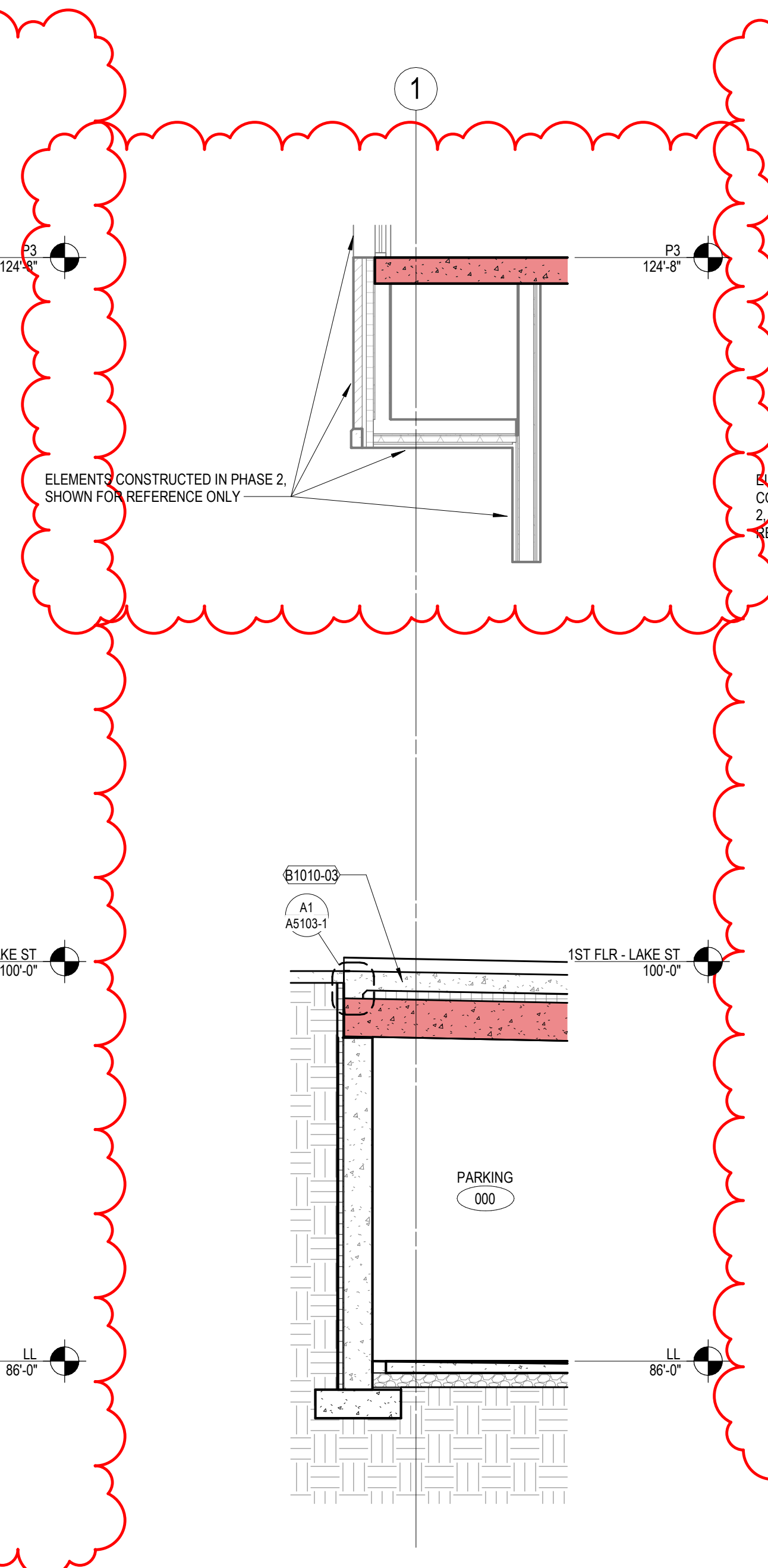
C3 NORTH-SOUTH SECTION @ ELEC VAULT
1/4" = 1'-0"

C



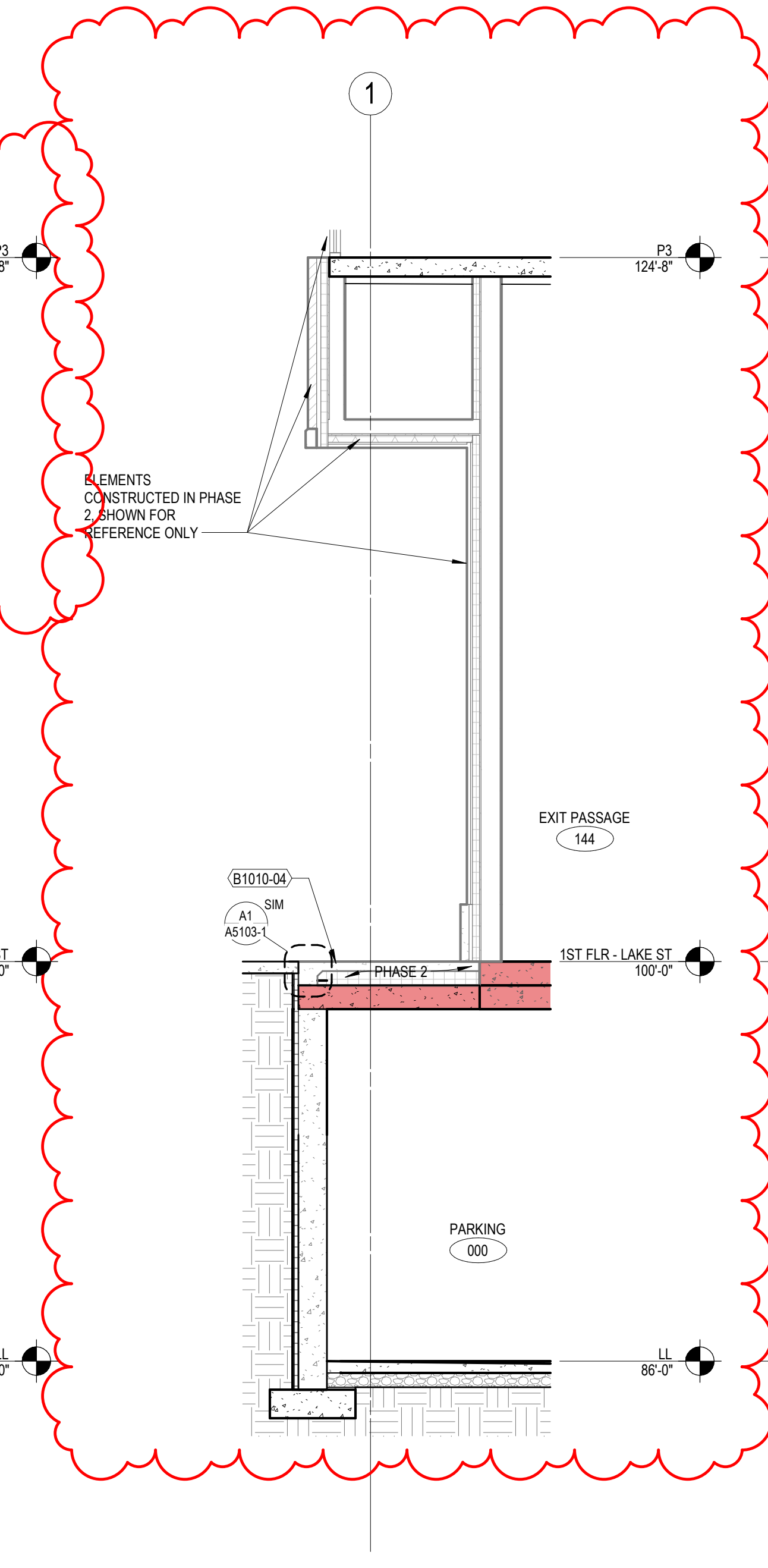
A1 WEST WALL @ BUS TERMINAL STOREFRONT
1/4" = 1'-0"

C



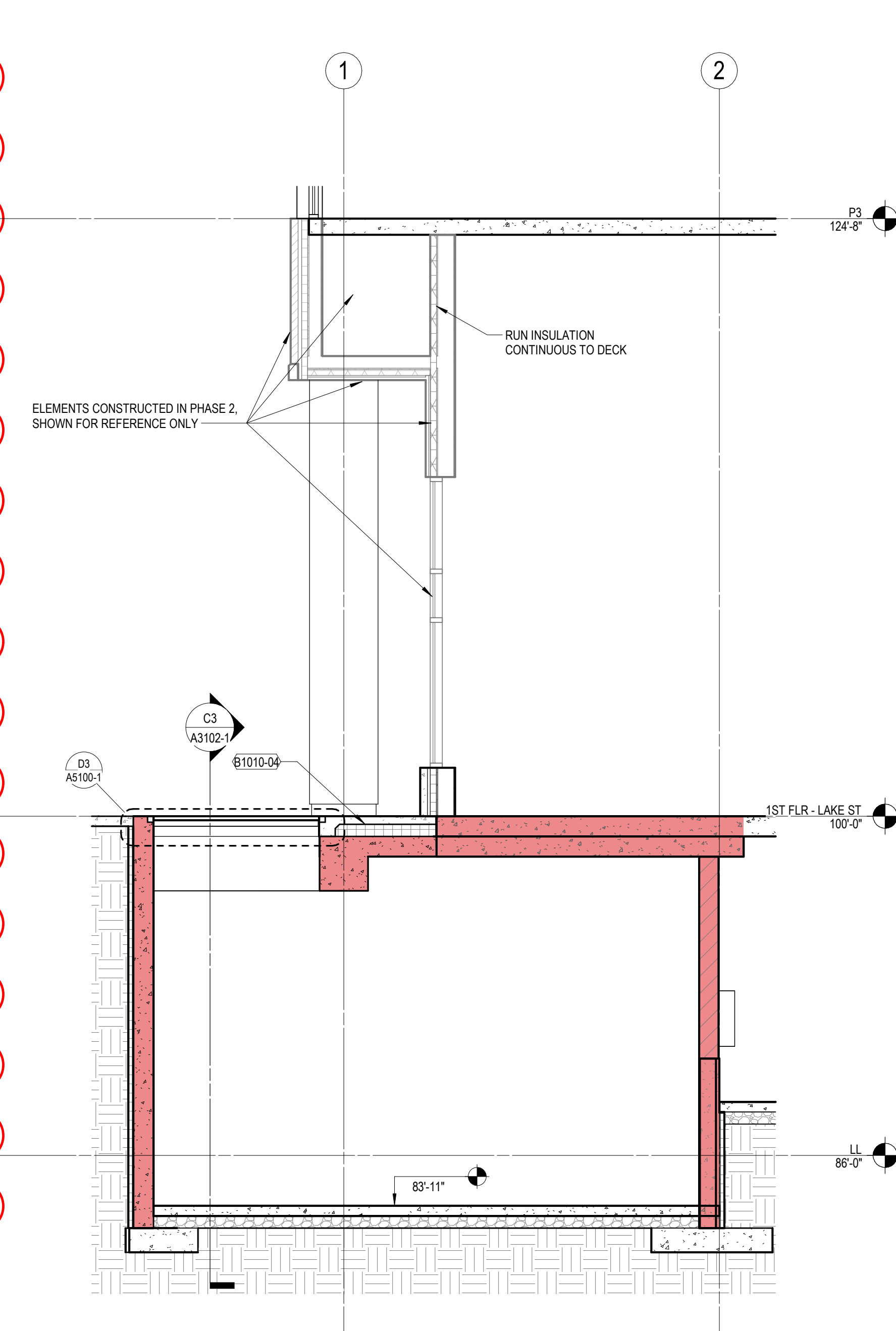
A2 WEST WALL @ BUS TERMINAL EXIT
1/4" = 1'-0"

C



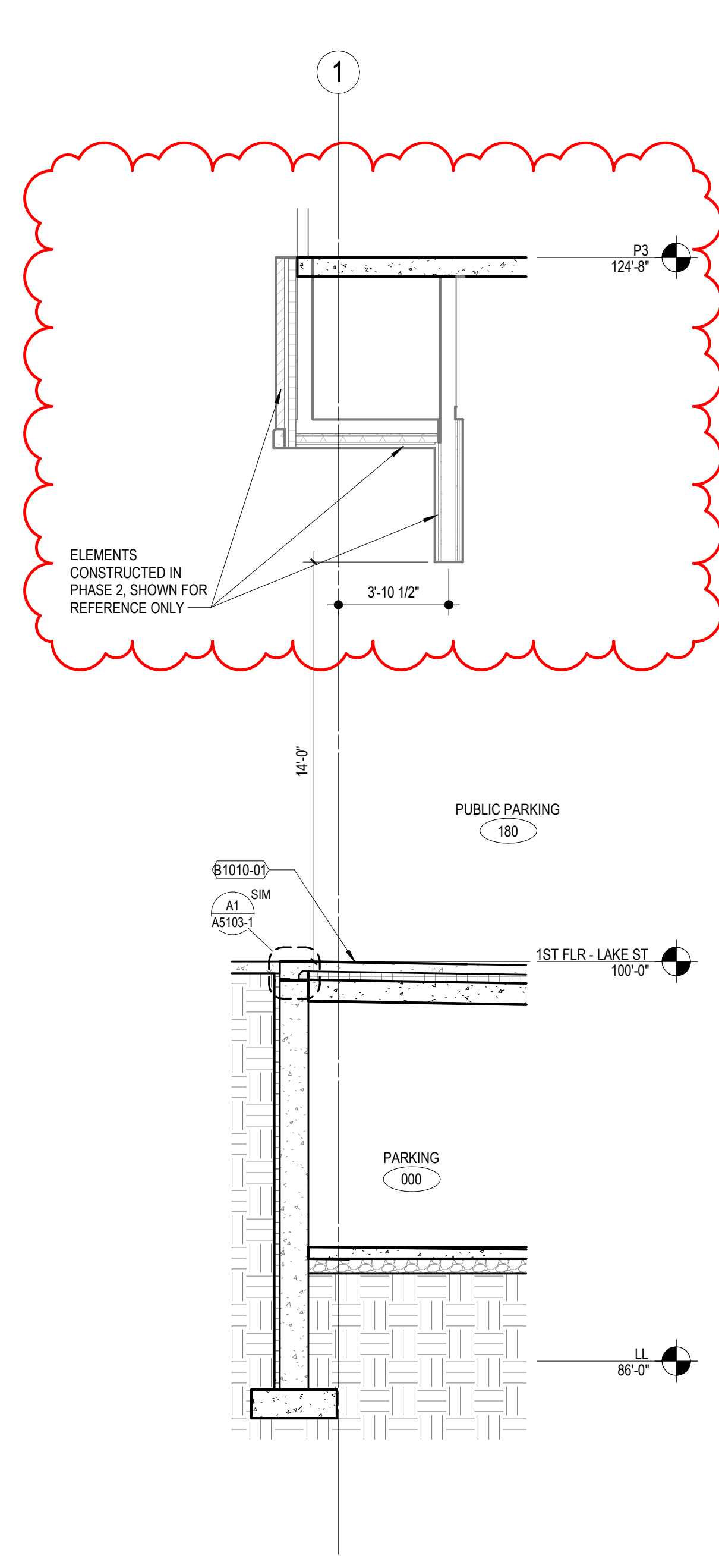
A3 WEST WALL BETWEEN GRID C/D
1/4" = 1'-0"

C

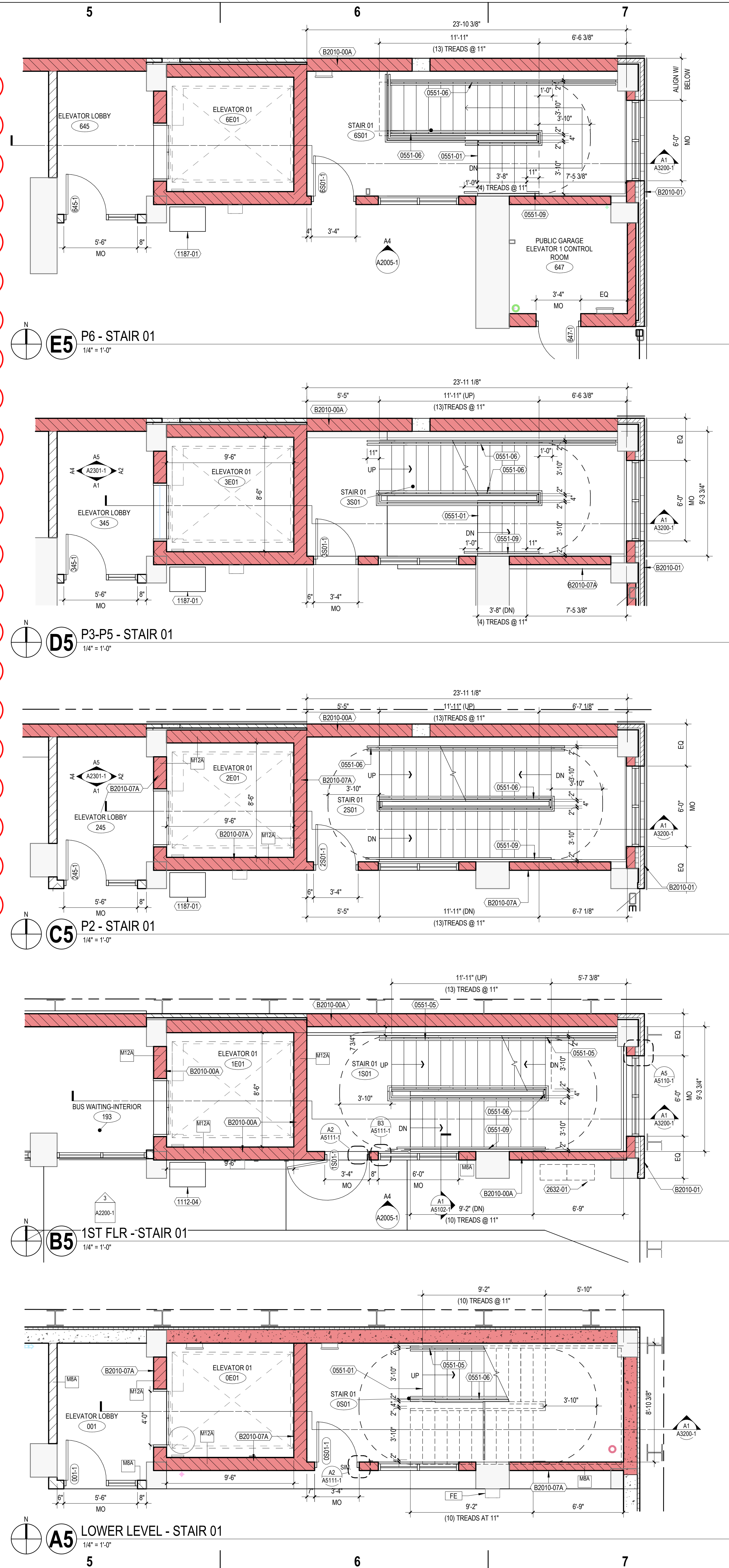
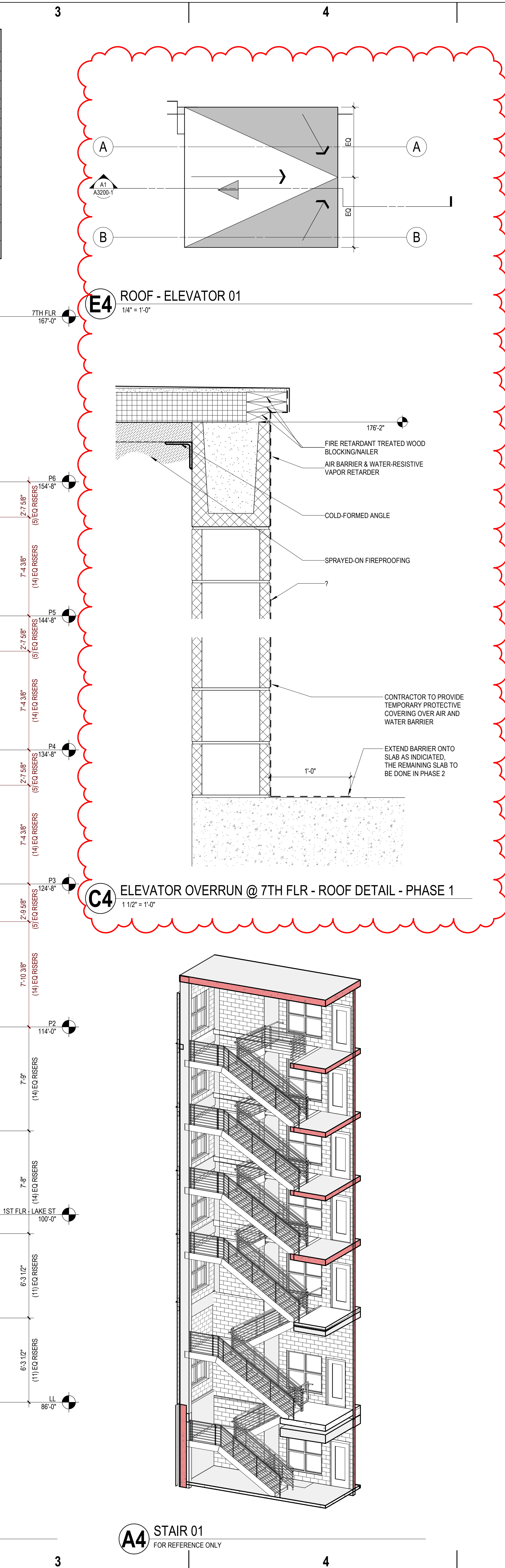
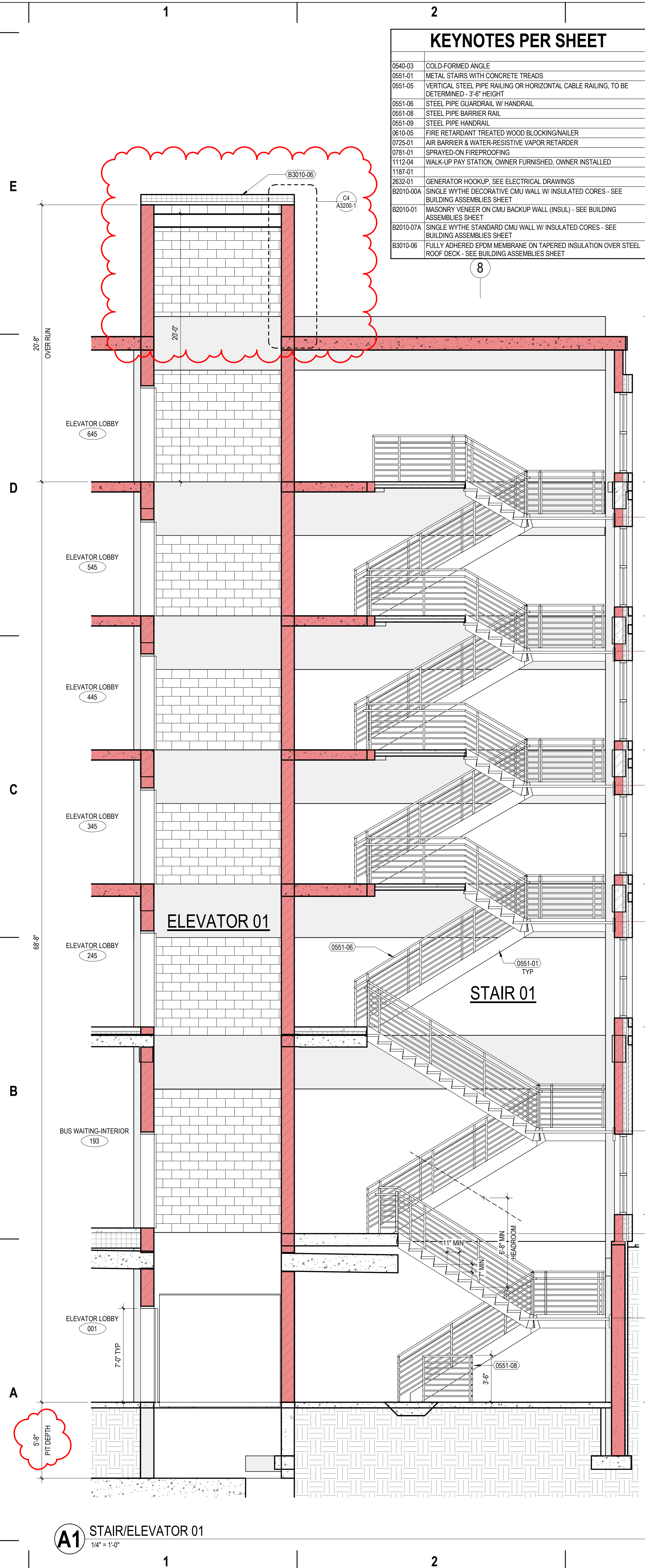


A4 WEST WALL @ ELEC VAULT
1/4" = 1'-0"

C



A6 WEST WALL @ PARKING RAMP
1/4" = 1'-0"



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PROJECT INFORMATION

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KEY PLAN

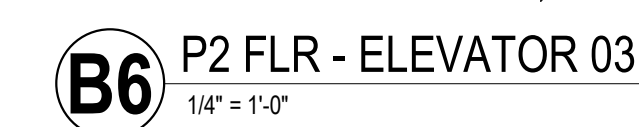
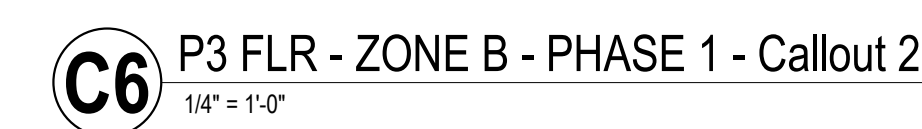
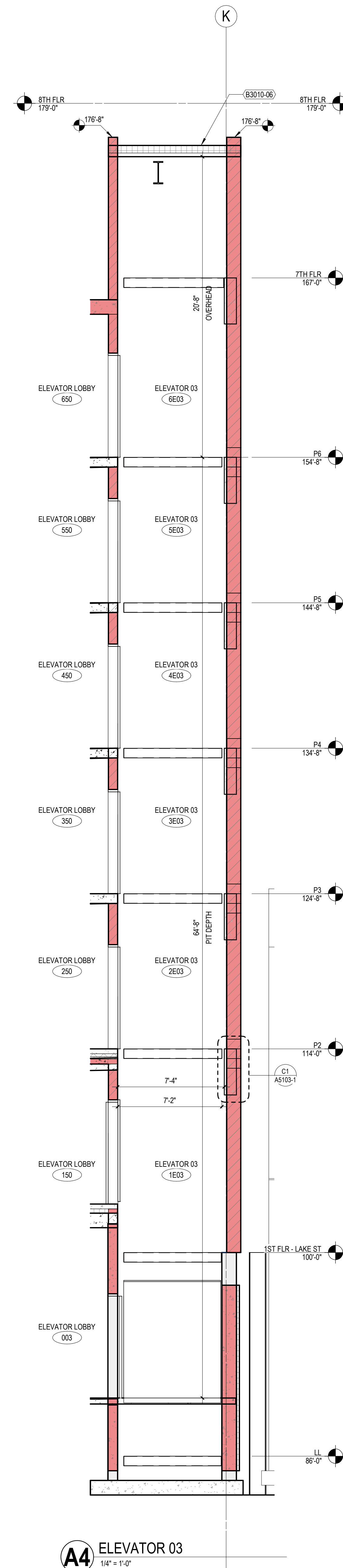
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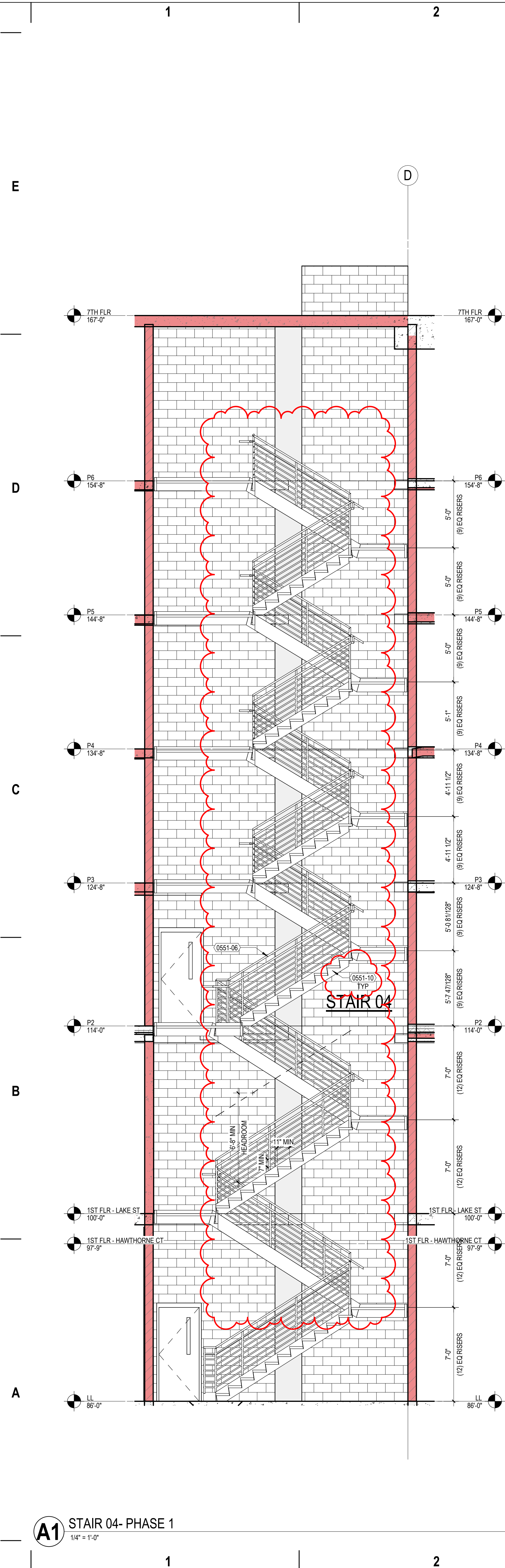
PROJECT MANAGER MO
PROJECT NUMBER 720448

STAIR & ELEVATOR
PLANS & SECTIONS
- PHASE 1

A3200-1

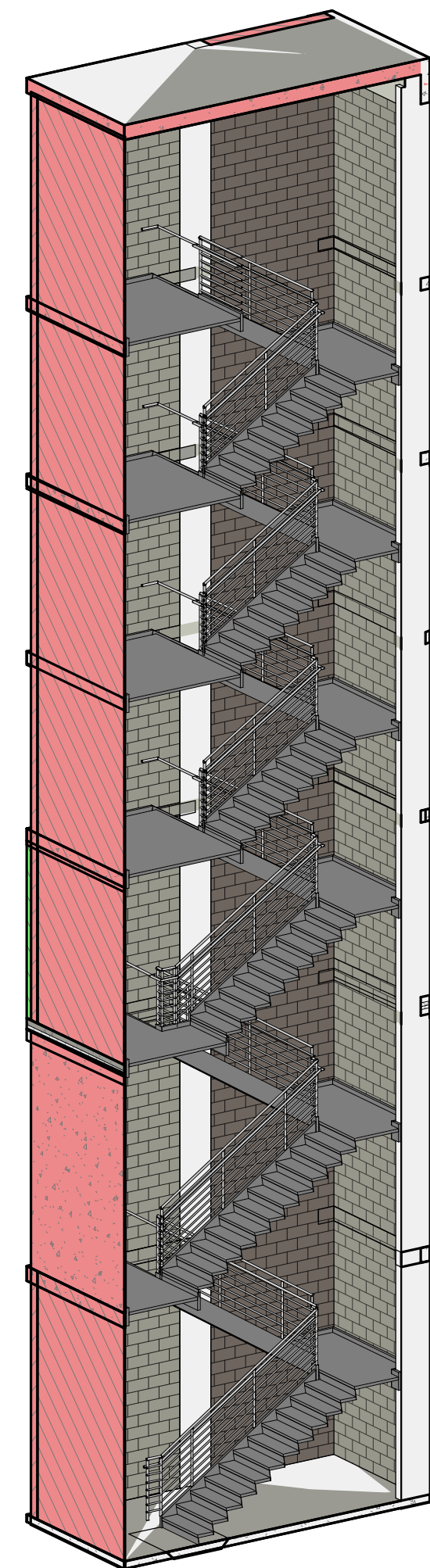
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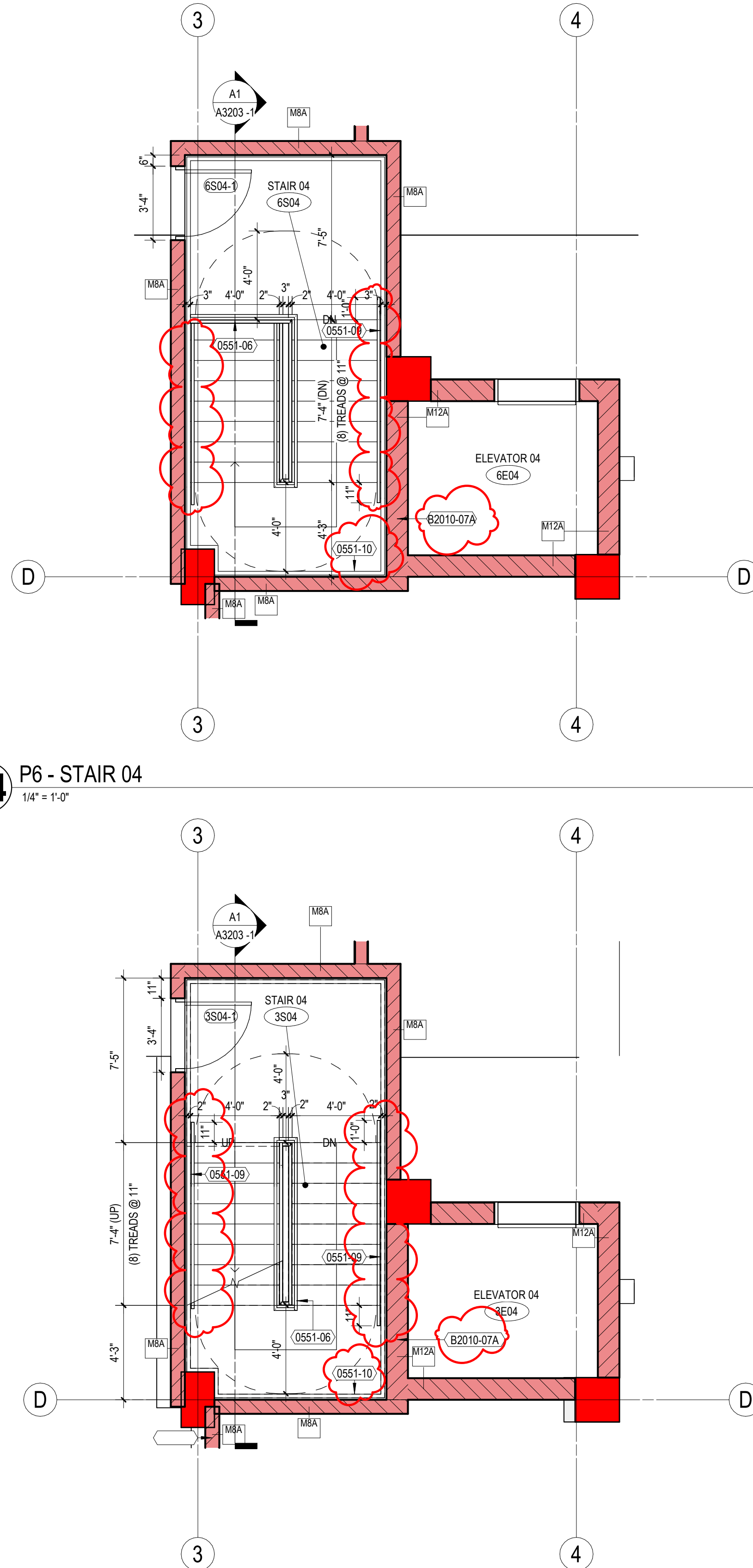


A1 STAIR 04- PHASE 1
1/4" = 1'-0"

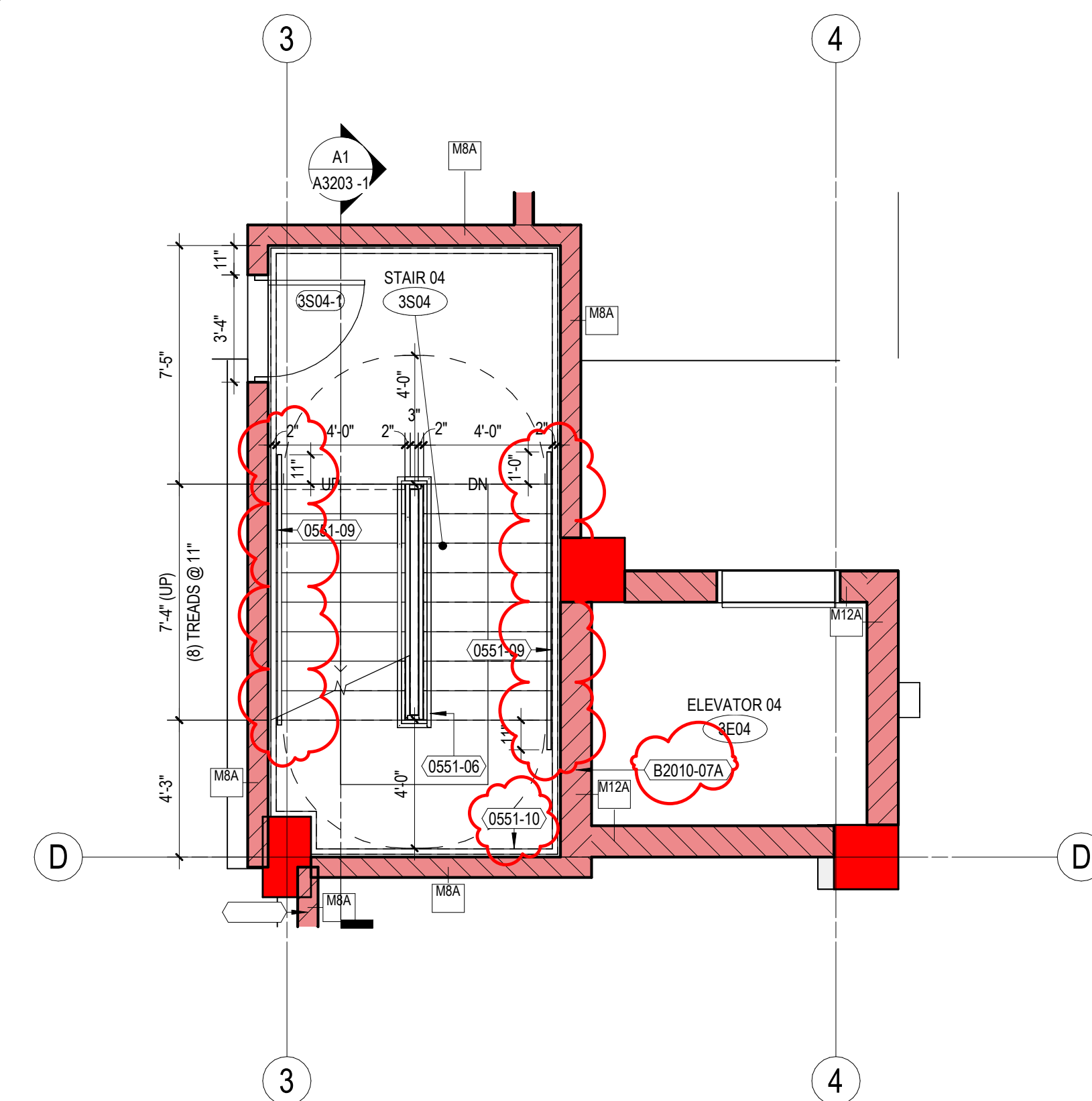
A3 STAIR 4



A4 P3-P5 - STAIR 04
1/4" = 1'-0"

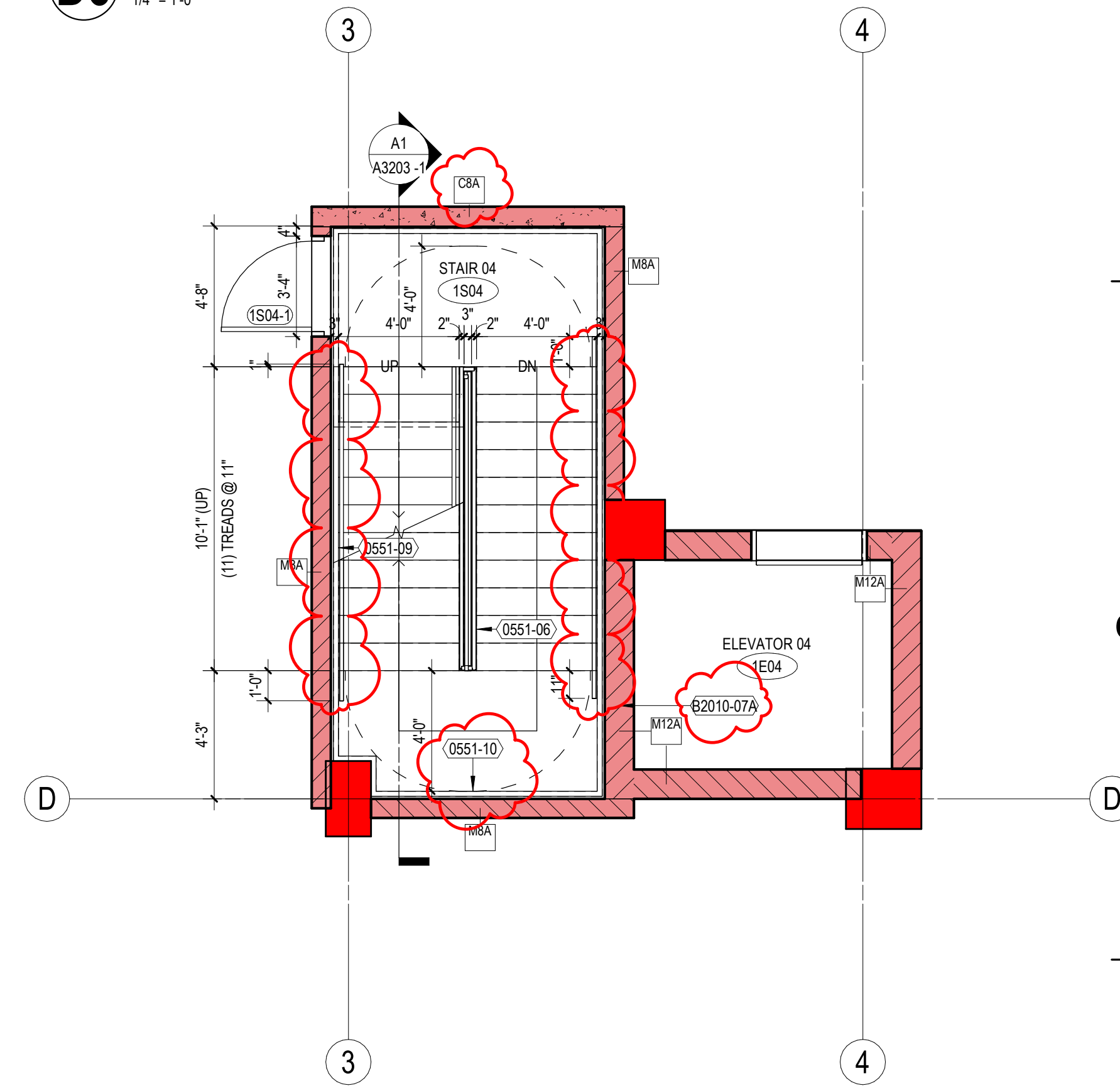


B4 P6 - STAIR 04
1/4" = 1'-0"

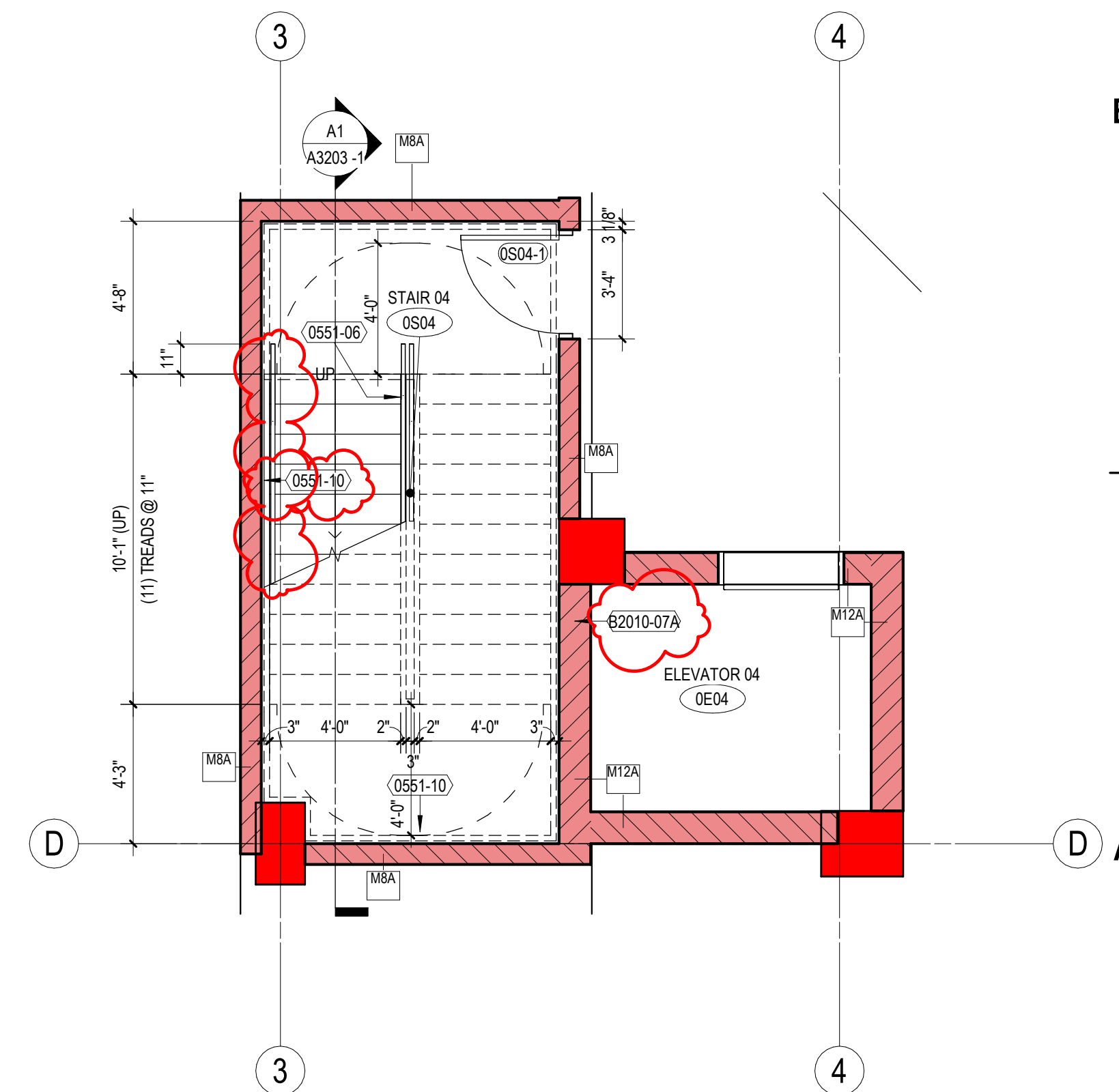


KEYNOTES PER SHEET	
0551-06	STEEL PIPE GUARDRAIL W/ HANDRAIL
0551-09	STEEL PIPE HANDRAIL
0551-10	METAL STAIRS WITH METAL TREADS
B2010-07A	SINGLE WYTHE STANDARD CMU WALL W/ INSULATED CORES - SEE BUILDING ASSEMBLIES SHEET

D6 P2 - STAIR 04
1/4" = 1'-0"



B6 1ST FLR - STAIR 04
1/4" = 1'-0"



A6 LOWER LEVEL - STAIR 04
1/4" = 1'-0"



PROJECT INFORMATION
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PI_A002

KEY PLAN

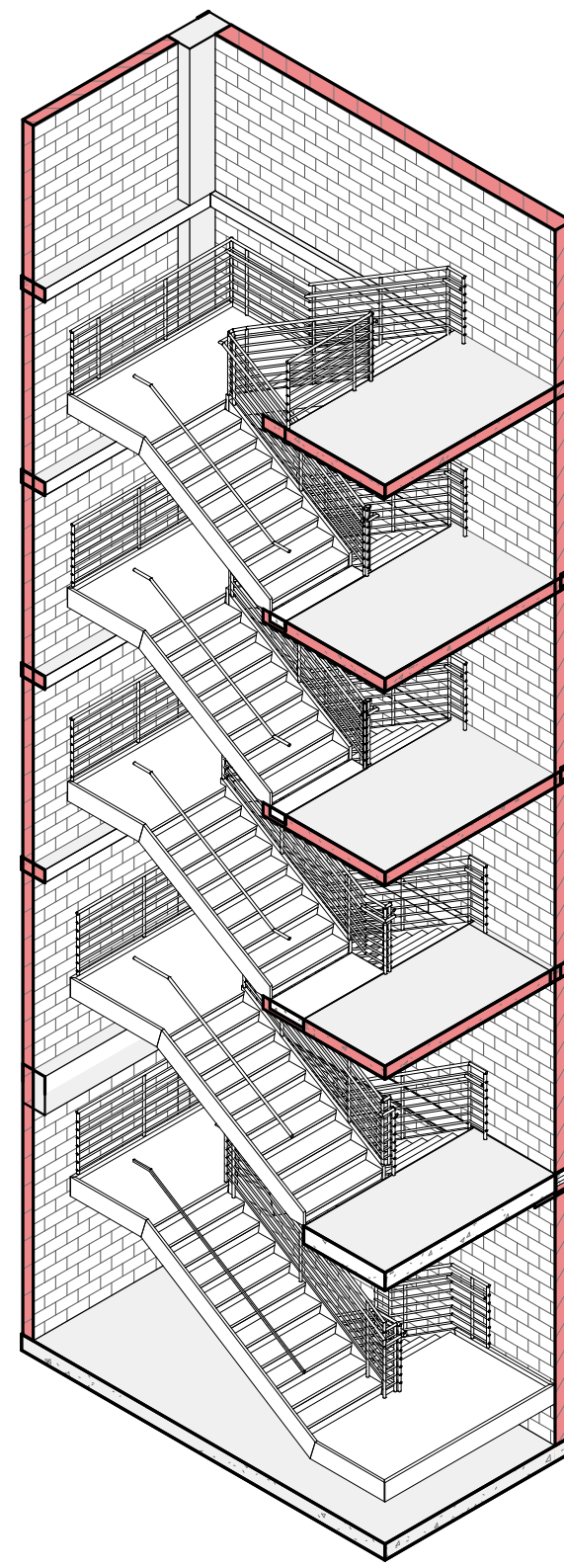
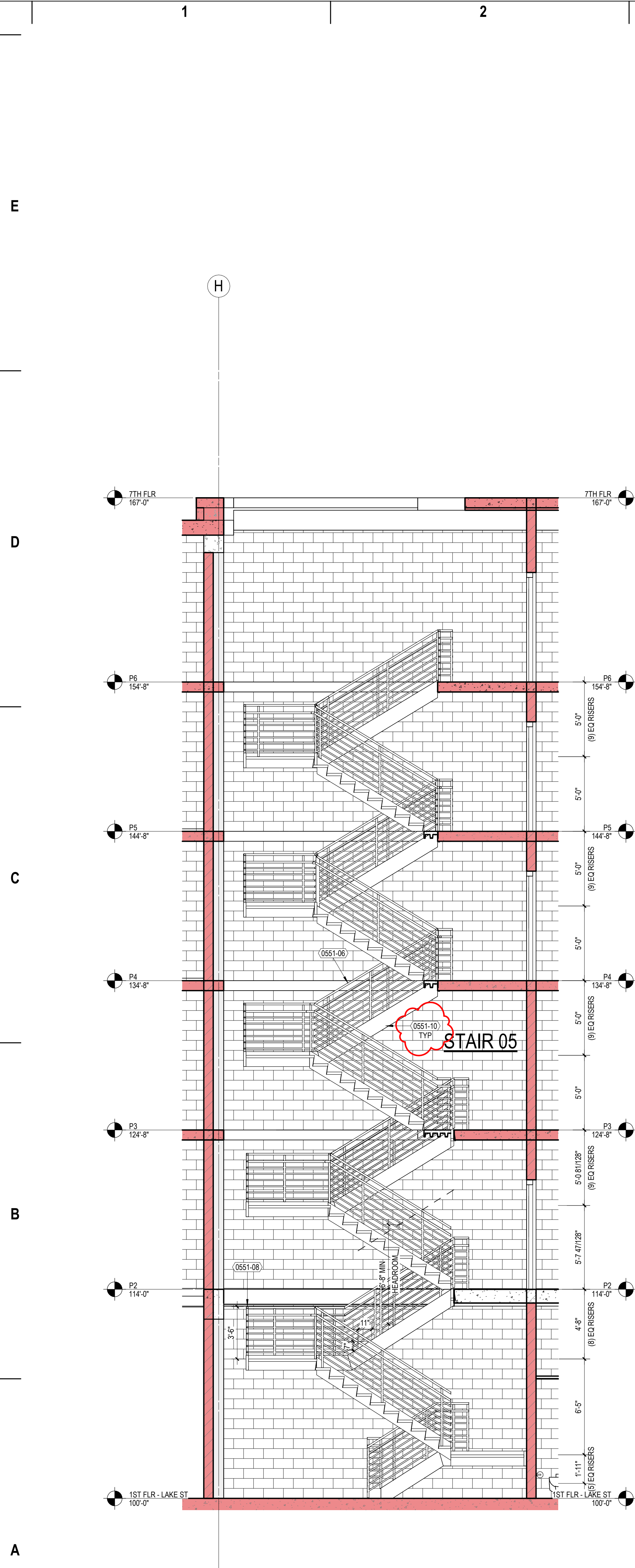
SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

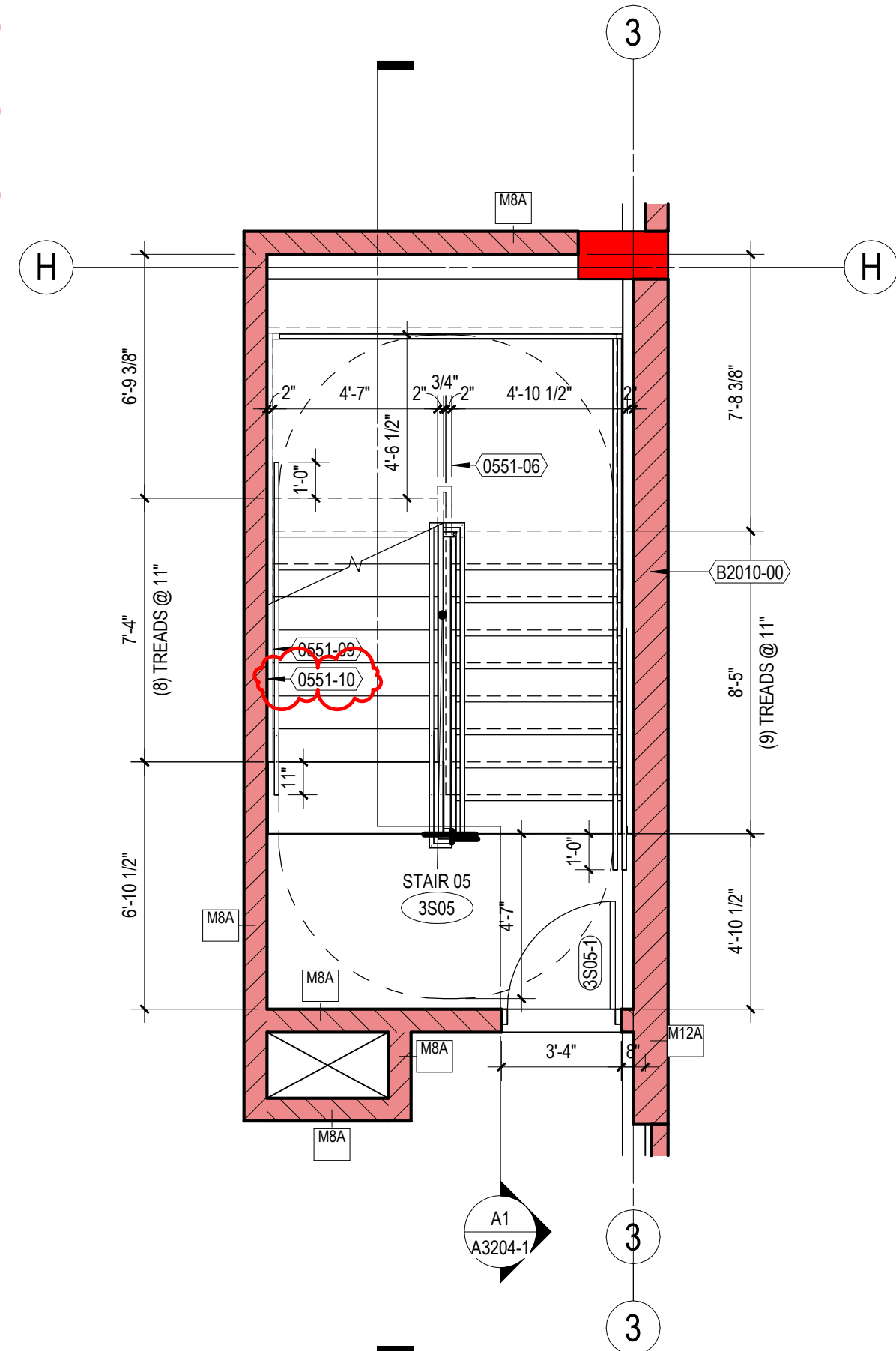
**STAIR & ELEVATOR
PLANS & SECTIONS
- PHASE 1**

A3203 -1

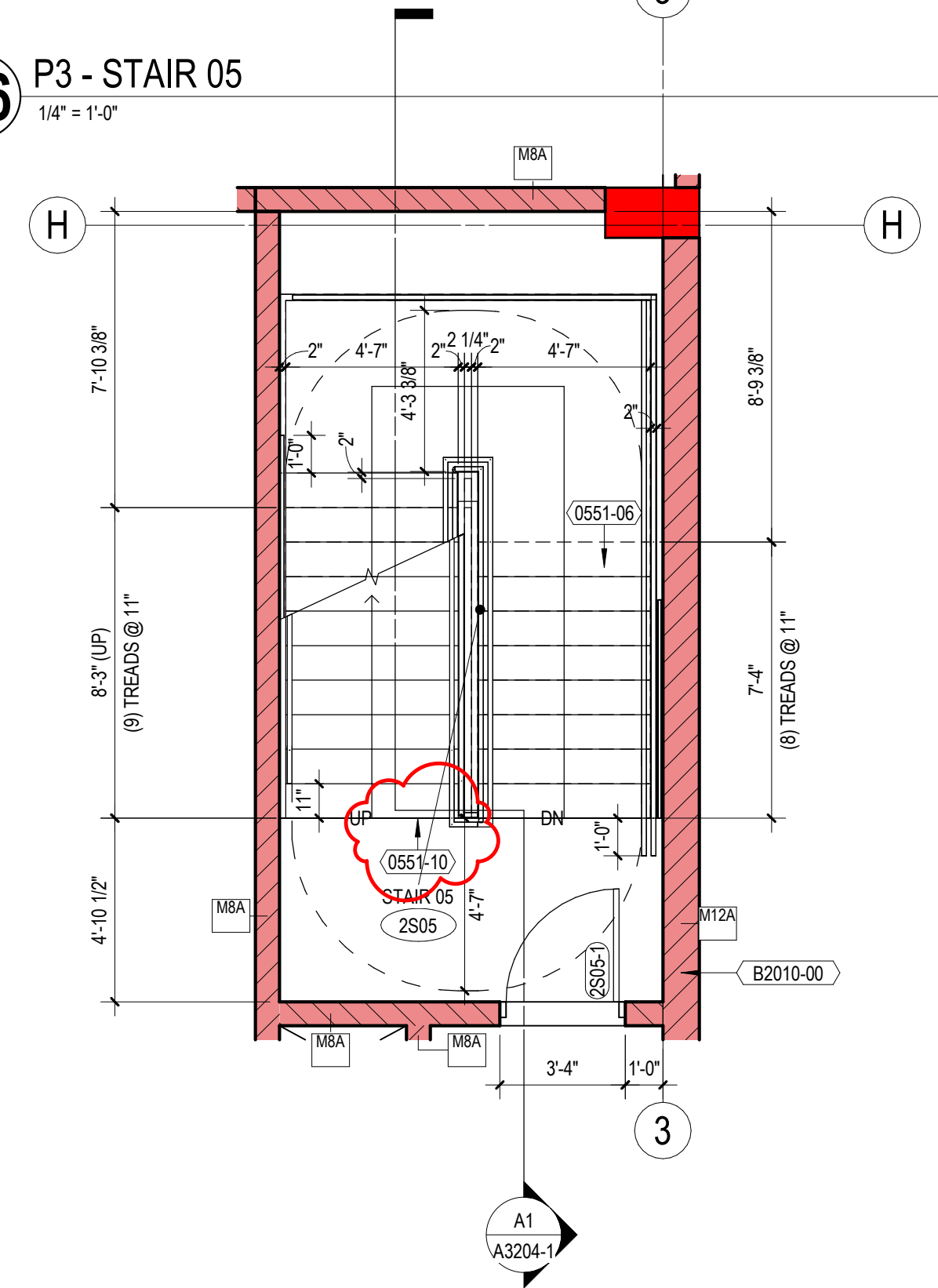
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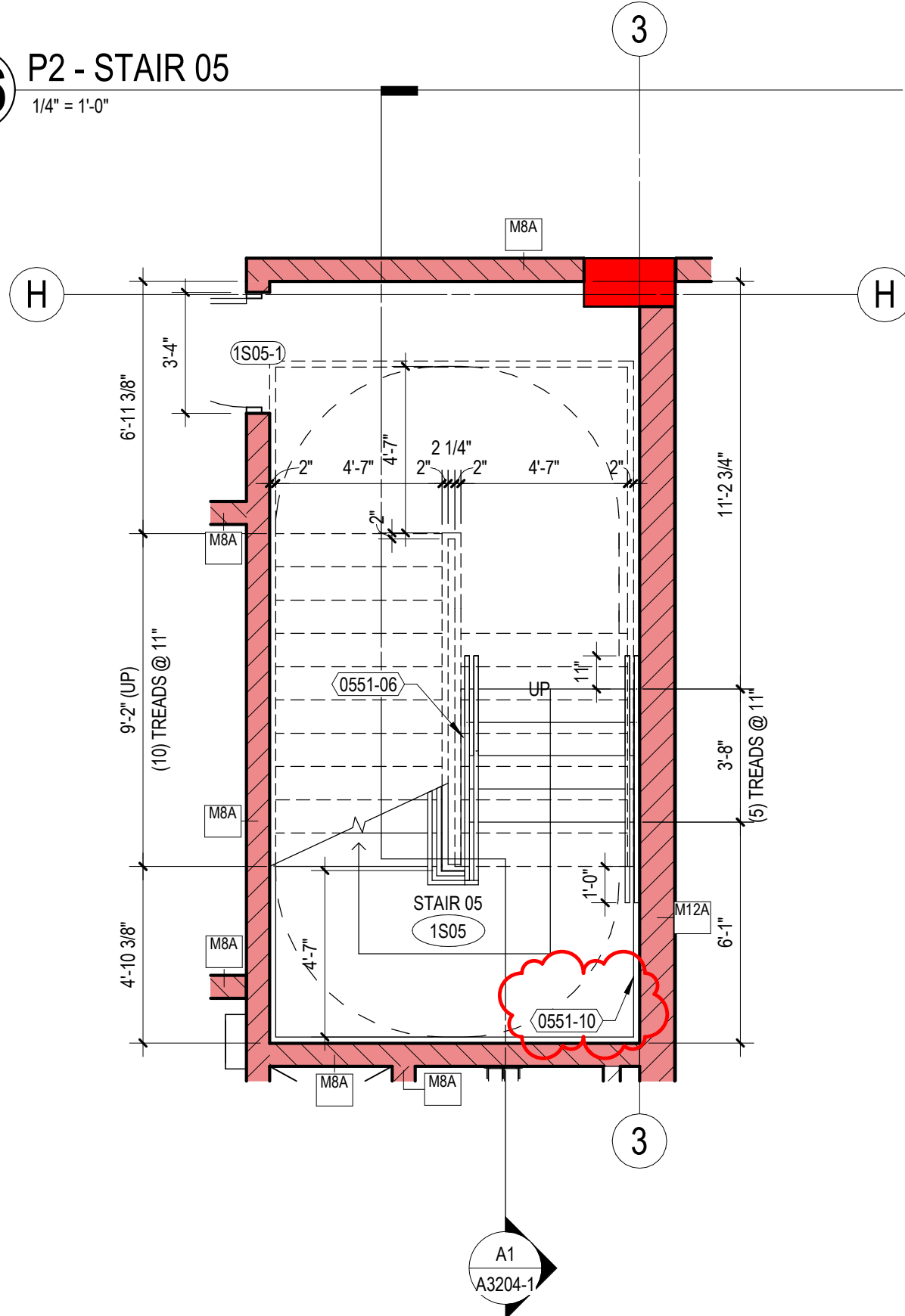
KEYNOTES PER SHEET		
0551-06	STEEL PIPE GUARDRAIL W/ HANDRAIL	
0551-08	STEEL PIPE BARRIER RAIL	
0551-09	STEEL PIPE HANDRAIL	
0551-10	METAL STAIRS WITH METAL TREADS	
02010-00		



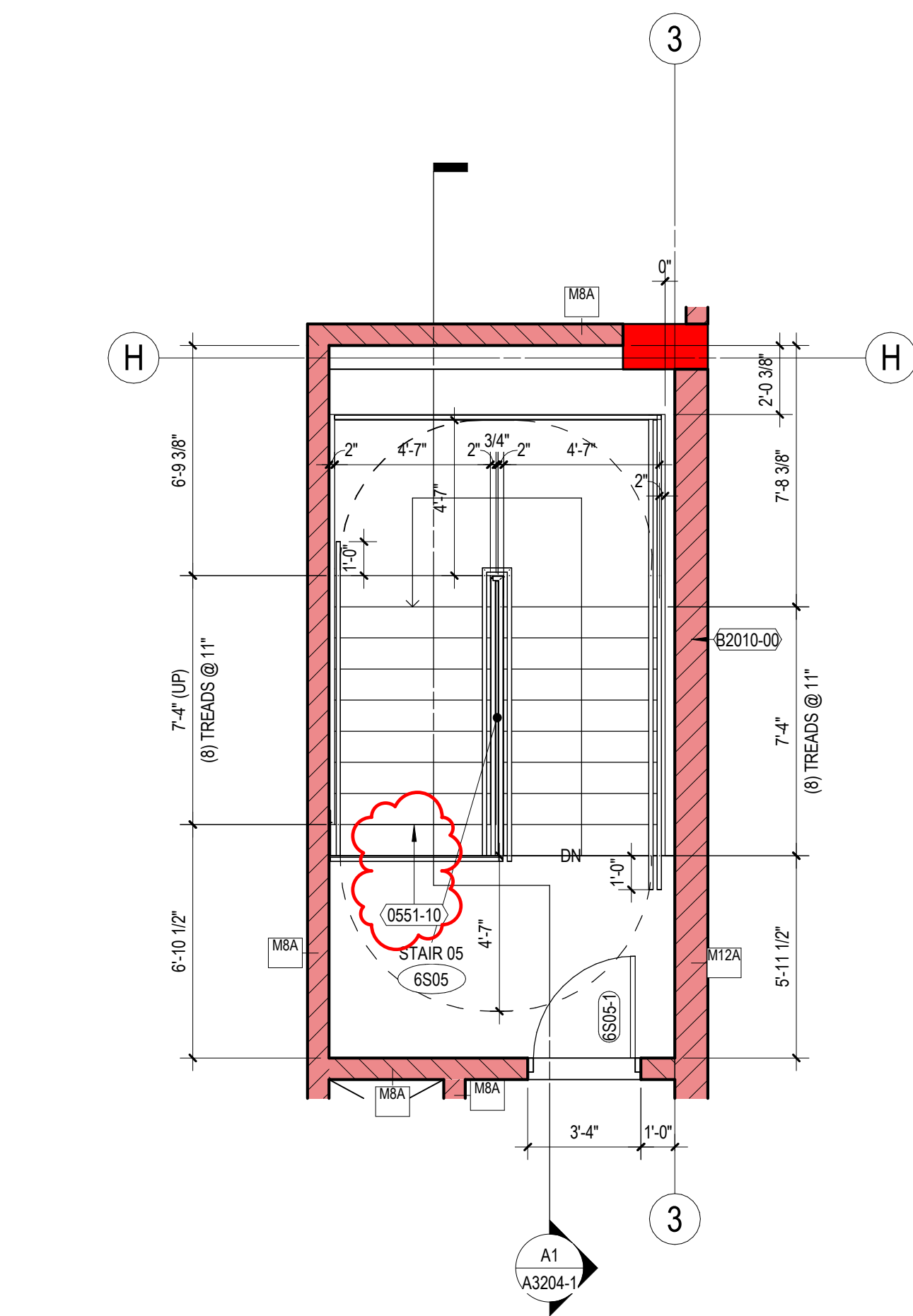
D6 P3 - STAIR 05
1/4" = 1'-0"



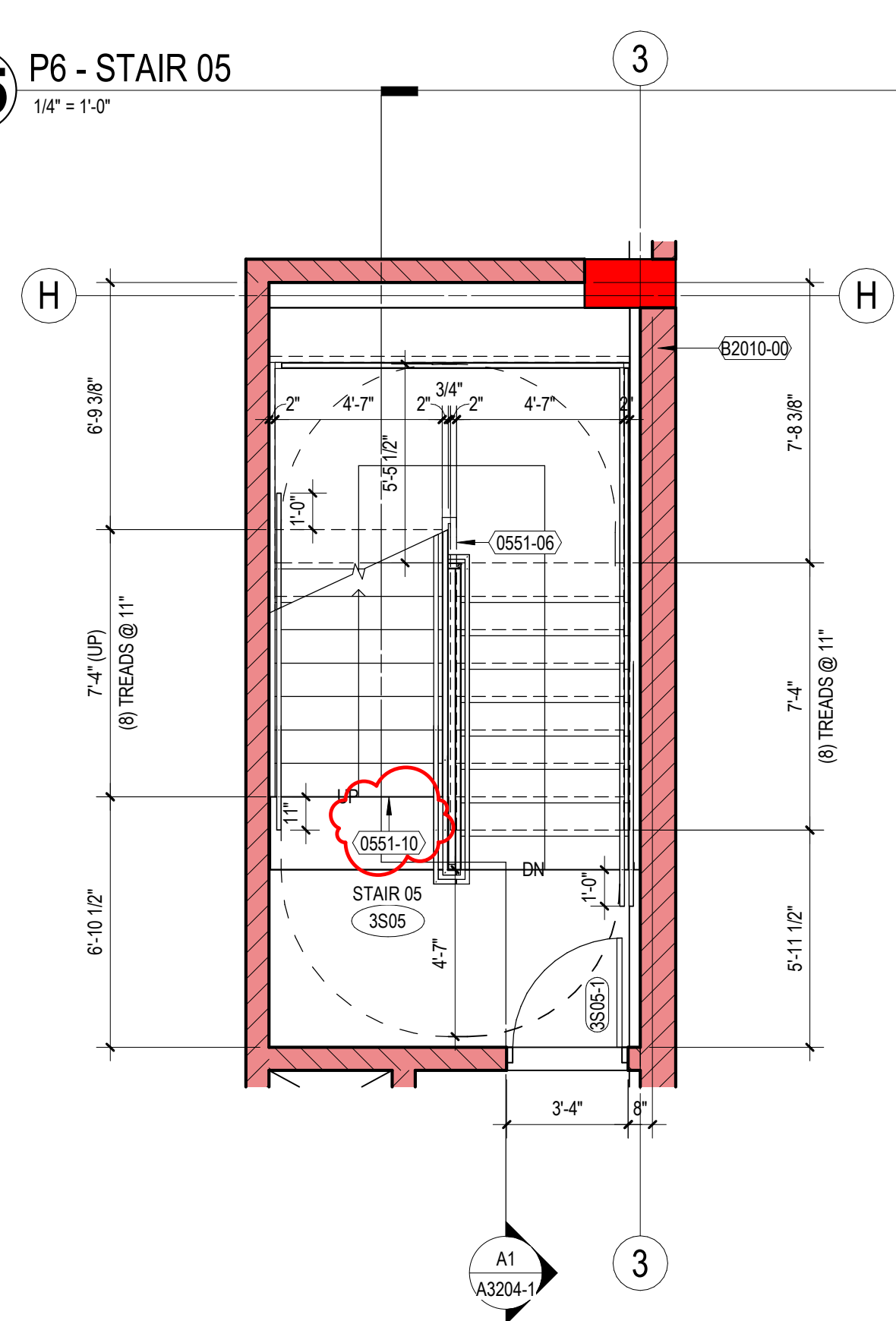
B6 P2 - STAIR 05
1/4" = 1'-0"



A6 1ST FLR - STAIR 5
1/4" = 1'-0"



B5 P6 - STAIR 05
1/4" = 1'-0"



A5 P4-P5 - STAIR 05
1/4" = 1'-0"

A1 STAIR 5
1/4" = 1'-0"

A3 STAIR 5
1/4" = 1'-0"

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PH_002

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1_AD02

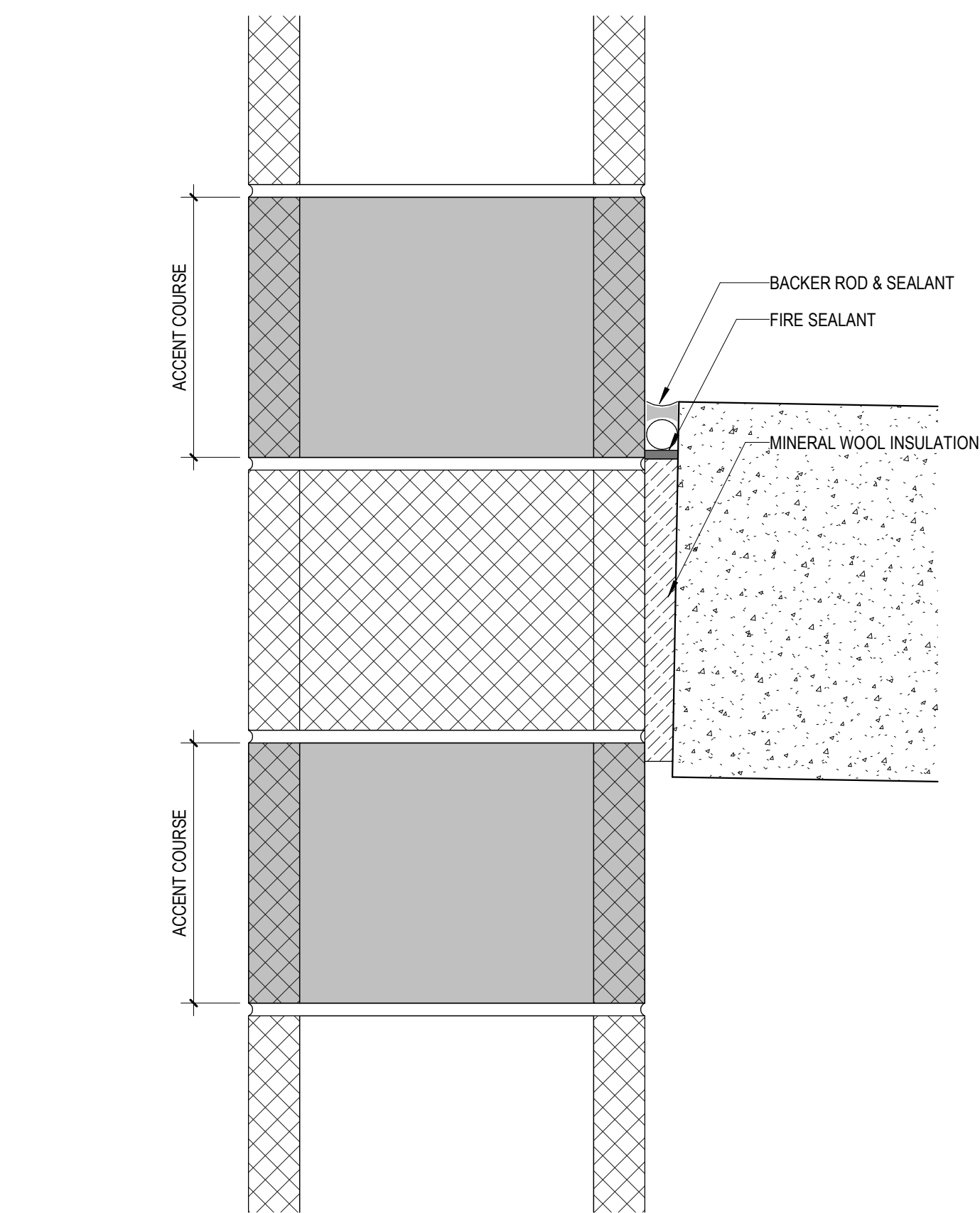
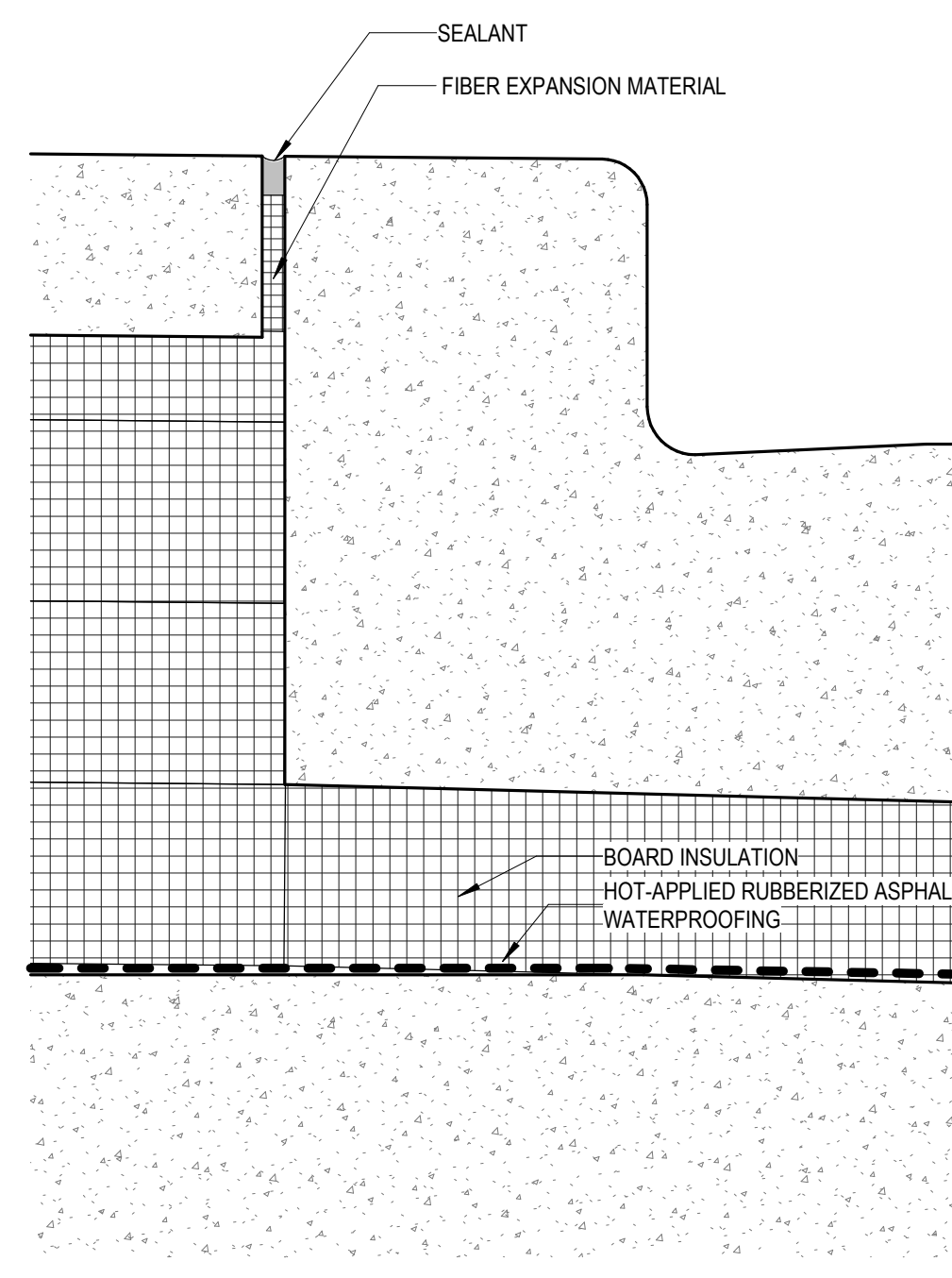
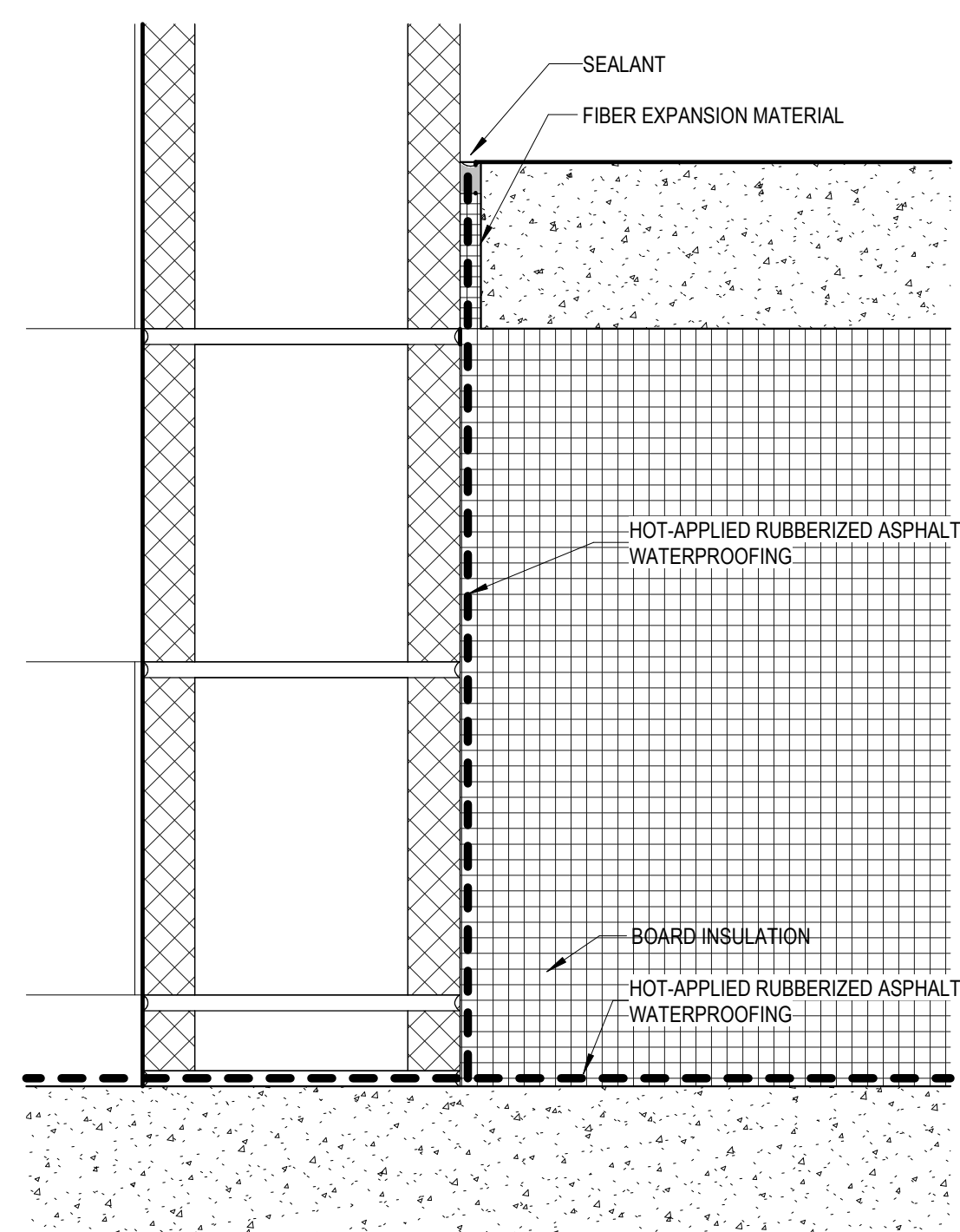
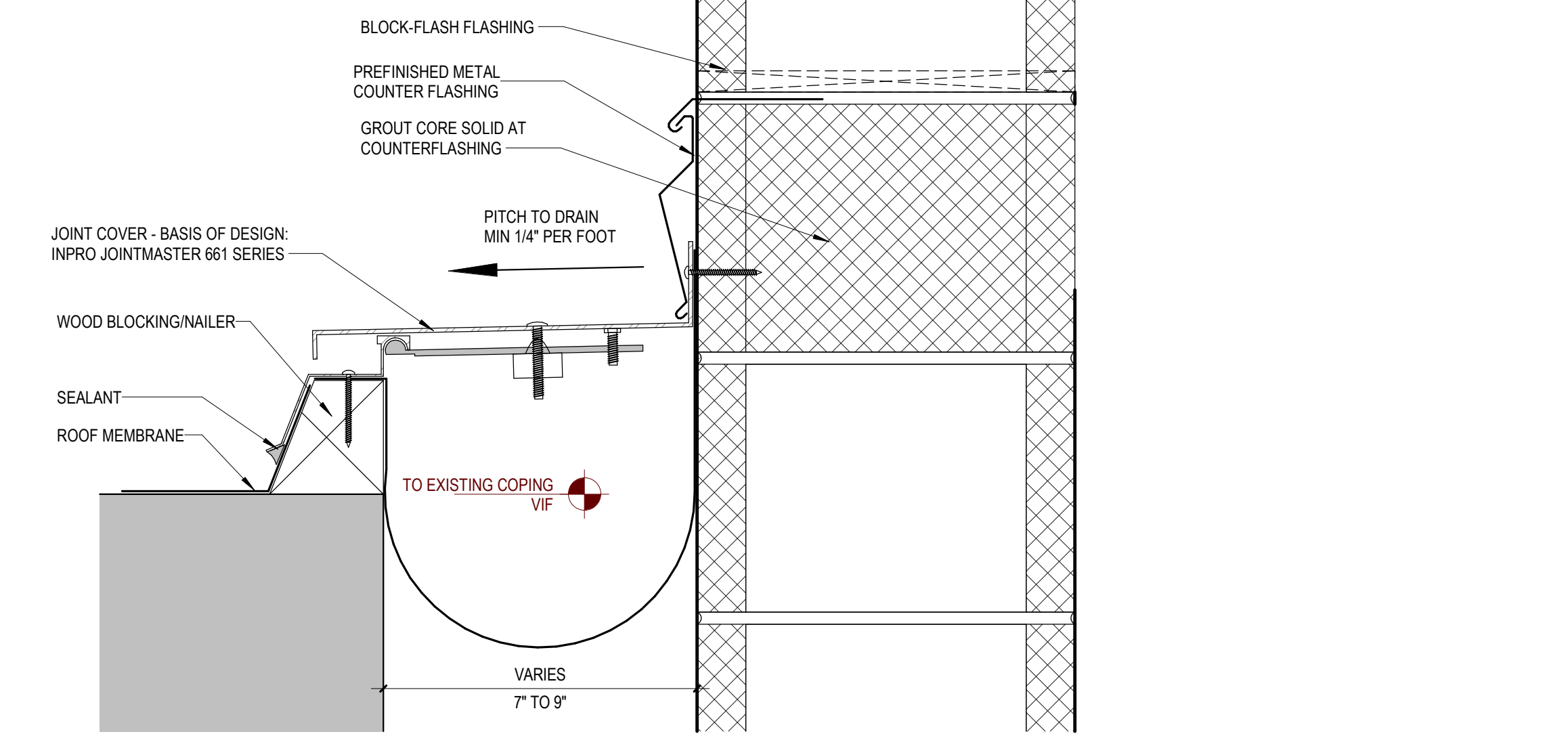
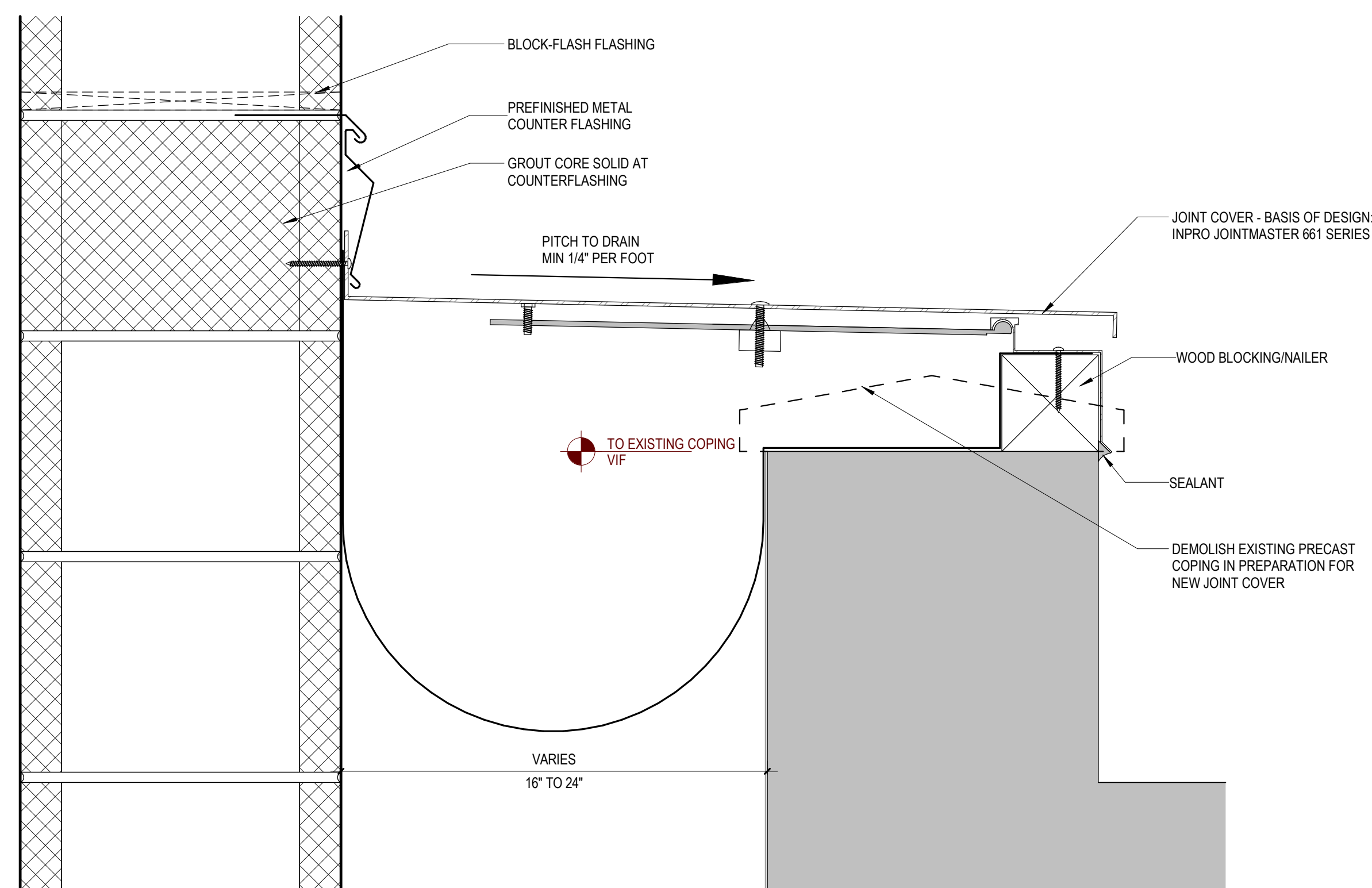
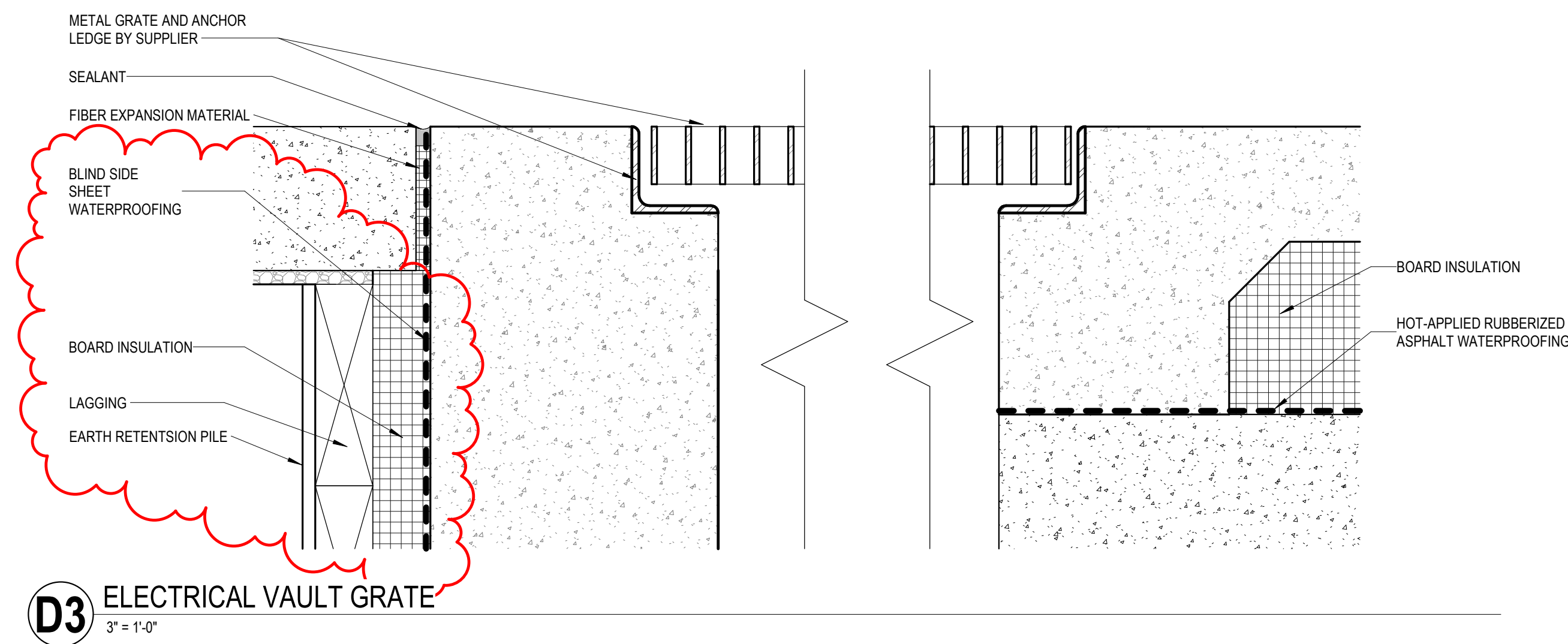
KEY PLAN

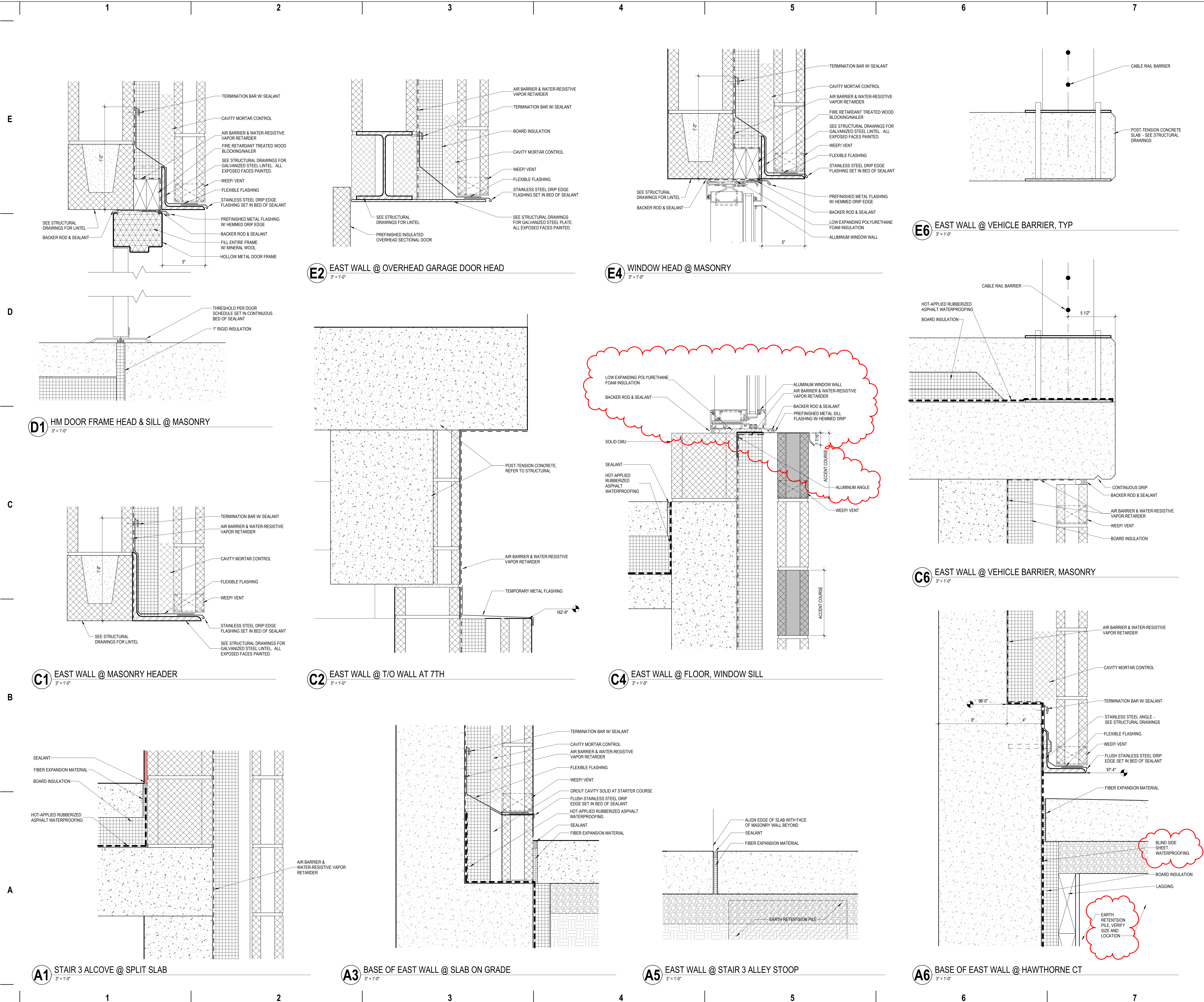
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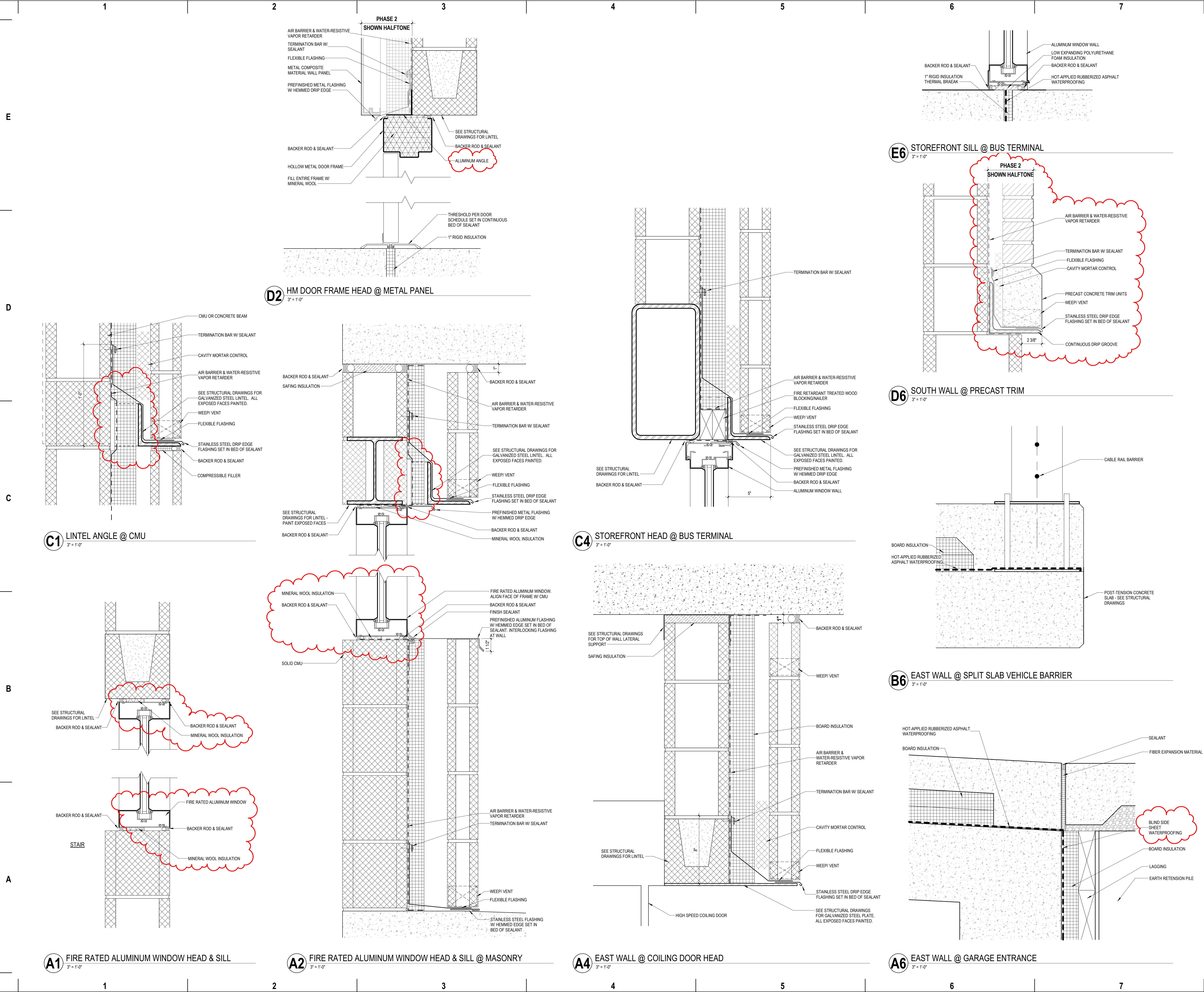
PROJECT MANAGER MO
PROJECT NUMBER 720448

EXTERIOR DETAILS -
PHASE 1

A5100-1







ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
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STATE STREET
CAMPUS GARAGE
MIXED-USE

D 415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	P1 AD02

KEY PLAN

SHEET INFORMATION

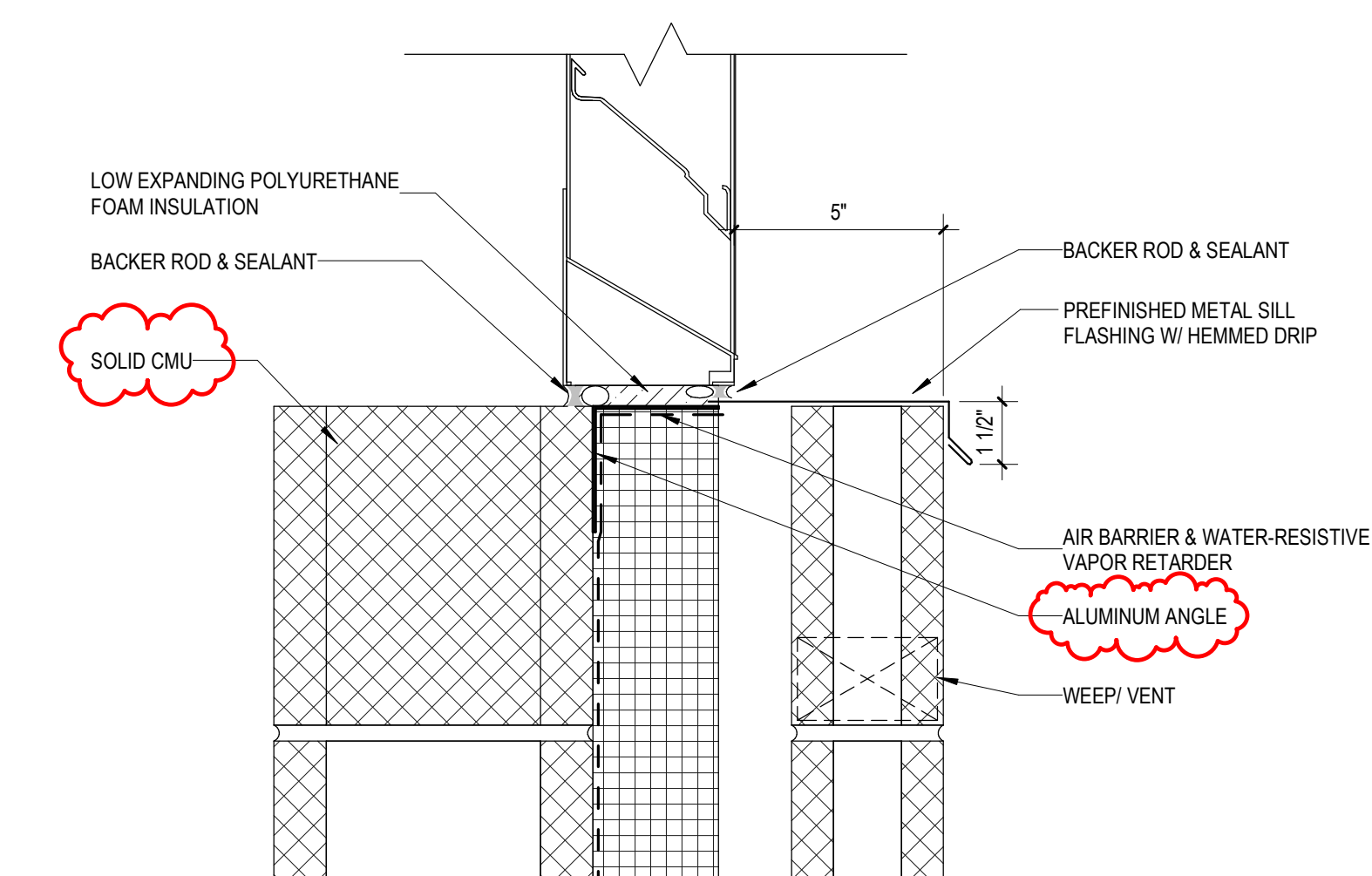
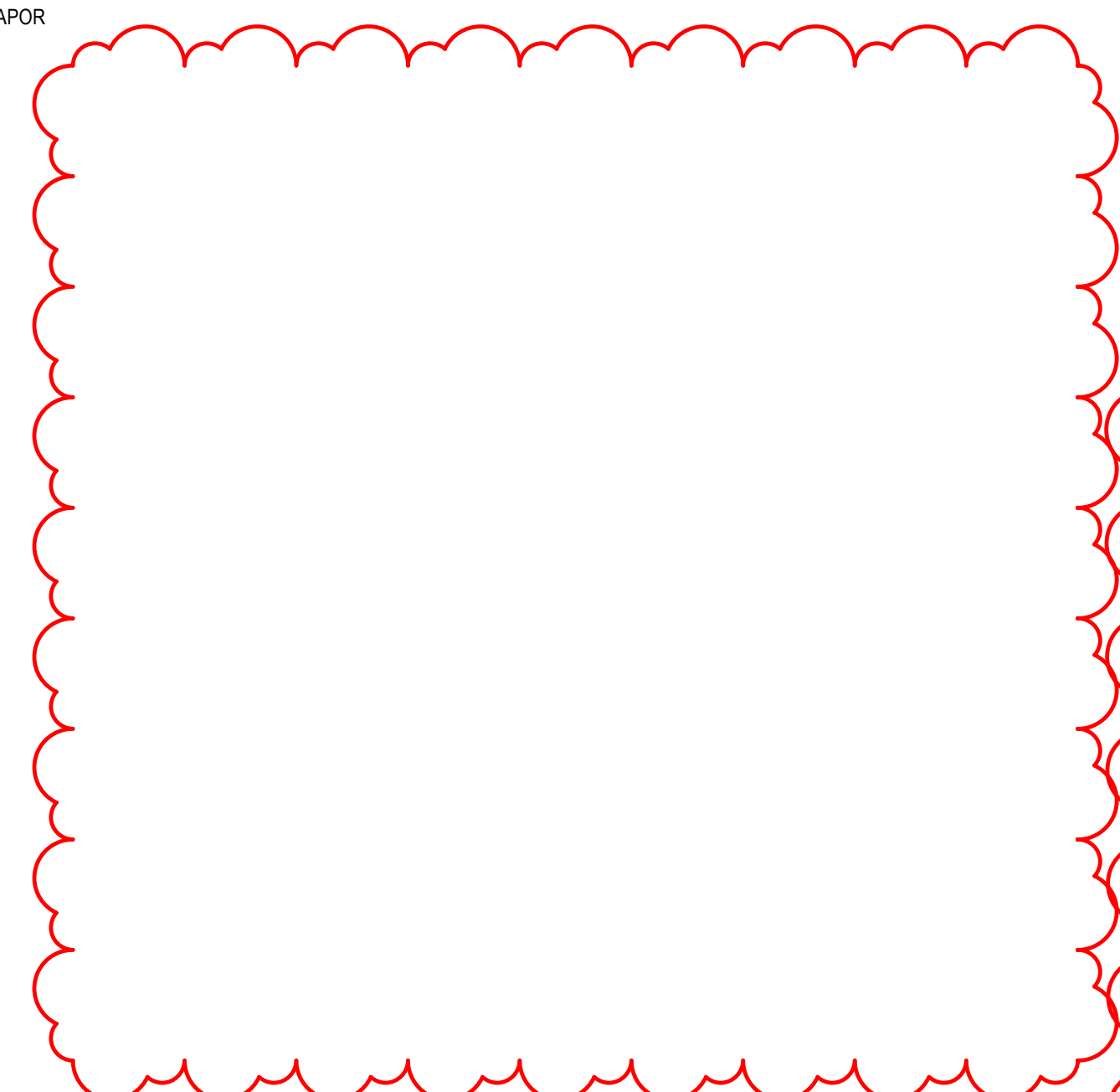
PROJECT MANAGER MC

PROJECT NUMBER 72044

EXTERIOR DETAILS -
PHASE 1

A5103-1

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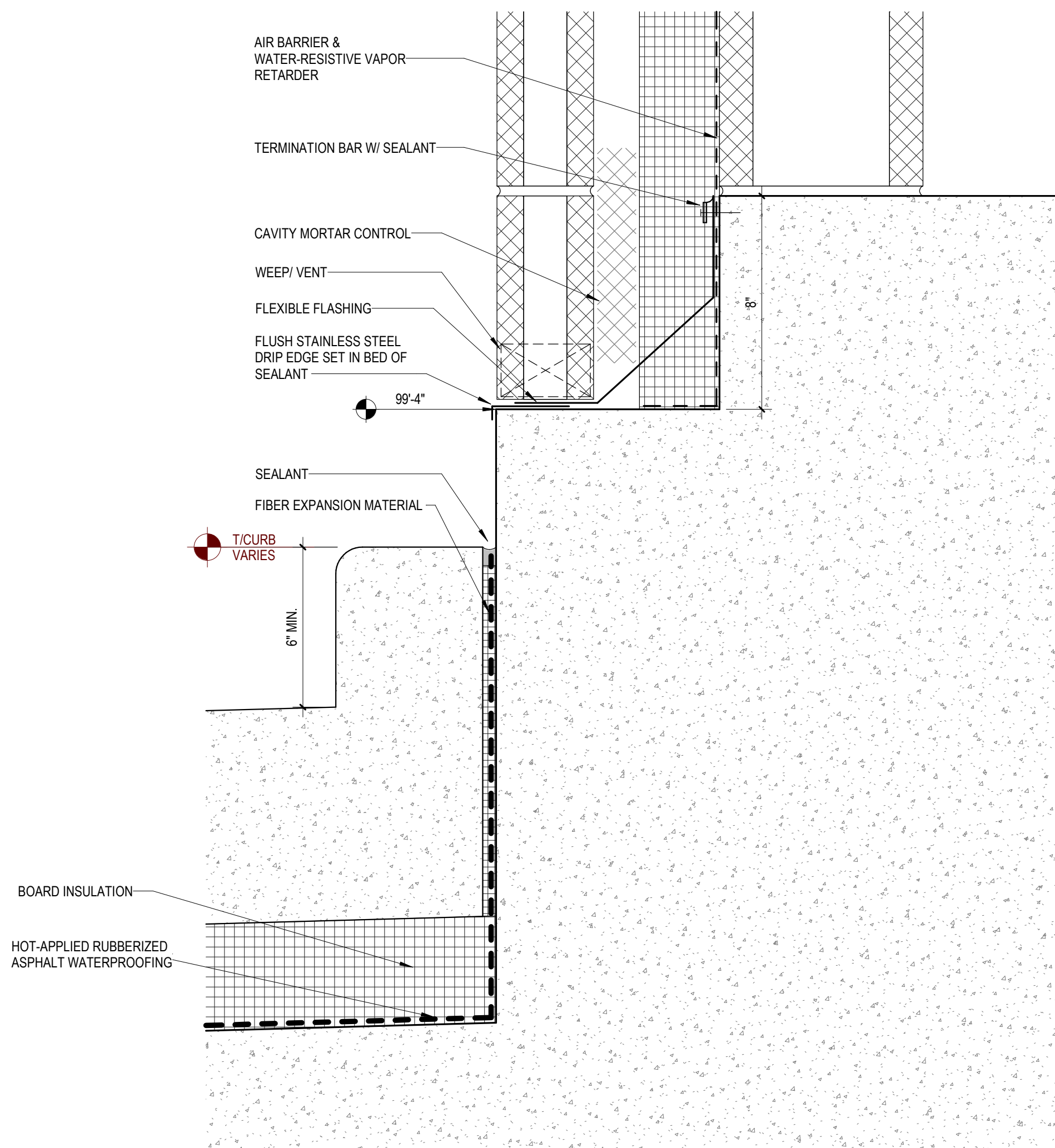
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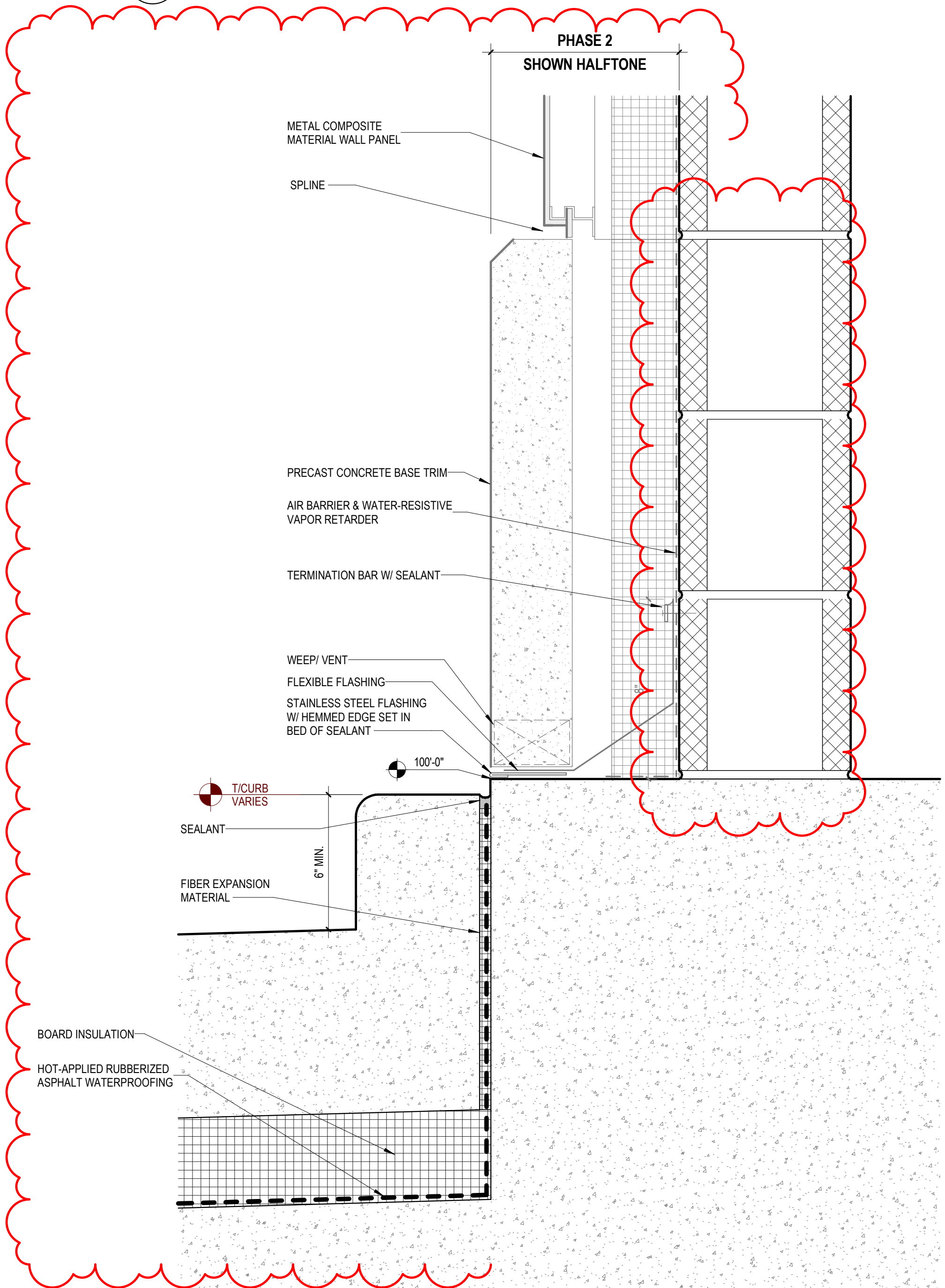
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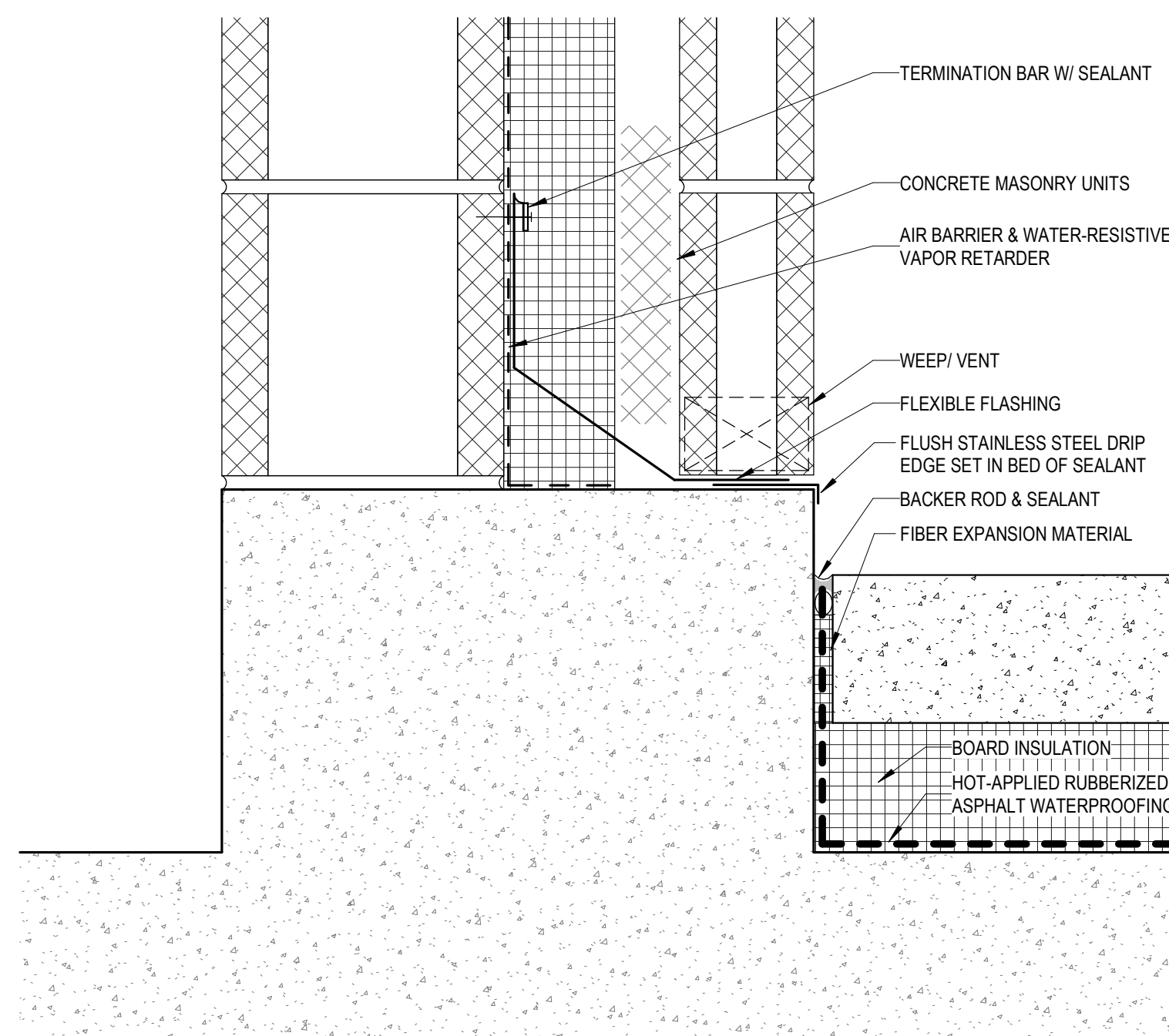
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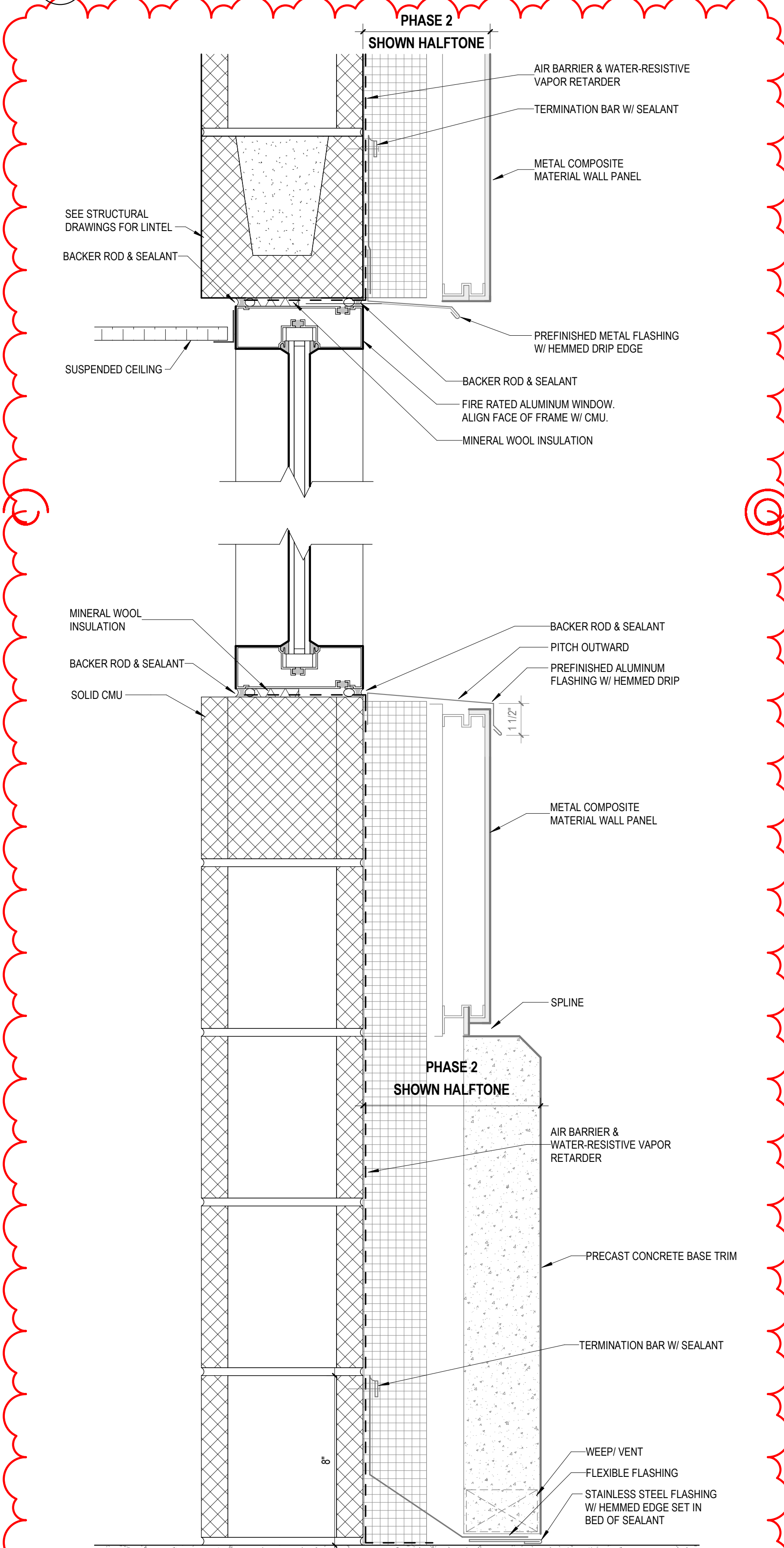
D2 BUS TERMINAL CURB @ SOUTH DRIVE LANE
3" = 1'-0"



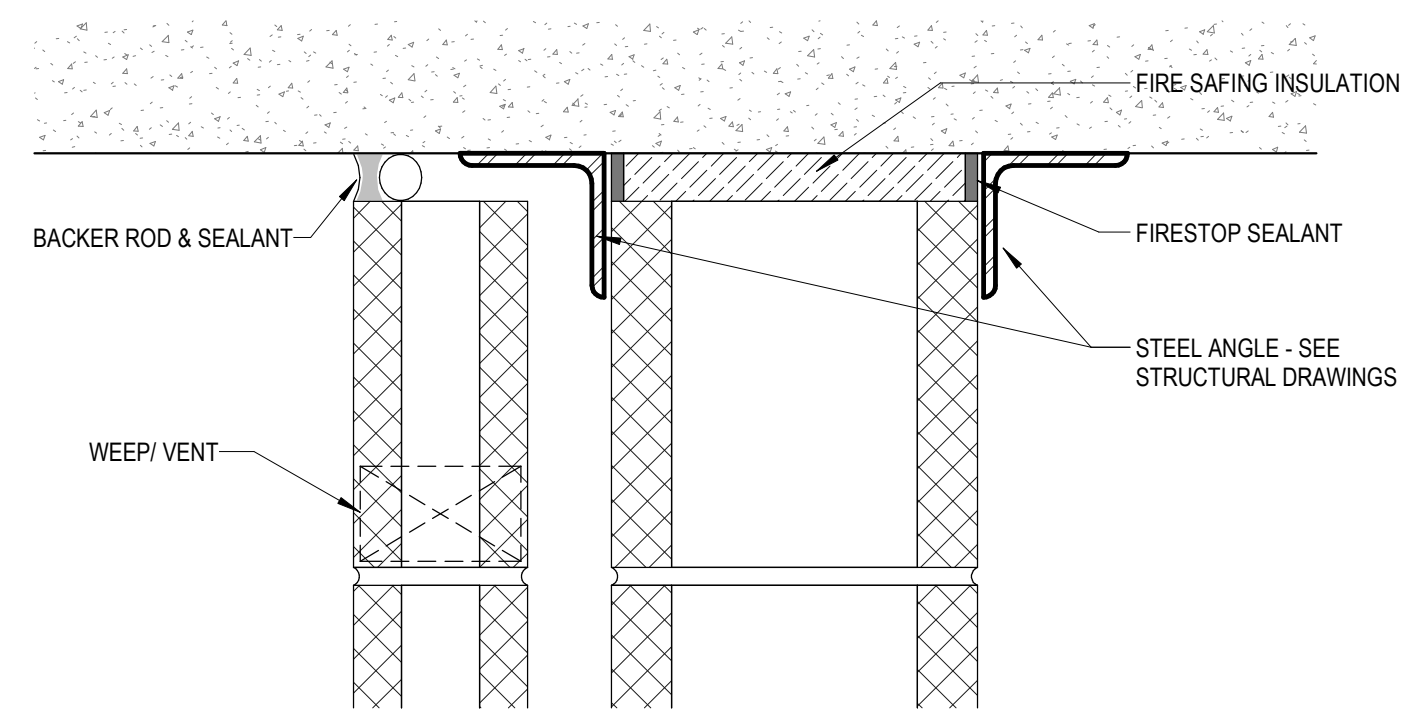
B2 BUS TERMINAL CURB @ PRECAST
3" = 1'-0"



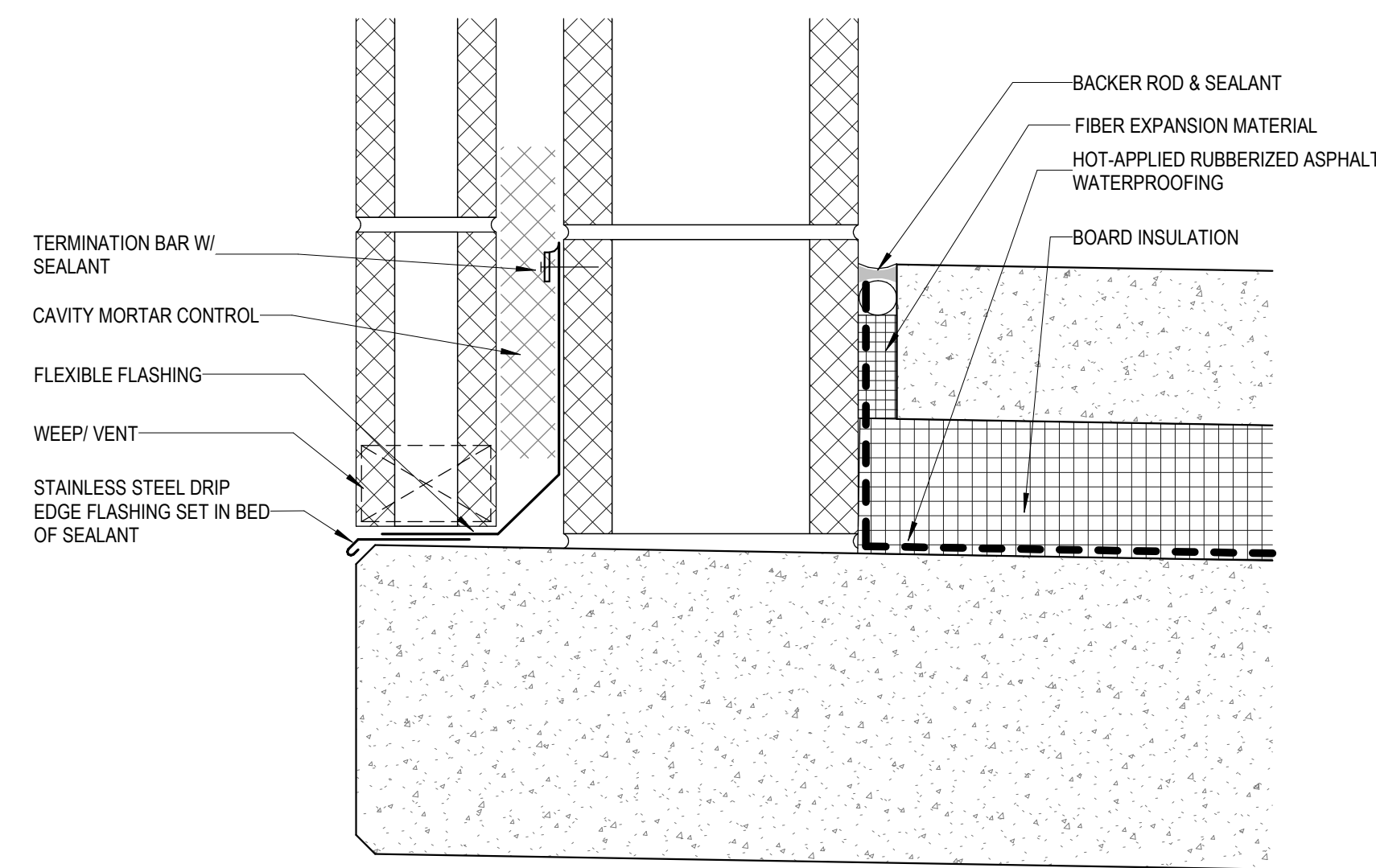
D4 MASONRY BASE OF WALL @ SOUTH PARKING RAMP
3" = 1'-0"



A4 FIRE RATED ALUMINUM WINDOW HEAD & SILL @ METAL PANEL & PRECAST
3" = 1'-0"



E6 MASONRY WALL @ UNDERSIDE OF SLAB
3" = 1'-0"



D6 MASONRY BASE OF WALL @ PT SLAB1
3" = 1'-0"



E

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**D 415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

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C

KEY PLAN

B

SHEET INFORMATION

PROJECT MANAGER MO

PROJECT NUMBER 720448

**EXTERIOR DETAILS -
PHASE 1**

A5104-1

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PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
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KEY PLAN

SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

**EXTERIOR DETAILS -
PHASE 1**

A5105-1

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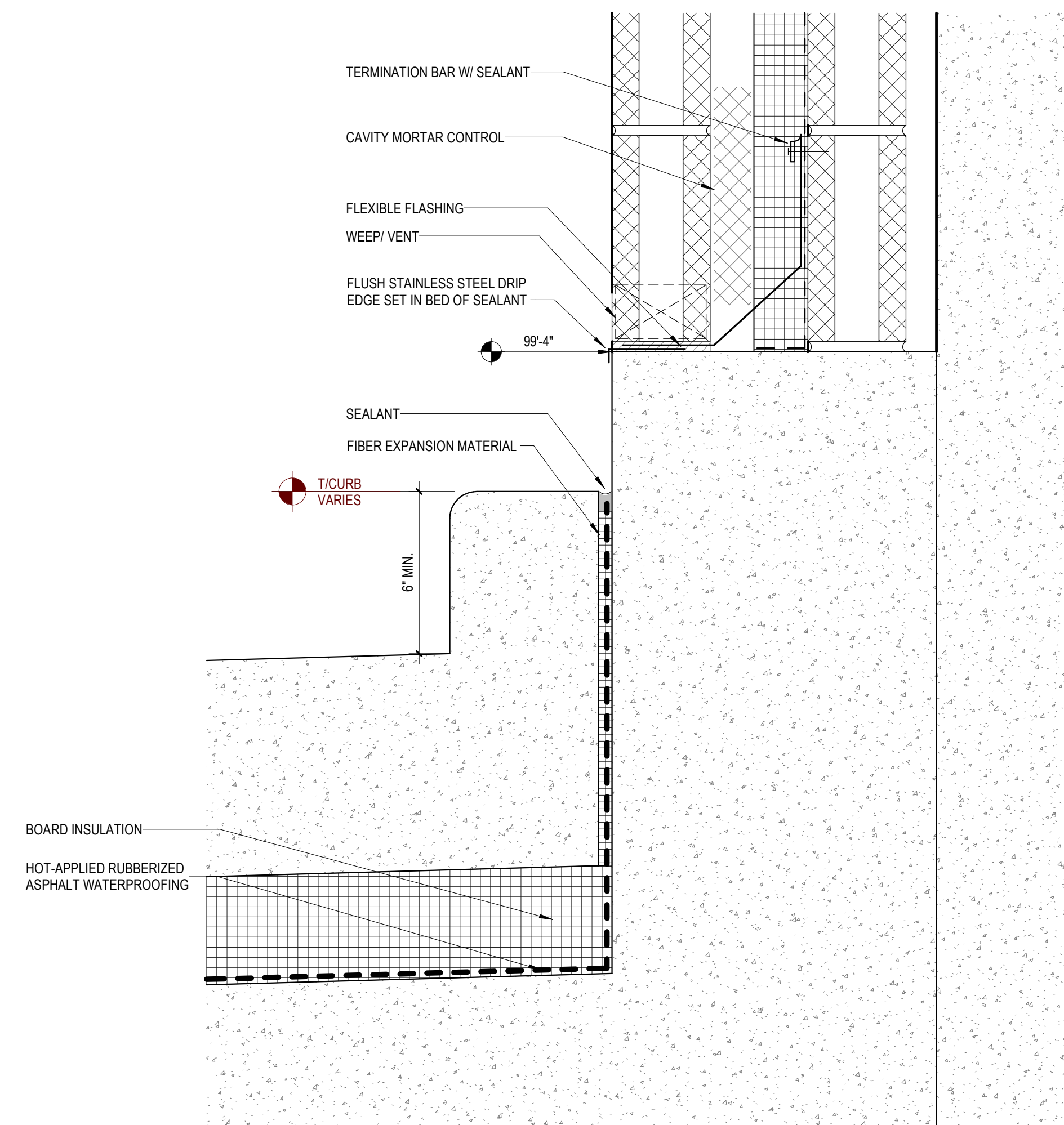
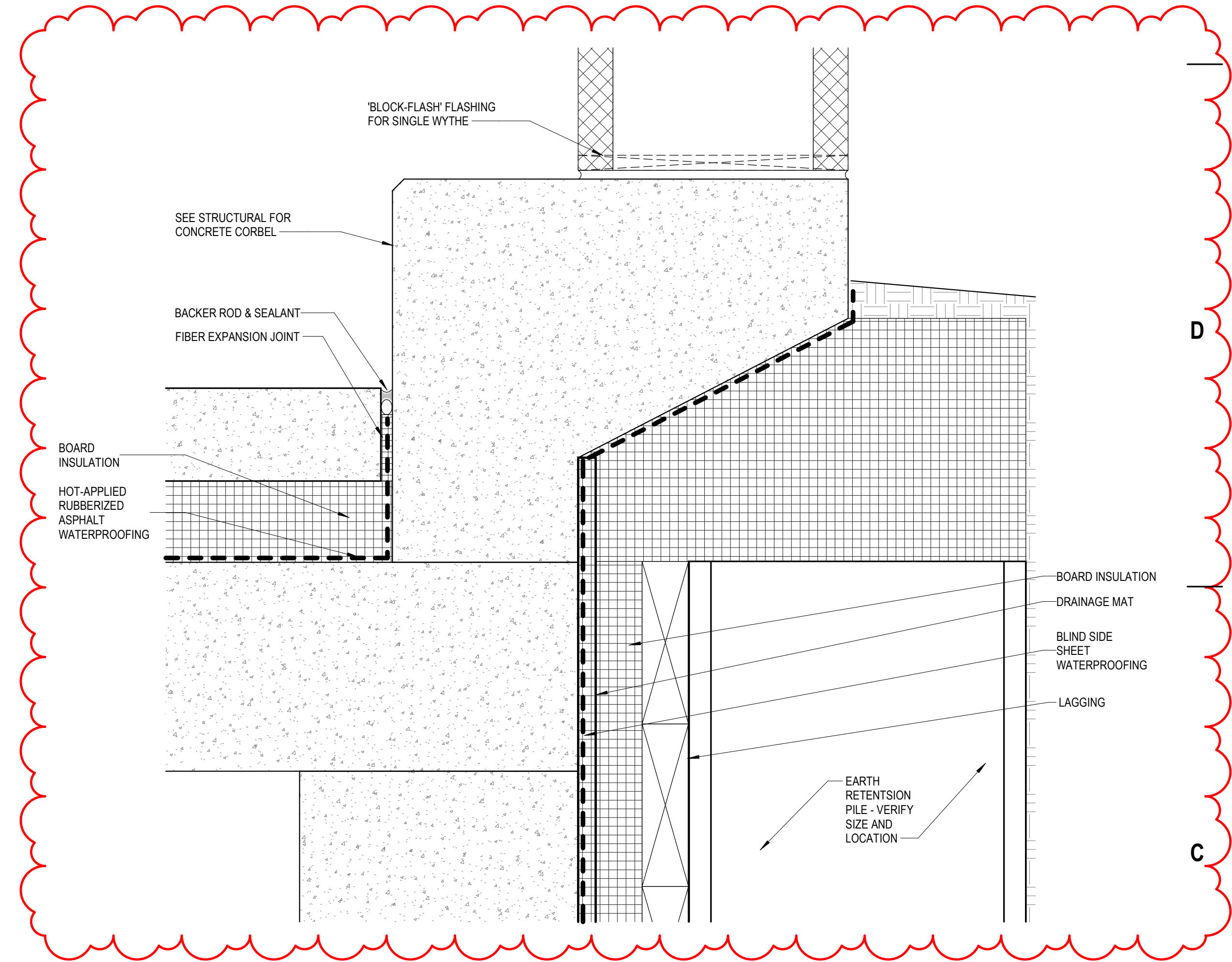
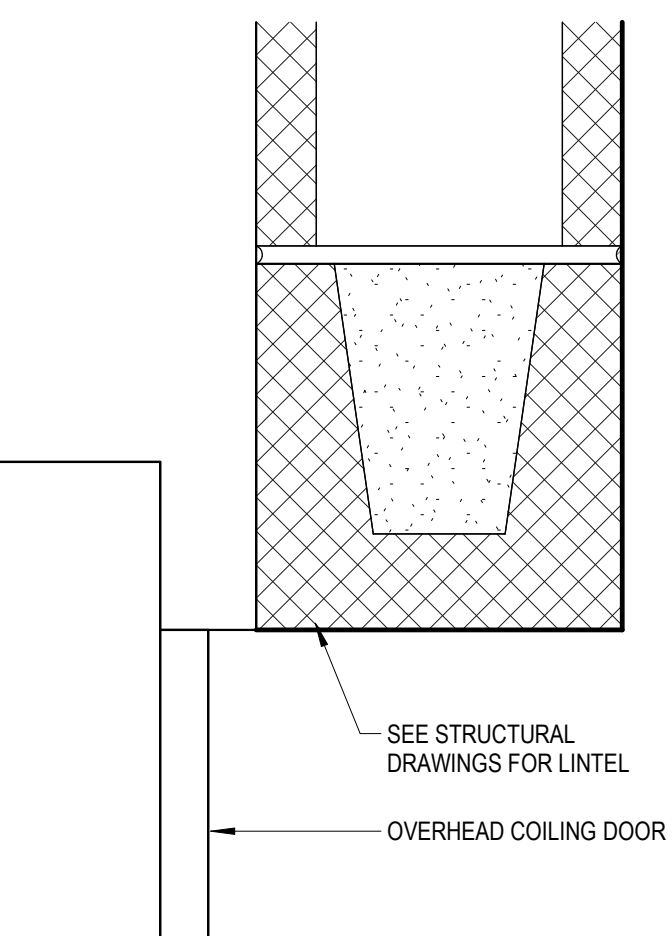
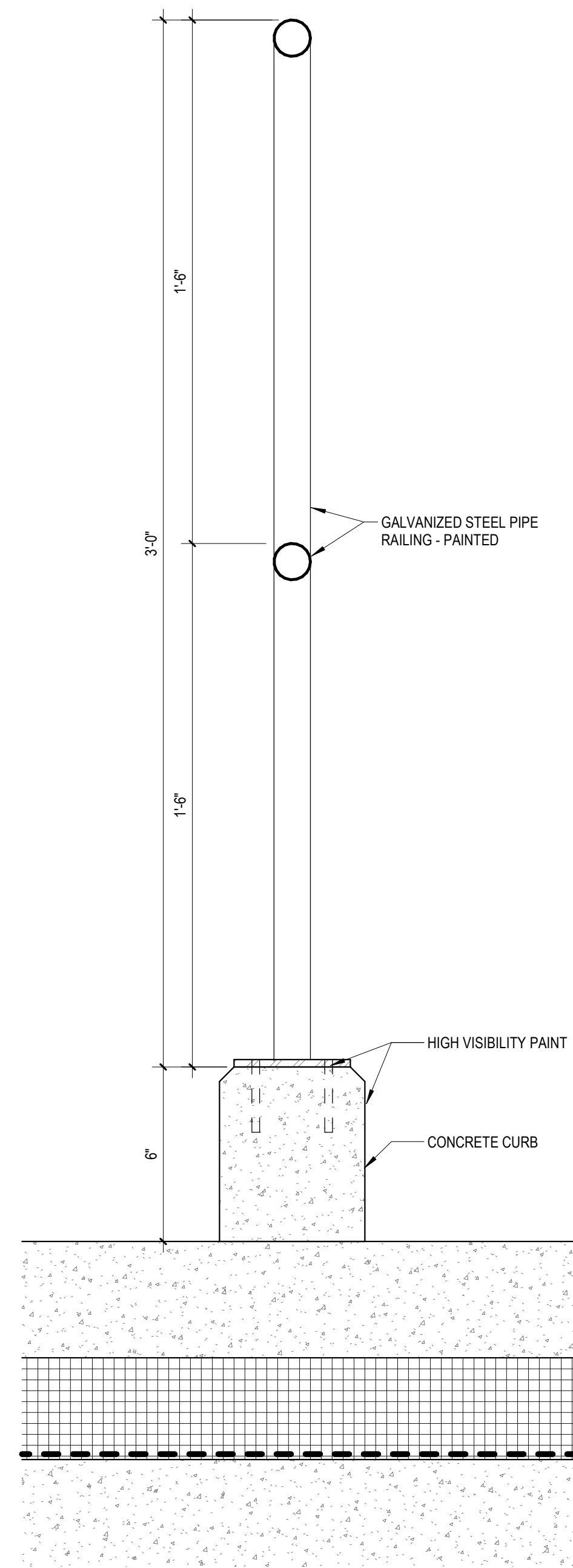
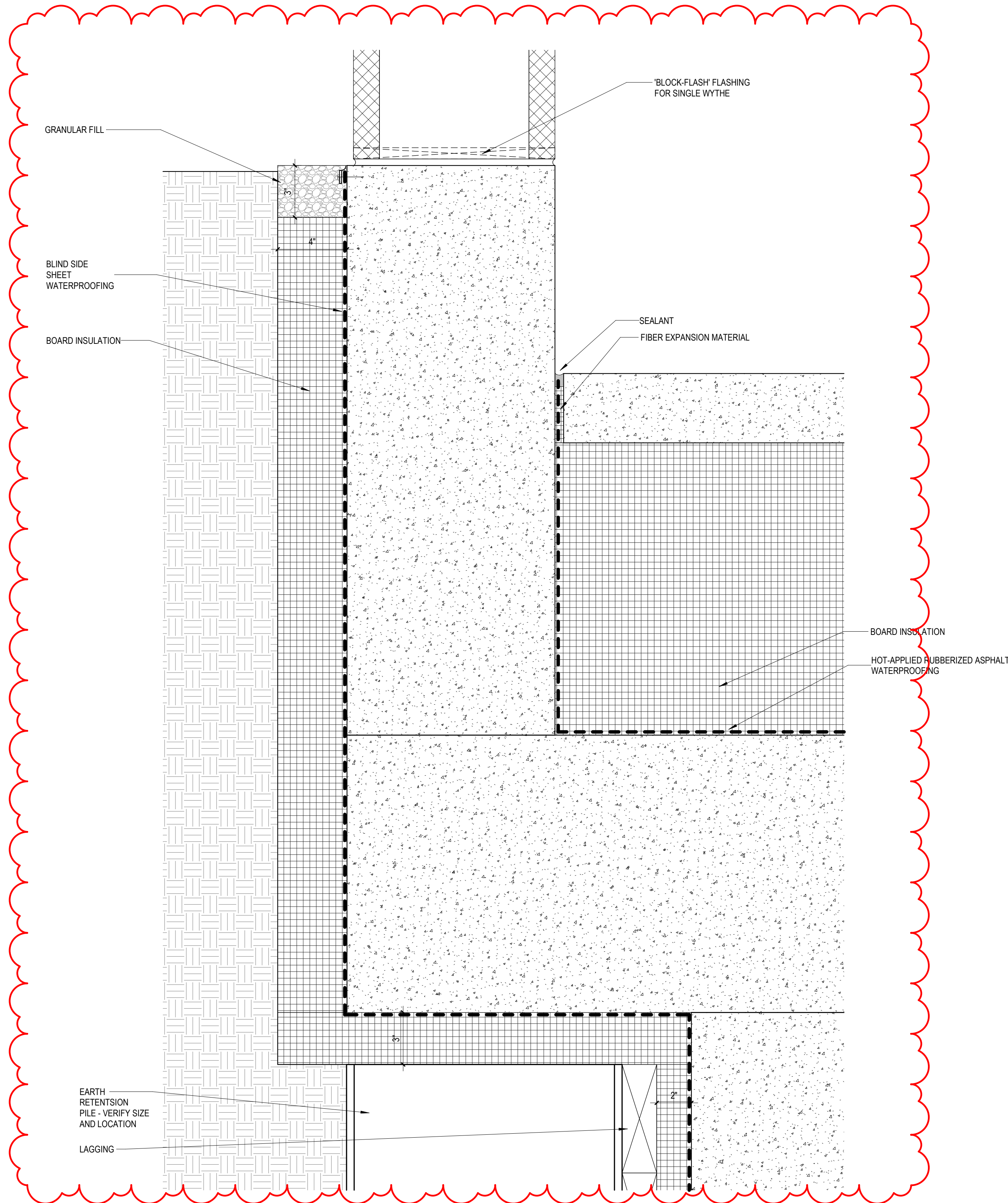
A2 BASE OF NORTH WALL @ EXISTING FOUNDATION
3" = 1'-0"

A5 OVERHEAD COILING DOOR HEAD
3" = 1'-0"

A6 BUS TERMINAL CURB @ STAIR 2
3" = 1'-0"

B5 RAILING/CURB DETAIL @ VEHICLE ENTRY/EXIT
3" = 1'-0"

C6 BASE OF SOUTH WALL @ CORBEL
3" = 1'-0"





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PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PI_AD02

KEY PLAN

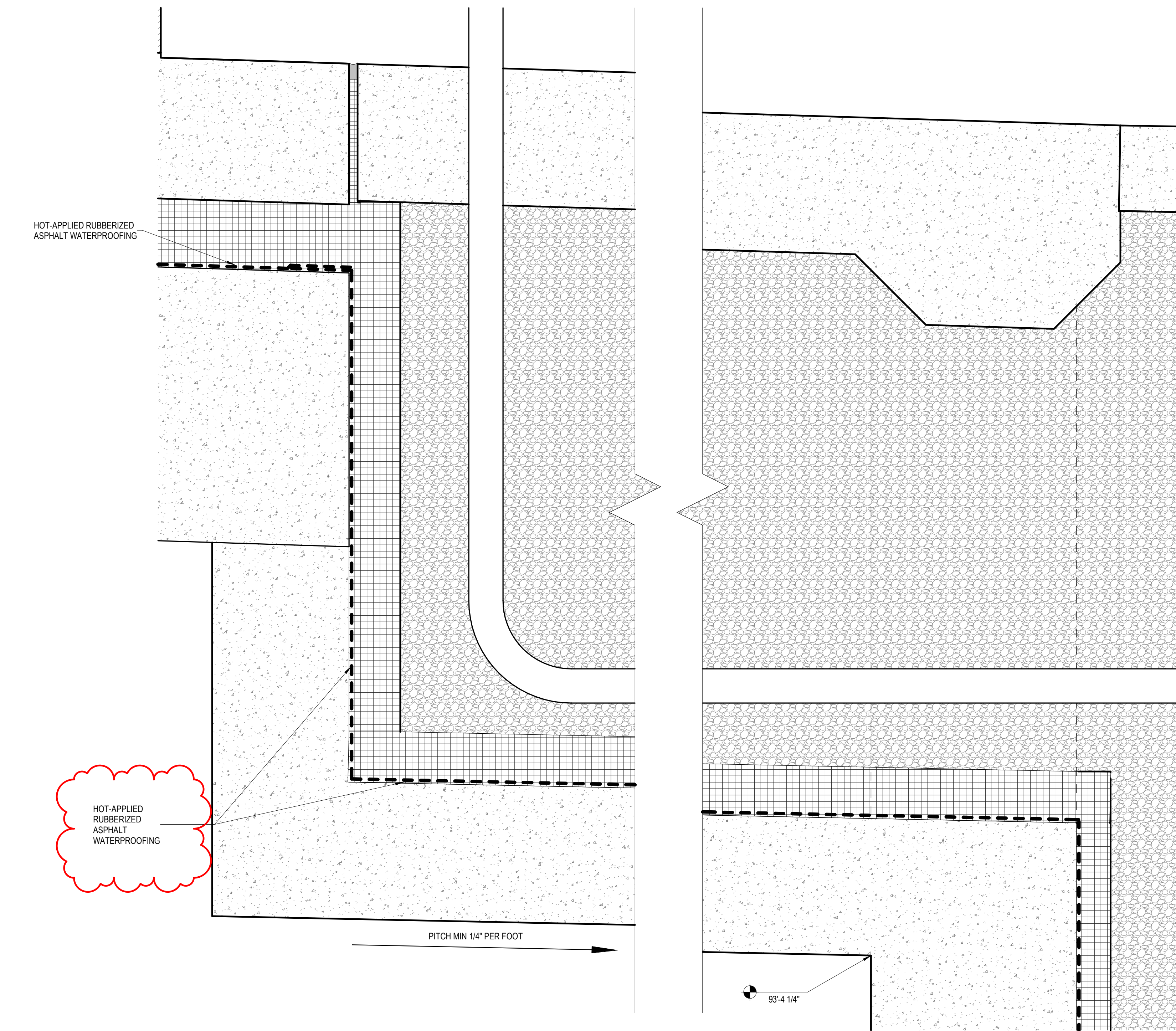
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PROJECT MANAGER MO
PROJECT NUMBER 720448

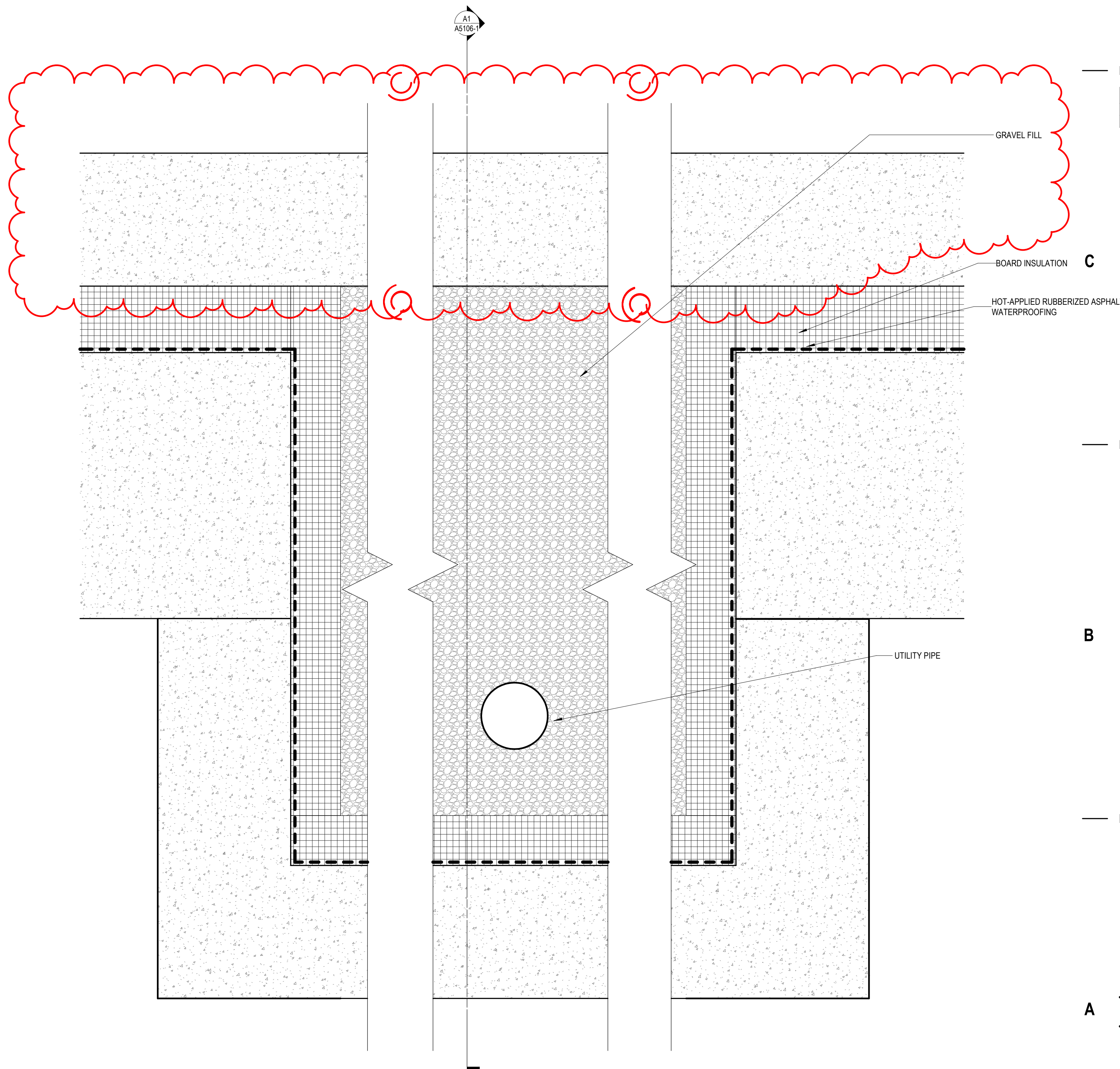
EXTERIOR DETAILS -
PHASE 1

A5106-1

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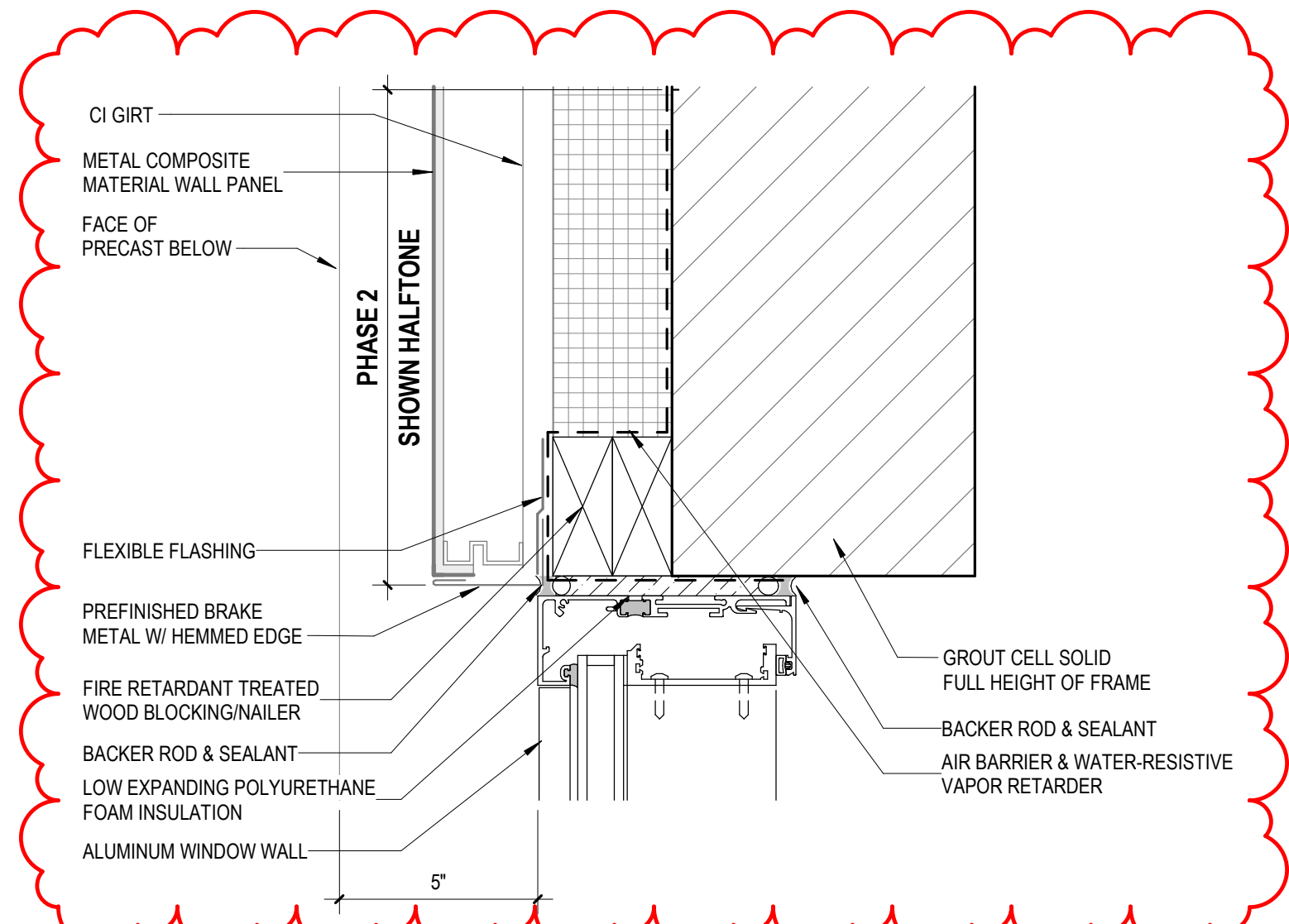


A1 UTILITY TROUGH - LONGITUDINAL
3" = 1'-0"

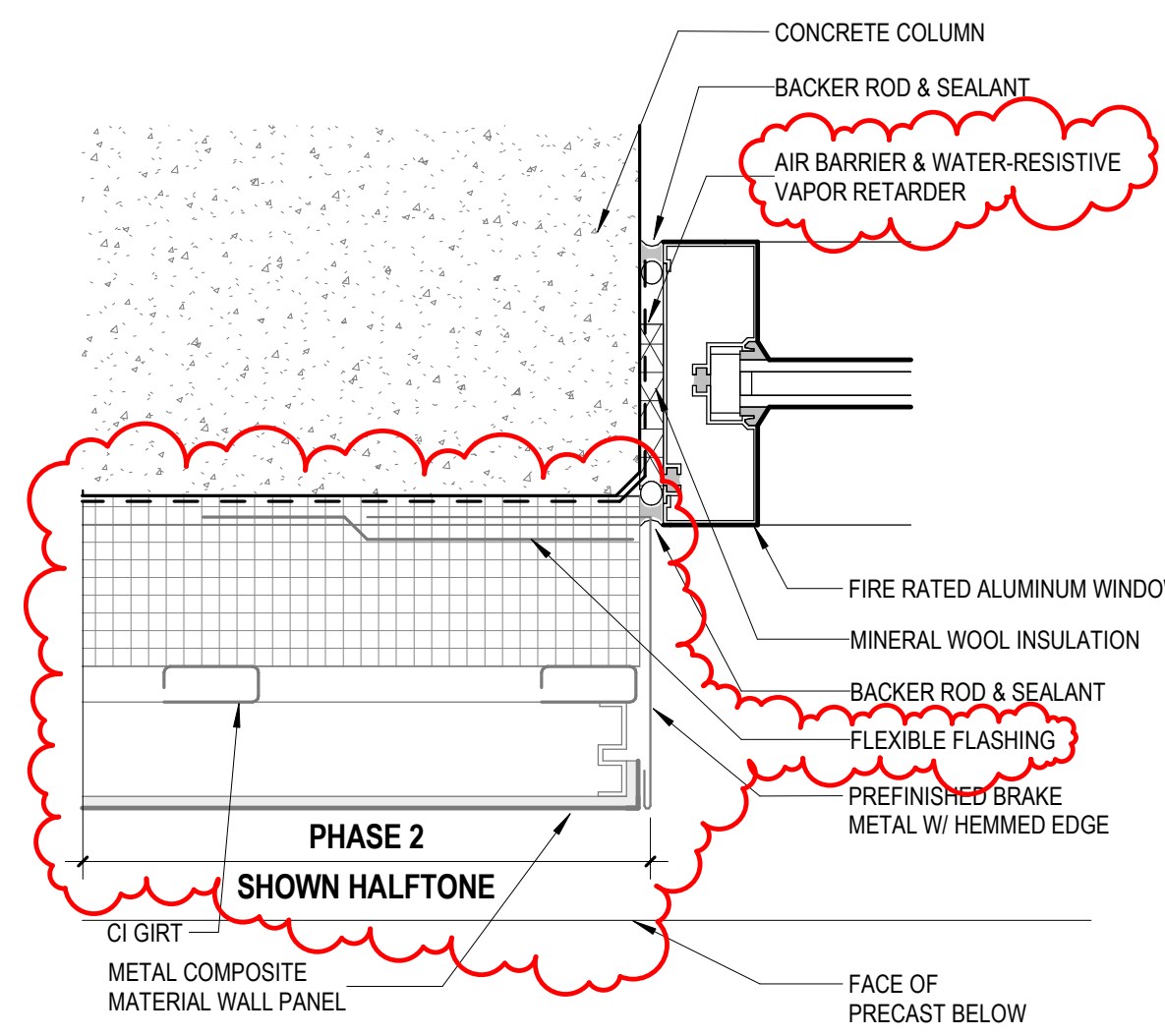


A5 UTILITY TROUGH - TRANSVERSE
3" = 1'-0"

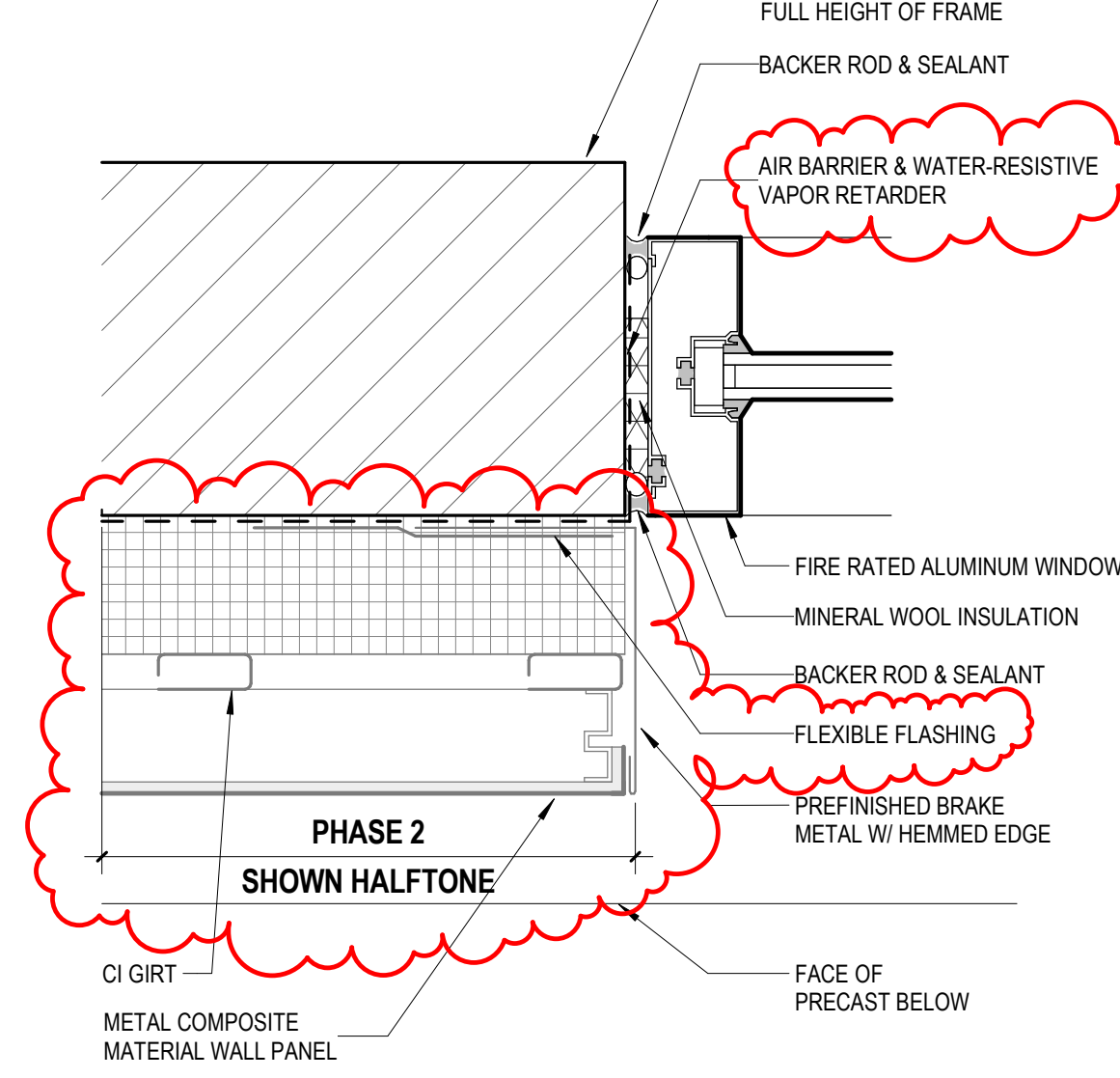
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PI_A002



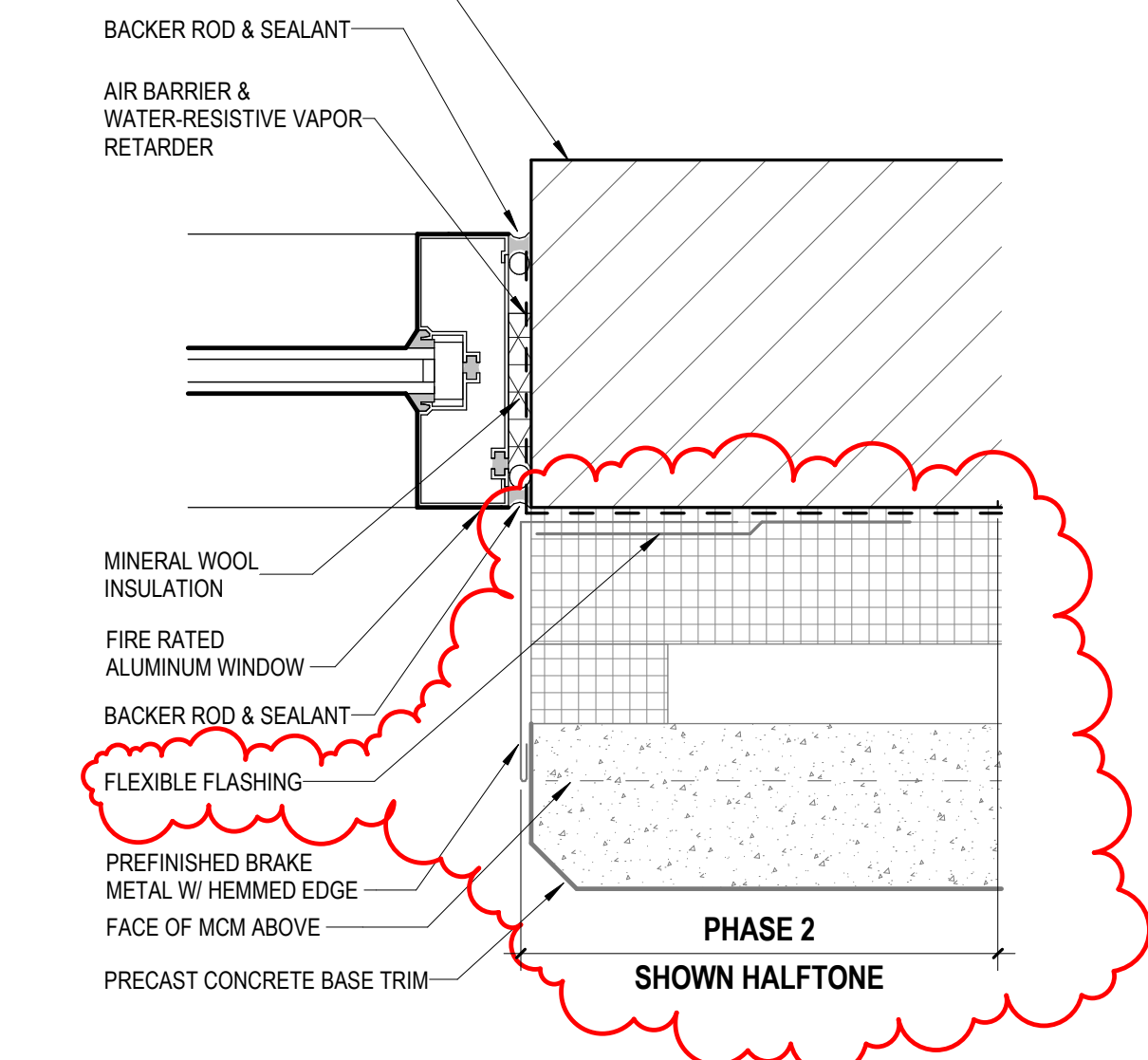
D1 STOREFRONT JAMB @ MCM PNL
3" = 1'-0"



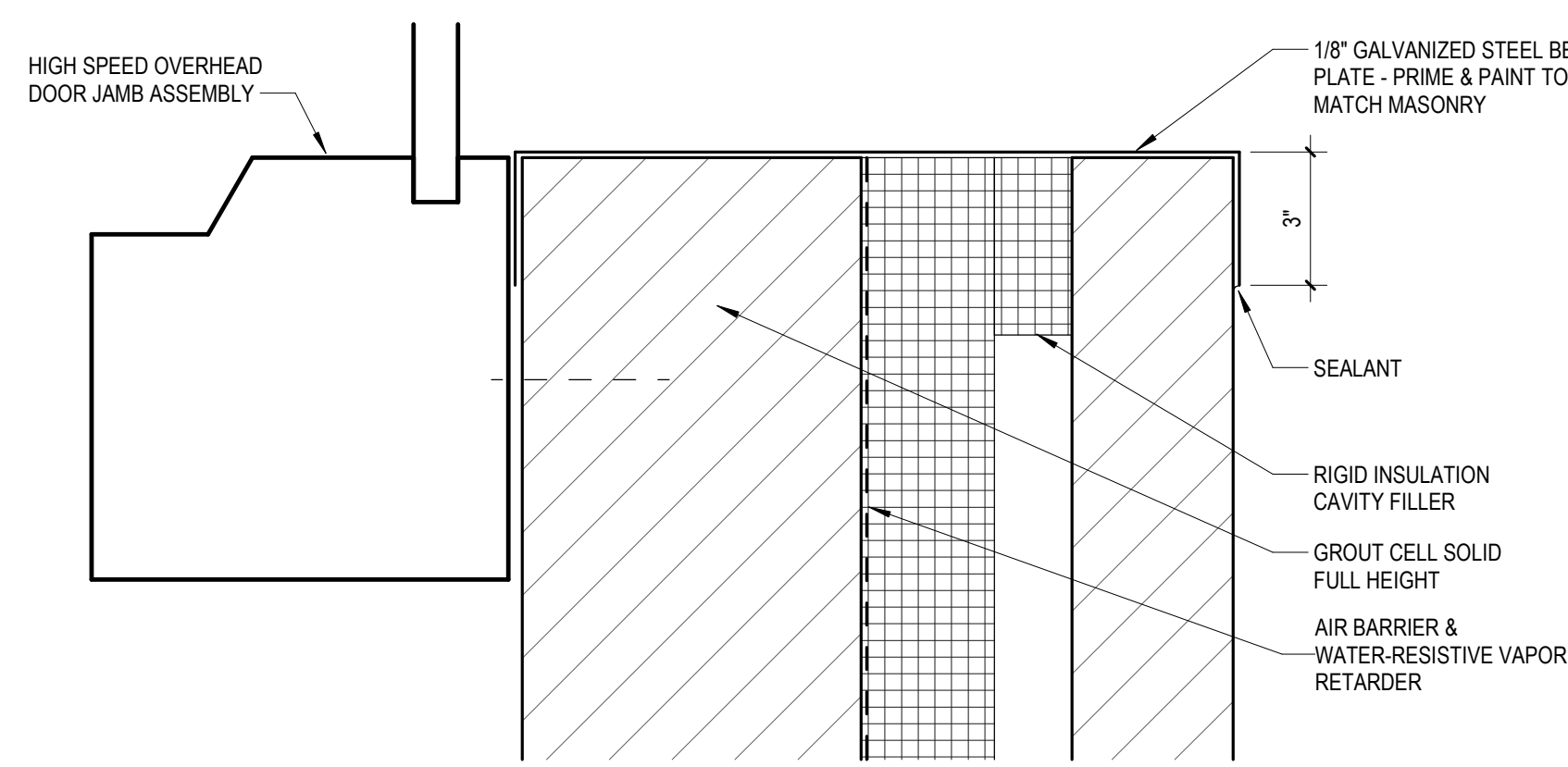
D2 FIRE RATED ALUM WINDOW JAMB @ MCM PANEL @ COLUMN
3" = 1'-0"



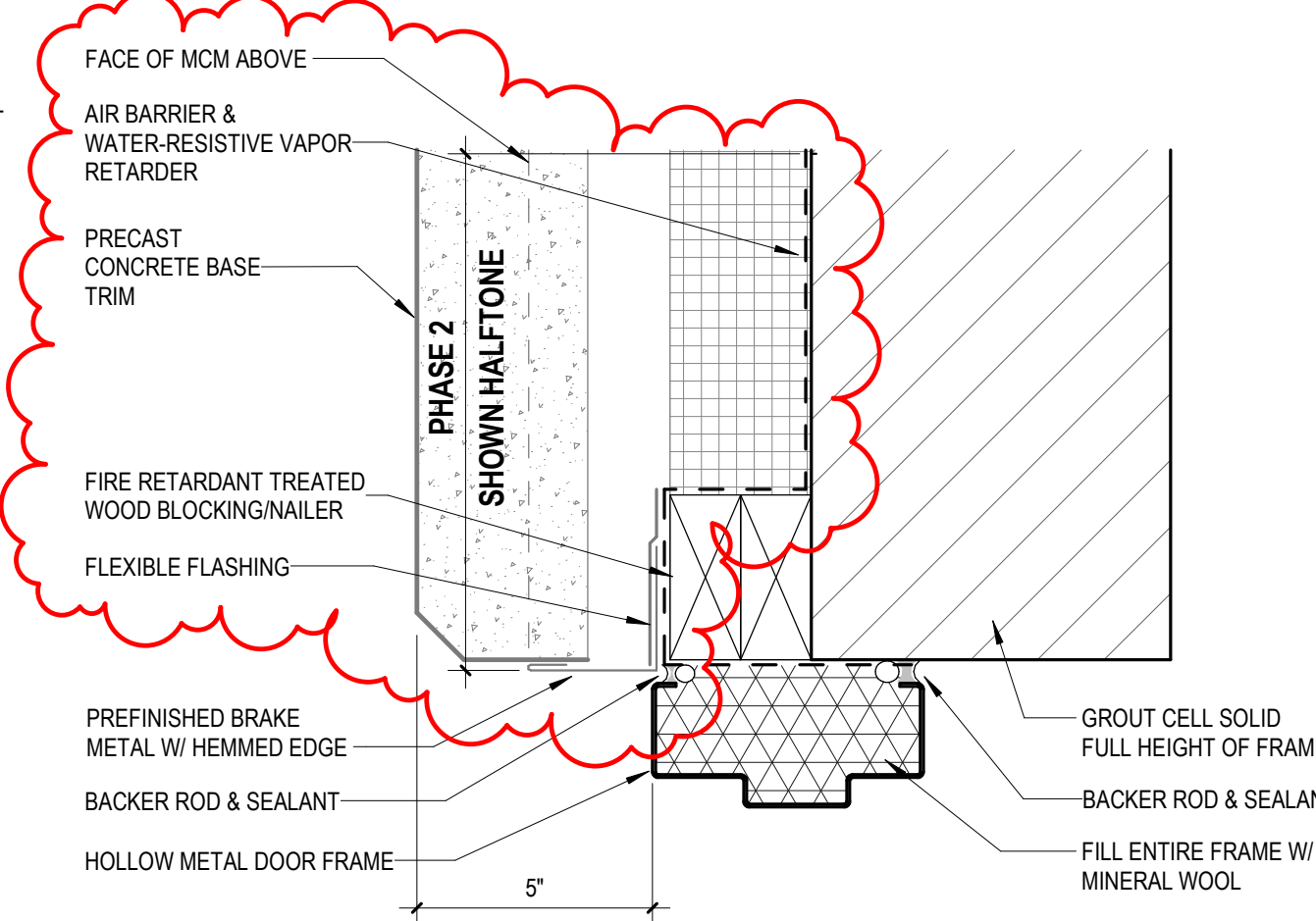
D5 FIRE RATED ALUMINUM WINDOW JAMB @ MCM PANEL
3" = 1'-0"



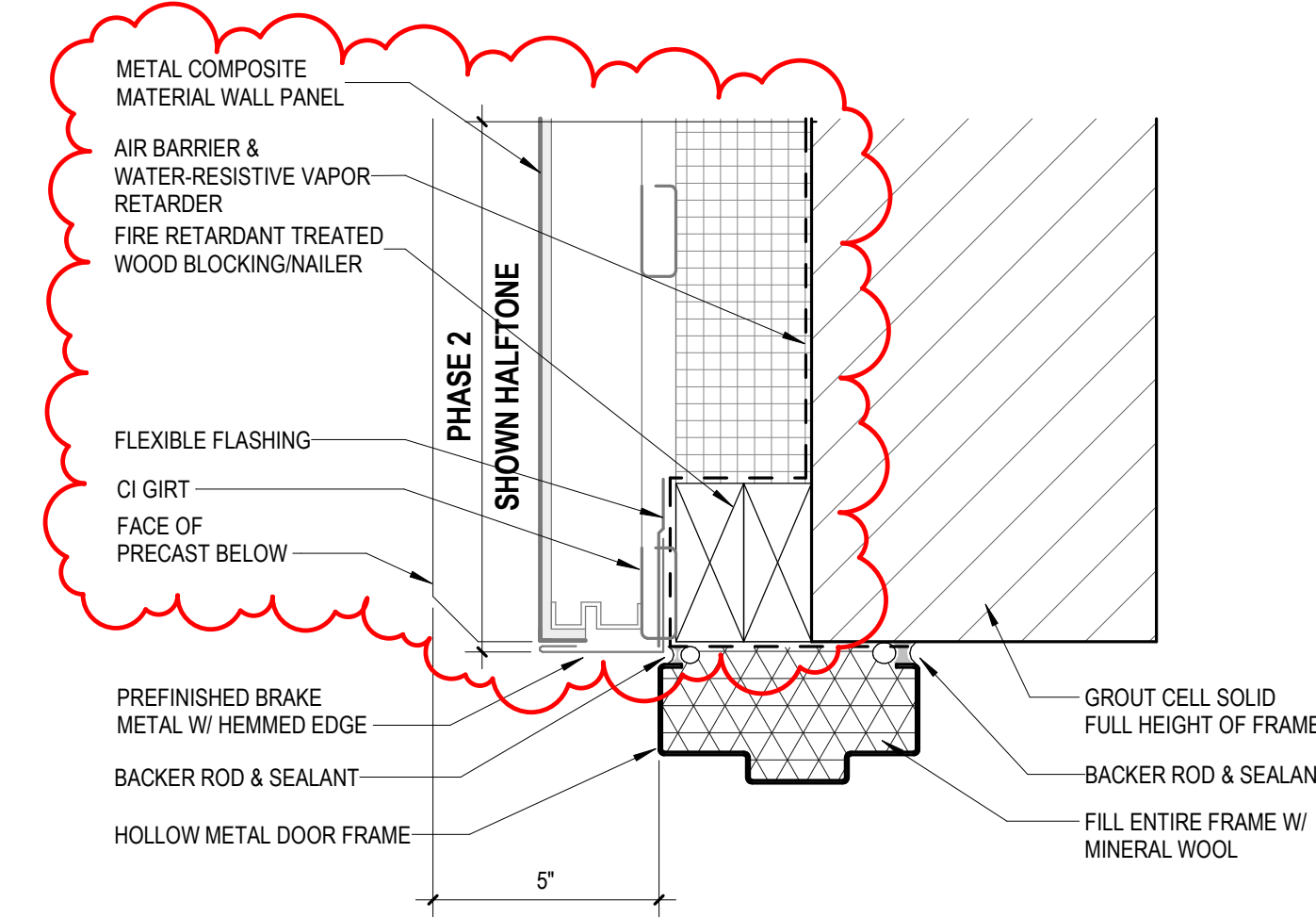
D6 FIRE RATED ALUMINUM WINDOW JAMB @ PRECAST BASE
3" = 1'-0"



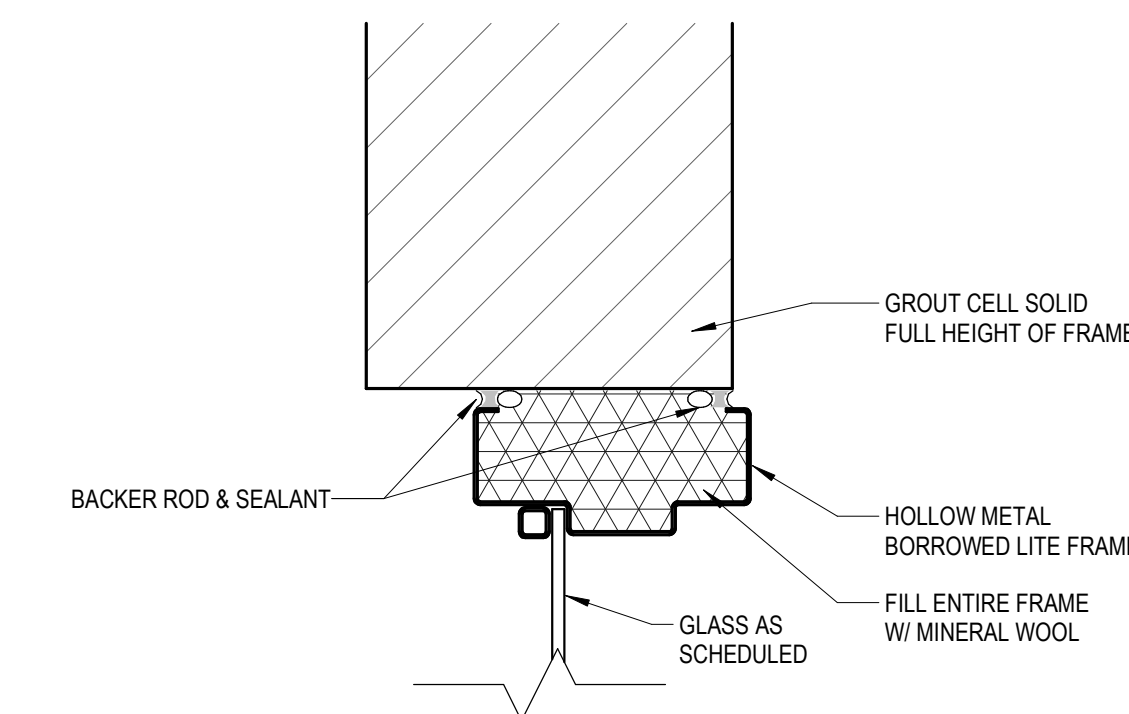
C1 EAST WALL @ HIGH SPEED GARAGE DOOR JAMB
3" = 1'-0"



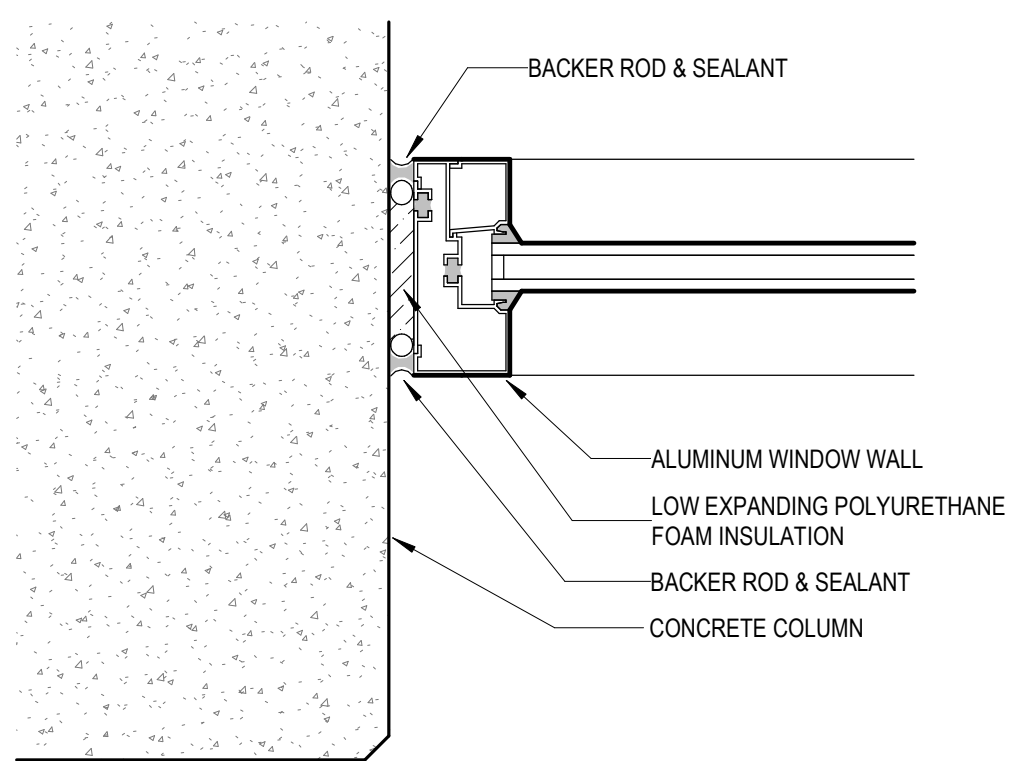
C2 HM DOOR FRAME JAMB @ PRECAST BASE
3" = 1'-0"



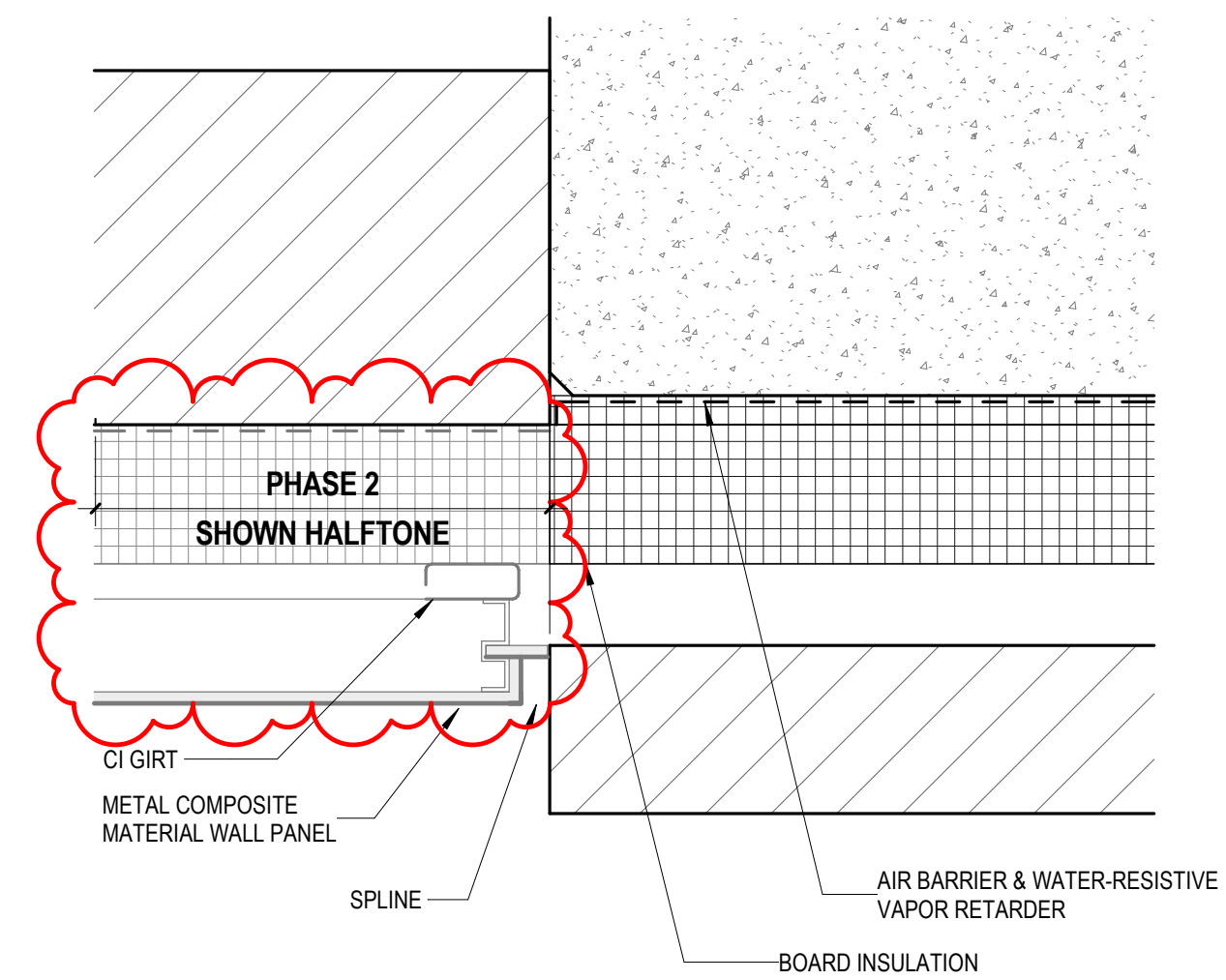
C5 HM DOOR FRAME JAMB @ METAL PANEL
3" = 1'-0"



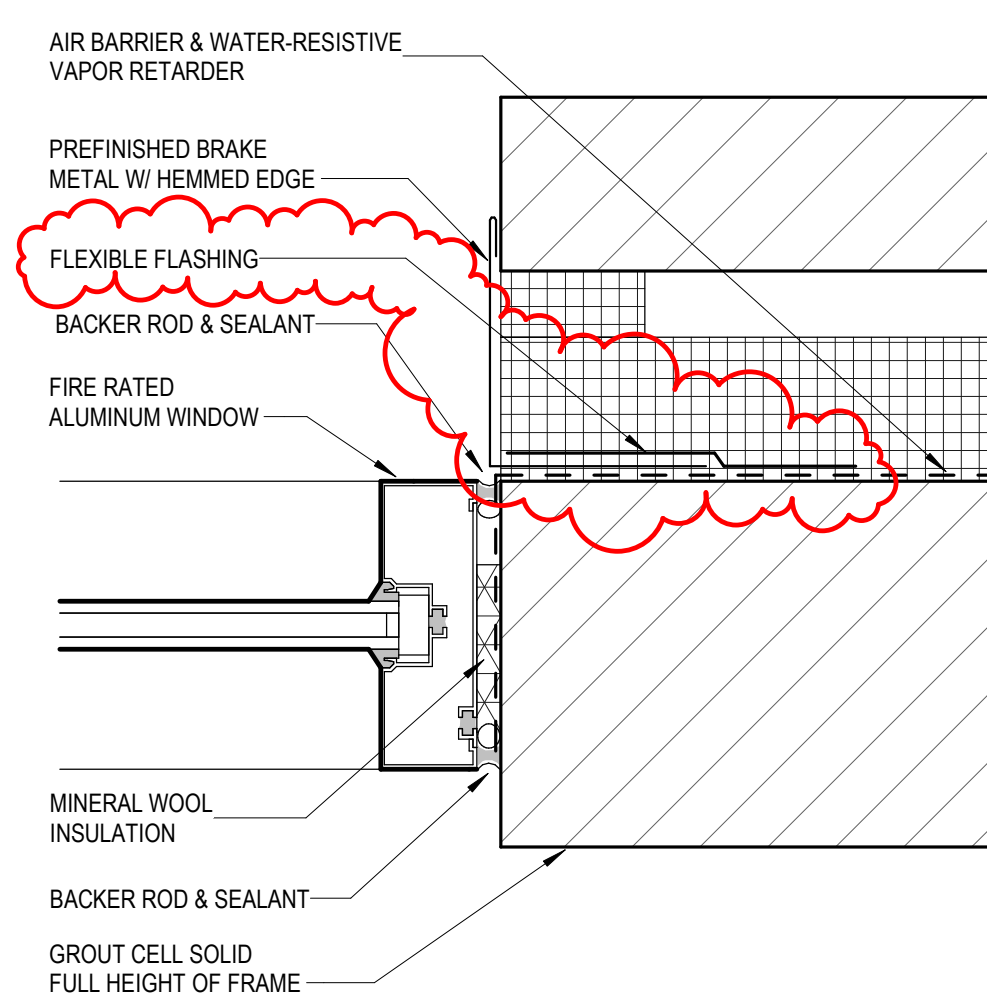
C6 HM BORROWED LITE FRAME JAMB @ CMU
3" = 1'-0"



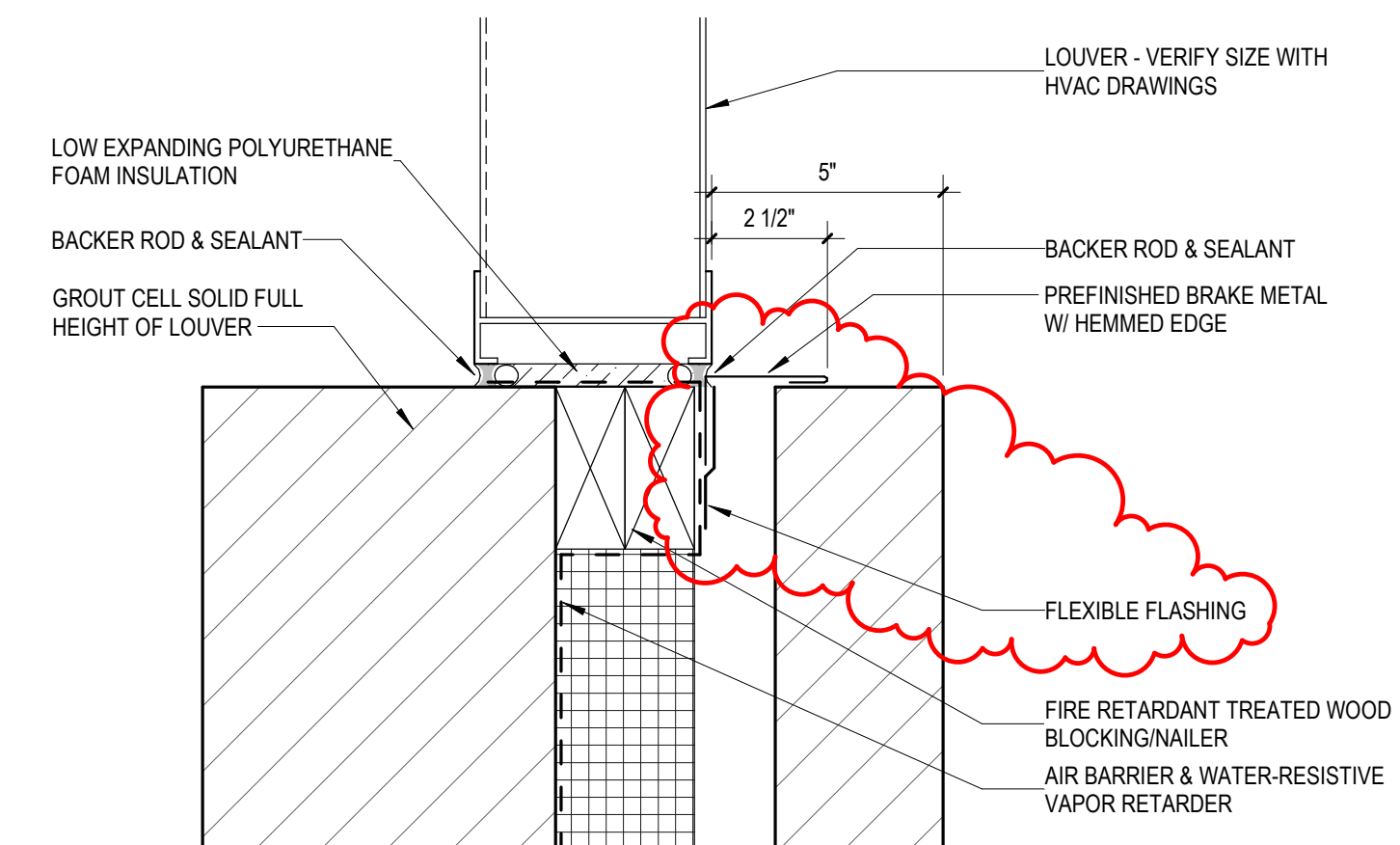
B1 STOREFRONT JAMB @ BUS TERMINAL
3" = 1'-0"



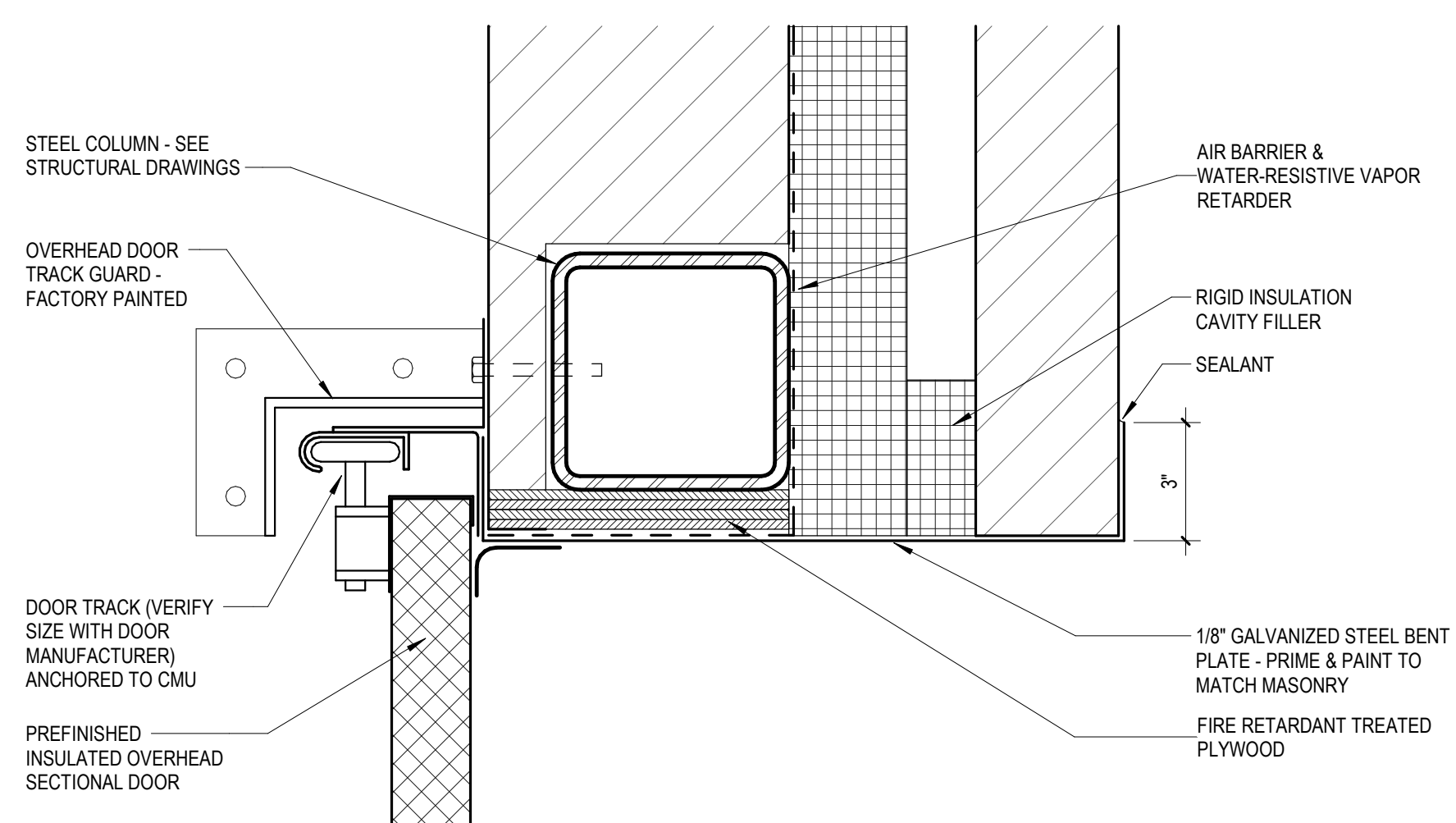
B2 METAL PANEL @ MASONRY TRANSITION
3" = 1'-0"



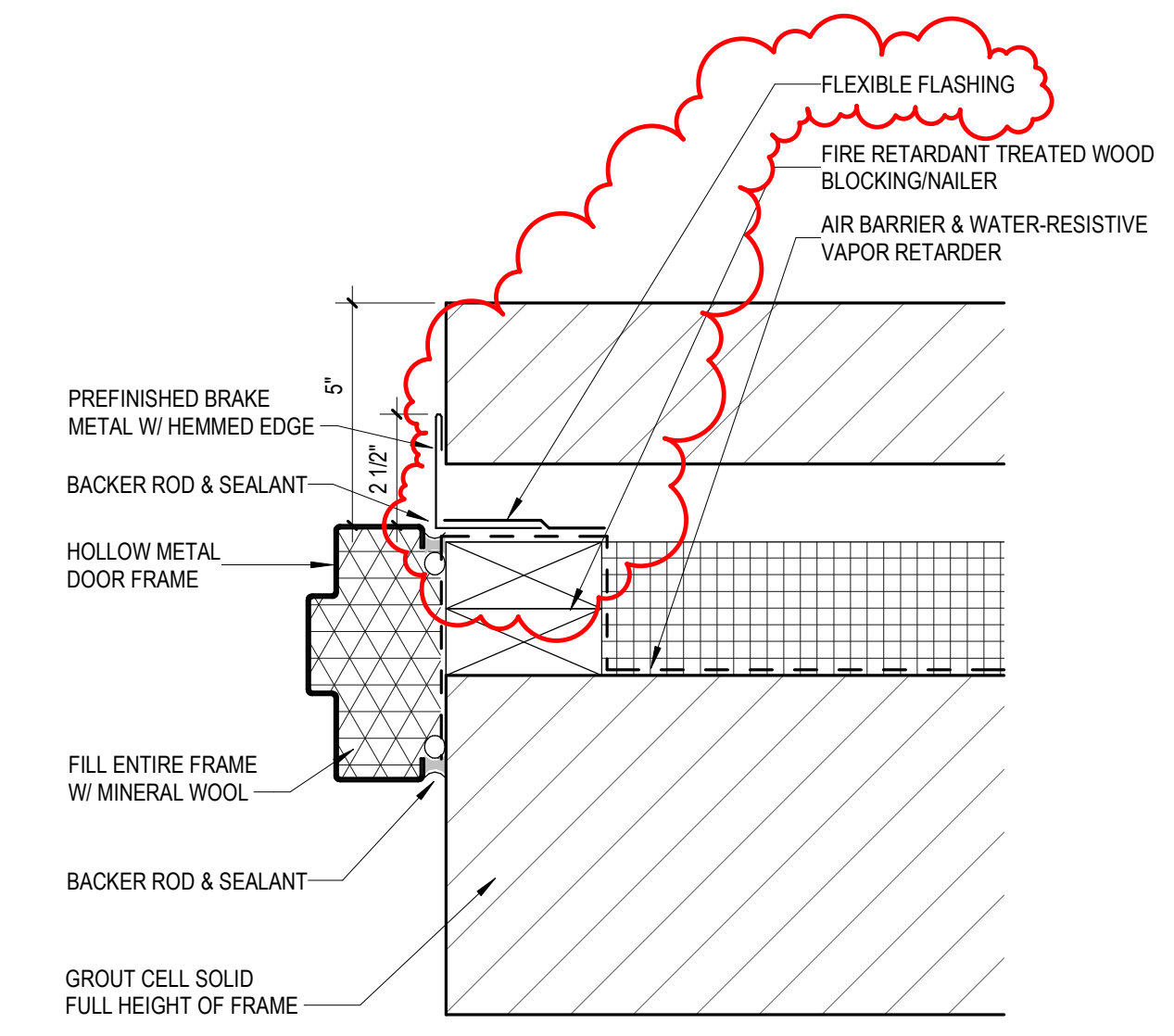
B5 FIRE RATED ALUMINUM WINDOW JAMB
3" = 1'-0"



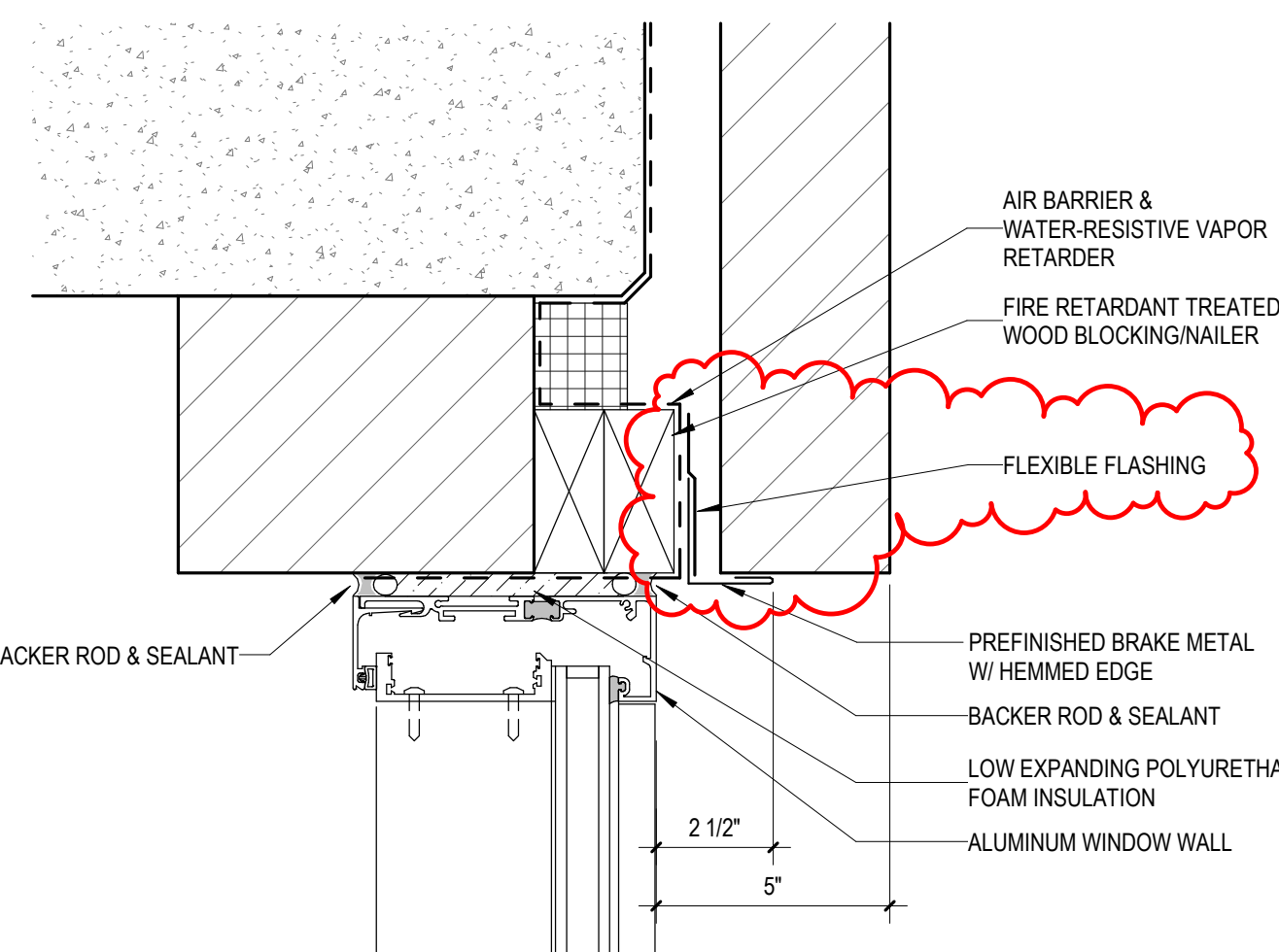
B6 LOUVER JAMB @ MASONRY
3" = 1'-0"



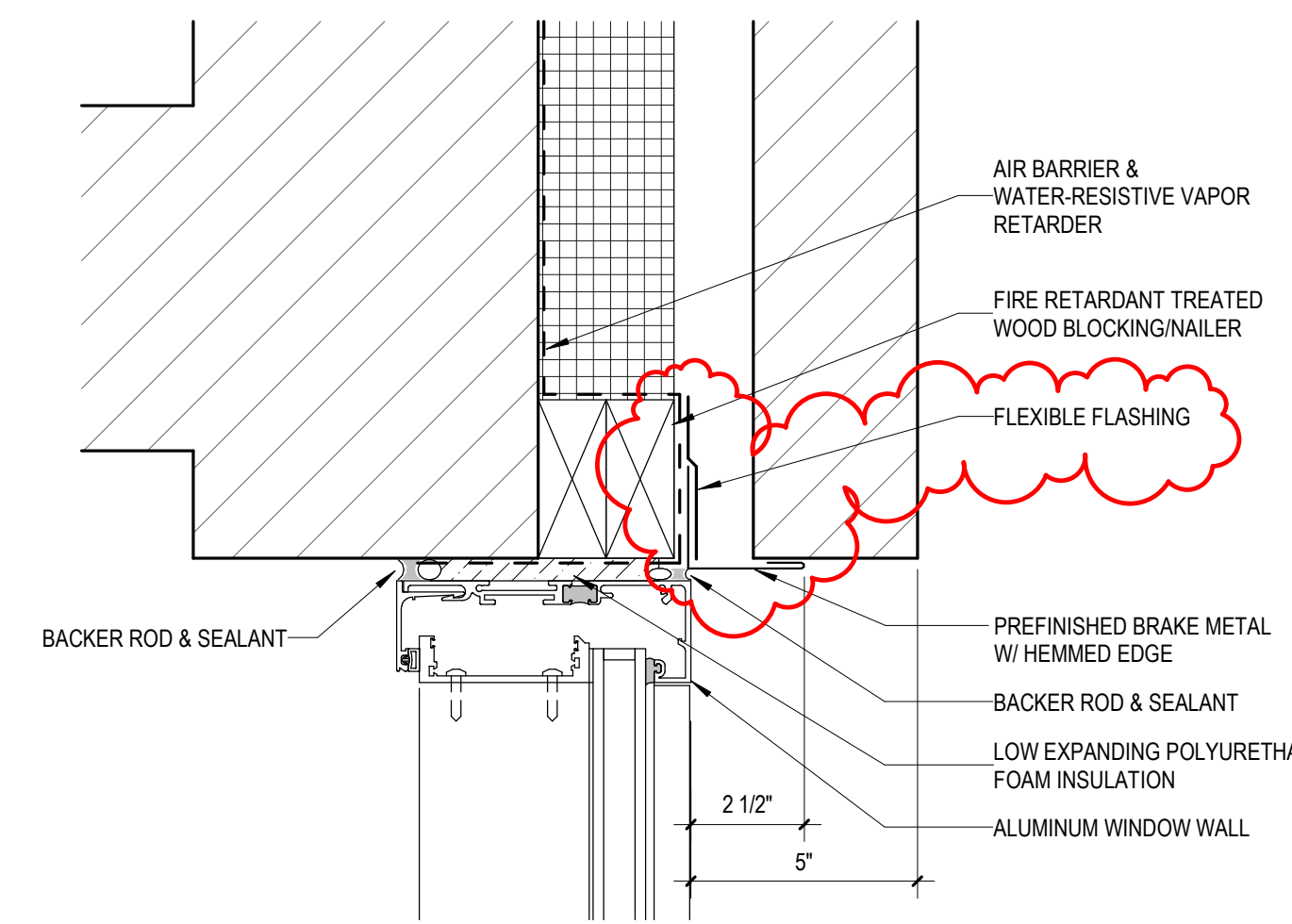
A1 EAST WALL @ OVERHEAD GARAGE DOOR JAMB
3" = 1'-0"



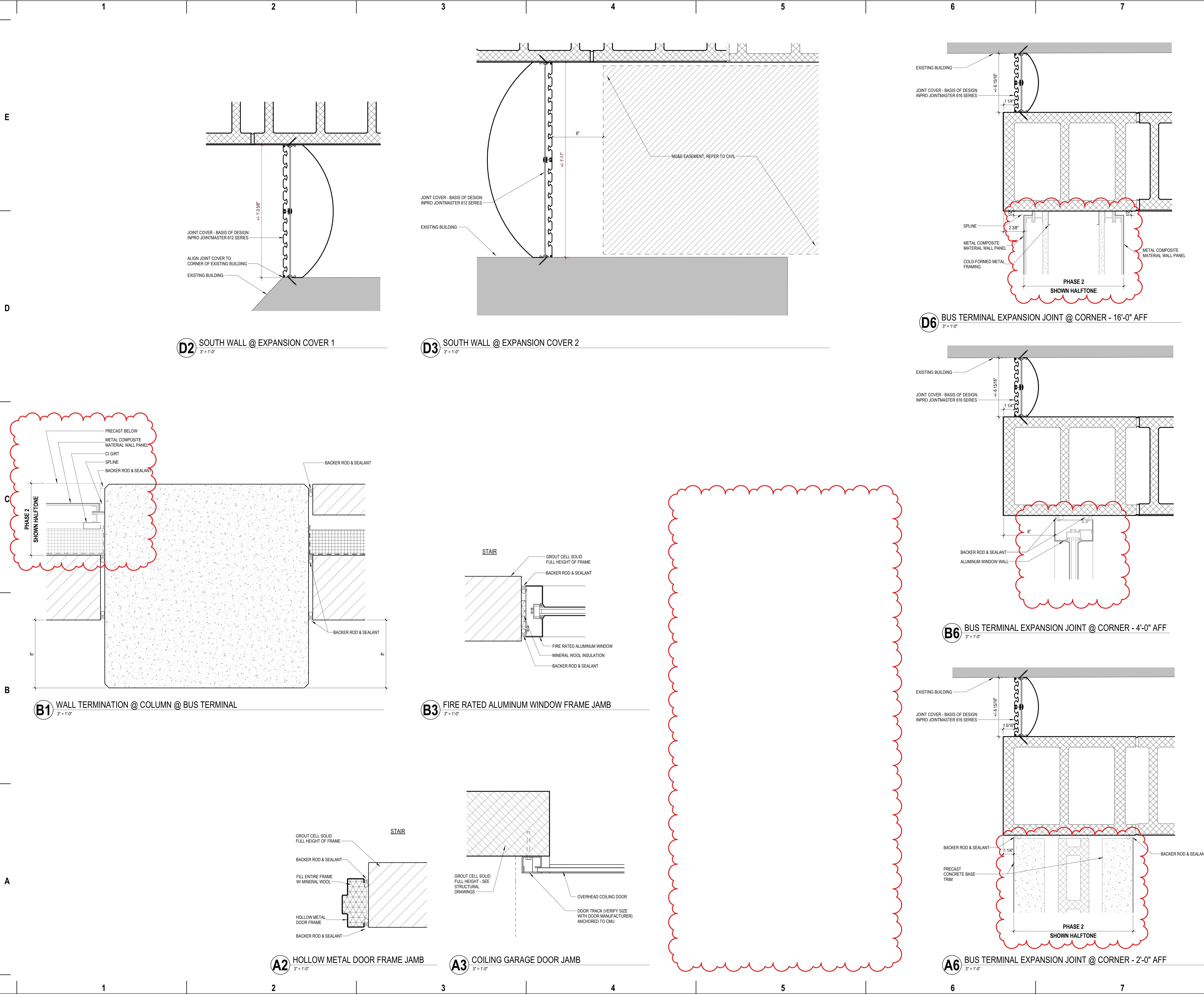
A2 HM DOOR FRAME JAMB @ MASONRY
3" = 1'-0"



A5 WINDOW JAMB @ MASONRY & COLUMN
3" = 1'-0"



A6 WINDOW JAMB @ MASONRY
3" = 1'-0"



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PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PI_A002

KEY PLAN

SHEET INFORMATION

PROJECT MANAGER MO
PROJECT NUMBER 720448

EXTERIOR DETAILS -
PHASE 1

A5111-1

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E

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HAZARD CLASSIFICATIONS:

- LIGHT HAZARD CLASSIFICATION (NFPA 13) - MAXIMUM AREA PER ZONE = 52,000 SF.
SPRINKLER HEADS: SEMI-RECESSED CHROME PENDANT IN CEILINGS, BRONZE UPRIGHTS OR PENDANTS WHERE THERE ARE NO CEILINGS OR EXPOSED PIPING
- ORDINARY GROUP 1 HAZARD CLASSIFICATION (NFPA 13) - MAXIMUM AREA PER ZONE = 52,000 SF.
SPRINKLER HEADS: SEMI-RECESSED CHROME PENDANT IN CEILINGS, BRONZE UPRIGHTS OR PENDANTS WHERE THERE ARE NO CEILINGS OR EXPOSED PIPING
- ORDINARY GROUP 2 HAZARD CLASSIFICATION (NFPA 13) - MAXIMUM AREA PER ZONE = 52,000 SF.
SPRINKLER HEADS: SEMI-RECESSED CHROME PENDANT IN CEILINGS, BRONZE UPRIGHTS OR PENDANTS WHERE THERE ARE NO CEILINGS OR EXPOSED PIPING
- SPRINKLER COVERAGE TO BE COMPLETED BY PHASE 2 CONTRACTOR.

GENERAL NOTES:

1. ALL WORK TO BE DONE IN COMPLIANCE WITH ALL STATE AND LOCAL CODES AND ALL MANUFACTURER'S INSTRUCTIONS.
2. ALL PIPING SHALL RUN STRAIGHT AND TRUE AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.
3. ALL EQUIPMENT IS TO BE PROVIDED COMPLETE WITH OPERATION & MAINTENANCE MANUALS.

KEYED NOTES

- KEYED NOTES FOR PROJECT:
- F18 PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT.
- F22 PROTECT ELEVATOR LOBBY OFF OF PHASE 1 WET SYSTEM.
- F23 PROVIDE SPRINKLER HEADS AT THE BOTTOM OF STAIR SHAFT.
- F24 SPRINKLER COVERAGE IN SHADED AREA TO BE COMPLETED BY PHASE 2 CONTRACTOR. IF PHASE 2 DOES NOT PROCEED, PIPING WITHIN THE SHADED AREA WILL THEN BE FED OFF THE WET SPRINKLER SYSTEM BY THE PHASE 1 CONTRACTOR. ANY ASSOCIATED COST DUE TO PHASE 2 NOT PROCEEDING, PHASE 1 FPC TO FOLLOW CHANGE ORDER PROCEDURES IN CONTRACT DOCUMENTS.



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JDR
ENGINEERING, INC.
5525 NOBEL DRIVE
SUITE 110
MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR Project No: 22.0249

PROJECT INFORMATION

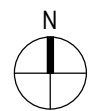
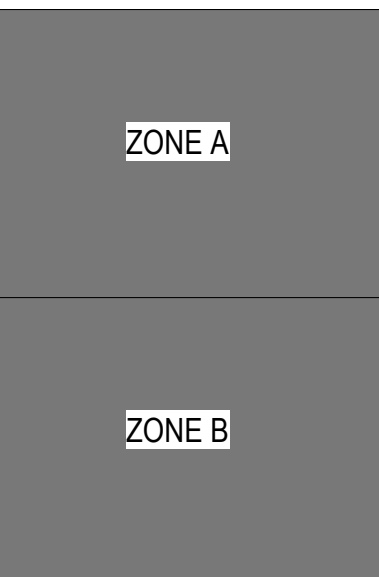
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_ADD2

KEY PLAN



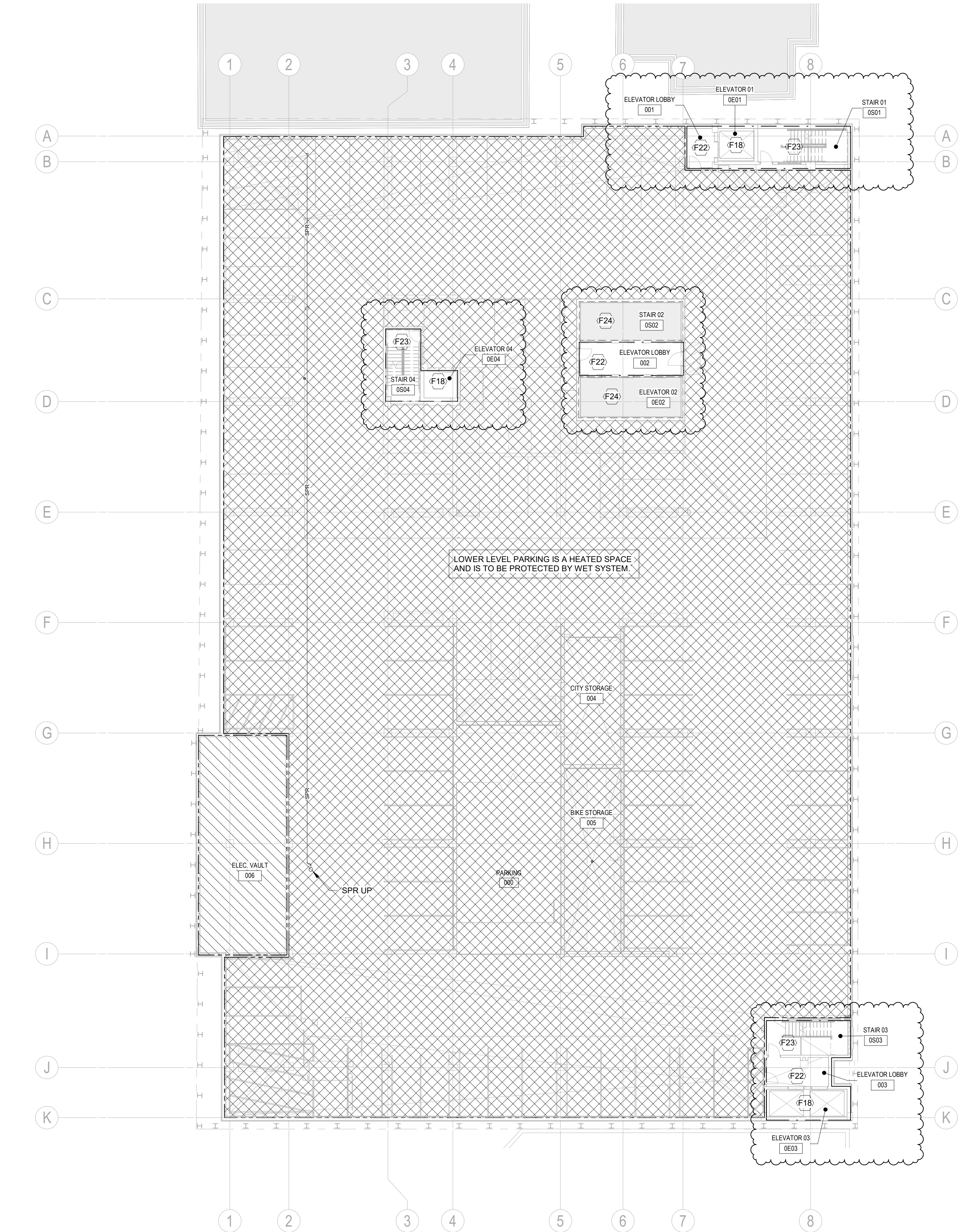
SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

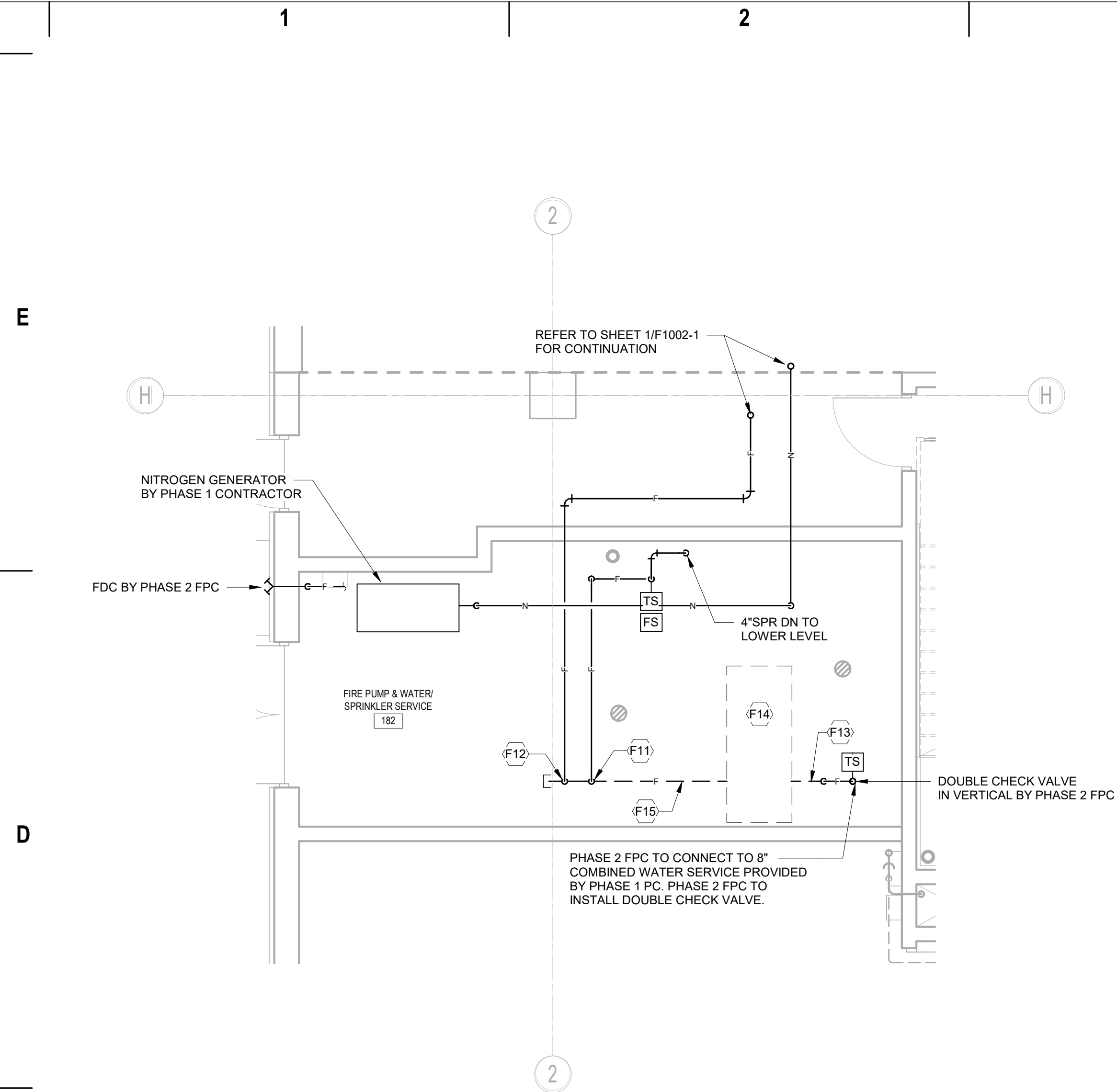
LOWER LEVEL
OVERALL - PHASE 1
- FIRE PROTECTION

F1000-1

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1
F1000-1
SCALE: 1/16" = 1'-0"
LOWER LEVEL OVERALL - PHASE 1 - PLUMBING



2 ENLARGED FIRE PROTECTION WATER ROOM - FIRE PROTECTION
F1001-1 SCALE: 1/4" = 1'-0"

HAZARD CLASSIFICATIONS:

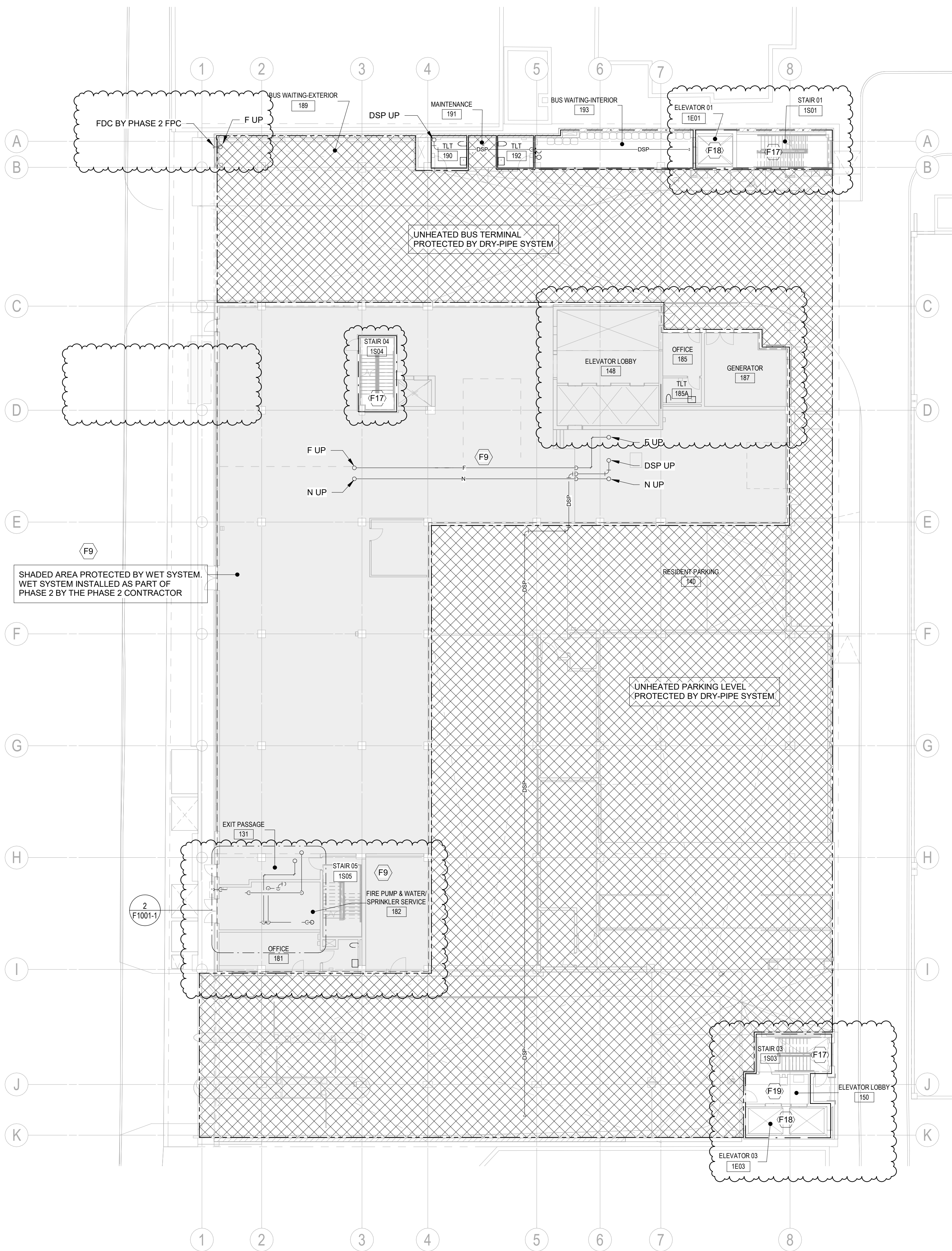
- LIGHT HAZARD CLASSIFICATION (NFPA 13) - MAXIMUM AREA PER ZONE = 52,000 SF. SPRINKLER HEADS: SEMI-RECESSED CHROME PENDANT IN CEILINGS, BRONZE UPRIGHTS OR PENDANTS WHERE THERE ARE NO CEILINGS OR EXPOSED PIPING
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 - F11 CONNECT FIRE MAIN FOR LOWER LEVEL SPRINKLER TO PRV AND EXTENSION PROVIDED BY THE PHASE 2 FIRE PROTECTION CONTRACTOR.
 - F12 CONNECT FIRE MAIN FOR DRY SPRINKLER SYSTEM TO EXTENSION PROVIDED BY THE PHASE 2 FIRE PROTECTION CONTRACTOR.
 - F13 FIRE MAIN FROM DOUBLE CHECK VALVE TO FIRE PUMP PROVIDED BY PHASE 2 FIRE PROTECTION CONTRACTOR.
 - F14 FIRE PUMP PROVIDED BY PHASE 2 CONTRACTOR.
 - F15 FIRE MAIN BY PHASE 2 CONTRACTOR.
 - F17 FIRE SUPPRESSION ONLY REQUIRED AT TOP AND BOTTOM OF STAIR SHAFT.
 - F18 PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT.
 - F19 PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM.



1 1ST FLR OVERALL - PHASE 1 - FIRE PROTECTION
F1001-1 SCALE: 1/16" = 1'-0"



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SUITE 110
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PH: 608.277.1728 FAX: 608.271.7046
JDR Project No: 22.0249

PROJECT INFORMATION

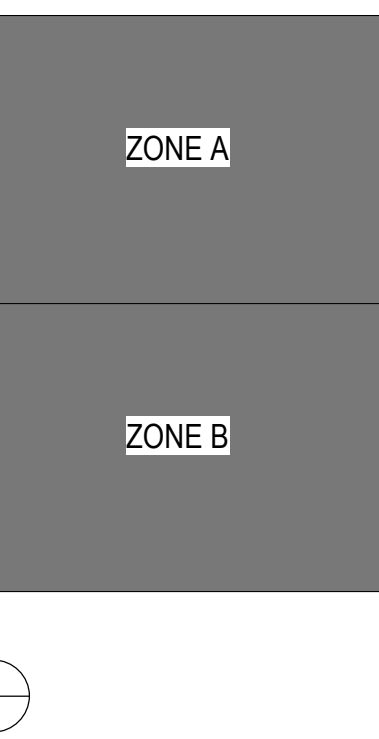
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

**1ST FLR OVERALL –
PHASE 1 – FIRE
PROTECTION**

F1001-1

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HAZARD CLASSIFICATIONS:

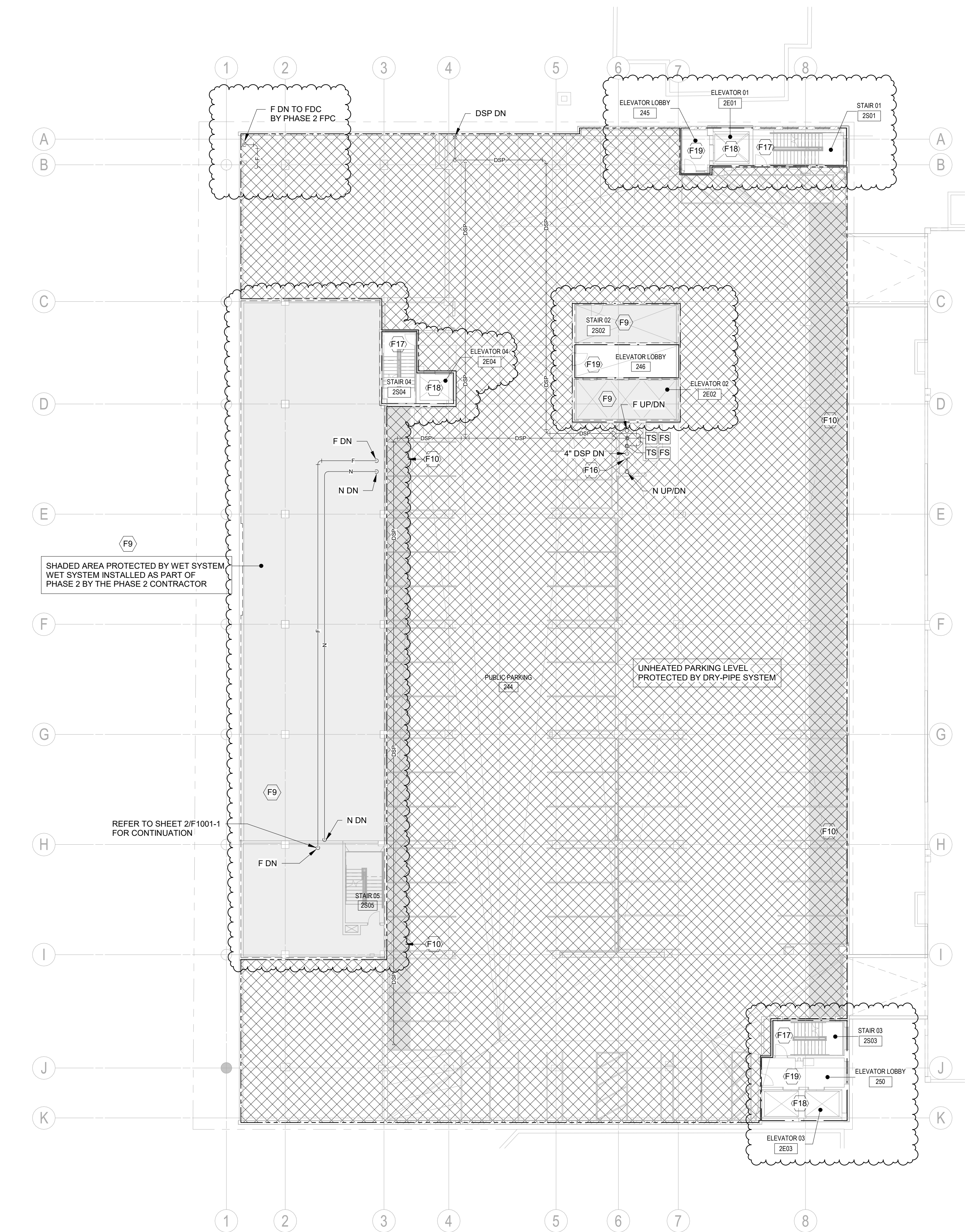
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1 P2 FLR OVERALL - PHASE 1 - FIRE PROTECTION
F1002-1 SCALE: 1/8" = 1'-0"



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JDR Project No: 22.0249

PROJECT INFORMATION

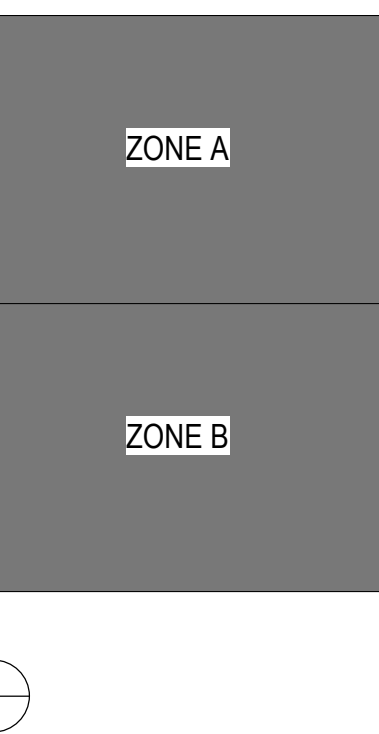
STATE STREET
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415 N. LAKE STREET
MADISON, WI 53715

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11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

P2 FLR OVERALL -
PHASE 1 - FIRE
PROTECTION

F1002-1

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HAZARD CLASSIFICATIONS:

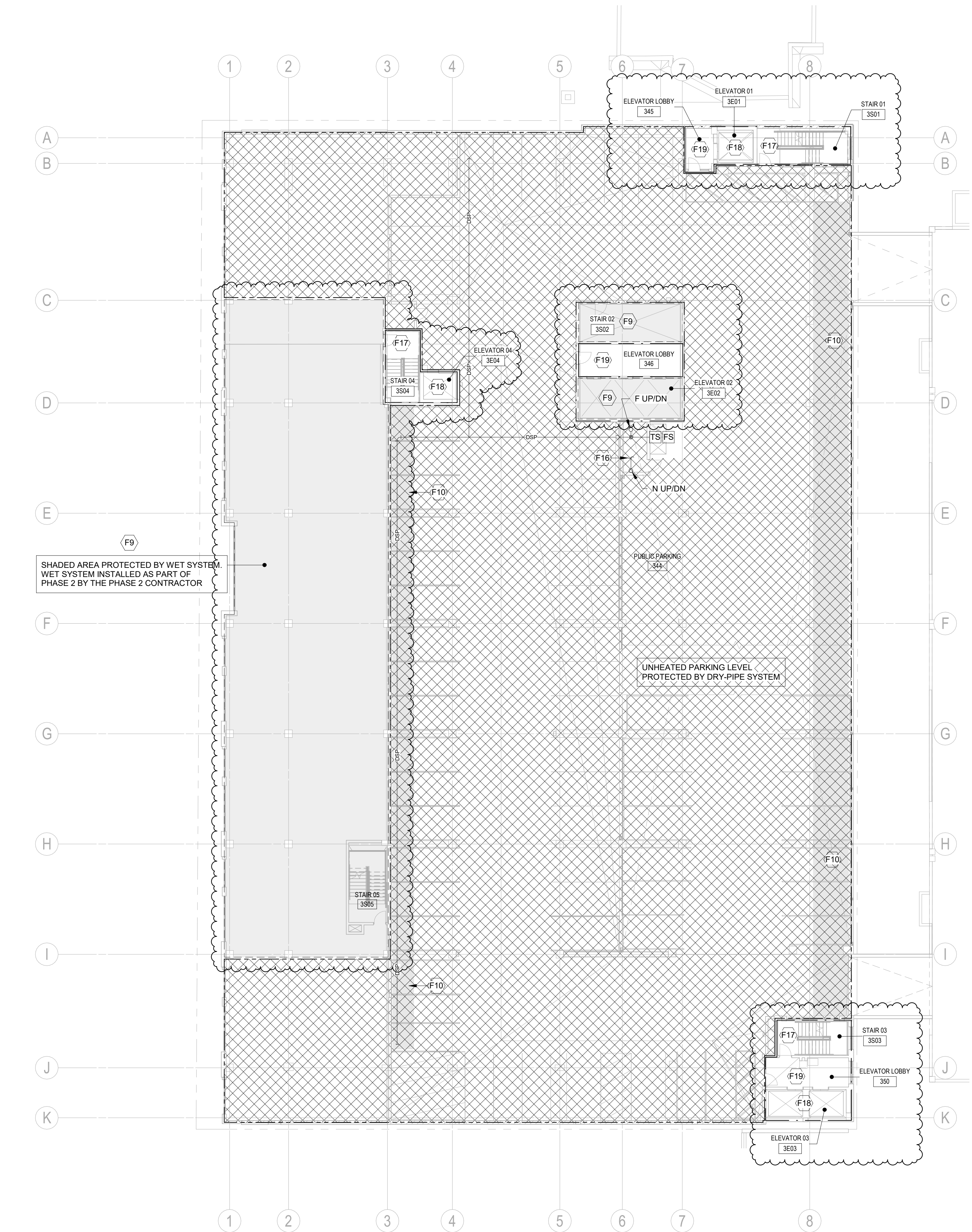
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- F18 PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT.
- F19 PROTECT ELEVATOR LOBBY OFF OF PHASE 1 DRY SYSTEM.



1 P3 FLR OVERALL - PHASE 1 - FIRE PROTECTION
F1003-1 SCALE: 1/16" = 1'-0"



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
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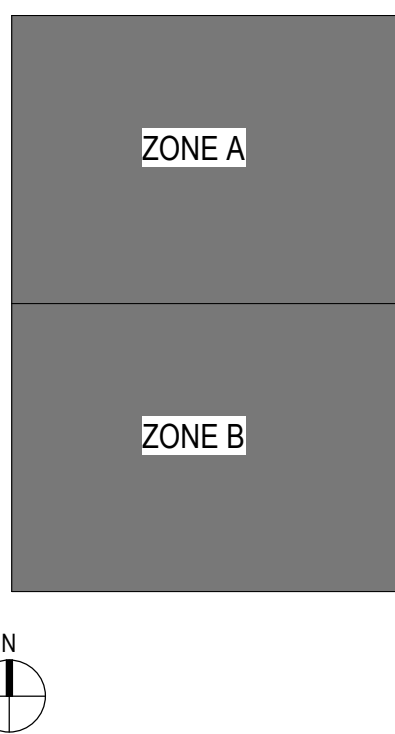
**415 N. LAKE STREET
MADISON, WI 53715**

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11-02-2023	PH1, ADD2

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

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PROJECT NUMBER 720448

**P3 FLR OVERALL –
PHASE 1 – FIRE
PROTECTION**

F1003-1

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HAZARD CLASSIFICATIONS:

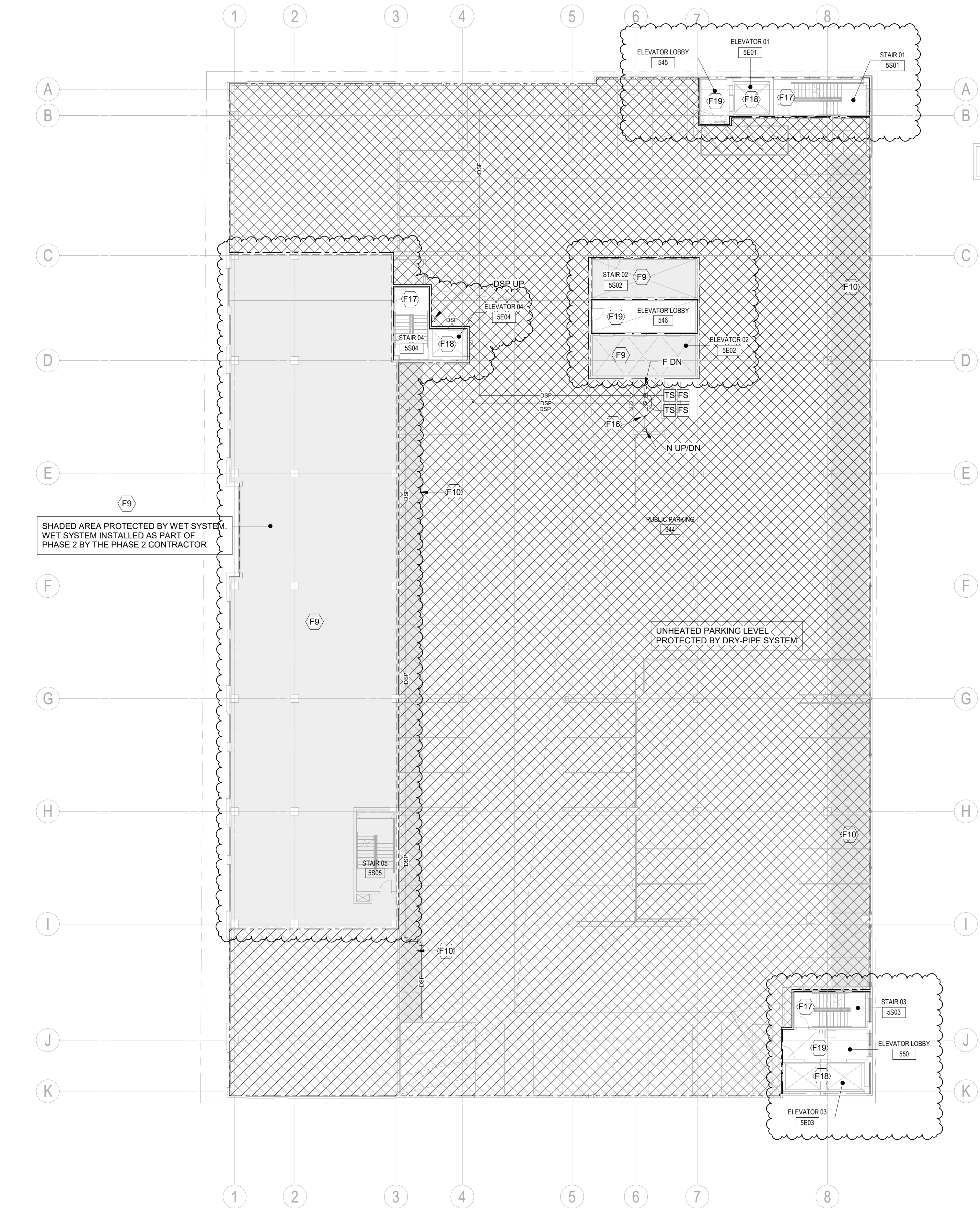
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1 P5 FLR OVERALL - PHASE 1 - FIRE PROTECTION
F1005-1 SCALE: 1/8" = 1'-0"



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

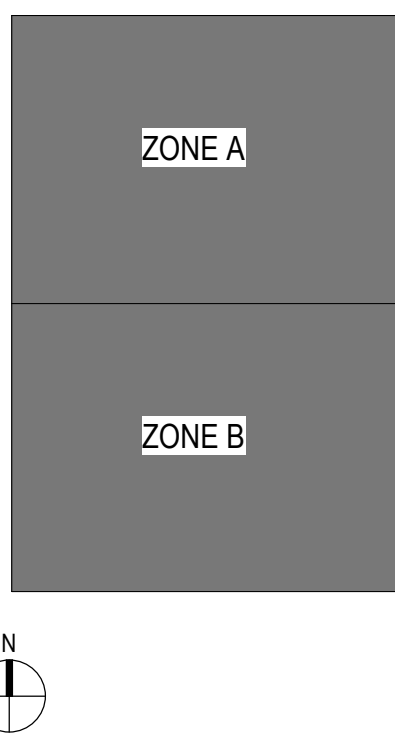
**415 N. LAKE STREET
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ISSUANCE AND REVISIONS

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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

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KEY PLAN



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SHEET INFORMATION

PROJECT MANAGER

A

PROJECT NUMBER 720448

**P5 FLR OVERALL –
PHASE 1 – FIRE
PROTECTION**

F1005-1

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KEY PLAN

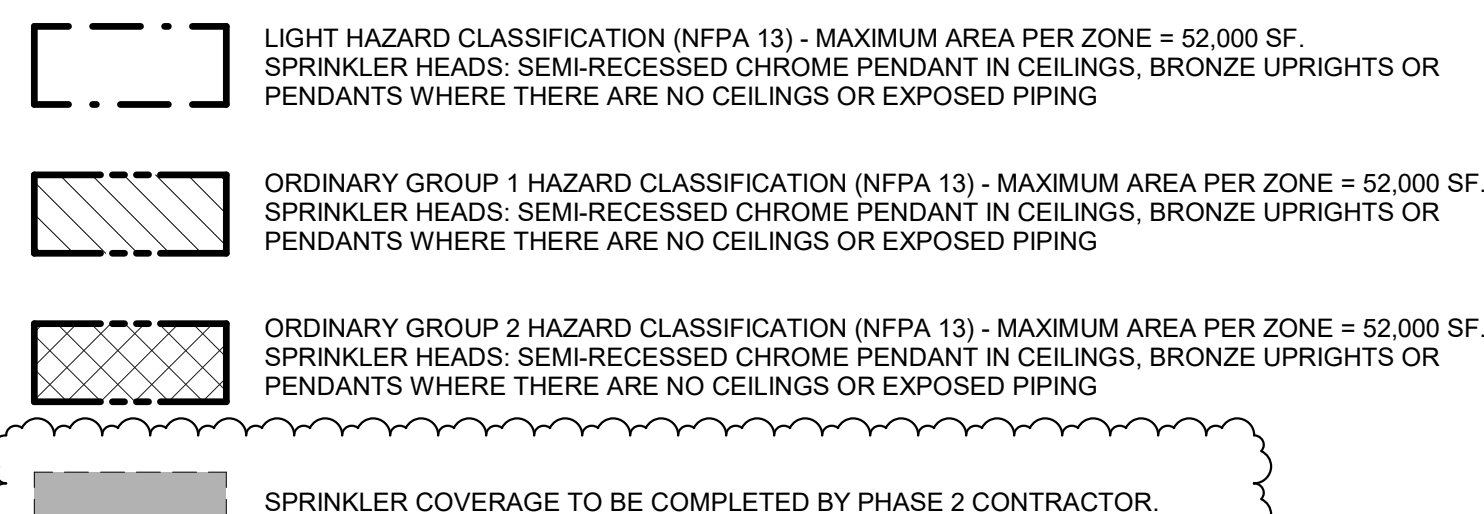


SHEET INFORMATION

P6 FLR OVERALL – PHASE 1 – FIRE PROTECTION

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HAZARD CLASSIFICATIONS:



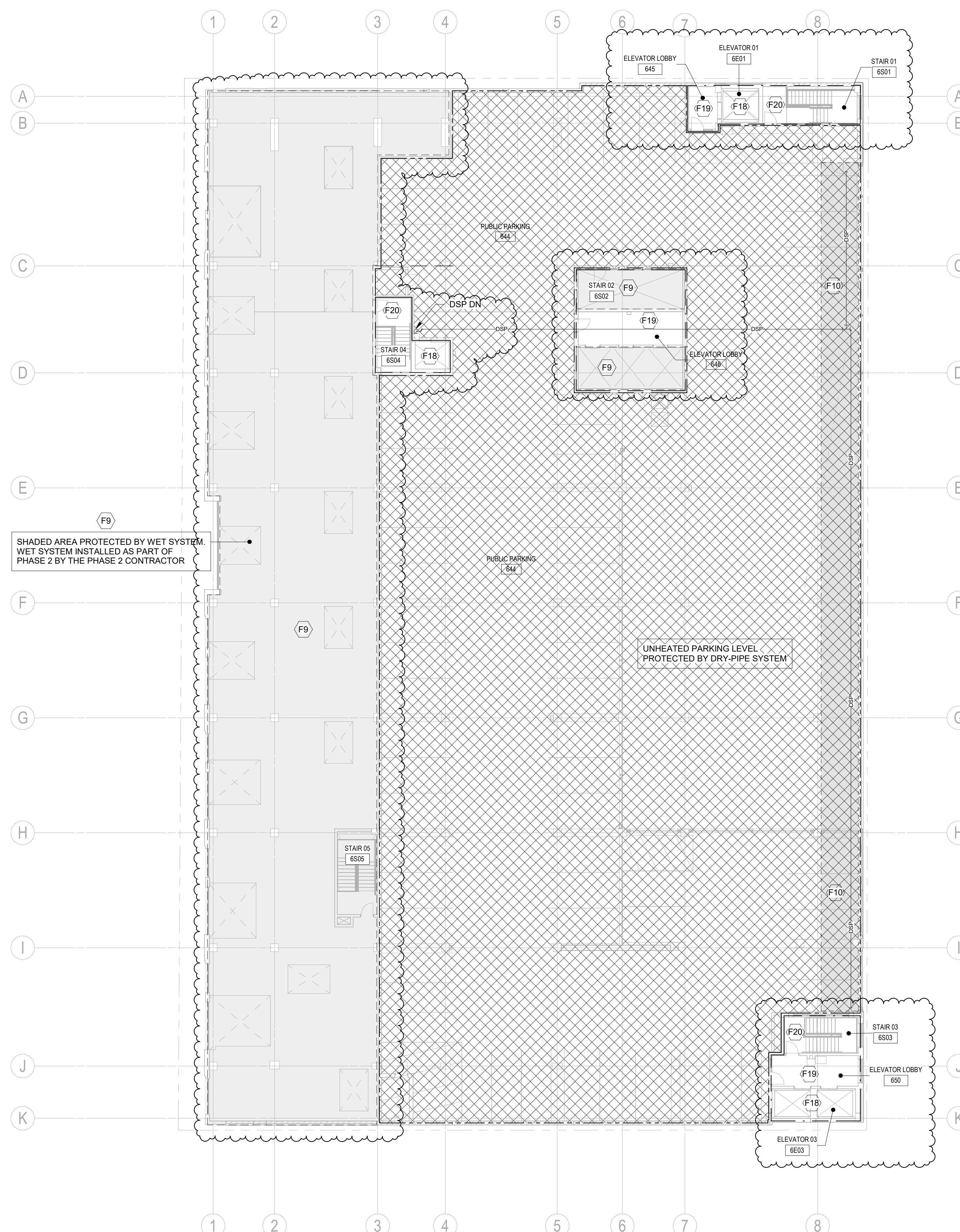
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- F11 PROVIDE SPRINKLER HEADS AT TOP OF ELEVATOR SHAFT.
- F12 PROTECT ELEVATOR LOBBY OFF OF PHASE 1 CONCRETE LAY SYSTEM.
- F13 PROVIDE SPRINKLER HEADS AT TOP OF STAIR SHAFT.



1 P6 FLR OVERALL - PHASE 1 - FIRE PROTECTION
F1006-1 SCALE: 1/16" = 1'-0"

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PLUMBING FIXTURES SCHEDULE												
ID	FIXTURE	WASTE			WATER				DETAIL / SHEET	DESCRIPTION / REMARKS		
		DFU	TRAP	VENT (MIN)	COLD CWFU	SIZE	HWFU	SIZE				
DE-1	DRINKING FOUNTAIN	0.5	1 1/4"	1 1/2"	0.25	1/2"	---	---	---	FIXTURE: HAWS 1011-1920 VANDAL-RESISTANT DRINKING FOUNTAIN AND BOTTLE FILLER, 18 GAUGE 304 STAINLESS STEEL, 14 GAUGE 304 STAINLESS STEEL BOTTLE FILLER, PUSH BUTTON OPERATION, 3/16" THICK STEEL MOUNTING PLATE, PROVIDE OPTIONAL TRAP ACCESS PANEL HAWS MODEL 6603.		
L-1	LAVATORY	1	1 1/4"	1 1/2"	0.5	1/2"	0.5	1/2"	7/P9001-1	FIXTURE: KOHLER CHESAPEAKE K-1728 WALL MOUNTED LAVATORY SINK, WHITE VITREOUS CHINA, 4" CENTER SET FAUCET HOLES, WITH OVERFLOW, ADA COMPLIANT. FAUCET: ZURN Z8915-XL HARDWIRED ELECTRONIC FAUCET, 0.35 GPM AERATOR, 4" CENTER SET MOUNTING, CHROME FINISH, SENSOR OPERATED, HARDWARE POWER CONVERTER, INCLUDE BELOW DECK MIXING VALVE. TRAP & DRAIN: CHROME PLATED 17 GAUGE CAST BRASS TRAP, PRE-WRAPPED OFFSET DRAIN AND P-TRAP, WITH GRID STRAINER DRAIN. STOPS & SUPPLIES: QUARTER TURN ANGLE STOPS WITH CHROME PLATED ESCUTCHEONS & CHROME PLATED COPPER RISER SUPPLIES.		
L-2	LAVATORY	1	1 1/4"	1 1/2"	0.5	1/2"	0.5	1/2"	7/P9001-1	FIXTURE: KOHLER CHESAPEAKE K-1728 WALL MOUNTED LAVATORY SINK, WHITE VITREOUS CHINA, 4" CENTER SET FAUCET HOLES, WITH OVERFLOW, ADA COMPLIANT. FAUCET: ZURN Z8915-XL BATTERY OPERATED ELECTRONIC FAUCET, 0.35 GPM AERATOR, 4" CENTER SET MOUNTING, CHROME FINISH, SENSOR OPERATED, INCLUDE BELOW DECK MIXING VALVE. TRAP & DRAIN: CHROME PLATED 17 GAUGE CAST BRASS TRAP, PRE-WRAPPED OFFSET DRAIN AND P-TRAP, WITH GRID STRAINER DRAIN. STOPS & SUPPLIES: QUARTER TURN ANGLE STOPS WITH CHROME PLATED ESCUTCHEONS & CHROME PLATED COPPER RISER SUPPLIES.		
MB-1	MOP BASIN	3	3"	2"	2	1/2"	2	1/2"	---	FIXTURE: MUSTEE K3M 24"24"x10" HIGH BASIN, ONE PIECE MOLDED DURASTONE, INTEGRAL MOLDED-IN DRAIN, 3" DRAIN CONNECTION. FAUCET: CHICAGO FAUCETS SERVICE SINK FAUCET 305-ARCF WITH ROUGH CHROME FINISH, 3/4" MALE HOSE THREADED OUTLET, PAIL HOOK, ADJUSTABLE SUPPLY ARMS WITH INTEGRAL SERVICE STOPS AND LEVER HANDLES, PROVIDE WATTS MODEL 84C NON-REMOVABLE CHROME VACUUM BREAKER. TRAP & DRAIN: P-TRAP WITH STRAINER DRAIN. ACCESSORIES: HOSE & HOSE HOLDER 65,700, & MOP HANGER 65,600.		
WC-1	WATER CLOSET (WALL MOUNT, ADA HEIGHT)	6	4"	2"	6.5	1 1/2"	---	---	---	FIXTURE: KOHLER KINGSTON K-4323, WALL HUNG, FLUSH VALVE TOILET, WHITE VITREOUS CHINA, ELONGATED BOWL, 1.28 GPF MAX, 2.25" TRAPWAY, 1-1/2" REAR SPUD, ADA HEIGHT. FLUSH VALVE: SLOAN ROYAL 152 ESS-128 CONCEALED SENSOR OPERATED HARDWIRED FLUSH VALVE, INFRARED SENSOR, 1-1/2" REAR SPUD, 1.28 GPF, DIAPHRAGM TYPE, ELECTRICAL OVERRIDE, BRUSHED STAINLESS FINISH, ADA COMPLIANT. SEAT: KOHLER LUSTRA K-4670-CA, OPEN FRONT TOILET SEAT, WHITE INJECTION MOLDED, SELF SUSTAINING CHECK HINGES, ANTI-MICROBIAL AGENT, SUPPORT: COMMERCIAL GRADE WATER CLOSET CARRIER.		
WC-2	WATER CLOSET (FLOOR MOUNT, ADA HEIGHT)	6	4"	2"	6.5	1 1/2"	---	---	---	FIXTURE: KOHLER HIGHCLIFF ULTRA K-9607-SS, FLOOR MOUNTED WATER CLOSET, 1.28 GPF, FLUSHOMETER TYPE, 1 1/2" TOP SPUD, WHITE VITREOUS CHINA, 2.125" TRAPWAY, ELONGATED BOWL, ADA HEIGHT. FLUSH VALVE: SLOAN G2 8111-1.28 WATER CLOSET FLUSH VALVE, ELECTRONIC SENSOR OPERATION, BATTERY POWERED, 1-1/2" TOP SPUD, 1.28 GPF, CHROME FINISH, ADA COMPLIANT. SEAT: KOHLER LUSTRA K-4670-CA, OPEN FRONT TOILET SEAT, WHITE INJECTION MOLDED, SELF SUSTAINING CHECK HINGES, ANTI-MICROBIAL AGENT, SUPPORT: COMMERCIAL GRADE WATER CLOSET CARRIER.		
WH-1	WALL HYDRANT	---	---	---	4	3/4"	---	---	---	FIXTURE: WOODFORD MODEL B67, EXTERNAL FREEZE-LESS WALL HYDRANT BOX TYPE, AUTOMATIC DRAINING, INTEGRAL VACUUM BREAKER, 3/4" HOSE CONNECTION, LOOSE TEE KEY WITH TAMPER RESISTANT BOX.		
WH-2	WALL HYDRANT	---	---	---	6	2"	---	---	---	FIXTURE: 2" CAM LOCK HOSE CONNECTION, BRASS CONSTRUCTION, INCLUDE SHUTOFF VALVE WITH LOCKABLE HANDLE.		

EJECTORS AND SUMP PUMPS SCHEDULE													
ID	MANUFACTURER MODEL #	ELECTRICAL				RPM	VFD	DISCHARGE		BASIN		DETAIL / SHEET	DESCRIPTION / REMARKS
		HP	AMPS	VOLTS	PHASE			GPM	HD FT	DIA	DEPTH		
SE-1	WEIL 1607 (DUPLEX)	1.5	3	460	3	1750	NO	60	34	48"	72"	12/P9001-1	FLOOR MOUNTED EJECTOR, CAST IRON CASE, CAST BRONZE IMPELLER, 304 STAINLESS STEEL STRAINER & HARDWARE, DOUBLE SEAL MOTOR, DOUBLE SEALED BEARINGS, AIR FILLED HERMETICALLY SEALED SHAFT, STAINLESS STEEL LIFTING CABLE, 2" DISCHARGE, 15 FT POWER CORD, OVERLOAD PROTECTION.
													CONTROLS: WEIL 8138 FACTORY WIRED WALL MOUNTED DUPLEX ALTERNATING PUMP CONTROL PANEL, POLY ENCLOSURE RATED TYPE, THREE PHASE, MANUAL DISCONNECT & MOTOR CIRCUIT PROTECTION, THROUGH THE DOOR RESET, RUNNING PILOT LIGHT, HIGH WATER ALARM LIGHT & BUZZER WITH DISABLING SWITCH, INCLUDE WEIL 8204 TETHER POLE WITH THREE PRESSURE DIAPHRAGM SWITCHES: OFF, ON, STANDBY, & HIGH WATER ALARM. WEIL 8251 JUNCTION BOX LOCATED IN PIT, NEMA-4P CONSTRUCTION.
SP-1	B&G 2E053BH (SINGLE CAR ELEVATOR)	1/2	2.5	208	3	3500	NO	30	40	24"	30"	11/P9001-1	BASIN & COVER: TOP INDUSTRIES FIBERGLASS BASIN WITH ANTI-FLOTATION FLANGE ON BOTTOM OF BASIN, WEIL 8804 ROUND WET WELL COVER, GASKETED LID, ONE PUMP OPENING, LEVEL CONTROL PLATE, BELOW COVER DISCHARGE, PEDESTRIAN RATED.
													FLOOR MOUNTED EJECTOR, CAST IRON CASE, CAST IRON 4.44" DIAMETER IMPELLER, SINGLE SEAL MOTOR, DOUBLE SEALED BEARINGS, AIR FILLED HERMETICALLY SEALED SHAFT, 2" DISCHARGE, 20 FT POWER CORD, OVERLOAD PROTECTION.
SP-2	B&G 2EC1038 (DOUBLE CAR ELEVATOR)	1	4.8	208	3	3500	NO	50	40	24"	30"	11/P9001-1	CONTROLS: B&G S3F58010 FACTORY WIRED WALL MOUNTED SIMPLEX CONTROL PANEL, STEEL CONSTRUCTION, THREE PHASE, 6-10 AMPS, NEMA 4X ENCLOSURE, HIGH WATER ALARM LIGHT AND BUZZER WITH DISABLING SWITCH, INCLUDE THREE FLOATS: OFF, ON, AND HIGH WATER ALARM.
													BASIN & COVER: TOP INDUSTRIES FIBERGLASS BASIN WITH ANTI-FLOTATION FLANGE ON BOTTOM OF BASIN, AND PERFORATED LID WITH GROMMETS FOR PIPE AND CONDUIT.
													FLOOR MOUNTED EJECTOR, CAST IRON CASE, CAST IRON 4.44" DIAMETER IMPELLER, SINGLE SEAL MOTOR, DOUBLE SEALED BEARINGS, AIR FILLED HERMETICALLY SEALED SHAFT, 2" DISCHARGE, 20 FT POWER CORD, OVERLOAD PROTECTION.
													CONTROLS: B&G S3F58010 FACTORY WIRED WALL MOUNTED SIMPLEX CONTROL PANEL, STEEL CONSTRUCTION, THREE PHASE, 6-10 AMPS, NEMA 4X ENCLOSURE, HIGH WATER ALARM LIGHT AND BUZZER WITH DISABLING SWITCH, INCLUDE THREE FLOATS: OFF, ON, AND HIGH WATER ALARM.
SP-3	WEIL 1634 (SUB-SOIL DRAINAGE) (DUPLEX)	7.5	11	460	3	1750	NO	345	41	60"	96"	13/P9001-1	FLOOR MOUNTED EJECTOR, CAST IRON CASE, CAST BRONZE IMPELLER, 304 STAINLESS STEEL STRAINER & HARDWARE, DOUBLE SEAL MOTOR, DOUBLE SEALED BEARINGS, AIR FILLED HERMETICALLY SEALED SHAFT, STAINLESS STEEL LIFTING CABLE, 4" DISCHARGE, 15 FT POWER CORD, OVERLOAD PROTECTION.
													CONTROLS: WEIL 8138 FACTORY WIRED WALL MOUNTED DUPLEX ALTERNATING PUMP CONTROL PANEL, POLY ENCLOSURE RATED TYPE, THREE PHASE, MANUAL DISCONNECT & MOTOR CIRCUIT PROTECTION, THROUGH THE DOOR RESET, RUNNING PILOT LIGHT, HIGH WATER ALARM LIGHT & BUZZER WITH DISABLING SWITCH, INCLUDE WEIL 8234 TETHER POLE WITH THREE PRESSURE DIAPHRAGM SWITCHES: OFF, ON, STANDBY, & HIGH WATER ALARM. WEIL 8251 JUNCTION BOX LOCATED IN PIT, NEMA-4P CONSTRUCTION.
													BASIN & COVER: TOP INDUSTRIES FIBERGLASS BASIN WITH ANTI-FLOTATION FLANGE ON BOTTOM OF BASIN, WEIL 8804 ROUND WET WELL COVER, GASKETED LID, TWO PUMP OPENING, LEVEL CONTROL PLATE, BELOW COVER DISCHARGE, PEDESTRIAN RATED.


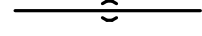

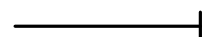
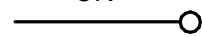



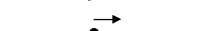




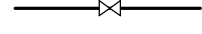
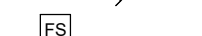
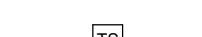
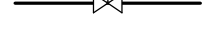

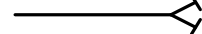






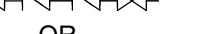


















PLUMBING DRAIN AND CLEANOUT SCHEDULE						
ID	FIXTURE	WASTE			DETAIL / SHEET	DESCRIPTION / REMARKS
		DFU	TRAP	VENT		
FD-1	FLOOR DRAIN (ROUND)	2	2"	1 1/2"	5/P9001-1	FIXTURE: ZURN ZM15-B, CAST IRON BODY, 6" DIAMETER NICKEL BRONZE STRAINER, COMBINATION INVERTIBLE MEMBRANE CLAMP, AND ADJUSTABLE COLLAR.
FD-2	FLOOR DRAIN (ROUND, HEAVY DUTY)	4	4"	2"	5/P9001-1	FIXTURE: ZURN Z533-Y, CAST IRON BODY, 9" DIAMETER TOP, SEEPAGE PAN, HEAVY DUTY DEEP FLANGE SLOTTED GRATE, WITH SOLID BOTTOM SEDIMENT BUCKET.
FD-3	FLOOR DRAIN (ROUND, HEAVY DUTY)	2	2"	1 1/2"	5/P9001-1	FIXTURE: ZURN Z627-Y HEAVY-DUTY ISOLATION DECK DRAIN, CAST IRON BODY, 9" DIAMETER TOP, SEEPAGE PAN, HEAVY DUTY DEEP FLANGE SLOTTED GRATE WITH SOLID BOTTOM SEDIMENT BUCKET.
FD-4	FLOOR DRAIN (ROUND)	2	2"	1 1/2"	5/P9001-1	FIXTURE: ZURN ZN25-U ADJUSTABLE ISOLATION DECK DRAIN, CAST IRON BODY, 6" DIAMETER NICKEL BRONZE STRAINER, COMBINATION INVERTIBLE MEMBRANE CLAMP, HIGH EXTENSION ADAPTOR, AND ADJUSTABLE COLLAR.
FD-5	FLOOR DRAIN (ROUND)	2	2"	1 1/2"	5/P9001-1	FIXTURE: ZURN ZN25-LVP ADJUSTABLE ISOLATION DECK DRAIN, CAST IRON BODY, 6" DIAMETER NICKEL BRONZE STRAINER, VANDAL-PROOF SECURED TOP, COMBINATION INVERTIBLE MEMBRANE CLAMP, HIGH EXTENSION ADAPTOR, AND ADJUSTABLE COLLAR.
HD-1	HUB DRAIN - ABOVE GRADE	6	4"	1 1/2"	5/P9001-1	FIXTURE: ZURN ZN145-B LESS STRAINER WITH ZURN Z1400 ADJUSTABLE STRAINER EXTENSION, CAST IRON BODY WITH SEEPAGE PAN, COMBINATION INVERTIBLE MEMBRANE FLASHING CLAMP, EXTEND HUB 2" AFF (MIN), INSTALL PIPE INCREASER ONE PIPE SIZE LARGER.
HD-2	HUB DRAIN - AT GRADE	6	4"	1 1/2"	---	EXTEND HUB 2" (MIN) ABOVE FLOOR, INSTALL PIPE INCREASER ONE PIPE SIZE LARGER MINIMUM.
TD-1	TRENCH DRAIN	10	4"	2"	---	FIXTURE: ZURN Z833-100 ELEVATOR TRENCH DRAIN SYSTEM, STAINLESS STEEL CONSTRUCTION, STAINLESS STEEL GRATE, VANDAL-PROOF GRATE, MEETS ADA AND HESL-PROOF REQUIREMENTS.
ECQ	FLOOR CLEANOUT	---	---	---	---	UNFINISHED AREAS: ZURN ZN1400-BP, CAST IRON, ADJUSTABLE FLOOR CLEANOUT WITH NICKEL BRONZE TOP AND BRONZE PLUG. PARKING AREAS: ZURN ZN1474-N, CAST IRON BODY, HEAVY DUTY CLEANOUT HOUSING, WITH NICKEL BRONZE TOP & INTERNAL CLEANOUT.

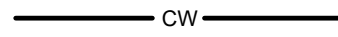
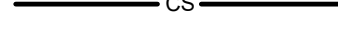







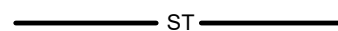
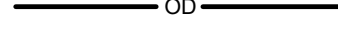



REDUCED PRESSURE BACKFLOW PREVENTERS SCHEDULE						
ID	MANUFACTURER MODEL #	SIZE	GPM	PRESSURE DROP	SERVES	DETAIL / SHEET
BRBP-1	WATTS 9190TS	2"	70	10	WH-2	10/P9001-1

PUMP SCHEDULE						
ID	MANUFACTURER MODEL #	HP	AMPS	VOLTS	PHASE	RPM
CP-1 CP-2 CP-3	B&G NBF-9U	FRAC	0.4	120	1	2800

ELECTRIC WATER HEATERS SCHEDULE									
ID	MANUFACTURER MODEL #	ELECTRICAL			RECOVERY	TANK CAP.	DETAIL / SHEET	DESCRIPTION / REMARKS	
		AMPS	VOLTS	WATTS	PHASE	GPH	RISE °F		
WHR-1	AO SMITH DEL-20	12	208	2500	1	13	80	19	GLASS LINED TANK, ZINC PLATED ELEMENTS, ADJUSTABLE TEMPERATURE CONTROLS, ONE 2500 WATT ELEMENT.
WHR-2 WHR-3	AO SMITH DEL-6	7.2	208	1500	1	8	80	6	GLASS LINED TANK, ZINC PLATED ELEMENTS, ADJUSTABLE TEMPERATURE CONTROLS, ONE 1500 WATT ELEMENT.

WATER CALCULATION WORKSHEET									
Water Calculation Worksheet For		415 N. Lake Street (1st - 6th Floor) Phase 1							
		Name/Address of Project							
INFORMATION REQUIRED TO SIZE WATER SERVICE AND WATER DISTRIBUTION:									
1-	Demand of building in water supply fixture units (WSFU) =	15	:	(GPM)	31				
1.a.	Demand of equipment requiring Gallons Per Minute:			(GPM)	70				
1.b.	Total Building Demand Gallons Per Minute:			(GPM)	101				
2-	Elevation difference from main or external pressure tank to building control valve, (feet)				0				
3-	Size of water meter (when required) 5/8" 3/4" 1" other X								
4-	Developed length from main or external pressure tank to building control valve, (feet)				82				
5-	Low pressure at main in street or external pressure tank, (psi)				80				
CALCULATE WATER SERVICE PRESSURE LOSS (unnecessary for internal pressure tanks)									
6-	Low pressure at main in street or external pressure tank, (value of # 5 above)				80				
7-	Determine pressure loss due to friction in 4 inch diameter water service. Water service piping material is DUCTILE IRON								
	Pressure loss per 100 ft. = 0.315 X 0.82				Subtotal	0.2583			
	(decimal equivalent of service length, i.e. 65 ft = 0.65)				Subtotal				
8-	Determine pressure loss or gain due to elevation, (multiply the value of # 2 above by 434)				Subtract value of "3"	0.00			
9-	Available pressure after the building control valve.				Subtotal	79.74			
CALCULATE THE PRESSURE AVAILABLE FOR UNIFORM LOSS (VALUE OF "A")									
10-	Available pressure after the building control valve, (from "9" above)			Value of "9"			79.74		
11-	Pressure loss of water meter (when meter is required)				Subtract value of "C"	3.0			
					Subtotal	76.74			
12-	Pressure at controlling fixture". (Controlling fixture is: WATER CLOSET) (Controlling fixture is the fixture with the most demanding pressure to operate properly which includes the following when determining fixture performance: loss due to instantaneous water heaters, water treatment devices, and backflow preventers which serve the controlling fixture.)				Subtract value of "10"	25			
					Subtotal	51.74			
13-	Difference in elevation between building control valve and the controlling fixture in feet; 0 X 434 psi/ft.				Subtract value of "11"	0			
					Subtotal	51.74			
14-	Pressure loss due to water treatment devices and backflow preventers which serve the controlling fixture. (Water softeners, filters, etc.) (Pressure loss due to: N/A)				Subtract value of "12"	12			
					Subtotal	39.74			
15-	Pressure loss through tankless water heaters, combination boiler / hot water heaters, heat exchangers which serve the controlling fixture; (Pressure loss due to: N/A)				Subtotal	0			
					Subtotal	39.74			
16-	Developed length from building control valve to controlling fixture in feet 275 X 1.5				Divide by value "H"	412.50			
	Water distribution piping is: Copper				Subtotal	0.0983			
					Multiply by:	100			
17-	Pressure available for uniform loss				"A" =	9.63			
Formula: A = $\frac{B-(C+D+E+F+G)}{H} \times 100$									

ABBREVIATIONS:		GENERAL SYMBOLS:	
A	COMPRESSED AIR		TEE (BRANCH TO SIDE)
AFF	ABOVE FINISHED FLOOR		TEE (BRANCH DOWN)
AFG	ABOVE FINISHED GRADE		RISER UP
BFF	BELOW FINISHED FLOOR		RISER DOWN
BFG	BELOW FINISHED GRADE		CLEANOUT (CO)
CB	CATCH BASIN		WALL CLEANOUT (WCO)
CO	CLEANOUT		FLOOR CLEANOUT (FCO)
CS	COLD SOFT WATER		YARD CLEANOUT (YCO)
CW	COLD WATER		DOWNSPOUT NOZZLE (DSN)
CWV	CLEAR WATER VENT		UNION
CWW	CLEAR WATER WASTE		FLANGE
DCV	DOUBLE DETECTOR CHECK VALVE		FLOW
DF	DRINKING FOUNTAIN		CHECK VALVE
DSN	DOWNSPOUT NOZZLE		PRESSURE REGULATING VALVE
DSP	DRY STANDPIPE		SOLENOID VALVE
DW	DISHWASHER		HOSE BIBB (HB) OR WALL HYDRANT (WH)
EC	ELECTRICAL CONTRACTOR		CAP
ESEW	EMERGENCY SHOWER/EYEWASH		BALANCING VALVE
F	FIRE PROTECTION WATER SERVICE		SHUTOFF VALVE
FCO	FLOOR CLEANOUT		PIPE STRAINER
FEC	FOOD EQUIPMENT CONTRACTOR		FLOW SWITCH
FCM	FORCE MAIN		TAMPER SWITCH
FPC	FIRE PROTECTION CONTRACTOR		OS&Y GATE VALVE
FPTC	FIRE PUMP TEST CONNECTION		FIRE DEPARTMENT CONNECTION (FDC)
G	NATURAL GAS		FIRE HYDRANT (HYD)
GC	GENERAL CONTRACTOR		FIXTURE STOP
HB	HOSE BIBB		VALVE IN RISER
HC	HVAC CONTRACTOR		THERMOMETER
HW	HOT WATER		PRESSURE GAUGE
HWT	HOT WATER WITH HEAT TRACE		WATER HAMMER ARRESTOR
HWR	HOT WATER RECIRCULATION		RPBP - REDUCED PRESSURE ZONE BACKFLOW PREVENTER
IE	INVERT ELEVATION		OR
JS	JANITOR SINK		DCV - DOUBLE DETECTOR CHECK VALVE ASSEMBLY
L	LAVATORY		FLOOR DRAIN (FD)
MB	MOP BASIN		HUB DRAIN (HD)
MH	MANHOLE		AREA DRAIN (AD)
N	NITROGEN		ROOF DRAIN (RD) OR OVERFLOW DRAIN (ORD)
NO	NITROUS OXIDE		FLOOR SINK (FS)
NPC	NON-POTABLE COLD WATER		FINISHED FLOOR ELEVATION
NPCS	NON-POTABLE COLD SOFT WATER		FIXTURE UNITS - DRAINAGE OR SUPPLY (DFU OF WSFU)
OD	OVERFLOW DRAIN		DEMOLITION KEYED NOTE
ORD	OVERFLOW ROOF DRAIN		NEW WORK KEYED NOTE
PC	PLUMBING CONTRACTOR		REVISION KEYED NOTE
PCS	PROCESS COLD SOFT WATER		TAG FOR CONTINUATION MATCH POINTS
RPBP	REDUCED PRESSURE ZONE BACKFLOW PREVENTER		
S	SINK		
SAN	SANITARY		
SD	SUBSOIL DRAIN		
SPR	SPRINKLER PIPING		
ST	STORM		
T	TEMPERED WATER		
TMV	TEMPERATIC MIXING VALVE		
TYP	TYPICAL		
U	URINAL		
V	VENT		
VAC	VACUUM		
VB	VACUUM BREAKER		
VTR	VENT THRU ROOF		
W	DOMESTIC WATER SERVICE		
WC	WATER CLOSET		
WCO	WALL CLEAN OUT		
WF	WASH FOUNTAIN		
WM	WASHING MACHINE WALL BOX		
WH	WALL HYDRANT		
WHA	WATER HAMMER ARRESTOR		
WHR	WATER HEATER		
WS	WATER SOFTENER		
WSP	WET STANDPIPE		

PLUMBING LEGEND:	
	CW COLD WATER
	CS COLD SOFT WATER
	HW HOT WATER
	HWR HOT WATER RECIRCULATION
	NPC NON-POTABLE COLD WATER
	W DOMESTIC WATER SERVICE
	G NATURAL GAS
	SAN SANITARY DRAIN, WASTE OR SEWER (SAN)
	V VENT (V)
	CWV CLEAR WATER VENT
	CWW CLEAR WATER WASTE
	SD SUBSOIL DRAIN (FOOTING DRAIN)
	ST STORM DRAIN CONDUCTOR OR SEWER
	OD OVERFLOW DRAIN

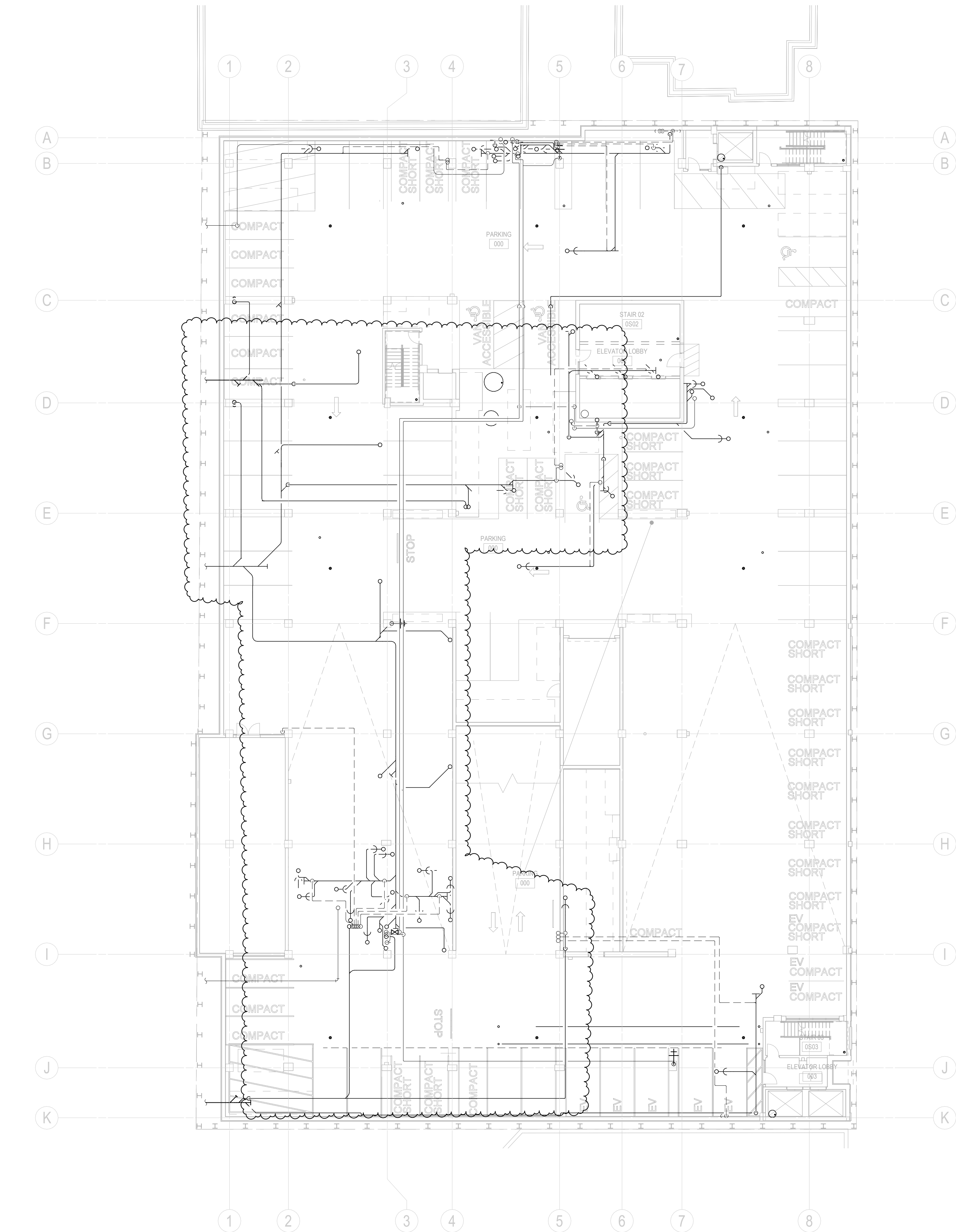
E

D

C

B

A



1
P1000-1
SCALE: 1/16" = 1'-0"
LOWER LEVEL OVERALL - PHASE 1 - PLUMBING

GENERAL NOTES:

1. ALL WORK TO BE DONE IN COMPLIANCE WITH ALL STATE AND LOCAL CODES AND ALL MANUFACTURER'S INSTRUCTIONS.
2. ALL PIPING SHALL RUN STRAIGHT AND TRUE AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.
3. ALL PIPING THAT REQUIRES INSULATION SHALL CONFORM WITH ALL APPLICABLE CODES.
4. ALL EQUIPMENT IS TO BE PROVIDED COMPLETE WITH OPERATION & MAINTENANCE MANUALS.
5. ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.



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PROJECT INFORMATION

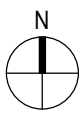
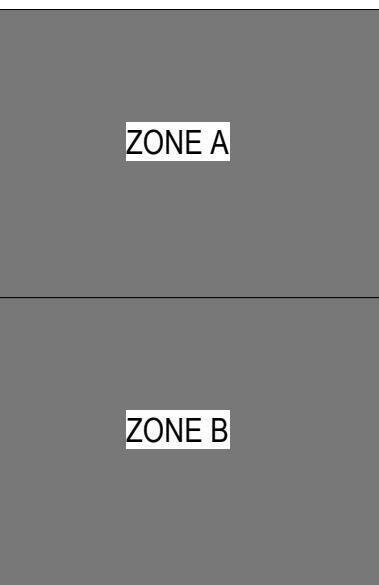
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

PROJECT NUMBER 720448

**LOWER LEVEL
OVERALL - PHASE 1
- PLUMBING**

P1000-1

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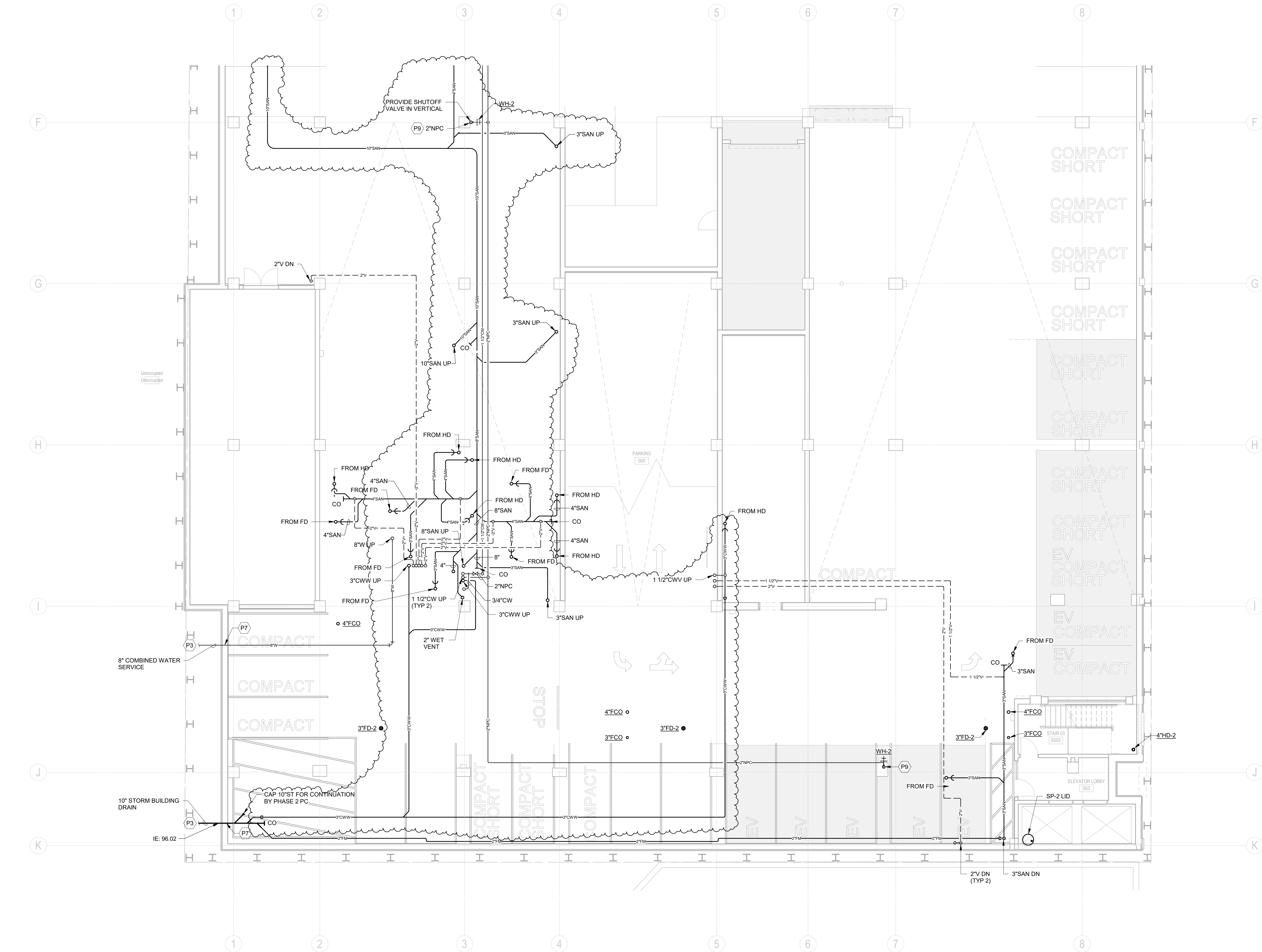
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D

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1 LOWER LEVEL - ZONE B - PHASE 1 - PLUMBING

P1000-B-1 SCALE: 1/8\" = 1'-0"

GENERAL NOTES:

1. ALL WORK TO BE DONE IN COMPLIANCE WITH ALL STATE AND LOCAL CODES AND ALL MANUFACTURER'S INSTRUCTIONS.
2. ALL PIPING SHALL RUN STRAIGHT AND TRUE AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.
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5. ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- P3 PC SHALL ROUTE SERVICE TO 5'-0" OUTSIDE OF BUILDING STRUCTURE, CONTINUATION BY SITE UTILITY CONTRACTOR.
P7 PROVIDE LINK SEAL FOR FOUNDATION PENETRATIONS.
P9 LOCATE LOCKABLE SHUTOFF VALVE IN VERTICAL.



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

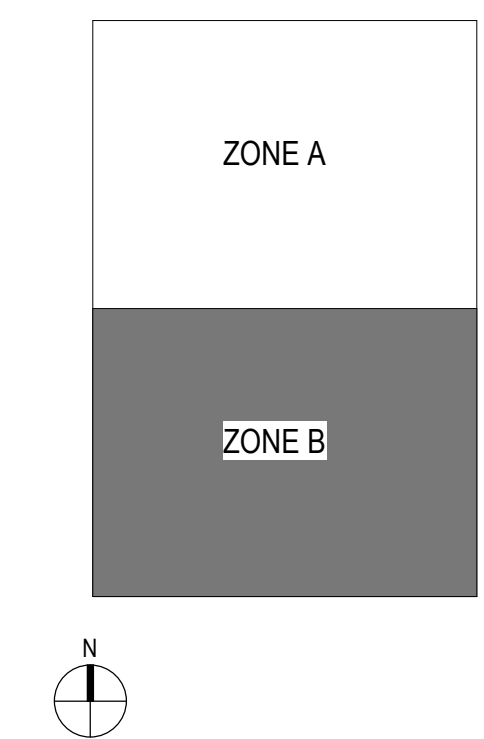
**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A02

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

A

PROJECT NUMBER 720448

**LOWER LEVEL -
ZONE B - PHASE 1 -
PLUMBING**

P1000-B-1

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GENERAL NOTES:

1. ALL WORK TO BE DONE IN COMPLIANCE WITH ALL STATE AND LOCAL CODES AND ALL MANUFACTURER'S INSTRUCTIONS.
2. ALL PIPING SHALL RUN STRAIGHT AND TRUE AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.
3. ALL PIPING THAT REQUIRES INSULATION SHALL CONFORM WITH ALL APPLICABLE CODES.
4. ALL EQUIPMENT IS TO BE PROVIDED COMPLETE WITH OPERATION & MAINTENANCE MANUALS.
5. ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

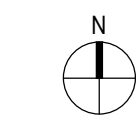
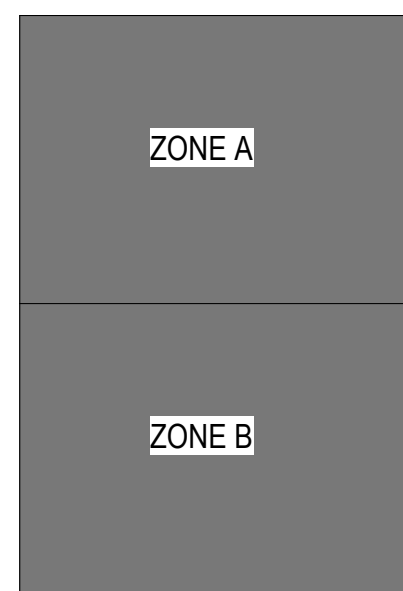
**415 N. LAKE STREET
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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

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KEY PLAN



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SHEET INFORMATION

PROJECT MANAGER

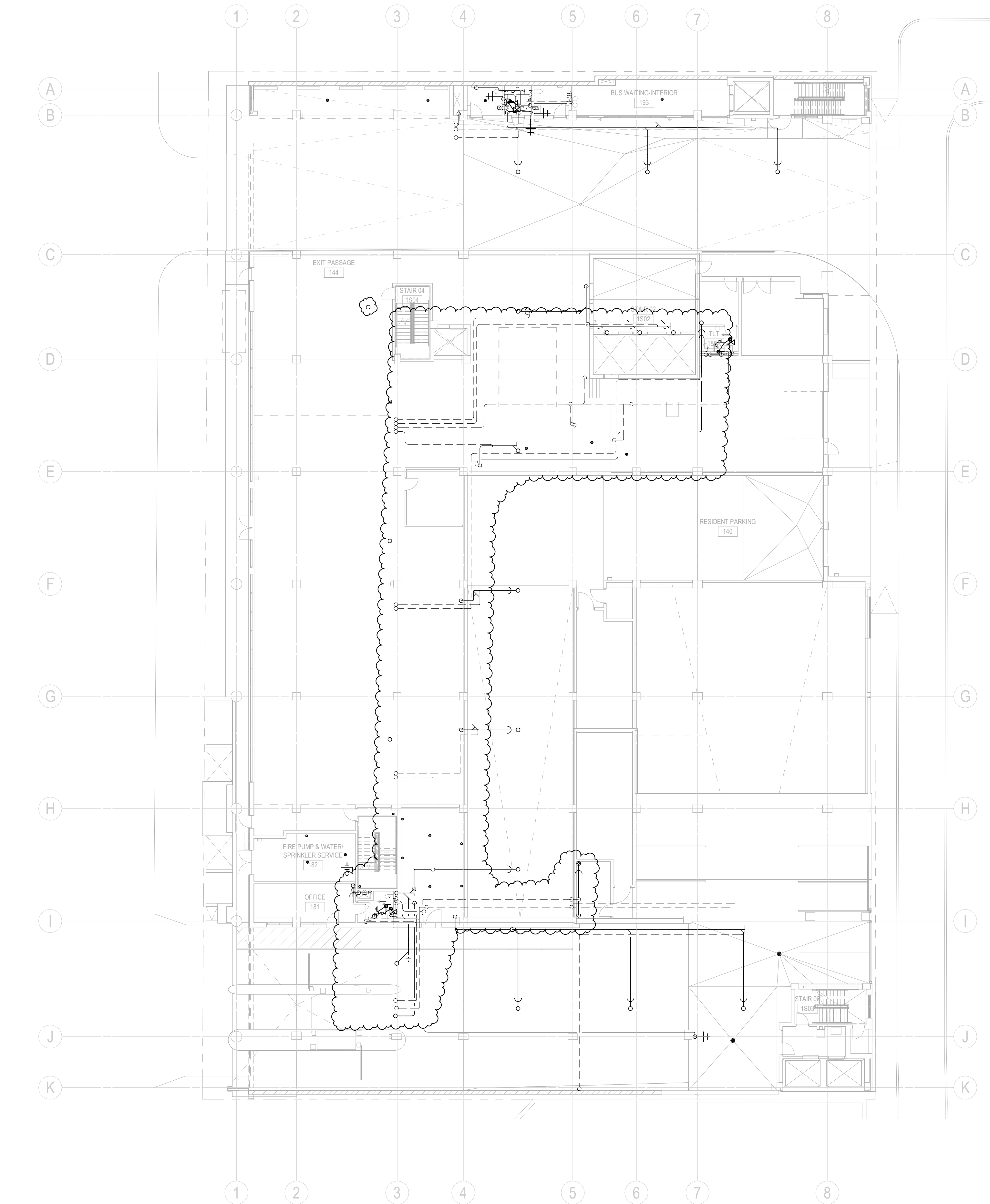
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PROJECT NUMBER 720448

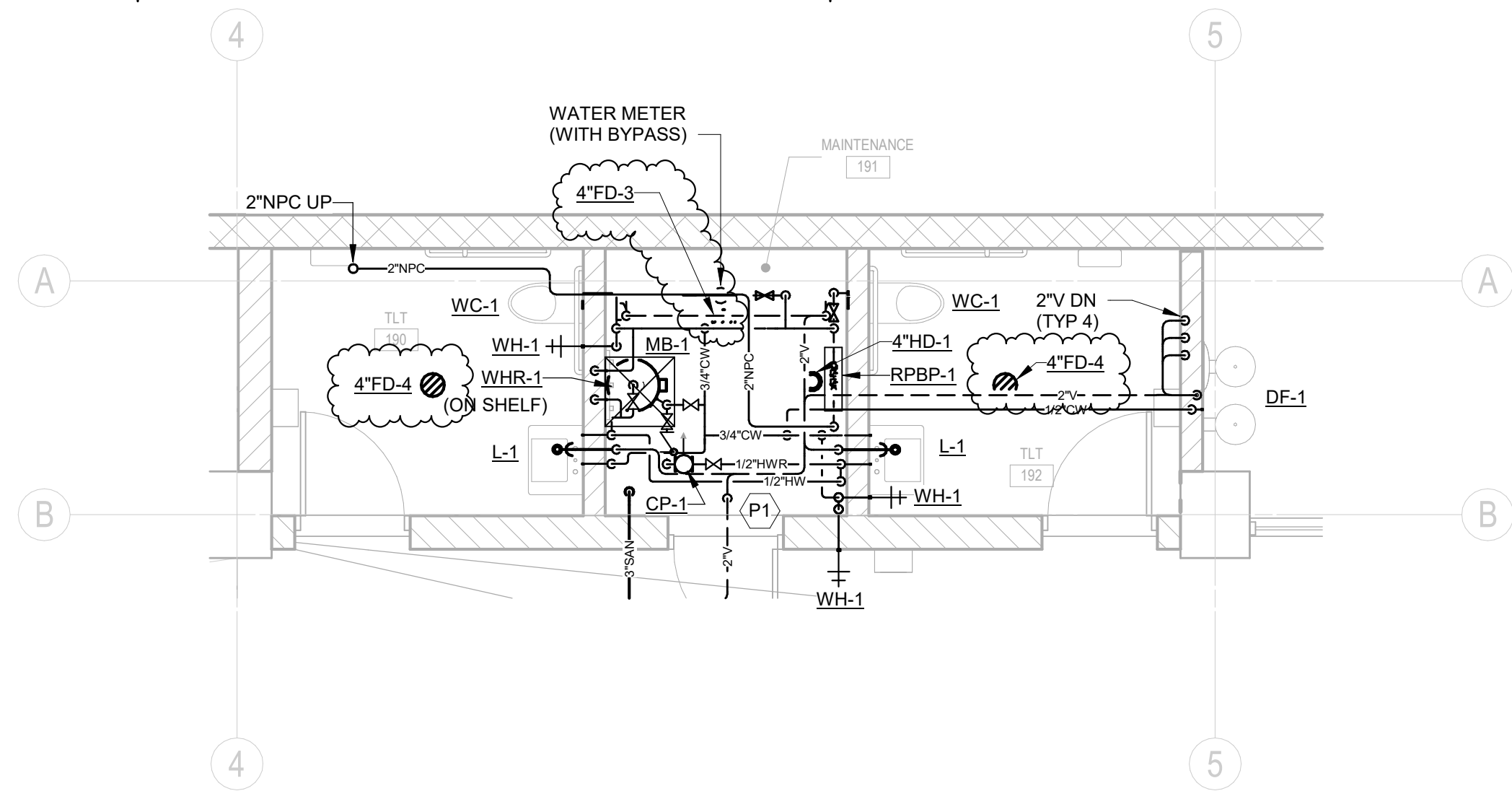
**1ST FLR OVERALL -
PHASE 1 -
PLUMBING**

P1001-1

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1
P1001-1 1ST FLR OVERALL - PHASE 1 - PLUMBING
SCALE: 1/16" = 1'-0"



2 ENLARGED PLAN - TLT 122, TLT 124, MAINTENANCE 123 - PLUMBING
P1001-A-1 SCALE: 1/4\"/>

- GENERAL NOTES:**
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 - ALL EQUIPMENT IS TO BE PROVIDED COMPLETE WITH OPERATION & MAINTENANCE MANUALS.
 - ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.

- KEYED NOTES**
(KEYED NOTES PER PROJECT)
- P1 ALL WATER PIPING AND COMPONENTS SHALL BE ABLE TO FULLY DRAINED FOR COLD WEATHER SEASONS. PC SHALL NOT TRAP ANY WATER PIPING
- P2 LOCATE WATER HEATER ON SHELF ABOVE CEILING.
- P16 HEAT-TRACE PIPING IN UNCONDITIONED SPACE. PC TO PROVIDE THERMON BSX 3-2 SELF-REGULATING HEAT TRACE CABLE AT 240V. HEAT TRACE CABLE TO BE LOCATED ON ANY EXPOSED SANITARY AND VENT. PROVIDE THERMON SST-2 FREEZE PROTECTION THERMOSTAT. COORDINATE FINAL ELECTRICAL CONNECTION TO THERMON SST-2 FREEZE PROTECTION THERMOSTAT WITH EC.

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JDR Project No: 22.0249

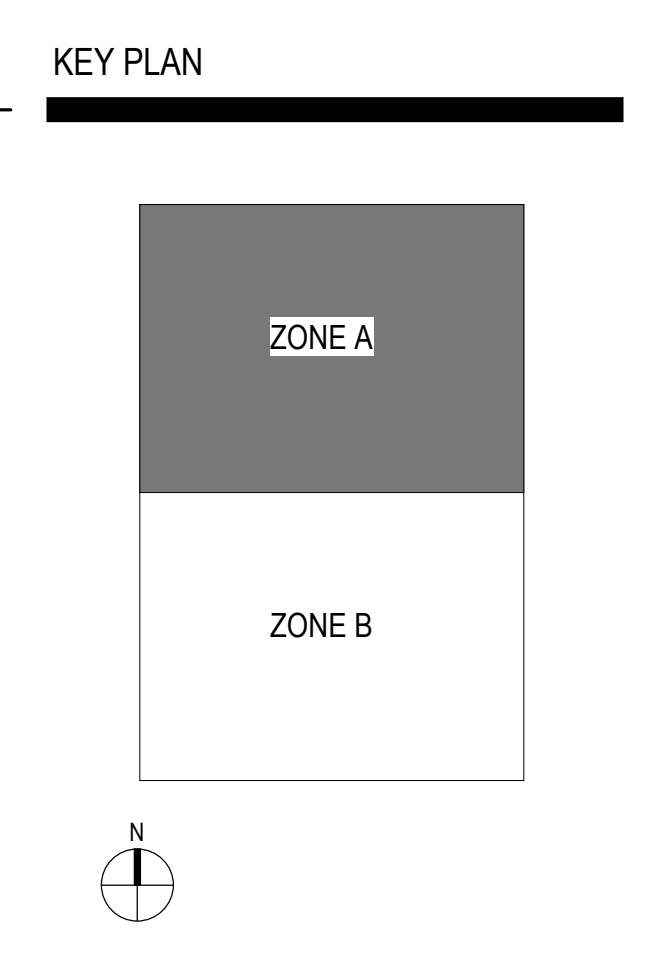
PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
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07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2



SHEET INFORMATION

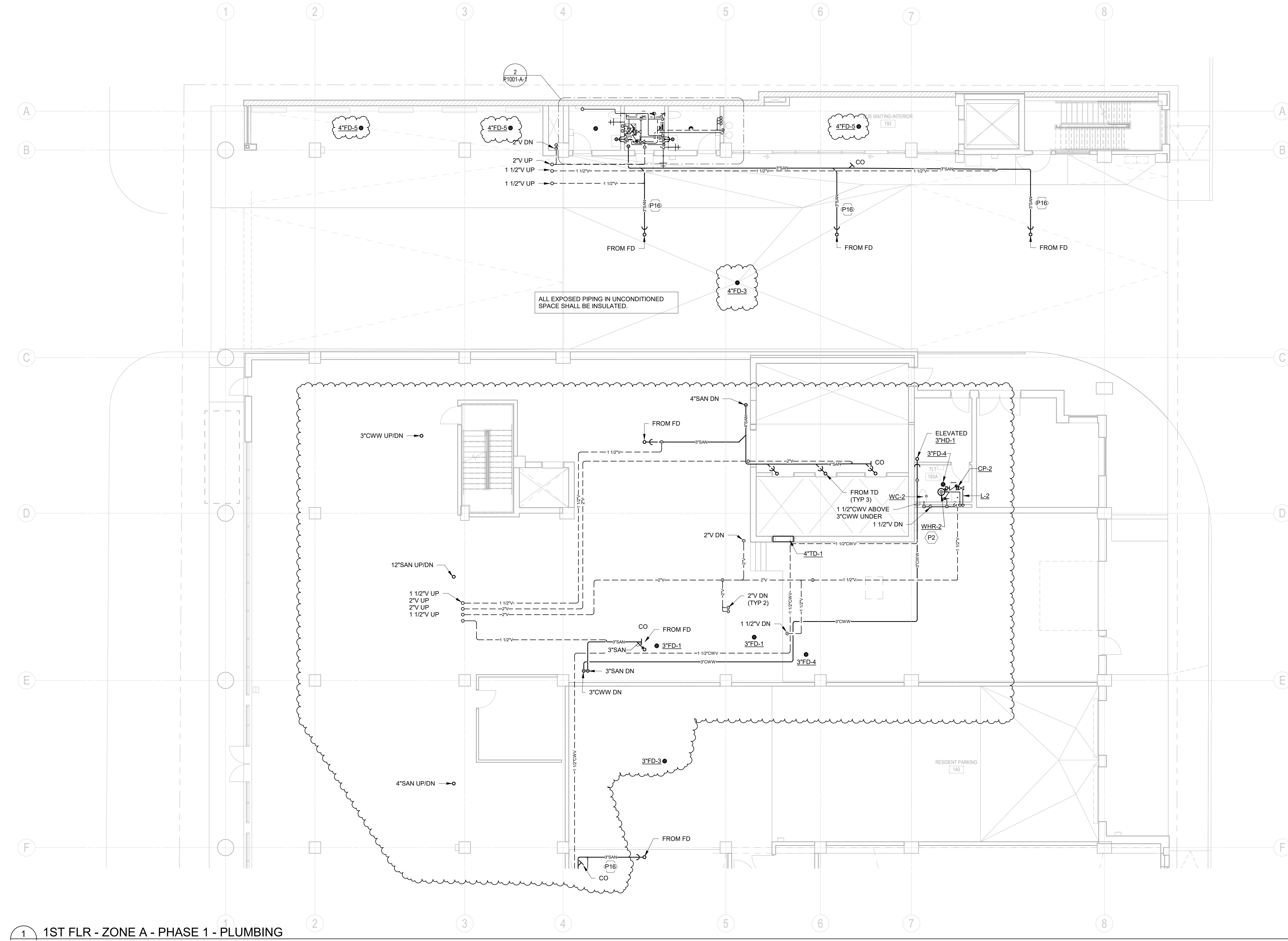
PROJECT MANAGER

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**1ST FLR - ZONE A -
PHASE 1 -
PLUMBING**

P1001-A-1

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1 1ST FLR - ZONE A - PHASE 1 - PLUMBING
P1001-A-1 SCALE: 1/8\"/>

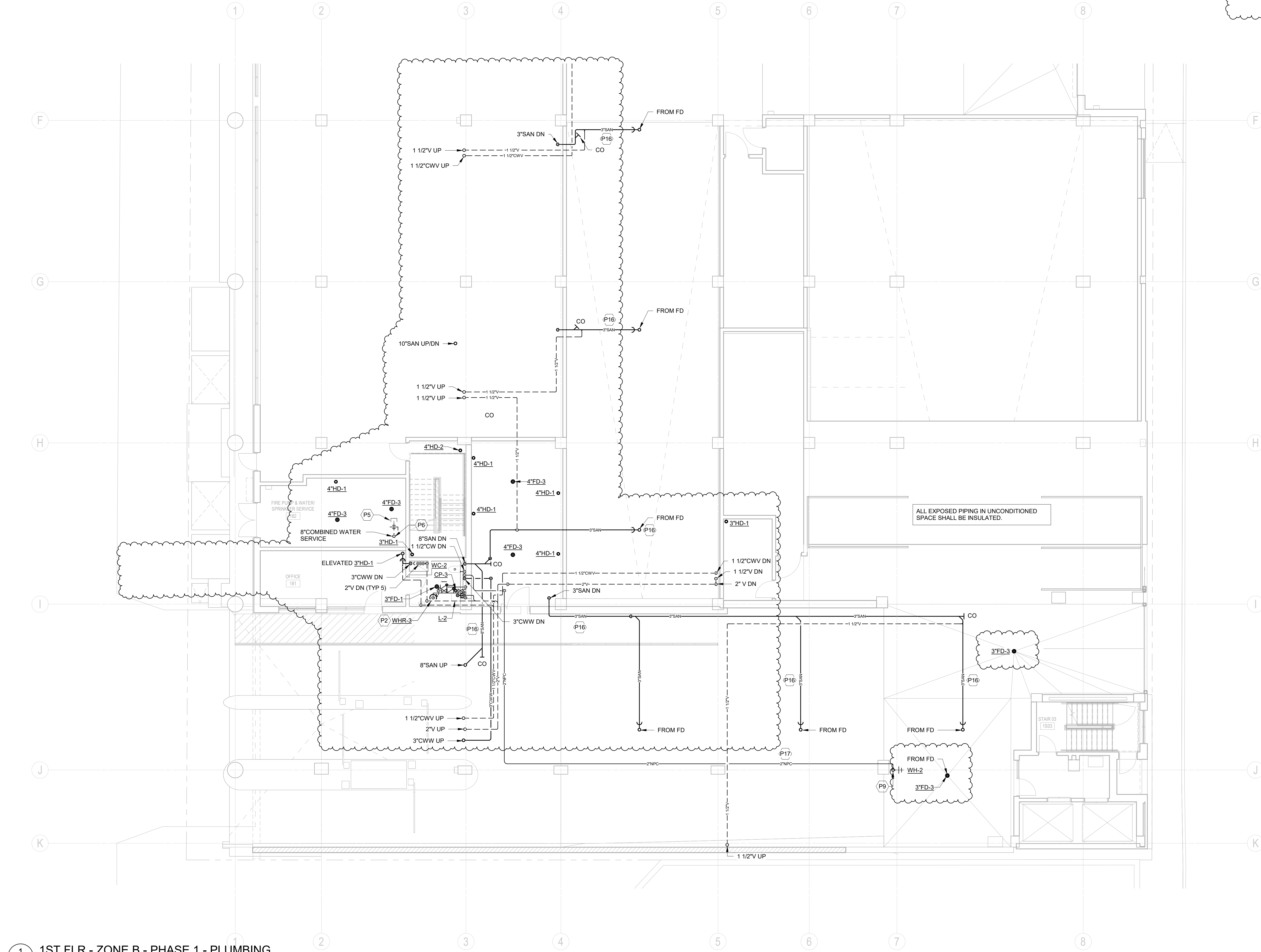
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1 1ST FLR - ZONE B - PHASE 1 - PLUMBING
P1001-B-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

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- ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- P2 LOCATE WATER HEATER ON SHELF ABOVE CEILING.
P5 PROVIDE 6" BUTTERFLY VALVE AND CAP 6" DOMESTIC WATER LINE FOR CONTINUATION AS PART OF PHASE 2.
P6 FPC TO LOCATE DOUBLE CHECK VALVE IN VERTICAL. CONTINUATION BY FPC.
P9 LOCATE LOCKABLE SHUTOFF VALVE IN VERTICAL.
P16 HEAT-TRACE PIPING IN UNCONDITIONED SPACE. PC TO PROVIDE THERMON BSX 3-2 SELF-REGULATING HEAT TRACE CABLE AT 240V. HEAT TRACE CABLE TO BE LOCATED ON ANY EXPOSED SANITARY AND VENT. PROVIDE THERMON SST-2 FREEZE PROTECTION THERMOSTAT. COORDINATE FINAL ELECTRICAL CONNECTION TO THERMON SST-2 FREEZE PROTECTION THERMOSTAT WITH EC.
P17 ALL WATER PIPING AND COMPONENTS SHALL BE ABLE TO BE FULLY DRAINED FOR COLD WEATHER SEASONS. PC SHALL NOT TRAP ANY WATER PIPING. PROVIDE DRAIN VALVES WHERE REQUIRED.



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JDR Project No: 22.0249

PROJECT INFORMATION

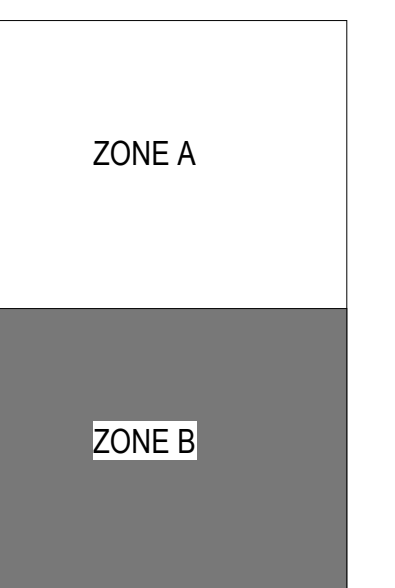
STATE STREET
CAMPUS GARAGE
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415 N. LAKE STREET
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11-02-2023	PH1, ADD2

KEY PLAN



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1ST FLR - ZONE B -
PHASE 1 -
PLUMBING

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JDR Project No: 22.0249

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

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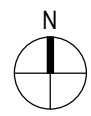
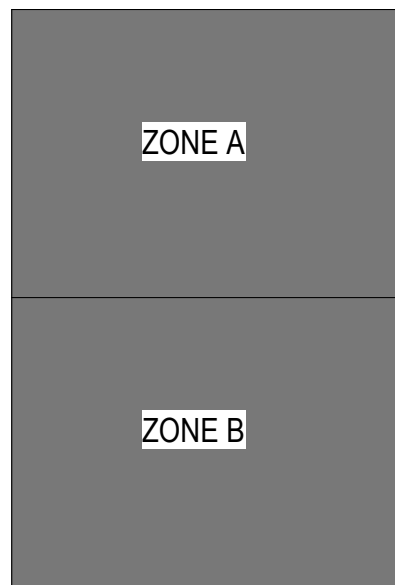
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11-02-2023	PH1_ADD2

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KEY PLAN



SHEET INFORMATION

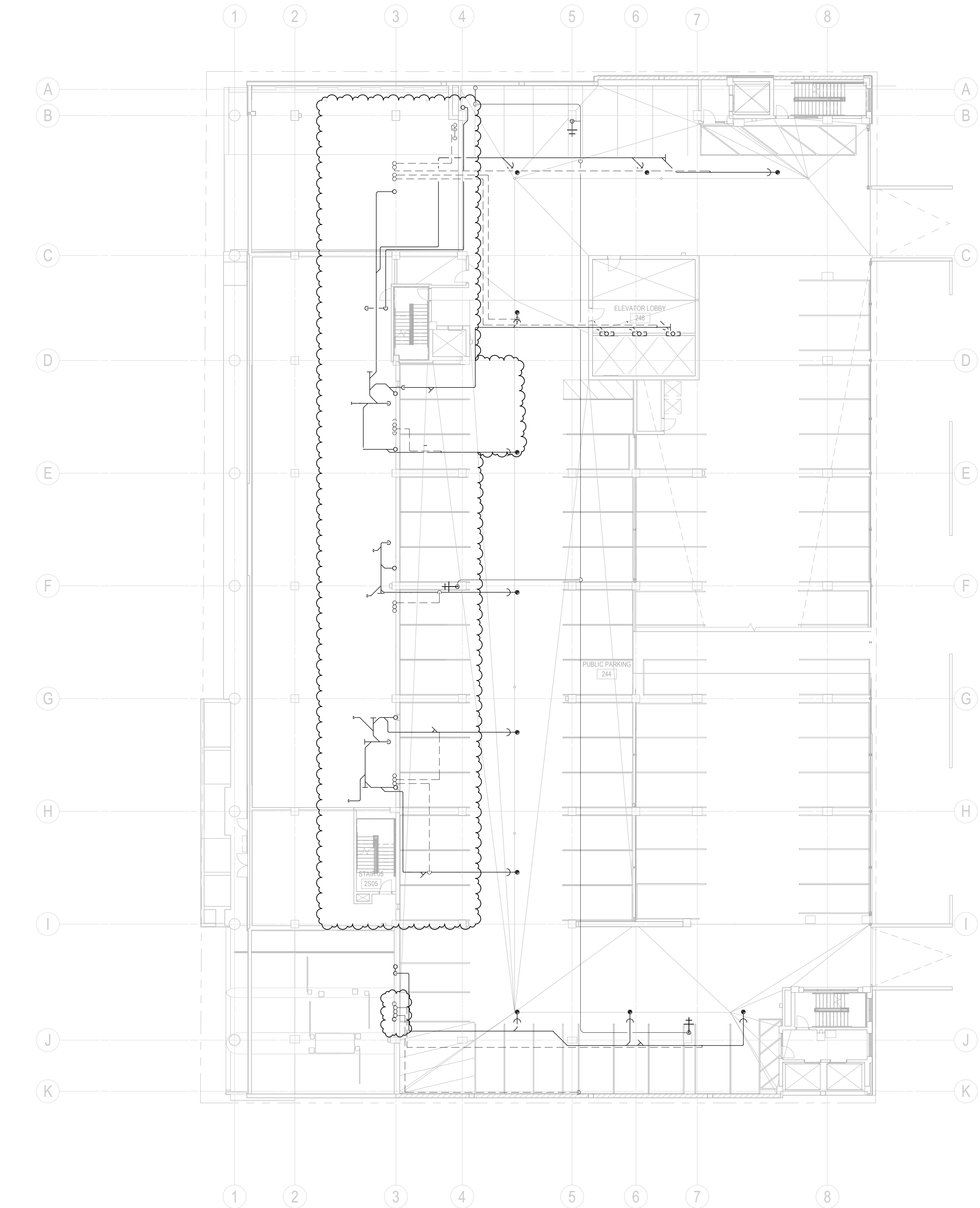
PROJECT MANAGER
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P2 FLR OVERALL –
PHASE 1 –
PLUMBING

P1002-1

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P1002-1
P2 FLR OVERALL - PHASE 1 - PLUMBING
SCALE: 1/16" = 1'-0"

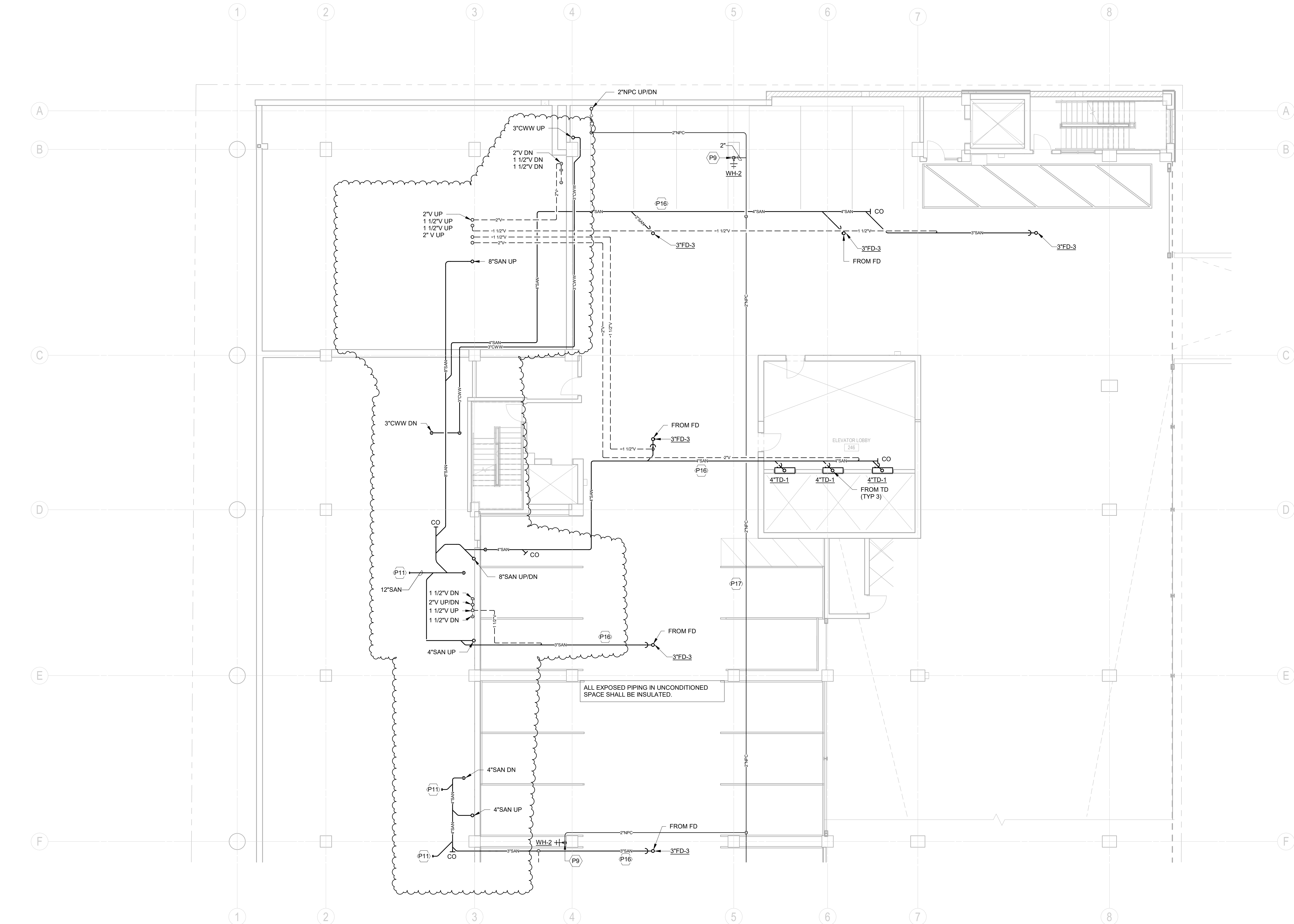
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1 P2 FLR - ZONE A - PHASE 1 - PLUMBING
P1002-A-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

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KEYED NOTES

(KEYED NOTES PER PROJECT)

- P9 LOCATE LOCKABLE SHUTOFF VALVE IN VERTICAL.
- P11 CAP SANITARY FOR FUTURE EXTENSION BY PHASE 2 PC.
- P16 HEAT-TRACE PIPING IN UNCONDITIONED SPACE. PC TO PROVIDE THERMON BSX 3-2 SELF-REGULATING HEAT TRACE CABLE AT 240V. HEAT TRACE CABLE TO BE LOCATED ON ANY EXPOSED SANITARY AND VENT. PROVIDE THERMON SST-2 FREEZE PROTECTION THERMOSTAT, COORDINATE FINAL ELECTRICAL CONNECTION TO THERMON SST-2 FREEZE PROTECTION THERMOSTAT WITH EC.
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JDR Project No: 22.0249

PROJECT INFORMATION

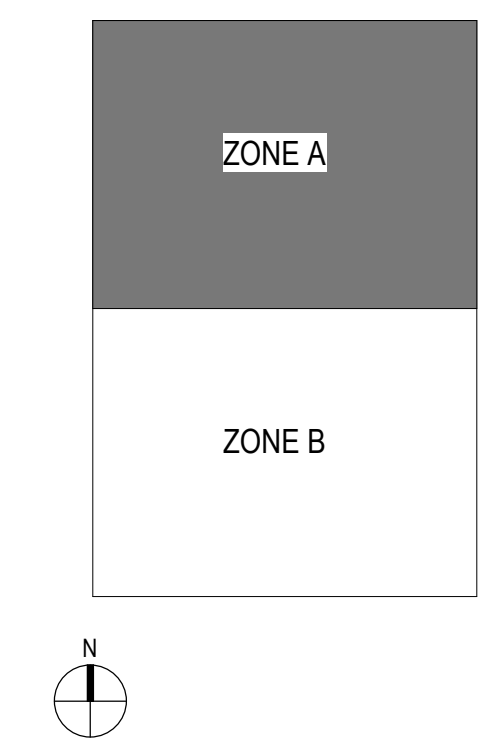
STATE STREET
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415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
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11-02-2023	PH1, ADD2

KEY PLAN



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P2 FLR - ZONE A -
PHASE 1 -
PLUMBING

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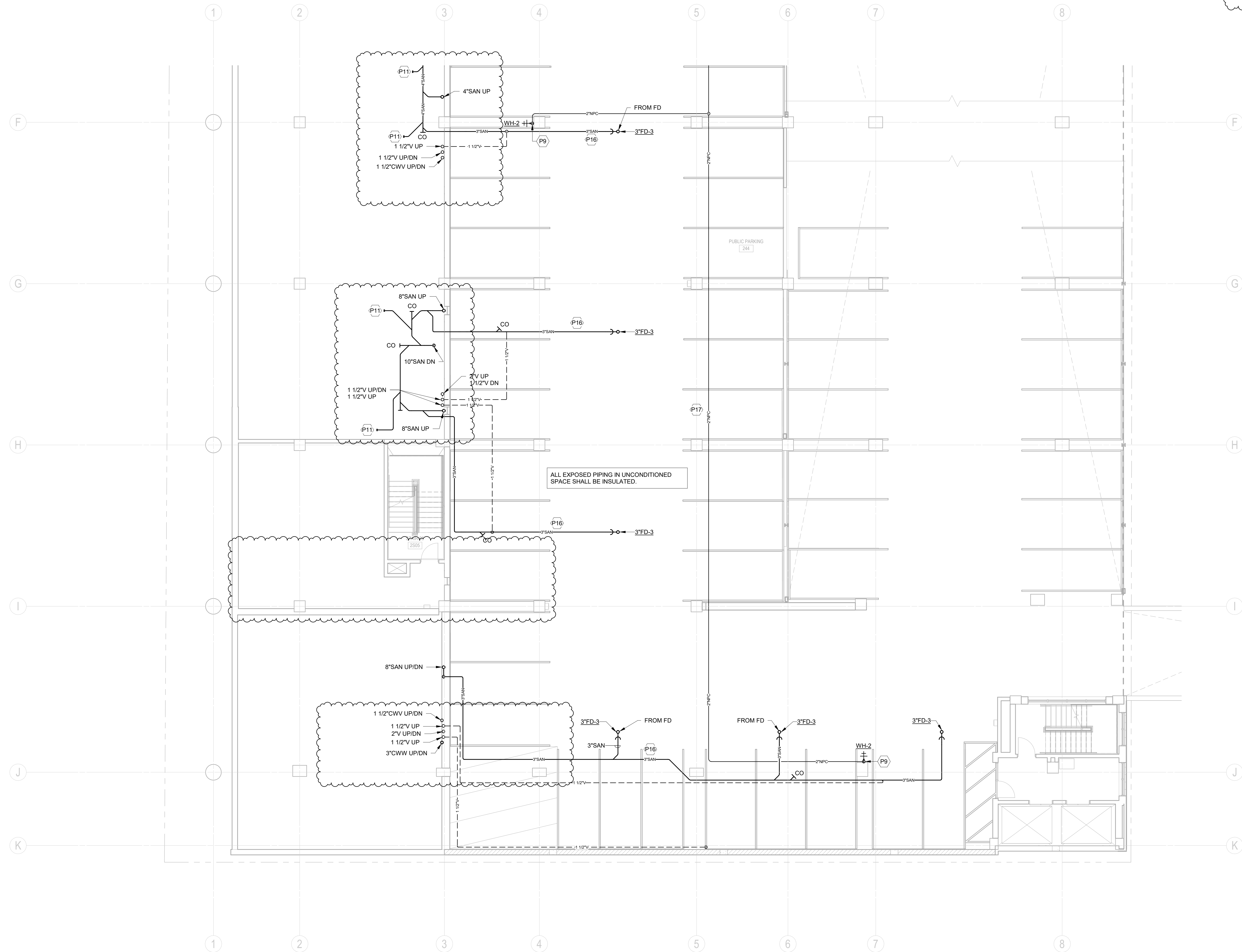
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1 P2 FLR - ZONE B - PHASE 1 - PLUMBING
P1002-B-1 SCALE: 1/8" = 1'-0"



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PROJECT INFORMATION

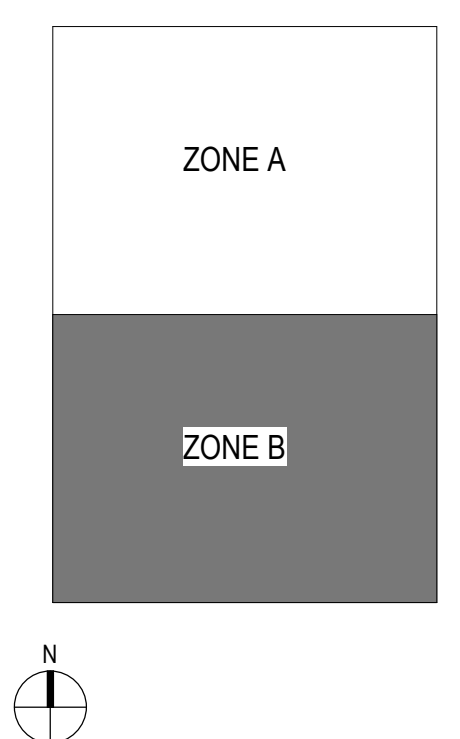
STATE STREET
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11-02-2023	PH1_A002

KEY PLAN



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P2 FLR - ZONE B -
PHASE 1 -
PLUMBING

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JDR Project No: 22.0249

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

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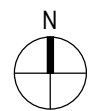
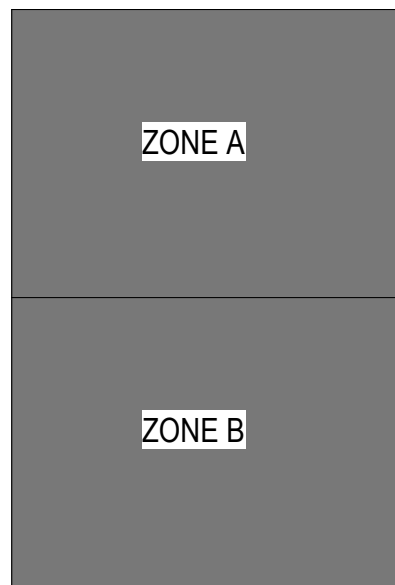
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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_AD02

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KEY PLAN



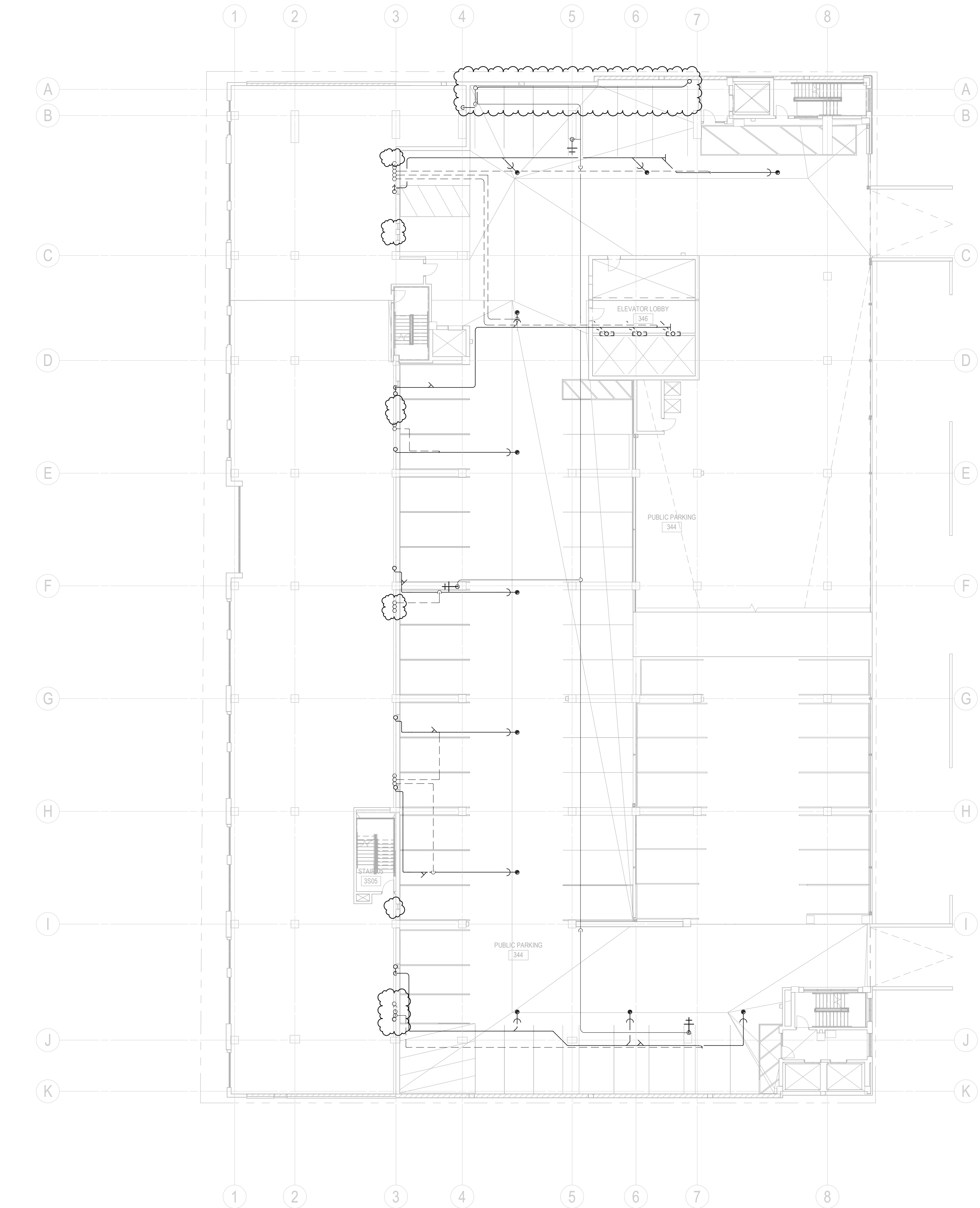
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PROJECT NUMBER 720448

P3 FLR OVERALL –
PHASE 1 –
PLUMBING

P1003-1

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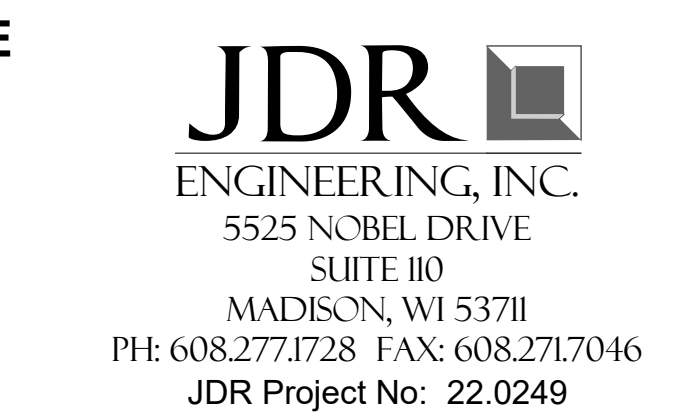
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P1003-1
P3 FLR OVERALL - PHASE 1 - PLUMBING
SCALE: 1/16" = 1'-0"



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P16 LOCATE LOCKABLE SHUTOFF VALVE IN VERTICAL. HEAT-TRACE PIPING IN UNCONDITIONED SPACE. PC TO PROVIDE THERMON BSX 3-2 SELF-REGULATING HEAT TRACE CABLE AT 240V. HEAT TRACE CABLE TO BE LOCATED ON ANY EXPOSED SANITARY AND VENT. PROVIDE THERMON SST-2 FREEZE PROTECTION THERMOSTAT. COORDINATE FINAL ELECTRICAL CONNECTION TO THERMON SST-2 FREEZE PROTECTION THERMOSTAT WITH EC.

P17 ALL WATER PIPING AND COMPONENTS SHALL BE ABLE TO BE FULLY DRAINED FOR COLD WEATHER SEASONS. PCS SHALL NOT TRAP ANY WATER PIPING. PROVIDE DRAIN VALVES WHERE REQUIRED.



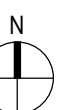
STATE STREET
CAMPUS GARAGE
MIXED-USE

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11-02-2023	PH1 AD02

Diagram illustrating a two-zone system:

- ZONE A** (Top Zone, Grey background): Contains a small black square.
- ZONE B** (Bottom Zone, White background): Empty.



PROJECT NUMBER 720448

P3 FLR - ZONE A –
PHASE 1 –
PLUMBING

P1003-A-1

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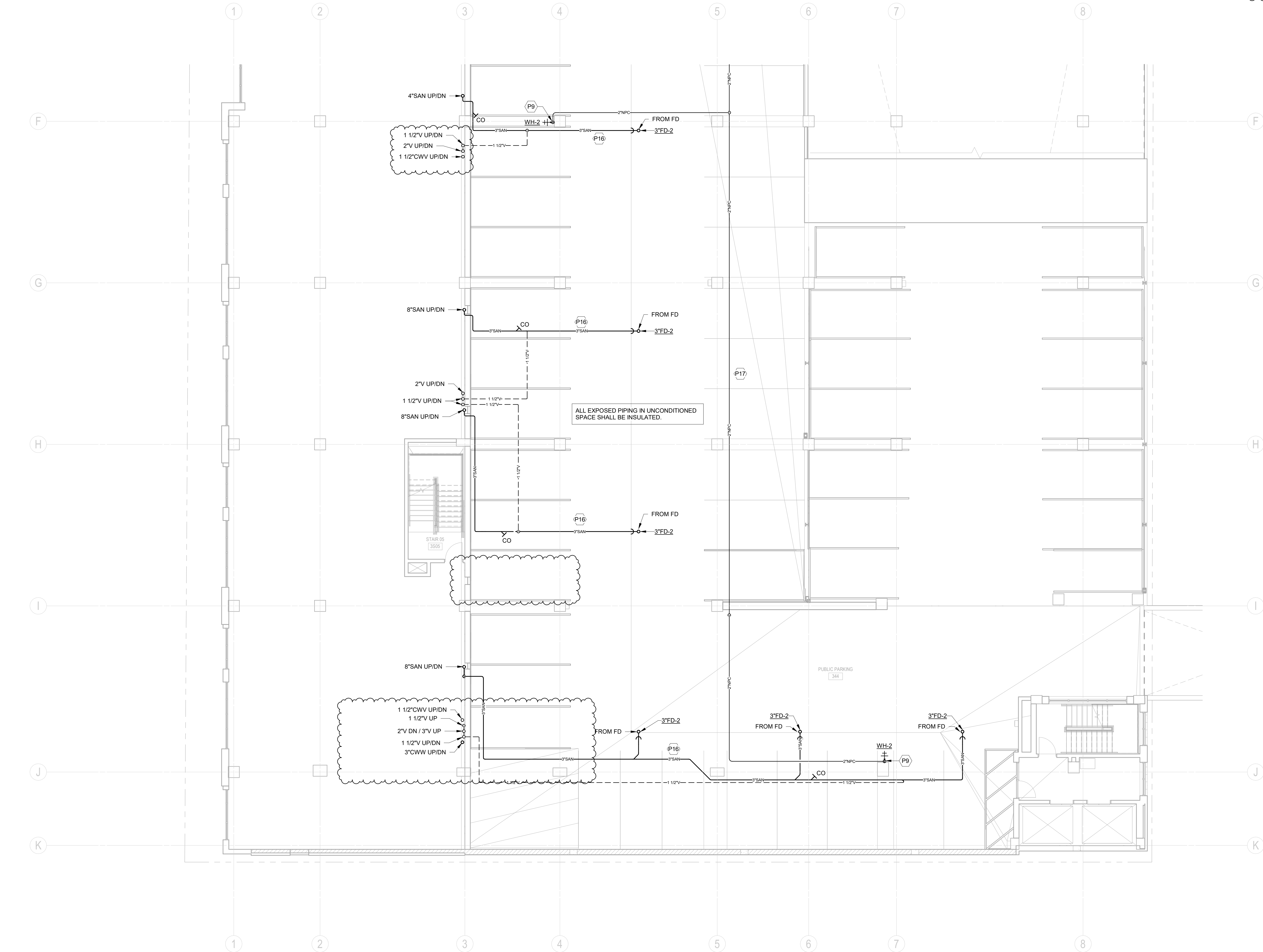
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1 P3 FLR - ZONE B - PHASE 1 - PLUMBING
P1003-B-1 SCALE: 1/8\"/>

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JDR Project No: 22.0249

PROJECT INFORMATION

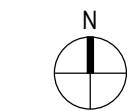
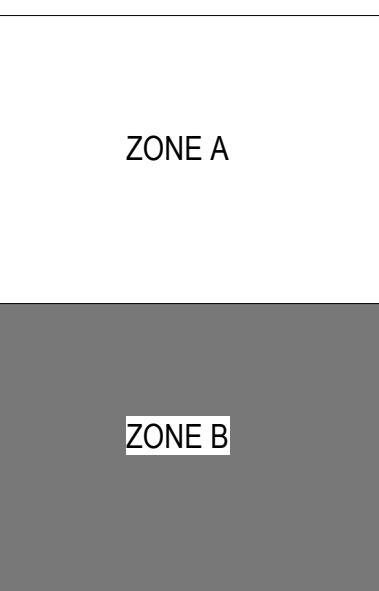
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KEY PLAN



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PROJECT MANAGER

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P3 FLR - ZONE B -
PHASE 1 -
PLUMBING

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GENERAL NOTES:

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- ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.



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PH: 608.277.1728 FAX: 608.271.7046
JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

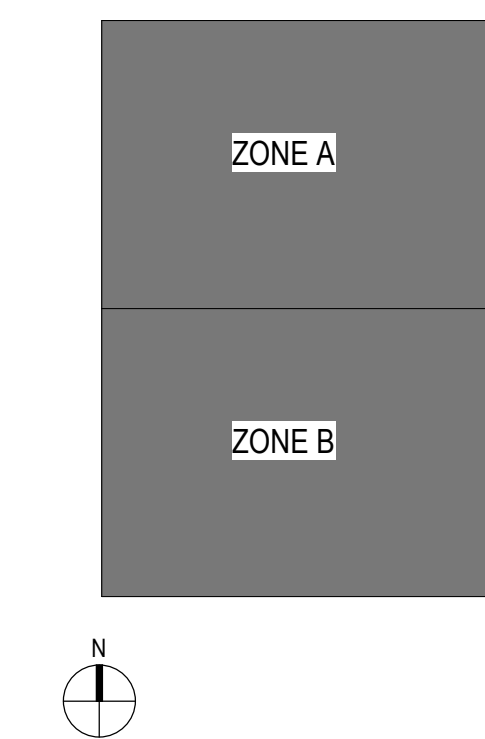
**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

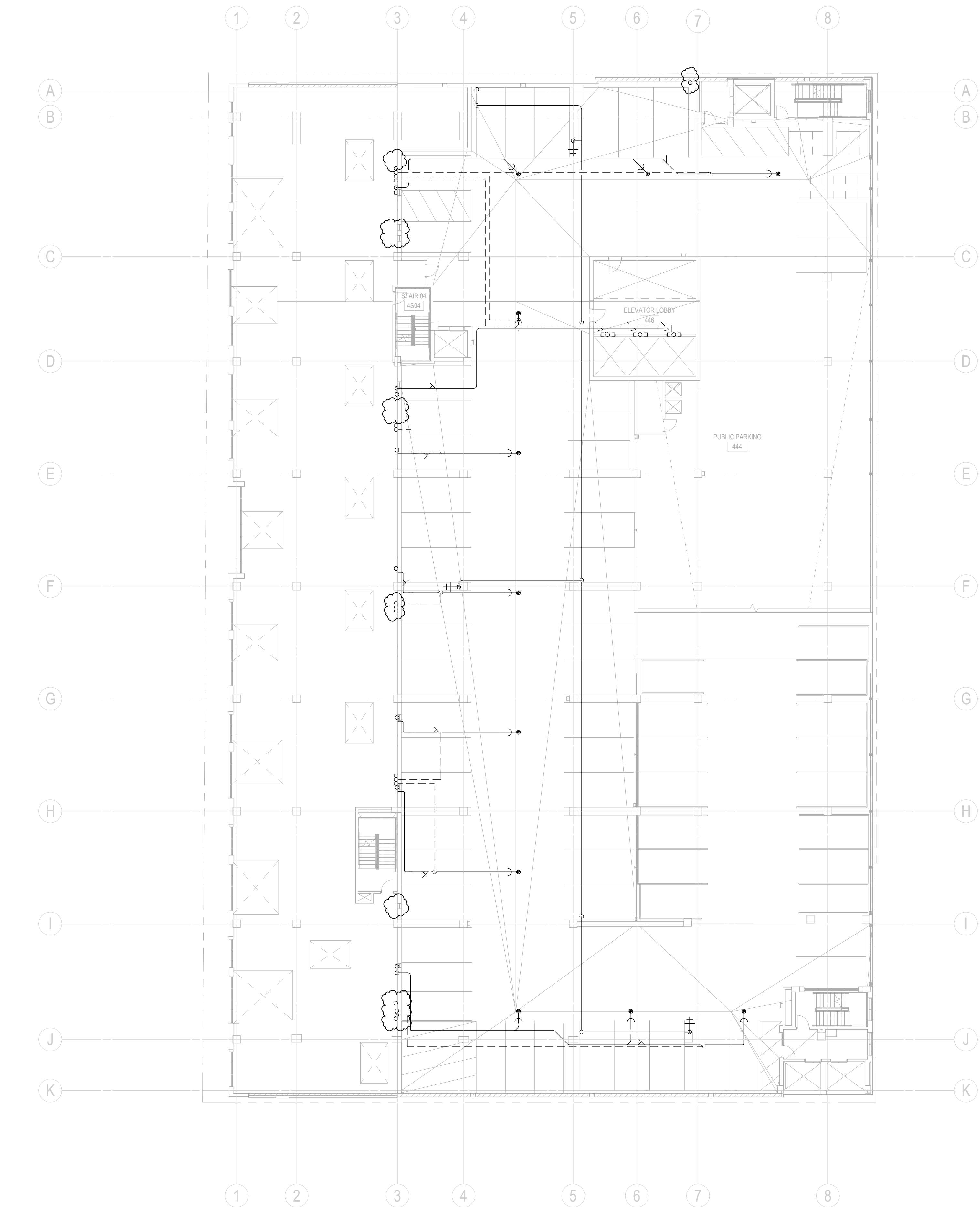
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PROJECT NUMBER 720448

**P4 FLR OVERALL –
PHASE 1 –
PLUMBING**

P1004-1

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P1004-1
P4 FLR OVERALL - PHASE 1 - PLUMBING
SCALE: 1/16" = 1'-0"

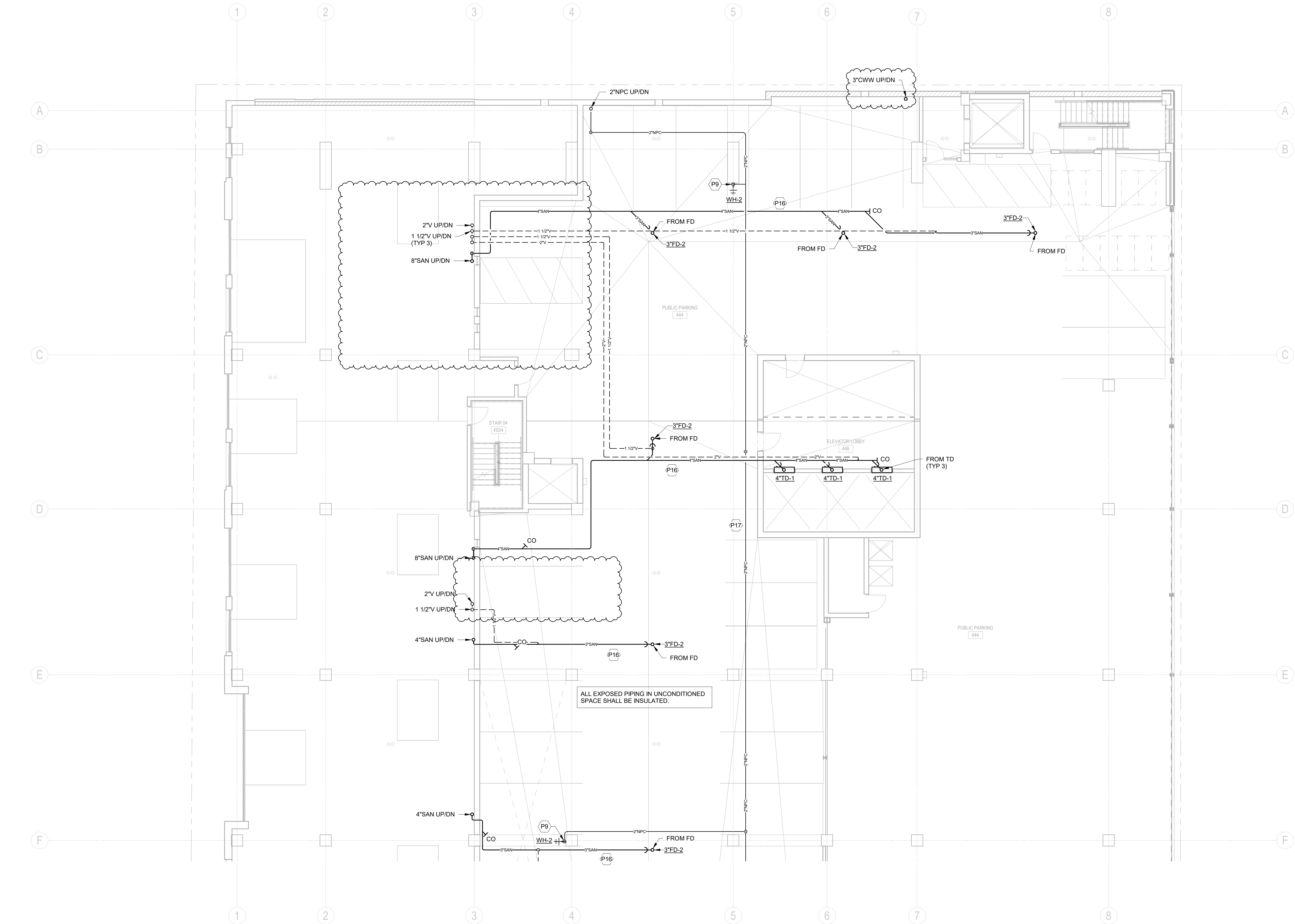
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1 P4 FLR - ZONE A - PHASE 1 - PLUMBING
P1004-A-1 SCALE: 1/8\"/>

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(KEYED NOTES PER PROJECT)
- P9 LOCATE LOCKABLE SHUTOFF VALVE IN VERTICAL.
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- P17 ALL WATER PIPING AND COMPONENTS SHALL BE ABLE TO BE FULLY DRAINED FOR COLD WEATHER SEASONS. PC SHALL NOT TRAP ANY WATER PIPING. PROVIDE DRAIN VALVES WHERE REQUIRED.



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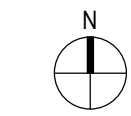
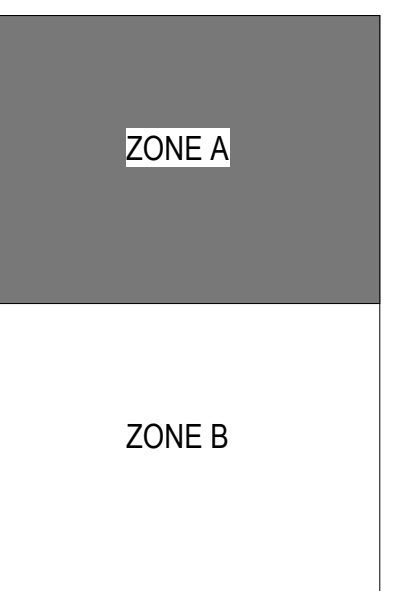
PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS	
DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

KEY PLAN



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PROJECT NUMBER 720448

**P4 FLR - ZONE A -
PHASE 1 -
PLUMBING**

P1004-A-1

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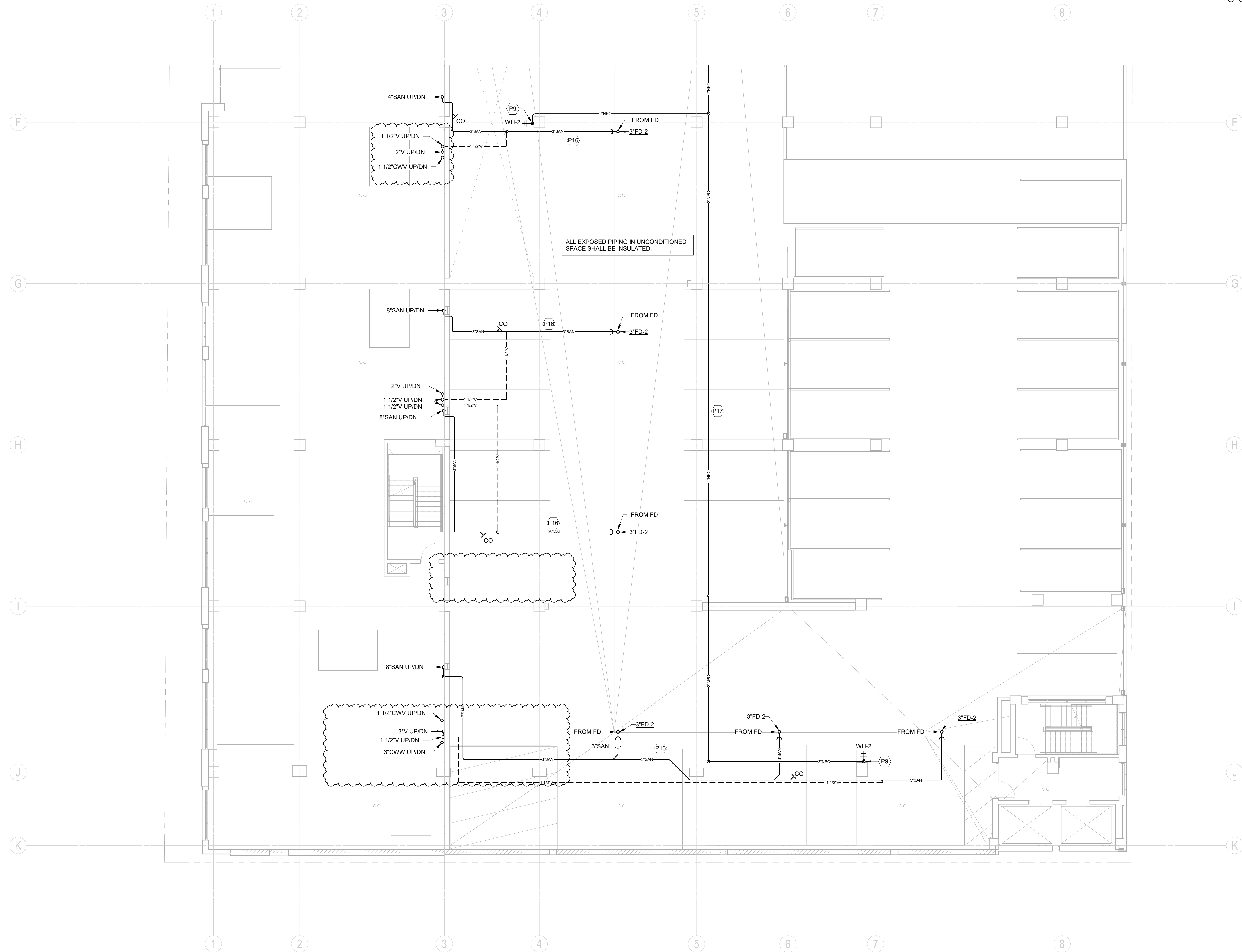
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1 P4 FLR - ZONE B - PHASE 1 - PLUMBING
P1004-B-1 SCALE: 1/8" = 1'-0"



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PROJECT INFORMATION

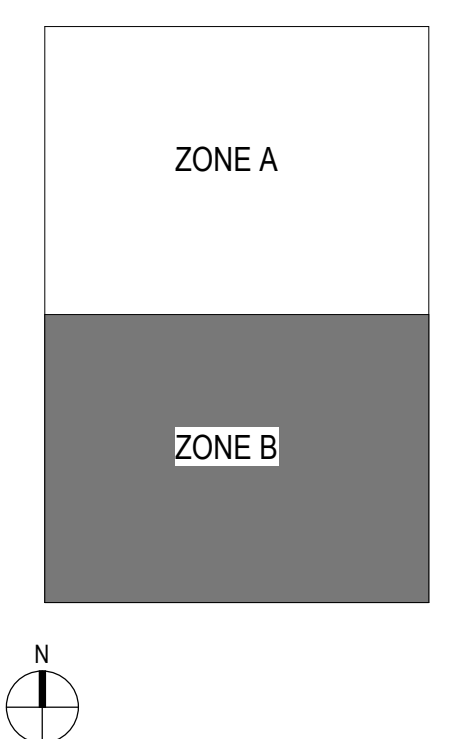
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

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11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

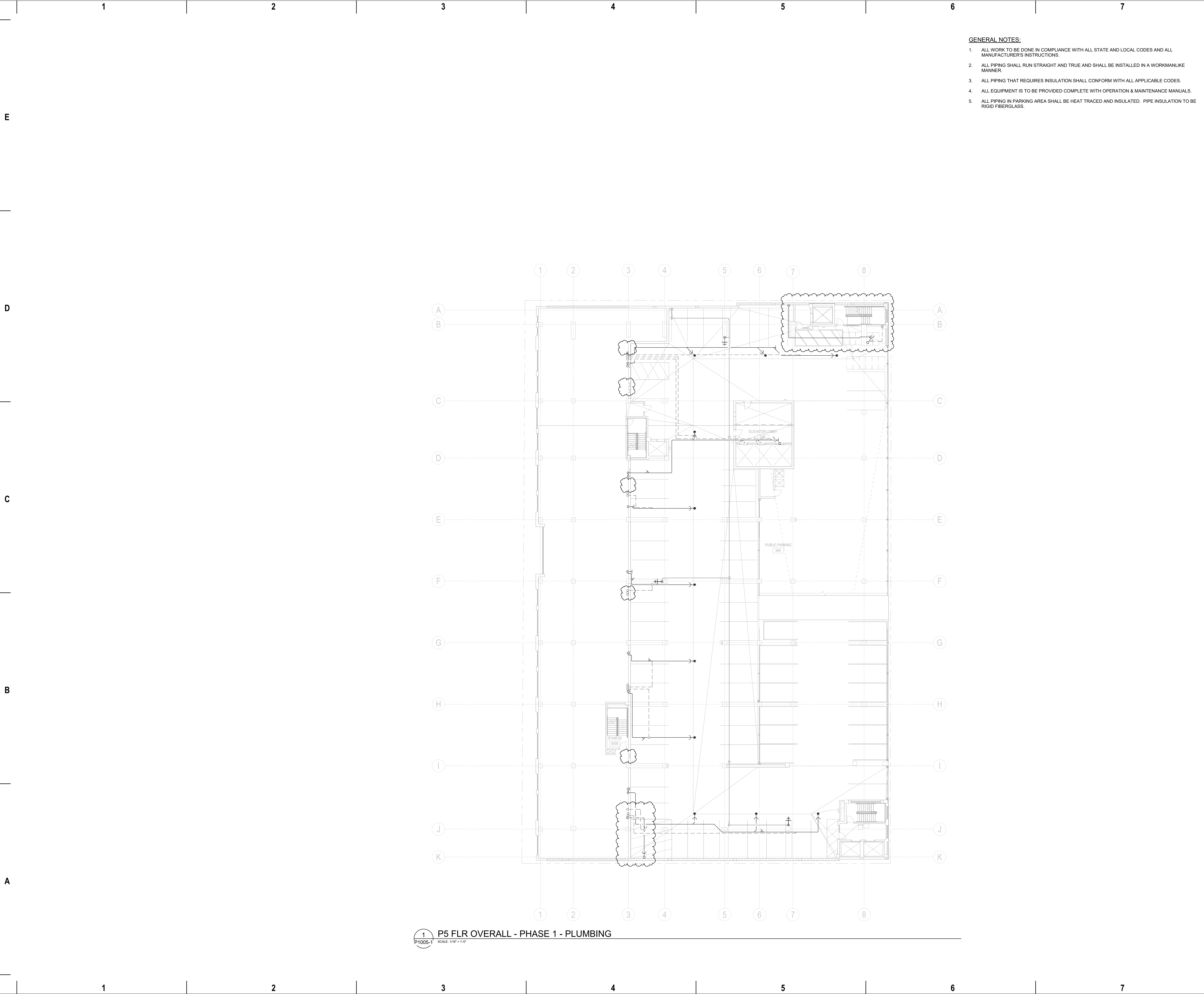
PROJECT MANAGER

PROJECT NUMBER 720448


P4 FLR - ZONE B -
PHASE 1 -
PLUMBING

P1004-B-1

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JDR Project No: 22.0249

PROJECT INFORMATION

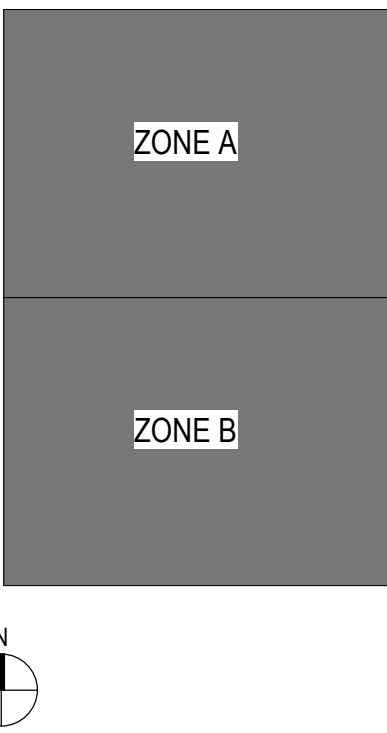
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

A PROJECT NUMBER 720448

P5 FLR OVERALL –
PHASE 1 –
PLUMBING

P1005-1

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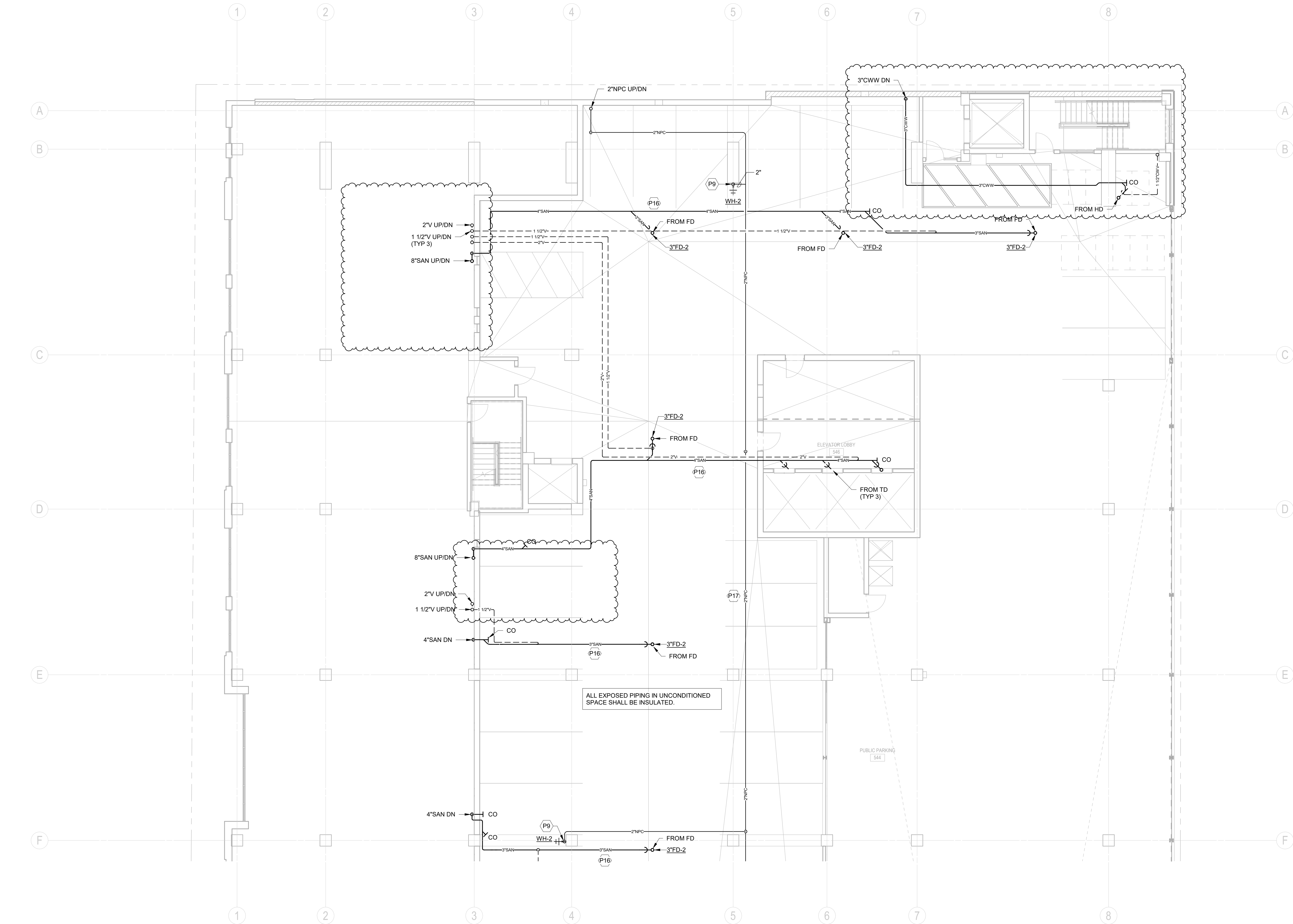
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1 P5 FLR - ZONE A - PHASE 1 - PLUMBING
P1005-A-1 SCALE: 1/8\" = 1'-0"

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JDR Project No: 22.0249

PROJECT INFORMATION

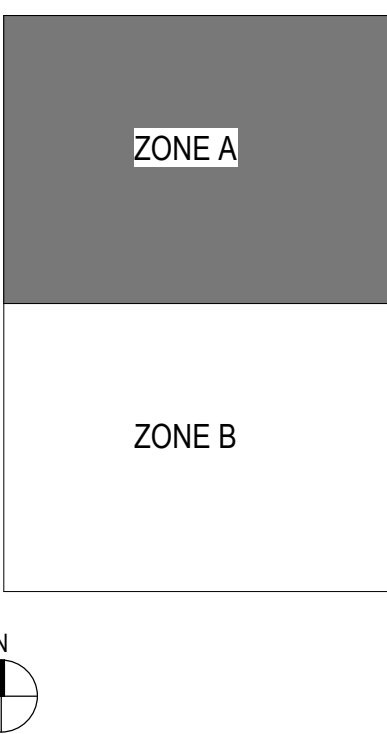
STATE STREET
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MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

P5 FLR - ZONE A -
PHASE 1 -
PLUMBING

P1005-A-1

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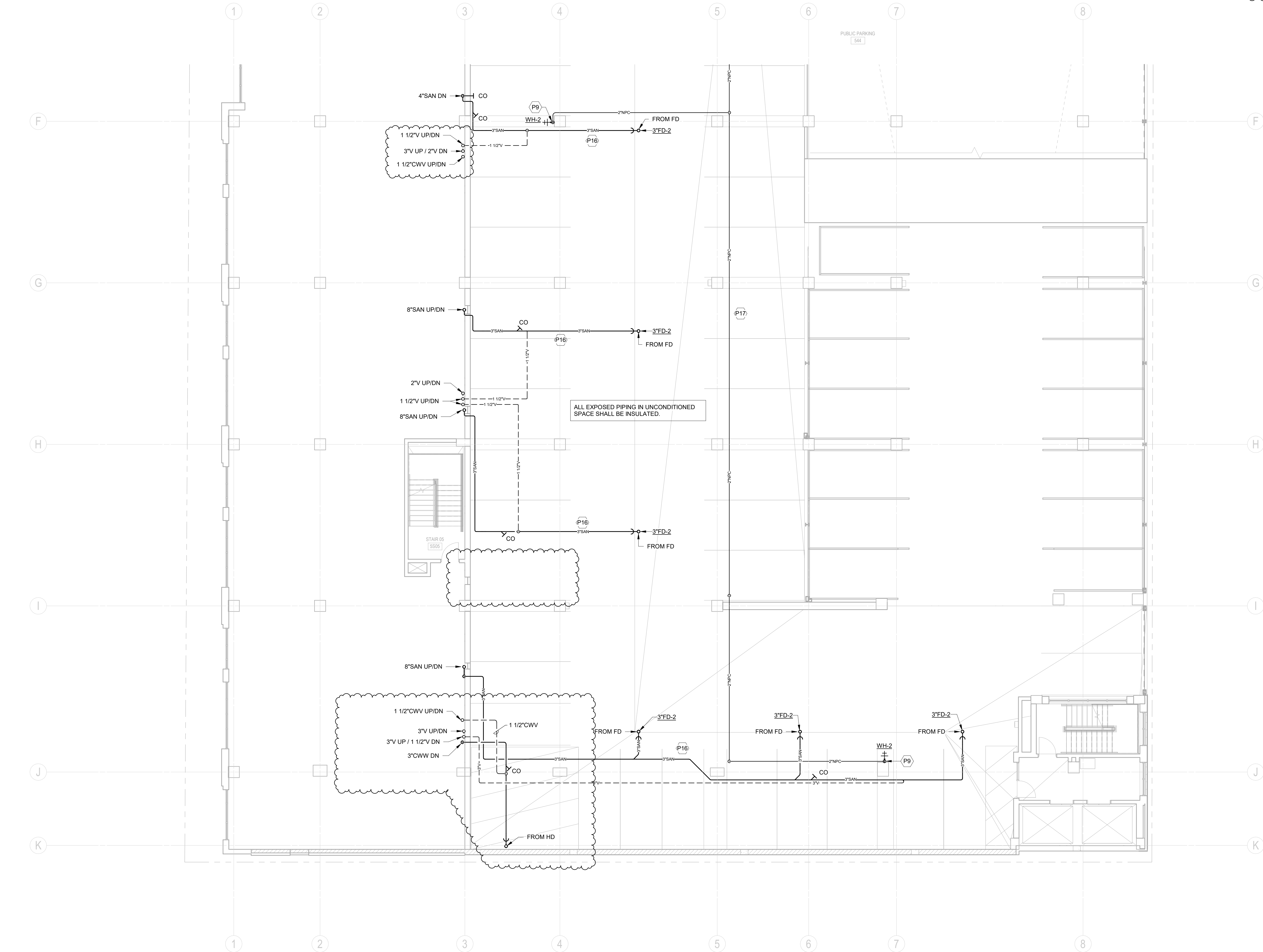
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1 P5 FLR - ZONE B - PHASE 1 - PLUMBING
P1005-B-1 SCALE: 1/8" = 1'-0"

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JDR Project No: 22.0249

PROJECT INFORMATION

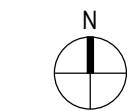
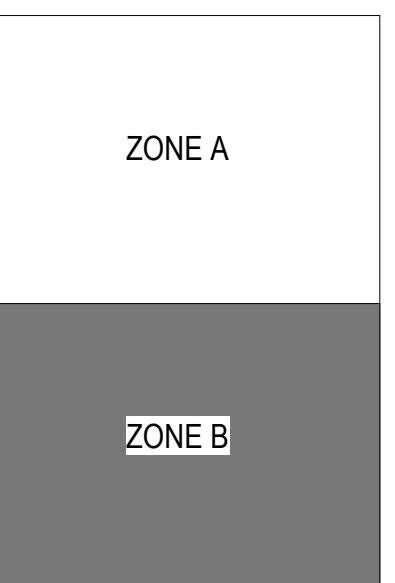
STATE STREET
CAMPUS GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

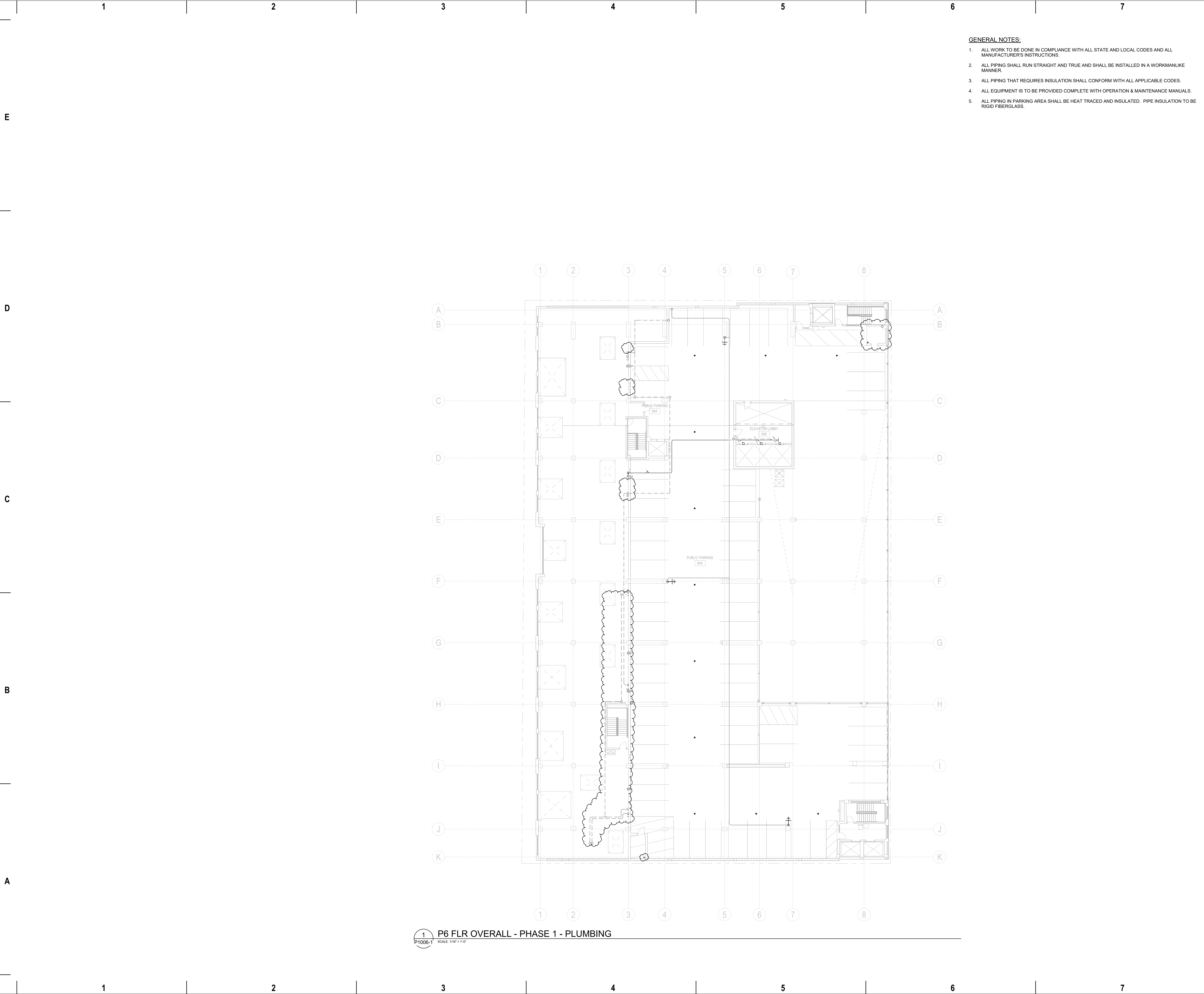
PROJECT MANAGER

PROJECT NUMBER 720448

P5 FLR - ZONE B -
PHASE 1 -
PLUMBING

P1005-B-1

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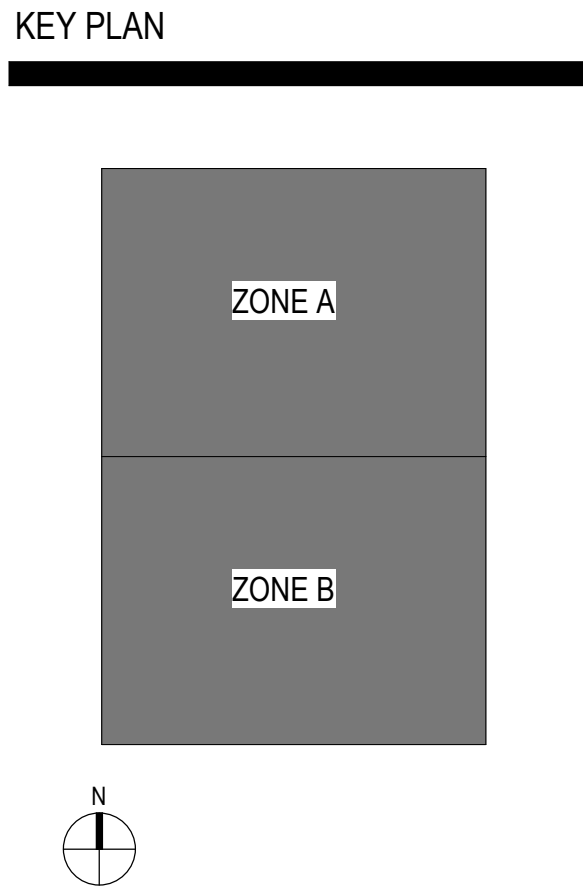
PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
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**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

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07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2



SHEET INFORMATION

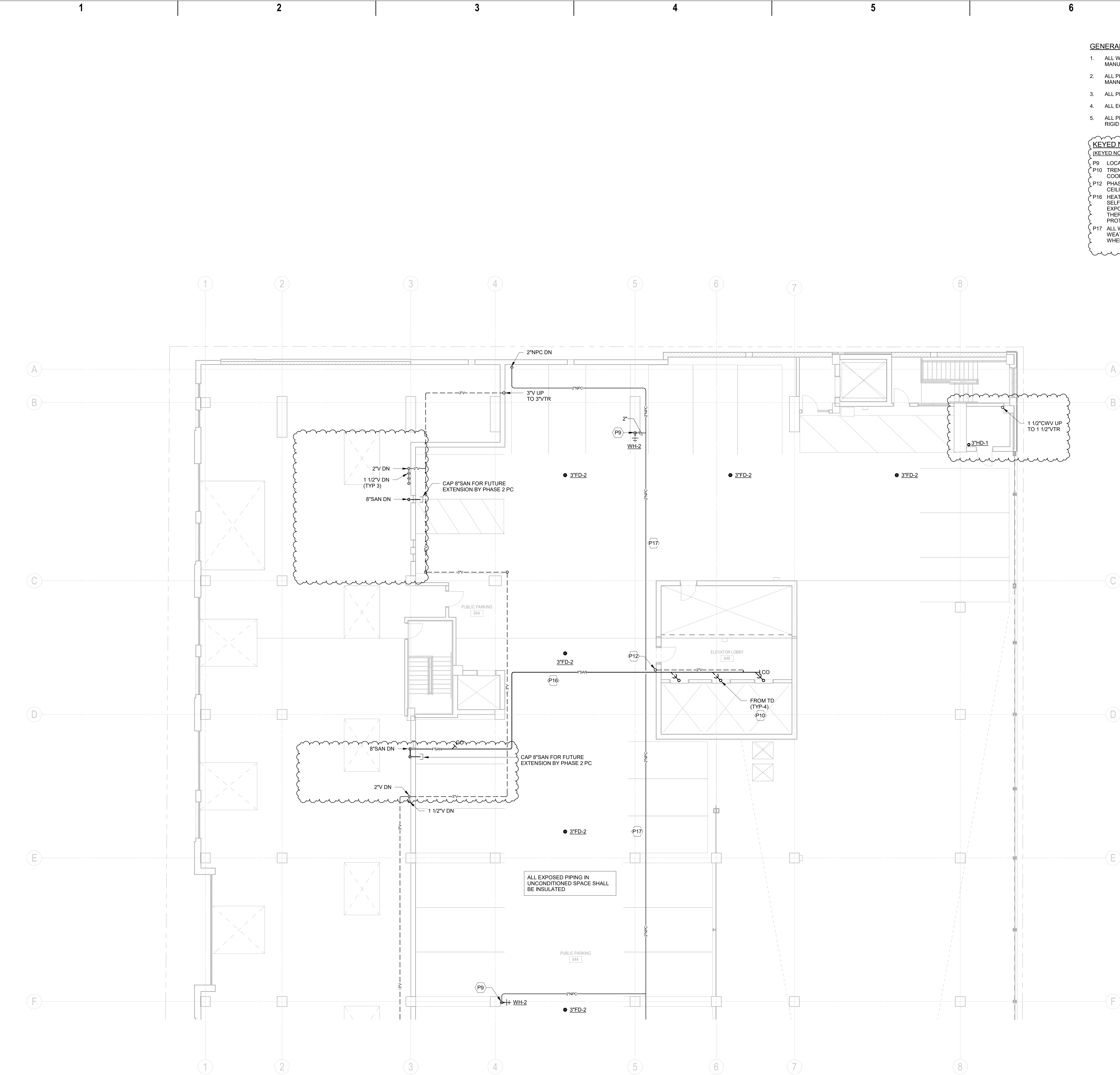
PROJECT MANAGER

PROJECT NUMBER 720448

**P6 FLR OVERALL –
PHASE 1 –
PLUMBING**

P1006-1

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1 P6 FLR - ZONE A - PHASE 1 - PLUMBING
P1006-A-1 SCALE: 1/8\"/>

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- KEYED NOTES**
(KEYED NOTES PER PROJECT)
- P9 LOCATE LOCKABLE SHUTOFF VALVE IN VERTICAL.
- P10 TRENCH DRAINS (TD-1) LOCATED ON 7TH FLOOR TO BE INSTALLED DURING PHASE 1. COORDINATE EXACT LOCATION OF TRENCH DRAIN (TD-1) WITH GC.
- P12 PHASE 1 PC TO CONNECT 2\"/>



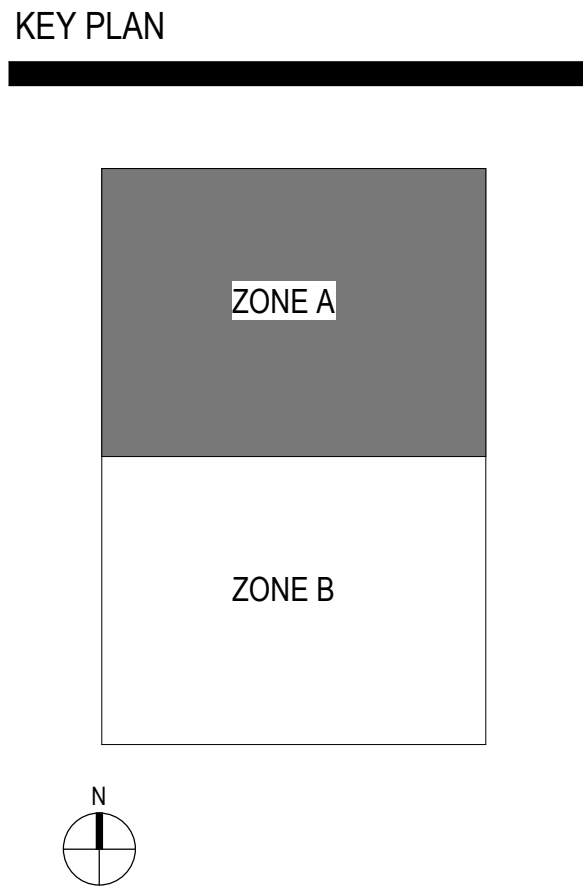
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JDR Project No: 22.0249

PROJECT INFORMATION
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**415 N. LAKE STREET
MADISON, WI 53715**

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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448
**P6 FLR - ZONE A -
PHASE 1 -
PLUMBING**

P1006-A-1
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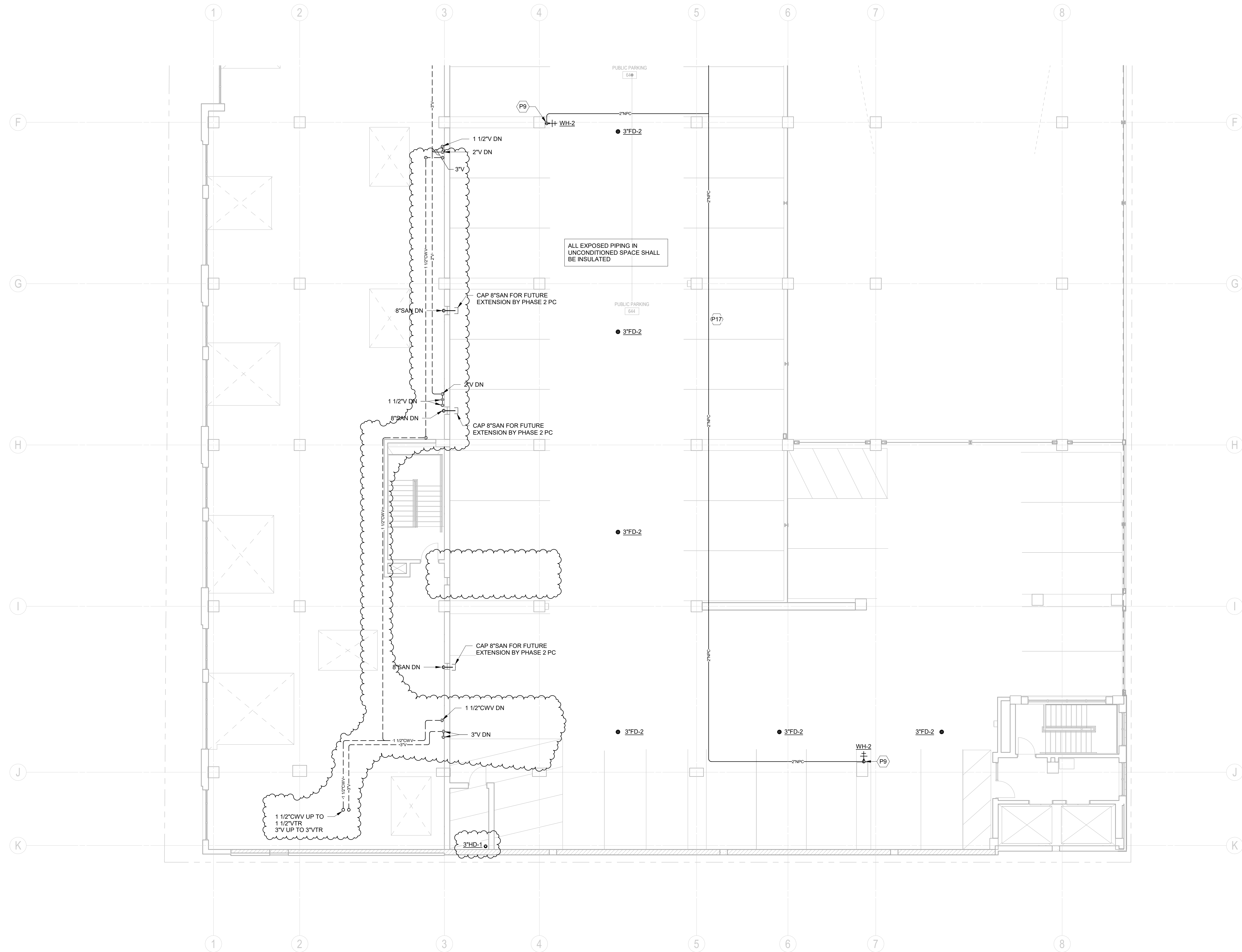
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1 P6 FLR - ZONE B - PHASE 1 - PLUMBING
P1006-B-1 SCALE: 1/8" = 1'-0"



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PROJECT INFORMATION

**STATE STREET
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MIXED-USE**

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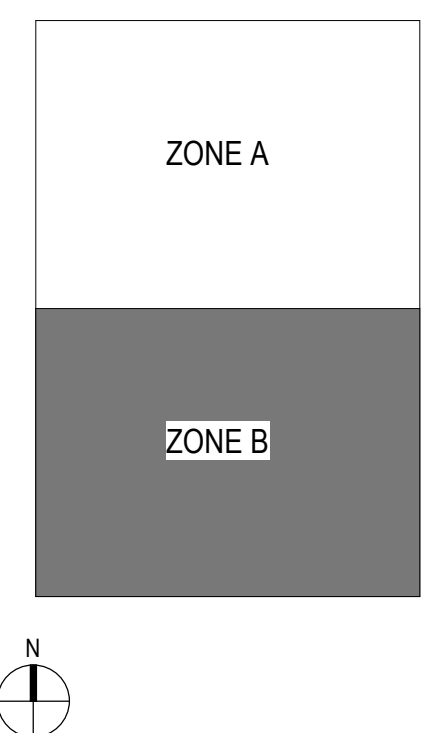
**415 N. LAKE STREET
MADISON, WI 53715**

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10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

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KEY PLAN



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SHEET INFORMATION

PROJECT MANAGER

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PROJECT NUMBER 720448

**P6 FLR - ZONE B -
PHASE 1 -
PLUMBING**

P1006-B-1

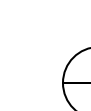
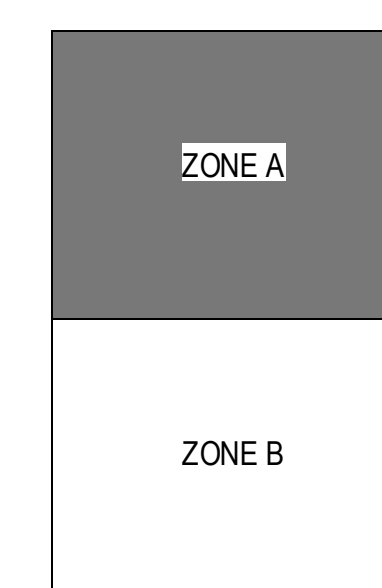
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1 ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

PROJECT NUMBER 720448

WASTE AND VENT
ISOMETRICS -
PLUMBING

P4000-1

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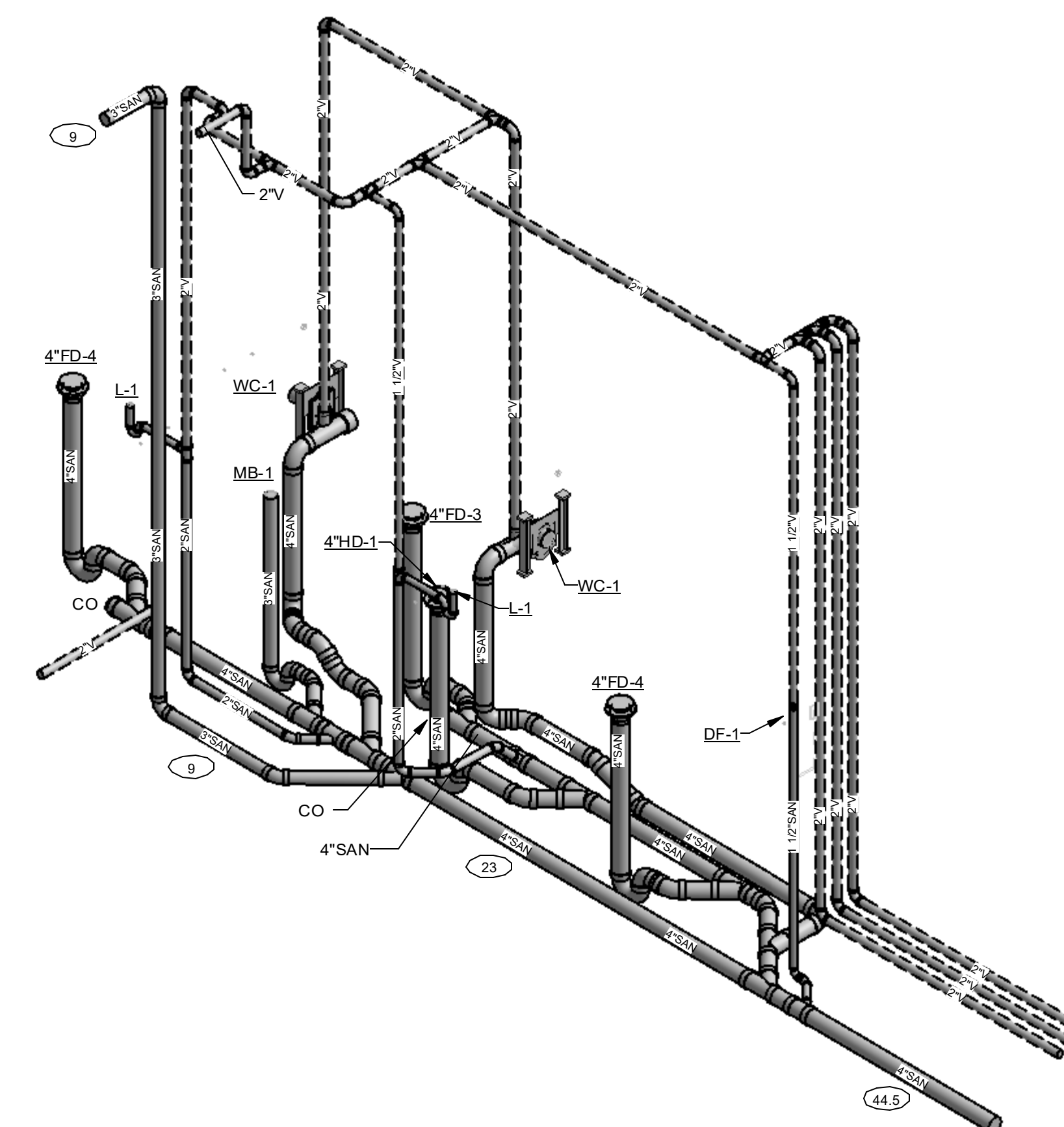
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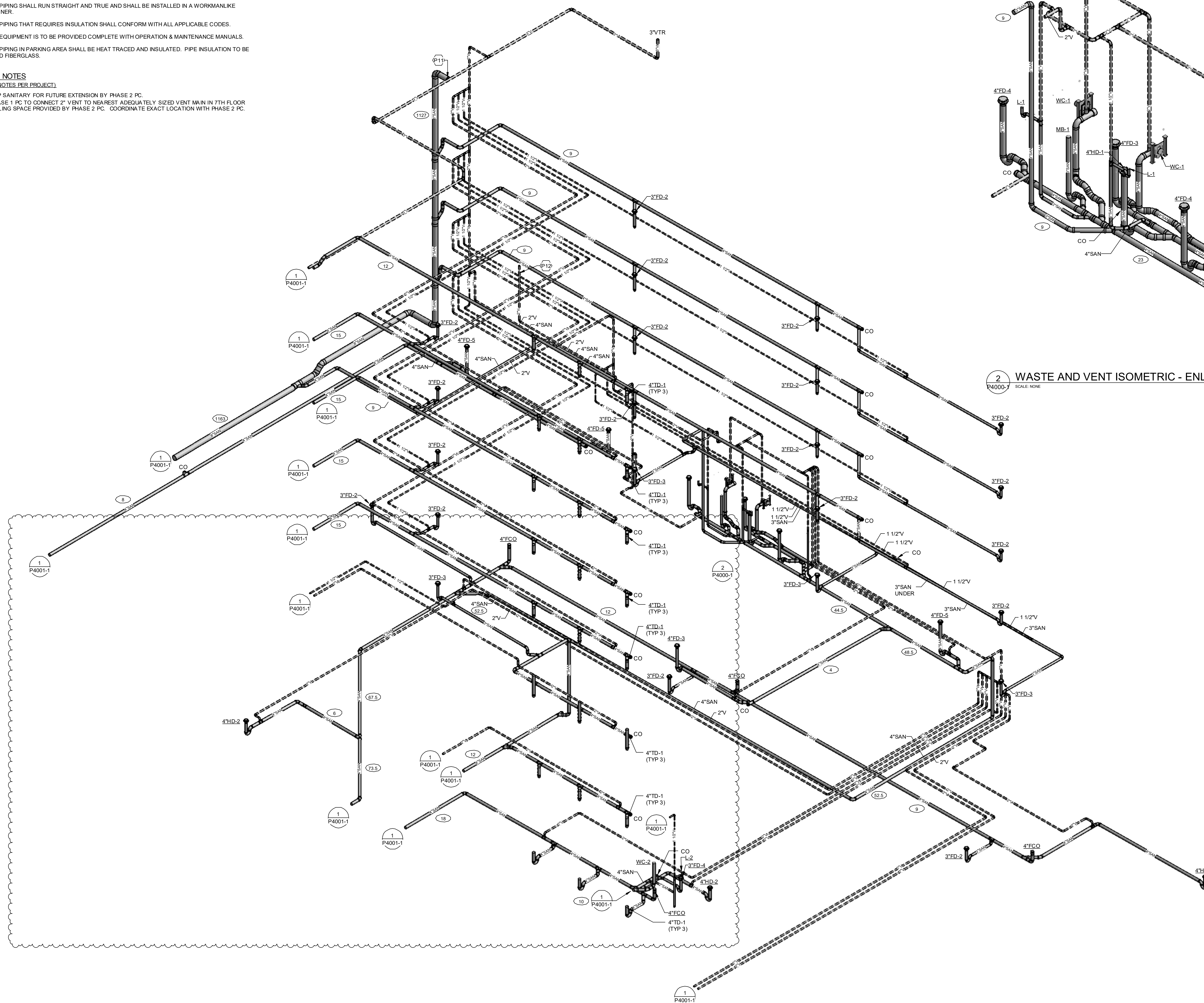
KEYED NOTES

(KEYED NOTES PER PROJECT)

- P12 PHASE 1 PC TO CONNECT 2" VENT TO NEAREST ADEQUATELY SIZED VENT MAIN IN 7TH FLOOR CEILING SPACE PROVIDED BY PHASE 2 PC. COORDINATE EXACT LOCATION WITH PHASE 2 PC.



2 WASTE AND VENT ISOMETRIC - ENLARGED AREA A - PLUMBING
P41000-1 SCALE: NONE



1 WASTE AND VENT ISOMETRIC - AREA A - PLUMBING
P1000-1 SCALE: NONE

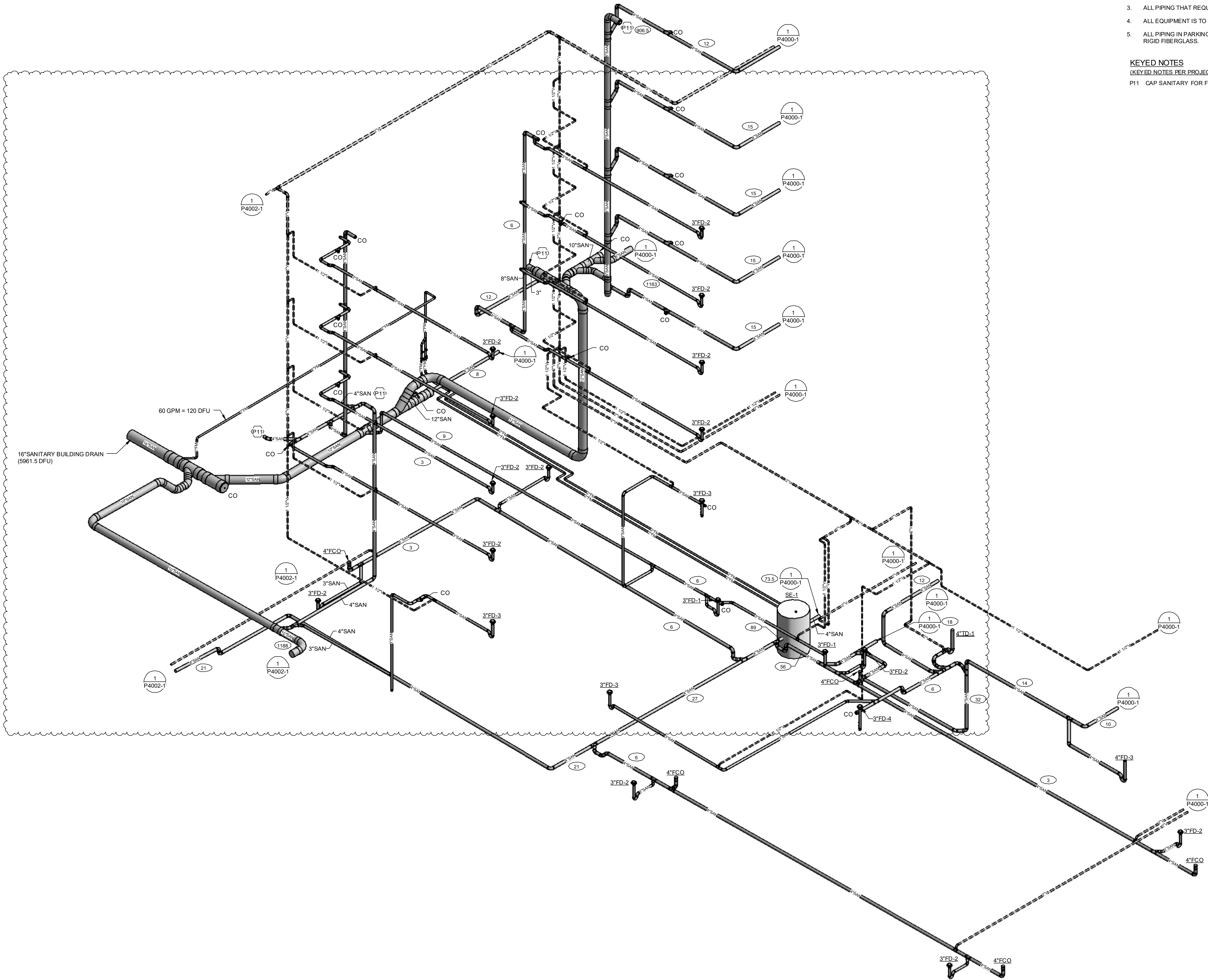
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1 WASTE AND VENT ISOMETRIC - AREA A - PLUMBING
P4001-1 SCALE: NONE

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- KEYED NOTES
(KEYED NOTES PER PROJECT)
- P11 CAP SANITARY FOR FUTURE EXTENSION BY PHASE 2 PC.



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5525 NOBEL DRIVE
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MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR Project No: 22.0249

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

D

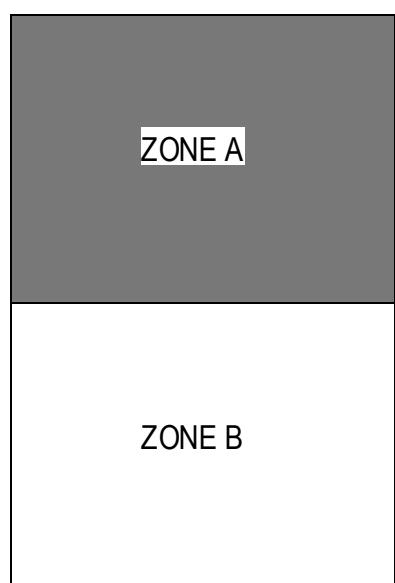
415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

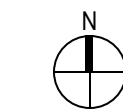
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

C

KEY PLAN



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SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

A

WASTE AND VENT
ISOMETRICS -
PLUMBING

P4001-1

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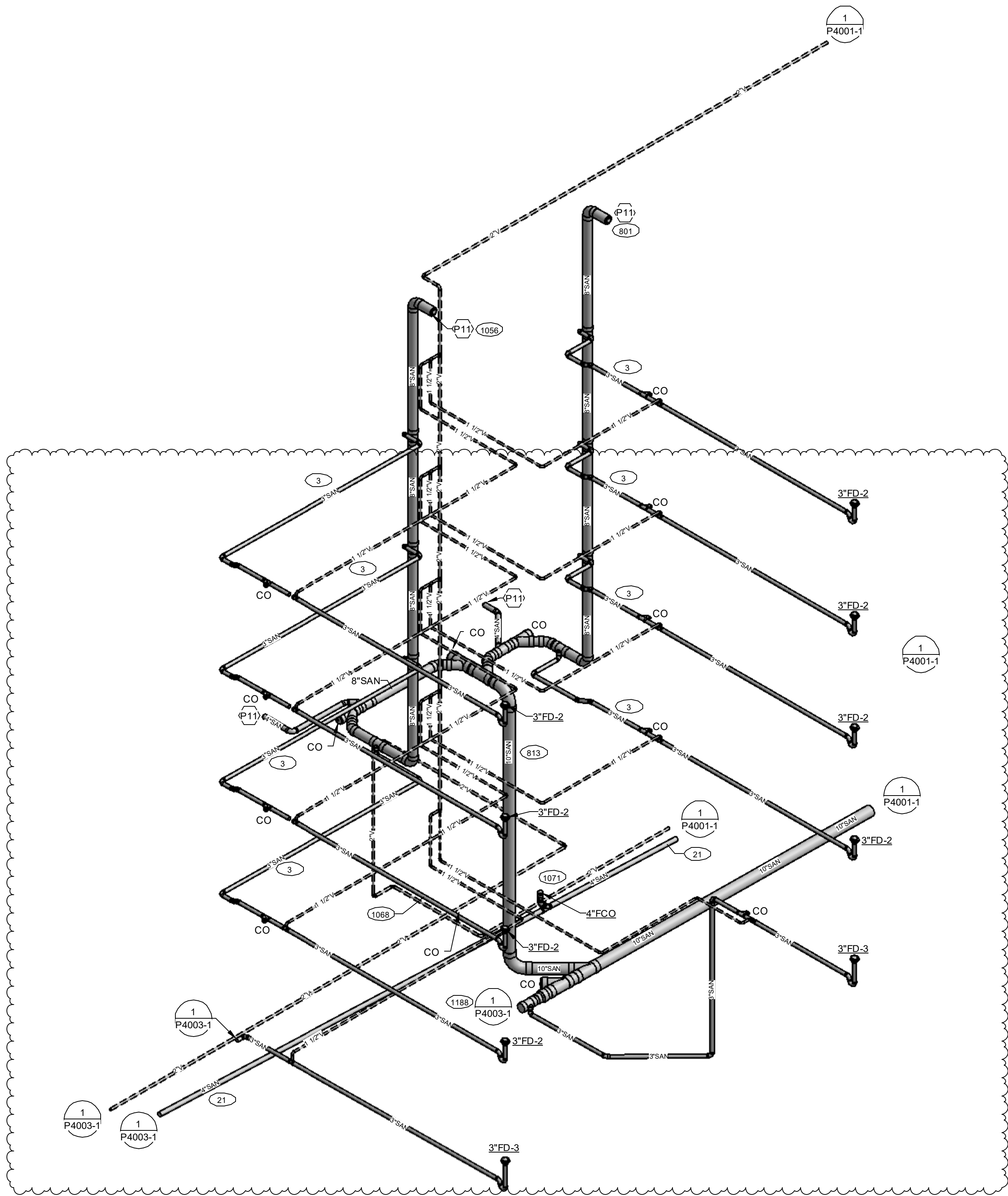
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1
P4002-1
WASTE AND VENT ISOMETRIC - AREA B - PLUMBING
SCALE: NONE

GENERAL NOTES:

1. ALL WORK TO BE DONE IN COMPLIANCE WITH ALL STATE AND LOCAL CODES AND ALL MANUFACTURER'S INSTRUCTIONS.
2. ALL PIPING SHALL RUN STRAIGHT AND TRUE AND SHALL BE INSTALLED IN A WORKMANLIKE MANNER.
3. ALL PIPING THAT REQUIRES INSULATION SHALL CONFORM WITH ALL APPLICABLE CODES.
4. ALL EQUIPMENT IS TO BE PROVIDED COMPLETE WITH OPERATION & MAINTENANCE MANUALS.
5. ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.

KEYED NOTES

(KEYED NOTES PER PROJECT)

P11 CAP SANITARY FOR FUTURE EXTENSION BY PHASE 2 PC.



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JDR Project No: 22.0249

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
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D

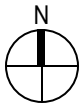
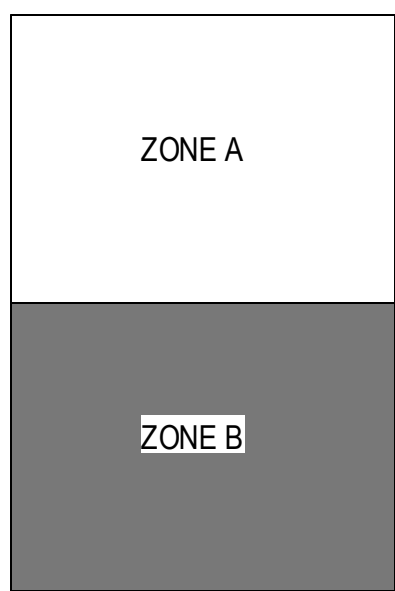
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

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PLUMBING

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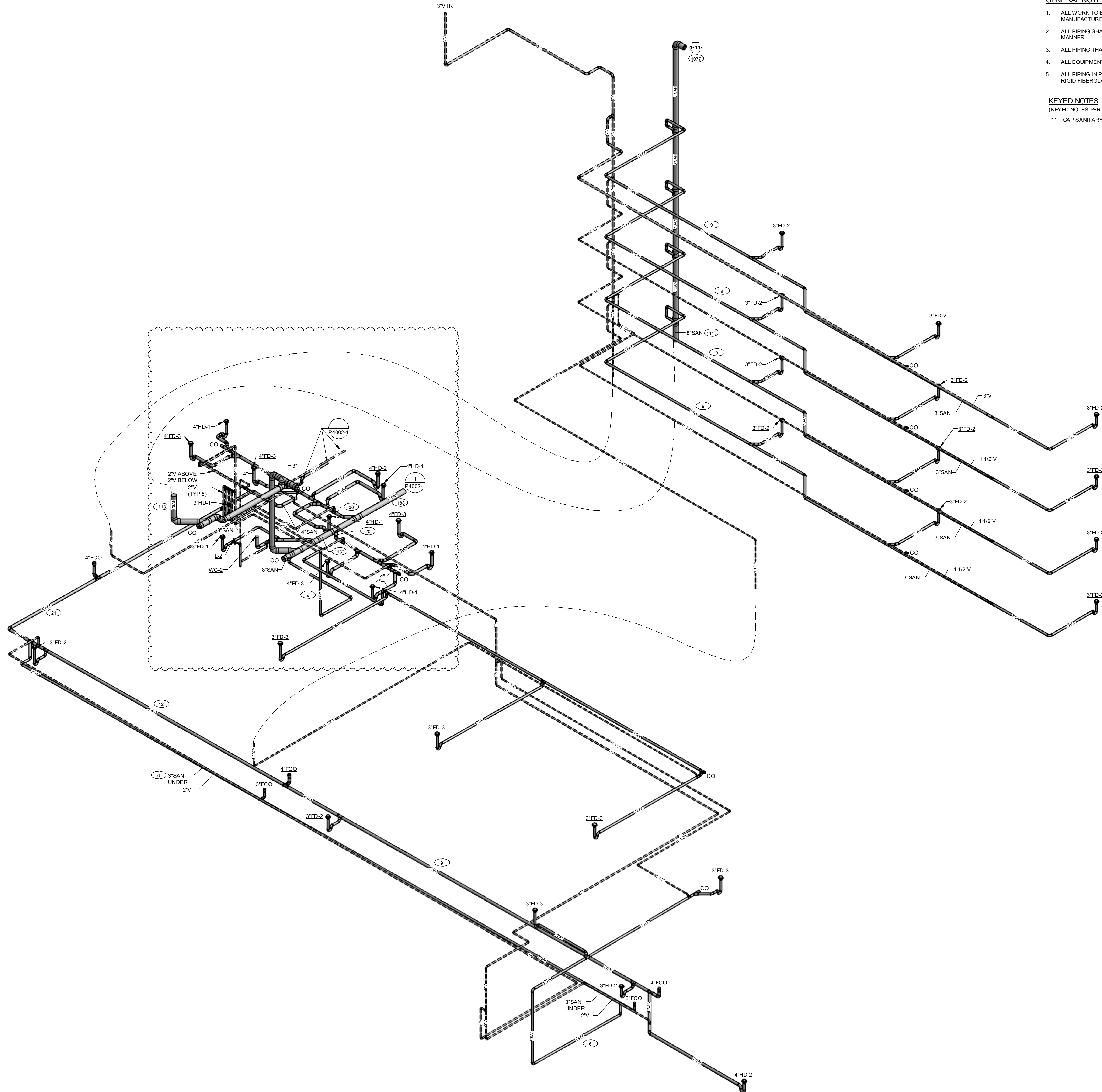
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GENERAL NOTES:

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KEYED NOTES

(KEYED NOTES PER PROJECT)

P11 CAP SANITARY FOR FUTURE EXTENSION BY PHASE 2 PC.



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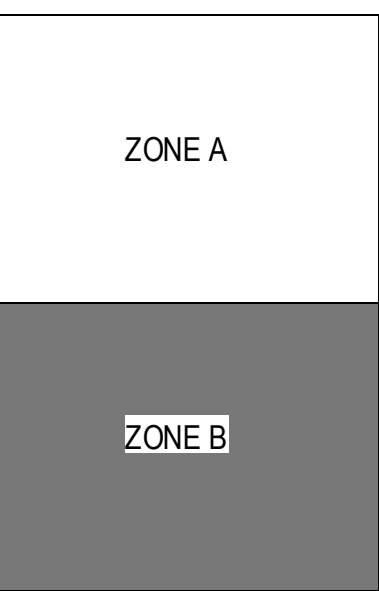
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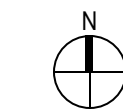
DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

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WASTE AND VENT
ISOMETRICS -
PLUMBING

P4003-1

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P4003-1

WASTE AND VENT ISOMETRIC - AREA B - PLUMBING

SCALE: NONE

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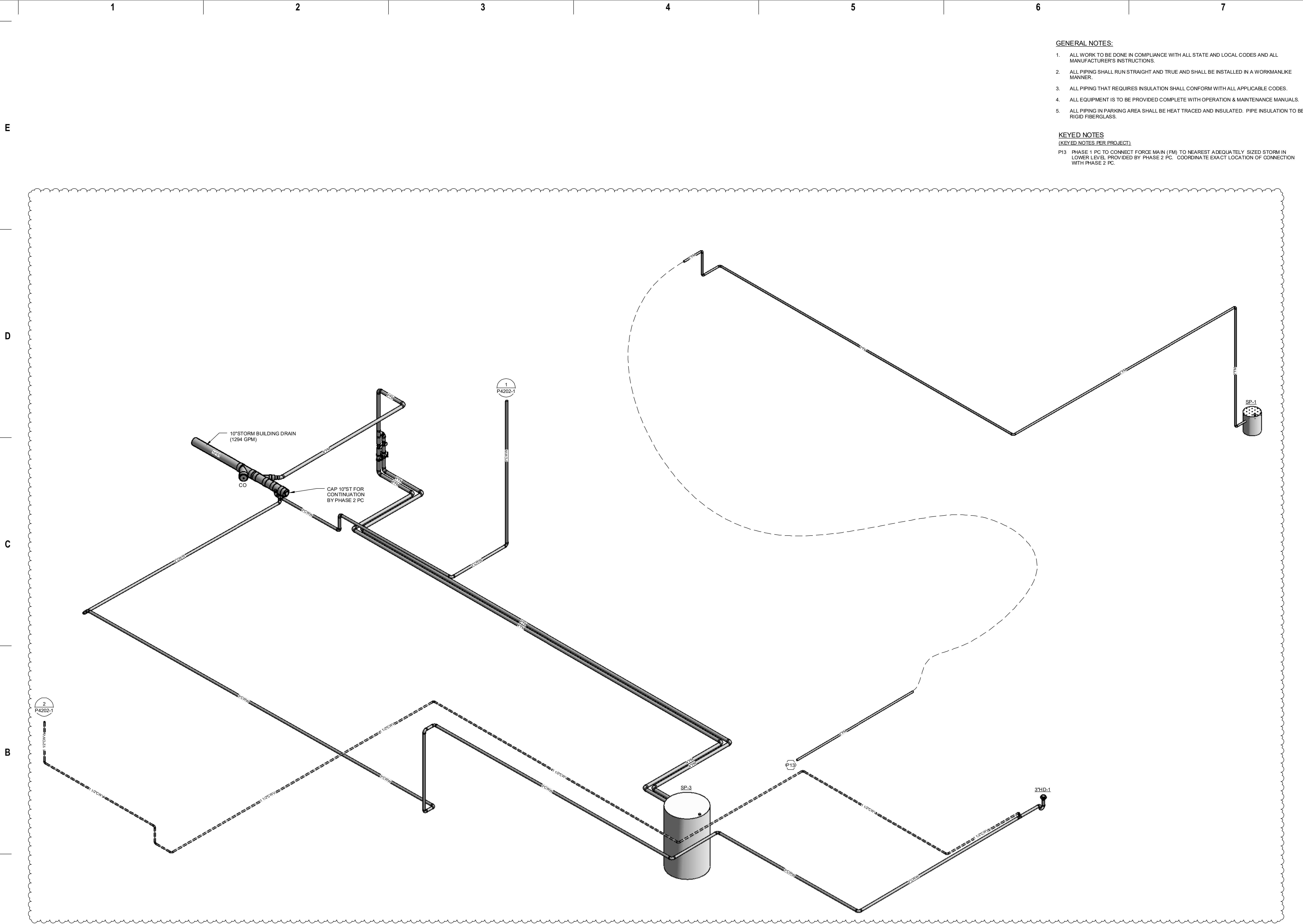
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- GENERAL NOTES:
1. ALL WORK TO BE DONE IN COMPLIANCE WITH ALL STATE AND LOCAL CODES AND ALL MANUFACTURER'S INSTRUCTIONS.
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 5. ALL PIPING IN PARKING AREA SHALL BE HEAT TRACED AND INSULATED. PIPE INSULATION TO BE RIGID FIBERGLASS.

KEYED NOTES
(KEYED NOTES PER PROJECT)

P13 PHASE 1 PC TO CONNECT FORCE MAIN (FM) TO NEAREST ADEQUATELY SIZED STORM IN LOWER LEVEL PROVIDED BY PHASE 2 PC. COORDINATE EXACT LOCATION OF CONNECTION WITH PHASE 2 PC.



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PROJECT INFORMATION

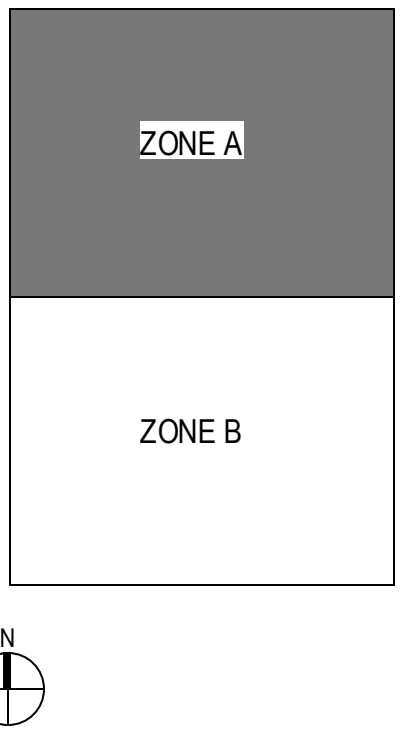
STATE STREET
CAMPUS GARAGE
MIXED-USE

D 415 N. LAKE STREET
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

KEY PLAN



SHEET INFORMATION

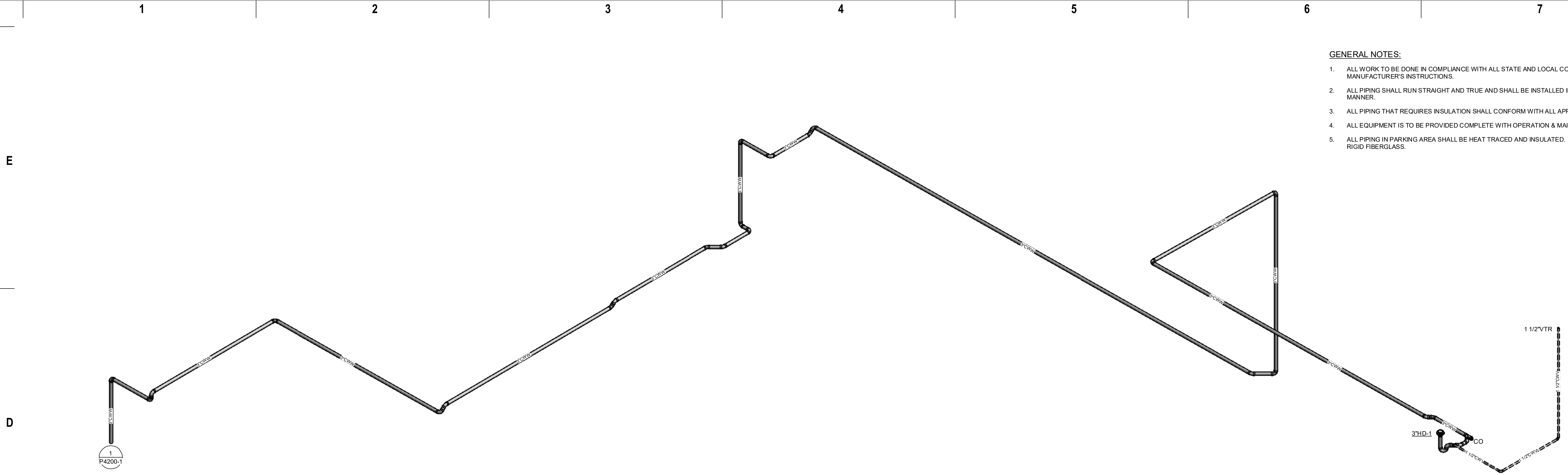
PROJECT MANAGER

PROJECT NUMBER 720448

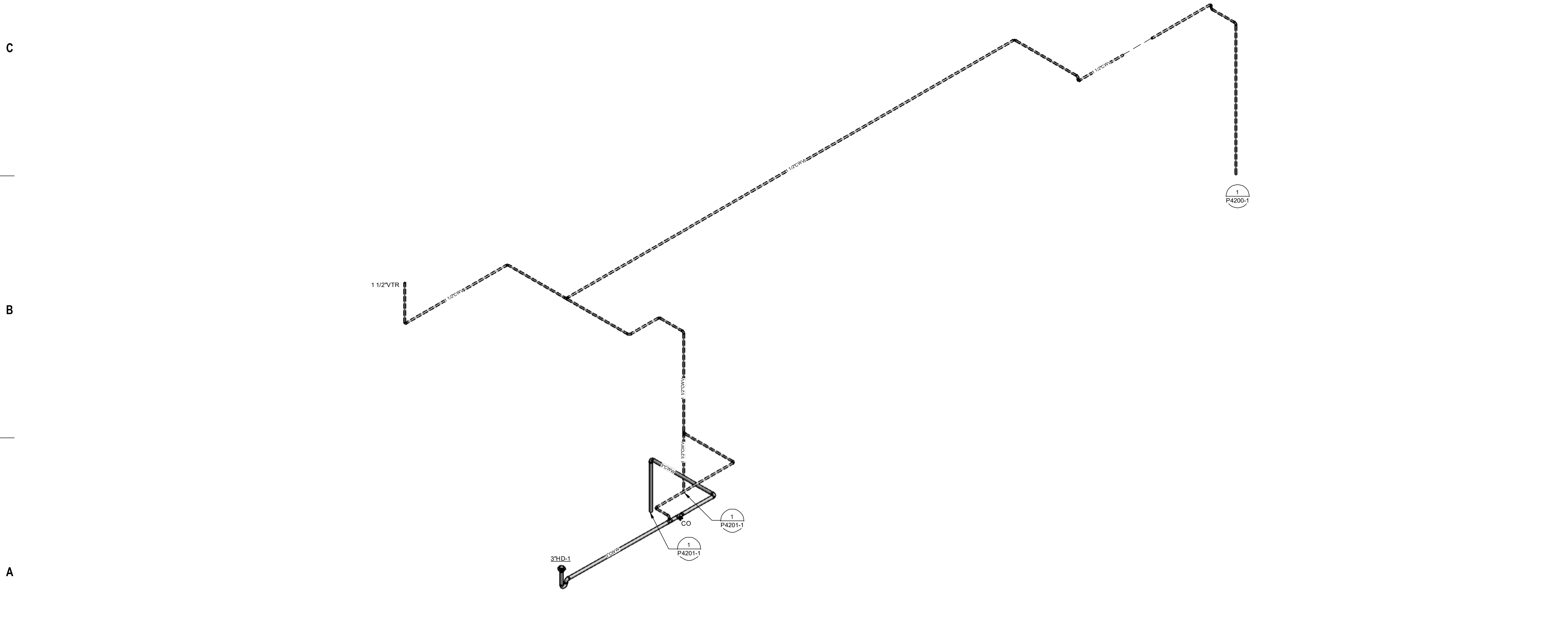
STORM
ISOMETRICS -
PLUMBING

P4200-1

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1 STORM ISOMETRIC - AREA A - PLUMBING
R4202-1 SCALE: NONE



2 STORM ISOMETRIC - AREA B - PLUMBING
R4202-1 SCALE: NONE

- GENERAL NOTES:
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PROJECT INFORMATION

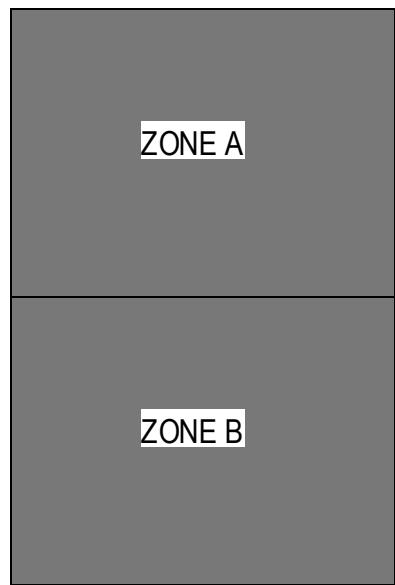
STATE STREET
CAMPUS GARAGE
MIXED-USE

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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A202

KEY PLAN



SHEET INFORMATION

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PROJECT NUMBER 720448

STORM
ISOMETRICS -
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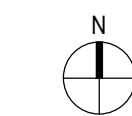
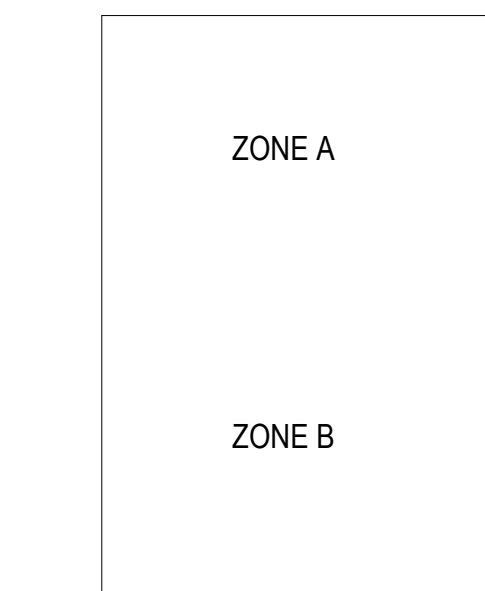
415 N. LAKE STREET
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A022

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KEY PLAN



SHEET INFORMATION

PROJECT MANAGER	
PROJECT NUMBER	720448

SYMBOLS AND
ABBREVIATIONS -
HVAC

M0000-1

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ABBREVIATIONS

ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
ADU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
ADJ	ADJUSTABLE
AE	ARCHITECT/ENGINEER
AF	ABOVE FINISHED FLOOR
AFMS	AIR FLOW MEASURING STATION
AHU	AIR HANDLING UNIT
ALU	ALUMINUM
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ASC	ABOVE SUSPENDED CEILING
AUTO	AUTOMATIC
BDD	BACK DRAFT DAMPER
BHP	BRAKE HORSEPOWER
BI	BACKWARD INCLINED
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BOS	BOTTOM OF STRUCTURE
BRG	BEARING
BSMT	BASEMENT
BTU	BRITISH THERMAL UNIT
CA	COMBUSTION AIR
CAB	CABINET
CCC	COOLING COIL CONDENSATE
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CI	CAST IRON OR CUBIC INCH
CL	CENTERLINE
CLG	CEILING
CMU	CONCRETE MASONRY UNIT
CONC	CONCRETE
COND	CONDENSATE
CONTR	CONTRACTOR
COP	COEFFICIENT OF PERFORMANCE
CP	CONDENSATE PUMP
CJ	COPPER
CUH	CABINET UNIT HEATER
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEPT	DEPARTMENT
DIA	DIAMETER
DN	DOWN
DSA	DUCT SOUND ATTENUATOR
DWG	DRAWING

EAT	ENTERING AIR TEMPERATURE
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EER	ENERGY EFFICIENCY RATIO
EG	EXHAUST GRILLE
EL	ELEVATION
ELEC	ELECTRICAL
EQUIP	EQUIPMENT
ERH	ELECTRIC RADIANT HEATER
ERV	ENERGY RECOVERY VENTILATOR
EW	ELECTRIC WALL HEATER
EXH	EXHAUST
EXT	EXTERIOR OR EXTERNAL
°F	DEGREES FAHRENHEIT
FA	FREE AREA
FC	FORWARD CURVED
FCU	FAN COIL UNIT
FD	FLOOR DRAIN OR FIRE DAMPER
FLA	FULL LOAD AMPS
FLX	FLEXIBLE
FPC	FIRE PROTECTION CONTRACTOR
FPM	FEET PER MINUTE
FT	FOOT OR FEET
G	GAS
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GRH	GAS FIRED RADIANT HEAT
GPM	GALLONS PER MINUTE
GUH	GAS FIRED UNIT HEATER
GV	GAS VENT
HC	HEATING CONTRACTOR
HD	HUB DRAIN
HGT	HEIGHT
HP	HORSEPOWER
HPU	HEAT PUMP UNIT
HR	HOUR
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HX	HEAT EXCHANGER
HZ	HERTZ
IN	INCH
IPLV	INTEGRATED PART LOAD VALUE
KW	KILOWATT

LAT	LEAVING AIR TEMPERATURE
LBS	POUNDS
LD	LINEAR DIFFUSER
LR	LINEAR RETURN
M	MOTOR OPERATED DAMPER
MAT	MIXED AIR TEMPERATURE
MA	MIXED AIR
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MBH	1000 BRITISH THERMAL UNITS/HOUR
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MEZZ	MEZZANINE
MIN	MINIMUM
MOC	MAXIMUM OVERCURRENT PROTECTION
MUA	MAKE-UP AIR UNIT
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPLV	NOMINAL PART LOAD VALUE
NTS	NOT TO SCALE
OA	OUTDOOR AIR
OAT	OUTDOOR AIR TEMPERATURE
OC	ON CENTER
OED	OPEN ENDED DUCT
OPD	OPPOSED BLADE DAMPER
P	PUMP
PC	PLUMBING CONTRACTOR
PLBG	PLUMBING
POC	POINT OF CONNECTION
PRELIM	PRELIMINARY
PRESS	PRESSURE
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R	REFRIGERANT
RA	RETURN AIR
REQD	REQUIRED
RG	RETURN GRILLE
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTON

S	SUPPLY
SA	SUPPLY AIR
SCR	SILICONE CONTROLLED RECTIFIERS
SD	SLOT DIFFUSER
SEER	SEASONAL ENERGY EFFICIENCY RATIO
SF	SUPPLY FAN
SG	SUPPLY GRILLE
SM	SHEET METAL
SQ FT	SQUARE FEET
SS	STAINLESS STEEL
SWD	SINGLE WALL DUCTWORK
SWSI	SINGLE WIDTH SINGLE INLET
T	THERMOSTAT/TEMPERATURE SENSOR
TA	THROWAWAY
TCC	TEMPERATURE CONTROL CONTRACTOR
TCP	TEMPERATURE CONTROL PANEL
TEMP	TEMPORARY
TF	TRANSFER FAN
TG	TRANSFER GRILLE
TO	TEST OPENINGS
TYP	TYPICAL
UH	UNIT HEATER
UV	UNIT VENTILATOR
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VERT	VERTICAL
VFD	VARIABLE FREQUENCY DRIVE
VSC	VARIABLE SPEED CONTROL
WB	WET BULB
WC	WATER COLUMN
WPD	WATER PRESSURE DROP

GENERAL SYMBOLS

	THERMOSTAT OR TEMPERATURE SENSOR
	THERMOSTAT OR TEMPERATURE SENSOR WITH SECURITY COVER
	CARBON MONOXIDE SENSOR
	CARBON DIOXIDE SENSOR
	NITROGEN DIOXIDE SENSOR
	HYDROGEN SENSOR
	NEW WORK KEYED NOTE
	REVISION KEYED NOTE
	NEW DUCTWORK/PIPING
	NEW EQUIPMENT

PIPING SYSTEMS

	CONNECTION, BOTTOM
	CONNECTION, TOP
	ELBOW, TURNED UP
	ELBOW, TURNED DOWN
	REDUCER, CONCENTRIC
	PITCH OF PIPE
	CONDENSATE
	GAS
	REFRIGERANT SUCTON
	REFRIGERANT LIQUID

HVAC SHEET INDEX - PHASE 1

M0000-1	SYMBOLS AND ABBREVIATIONS - HVAC
M1000-1	LOWER LEVEL OVERALL - PHASE 1 - HVAC
M1000-A-1	LOWER LEVEL - ZONE A - PHASE 1 - HVAC
M1000-B-1	LOWER LEVEL - ZONE B - PHASE 1 - HVAC
M1001-1	1ST FLR OVERALL - PHASE 1 - HVAC
M1001-A-1	1ST FLR - ZONE A - PHASE 1 - HVAC
M1001-B-1	1ST FLR - ZONE B - PHASE 1 - HVAC
M1002-1	P2 FLR OVERALL - PHASE 1 - HVAC
M1002-A-1	P2 FLR - ZONE A - PHASE 1 - HVAC
M1002-B-1	P2 FLR - ZONE B - PHASE 1 - HVAC
M1003-1	P3 FLR OVERALL - PHASE 1 - HVAC
M1003-A-1	P3 FLR - ZONE A - PHASE 1 - HVAC
M1003-B-1	P3 FLR - ZONE B - PHASE 1 - HVAC
M1004-1	P4 FLR OVERALL - PHASE 1 - HVAC
M1004-A-1	P4 FLR - ZONE A - PHASE 1 - HVAC
M1004-B-1	P4 FLR - ZONE B - PHASE 1 - HVAC
M1005-1	P5 FLR OVERALL - PHASE 1 - HVAC
M1005-A-1	P5 FLR - ZONE A - PHASE 1 - HVAC
M1005-B-1	P5 FLR - ZONE B - PHASE 1 - HVAC
M1006-1	P6 FLR OVERALL - PHASE 1 - HVAC
M1006-A-1	P6 FLR - ZONE A - PHASE 1 - HVAC
M1006-B-1	P6 FLR - ZONE B - PHASE 1 - HVAC
M1007-1	7TH FLR OVERALL - PHASE 1 - HVAC
M1007-A-1	7TH FLR - ZONE A - PHASE 1 - HVAC
M1007-B-1	7TH FLR - ZONE B - PHASE 1 - HVAC
M4001-1	SECTIONS - HVAC
M4002-1	SECTIONS - HVAC
M5001-1	CONTROL DIAGRAMS, POINTS LISTS, SEQ - HVAC
M5002-1	CONTROL DIAGRAMS, POINTS LISTS, SEQ - HVAC
M5003-1	CONTROL DIAGRAMS, POINTS LISTS, SEQ - HVAC
M5004-1	CONTROL DIAGRAMS, POINTS LISTS, SEQ - HVAC
M5005-1	CONTROL DIAGRAMS, POINTS LISTS, SEQ - HVAC
M8001-1	SCHEDULES - HVAC
M8002-1	SCHEDULES - HVAC
M9001-1	DETAILS - HVAC
M9002-1	DETAILS - HVAC

NOTE:
KEYED NOTES ARE USED TWO WAYS. PER PROJECT AND PER PLAN.
LEGENDS INDICATED AS "KEYED NOTES PER PROJECT" REFERENCE A COMMON, OVERALL PROJECT KEYED NOTE LIST. THEREFORE, KEYED NOTES MAY NOT APPEAR IN SEQUENTIAL ORDER. DISCIPLINE SPECIFIC DESIGNATIONS HAVE BEEN ADDED FOR CLARITY.
KEYED NOTES LEGENDS INDICATED AS "KEYED NOTES PER SHEET" ARE SPECIFIC PER SHEET AND ARE NUMBERED ACCORDINGLY.

DUCTWORK SYSTEMS

	DUCT SIZE, (FIRST FIGURE IS SIDE SHOWN)
	ROUND DUCT
	CHANGE OF ELEVATION IN DIRECTION OF AIR FLOW
	ACCESS DOOR, VERTICAL OR HORIZONTAL
	ACOUSTICAL DUCT LINER
	FLEXIBLE CONNECTION
	DUCT SOUND ATTENUATOR
	DUCT TRANSITION (DOUBLE LINE)
	DUCT TRANSITION (RECT. TO ROUND)
	DUCT TRANSITION (SINGLE LINE)
	HIDDEN DUCTWORK
	BACK DRAFT DAMPER
	MOTOR OPERATED DAMPER
	MANUAL VOLUME DAMPER
	SMOKE DETECTOR
	SMOKE DAMPER
	FIRE DAMPER
	COMBINATION FIRE/SMOKE DAMPER
	STANDARD BRANCH, SUPPLY, RETURN, OR EXHAUST, NO SPLITTER
	ROOF VENTILATOR OR HOOD ON ROOF ABOVE
	ROOF VENTILATOR OR HOOD ON ROOF

	DUCT CAP
	END OF DUCT
	POSITIVE PRESSURE DUCT SECTION
	POSITIVE PRESSURE DUCT (DOWN OR AWAY)
	NEGATIVE PRESSURE DUCT SECTION
	NEGATIVE PRESSURE DUCT (DOWN OR AWAY)
	FLEXIBLE DUCT DIFFUSER CONNECTION
	SIDEWALL AIR DEVICE
	EXHAUST, RETURN, OR TRANSFER AIR DEVICE
	SUPPLY AIR DEVICE
	LINEAR OR SLOT AIR DEVICE
	TRANSFER GRILLE ASSEMBLY
	LOUVER AND BIRD SCREEN
	ELBOW WITH TURNING VANES
	UNIT HEATER
	CENTRIFUGAL FAN
	AIR FLOW
	ELEVATION SYMBOL

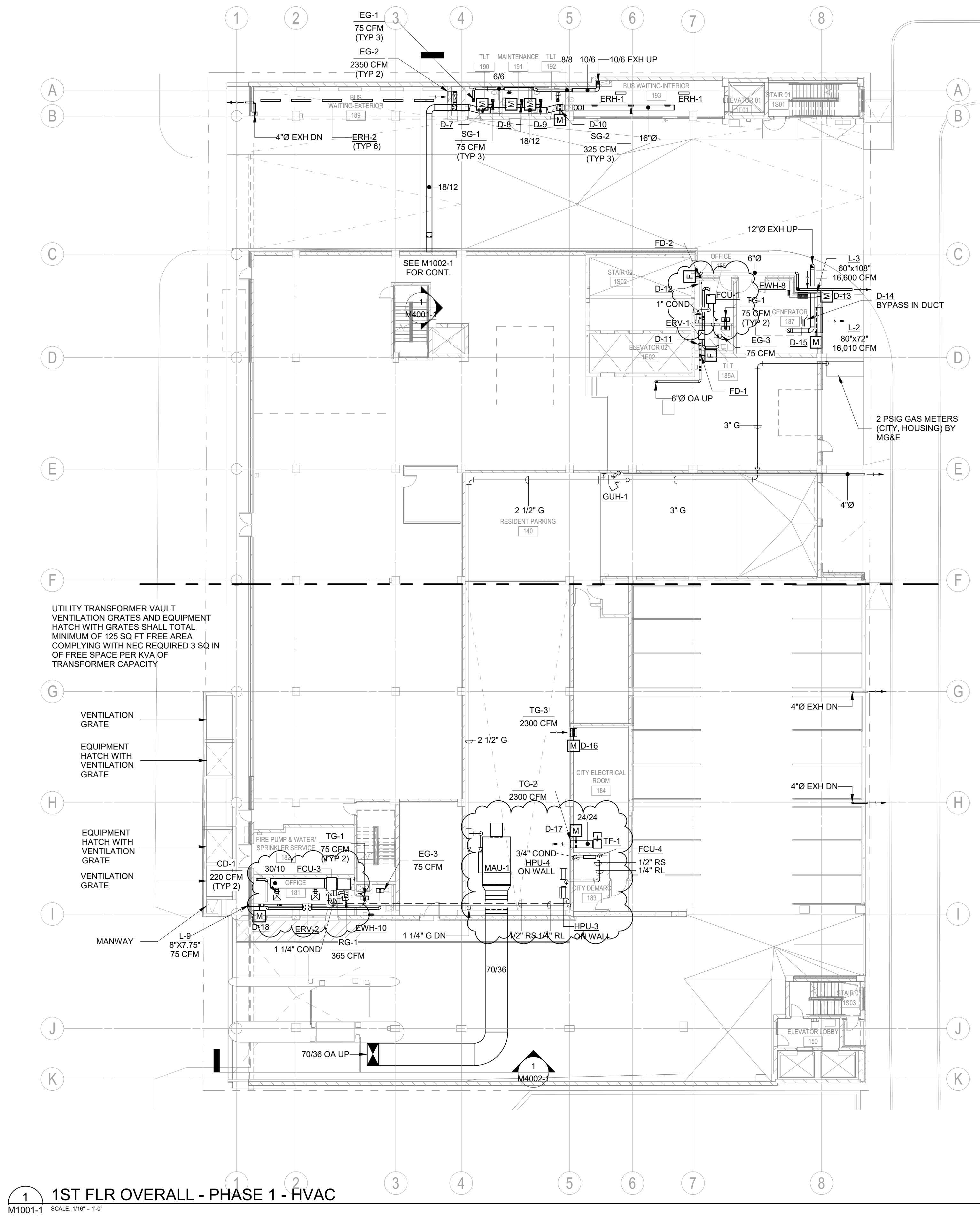
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1 1ST FLR OVERALL - PHASE 1 - HVAC
SCALE: 1/16" = 1'-0"

- GENERAL NOTES:**
1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
 2. EXHAUST DUCTS ROUTED WITHIN ALL PARKING LEVELS SHALL BE INSTALLED TO ALIGN WITH THE PITCH OF THE FLOOR ABOVE. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR UTILITY ROUTING PRIOR TO INSTALLATION.
 3. ALL VARIABLE FREQUENCY DRIVES SHOWN ON PARKING LEVELS SHALL BE HUNG FROM THE FLOOR ABOVE AND MAINTAIN A MINIMUM OF 7'-2" CLEAR ABOVE FLOOR BELOW.
 4. PHASE 1 CONTRACTORS SHALL PROVIDE TEMPORARY HEATING OF SPACES CONTAINING UTILITIES SUBJECT TO FREEZING THAT ARE ROUTED THROUGH PHASE 2 BUILD OUT AREAS.

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JDR Project No: 22.0249

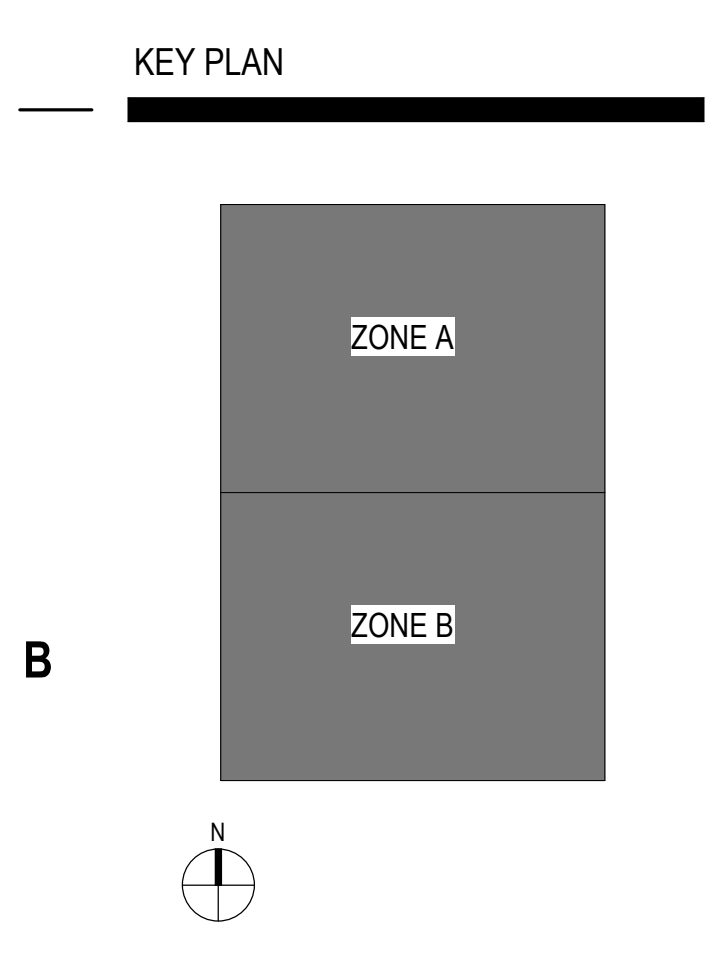
PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2



SHEET INFORMATION

PROJECT MANAGER

PROJECT NUMBER 720448

1ST FLR OVERALL -
PHASE 1 - HVAC

M1001-1

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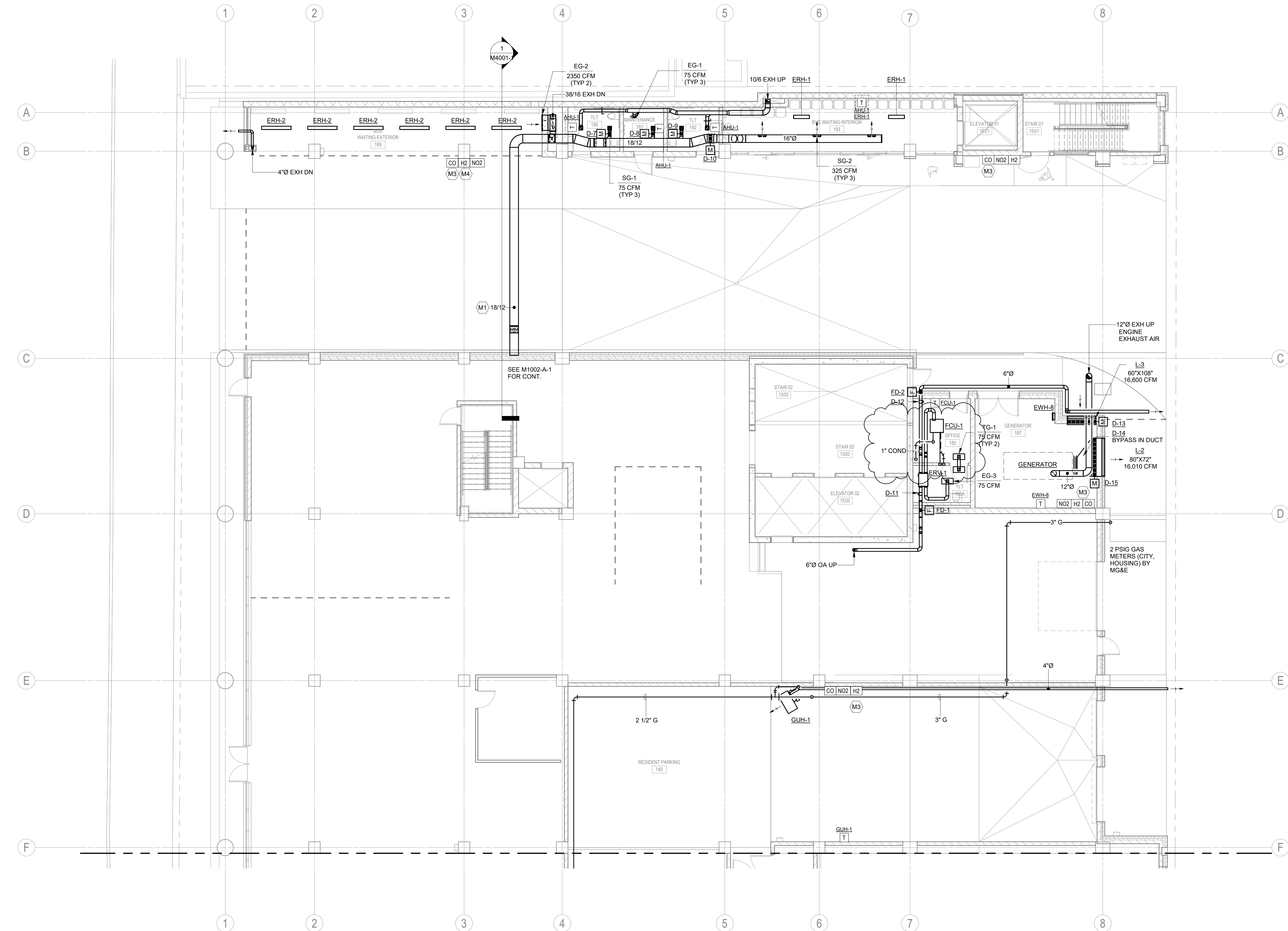
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1 1ST FLR - ZONE A - PHASE 1 - HVAC
M1001-A-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
- EXHAUST DUCTS ROUTED WITHIN ALL PARKING LEVELS SHALL BE INSTALLED TO ALIGN WITH THE PITCH OF THE FLOOR ABOVE. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR UTILITY ROUTING PRIOR TO INSTALLATION.
- ALL VARIABLE FREQUENCY DRIVES SHOWN ON PARKING LEVELS SHALL BE HUNG FROM THE FLOOR ABOVE AND MAINTAIN A MINIMUM OF 7'-2" CLEAR ABOVE FLOOR BELOW.
- PHASE 1 CONTRACTORS SHALL PROVIDE TEMPORARY HEATING OF SPACES CONTAINING UTILITIES SUBJECT TO FREEZING THAT ARE ROUTED THROUGH PHASE 2 BUILD OUT AREAS.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- M1 OUTSIDE AIR DUCT FROM AHU-1 ROUTED WITHIN INSULATED PLENUM ABOVE THE BUS TERMINAL.
- M3 PROVIDE QUANTITY OF CO/NO2/H2 DETECTORS AS REQUIRED FOR COMPLETE PARKING LEVEL COVERAGE. PROVIDE PROTECTIVE ENCLOSURE AROUND DETECTORS. CO/NO2 DETECTORS SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. HYDROGEN DETECTOR (H2) SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.
- M4 (2) SETS OF CO/NO2 DETECTORS. FIRST PAIR SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. SECOND PAIR SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

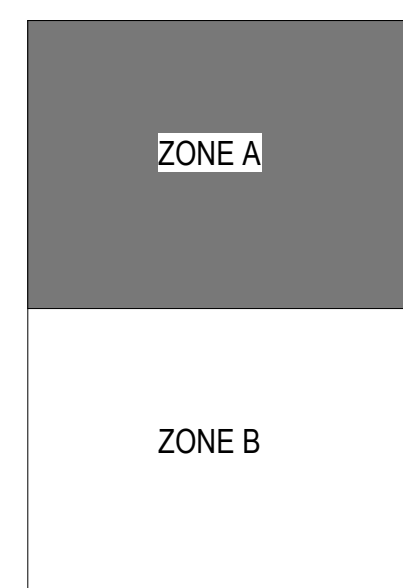
**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

C

KEY PLAN



B



SHEET INFORMATION

PROJECT MANAGER

A

PROJECT NUMBER 720448

**1ST FLR - ZONE A -
PHASE 1 - HVAC**

M1001-A-1

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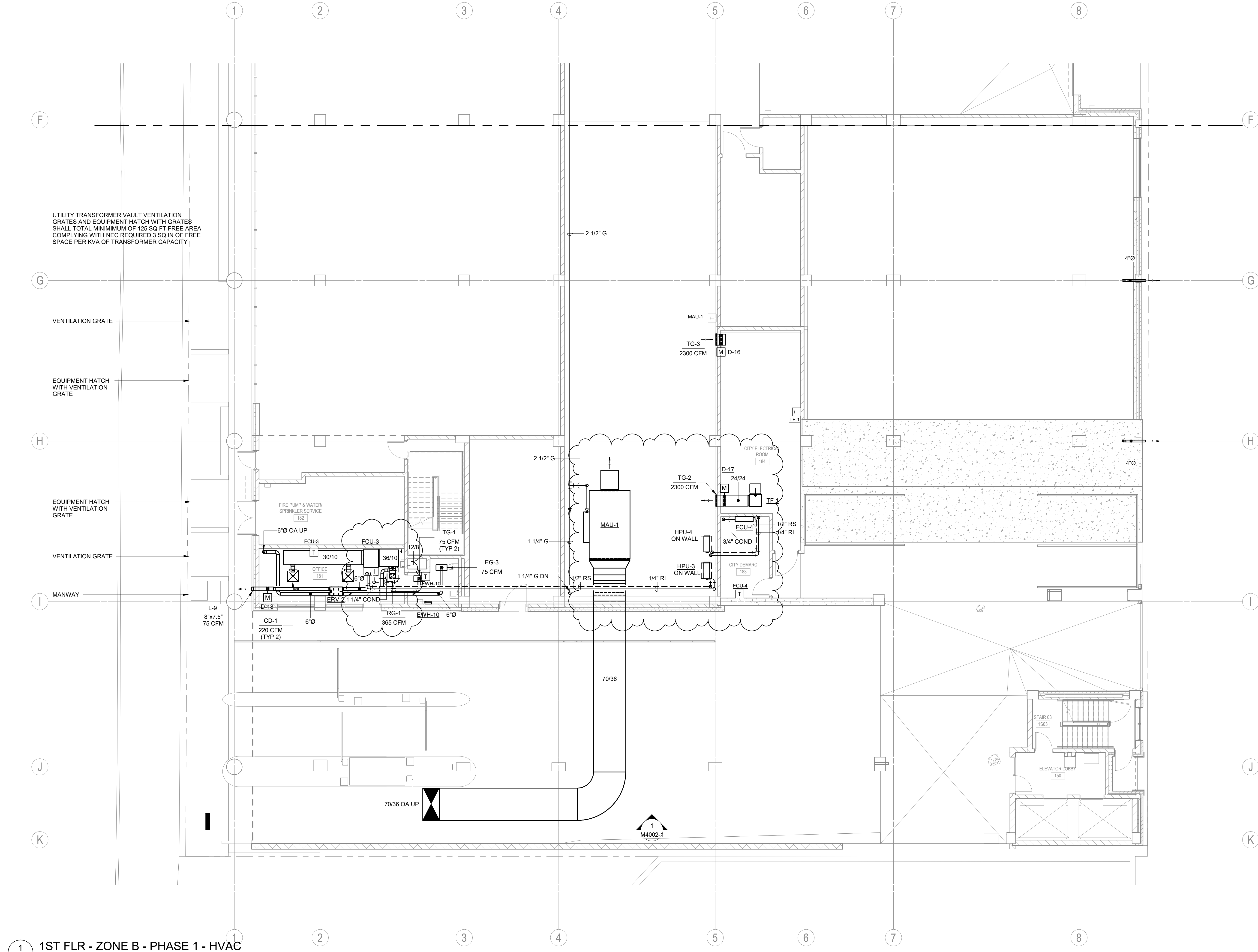
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1 1ST FLR - ZONE B - PHASE 1 - HVAC
M1001-B-1 SCALE: 1/8\"/>

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
2. EXHAUST DUCTS ROUTED WITHIN ALL PARKING LEVELS SHALL BE INSTALLED TO ALIGN WITH THE PITCH OF THE FLOOR ABOVE. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR UTILITY ROUTING PRIOR TO INSTALLATION.
3. ALL VARIABLE FREQUENCY DRIVES SHOWN ON PARKING LEVELS SHALL BE HUNG FROM THE FLOOR ABOVE AND MAINTAIN A MINIMUM OF 7'-2" CLEAR ABOVE FLOOR BELOW.
4. PHASE 1 CONTRACTORS SHALL PROVIDE TEMPORARY HEATING OF SPACES CONTAINING UTILITIES SUBJECT TO FREEZING THAT ARE ROUTED THROUGH PHASE 2 BUILD OUT AREAS.



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

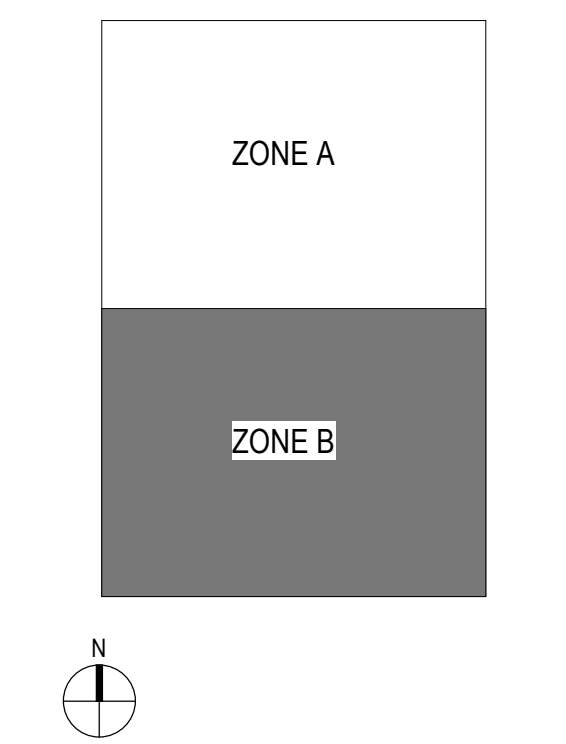
**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

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PROJECT NUMBER 720448

**1ST FLR - ZONE B -
PHASE 1 - HVAC**

M1001-B-1

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DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_AD02

PROJECT MANAGER	
PROJECT NUMBER	720448

M1002-1



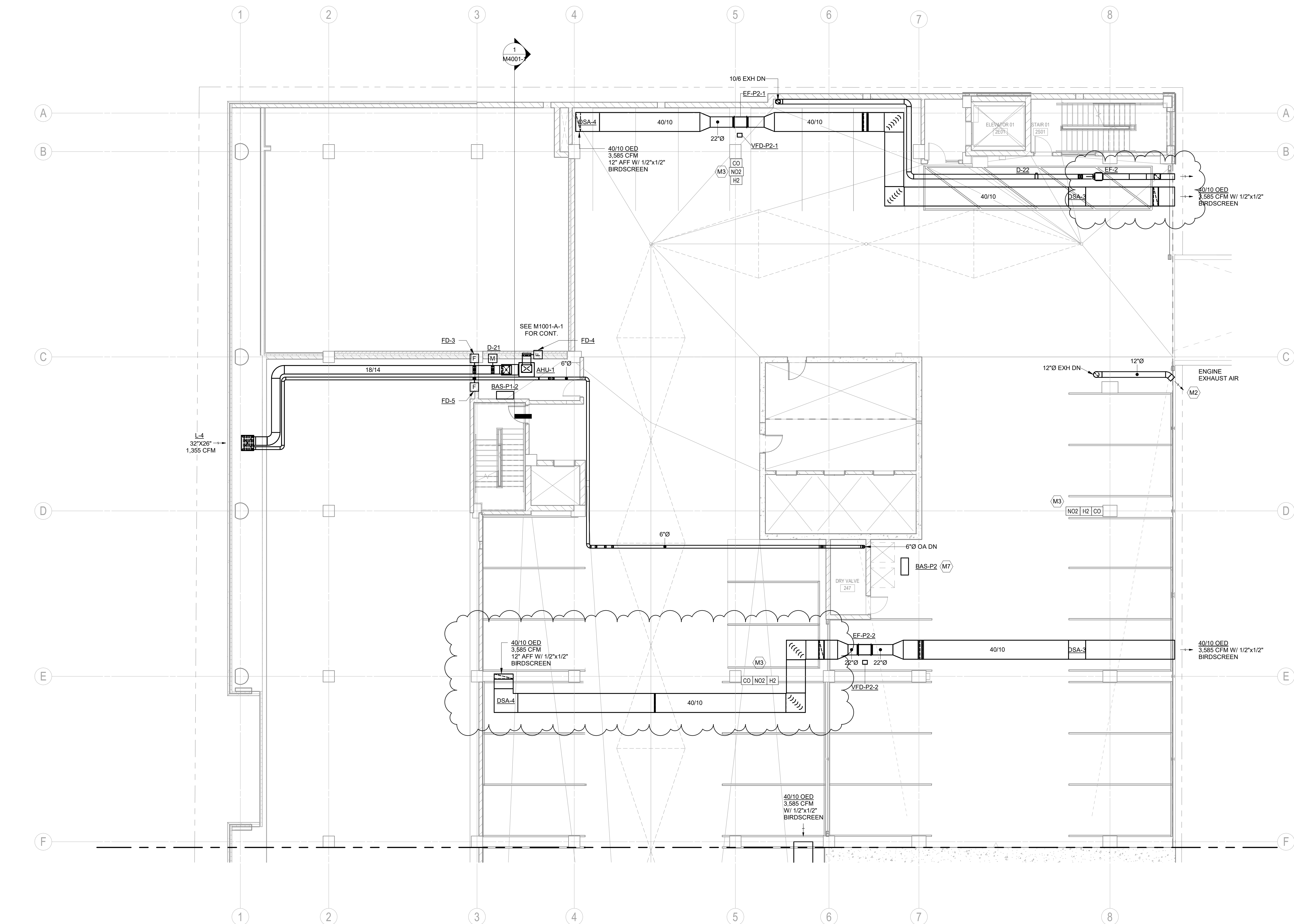
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1 P2 FLR - ZONE A - PHASE 1 - HVAC
M1002-A-1 SCALE: 1/8\"/>

GENERAL NOTES:

- DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
- EXHAUST DUCTS ROUTED WITHIN ALL PARKING LEVELS SHALL BE INSTALLED TO ALIGN WITH THE PITCH OF THE FLOOR ABOVE. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR UTILITY ROUTING PRIOR TO INSTALLATION.
- ALL VARIABLE FREQUENCY DRIVES SHOWN ON PARKING LEVELS SHALL BE HUNG FROM THE FLOOR ABOVE AND MAINTAIN A MINIMUM OF 7'-2" CLEAR ABOVE FLOOR BELOW.
- PHASE 1 CONTRACTORS SHALL PROVIDE TEMPORARY HEATING OF SPACES CONTAINING UTILITIES SUBJECT TO FREEZING THAT ARE ROUTED THROUGH PHASE 2 BUILD OUT AREAS.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- M2 GENERATOR EXHAUST SHALL BE DIRECTED AWAY FROM CONNECTING BRIDGE. PROVIDE 45 DEG FITTING WITH CUTBACK.
- M3 PROVIDE QUANTITY OF CO/NO2/H2 DETECTORS AS REQUIRED FOR COMPLETE PARKING LEVEL COVERAGE. PROVIDE PROTECTIVE ENCLOSURE AROUND DETECTORS. CO/NO2 DETECTORS SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. HYDROGEN DETECTOR (H2) SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.
- M7 BUILDING AUTOMATION SYSTEM (BAS) PANELS SHALL BE TEMPORARILY SUPPORTED. UPON COMPLETION OF PHASE 2, BAS PANELS SHALL BE RELOCATED TO WALLS INTENDED TO BE INSTALLED AT THIS LOCATION.

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JDR Project No: 22.0249

PROJECT INFORMATION

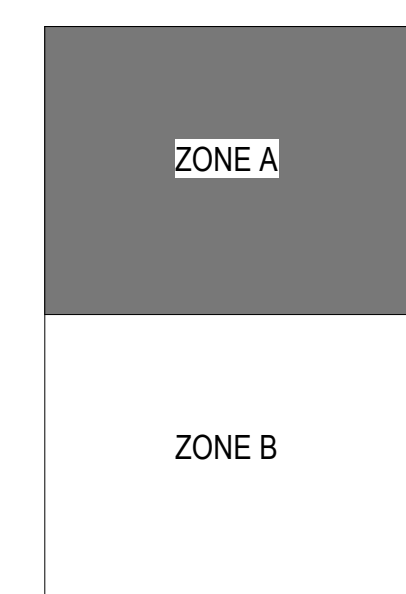
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



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PROJECT MANAGER

PROJECT NUMBER 720448

**P2 FLR - ZONE A -
PHASE 1 - HVAC**

M1002-A-1

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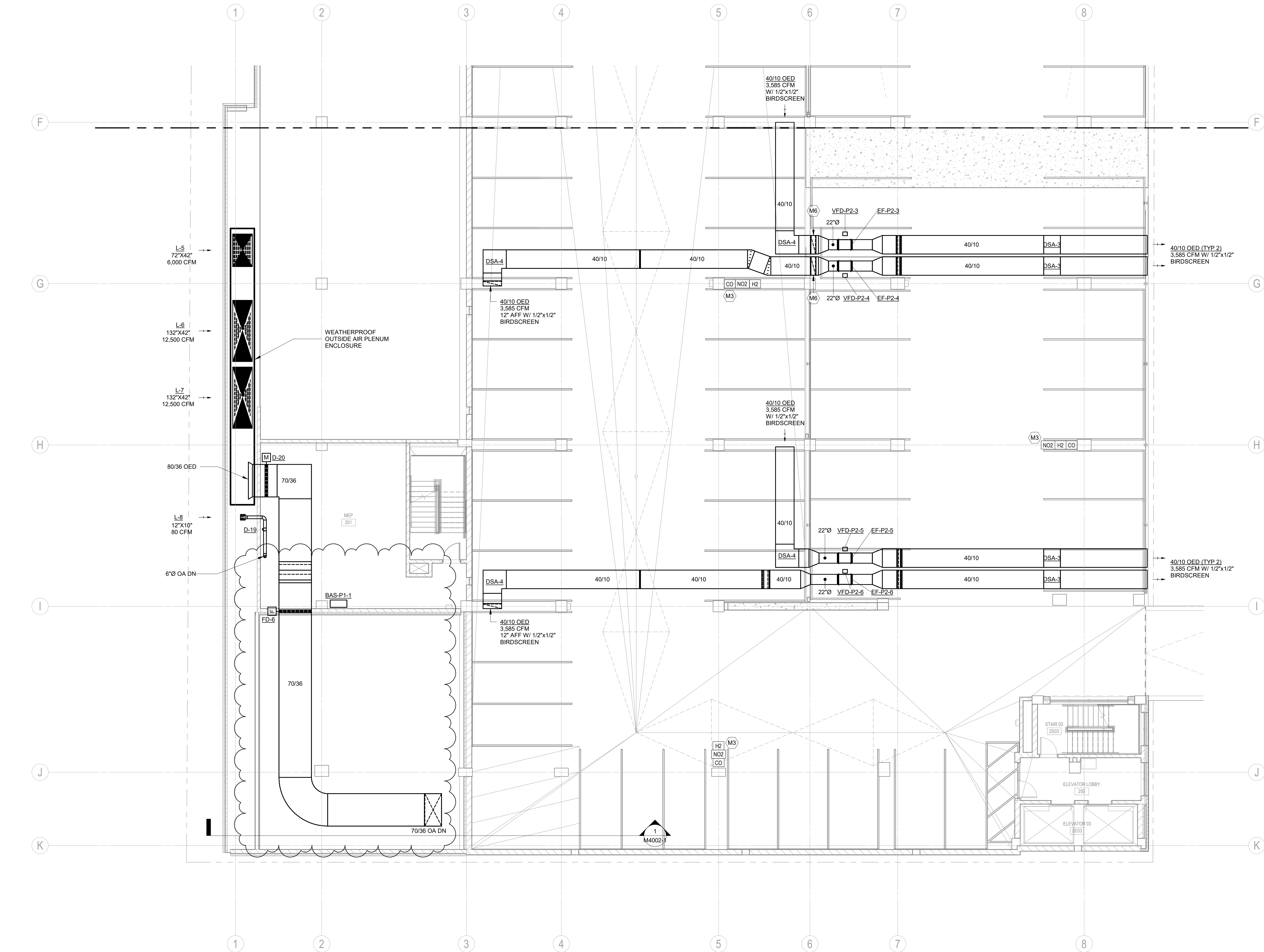
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1 P2 FLR - ZONE B - PHASE 1 - HVAC
M1002-B-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
2. EXHAUST DUCTS ROUTED WITHIN ALL PARKING LEVELS SHALL BE INSTALLED TO ALIGN WITH THE PITCH OF THE FLOOR ABOVE. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR UTILITY ROUTING PRIOR TO INSTALLATION.
3. ALL VARIABLE FREQUENCY DRIVES SHOWN ON PARKING LEVELS SHALL BE HUNG FROM THE FLOOR ABOVE AND MAINTAIN A MINIMUM OF 7'-2" CLEAR ABOVE FLOOR BELOW.
4. PHASE 1 CONTRACTORS SHALL PROVIDE TEMPORARY HEATING OF SPACES CONTAINING UTILITIES SUBJECT TO FREEZING THAT ARE ROUTED THROUGH PHASE 2 BUILD OUT AREAS.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- M3 PROVIDE QUANTITY OF CO/NO2/H2 DETECTORS AS REQUIRED FOR COMPLETE PARKING LEVEL COVERAGE. PROVIDE PROTECTIVE ENCLOSURE AROUND DETECTORS. CO/NO2 DETECTORS SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. HYDROGEN DETECTOR (H2) SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.
- M6 DUCT DROP/RISE EXTENDS BELOW 7'-2" MINIMUM CLEARANCE. COORDINATE WITH OWNER/ARCHITECT FOR VEHICLE STOP BARRIER OR SIGNAGE TO PROTECT DUCT.



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

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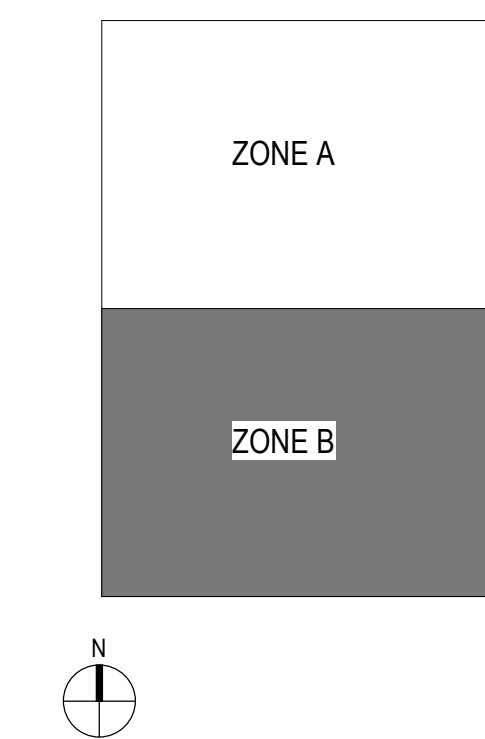
**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

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KEY PLAN



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PROJECT NUMBER 720448

**P2 FLR - ZONE B -
PHASE 1 - HVAC**

M1002-B-1

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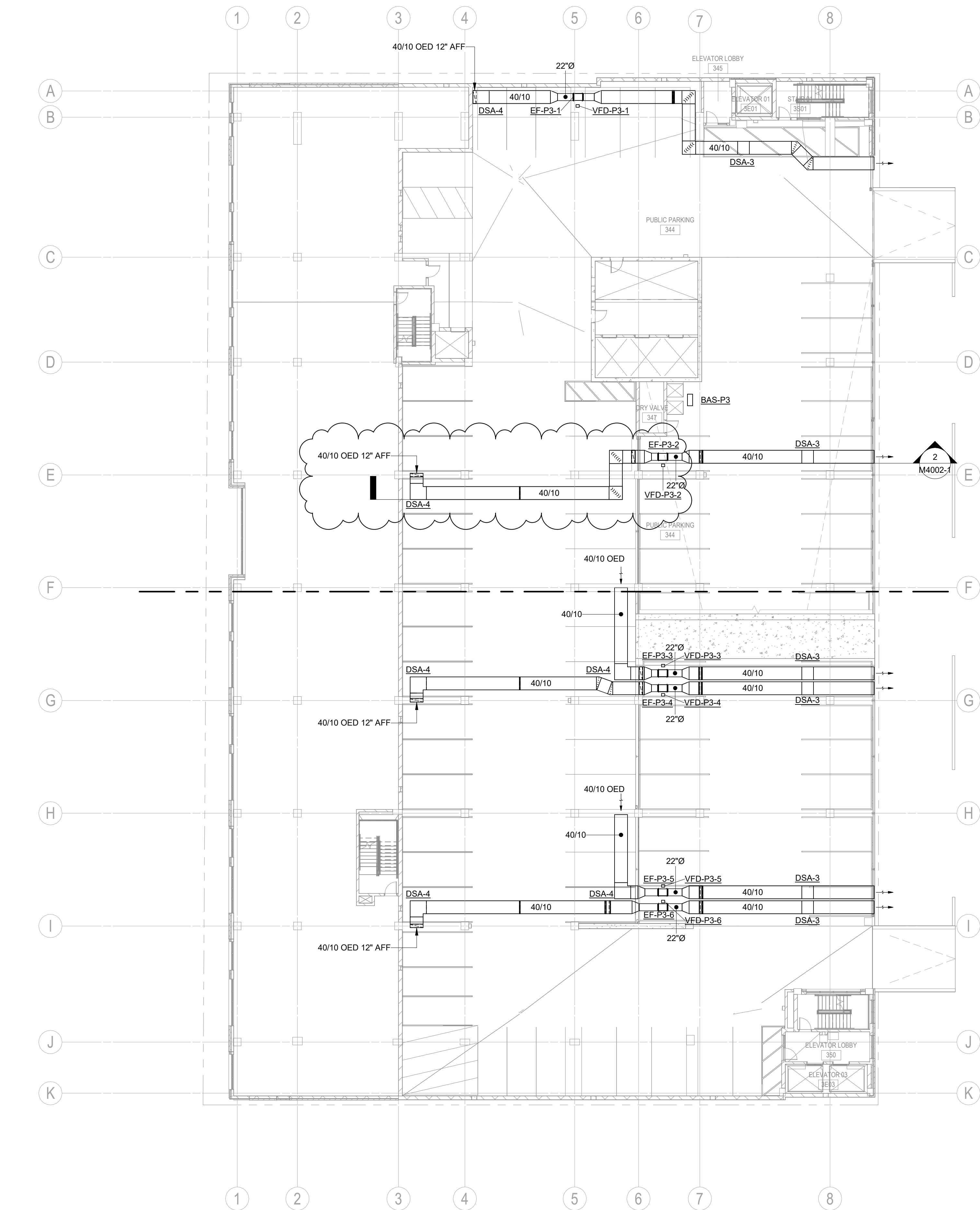
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M1003-1
P3 FLR OVERALL - PHASE 1 - HVAC
SCALE: 1/16" = 1'-0"

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

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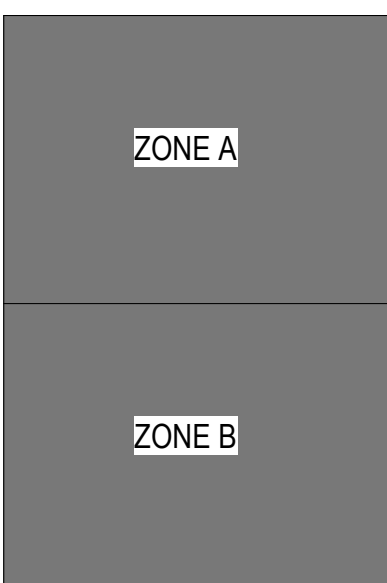
**415 N. LAKE STREET
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

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KEY PLAN



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PROJECT NUMBER 720448

**P3 FLR OVERALL –
PHASE 1 – HVAC**

M1003-1

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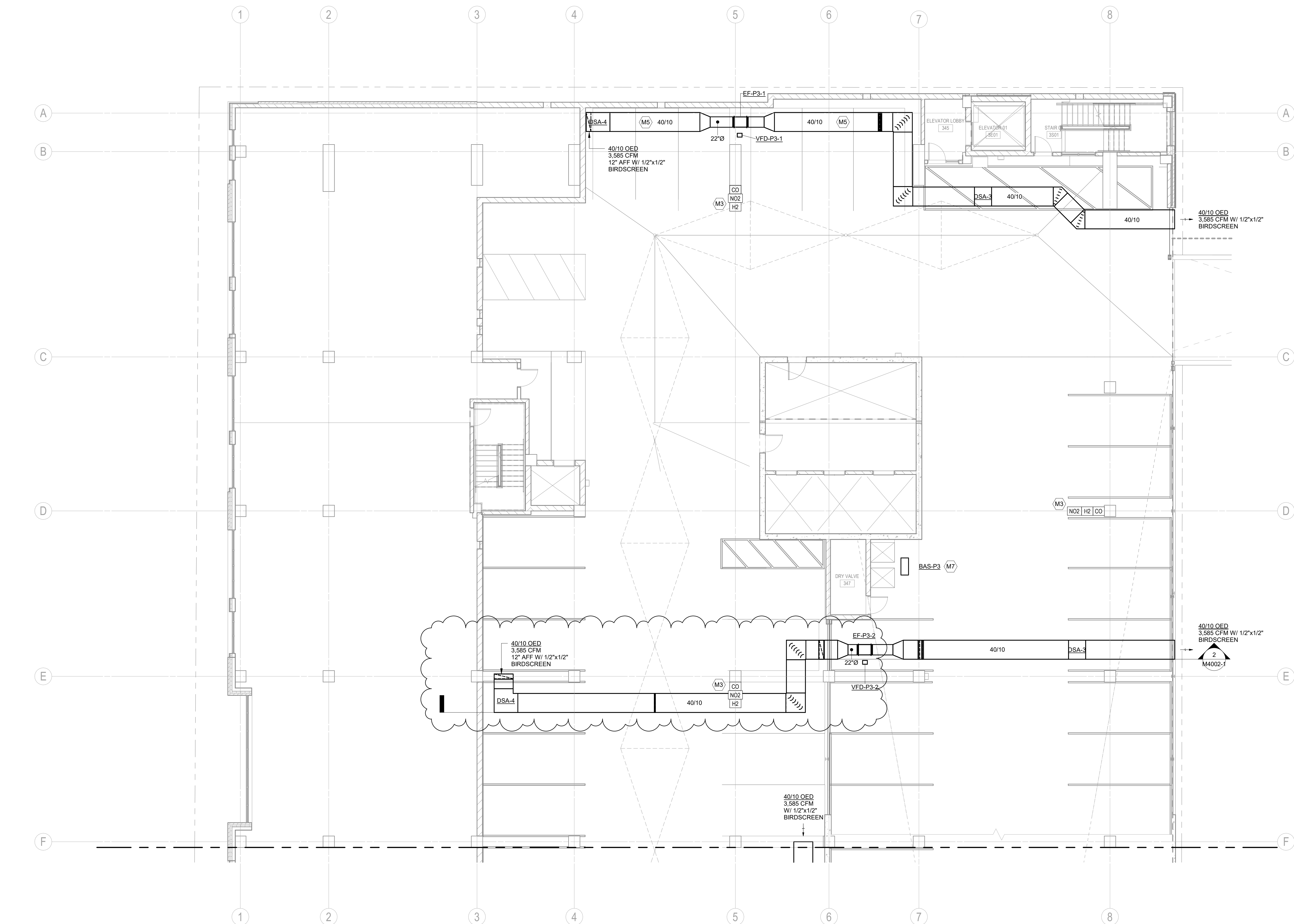
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1 P3 FLR - ZONE A - PHASE 1 - HVAC
M1003-A-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
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KEYED NOTES

(KEYED NOTES PER PROJECT)

- M3 PROVIDE QUANTITY OF CO/NO2/H2 DETECTORS AS REQUIRED FOR COMPLETE PARKING LEVEL COVERAGE. PROVIDE PROTECTIVE ENCLOSURE AROUND DETECTORS. CO/NO2 DETECTORS SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. HYDROGEN DETECTOR (H2) SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.
- M5 DUCTS DENOTED BY THIS NOTE ARE BELOW 8'-2" BUT SHALL MAINTAIN A MINIMUM 7'-2" CLEAR ABOVE FINISHED FLOOR.
- M7 BUILDING AUTOMATION SYSTEM (BAS) PANELS SHALL BE TEMPORARILY SUPPORTED. UPON COMPLETION OF PHASE 2, BAS PANELS SHALL BE RELOCATED TO WALLS INTENDED TO BE INSTALLED AT THIS LOCATION.

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MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR Project No: 22.0249

PROJECT INFORMATION

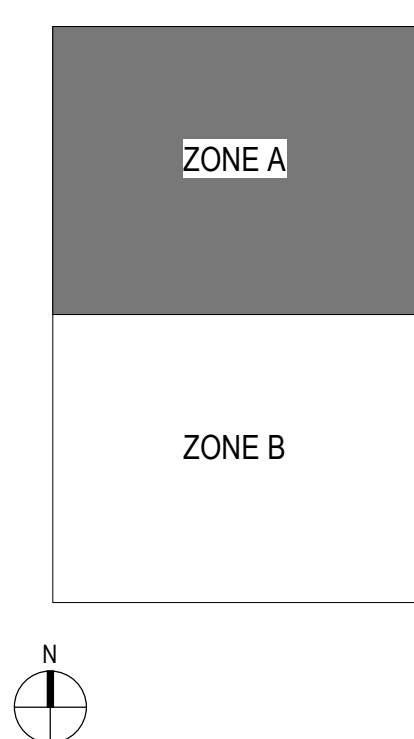
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

**P3 FLR - ZONE A -
PHASE 1 - HVAC**

M1003-A-1

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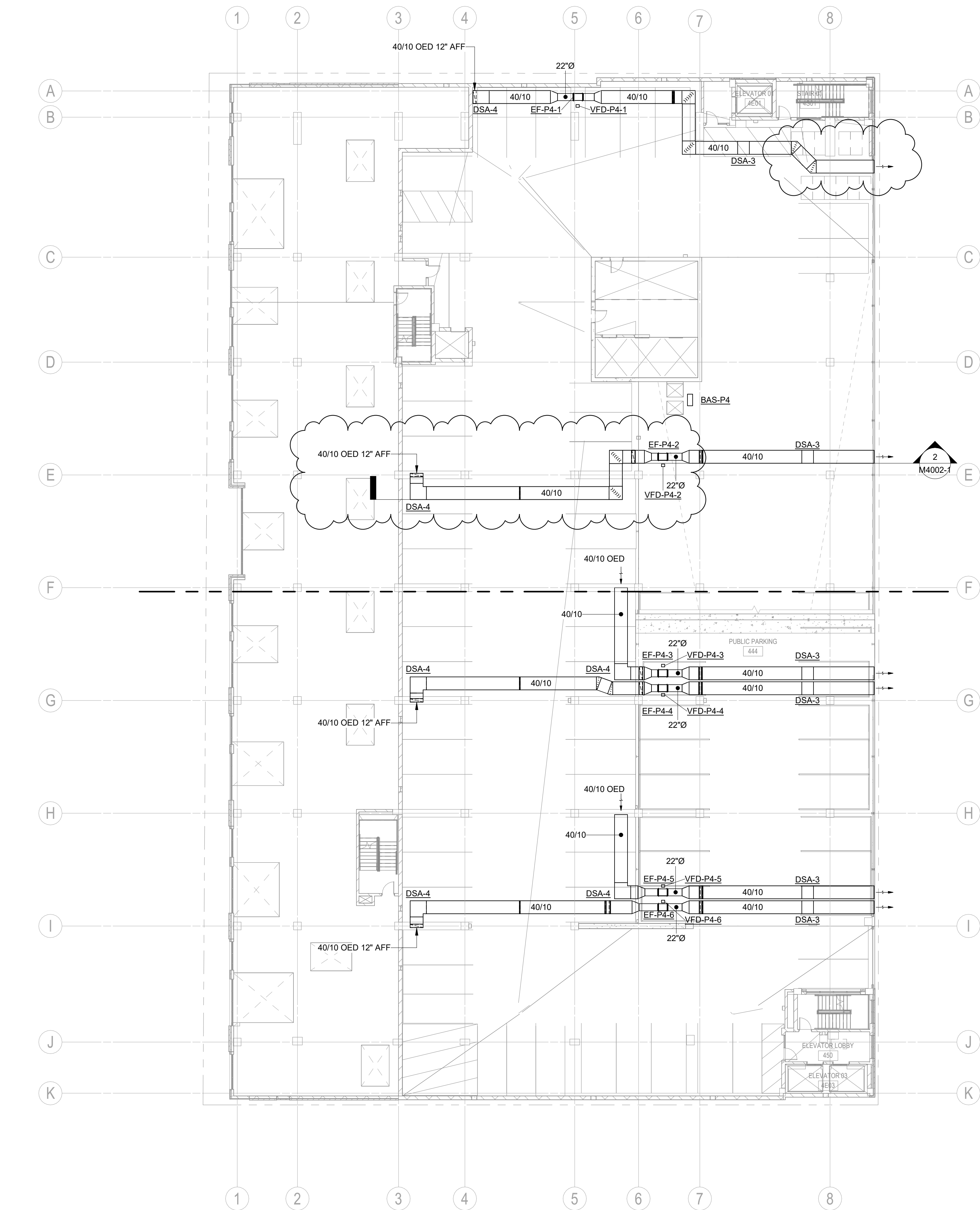
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P4 FLR OVERALL - PHASE 1 - HVAC
SCALE: 1/16" = 1'-0"

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

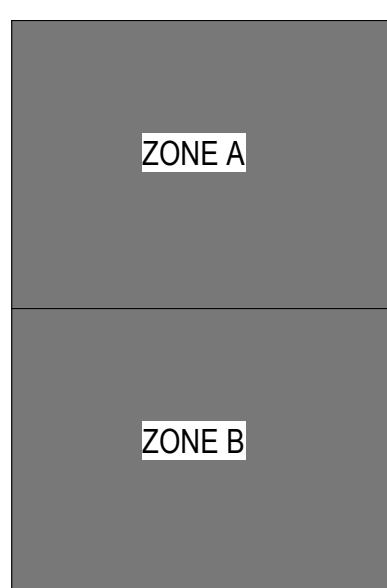
**415 N. LAKE STREET
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

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KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

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**P4 FLR OVERALL –
PHASE 1 – HVAC**

M1004-1

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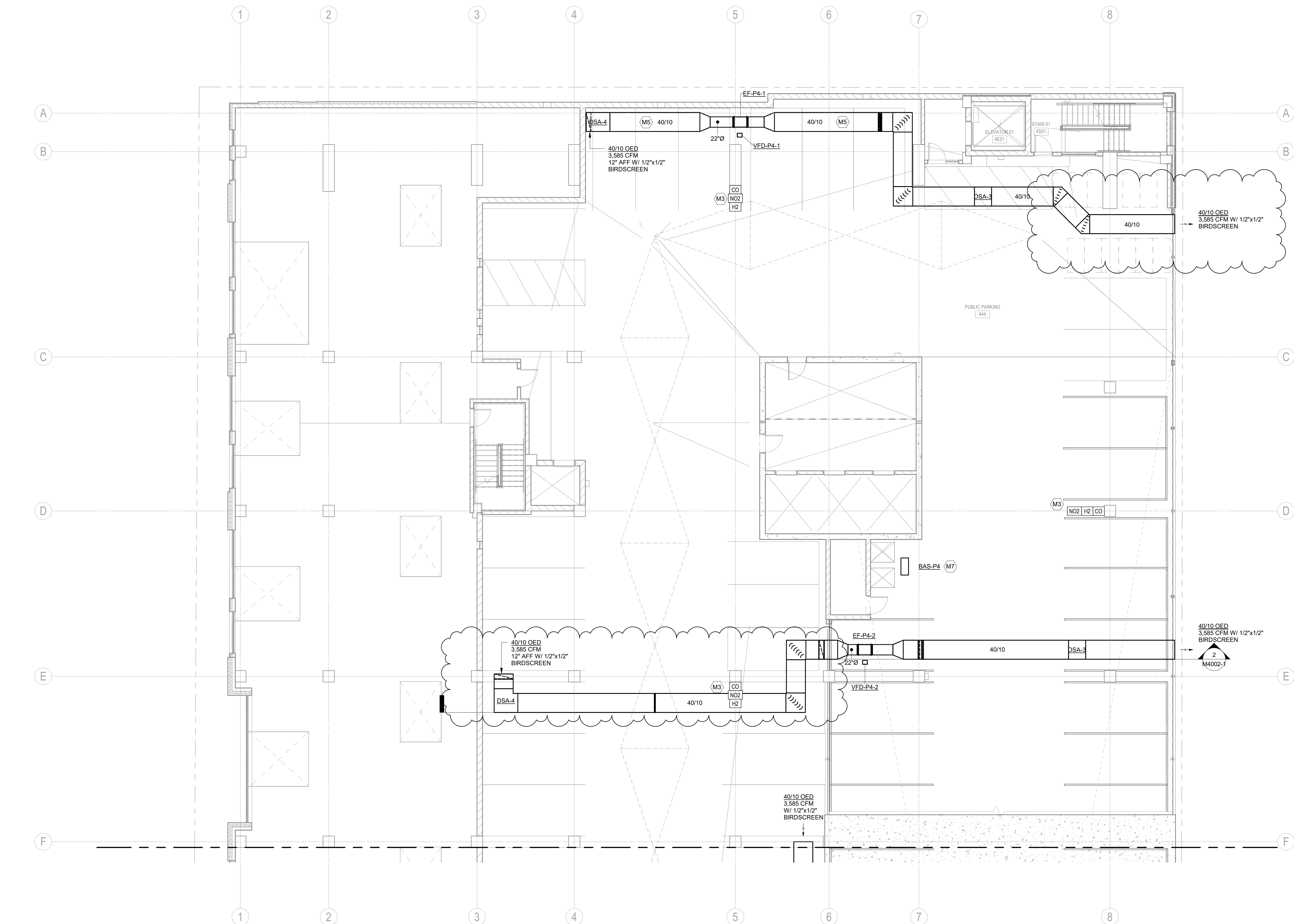
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1 P4 FLR - ZONE A - PHASE 1 - HVAC
M1004-A-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
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KEYED NOTES

(KEYED NOTES PER PROJECT)

- M3 PROVIDE QUANTITY OF CO/NO2/H2 DETECTORS AS REQUIRED FOR COMPLETE PARKING LEVEL COVERAGE. PROVIDE PROTECTIVE ENCLOSURE AROUND DETECTORS. CO/NO2 DETECTORS SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. HYDROGEN DETECTOR (H2) SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.
- M5 DUCTS DENOTED BY THIS NOTE ARE BELOW 8'-2" BUT SHALL MAINTAIN A MINIMUM 7'-2" CLEAR ABOVE FINISHED FLOOR.
- M7 BUILDING AUTOMATION SYSTEM (BAS) PANELS SHALL BE TEMPORARILY SUPPORTED. UPON COMPLETION OF PHASE 2, BAS PANELS SHALL BE RELOCATED TO WALLS INTENDED TO BE INSTALLED AT THIS LOCATION.



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

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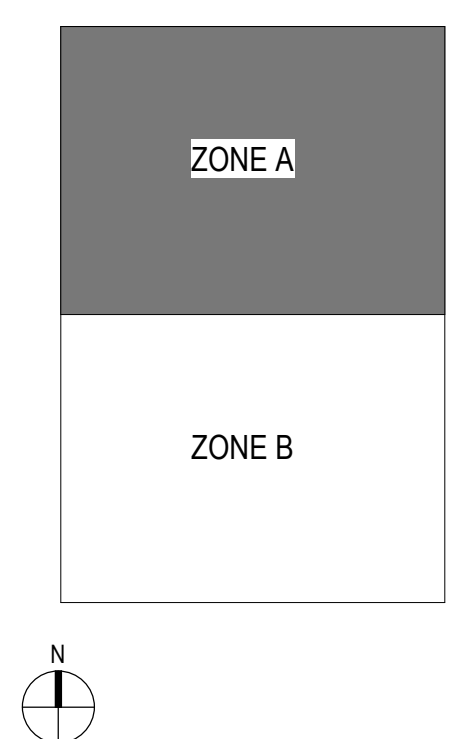
**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
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07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

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SHEET INFORMATION

PROJECT MANAGER

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PROJECT NUMBER 720448

**P4 FLR - ZONE A -
PHASE 1 - HVAC**

M1004-A-1

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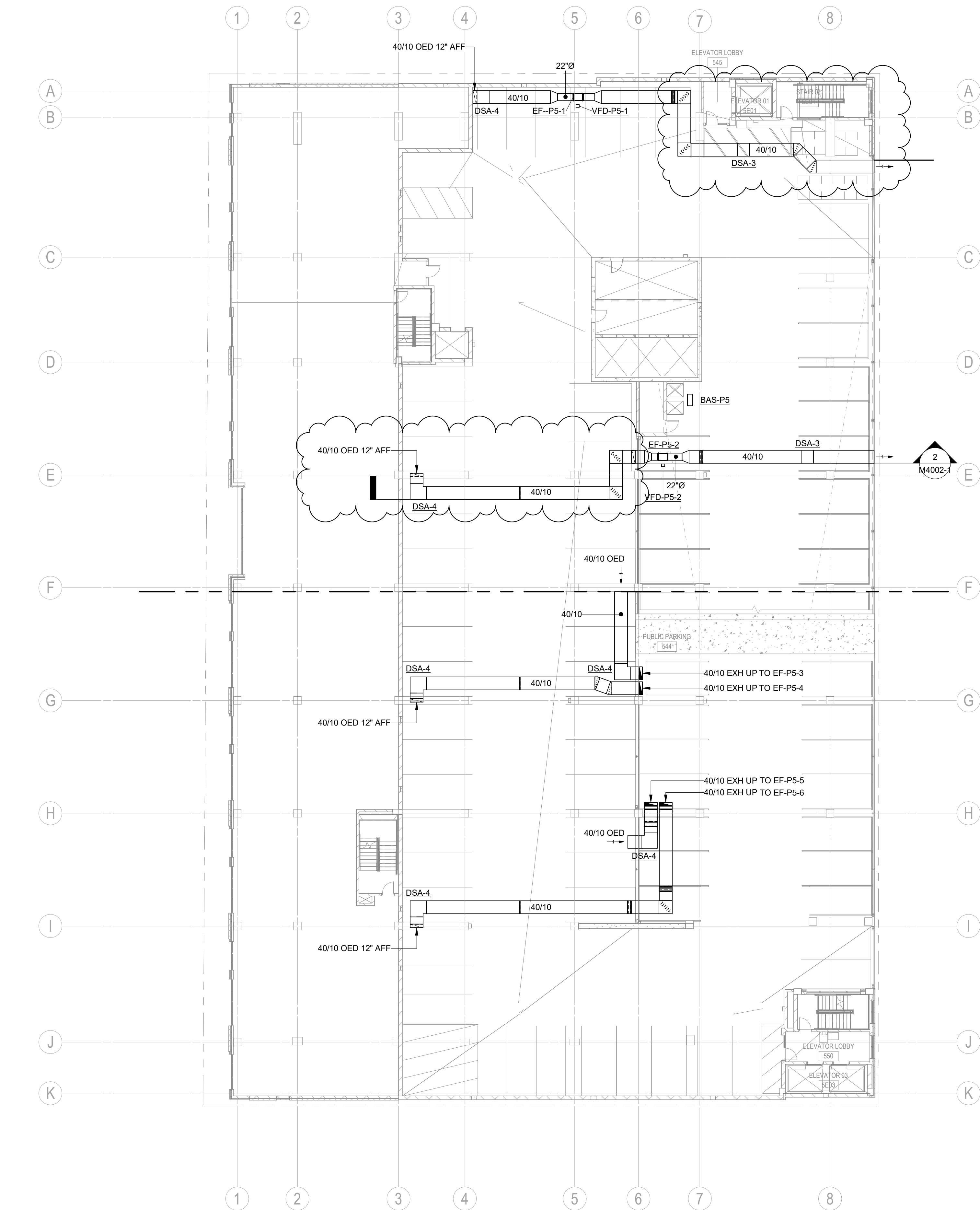
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P5 FLR OVERALL - PHASE 1 - HVAC
M1005-1 SCALE: 1/16\"/>

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
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JDR Project No: 22.0249

PROJECT INFORMATION

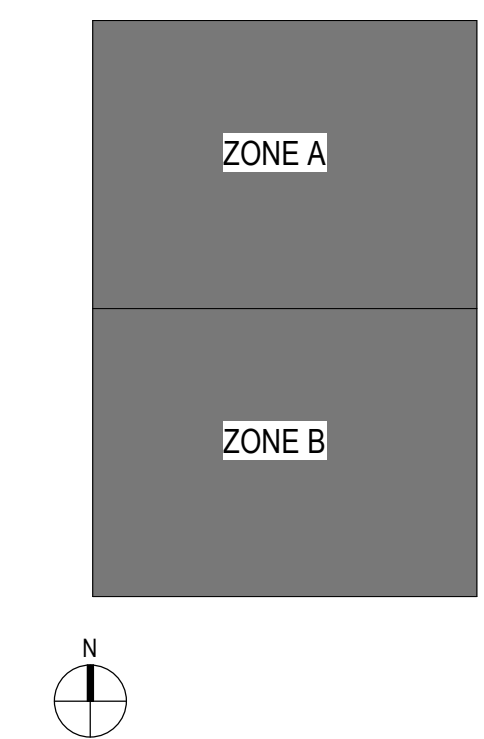
**STATE STREET
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MIXED-USE**

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ISSUANCE AND REVISIONS

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11-02-2023	PH1_ADD2

KEY PLAN



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PROJECT MANAGER
PROJECT NUMBER 720448

**P5 FLR OVERALL –
PHASE 1 – HVAC**

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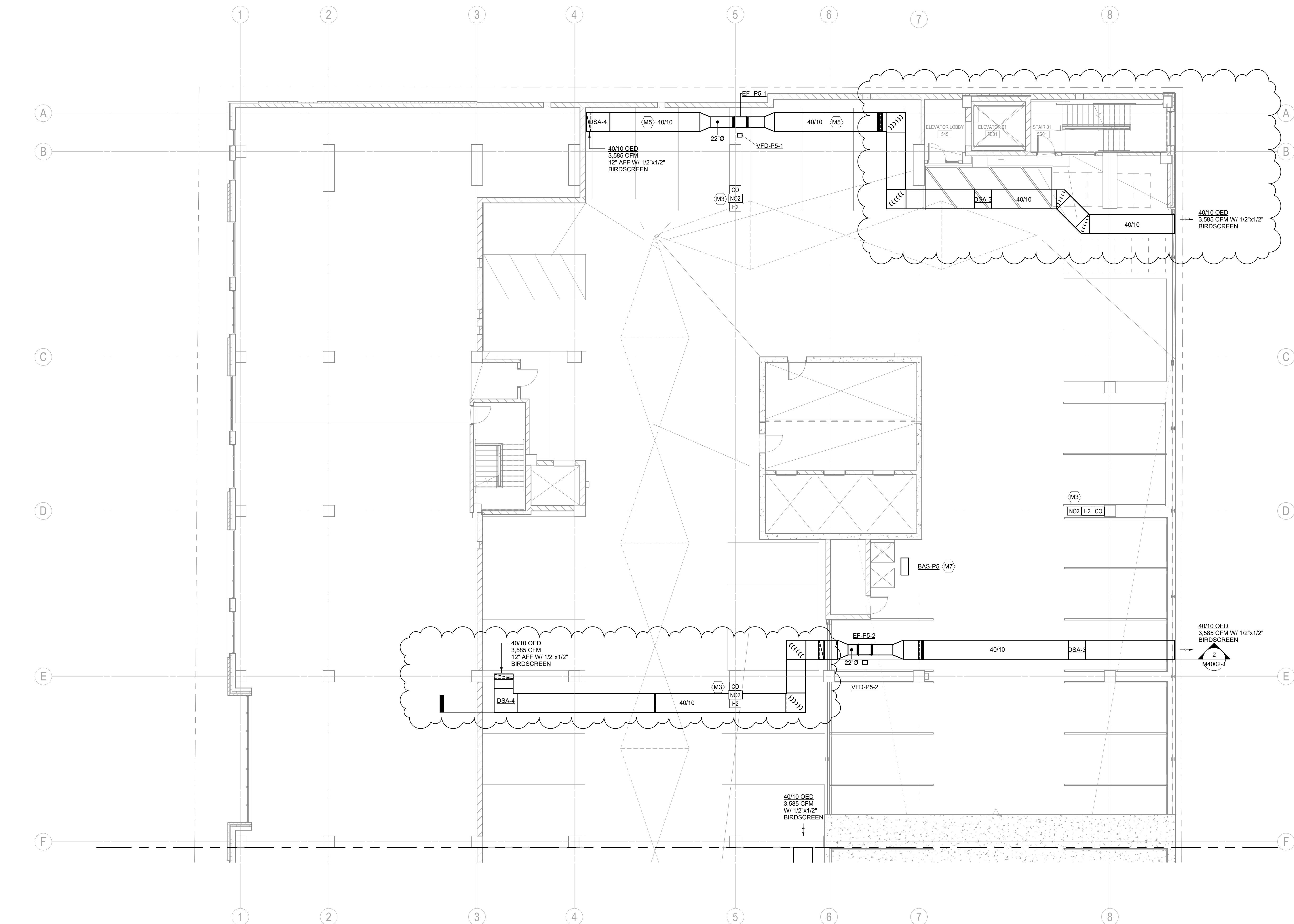
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1 P5 FLR - ZONE A - PHASE 1 - HVAC
M1005-A-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
2. EXHAUST DUCTS ROUTED WITHIN ALL PARKING LEVELS SHALL BE INSTALLED TO ALIGN WITH THE PITCH OF THE FLOOR ABOVE. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR UTILITY ROUTING PRIOR TO INSTALLATION.
3. ALL VARIABLE FREQUENCY DRIVES SHOWN ON PARKING LEVELS SHALL BE HUNG FROM THE FLOOR ABOVE AND MAINTAIN A MINIMUM OF 7'-2" CLEAR ABOVE FLOOR BELOW.
4. PHASE 1 CONTRACTORS SHALL PROVIDE TEMPORARY HEATING OF SPACES CONTAINING UTILITIES SUBJECT TO FREEZING THAT ARE ROUTED THROUGH PHASE 2 BUILD OUT AREAS.

KEYED NOTES

(KEYED NOTES PER PROJECT)

- M3 PROVIDE QUANTITY OF CO/NO2/H2 DETECTORS AS REQUIRED FOR COMPLETE PARKING LEVEL COVERAGE. PROVIDE PROTECTIVE ENCLOSURE AROUND DETECTORS. CO/NO2 DETECTORS SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. HYDROGEN DETECTOR (H2) SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.
- M5 DUCTS DENOTED BY THIS NOTE ARE BELOW 8'-2" BUT SHALL MAINTAIN A MINIMUM 7'-2" CLEAR ABOVE FINISHED FLOOR.
- M7 BUILDING AUTOMATION SYSTEM (BAS) PANELS SHALL BE TEMPORARILY SUPPORTED. UPON COMPLETION OF PHASE 2, BAS PANELS SHALL BE RELOCATED TO WALLS INTENDED TO BE INSTALLED AT THIS LOCATION.

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JDR Project No: 22.0249

PROJECT INFORMATION

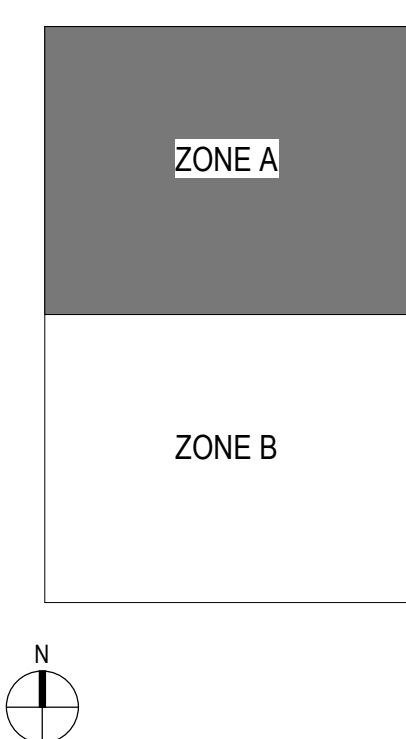
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

**P5 FLR - ZONE A -
PHASE 1 - HVAC**

M1005-A-1

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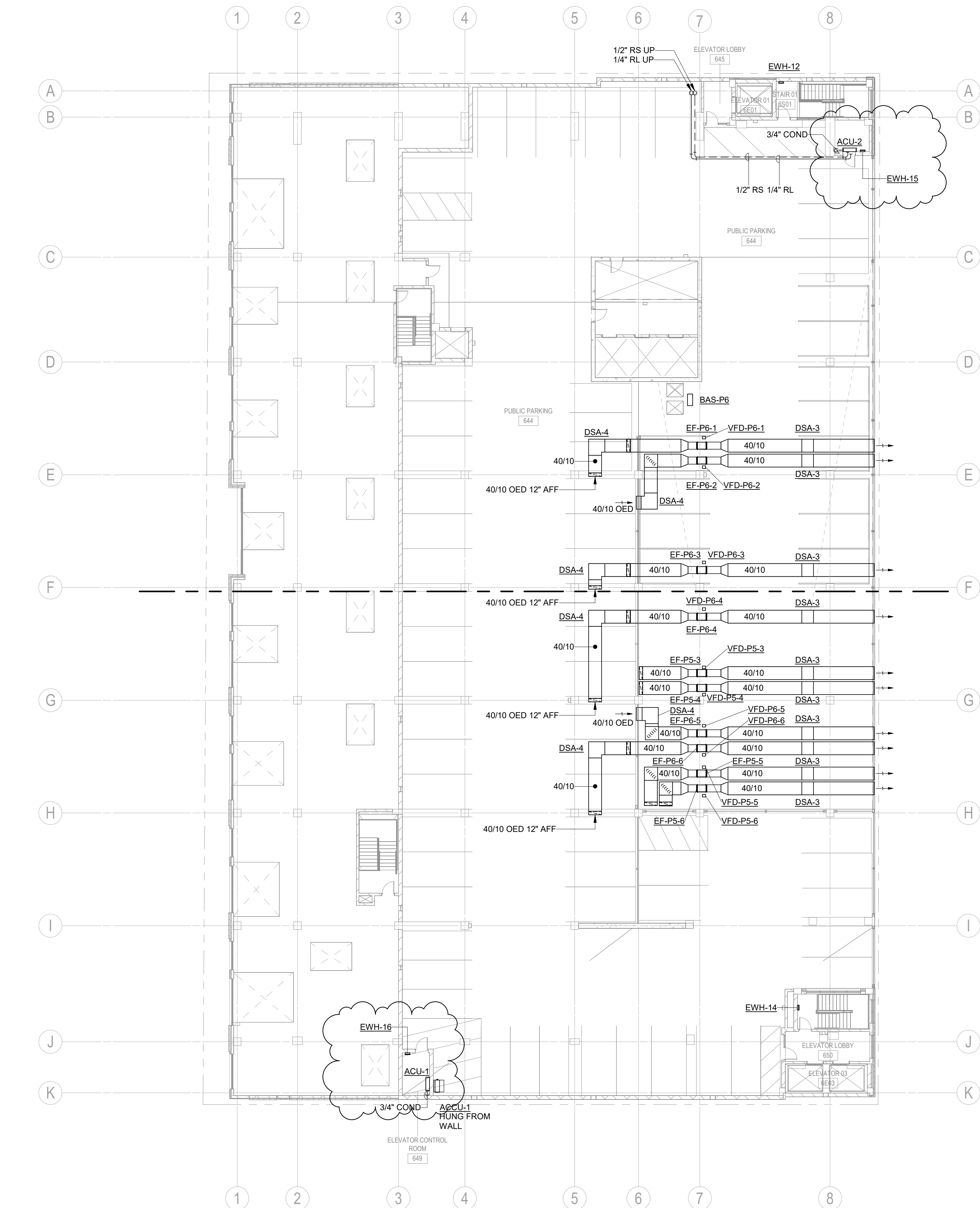
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P6 FLR OVERALL - PHASE 1 - HVAC
M1006-1 SCALE: 1/16" = 1'-0"

GENERAL NOTES:

1. DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
2. EXHAUST DUCTS ROUTED WITHIN ALL PARKING LEVELS SHALL BE INSTALLED TO ALIGN WITH THE PITCH OF THE FLOOR ABOVE. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR UTILITY ROUTING PRIOR TO INSTALLATION.
3. ALL VARIABLE FREQUENCY DRIVES SHOWN ON PARKING LEVELS SHALL BE HUNG FROM THE FLOOR ABOVE AND MAINTAIN A MINIMUM OF 7'-2" CLEAR ABOVE FLOOR BELOW.
4. PHASE 1 CONTRACTORS SHALL PROVIDE TEMPORARY HEATING OF SPACES CONTAINING UTILITIES SUBJECT TO FREEZING THAT ARE ROUTED THROUGH PHASE 2 BUILD OUT AREAS.



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

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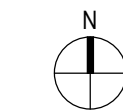
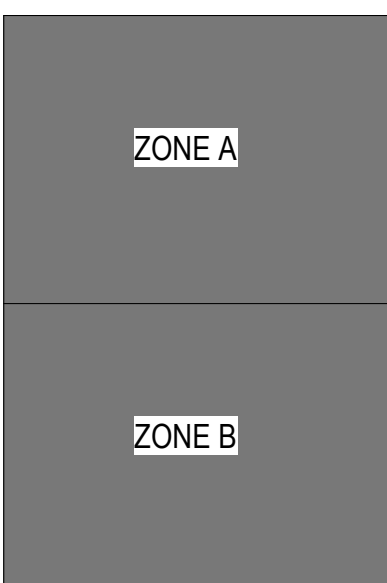
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_A002

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PROJECT MANAGER
PROJECT NUMBER 720448

**P6 FLR OVERALL –
PHASE 1 – HVAC**

M1006-1

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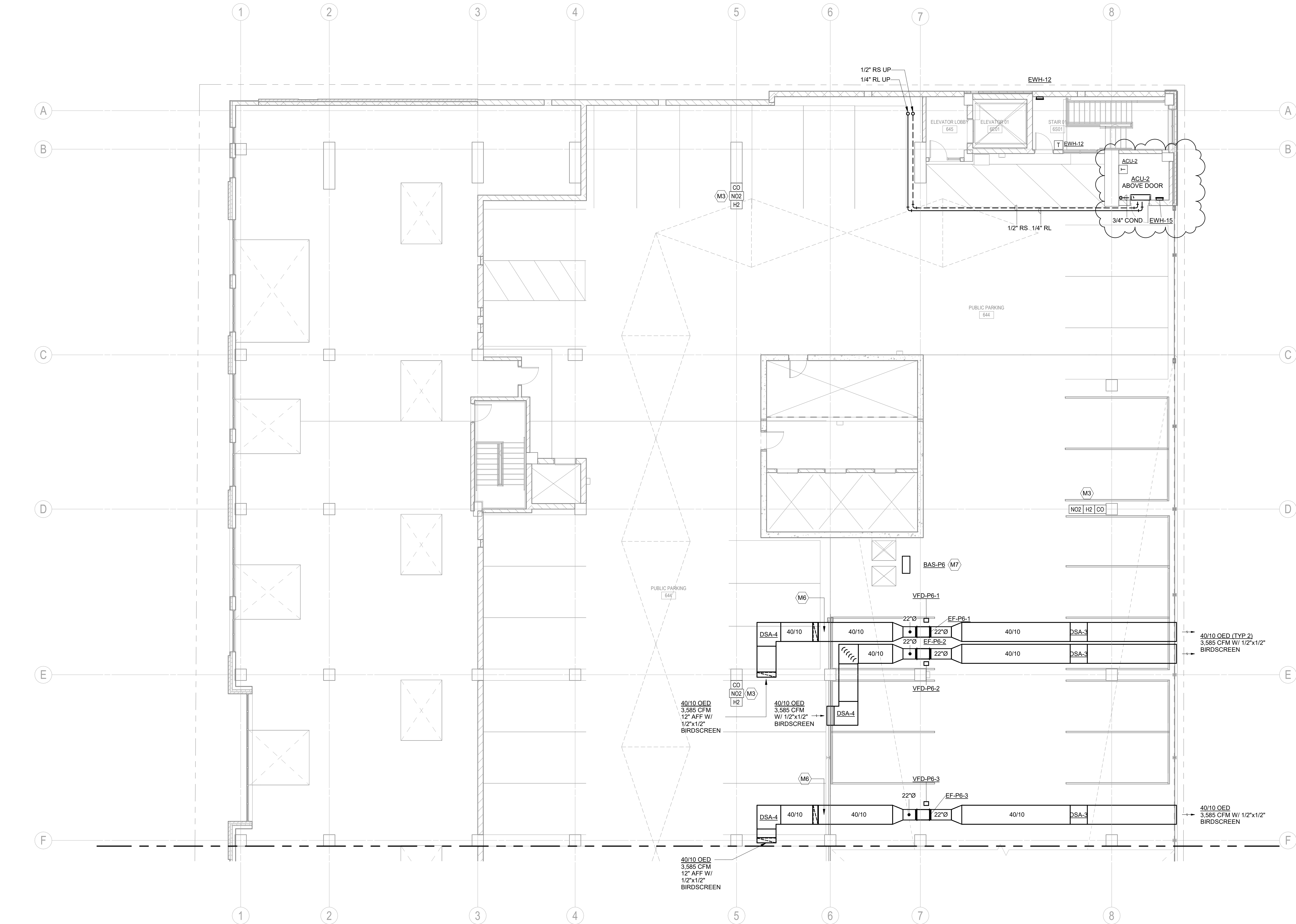
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1 P6 FLR - ZONE A - PHASE 1 - HVAC
M1006-A-1 SCALE: 1/8" = 1'-0"

GENERAL NOTES:

- DUCTS ROUTED ABOVE DRIVE AISLE SHALL MAINTAIN A MINIMUM OF 8'-2" CLEAR ABOVE FINISHED FLOOR. THIS INCLUDES ANY DUCT ACCESSORIES ASSOCIATE WITH HANGING, JOINING, INSULATING, ETC.
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KEYED NOTES

(KEYED NOTES PER PROJECT)

- M3 PROVIDE QUANTITY OF CO/NO2/H2 DETECTORS AS REQUIRED FOR COMPLETE PARKING LEVEL COVERAGE. PROVIDE PROTECTIVE ENCLOSURE AROUND DETECTORS. CO/NO2 DETECTORS SHALL BE INSTALLED 5'-0" ABOVE FINISHED FLOOR. HYDROGEN DETECTOR (H2) SHALL BE INSTALLED WITHIN 1'-0" OF DECK ABOVE.
- M6 DUCT DROP/RISE EXTENDS BELOW 7'-2" MINIMUM CLEARANCE. COORDINATE WITH OWNER/ARCHITECT FOR VEHICLE STOP BARRIER OR SIGNAGE TO PROTECT DUCT.
- M7 BUILDING AUTOMATION SYSTEM (BAS) PANELS SHALL BE TEMPORARILY SUPPORTED. UPON COMPLETION OF PHASE 2, BAS PANELS SHALL BE RELOCATED TO WALLS INTENDED TO BE INSTALLED AT THIS LOCATION.



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PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

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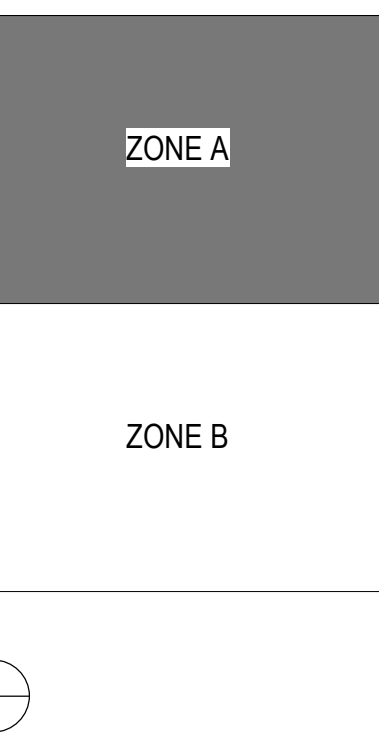
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
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07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, ADD2

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

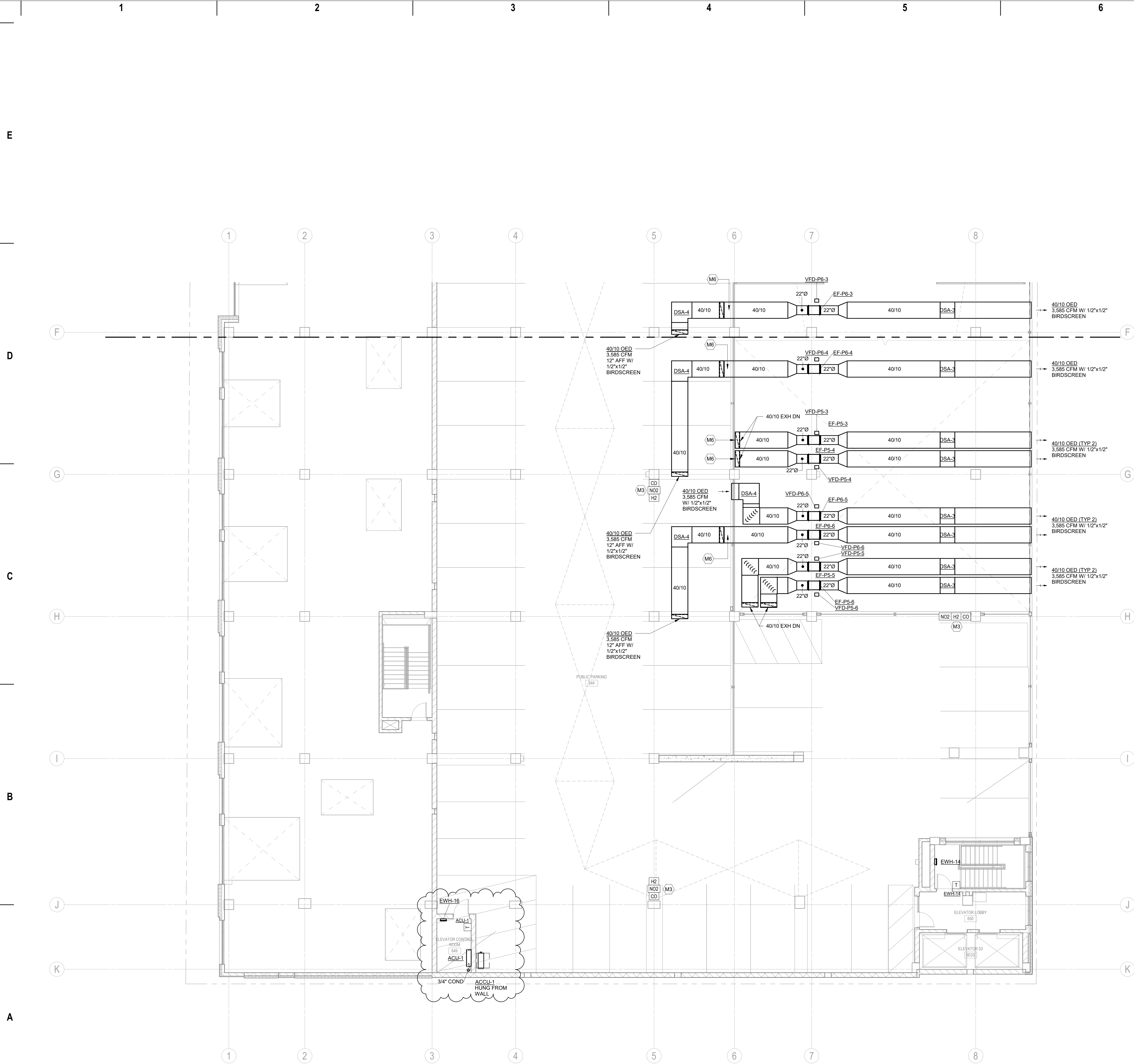
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PROJECT NUMBER 720448

**P6 FLR - ZONE A -
PHASE 1 - HVAC**

M1006-A-1

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GENERAL NOTES:

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KEYED NOTES

(KEYED NOTES PER PROJECT)

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- M6 DUCT DROP/RISE EXTENDS BELOW 7'-2" MINIMUM CLEARANCE. COORDINATE WITH OWNER/ARCHITECT FOR VEHICLE STOP BARRIER OR SIGNAGE TO PROTECT DUCT.



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PROJECT INFORMATION

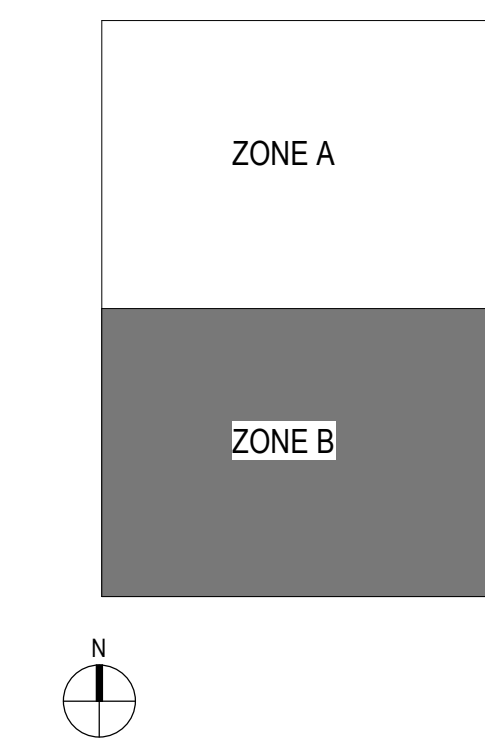
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
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07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1, AD02

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PROJECT MANAGER
PROJECT NUMBER 720448

**P6 FLR - ZONE B -
PHASE 1 - HVAC**

M1006-B-1

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1 P6 FLR - ZONE B - PHASE 1 - HVAC

M1006-B-1 SCALE: 1/8" = 1'-0"

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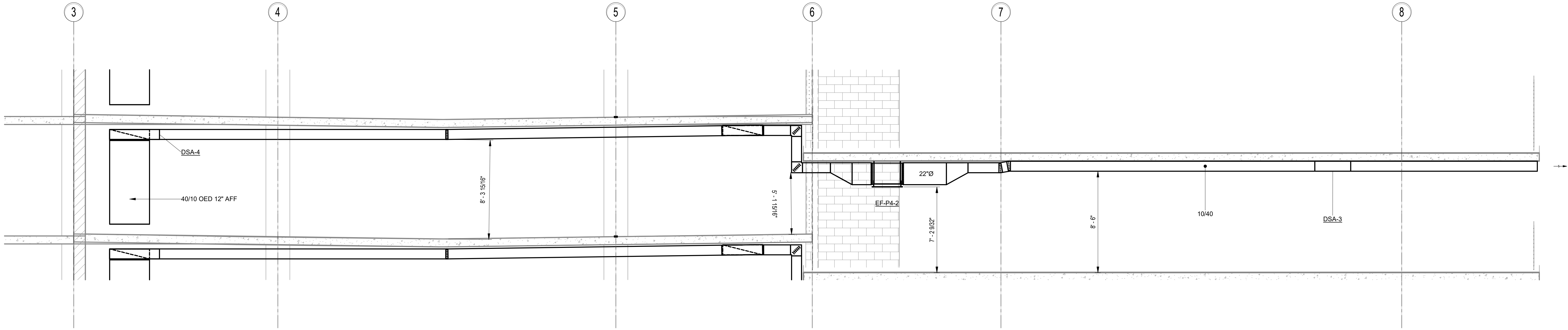
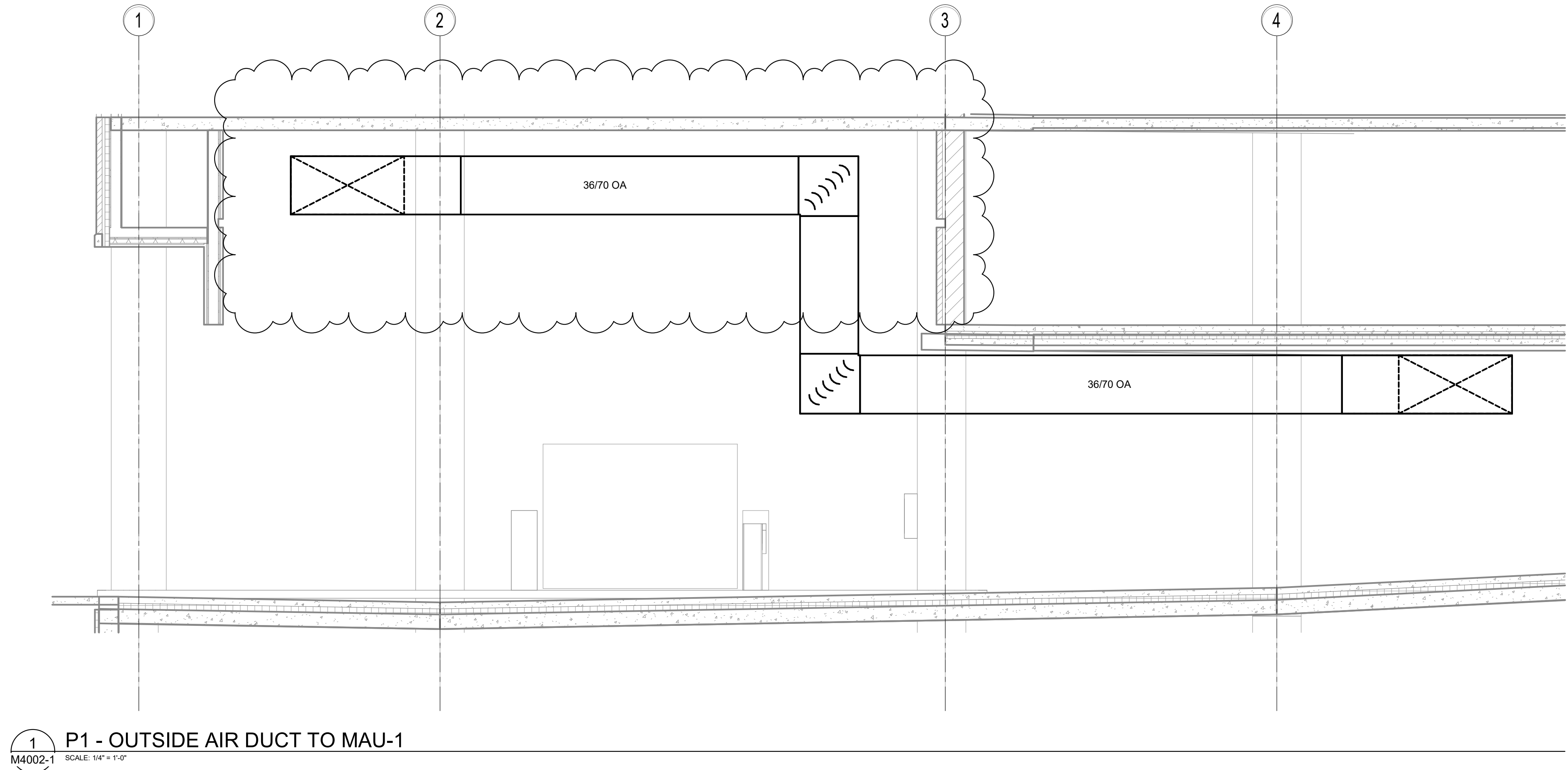
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PROJECT INFORMATION

**STATE STREET
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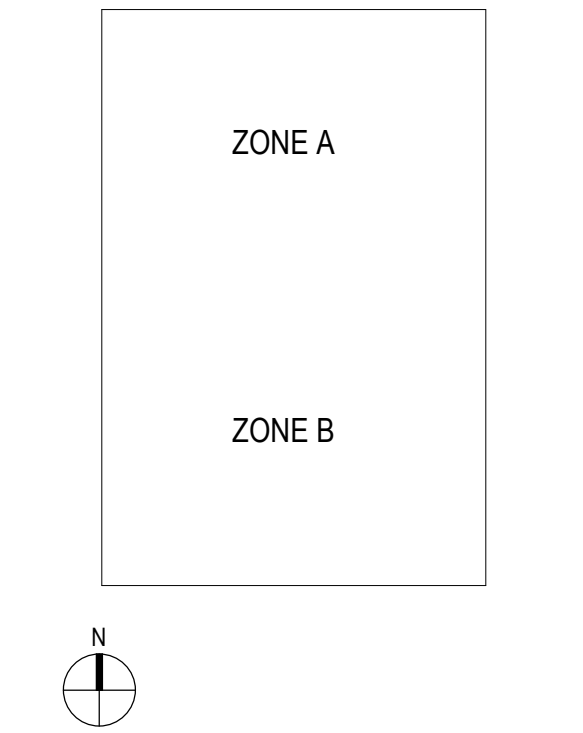
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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_ADX2

C

KEY PLAN



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SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

**SECTIONS - HVAC
M4002-1**

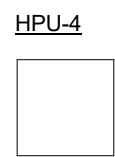
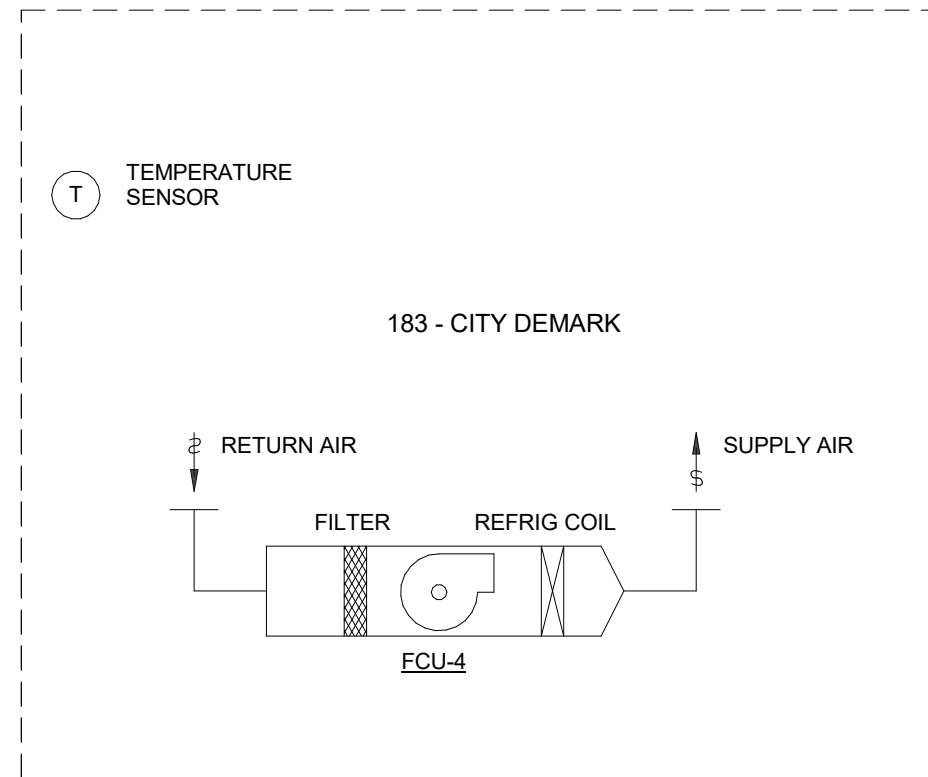
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FAN COIL UNIT, HEAT PUMP UNIT (FCU-4, HPU-4) SEQUENCE OF OPERATION
SEE FLOOR PLANS, DETAILS, SCHEDULES AND SPECIFICATION FOR ADDITIONAL INFORMATION.

PROVIDE FOR EACH SYSTEM (FCU, HPU) A DDC SPACE TEMPERATURE SENSOR FOR SPACE TEMPERATURE MONITORING.

EACH SYSTEM SHALL BE CONTROLLED BY FIELD INSTALLED, LOW VOLTAGE THERMOSTAT CAPABLE OF INTEGRATING INTO THE BAS (PROVIDED WITH UNIT). EACH SYSTEM SHALL BE CONTROLLED BY SPACE TEMPERATURE SENSOR AND INITIATE HEATING/COOLING CONTROL. HEATING SPACE TEMPERATURE SETPOINT OF 50°F (ADJ.). COOLING SPACE TEMPERATURE SETPOINT OF 80°F (ADJ.).

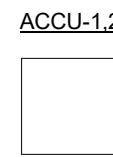
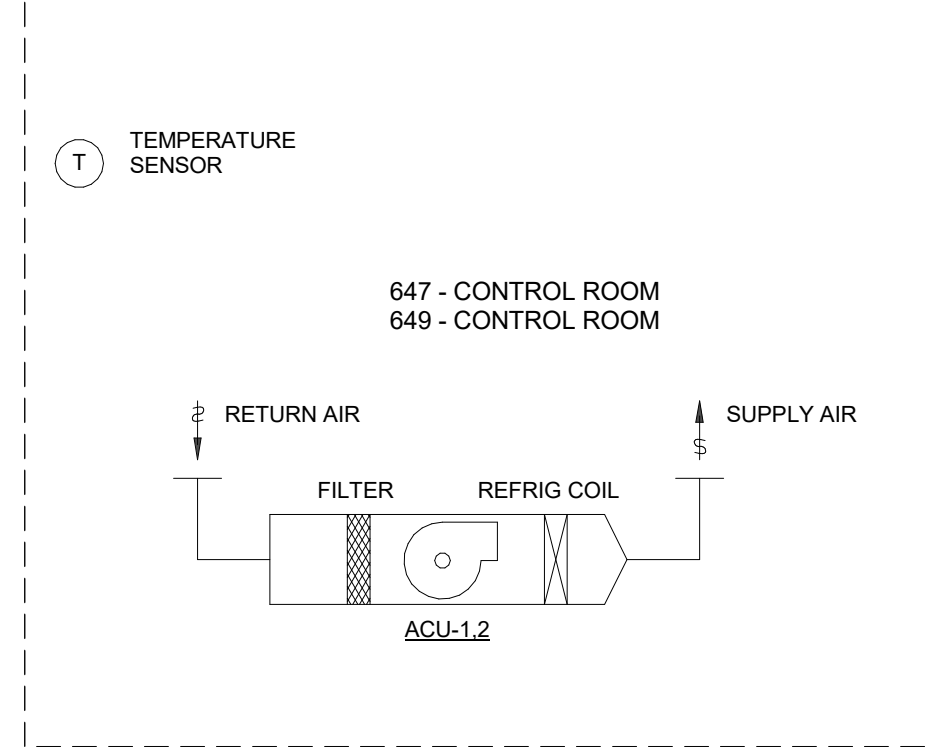


DDC INPUT / OUTPUT SUMMARY TABLE		DDC CONTROLLERS PROVIDED UNDER SPECIFICATION SECTION 23 09 23			
PROJECT:		HARDWARE		SOFTWARE	
LOCATION:					
SYSTEM:					
POINT DESCRIPTION					
FCU-4, HPU-4					
Space Temperature					

AIR CONDITIONING UNIT, AIR-COOLED CONDENSING UNIT (ACU-1, 2, ACCU-1, 2) SEQUENCE OF OPERATION
SEE FLOOR PLANS, DETAILS, SCHEDULES AND SPECIFICATION FOR ADDITIONAL INFORMATION.

PROVIDE FOR EACH SYSTEM (ACU, ACCU) A DDC SPACE TEMPERATURE SENSOR FOR SPACE TEMPERATURE MONITORING.

EACH SYSTEM SHALL BE CONTROLLED BY FIELD INSTALLED, LOW VOLTAGE THERMOSTAT (BY TCC) MOUNTED WITHIN ELEVATOR CONTROL ROOM. EACH SYSTEM SHALL BE CONTROLLED BY SPACE TEMPERATURE SENSOR AND INITIATE COOLING CONTROL LOCALLY. SPACE TEMPERATURE SETPOINT OF 80°F (ADJ.).



DDC INPUT / OUTPUT SUMMARY TABLE		DDC CONTROLLERS PROVIDED UNDER SPECIFICATION SECTION 23 09 23			
PROJECT:		HARDWARE		SOFTWARE	
LOCATION:					
SYSTEM:					
POINT DESCRIPTION					
AC-1,2, ACCU-1,2					
Space Temperature					

3 CITY DEMARK CONTROL DIAGRAM, POINTS LIST, SEQ OF OPERATIONS
SCALE: NONE

AIR HANDLING UNIT SYSTEM (AHU-1) SEQUENCE OF OPERATION
SEE FLOOR PLANS, DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

AIR HANDLING UNIT SHALL HAVE A MICROPROCESSOR BASED CONTROLLER WHICH SHALL MONITOR AND CONTROL AIR HANDLING UNIT AS DIRECTED BY THE BUILDING AUTOMATION SYSTEM. THE DDC CONTROLLER (BACNET INTERFACE) SHALL BE LOCATED ON THE UNIT AND HAVE A USER INTERFACE WITH TOUCH SENSITIVE COLOR SCREEN.

THE SYSTEM CONSISTS OF MULTI-ZONE AIR HANDLING UNIT WITH VARIABLE SUPPLY FAN AND ELECTRIC HEATING.

THE AIR HANDLING UNIT SHALL BE INDEXED FROM OCCUPIED TO UNOCCUPIED THROUGH THE BUILDING AUTOMATION SYSTEM.

UNOCCUPIED MODE:
DURING THE UNOCCUPIED MODE THE AIR HANDLER SHALL ASSUME UNOCCUPIED HEATING SETPOINTS AS DETERMINED THROUGH THE BUILDING AUTOMATION SYSTEM (BAS). THE OUTSIDE AIR DAMPER SHALL BE CLOSED AND THE FANS SHALL BE DE-ENERGIZED.

UPON A DROP IN SPACE TEMPERATURE BELOW UNOCCUPIED SETPOINT, THE AIR HANDLER SHALL OPEN OUTSIDE AIR DAMPER, CYCLE THE FAN AND HEATING SYSTEM AS REQUIRED TO MAINTAIN UNOCCUPIED SETPOINTS. THE BAS SHALL DETERMINE DISCHARGE AIR TEMPERATURE BASED ON THE DISCHARGE AIR CONTROL SEQUENCE LISTED BELOW. UNOCCUPIED HEATING TEMPERATURE MEASUREMENT FOR INTERIOR ZONES SHALL BE MADE BY USING THE WORST CASE TEMPERATURE OF ZONES.

190 - TLT, 191 - MAINTENANCE, 192 - TLT
UNOCCUPIED SETPOINT - WINTER: 40°F

193 - BUS WAITING AREA
UNOCCUPIED SETPOINT - WINTER: 50°F

VENTILATION CONTROL:
WHEN SYSTEM IS INDEXED INTO THE OCCUPIED MODE THROUGH THE BAS, THE OUTSIDE AIR DAMPER SHALL MODULATE OPEN. THE OUTDOOR AIRFLOW SHALL BE MONITORED TO MAINTAIN DESIGN MINIMUM AIRFLOW RATE ±10%.

SIGNAL ALARM WHENEVER THE AIRFLOW RATE VARIES BY 15% OR MORE FROM THE SETPOINT.

DISCHARGE AIR CONTROL:
THE MICROPROCESSOR SHALL ENERGIZE STAGES OF HEATING OR UTILIZE OUTSIDE AIR (ECONOMIZER) TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT 75°F (ADJ.).

- WINTER OPERATION (HEATING): HEATING SECTION TO MODULATE BETWEEN 60-75°F (ADJ.) BASED ON WORST CASE TEMPERATURE SENSOR.
- SUMMER OPERATION (NO COOLING): HEATING SECTION SHALL BE LOCKED OUT WHEN OUTSIDE AIR IS GREATER THAN 55°F (ADJ.). DISCHARGE AIR TEMPERATURE WILL VARY WITH AMBIENT CONDITIONS.

SIGNAL ALARM WHENEVER THE DISCHARGE AIR TEMPERATURE DROPS BELOW 45°F (ADJ.).

190 - TLT, 191 - MAINTENANCE, 192 - TLT
OCCUPIED SETPOINT - WINTER: 45°F

193 - BUS WAITING AREA
OCCUPIED SETPOINT - WINTER: 55°F

SUPPLY FAN SPEED CONTROL:
START/STOP: THE DDC SYSTEM SHALL START THE SUPPLY FANS VIA THE ECM/VFD.

THE PURPOSE OF THE SUPPLY FANS IS TO MAINTAIN AIRFLOW AT TWO CONDITIONS: SUMMER AIRFLOW (1,200 CFM) AND WINTER AIRFLOW (645 CFM).

- WINTER OPERATION (HEATING): WHEN OUTSIDE AIR IS LESS THAN 50°F (ADJ.).
- SUMMER OPERATION (NO COOLING): WHEN OUTSIDE AIR IS GREATER THAN 50°F (ADJ.).

UNIT SHUTDOWN:

UPON SYSTEM SHUTDOWN, WHEN SEQUENCED TO THE UNOCCUPIED MODE, THE UNIT SUPPLY FAN SHALL STOP. THE ECM/VARIABLE FREQUENCY DRIVE(S) SHALL UNLOAD. THE OUTSIDE AIR DAMPER SHALL CLOSE FULLY. THE UNIT SUPPLY FAN AND HEATING SECTION SHALL BE SEQUENCED ON AS REQUIRED TO MAINTAIN NIGHT SETBACK ROOM THERMOSTAT SETPOINT.

FILTERS:

EACH AIR HANDLING UNIT SHALL BE PROVIDED WITH DIFFERENTIAL STATIC PRESSURE SENSOR ACROSS EACH FILTER BANK. TCC TO ENSURE THAT THE STATIC PROBES DO NOT IMPEDE FILTER REMOVAL.

FOR PRE-FILTER BANK, PROVIDE AN ALARM TO THE OPERATOR INTERFACE WHEN THE DIFFERENTIAL STATIC PRESSURE EXCEEDS 0.25" W.G. (ADJ.).

FOR FINAL-FILTER BANK, PROVIDE AN ALARM TO THE OPERATOR INTERFACE WHEN THE DIFFERENTIAL STATIC PRESSURE EXCEEDS 0.25" W.G. (ADJ.).

FIRE ALARM SHUTDOWN:

THE BUILDING AUTOMATION SYSTEM SHALL SHUT DOWN THE AIR HANDLING UNIT(S) UPON RECEIVING A FIRE ALARM CONDITION, AS SIGNALLED BY THE BUILDING FIRE ALARM SYSTEM INTERFACED THROUGH THE BUILDING AUTOMATION SYSTEM. TCC TO PROVIDE CONTROL WIRING BETWEEN FIRE ALARM CONTROL PANEL AND BUILDING AUTOMATION SYSTEM.

EC TO PROVIDE FIRE ALARM CONTROL MODULE AT TEMPERATURE CONTROL PANEL. CONTROL WIRING BETWEEN MODULE AND BUILDING AUTOMATION SYSTEM BY TCC. CONTROL MODULE SHALL MONITOR AIR HANDLING UNIT ALARM STATUS. UPON AIR HANDLER ALARM, THE BUILDING AUTOMATION SHALL SEND A SIGNAL TO THE FIRE ALARM CONTROL PANEL INDICATING THAT AIR HANDLER IS IN ALARM.

HIGH STATIC PRESSURE LIMIT:

A DEDICATED STATIC PRESSURE HIGH LIMIT CONTROLLER WITH MANUAL RESET (NOT USED FOR ANY OTHER STATIC PRESSURE CONTROL FUNCTION) SHALL SHUTDOWN THE AIR HANDLER WHEN THE STATIC PRESSURE IN THE DUCTWORK AT THE AIR HANDLER DISCHARGE EXCEEDS 3.0" WATER COLUMN (ADJUSTABLE). THE DDC SYSTEM SHALL MONITOR THE STATUS OF THE DIFFERENTIAL PRESSURE SWITCH. TCC TO PROVIDE DUCT STATIC PRESSURE SENSORS ON DISCHARGE DUCTWORK OF AIR HANDLER.

FANS SHALL BE SHUTDOWN AND SIGNAL ALARM AT BAS WHEN STATIC PRESSURE RISES ABOVE HIGH PRESSURE LIMIT.

EXHAUST FAN (EF-2) SEQUENCE OF OPERATION:

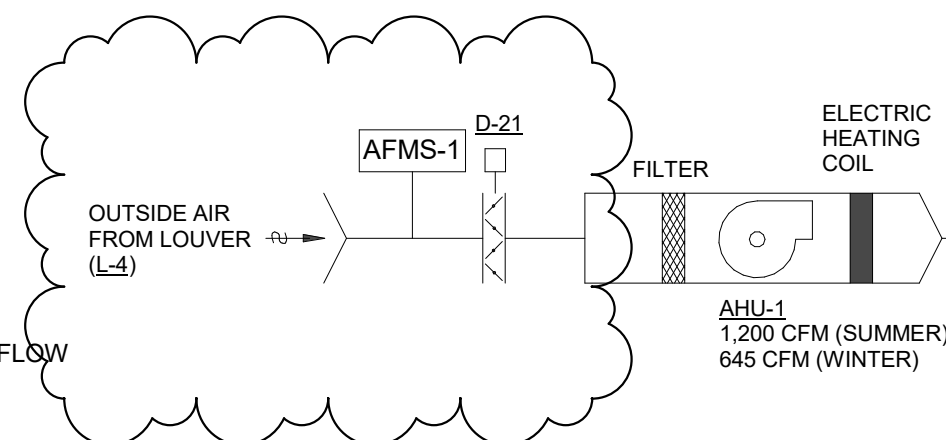
EF-2 SHALL BE INTERLOCKED WITH AHU-1.

FAN SHALL BE INTERLOCKED WITH THE BUILDING AUTOMATION SYSTEM TO RUN CONTINUOUSLY WHEN CORRESPONDING AIR HANDLING UNIT IS IN OCCUPIED MODE AND ANY SPACE SERVED BY FAN INDICATES OCCUPANCY. THE EXHAUST FAN SHALL BE OFF WHEN THE AIR HANDLING UNIT IS IN OCCUPIED MODE BUT NO SPACES CONTAIN OCCUPANTS AS DETERMINED BY OCCUPANCY SENSORS, UNOCCUPIED MODE OR WHEN THE DISCONNECT SWITCH AT THE EXHAUST FAN IS MANUALLY TURNED OFF FOR MAINTENANCE.

REFER TO FAN SCHEDULES FOR MOTOR OPERATED BACKDRAFT DAMPER REQUIREMENTS. TCC TO PROVIDE INTERLOCK WIRING BETWEEN EXHAUST FAN(S) AND DAMPER(S). THE FAN(S) SHALL NOT OPERATE UNTIL DAMPER(S) ARE PROVEN OPEN BY END SWITCHES.

2 BUS TERMINAL SUPPORT SPACES CONTROL DIAGRAM, POINTS LIST, SEQ OF OPERATIONS
SCALE: NONE

1 ELEVATOR CONTROL ROOMS CONTROL DIAGRAM, POINTS LIST, SEQ OF OPERATIONS
SCALE: NONE



ELECTRIC RADIANT HEATERS (ERH-1) SEQUENCE OF OPERATION
SEE FLOOR PLANS, DETAILS, SCHEDULES AND SPECIFICATIONS FOR ADDITIONAL INFORMATION.

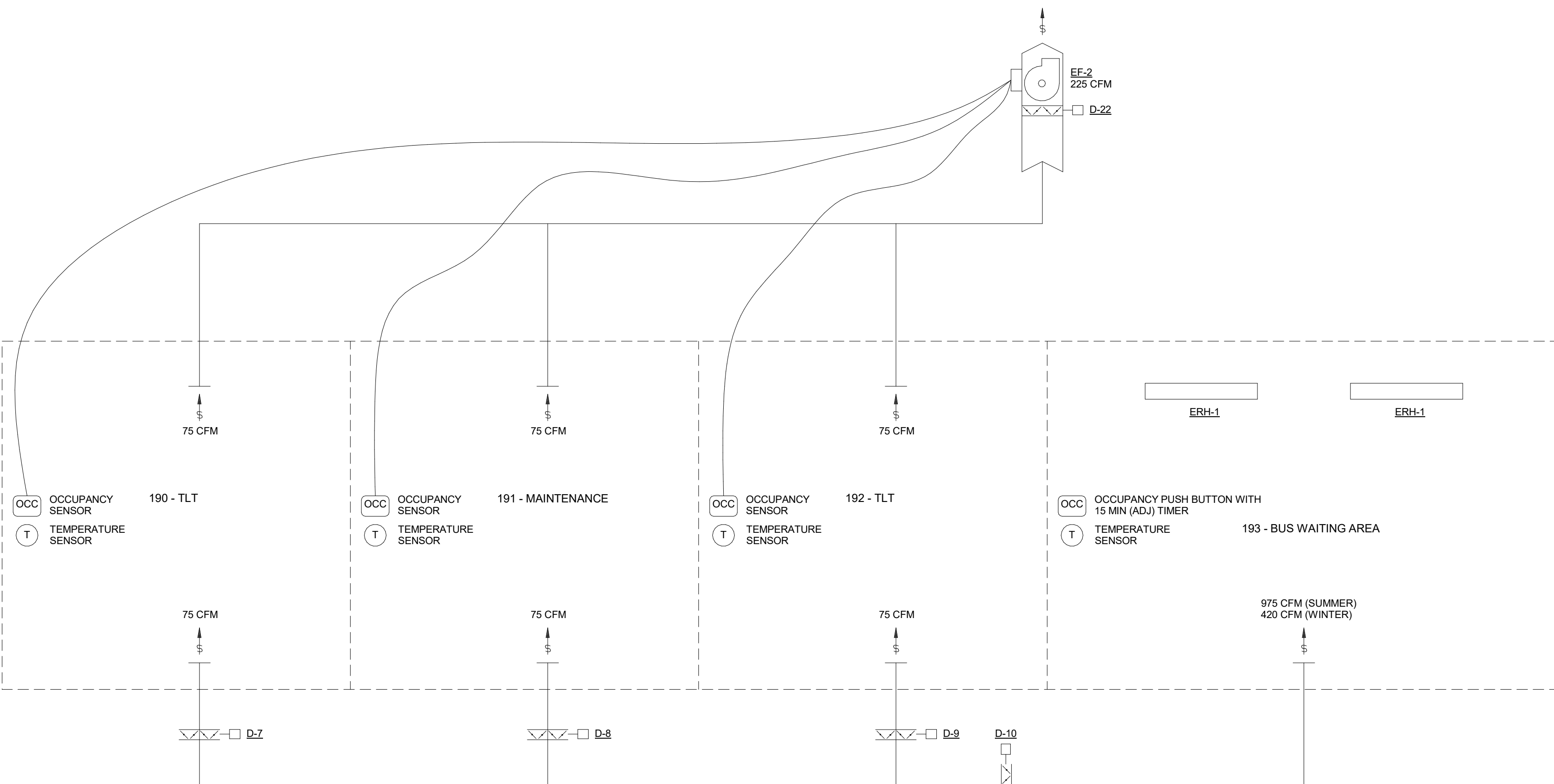
THE SYSTEM CONSISTS OF:

- (2) ELECTRIC RADIANT HEATERS
- ELECTRIC CAPACITY CONTROLLER (BY TCC)
- SPACE THERMOSTAT (BY TCC)
- OCCUPANCY PUSH BUTTON WITH TIMER (BY TCC)

ALL HEATERS SHALL BE CONTROLLED COLLECTIVELY VIA SHARED THERMOSTAT AND OCCUPANCY PUSH BUTTON WITH TIMER.

UPON AN ACTIVATION FROM OCCUPANCY PUSH BUTTON, THE ELECTRIC CAPACITY CONTROLLER SHALL STAGEMODULATE HEATING OUTPUT TO ACHIEVE SPACE SETPOINT (50°F ADJ.). HEATING SHALL OPERATE FOR TIMER DURATION OF 15 MINS (ADJ.). AFTER TIMER HAS EXPIRED, ELECTRIC CAPACITY CONTROLLERS SHALL STAGEMODULATE TO MINIMUM OUTPUT AS TURN-OFF.

SYSTEM SHALL BE LOCKED OUT WHEN OUTSIDE AIR TEMPERATURE IS GREATER THAN 40°F ADJ.



DDC INPUT / OUTPUT SUMMARY TABLE		DDC CONTROLLERS PROVIDED UNDER SPECIFICATION SECTION 23 09 23			
PROJECT:		HARDWARE		SOFTWARE	
LOCATION:					
SYSTEM:					
POINT DESCRIPTION					
AHU-1					
Supply Air Temperature					
Supply Air Fan Status					
Supply Fan Start/Stop					
Filter Differential Pressure					
Resistance Capacity Control					
High Press Static Shutdown Alarm					
Fire Alarm Shutdown					
Outdoor Airflow Measurement Station					
Zone Control Devices					
Space Temperature					
Occupancy Sensor					
Motorized Operated Damper					
EF-2					
Exhaust Fan Isolation Damper					
Exhaust Fan ECM Speed					
Exhaust Fan ECM Fault					
Exhaust Fan Status					
Exhaust Fan Start/Stop					
ERH-1					
Resistance Capacity Control					



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PROJECT INFORMATION

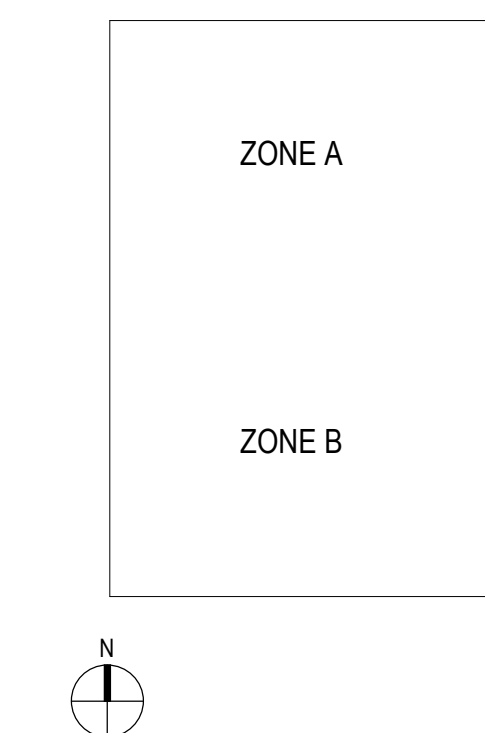
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11-02-2023	PH1, AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

PROJECT NUMBER 720448

CONTROL
DIAGRAMS, POINTS
LISTS, SEQ - HVAC

M5001-1

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ELECTRIC RADIANT HEATER SCHEDULE				
UNIT NO.	ERH-1	ERH-2		
SERVICE	193 - BUS WAITING	189 - BUS WAITING		
MANUFACTURER	SCHWANK	SCHWANK		
MODEL NO.	E3321D-RP	ESD-0661		
NOMINAL LENGTH (IN)	33"	61.25"		
NOMINAL WIDTH (IN)	7"	7"		
CAPACITY (BTU / HR)	10,236	20,472		
VOLTS	277	277		
PHASE	1	1		
WATTS	3,000	6,000		
MOUNTING	SUSPENDED	SUSPENDED		
QUANTITY	2	6		
REMARKS	-	-		

KEYED NOTES:

GAS-FIRED MAKE-UP AIR UNIT SCHEDULE				
UNIT NO.	MAU-1			
SERVICE	000 - LL PARKING			
LOCATION	SEE PLANS			
MANUFACTURER	CAMBRIDGE			
MODEL NO.	M130			
TYPE	DIRECT GAS-FIRED			
SUPPLY AIR (CFM)	31,000			
OUTSIDE AIR (CFM)	31,000			
MINIMUM SUPPLY AIR (CFM)	11,000			
EXTERNAL SP (IN WC)	1"			
EAT (°F)	-15			
LAT (°F)	55			
INPUT CAPACITY (MBH)	2,642			
OUTPUT CAPACITY (MBH)	2,431			
FUEL TYPE	NG			
FUEL PRESSURE	7"			
FAN DIAMETER	-			
FAN TYPE	-			
FAN RPM	-			
FAN BHP	-			
FAN HP	25			
FILTER TYPE	MERV 8			
VOLTS / PHASE	460/3			
UNIT MCA	43.4			
UNIT MOCP	70			
UNIT WEIGHT (LBS)	3,500			
REMARKS				

KEYED NOTES:

1. PROVIDE WITH 3-WAY DISCHARGE PLENUM.

GAS-FIRED UNIT HEATER SCHEDULE				
UNIT NO.	GUH-1			
SERVICE	SEE PLANS			
MANUFACTURER	MODINE			
MODEL NO.	PTP200			
TYPE	POWER VENTED			
EAT (°F)	50			
FUEL INPUT (MBH)	200			
HEATING OUTPUT (MBH)	166.0			
THERMAL EFFICIENCY (%)	83%			
AIR FLOW (CFM)	2,870			
THROW (FT)	53			
FUEL TYPE	NG			
MAX GAS PRESSURE (IN WC)	7			
MOTOR HP	1/3			
VOLTAGE / PHASE	460 / 3			
FULL LOAD AMPS	1.79			
QUANTITY	4			
REMARKS	12.3			

KEYED NOTES:

1. PROVIDE ALL NECESSARY ACCESSORIES AND MOUNTING KITS TO HANG UNITS FROM THE CEILING.
2. PROVIDE UNIT WITH DISCONNECT SWITCH.
3. PROVIDE UNIT STEP DOWN TRANSFORMER, 460V TO 115V, 1kVA 1 PHASE.

SPLIT SYSTEM AIR CONDITIONING UNIT SCHEDULE				
UNIT NO.	ACU-1	ACU-2		
LOCATION	649 - CONTROL ROOM	647 - CONTROL ROOM		
MANUFACTURER	DAIKIN	DAIKIN		
MODEL	FTK18BXVJU	FTK18BXVJU		
TYPE	WALL	WALL		
SUPPLY CFM	754	754		
FILTER TYPE	DISPOSABLE	DISPOSABLE		
AIR COOLED CONDENSING UNIT (OUTDOOR UNIT)				
UNIT NO.	ACCU-1	ACCU-2		
MANUFACTURER	DAIKIN	DAIKIN		
MODEL	RK18BXVJU	RK18BXVJU		
NOMINAL CAPACITY (BTU / HR)	18,000	18,000		
SEER	20	20		
VOLTS	208	208		
PHASE	1	1		
MCA	13.55	13.55		
MOCP	20	20		
SERVES	649 - CONTROL ROOM	647 - CONTROL ROOM		
REMARKS	1	1		

KEYED NOTES:

1. FURNISH WITH FACTORY MOUNTED DISCONNECT SWITCH

DUCT SOUND ATTENUATOR SCHEDULE					
UNIT NO.	DSA-1	DSA-2	DSA-3	DSA-4	DSA-5
LOCATION	000 - LL PARKING	000 - LL PARKING	SEE PLANS	SEE PLANS	SEE PLANS
SERVICE	EF-1	EF-1	SEE PLANS	SEE PLANS	EF-2
MANUFACTURER	VIBRO-ACOUSTICS	VIBRO-ACOUSTICS	VIBRO-ACOUSTICS	VIBRO-ACOUSTICS	VIBRO-ACOUSTICS
MODEL NO.	RD-MV-30547	RD-MV-30547	RD-MV-30547	RD-MV-30547	RD-MV-30547
UNIT DIMENSIONS WxHxL (IN)	80"x60"x36"	80"x80"x48"	40"x10"x36"	40"x10"x60"	12"x12"x36"
CFM	35,700	35,700	3,585	3,585	225
MAXIMUM FACE VELOCITY (FPM)	1,803	1,291	1,291	225	225
MAX SP DROP (IN WC)	0.24	0.23	0.15	0.15	0.01
63	3	3	5	6	3
125	6	7	9	8	5
250	13	14	13	7	10
500	22	23	12	18	16
1000	25	30	15	19	16
2000	21	24	11	24	12
4000	17	16	11	18	9
8000	15	11	9	15	7
63	59	61	53	57	40
125	53	50	49	38	10
250	53	45	43	29	<10
500	56	44	41	27	<10
1000	54	43	44	29	<10
2000	47	41	48	30	<10
4000	35	33	38	10	<10
8000	36	36	37	18	<10
REMARKS	1	1	1,2	1,2	1

KEYED NOTES:

1. NON-BASIS OF DESIGN SILENCER MANUFACTURER SHALL PROVIDE PROFESSIONAL ENGINEER STAMPED ACOUSTICAL CALCULATIONS FOR ALL SYSTEMS WITH SILENCERS TO DEMONSTRATE THAT THE RESULTANT DUCTBORNE FAN SOUND LEVELS INCLUDING AIRBORNE AND BREAKOUT NOISE MEET THE REQUIRED DESIGN CRITERIA OF 80 dBA.
2. DSA-3, DSA-4 ARE TYPICAL ON ALL PARKING LEVELS FROM P2 THROUGH P6.

ELECTRIC WALL HEATER SCHEDULE																
UNIT NO.	EW-1	EW-2	EW-3	EW-4	EW-5	EW-6	EW-7	EW-8	EW-9	EW-10	EW-11	EW-12	EW-13	EW-14	EW-15	EW-16
SERVICE	0901 - STAIR 01	0E01 - STAIR 03	NOT USED	NOT USED	0803 - STAIR 03	0E03 - ELEVATOR 03	0E03 - ELEVATOR 03	187 - GENERATOR	NOT USED	181A - TOILET	NOT USED	6801 - STAIR 01	NOT USED	6803 - STAIR 03	647 - CONTROL ROOM	649 - CONTROL ROOM
MANUFACTURER	MARKEL	MARKEL			MARKEL	MARKEL	MARKEL	MARKEL		MARKEL		MARKEL		MARKEL	MARKEL	MARKEL
MODEL NO.	J3321D-RP	J3321D-RP			J3321D-RP	J3321D-RP	J3321D-RP	HF3321D-RP		E3321D-RP		J3321D-RP		J3321D-RP	E3321D-RP	E3321D-RP
CAPACITY (BTU / HR)	16,378	10,239			10,239	10,239	10,239	7,677		2,560		16,378		10,239	2,560	2,560
KW INPUT	4.8	3			3	3	3	2.25		0.75		4.8		3	0.75	0.75
AMPS	13.33	8.3			8.3	8.3	8.3	10.8		6.25		13.33		8.3	6.25	6.25
VOLTS / PHASE	208 / 3	208 / 3			208 / 3	208 / 3	208 / 3	208 / 1		120 / 1		208 / 3		208 / 3	120 / 1	120 / 1
RECESS (IN)	NONE	NONE			NONE	NONE	NONE	NONE		NONE		NONE		NONE	NONE	NONE
REMARKS																

KEYED NOTES:

1. PROVIDE WITH FACTORY MOUNTED DISCONNECT SWITCH

AIR DEVICE SCHEDULE											
EG-1 (3)	THROW (IF OTHER THAN NORMAL)	SG = SUPPLY GRILLE	CD = CEILING DIFFUSER (SUPPLY)								
300	UNIT NUMBER CFM	RG = RETURN GRILLE EG = EXHAUST GRILLE	TG = TRANSFER GRILLE								
UNIT NO.	SG-1	SG-2	EG-1	EG-2	EG-3	CD-1	RG-1	TG-1	TG-2	TG-3	
SERVICE	SEE PLANS	193 - BUS WAITING	SEE PLANS	189 - BUS WAITING	SEE PLANS	181 - CITY OFFICE	181 - CITY OFFICE	SEE PLANS	184 - CITY ELECTRICAL	184 - CITY ELECTRICAL	
MANUFACTURER	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	PRICE	
MODEL NO.	610-L	80-N	80-N	93-L	80-F	SPD	80-F	80-F	95-L	95-L	
FACE STYLE	LOUVERED	LOUVERED	LOUVERED	LOUVERED	LOUVERED	PLAQUE	LOUVERED	LOUVERED	LOUVERED	LOUVERED	
PATTERN	SINGLE DEFLECTION	SINGLE DEFLECTION	EGGCRATE	45° DEFLECTION	EGGCRATE	4-WAY	EGGCRATE	EGGCRATE	0° DEFLECTION	0° DEFLECTION	
FINISH	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	STANDARD	
MATERIAL	ALUMINUM	ALUMINUM	ALUMINUM	STEEL	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	STEEL	STEEL	
SIZE (FACE/NECK)	7-1/4"x7-1/4"x6"	17"x8"x16"x6"	7-3/16"x7-3/16"x6"x6"	33-11/16"x33-11/16"x32"x32"	24"x12"x6"x6"	24"x24"x8"	24"x24"x12"x8"	24"x12"x6"x6"	25-11/16"x25-11/16"x24"x24"	25-11/16"x37-11/16"x24"x36"	
CFM RANGE	0-100	0-400	0-100	0-2500	0-100	0-250	0-400	0-100	0-2300	0-2300	
MOUNTING	SURFACE	DUCT	SURFACE	SURFACE	LAY-IN	LAY-IN	LAY-IN	LAY-IN	SURFACE	SURFACE	
DAMPER	NO	YES	NO	YES	NO	NO	NO	NO	NO	NO	
REMARKS	-	1	-	1	-	-	-	-	-	-	

GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY MOUNTING SURFACE / FRAME REQUIREMENTS.
2. BRANCH DUCT SIZE TO DIFFUSER SHALL BE THE NECK SIZE OF THE DIFFUSER UNLESS NOTED OTHERWISE.
3. SEE SPECIFICATION FOR GRILLE, REGISTER, AND DIFFUSER FINISHES.
4. MAXIMUM STATIC PRESSURE DROP THROUGH GRILLE, REGISTER OR DIFFUSER SHALL NOT EXCEED 0.1".
5. MAXIMUM NC LEVELS FOR GRILLES, REGISTERS OR DIFFUSERS SHALL NOT EXCEED 25.
6. UNLESS THROW IS NOTED OTHERWISE, ALL DIFFUSERS SHALL BE 4-WAY THROW.

KEYED NOTES:

1. PROVIDE WITH ADJUSTABLE OPPOSED BLADE DAMPER.

LOUVER SCHEDULE										
UNIT NO.	L-1	L-2	L-3	L-4	L-5	L-6	L-7	L-8	L-9	
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	
MODEL NO.	ESD-635	ESD-635	ESD-635	ESD-635	ESD-635	ESD-635	ESD-635	ESD-435	ESD-435	
SERVICE	LL PARKING EA	GEN RADIATOR RELIEF	GEN RM OA	AHU-1/ERV-1 OA	MAU-1 OA	MAU-1 OA	MAU-1 OA	ERV-2 OA	TLT-132 EA	
AIRFLOW (CFM)	35,700	16,010	16,000	1,355	8,000	12,500	80	75		
SIZE (W x H)	128"x60"	80"x72"	80"x108"	32"x28"	72"x42"	132"x42"	132"x42"	8"x2.75"		
FREE AREA (FT²)	44.5	25.1	28.7	2.7	11.9	21.6	0.2	0.14		
FREE AREA VELOCITY (FPM)	802	639	578	500	577	448	535			
STATIC PRESSURE (IN WC)	0.09	0.05	0.05	0.04	0.04	0.05	0.05	0.03		
REMARKS	1,2	1,2	1,2	1,2	1,2	1,2	1,2	1,2		

KEYED NOTES:

1. PROVIDE LOUVER WITH EXTERNAL BIRDSCREEN
2. PROVIDE WITH CUSTOM COLOR AS SELECTED BY ARCHITECT.

SPLIT SYSTEM HEAT PUMP SCHEDULE				
UNIT NO.	FCU-1	FCU-2	FCU-3	FCU-4
LOCATION	185 - OFFICE	-	181 - CITY OFFICE	183 - CITY DEMARK
MANUFACTURER	DAIKIN	-	DAIKIN	DAIKIN
MODEL NO.	FFQ15WVJU9	-	FDQ15WVJU9	FTX15WVJU9
SYSTEM TYPE	DX	-	DX	DX
SUPPLY (CFM)	420	-	445	595
OUTSIDE AIR (CFM)	80	-	80	-
FILTER TYPE	-	-	-	STD
VOLTS	208	-	208	208
PHASE	1	-	1	1
WATTS	28	-	230	33
NO. OF SPEEDS	3	-	3	3
AIR COOLED HEAT PUMP UNIT (OUTDOOR UNIT)				
UNIT NO.	HPU-1	HPU-2	HPU-3	HPU-4
MANUFACTURER	DAIKIN	-	DAIKIN	DAIKIN
MODEL NO.	RX15WVWJU9	-	RX15WVWJU9	RXL15WVWJU
NOMINAL COOLING CAPACITY (BTU / HR)	14,400	-	14,400	15,000
NOMINAL HEATING CAPACITY (BTU / HR)	18,200	-	18,000	18,300
SEER2	19.6	-	15.3	19.5
COP	3.52	-	3.00	3.76
VOLTS	208	-	208	208
PHASE	1	-	1	1
MCA	8.3	-	8.6	12.2
MOCP	15	-	15	15
REMARKS	1,3	2	1	1

KEYED NOTES:

1. FURNISH WITH FACTORY MOUNTED DISCONNECT SWITCH.
2. NOT USED.
3. FURNISH WITH EXTERNAL CONDENSATE PUMP DACA-CP-4.

AIR HANDLING UNIT SCHEDULE		
UNIT NO.	AHU-1	
LOCATION	243 - MEP	
MANUFACTURER	AAON	
MODEL NO.	V3-ARB-8	
SERVICE	SEE PLANS	
UNIT ARRANGEMENT	VERTICAL	
AIR FLOW (CFM)	1,200	
HEATING AIR FLOW (CFM)	645	
MIN. OA (CFM)	1,200	
% OUTSIDE AIR	100	
UNIT FLA	61	
UNIT MCA	76	
UNIT MOCP	80	
WHEEL TYPE	BC - PLENUM	
WHEEL DIA. (IN)	15"	
TSP (IN WG)	2.48"	
ESP (IN WG)	1.8"	
RPM	2,293	
BHP	0.95	
HP	1	
VOLT	208	
PHASE	3	
VFD	YES	
ELECTRIC HEATING COIL		
EAT (°F)	-15	
LAT (°F)	88	
OAT (°F)	-15	
RAT (°F)	-	
CAPACITY (MBH)	71.7	
STAGES	SCR	
MAX FACE VELOCITY (FPM)	-	
MAX AIR PD (IN WC)	-	
INPUT (KW)	21	
FLA	58.3	
FILTERS		
PRE-FILTER	SIZE	2"
	TYPE	PLEATED
	MERV RATING	8
FINAL FILTER	SIZE	4"
	TYPE	PLEATED
	MERV RATING	13
WEIGHT (LBS)	600	
REMARKS	-	

E

D

C

B

A

CONTROL DAMPER												
UNIT NO.	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	D-12
SERVICE	EF-1 EA	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	SEE PLANS	190 - TLT OA	191 - MAINT OA	192 - TLT OA	193 - WAITING OA	ERV-1 OA	ERV-1 EA
BLADE TYPE (OPPOSED / PARALLEL)	PARALLEL	OPPOSED	OPPOSED	OPPOSED	OPPOSED	OPPOSED	OPPOSED	OPPOSED	OPPOSED	OPPOSED	PARALLEL	PARALLEL
FAIL POSITION (FC / FO)	FO	FO	FO	FO	FO	FO	FO	FO	FO	FO	FO	FO
SIZE (IN) WxH	120" x 80"	50" x 16"	50" x 34"	50" x 16"	32" x 12"	38" x 16"	6" x 6"	6" x 6"	6" x 6"	18" x 12"	6"Ø	6"Ø
ACTUATION TYPE (ELEC. / PNEUMATIC)	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC
REMARKS												

KEYED NOTES

CONTROL DAMPER												
UNIT NO.	D-14	D-15	D-16	D-17	D-18	D-19	D-20	D-21	D-22	D-23	D-24	
SERVICE	187 - GENERATOR EA	187 - GENERATOR EA	TF-1	TF-1	ERV-2 EA	ERV-2 OA	MAU-1	AHU-1	EF-2	EF-4	EF-6	
BLADE TYPE (OPPOSED / PARALLEL)	OPPOSED	OPPOSED	PARALLEL	OPPOSED	PARALLEL	PARALLEL	PARALLEL	PARALLEL	PARALLEL	PARALLEL	PARALLEL	
FAIL POSITION (FC / FO)	FO	FO	FO	FO	FO	FO	FO	FO	FO	FO	FO	
SIZE (IN) WxH	38" x 38"	80" x 72"	24" x 36"	24" x 24"	8" x 8"	6"Ø	70" x 36"	18" x 14"	10"Ø	8" x 8"	8" x 8"	
ACTUATION TYPE (ELEC. / PNEUMATIC)	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	ELEC	
REMARKS												

KEYED NOTES

VARIABLE FREQUENCY DRIVE SCHEDULE					
UNIT NO.	VFD-PX-Y				
SERVICE	EF-PX-Y				
LOCATION	SEE PLANS				
MANUFACTURER	DANFOSS				
MODEL NO.	VLT				
BYPASS	NO				
HP	1.5				
VOLTS	480				
PHASE	3				
QUANTITY	30				
REMARKS	1,2				

KEYED NOTES:
1. UNIT NO. "X" REFERS TO PARKING LEVEL. "Y" REFERS TO FAN NUMBER ON EACH LEVEL.
2. PROVIDE WITH NEMA 4X RATED ENCLOSURE.

FIRE DAMPERS						
UNIT NO.	FD-1	FD-2	FD-3	FD-4	FD-5	FD-6
SERVICE	185A - TLT OA	185 - OFFICE EA	243 - MEP OA	243 - MEP OA	243 - MEP OA	201 - MEP OA
MANUFACTURER	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK	GREENHECK
MODEL NO.	FD-150	FD-150	FD-150	FD-150	FD-150	FD-150
RATING (HR)	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2	1-1/2
SIZE (IN) WxH	6"x6"	6"x6"	18"x14"	18"x12"	6"x6"	70"x36"
REMARKS	1	1	1	1	1	1,2

KEYED NOTES:
1. PROVIDE WITH FACTORY UL LISTED SLEEVE AND MOUNTING ANGLES.
2. MULTI-SECTION ASSEMBLY.

AIR FLOW MEASURING STATION			
UNIT NO.	AFMS-1		
LOCATION	243 - MEP		
SERVICE	AHU-1		
MAX CFM	1200		
MAX FACE VELOCITY (FPM)	700		
MAX SP DROP (IN WC)	0.015		
MIN CFM	645		
MIN FACE VELOCITY (FPM)	350		
TYPE	MULTI-PROBE		
DUCT SIZE (IN)	18"x14"		
REMARKS	1		

KEYED NOTES:
1. PROVIDE ACCESS DOORS BEFORE AND AFTER EACH MULTI-PROBE AFMS.



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E

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JDR Project No: 22.0249

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

D

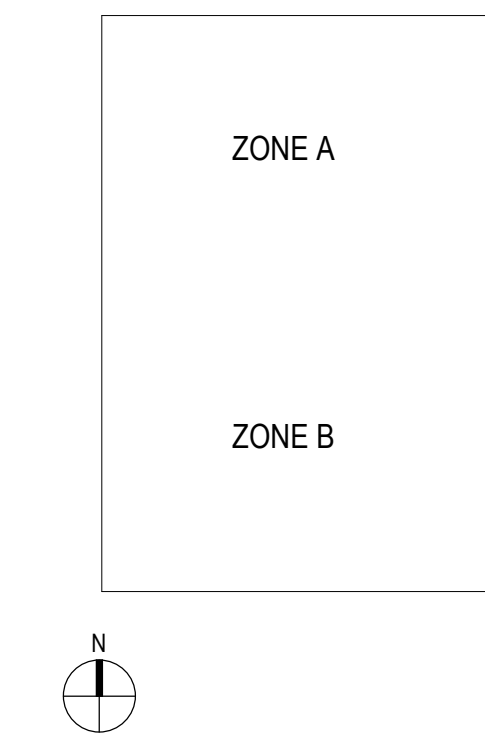
415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
10-02-2023	CONSTRUCTION DOCUMENTS PH1
11-02-2023	PH1_AD02

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

A

PROJECT NUMBER 720448

SCHEDULES - HVAC

M8002-1

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E

D

C

B

A

LIGHTING CONTROL ZONES			
ZONE	DESCRIPTION	LOCATION	VOLTAGE / POLES
Z1	LOWER LEVEL LIGHTING	LOWER LEVEL	277/1
Z2	BUS TERMINAL LIGHTING	1ST FL / P2	277/1
Z3	RESIDENTIAL LIGHTING	1ST FL	277/1
Z4	1ST FL PUBLIC PARKING	1ST FL	277/1
Z5	P2 PUBLIC PARKING	P2 ZONE A	277/1
Z6	P2 PUBLIC PARKING	P2 ZONE B	277/1
Z7	P3 PUBLIC PARKING	P3 ZONE A	277/1
Z8	P3 PUBLIC PARKING	P3 ZONE B	277/1
Z9	P4 PUBLIC PARKING	P4 ZONE A	277/1
Z10	P4 PUBLIC PARKING	P4 ZONE B	277/1
Z11	P5 PUBLIC PARKING	P5 ZONE A	277/1
Z12	P5 PUBLIC PARKING	P5 ZONE B	277/1
Z13	P6 PUBLIC PARKING	P6 ZONE A	277/1
Z14	P6 PUBLIC PARKING	P6 ZONE B	277/1
Z15			

LUMINAIRE SCHEDULE																					
TAG	DESCRIPTION	DEPTH / HEIGHT	MOUNTING	NORMAL OPERATION		EMERGENCY OPERATION			VOLTAGE	COLOR TEMP. (K)	C.R.I. (Min)	DIMMING	INTEGRATED OPTIONS		REFLECTOR	FINISH	MANUFACTURER	MODEL SERIES	FOOT NOTES	Count	
A	LED LENSED STRIP FIXTURE - SURFACE MOUNT	3"	SURFACE	LUMENS	WATTS	LUMENS	WATTS	TYPE					CONTROL	SENSOR							
A-E	LED LENSED STRIP FIXTURE - SURFACE MOUNT	3"	SURFACE	5,541	41	5541	41	(9)	120-277	4000	80	0-10V 10%	-	-	-	WHITE	LITHONIA	ZL1D		13	
B-E	LED LENSED STRIP FIXTURE - WALL MOUNT	3"	WALL	5,541	41	5541	41	(9)	120-277	4000	80	0-10V 10%	-	-	-	WHITE	LITHONIA	ZL1D		12	
C	LED VANDAL RESISTANT, WET LOCATION FIXTURE - SURFACE MOUNT	4 1/8"	SURFACE	6,325	49	0	0	-	120-277	4000	80	0-10V 10%	-	-	-	WHITE	LITHONIA	VAP MD	1	5	
C-E	LED VANDAL RESISTANT, WET LOCATION FIXTURE - SURFACE MOUNT	4 1/8"	SURFACE	6,325	49	6325	49	(9)	120-277	4000	80	0-10V 10%	-	-	-	WHITE	LITHONIA	VAP MD	1	41	
D-E	LED VANDAL RESISTANT, WET LOCATION FIXTURE - WALL MOUNT	4 1/8"	WALL	6,325	49	6325	49	(9)	120-277	4000	80	0-10V 10%	-	-	-	WHITE	LITHONIA	VAP MD	1	12	
F	LED 2'X2' LAY-IN FIXTURE	2 3/8"	RECESSED	4,144	31	0	0	-	120-277	4000	90	0-10V 10%	-	-	-	WHITE	LITHONIA	ZBLT2		11	
OA	LED PARKING GARAGE FIXTURE	4 13/16"	SURFACE	3,874	28	0	0	-	120-277	4000	70	0-10V 10%	-	-	-	WHITE	MCGRAW-EDISON	TT WQ	2	142	
OA-E	LED PARKING GARAGE FIXTURE	4 13/16"	SURFACE	3,874	28	3874	28	(9)	120-277	4000	70	0-10V 10%	-	-	-	WHITE	MCGRAW-EDISON	TT WQ	2	140	
OB-E	LED EXTERIOR SCENCE	9"	WALL	1,289	10	1289	10	(9)	120-277	4000	80	0-10V 10%	-	-	-	BRONZE	LITHONIA	WDGE2 LED		6	
X1	LED EXIT SIGN - WALL MOUNT - NEMA 4X	8 3/4"	SURFACE	0	0	0	2	(10)	120-277	-	0	-	-	-	-	WHITE	LITHONIA	LV DL 4X		27	
X2	LED EXIT SIGN - CEILING MOUNT - NEMA 4X	8 3/4"	SURFACE	0	0	0	2	(10)	120-277	-	0	-	-	-	-	WHITE	LITHONIA	LV DL 4X		3	

EMERGENCY OPERATION TYPES			INTEGRATED CONTROL TYPES	INTEGRATED SENSOR TYPES	GENERAL NOTES:	FOOT NOTES:
(1) INTEGRAL BATTERY 7W	(6) INTEGRAL BATTERY 700 LUMEN	(1) WIRED - CAT 5e	(1) PASSIVE INFRARED			(1) PROVIDE WET LOCATION FITTINGS
(2) INTEGRAL BATTERY (2) 7W	(7) INTEGRAL BATTERY 1400 LUMEN	(2) WIRED - CAT 6	(2) ULTRASONIC			(2) PROVIDE TAMPER RESISTANT HARDWARE
(3) INTEGRAL BATTERY 10W	(8) BATTERY WITH SELF-DIAGNOSTICS	(3) WIRELESS	(3) DUAL TECHNOLOGY (PIR+ULTRASONIC)			
(4) INTEGRAL BATTERY (2) 10W	(9) UL924 TRANSFER DEVICE (EXTERNAL OR INTERNAL)		(4) DIMMING PHOTOCCELL			
(5) INTEGRAL BATTERY 15W	(10) INTEGRAL GENERATOR TRANSFER DEVICE					

MANUFACTURER'S NAMES AND CATALOG NUMBERS ARE USED FOR QUALITY AND PERFORMANCE ONLY. ALTERNATE LISTED LIGHT FIXTURES AND OTHER ELECTRICAL DEVICES MANUFACTURED BY OTHERS SHALL BE EQUALLY ACCEPTABLE PROVIDED THEY MEET OR EXCEED IN PERFORMANCE AND QUALITY AS SPECIFIED.

LIGHTING CONTROLS SCHEDULE												
TAG DS	DESCRIPTION	MOUNTING	DEVICE FUNCTION	MANUAL CONTROLS		SENSOR		CONNECTION INTERFACE	VOLTAGE	MANUFACTURER	MODEL SERIES	FOOT NOTES
				TYPE DIMMING	CONFIG. PAD/DLE, RAISE/LOWER	TYPE	COVERAGE					
OS1	OCCUPANCY SENSOR	CEILING	SENSOR	-	-	PIR	LARGE MOTION	WIRED	LOW VOLTAGE	LUTRON	NXSMP2-LMO	1
OS2	OCCUPANCY SENSOR	CEILING	SENSOR	-	-	DUAL TECHNOLOGY	LOW MOTION	WIRED	LOW VOLTAGE	LUTRON	LOS-CDT-500-WH	
OS3	OCCUPANCY SENSOR	CEILING	SENSOR	-	-	DUAL TECHNOLOGY	SMALL MOTION	WIRED	LOW VOLTAGE	LUTRON	LOS-CDT-500R-WH	1
OS4	OCCUPANCY SENSOR	CEILING	SENSOR	-	-	PIR	HIGH MOUNT	WIRED	LOW VOLTAGE	LUTRON	NXSMP2-LMO-A	
OS5	OCCUPANCY SENSOR - WALL MOUNTED	WALL	MANUAL CONTROL/SEN SOR	DIMMING	3 BUTTON ON/OFF & RAISE/LOWER	DUAL TECHNOLOGY	SMALL MOTION	WIRED	LOW VOLTAGE	LUTRON	MSCL-OP153M	
FOOT NOTES: (1) PROVIDE AUXILIARY LOW VOLTAGE RELAY												

TRANSFER SWITCH SCHEDULE																					
TAG	SERVICE TYPE	TYPES OF OPERATION				ELECTRICAL REQUIREMENTS			TRANSFER SWITCH COMPONENTS				ENCLOSURE						MANUFACTURER	MODEL SERIES	FOOT NOTES
		TRANSFER	TRANSITION	NEUTRAL	DISTRIBUTION VOLTAGE	BUSS RATING	KVAC RATING	ADJUSTABLE TIME DELAYS	ENGINE EXERCISER	ELEVATOR CTRL CONTACTS	DIGITAL METERING	INTERNAL RIDE-THRU PWR	NETWORK COMM. MODULE	TYPE	MATERIAL	DOOR TYPE	INTERNAL STRIP HEATER	SEISMIC RATING			
ATS-EM	ES	AUTOMATIC	OPEN	SOLID	480V		FIELD VERIFY	Yes	Yes	No	Yes	No	Yes	NEMA 1	PAINTED STEEL	SINGLE	No	No	KOHLER	KCS	
ATS-SB	OE	AUTOMATIC	OPEN	SOLID	480V		FIELD VERIFY	Yes	Yes	No	Yes	No	Yes	NEMA 1	PAINTED STEEL	SINGLE	No	No	KOHLER	KCS	
SERVICE TYPES										GENERAL NOTES:										FOOT NOTES:	
ES EMERGENCY SYSTEMS NEC 700					CB HEALTHCARE - CRITICAL BRANCH															(1)	
LR LEGALLY REQUIRED STANDBY SYSTEMS NEC 701					EB HEALTHCARE - EQUIPMENT BRANCH																
OE OPTIONAL EQUIPMENT STANDBY SYSTEMS NEC 702																					
LS HEALTHCARE - LIFE SAFETY																					

GENERATOR SCHEDULE																			
TAG GENERATOR	FUEL TYPE DIESEL	INSTALL LOCATION GENERATOR 126	CAPACITY (GALLONS) 404	DUTY RATING ESP	TIER RATING 1	DURATION UNTIL OPERATIONAL 10s	EPA EMISSIONS CERTIFIED Yes	DISTRIBUTION VOLTAGE 480V	CONNECTED LOAD		RATED LOAD		FAULT CURRENT 65k	MAX. AMBIENT TEMP. (F) 77	SOUND AT 25' (dBA) 105	MANUFACTURER KOHLER	GENSET MODEL 400RE02VC	ALTERNATOR MODEL 5M4027	FOOT NOTES
									KVA 142.8	FLA 172	KVA	FLA							
GENERATOR SCHEDULE (CONTINUED)																			
TAG GENERATOR	Y/N Yes	LOCATION GENERATOR 126	CAPACITY (GALLONS) 404	DIMENSIONS 56"WX194"LX18"H	INTEGRAL EQUIPMENT		EMERGENCY STOP BUTTON		CONTROL PANEL				ENCLOSURE						
					CIRCUIT BREAKERS Yes	LOAD CENTERS No	LOAD CENTER BUSS No	UNIT MOUNTED Yes	REMOTE Yes	LOCATION TBD	UNIT MOUNTED No	REMOTE STARTING CKT No	REMOTE ANNUNCIATOR PNL Yes	REMOTE ALARM CONTACTS No	TYPE -	BODY -	SOUND ATTENUATION No	LED LIGHTING -	GFCI WP RECEPTACLES -



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E

JDRENGINEERING, INC.

5525 NOBEL DRIVE
SUITE 100
MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR Project No: 22.0249

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

D

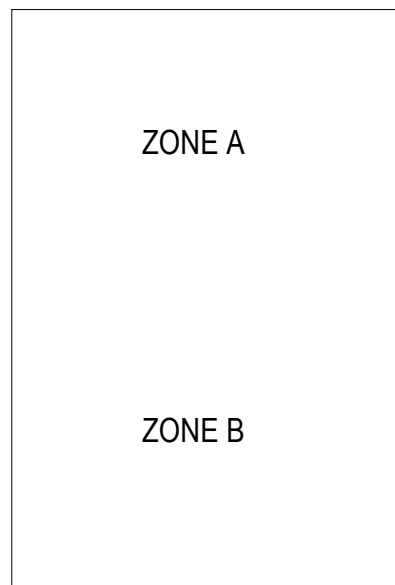
415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PH1, AD02

C

KEY PLAN



B



SHEET INFORMATION

PROJECT MANAGER

A

PROJECT NUMBER 720448

SCHEDULES -
LIGHTING AND
DEVICES

E8000-1

E

ELECTRICAL CONNECTION SCHEDULE																										
				LOCATION		LOAD				CIRCUITING INFORMATION				STARTER		CONTROLLER		DISCONNECT						POWER SOURCE TYPE		
TAG	DESCRIPTION	NO	NAME	KVA	F.L.A.	M.C.A.	VOLT	PH	OCF (Amps)	WIRE SIZE & CONDUIT	PANEL	CIRCUIT #	TYPE	FURNISHED / INSTALLED	TYPE	FURNISHED / INSTALLED	TYPE	FURNISHED / INSTALLED	ACCESSORIES	NEIA TYPE/CONFIGURATION	NORMAL	LIFE SAFETY	LEGALLY REQUIRED	OPTIONAL STAND-BY	FOOT NOTES	
277																										
HT-1-1	HEAT TRACE			0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-1A	20	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P2-1	HEAT TRACE	244	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-1A	22	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P2-2	HEAT TRACE	244	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-1A	24	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P2-3	HEAT TRACE	244	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-1A	26	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P2-4	HEAT TRACE	244	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-1A	30	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P3-1	HEAT TRACE	345	ELEVATOR LOBBY	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	56	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P3-2	HEAT TRACE	345	ELEVATOR LOBBY	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	60	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P3-3	HEAT TRACE	345	ELEVATOR LOBBY	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	62	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P4-1	HEAT TRACE	444	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	64	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P4-2	HEAT TRACE	444	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	66	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P4-3	HEAT TRACE	444	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	68	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P4-4	HEAT TRACE	444	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	70	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P5-1	HEAT TRACE	544	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	72	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P5-2	HEAT TRACE	544	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	74	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P5-3	HEAT TRACE	544	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	76	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P5-4	HEAT TRACE	544	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	78	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P6-1	HEAT TRACE	644	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	80	-	-	-	-	-	CB	EC/EC	-	3R	•				
HT-P6-2	HEAT TRACE	644	PUBLIC PARKING	0	3.6	4.5	277	1	20	3/4"C, 2#12, #12G	H-P3	82	-	-	-	-	-	CB	EC/EC	-	3R	•				
208																										
EVC-1	PUBLIC EV CHARGER	180	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	1.3	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-2	PUBLIC EV CHARGER	180	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	5.7	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-3	PUBLIC EV CHARGER	180	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	9.11	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-C1	CITY EV CHARGER	000	LOWER LEVEL PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	2.4	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-C2	CITY EV CHARGER	000	LOWER LEVEL PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	6.8	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-C3	CITY EV CHARGER	000	LOWER LEVEL PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	10.12	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-C4	CITY EV CHARGER	000	LOWER LEVEL PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	14.16	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-C5	CITY EV CHARGER	000	LOWER LEVEL PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	18.20	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-C6	CITY EV CHARGER	000	LOWER LEVEL PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	22.24	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-C7	CITY EV CHARGER	000	LOWER LEVEL PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	26.28	-	-	-	-	-	CB	EC/EC	-	4	•			1	
EVC-P3-1	PUBLIC EV CHARGER	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	18.20	-	-	-	-	-	CB	EC/EC	-	4	•				
EVC-P4-1	PUBLIC EV CHARGER	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P4	14.16	-	-	-	-	-	CB	EC/EC	-	4	•				
EVC-P5-1	PUBLIC EV CHARGER	544	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P5	10.12	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-1	EV READY CHARGING SPACE	180	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	13.15	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-2	EV READY CHARGING SPACE	180	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-1B	17.19	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-1	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	1.3	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-2	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	5.7	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-3	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	9.11	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-4	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	13.15	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-5	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	17.19	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-6	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	21.23	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-7	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	25.27	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-8	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	29.31	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-9	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	33.35	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-10	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	37.39	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-11	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	2.4	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-12	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	6.8	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-13	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	10.12	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P2-14	EV READY CHARGING SPACE	244	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P2	14.16	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-1	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	1.3	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-2	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	5.7	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-3	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	9.11	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-4	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	13.15	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-5	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	17.19	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-6	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	21.23	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-7	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	25.27	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-8	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	29.31	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-9	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208	1	40	3/4"C, 2#8, #10G	L-P3	33.35	-	-	-	-	-	CB	EC/EC	-	4	•				
EVR-P3-10	EV READY CHARGING SPACE	344	PUBLIC PARKING	0	28	35	208																			

E

D

C

B

A

MOTOR CONNECTION SCHEDULE																									
TAG	DESCRIPTION	NO	NAME	HP	KVA	LOAD				CIRCUITING INFORMATION				STARTER	CONTROLLER		DISCONNECT		ACCESSORIES	NEMA TYPE/CONFIGURATION	POWER SOURCE TYPE		FOOT NOTES		
						F.L.A.	M.C.A.	VOLT	PH	WIRE SIZE & CONDUIT	PANEL	CIRCUIT #	TYPE		TYPE	TYPE	TYPE	TYPE			TYPE				
																						OCP (Amps)			
480																									
EF-1	EXHAUST FAN	000	LOWER LEVEL PARKING	0	36.6	44	55	480	3	60	3/4"C, 3#6, #10G	H-1A	8.10.12	ECM	MC/EC	HOA	EC/EC	-	-	-	3R	•			
EF-P2-1	EXHAUST FAN	244	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-1A	13.15.17	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P2-2	EXHAUST FAN	244	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-1A	19.21.23	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P2-3	EXHAUST FAN	344	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-1A	25.27.29	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P2-4	EXHAUST FAN	344	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-1A	2.4.6	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P2-5	EXHAUST FAN	244	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-1A	8.10.12	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P2-6	EXHAUST FAN	244	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-1A	14.16.18	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P3-1	EXHAUST FAN	345	ELEVATOR LOBBY	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	1.3.5	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P3-2	EXHAUST FAN	344	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	7.9.11	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P3-3	EXHAUST FAN	344	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	13.15.17	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P3-4	EXHAUST FAN	344	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	19.21.23	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P3-5	EXHAUST FAN	344	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	25.27.29	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P3-6	EXHAUST FAN	344	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	31.33.35	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P4-1	EXHAUST FAN	444	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	37.39.41	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P4-2	EXHAUST FAN	444	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	43.45.47	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P4-3	EXHAUST FAN	444	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	49.51.53	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P4-4	EXHAUST FAN	444	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	2.4.6	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P4-5	EXHAUST FAN	444	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	8.10.12	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P4-6	EXHAUST FAN	444	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	14.16.18	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P5-1	EXHAUST FAN	544	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	20.22.24	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P5-2	EXHAUST FAN	544	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	26.28.30	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P5-3	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	32.34.36	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P5-4	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	38.40.42	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P5-5	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	44.46.48	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P5-6	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	50.52.54	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P6-1	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	55.57.59	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P6-2	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	61.63.65	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P6-3	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	67.69.71	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P6-4	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	73.75.77	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P6-5	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	79.81.83	VFD	MC/EC	-	-	-	-	-	-	•			
EF-P6-6	EXHAUST FAN	644	PUBLIC PARKING	2	2.8	3.4	4.3	480	3	15	3/4"C, 3#12, #12G	H-P3	85.87.89	VFD	MC/EC	-	-	-	-	-	-	•			
ELEV-1	ELEVATOR	647	PUBLIC GARAGE ELEVATOR 1 CONTROL ROOM	25	28.3	34	42.5	480	3	70	1"C, 3#4, #8G	OH-1A	1.3.5	SS	MF	-	-	FS	EC/EC	-	1	•			
ELEV-3a	ELEVATOR	649	PUBLIC GARAGE ELEVATOR 2 & 3 CONTROL ROOM	25	28.3	34	42.5	480	3	70	1"C, 3#4, #8G	OH-1A	7.9.11	SS	MF	-	-	FS	EC/EC	-	1	•			
ELEV-3b	ELEVATOR	649	PUBLIC GARAGE ELEVATOR 2 & 3 CONTROL ROOM	25	28.3	34	42.5	480	3	70	1"C, 3#4, #8G	OH-1A	13.15.17	SS	MF	-	-	FS	EC/EC	-	1	•			
GUH-1a	GAS UNIT HEATER	000	LOWER LEVEL PARKING	0	2.1	2.5	3.1	480	3	15	3/4"C, 3#12, #12G	H-1A	3.5.7	-	-	-	-	NFS	EC/EC	-	3R	•			
GUH-1b	GAS UNIT HEATER	000	LOWER LEVEL PARKING	0	2.1	2.5	3.1	480	3	15	3/4"C, 3#12, #12G	H-1A	9.11.13	-	-	-	-	NFS	EC/EC	-	3R	•			
GUH-1c	GAS UNIT HEATER	000	LOWER LEVEL PARKING	0	2.1	2.5	3.1	480	3	15	3/4"C, 3#12, #12G	H-1A	15.17.19	-	-	-	-	NFS	EC/EC	-	3R	•			
GUH-1d	GAS UNIT HEATER	140	RESIDENT PARKING	0	2.1	2.5	3.1	480	3	15	3/4"C, 3#12, #12G	H-1A	2.4.6	-	-	-	-	NFS	EC/EC	-	3R	•			
MAU-1	MAKEUP AIR UNIT	140	RESIDENT PARKING	25	28.3	34	42.5	480	3	70	1"C, 3#4, #8G	H-1A	14.16.18	VFD	MC/EC	-	-	-	-	-	-	•			
QHD-004-2	OVERHEAD DOOR	004	CITY STORAGE	0	0	0	0	480	3	20	3/4"C, 3#12, #12G	H-1A	1.3.5	-	-	-	-	S/S	EC/EC	-	-	3R	•		
SE-1	SANITARY EJECTOR	000	LOWER LEVEL PARKING	1.5	2.5	3	3.6	480	3	15	3/4"C, 3#12, #12G	H-1A	7.9.11	-	-	-	-	NFS	EC/EC	-	3R	•			
SP-4	SUMP PUMP	000	LOWER LEVEL PARKING	7.5	9.1	11	13.8	480	3	20	3/4"C, 3#12, #12G	OH-1A	8.10.12	-	-	-	-	NFS	EC/EC	-	3R	•			
277																									
ERH-1a	ELECTRIC RADIANT HEATER	193	BUS WAITING AREA	0	3	10.8	13.5	277	1	15	1/2"C, 1#12, #12N, #12G	H-BT	9	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ERH-1b	ELECTRIC RADIANT HEATER	193	BUS WAITING AREA	0	3	10.8	13.5	277	1	15	1/2"C, 1#12, #12N, #12G	H-BT	7	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ERH-2a	ELECTRIC RADIANT HEATER	189	BUS WAITING	0	6	21.7	27.1	277	1	30	3/4"C, #10, #10N #10G	H-BT	11	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ERH-2b	ELECTRIC RADIANT HEATER	189	BUS WAITING	0	6	21.7	27.1	277	1	30	3/4"C, #10, #10N #10G	H-BT	13	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ERH-2c	ELECTRIC RADIANT HEATER	189	BUS WAITING	0	6	21.7	27.1	277	1	30	3/4"C, #10, #10N #10G	H-BT	15	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ERH-2d	ELECTRIC RADIANT HEATER	189	BUS WAITING	0	6	21.7	27.1	277	1	30	3/4"C, #10, #10N #10G	H-BT	17	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ERH-2e	ELECTRIC RADIANT HEATER	189	BUS WAITING	0	6	21.7	27.1	277	1	30	3/4"C, #10, #10N #10G	H-BT	19	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ERH-2f	ELECTRIC RADIANT HEATER	189	BUS WAITING	0	6	21.7	27.1	277	1	30	3/4"C, #10, #10N #10G	H-BT	21	-	-	-	-	-	NFS	EC/EC	-	3R	•		
208																									
ACCU-1	AIR COOLED CONDITIONING UNIT	644	PUBLIC PARKING	0	2.3	10.8	13.6	208	1	25	3/4"C, 2#10, #10G	L-P5	29.31	-	-	-	-	-	NFS	EC/EC	-	3R	•		
ACCU-2	AIR COOLED CONDITIONING UNIT	-	P7 ROOF	0	2.3	10.8	13.6	208	1	25	3/4"C, 2#10, #10G	L-P5	33.35	-	-	-	-	-	NFS	EC/EC	-	3R	•		
AHU-1	AIR HANDLING UNIT	243	MEP	0	2.1	28.3	79.3	208	3	66	1"C, 3#4, #8G	L-1A	18.29.29	VFD	MC/EC	-	-	-	-	-	-	•			
EW-1	ELECTRIC WALL HEATER	0051	ELEC. VAULT-1	0	3	8.3	10.4	208	3	15	3/4"C, 3#12, #12G	L-1A	13.15.17	-	-	-	-	-	NFS	EC/EC	-	3R	•		
EW-2	ELECTRIC WALL HEATER	0501	ELEVATOR 01	0	3	8.3	10.4	208	3	15	3/4"C, 3#12, #12G	L-1A	7.9.11	-	-	-	-	-	NFS	EC/EC	-	3R	•		
EW-3	ELECTRIC WALL HEATER	0503	STAIR 03	0	3	8.3	10.4	208	3	20	3/4"C, 3#12, #12G	L-1A	13.15.17												

E

Switchboard: SWBD-HC					
Location: CITY ELECTRICAL ROOM...			Volts: 480		A.I.C. Rating: FIELD VERIFY
Supply From:			Phases: 3		Main Type: MCB
Mounting: SURFACE			Wires: 4		Bus Rating: 3000 A
Enclosure: NEMA 1			MCB Rating: 3000 A		
MAIN CIRCUIT BREAKER REQUIREMENTS:					
GROUND FAULT PROTECTION			SHUNT TRIP BREAKER		X ADJUSTABLE LONG TERM
X INTEGRAL METER			ADJUSTABLE MAGNETIC		X ADJUSTABLE SHORT TERM
X SURGE PROTECTION			X ADJUSTABLE INSTANTANEOUS		
CKT	Circuit Description	Poles	Trip Rating	Load (kVA)	Notes
1	SPD	3	60 A	0	S
2	H-1A	3	250 A	85.4	
3	H-1B	3	60 A	3.5	
4	H-P3	3	250 A	81.8	
5	T-L-DP1A	3	500 A	157.9	
6	T-L-DP1B	3	500 A	176.8	
7	T-L-DP2C	3	500 A	57.6	
8	ATS-EM	3	300 A	10.3	
9	ATS-SB	3	600 A	132.5	
10	H-BT	3	125 A	58.1	
11	H-LA	3	125 A	74.1	
12	SPARE	3	500 A	0	
13	SPARE	3	500 A	0	
14	[SPACE]	3	--	--	
15	[SPACE]	3	--	--	
16	[SPACE]	3	--	--	
Total Load:				838.1 kVA	
Total Amps:				1008 A	
FEEDER BREAKER NOTES:					
(G) GROUND FAULT PROTECTION		(IT) INSTANTANEOUS SETTING			
(M) INTEGRAL METER		(LT) LONG TERM SETTING			
(S) SURGE PROTECTION		(ST) SHORT TERM SETTING			
(ST) SHUNT TRIP BREAKER					
(LN) BREAKER LOCK IN ON POSITION					
(LF) BREAKER LOCK IN OFF POSITION					
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	377974 VA	102.42%	387119 VA		
Other	366710 VA	100.00%	366710 VA	Total Conn. Load: 838 kVA	
Receptacle	10620 VA	97.08%	10310 VA	Total Est. Demand: 847 kVA	
Power	71088 VA	100.00%	71088 VA	Total Conn.: 1008 A	
Lighting	11771 VA	100.00%	11771 VA	Total Est. Demand: 1019 A	

D

Switchboard: DP-1A

Location: CITY ELECTRICAL ROOM...

Supply From: T-L-DP1A

Mounting: SURFACE

Enclosure: Type 1

Voits: 208 V

Phases: 3

Wires: 4

A.I.C. Rating: FIELD VERIFY

Main Type: MCB

Bus Rating: 800 A

MCB Rating: 800 A

MAIN CIRCUIT BREAKER REQUIREMENTS:

GROUND FAULT PROTECTION

SHUNT TRIP BREAKER

INTEGRAL METER

ADJUSTABLE MAGNETIC

SURGE PROTECTION

ADJUSTABLE LONG TERM

ADJUSTABLE SHORT TERM

ADJUSTABLE INSTANTANEOUS

CKT	Circuit Description	Poles	Trip Rating	Load (kVA)	Notes
1	L-1B	3	400 A	69.9	
2	L-P2 (EVC)	3	400 A	86.3	
3	L-TB	2	125 A	1.7	
4	[SPACE]	3	--	--	
Total Load:				157.9 kVA	
Total Amps:				438 A	

FEEDER BREAKER NOTES:

(G) GROUND FAULT PROTECTION

(M) INTEGRAL METER

(S) SURGE PROTECTION

(ST) SHUNT TRIP BREAKER

(LN) BREAKER LOCK IN ON POSITION

(LF) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:

(IT) INSTANTANEOUS SETTING

(LT) LONG TERM SETTING

(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	1500 VA	125.00%	1875 VA		
Other	85616 VA	100.00%	85616 VA	Total Conn. Load:	158 kVA
Receptacle	900 VA	100.00%	900 VA	Total Est. Demand:	158 kVA
Power	69888 VA	100.00%	69888 VA	Total Conn.:	438 A
Lighting	41 VA	100.00%	41 VA	Total Est. Demand:	439 A

C

Switchboard: DP-1B					
Location: CITY ELECTRICAL ROOM...			Volts: 208 V		A.I.C. Rating: FIELD VERIFY
Supply From: T-L-DP1B			Phases: 3		Main Type: MCB
Mounting: SURFACE			Wires: 4		Bus Rating: 800 A
Enclosure: Type 1			MCB Rating: 800 A		
MAIN CIRCUIT BREAKER REQUIREMENTS:					
GROUND FAULT PROTECTION		SHUNT TRIP BREAKER		ADJUSTABLE LONG TERM	
INTEGRAL METER		ADJUSTABLE MAGNETIC		ADJUSTABLE SHORT TERM	
SURGE PROTECTION				ADJUSTABLE INSTANTANEOUS	
CKT	Circuit Description	Poles	Trip Rating	Load (kVA)	Notes
1	L-P3 (EVC)	3	400 A	90.5	
2	L-P4 (EVC)	3	400 A	86.3	
3	[SPACE]	3	---	---	
4	[SPACE]	3	---	---	
Total Load:				176.8 kVA	
Total Amps:				491 A	
FEEDER BREAKER NOTES:					
ADJUSTABLE TRIP SETTINGS:					
(G) GROUND FAULT PROTECTION		(IT) INSTANTANEOUS SETTING			
(M) INTEGRAL METER		(LT) LONG TERM SETTING			
(S) SURGE PROTECTION		(ST) SHORT TERM SETTING			
(ST) SHUNT TRIP BREAKER					
(LN) BREAKER LOCK IN ON POSITION					
(LF) BREAKER LOCK IN OFF POSITION					
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Other	175376 VA	100.00%	175376 VA	Total Conn. Load: 177 kVA	
Receptacle	1440 VA	100.00%	1440 VA	Total Est. Demand: 177 kVA	
				Total Conn.: 491 A	
				Total Est. Demand: 491 A	

B

Switchboard: DP-1C					
Location: CITY ELECTRICAL ROOM...			Volts: 208 V		A.I.C. Rating: FIELD VERIFY
Supply From: T-L-DP1C			Phases: 3		Main Type: MCB
Mounting: SURFACE			Wires: 4		Bus Rating: 800 A
Enclosure: Type 1			MCB Rating: 800 A		
MAIN CIRCUIT BREAKER REQUIREMENTS:					
GROUND FAULT PROTECTION		SHUNT TRIP BREAKER		ADJUSTABLE LONG TERM	
INTEGRAL METER		ADJUSTABLE MAGNETIC		ADJUSTABLE SHORT TERM	
SURGE PROTECTION				ADJUSTABLE INSTANTANEOUS	
CKT	Circuit Description	Poles	Trip Rating	Load (kVA)	Notes
1	L-P5	3	400 A	57.6	
2	SPARE	3	400 A	0	
3	[SPACE]	3	--	--	
4	[SPACE]	3	--	--	
Total Load:				57.6 kVA	
Total Amps:				160 A	
FEEDER BREAKER NOTES:					
ADJUSTABLE TRIP SETTINGS:					
(G) GROUND FAULT PROTECTION		(IT) INSTANTANEOUS SETTING			
(M) INTEGRAL METER		(LT) LONG TERM SETTING			
(S) SURGE PROTECTION		(ST) SHORT TERM SETTING			
(ST) SHUNT TRIP BREAKER					
(LN) BREAKER LOCK IN ON POSITION					
(LF) BREAKER LOCK IN OFF POSITION					
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	13046 VA	109.20%	14247 VA	Total Conn. Load: 58 kVA	
Other	43104 VA	100.00%	43104 VA	Total Est. Demand: 59 kVA	
Receptacle	1440 VA	100.00%	1440 VA	Total Conn.: 160 A	
Total Est. Demand: 163 A					

A

Panelboard: H-1A																
Location: CITY ELECTRICAL ROOM-1 184-1						A.I.C. Rating: FIELD VERIFY										
Supply From: SWBD-HC						Main Type: MLO										
Mounting: SURFACE						Bus Rating: 225 A										
Enclosure: Type 1						Phases: 3										
						Wires: 4										
CKT	Circuit Description	Note	Trip	Poles	A (kVA)	B (kVA)	C (kVA)	Poles	Trip	Note	Circuit Description	CKT				
1	OHD-004-2 - OVERHEAD DOOR		20 A	3	0	0.94			3	15 A	EF-P2-4 - EXHAUST FAN	2				
					0	0.94						3	4			
							0	0.94						6		
5	SE-1 - SANITARY EJECTOR		15 A	3	0.83	0.94			3	15 A	EF-P2-5 - EXHAUST FAN	8				
						0.83	0.94						10			
							0.83	0.94						12		
9	EF-P2-1 - EXHAUST FAN		15 A	3	0.94	0.94			3	15 A	EF-P2-6 - EXHAUST FAN	14				
						0.94	0.94						16			
							0.94	0.94						18		
13	EF-P2-2 - EXHAUST FAN		15 A	3	0.94	1			1	20 A	HT-1-1 - HEAT TRACE	20				
						0.94	1						1	20 A	22	
								0.94				1		1	20 A	24
17	EF-P2-3 - EXHAUST FAN		15 A	3	0.94	1			1	20 A	HT-P2-2 - HEAT TRACE	26				
						0.94	1						1	20 A	28	
								0.94				1		1	20 A	30
19	SPARE		20 A	1	0	0			1	20 A	SPARE	32				
						0	0						1	20 A	34	
								0				0		1	20 A	36
31	SPARE		20 A	1					3	125 A	T-1A	38				
						0	20.48					0	20.69		40	
													0	18.8		42
33	SPARE		20 A	1												
35	SPARE		20 A	1												
37	SPARE		20 A	1												
39	SPARE		20 A	1												
41	SPARE		20 A	1												
Total Load:					29 kVA	29.2 kVA	27.3 kVA									
Total Amps:					105 A	106 A	99 A									
FEEDER BREAKER NOTES:																
(G) GROUND FAULT PROTECTION			(LN) BREAKER LOCK IN ON POSITION			ADJUSTABLE TRIP SETTINGS:										
(M) INTEGRAL METER			(LF) BREAKER LOCK IN OFF POSITION			(IT) INSTANTANEOUS SETTING										
(S) SURGE PROTECTION						(LT) LONG TERM SETTING										
(ST) SHUNT TRIP BREAKER						(ST) SHORT TERM SETTING										
Load Classification				Connected Load	Demand Factor	Estimated Demand	Panel Totals									
Motor				71872 VA	107.31%	77123 VA										
Other				12480 VA	100.00%	12480 VA	Total Conn. Load: 85 kVA									
Receptacle				1080 VA	100.00%	1080 VA	Total Est. Demand: 91 kVA									
							Total Conn.: 103 A									
							Total Est. Demand: 109 A									
Notes:																

E

D

C

B

A

Panelboard: H-BT

Location: CITY ELECTRICAL ROOM-1 184-1

Voltage: 480Y/277V

Supply From: SWBD-HC

Phases: 3

Mounting: SURFACE

Wires: 4

Enclosure: Type 1

A.I.C. Rating: FIELD VERIFY

Mains Type: MCB

Bus Rating: 125 A

MCB Rating: 125 A

MAIN CIRCUIT BREAKER REQUIREMENTS:

GROUND FAULT PROTECTIONSHUNT TRIP BREAKERADJUSTABLE LONG TERM

INTEGRAL METERADJUSTABLE...ADJUSTABLE SHORT TERM

SURGE PROTECTIONADJUSTABLE INSTANTANEOUS

CKT	Circuit Description	Note	Trip	Poles	A (kVA)	B (kVA)	C (kVA)	Poles	Trip	Note	Circuit Description	CKT	
1					3.33	0.25			1	20 A	LIGHTING RMS 125, 123, 122, 124	2	
3	T-B		50 A	3		4.78	0.2		1	20 A	LIGHTING BUS TERMINAL 120	4	
5							4.33	0.19	1	20 A	LIGHTING RMS 128, 127	6	
7	ERH-1b - ELECTRIC RADIANT HEATER		15 A	1	3	0			1	20 A	SPARE	8	
9	ERH-1a - ELECTRIC RADIANT HEATER		15 A	1		3	0		1	20 A	SPARE	10	
11	ERH-2a - ELECTRIC RADIANT HEATER		30 A	1			6	0	1	20 A	SPARE	12	
13	ERH-2b - ELECTRIC RADIANT HEATER		30 A	1	6	0			1	20 A	SPARE	14	
15	ERH-2c - ELECTRIC RADIANT HEATER		30 A	1		6	0		1	20 A	SPARE	16	
17	ERH-2d - ELECTRIC RADIANT HEATER		30 A	1			6	0	1	20 A	SPARE	18	
19	ERH-2e - ELECTRIC RADIANT HEATER		30 A	1	6	0			1	20 A	SPARE	20	
21	ERH-2f - ELECTRIC RADIANT HEATER		30 A	1		6	0		1	20 A	SPARE	22	
23	SPARE		20 A	1				0	1	20 A	SPARE	24	
25	SPARE		20 A	1	0	0			1	20 A	SPARE	26	
27	SPARE		20 A	1		0	0		1	20 A	SPARE	28	
29	SPARE		20 A	1			0	0	1	20 A	SPARE	30	
Total Load:					18.6 kVA	20 kVA	16.5 kVA						
Total Amps:					68 A	73 A	60 A						

FEEDER BREAKER NOTES:

(G) GROUND FAULT PROTECTION

(LN) BREAKER LOCK IN ON POSITION

(M) INTEGRAL METER

(LF) BREAKER LOCK IN OFF POSITION

(S) SURGE PROTECTION

(ST) SHUNT TRIP BREAKER

ADJUSTABLE TRIP SETTINGS:

(IT) INSTANTANEOUS SETTING

(LT) LONG TERM SETTING

(ST) SHORT TERM SETTING

(MT) MAGNETIC ADJUSTABLE

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	51085 VA	102.94%	52585 VA	
Other	0 VA	0.00%	0 VA	Total Conn. Load: 55 kVA
Receptacle	2160 VA	100.00%	2160 VA	Total Est. Demand: 57 kVA
Power	1200 VA	100.00%	1200 VA	Total Conn.: 66 A
Lighting	627 VA	100.00%	627 VA	Total Est. Demand: 66 A

Notes:

Panelboard: H-LA														
Location: CITY ELECTRICAL ROOM-1 184-1 Voltage: 480Y/277V														
Supply From: SWBD-HC					Phases: 3					A.I.C. Rating: FIELD VERIFY				
Mounting: SURFACE					Wires: 4					Mains Type: MLO				
Enclosure: Type 1										Bus Rating: 125 A				
CKT	Circuit Description	Note	Trip	Poles	A	B	C	Poles	Trip	Note	Circuit Description	CKT		
3	LTG - HOUSING LL PARKING		20 A	1	0.95	0.69						2		
5	GUH-1a - GAS UNIT HEATER		20 A	3		0.69	0.69			3	20 A	4		
7					0.69	12.19		0.69	0.69			6		
9						0.69	12.19			3	60 A	8		
11	GUH-1b - GAS UNIT HEATER		20 A	3				0.69	12.19			10		
13					0.69	9.42		0.69	9.42			12		
15						0.69	9.42			3	70 A	14		
17	GUH-1c - GAS UNIT HEATER		20 A	3				0.69	9.42			16		
19					0.69	0				1	20 A	18		
21	SPARE		20 A	1		0	0			1	20 A	20		
23	SPARE		20 A	1				0	0	1	20 A	22		
25	SPARE		20 A	1	0	0				1	20 A	24		
27	SPARE		20 A	1			0	0		1	20 A	26		
29	SPARE		20 A	1				0	0	1	20 A	28		
Total Load:					25.3 kVA	24.4 kVA	24.4 kVA							
Total Amps:					91 A	88 A	88 A							
FEEDER BREAKER NOTES:														
(G) GROUND FAULT PROTECTION					(LN) BREAKER LOCK IN ON POSITION					ADJUSTABLE TRIP SETTINGS:				
(M) INTEGRAL METER					(LF) BREAKER LOCK IN OFF POSITION					(IT) INSTANTANEOUS SETTING				
(S) SURGE PROTECTION										(LT) LONG TERM SETTING				
(ST) SHUNT TRIP BREAKER										(ST) SHORT TERM SETTING				
Load Classification					Connected Load	Demand Factor	Estimated Demand	Panel Totals						
Motor					73162 VA	112.50%	82307 VA	Total Conn. Load: 74 kVA						
Lighting					948 VA	100.00%	948 VA	Total Est. Demand: 83 kVA						
								Total Conn.: 89 A						
								Total Est. Demand: 100 A						
Notes:														

Panelboard: L-BT															
Location: CITY ELECTRICAL ROOM-1 184-1 Voltage: 208Y/120V															
Supply From: T-BT					Phases: 3					A.I.C. Rating: FIELD VERIFY					
Mounting: SURFACE					Wires: 4					Mains Type: MLO					
Enclosure: Type 1										Bus Rating: 100 A					
CKT	Circuit Description	Note	Trip	Poles	A (kVA)	B (kVA)	C (kVA)	Poles	Trip	Note	Circuit Description	CKT			
1					0.36			1	20 A		RECEP - BUS WAITING 189	2			
3						0.54		1	20 A		RECEP - TLT 190, 192, MAIN 191	4			
5							0.54	1	20 A		RECEP - BUS WAITING AREA 193	6			
7					0.54			1	20 A		RECEP - OFFICE 185	8			
9	WHR-1 - WATER HEATER		20 A	2		1.25	0.18	1	20 A		RECEP - TLT 128	10			
11							1.25	0	1	20 A	LF-1a - LAVATORY FLUSH VALVE	12			
13	WHR-2 - WATER HEATER		15 A	2	0.75	0		1	20 A		LF-1b - LAVATORY FLUSH VALVE	14			
15						0.75	0	1	20 A		LF-1c - LAVATORY FLUSH VALVE	16			
17	HPU-1 - HEAT PUMP UNIT		15 A	2			1.08	0	1	20 A	PS-1a - PARK STATION BUS TERMINAL	18			
19					1.08	0		1	20 A		PS-1b - PAY STATION BUS TERMINAL	20			
21	ERV-1 - ENERGY RECOVERY UNIT		20 A	1		1.2	0.86		1	20 A	CP-1 - CIRCULATION PUMP	22			
23	DO-190 - DOOR AUTO OPERATOR		20 A	1			0.6	0.86	1	20 A	CP-2 - CIRCULATION PUMP	24			
25	DO-192 - DOOR AUTO OPERATOR		20 A	1	0.6	0			1	20 A	SPARE	26			
27	SPARE		20 A	1		0	0	0	20 A		SPARE	28			
29	SPARE		20 A	1			0	0	1	20 A	SPARE	30			
31	SPARE		20 A	1	0	0		1	20 A		SPARE	32			
33	SPARE		20 A	1		0	0	1	20 A		SPARE	34			
35	SPARE		20 A	1			0	0	1	20 A	SPARE	36			
37	SPARE		20 A	1	0	0		1	20 A		SPARE	38			
39	SPARE		20 A	1			0	0	1	20 A	SPARE	40			
41	SPARE		20 A	1				0	0	1	SPARE	42			
Total Load:					3.3 kVA	4.8 kVA	4.3 kVA								
Total Amps:					28 A	41 A	37 A								
FEDDER BREAKER NOTES:															
(G) GROUND FAULT PROTECTION					(LN)	BREAKER LOCK IN ON POSITION					(IT) INSTANTANEOUS SETTING				
(M) INTEGRAL METER					(LF)	BREAKER LOCK IN OFF POSITION					(LT) LONG TERM SETTING				
(S) SURGE PROTECTION										(ST) SHORT TERM SETTING					
(ST) SHUNT TRIP BREAKER															
Load Classification				Connected Load	Demand Factor	Estimated Demand	Panel Totals								
Motor				9065 VA	106.87%	9709 VA									
Other				0 VA	0.00%	0 VA	Total Conn. Load: 12 kVA								
Receptacle				2160 VA	100.00%	2160 VA	Total Est. Demand: 13 kVA								
Power				1200 VA	100.00%	1200 VA	Total Conn.: 35 A								
							Total Est. Demand: 36 A								
Notes:															

Panelboard: L-P4

Location: PUBLIC PARKING 444

Supply From: DP-1B

Mounting: SURFACE

Enclosure: Type 1

Voltage: 208Y/120V

Phases: 3

Wires: 4

A.I.C. Rating: FIELD VERIFY

Maina Type: MLO

Bus Rating: 400 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)		B (kVA)		C (kVA)		Poles	Trip	Note	Circuit Description	CKT
1	EVR-P4-1 - EV READY SPACE		40 A	2	2.91	2.91	2.91	2.91			2	40 A		EVR-P4-11 - EV READY SPACE	2
5	EVR-P4-2 - EV READY SPACE		40 A	2	2.91	2.91	2.91	2.91	2.91	2.91	2	40 A		EVR-P4-12 - EV READY SPACE	4
7	EVR-P4-3 - EV READY SPACE		40 A	2			2.91	2.91			2	40 A		EVR-P4-13 - EV READY SPACE	8
9	EVR-P4-4 - EV READY SPACE		40 A	2	2.91	2.91	2.91	2.91	2.91	2.91	2	20 A		EVC-P4-1 - PUBLIC EV CHARGER	10
13	EVR-P4-5 - EV READY SPACE		40 A	2			2.91	2.91			2	20 A			12
15	EVR-P4-5 - EV READY SPACE		40 A	2	2.91	0			2.91	0	2	40 A		SPARE	14
17	EVR-P4-6 - EV READY SPACE		40 A	2			2.91	0			2	40 A		SPARE	16
19	EVR-P4-7 - EV READY SPACE		40 A	2	2.91	0			2.91	0	2	40 A		SPARE	18
21	EVR-P4-8 - EV READY SPACE		40 A	2			2.91	0			2	40 A		SPARE	20
23	EVR-P4-9 - EV READY SPACE		40 A	2	2.91	0	2.91	0			2	40 A		SPARE	22
25	EVR-P4-7 - EV READY SPACE		40 A	2	2.91	0	2.91	0	2.91	0	2	40 A		SPARE	26
27	EVR-P4-8 - EV READY SPACE		40 A	2	2.91	0			2.91	0	2	40 A		SPARE	28
29	EVR-P4-9 - EV READY SPACE		40 A	2	2.91	0	2.91	1.38	2.91	1.38	1	20 A		DA-14s - DIGITAL ADVERTIZING	30
31	EVR-P4-10 - EV READY SPACE		40 A	2	2.91	0.84	2.91	0.84	2.91	0.84	1	20 A		DPS-4S03-1 - POWER SUPPLY	32
33	EVR-P4-10 - EV READY SPACE		40 A	2					0	0.36	1	20 A		DPS-4S03-1 - POWER SUPPLY	34
35	EVR-P4-10 - EV READY SPACE		40 A	2							1	20 A		RECEP PUBLIC PARKING 444	36
37	EVR-P4-10 - EV READY SPACE		40 A	2							1	20 A			38
39	EVR-P4-10 - EV READY SPACE		40 A	2							1	20 A			40
41	SPARE		20 A	1							1	20 A			42
					Total Load:		30 kVA		31.3 kVA		25 kVA				
					Total Amps:		256 A		267 A		209 A				

FEEDER BREAKER NOTES:

(G) GROUND FAULT PROTECTION

(M) INTEGRAL METER

(S) SHUNT TRIP BREAKER

(ST) SHUNT TRIP BREAKER

(L/N) BREAKER LOCK IN ON POSITION

(L/F) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:

(IT) INSTANTANEOUS SETTING

(LT) LONG TERM SETTING

(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Other	85616 VA	100.00%	85616 VA	Total Conn. Load: 86 kVA
Receptacle	720 VA	100.00%	720 VA	Total Est. Demand: 86 kVA
				Total Conn.: 240 A
				Total Est. Demand: 240 A

Panelboard: L-P5

Location: PUBLIC PARKING 544

Supply From: DP-1C

Mounting: SURFACE

Enclosure: Type 1

Voltage: 208Y/120V

Phases: 3

Wires: 4

A.I.C. Rating: FIELD VERIFY

Mains Type: MLO

Bus Rating: 400 A

CKT	Circuit Description	Note	Trip	Poles	A		B		C		Poles	Trip	Note	Circuit Description	CKT
1	EV-R-P5-1 - EV READY SPACE		40 A	2	2.91	2.91	2.91	2.91			2	40 A		EV-R-P5-4 - EV READY SPACE	2
5	EV-R-P5-2 - EV READY SPACE		40 A	2	2.91	2.91			2.91	2.91	2	40 A		EV-R-P5-5 - EV READY SPACE	6
9	EV-R-P5-3 - EV READY SPACE		40 A	2			2.91	2.91			2	40 A		EV-C-P5-1 - EV CHARGER	10
11	SPARE		40 A	2	0	0	0	0			2	40 A		SPARE	12
13	SPARE		40 A	2							2	40 A		SPARE	16
15	SPARE		40 A	2					0	0	2	40 A		SPARE	18
17	SPARE		40 A	2	0	0					2	40 A		SPARE	20
19	SPARE		40 A	2			0	0			2	40 A		SPARE	22
21	SPARE		40 A	2					0	0	2	40 A		SPARE	24
23	SPARE		40 A	2	0	0	0	0			2	40 A		SPARE	26
25	SPARE		40 A	2			0	0			2	40 A		SPARE	28
27	SPARE		40 A	2							2	40 A		RECEP ACCU-1	30
29	ACCU-1 - CONDENSING UNIT		25 A	2	1.13	0.18			1.13	0.18	1	20 A		RECEP ACCU-2	32
31	ACCU-2 - CONDENSING UNIT		25 A	2			1.13	1.38			1	20 A		DA-1-5a - DIGITAL ADVERTIZING	34
33	EF-4 - EXHAUST FAN		20 A	1	0.53	1.38			1.13	1.38	1	20 A		DA-1-5b - DIGITAL ADVERTIZING	36
35	EF-4 - EXHAUST FAN		20 A	1			0.22	1.38			1	20 A		DA-1-6a - DIGITAL ADVERTIZING	38
37	EF-6 - EXHAUST FAN		20 A	1					0.36	0.84	1	20 A		DA-1-6b - DIGITAL ADVERTIZING	40
39	RECEP PUBLIC PARKING 644		20 A	1							1	20 A		DPS-ES01-1 - POWER SUPPLY	42
41	EVH-12 - ELECTRIC WALL HEATER		20 A	3	1.6	0.84	1.6	0.84			1	20 A		DPS-ES03-1 - POWER SUPPLY	44
43	EVH-12 - ELECTRIC WALL HEATER		20 A	3					1.6	0.84	1	20 A		DPS-ES01-1 - POWER SUPPLY	46
45	EVH-12 - ELECTRIC WALL HEATER		20 A	3	1	0					1	20 A		DPS-ES03-1 - POWER SUPPLY	48
47	EVH-14 - ELECTRIC WALL HEATER		20 A	3			1	0			1	20 A		SPARE	50
49	SPARE		20 A	1	0	0			1	0	1	20 A		SPARE	52
51	SPARE		20 A	1			0	0			1	20 A		SPARE	54
53	SPARE		20 A	1					0	0	1	20 A		SPARE	56
55	SPARE		20 A	1							1	20 A		SPARE	58
57	SPARE		20 A	1	0	0					1	20 A		SPARE	60
59	SPARE		20 A	1							1	20 A		SPARE	62
61	SPARE		20 A	1							1	20 A		SPARE	64
63	SPARE		20 A	1					0	0	1	20 A		SPARE	66
65	SPARE		20 A	1							1	20 A		SPARE	68
Total Load:					18.3 kVA		19.2 kVA		20.1 kVA						
Total Amps:					153 A		161 A		169 A						

FEEDER BREAKER NOTES:

(G) GROUND FAULT PROTECTION

(M) INTEGRAL METER

(S) SURGE PROTECTION

(SH) SHUNT TRIP BREAKER

(LN) BREAKER LOCK IN ON POSITION

(LF) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:

(IT) INSTANTANEOUS SETTING

(LT) LONG TERM SETTING

(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Motor	13046 VA	109.20%	14247 VA	Total Conn. Load: 58 kVA Total Est. Demand: 59 kVA Total Conn.: 160 A Total Est. Demand: 163 A
Other	43104 VA	100.00%	43104 VA	
Receptacle	1440 VA	100.00%	1440 VA	

Notes:

E

D

C

B

A

Panelboard: LH-1A														
Location: GENERATOR 187				Voltage: 480Y/277V				A.I.C. Rating: FIELD VERIFY						
Supply From: ATS-EM				Phases: 3				Mains Type: MCB						
Mounting: SURFACE				Wires: 4				Bus Rating: 400 A						
Enclosure: Type 1				MCB Rating: 300 A										
MAIN CIRCUIT BREAKER REQUIREMENTS:														
GROUND FAULT PROTECTION				SHUNT TRIP BREAKER				ADJUSTABLE LONG TERM						
INTEGRAL METER				ADJUSTABLE...				ADJUSTABLE SHORT TERM						
SURGE PROTECTION				ADJUSTABLE INSTANTANEOUS										
CKT	Circuit Description	Note	Trip	Poles	A (kVA)	B (kVA)	C (kVA)	Poles	Trip	Note	Circuit Description	CKT		
1	TL-1A		50 A	3	1.2	0		3	100 A		(PROVISIONS FOR PHASE 2 PANEL)	2		
3						1.2	0						4	
5							1.2					0		6
7					2.19	0	2.67					0		8
9	LH-1B		60 A	3			1.89	0	3	100 A	(PROVISIONS FOR PHASE 2 PANEL)	10		
11	SPARE		20 A	1				3	100 A		(PROVISIONS FOR PHASE 2 PANEL)	12		
13					0	0							14	
15					0	0	0					0		16
17					0	0						0	0	
19	(SPACE)		--	1	--	--		1	--		(SPACE)	20		
21	(SPACE)		--	1	--	--		1	--		(SPACE)	22		
23	(SPACE)		--	1	--	--		1	--		(SPACE)	24		
25	(SPACE)		--	1	--	--		1	--		(SPACE)	26		
27	(SPACE)		--	1	--	--		1	--		(SPACE)	28		
29	(SPACE)		--	1	--	--		1	--		(SPACE)	30		
31	(SPACE)		--	1	--	--		1	--		(SPACE)	32		
33	(SPACE)		--	1	--	--		1	--		(SPACE)	34		
35	(SPACE)		--	1	--	--		1	--		(SPACE)	36		
37	(SPACE)		--	1	--	--		1	--		(SPACE)	38		
39	(SPACE)		--	1	--	--		1	--		(SPACE)	40		
41	(SPACE)		--	1	--	--		1	--		(SPACE)	42		
Total Load:					3.4 kVA	3.9 kVA	3.1 kVA							
Total Amps:					12 A	14 A	11 A							
FEEDER BREAKER NOTES:														
(G) GROUND FAULT PROTECTION				(LN) BREAKER LOCK IN ON POSITION				(IT) INSTANTANEOUS SETTING						
(M) INTEGRAL METER				(LF) BREAKER LOCK IN OFF POSITION				(LT) LONG TERM SETTING						
(S) SURGE PROTECTION								(ST) SHORT TERM SETTING						
(ST) SHUNT TRIP BREAKER								(MT) MAGNETIC ADJUSTABLE						
Panel Totals														
Load Classification					Connected Load	Demand Factor	Estimated Demand							
Other					3662 VA	100.00%	3662 VA	Total Conn. Load: 10 kVA						
Lighting					6686 VA	100.00%	6686 VA	Total Est. Demand: 10 kVA						
								Total Conn.: 12 A						
								Total Est. Demand: 12 A						
Notes:														
PROVIDE SURGE PROTECTION PER NEC 700.8														

Panelboard: LH-1B

Location: GENERATOR 187

Supply From: LH-1A

Mounting: SURFACE

Enclosure: Type 1

Voltage: 480Y/277V

Phases: 3

Wires: 4

A.I.C. Rating: FIELD VERIFY

Mains Type: MLO

Bus Rating: 100 A

CKT	Circuit Description	Note	Trip	Poles	A (kVA)	B (kVA)	C (kVA)	Poles	Trip	Note	Circuit Description	CKT
1	EMERGENCY/EGRESS LIGHTING		20 A	1	1.38	0		1	20 A		SPARE	2
3	EMERGENCY/EGRESS LIGHTING		20 A	1		1.6	0		1	20 A	SPARE	4
5	EMERGENCY/EGRESS LIGHTING		20 A	1			0.84	0	1	20 A	SPARE	6
7	EMERGENCY/EGRESS LIGHTING		20 A	1	0.81	0		1	20 A		SPARE	8
9	EMERGENCY/EGRESS LIGHTING		20 A	1		1.07	0	1	20 A		SPARE	10
11	EMERGENCY/EGRESS LIGHTING		20 A	1			1.06	0	1	20 A	SPARE	12
Total Load:					2.2 kVA	2.7 kVA	1.9 kVA					
Total Amps:					8 A	10 A	7 A					

FEEDER BREAKER NOTES:

(G) GROUND FAULT PROTECTION

(M) INTEGRAL METER

(S) SURGE PROTECTION

(ST) SHUNT TRIP BREAKER

(LN) BREAKER LOCK IN ON POSITION

(LF) BREAKER LOCK IN OFF POSITION

ADJUSTABLE TRIP SETTINGS:

(IT) INSTANTANEOUS SETTING

(LT) LONG TERM SETTING

(ST) SHORT TERM SETTING

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals
Other	60 VA	100.00%	60 VA	Total Conn. Load: 7 kVA
Lighting	6686 VA	100.00%	6686 VA	Total Est. Demand: 7 kVA
				Total Conn.: 8 A
				Total Est. Demand: 8 A

Notes:

PROVIDE SURGE PROTECTION PER NEC 700.8

Panelboard: OH-1A															
Location: GENERATOR 187					Voltage: 480Y/277V					A.I.C. Rating: FIELD VERIFY					
Supply From: ATS-SB					Phases: 3					Mains Type: MCB					
Mounting: SURFACE					Wires: 4					Bus Rating: 600 A					
Enclosure: Type 1										MCB Rating: 600 A					
MAIN CIRCUIT BREAKER REQUIREMENTS:															
GROUND FAULT PROTECTION					SHUNT TRIP BREAKER					ADJUSTABLE LONG TERM					
INTEGRAL METER					ADJUSTABLE...					ADJUSTABLE SHORT TERM					
SURGE PROTECTION										ADJUSTABLE INSTANTANEOUS					
CKT	Circuit Description	Note	Trip	Poles	A (kVA)	B (kVA)	C (kVA)	Poles	Trip	Note	Circuit Description	CKT			
1	ELEV-1 - ELEVATOR	70 A	3		9.42	13.67		3	125 A		TO-1A	2			
3						9.42	12					4			
5							9.42	12.93				6			
7					9.42	3.05						8			
9	ELEV-3a - ELEVATOR	70 A	3		9.42	3.05		3	20 A		SP-4 - SUMP PUMP	10			
11						9.42	3.05					12			
13															14
15	ELEV-3b - ELEVATOR				9.42	0		9.42			0		1	20 A	SPARE
17	SPARE	20 A	1					1	20 A	SPARE	18				
19	SPARE	20 A	1	0	0			1	20 A	SPARE	20				
21	SPARE	20 A	1		0	0		1	20 A	SPARE	22				
23	SPARE	20 A	1				0	0	1	20 A	SPARE	24			
25	SPARE	20 A	1	0	0			1	20 A	SPARE	26				
27	SPARE	20 A	1		0	0		1	20 A	SPARE	28				
29	SPARE	20 A	1				0	0	1	20 A	SPARE	30			
31	SPARE	20 A	1	0	0			1	20 A	SPARE	32				
33	SPARE	20 A	1			0	0	1	20 A	SPARE	34				
35	SPARE	20 A	1					0	0	1	20 A	SPARE	36		
37	SPARE	20 A	1	0	0						(PROVISIONS FOR PHASE 2 PANEL)	38			
39	SPARE	20 A	1			0	0		3	400 A		40			
41	SPARE	20 A	1				0	0					42		
Total Load:					45 kVA	43.3 kVA	44.2 kVA								
Total Amps:					163 A	156 A	160 A								
FEEDER BREAKER NOTES:															
(G) GROUND FAULT PROTECTION					(LN) BREAKER LOCK IN ON POSITION					(LT) INSTANTANEOUS SETTING					
(M) INTEGRAL METER					(LF) BREAKER LOCK IN OFF POSITION					(L/T) LONG TERM SETTING					
(S) SURGE PROTECTION										(ST) SHORT TERM SETTING					
(ST) SHUNT TRIP BREAKER										(MT) MAGNETIC ADJUSTABLE					
Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals											
Motor	96468 VA	107.33%	103535 VA	Total Conn. Load: 133 kVA											
Other	32472 VA	100.00%	32472 VA	Total Est. Demand: 140 kVA											
Receptacle	3600 VA	100.00%	3600 VA	Total Conn: 159 A											
				Total Est. Demand: 168 A											
Notes:															
PROVIDE SURGE PROTECTION PER NEC 708.6															

SYSTEMS GENERAL NOTES:

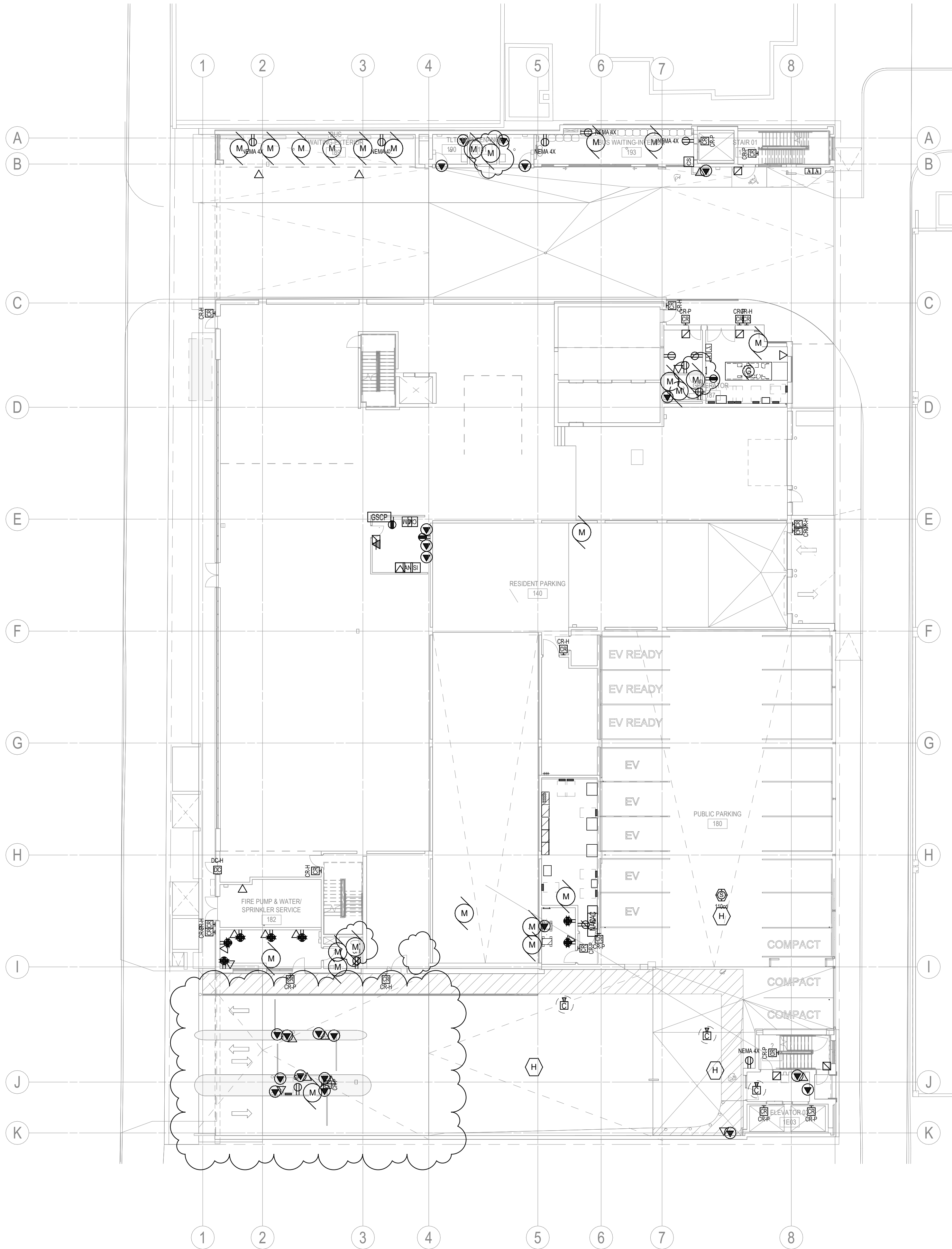
- REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
- ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN ELECTRICAL METAL TUBING (EMT) WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES.
- TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING. SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
- COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
- COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.

ACCESS CONTROL GENERAL NOTES:

- REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
- DIVISION 26 CONTRACTOR SHALL PROVIDE ALL CONDUIT PATHWAYS, BACKBOXES, JUNCTION BOXES, DISCONNECT SWITCHES AND BRANCH/FEEDER CONDUCTORS AS SHOWN AND/OR SPECIFIED TO ALLOW INSTALLATION OF DOOR CONTROL AND SECURITY DEVICES.
- DOOR HARDWARE DEVICES INCLUDING BUT NOT LIMITED TO ELECTRIC STRIKES, ELECTRONIC LOCKS, ELECTRIC POWER TRANSFER, ELECTRIC HINGES, DOOR MOTOR OPERATORS, PUSH BUTTONS, KEY SWITCHES, CONTROLLERS, EMERGENCY RELEASE BUTTONS, DOOR OPERATOR AND POWER SUPPLIES SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AND THE ACCESS CONTROL CONTRACTOR. DEVICES SHALL BE INSTALLED AND WIRE BY ACCESS CONTROL CONTRACTOR.
- COORDINATE ALL REQUIREMENTS AT EACH DOOR WITH OWNER AND CONSTRUCTION MANAGER PRIOR TO THE INSTALLATION OF ANY DEVICES.
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- COORDINATE LOCATIONS OF PATHWAYS, OUTLET BOXES AND ACCESS CONTROL HARDWARE WITHIN BUILDING WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY DEVICES.
- ALL SECURITY SYSTEM DEVICES, INCLUDING BUT NOT LIMITED TO CARD READERS, DOOR POSITION SWITCHES, REQUEST TO EXIT DEVICES, MAGNETIC LOCKS, POWER SUPPLIES, DOOR CONTROLLERS AND LOW VOLTAGE WIRING BETWEEN THESE DEVICES AT EACH DOOR ARE PROVIDED BY THE CONTRACTOR. REFER TO SPECIFICATION DIVISION 28.

POWER GENERAL NOTES:

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- VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
- ACCESS CONTROL SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - C - CITY
 - P - PARKING UTILITY
 - H - HOUSING
- LOW VOLTAGE DATA SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - B - BUS TERMINAL
 - C - CITY
- LOW VOLTAGE SURVEILLANCE SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - B - BUS TERMINAL
 - C - CITY



1 1ST FLR OVERALL - PHASE 1 - POWER/SYSTEMS
EP1001-1 SCALE: 1/8" = 1'-0"



milwaukee | madison | green bay | denver | atlanta

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MADISON, WI 53711
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JDR Project No: 22.0249

PROJECT INFORMATION

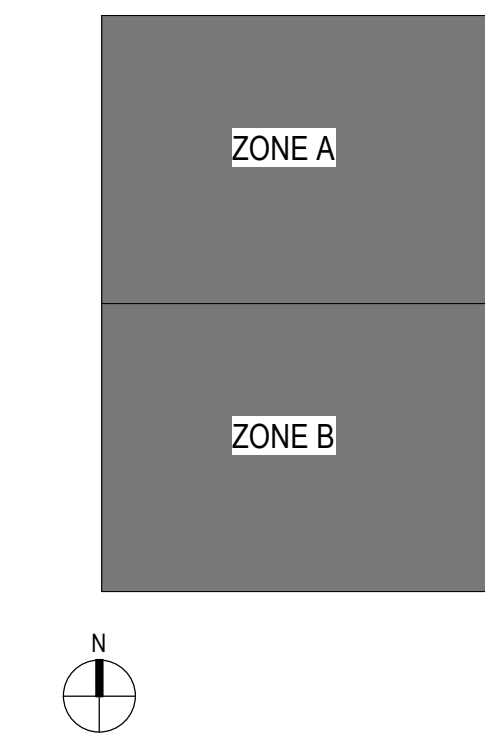
**STATE STREET
CAMPUS GARAGE
MIXED-USE**

**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PH1, ADD2

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

**1ST FLR OVERALL -
PHASE 1 -
POWER/SYSTEMS**

EP1001-1

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SYSTEMS GENERAL NOTES:

- REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
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- TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING. SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
- COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
- COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.

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- ALL SECURITY SYSTEM DEVICES, INCLUDING BUT NOT LIMITED TO CARD READERS, DOOR POSITION SWITCHES, REQUEST TO EXIT DEVICES, MAGNETIC LOCKS, POWER SUPPLIES, DOOR CONTROLLERS AND LOW VOLTAGE WIRING BETWEEN THESE DEVICES AT EACH DOOR ARE PROVIDED BY THE CONTRACTOR. REFER TO SPECIFICATION DIVISION 28.

POWER GENERAL NOTES:

- REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
- THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
- VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
- ACCESS CONTROL SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - C - CITY
 - * REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - P - PARKING UTILITY
 - * REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - H - HOUSING
 - * PHASE 1 CONTRACTOR TO PROVIDE ROUGH-IN BOX AND CONDUIT FOR PHASE 2 INSTALLATION. COORDINATE FINAL LOCATION/REQUIREMENTS WITH PHASE 2 CONTRACTOR.
- LOW VOLTAGE DATA SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - B - BUS TERMINAL
 - * REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - C - CITY
 - * REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
- LOW VOLTAGE SURVEILLANCE SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - B - BUS TERMINAL
 - * REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - C - CITY
 - * REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.

KEYED NOTES

(KEYED NOTES PER PROJECT)

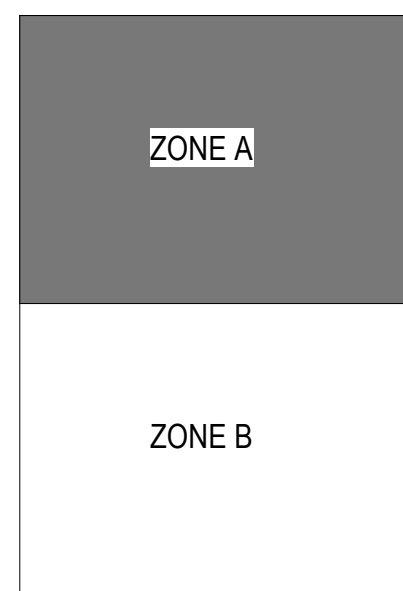
- P6 ALL ELECTRICAL AND LOW VOLTAGE CONDUIT IN THIS AREA TO BE CONCEALED WITHIN CMU WALLS. COORDINATE FINAL CONDUIT ROUTING WITH GC.
- P7 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 400KW DIESEL GENERATOR WITH BELLY TANK SIZED FOR 12 HOURS OF RUNTIME. ALL FUSES/BREAKERS FOR NEC 685/700/701 BRANCHES SHALL BE SELECTIVELY COORDINATED WITH DOWNSTREAM OVER CURRENT PROTECTION DEVICES.
- P8 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 600A PANEL "OH-1A". PROVIDE FUSED COORDINATION PANEL EQUAL TO BUSSMAN QSCP SERIES.
- P9 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V PRIMARY, 208Y/120V SECONDARY, 75 KVA TRANSFORMER "TO-1A".
- P10 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 225A PANEL "OL-1A". PROVIDE FUSED COORDINATION PANEL EQUAL TO BUSSMAN QSCP SERIES.
- P11 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 400A BUS, 300A TRIP PANEL "LH-1A". PROVIDE FUSED COORDINATION PANEL EQUAL TO BUSSMAN QSCP SERIES.
- P12 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V PRIMARY, 208Y/120V SECONDARY, 30 KVA TRANSFORMER "TL-1A".
- P13 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 100A PANEL "TL-1A". PROVIDE FUSED COORDINATION PANEL EQUAL TO BUSSMAN QSCP SERIES.
- P14 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 600A, AUTOMATIC TRANSFER SWITCH "ATS-SB".
- P15 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 300A, AUTOMATIC TRANSFER SWITCH "ATS-EM".
- P16 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 1000A, NEMA 3RX, TEMPORARY GENERATOR MAINTENANCE BYPASS SWITCH "GMB-S" WITH CAM-LOCKS SUITABLE FOR TEMPORARY GENERATOR CONNECTION AND LOAD BANK TESTING.
- P17 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 300A, NEMA 3RX, TEMPORARY GENERATOR MAINTENANCE BYPASS SWITCH "FPMB-S" WITH CAM-LOCKS SUITABLE FOR TEMPORARY GENERATOR CONNECTION AND LOAD BANK TESTING.
- P34 ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 100A PANEL "LH-1B". PROVIDE SQUARE D POWERLINK LIGHTING CONTROL PANEL TO FEED PARKING GARAGE LIGHTING. PROVIDE SUBNET CABLE FROM MASTER PANEL "H-1B" LOCATED IN CITY ELECTRICAL ROOM.
- S1 PROVIDE AND INSTALL EMERGENCY CALL DEVICE FOR ELEVATOR TWO WAY COMMUNICATION. POST SIGN AT DEVICE. COORDINATE EXACT LOCATION WITH OWNER. CONNECT TO BASE STATION POWER SUPPLY LOCATED IN 1ST FLOOR FIRE COMMAND CENTER.
- S2 PROVIDE AND INSTALL ELEVATOR TWO-WAY COMMUNICATION BASE STATION AND POWER SUPPLY. CONNECT TO CALL STATIONS AND PROVIDE PHONE CONNECTIONS TO RESPECTIVE FLOORS AS REQUIRED. COORDINATE EXACT LOCATION OF ARA CONTROL PANEL WITH AHJ/FIRE MARSHALL. TWO-WAY ELEVATOR COMMUNICATION SHALL HAVE PROVISIONS/CAPABILITIES TO EXPAND/INTEGRATE PHASE 2 DEVICES. COORDINATE EXACT REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.
- S3 PROVIDE AND INSTALL FIRE ALARM CONTROL PANEL SYSTEM WITH VOICE EVACUATION CAPABILITIES. COORDINATE EXACT LOCATION OF FIRE ALARM CONTROL PANEL, FIRE ALARM ANNUNCIATOR PANEL, ETC. WITH AHJ/FIRE MARSHALL. FIRE ALARM SYSTEM SHALL HAVE PROVISIONS/CAPABILITIES TO EXPAND/INTEGRATE PHASE 2 DEVICES. COORDINATE EXACT REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.
- S4 PROVIDE AND INSTALL CONTROL RELAY(S) AS REQUIRED FOR ELEVATOR RECALL SWITCHES. COORDINATE EXACT LOCATION OF ELEVATOR RECALL SWITCHES WITH AHJ/FIRE MARSHALL. COORDINATE ROUGH-IN REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.
- S5 PROVIDE AND INSTALL ANNUNCIATORS FOR WATERFLOW/SPRINKLER VALVES.
- S6 PROVIDE AND INSTALL HEAD END CONTROLS FOR ACCESS CONTROL DOOR UNLOCKING SYSTEM. COORDINATE FINAL LOCATION WITH ACCESS CONTROL VENDOR. COORDINATE ROUGH-IN REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.
- S7 FIRE PUMP STATUS INDICATOR TO BE PROVIDED AS PART OF PHASE 2 WORK. COORDINATE ROUGH-IN REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.
- S8 PROVIDE AND INSTALL DEDICATED ELEVATOR PHONE LINE TO THIS APPROXIMATE LOCATION FOR FIRE DEPARTMENT USE.
- S9 PUBLIC SAFETY BI-DIRECTIONAL AMPLIFIER/DISTANTLY MOUNTED ANTENNA SYSTEM TO BE PROVIDED AS PART OF PHASE 2 WORK. COORDINATE ROUGH-IN REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.
- S10 PROVIDE AND INSTALL NEW GENERATOR STATUS INDICATOR, REMOTE ANNUNCIATOR PANEL.
- S11 PROVIDE AND INSTALL TYPICAL GROUND BUS BAR(TGB) 1/4"x2"x24" WITH A #6 COPPER GROUND CONDUCTOR FROM BUILDING SERVICE GROUND.
- S13 SMOKE CONTROL PANEL FOR STAIRWELL PRESSURIZATION TO BE PROVIDED AS PART OF PHASE 2 WORK. COORDINATE ROUGH-IN REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.
- S14 PROVIDE AND INSTALL FIRE ALARM CELLULAR DIAL AND FIRE ALARM DOCUMENT BOX. COORDINATE ROUGH-IN REQUIREMENTS WITH PHASE 2 ELECTRICAL CONTRACTOR.

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PH1, A02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

1ST FLR - ZONE A -
PHASE 1 -
POWER/SYSTEMS

EP1001-A-1

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MADISON, WI 53711
PH: 608.277.1728 FAX: 608.271.7046
JDR Project No. 22.0249

PROJECT INFORMATION

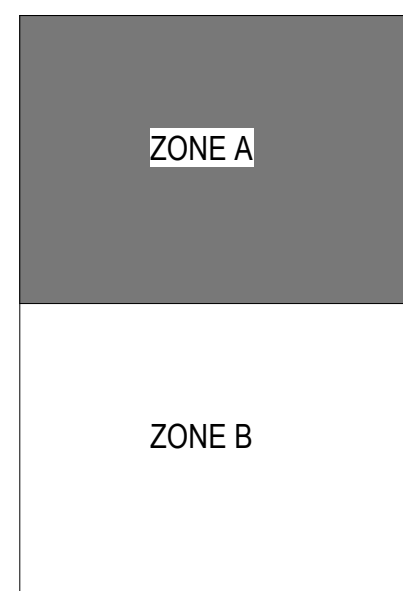
STATE STREET
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KEY PLAN



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1ST FLR - ZONE A -
PHASE 1 -
POWER/SYSTEMS

EP1001-A-1

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E

D

C

B

A

1ST FLR - ZONE B - PHASE 1 - POWER/SYSTEMS
EP1001-B-1 SCALE: 1/8" = 1'-0"

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* PHASE 1 CONTRACTOR TO PROVIDE ROUGH-IN BOX AND CONDUIT FOR PHASE 2 INSTALLATION. COORDINATE FINAL LOCATION/REQUIREMENTS WITH PHASE 2 CONTRACTOR.
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KEYED NOTES:

- (KEYED NOTES PER PROJECT)
- ELECTRICAL CONTRACTOR TO PROVIDE SQUARE D POWERLINK NF3500G4 CONTROLLER TO CONTROL PARKING GARAGE LIGHTING. FINAL SEQUENCING/SCHEDULING TO BE COORDINATED WITH OWNER.
 - ALL ELECTRICAL AND LOW VOLTAGE CONDUIT IN THIS AREA TO BE CONCEALED WITHIN CMU WALLS. COORDINATE FINAL CONDUIT ROUTING WITH GC.
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 3000A SWITCHBOARD "SWBD-HC".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 250A PANEL "H-1A".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V PRIMARY, 208Y/120V SECONDARY, 300 KVA TRANSFORMER "T-1A".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 225A PANEL "L-1A".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 125A PANEL "H-1B". PROVIDE SQUARE D POWERLINK LIGHTING CONTROL PANEL TO FEED PARKING GARAGE LIGHTING. PROVIDE SUBNET CABLE TO SLAVE PANELS "LH-1B" LOCATED IN GENERATOR ROOM, AND "HLA" LOCATED IN CITY ELECTRICAL ROOM.
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V PRIMARY, 208Y/120V SECONDARY, 300 KVA TRANSFORMER "T-L-DP1A".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 800A DISTRIBUTION PANEL "DP-1A".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 400A PANEL "L-1B".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V PRIMARY, 208Y/120V SECONDARY, 300 KVA TRANSFORMER "T-L-DP1B".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 800A DISTRIBUTION PANEL "DP-1B".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V PRIMARY, 208Y/120V SECONDARY, 300 KVA TRANSFORMER "T-L-DP1C".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 800A DISTRIBUTION PANEL "DP-1C".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 125A PANEL "H-1B" TO FEED BUS TERMINAL.
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V PRIMARY, 208Y/120V SECONDARY, 30 KVA TRANSFORMER "T-BT".
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 208Y/120V, 3-PHASE, 4-WIRE, 100A PANEL "L-1B" TO FEED BUS TERMINAL.
 - ELECTRICAL CONTRACTOR TO PROVIDE 208V/1P, 125A FEEDER TO PRE-FABRICATED TICKET BOOTH. 208V/1P, 125A, 3W LOAD CENTER PROVIDED BY OTHERS.
 - SWITCHBOARD "SWBD-HC" TO BE PROVIDED WITH INTEGRAL METER WITH AUXILIARY CONTACT TO TIE INTO BAS MONITORING SYSTEM. COORDINATE BAS CONNECTION WITH OWNER CONTROL GROUP.
 - ELECTRICAL CONTRACTOR TO PROVIDE 1-1/2" SLEEVE PENETRATION FOR ELECTRIC VEHICLE CHARGER. PROVIDE SLEEVE CAP FOR FUTURE ELECTRIC VEHICLE CHARGER LOCATIONS. COORDINATE FINAL SLEEVE LOCATION WITH OWNER/GC.
 - ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL NEW 480Y/277V, 3-PHASE, 4-WIRE, 100A PANEL "HLA". PROVIDE SQUARE D POWERLINK LIGHTING CONTROL PANEL. PROVIDE SUBNET CABLE FROM MASTER PANEL "H-1B" LOCATED IN CITY ELECTRICAL ROOM. PROVIDE INTEGRAL METER WITH AUXILIARY CONTACT TO TIE INTO BAS MONITORING SYSTEM FOR SHARED LOWER LEVEL EQUIPMENT.
 - ELECTRICAL CONTRACTOR TO PROVIDE HEAT TRACE FOR PLUMBING PIPING. COORDINATE EXACT LOCATION WITH GC.
 - PROVIDE AND INSTALL EMERGENCY CALL DEVICE FOR ELEVATOR TWO WAY COMMUNICATION. POST SIGNS AT DEVICE. COORDINATE EXACT LOCATION WITH OWNER. CONNECT TO BASE STATION POWER SUPPLY LOCATED IN 1ST FLOOR FIRE COMMAND CENTER.
 - PROVIDE AND INSTALL TYPICAL GROUND BUS BAR(TGB) 1/4"x2"x24" WITH A #6 COPPER GROUND CONDUCTOR FROM BUILDING SERVICE GROUND.
 - PROVIDE AND INSTALL TELECOMMUNICATIONS TERMINAL BOARD, 4'x8'x3/4" A-C GRADE FIRE-RATED PLYWOOD ON ALL WALLS. EXPOSED SIDE OF PLYWOOD SHALL BE SMOOTH. MOUNT VERTICALLY WITH TOP OF PLYWOOD AT 8'-6" AFF.
 - PROVIDE AND INSTALL 2-POST DATA RACK. REFER TO DIVISION 27 SPECIFICATION FOR ALL REQUIREMENTS. COORDINATE FINAL LAYOUT/REQUIREMENTS WITH OWNER.
 - PROVIDE AND INSTALL POWER SUPPLY/CONTROL PANELS ON PLYWOOD BACKBOARD. REFER TO DIVISION 27 SPECIFICATION FOR ALL REQUIREMENTS. COORDINATE FINAL LAYOUT/REQUIREMENTS WITH OWNER.
 - PROVIDE AND INSTALL FIBER SWITCH EQUAL TO CISCO 9500 SERIES WITH 48 PORTS. REFER TO DIVISION 27 SPECIFICATION FOR ALL REQUIREMENTS. COORDINATE FINAL LAYOUT/REQUIREMENTS WITH OWNER.
 - PROVIDE AND INSTALL COPPER SWITCH EQUAL TO CISCO 9300X SERIES WITH 48 PORTS. REFER TO DIVISION 27 SPECIFICATION FOR ALL REQUIREMENTS. COORDINATE FINAL LAYOUT/REQUIREMENTS WITH OWNER.

PROJECT INFORMATION

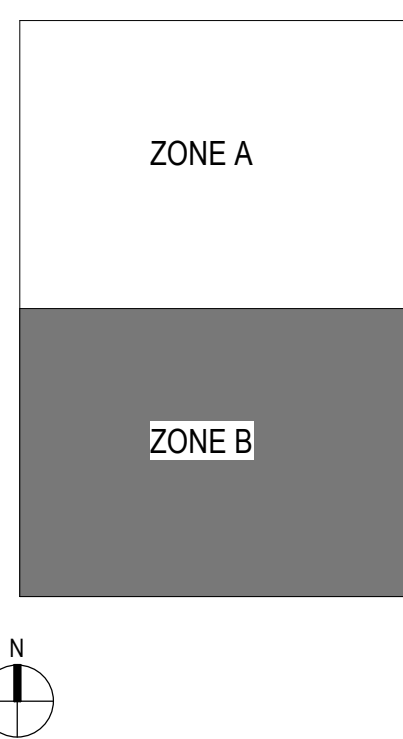
STATE STREET
CAMPUX GARAGE
MIXED-USE

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
05-05-2023	SCHEMATIC DESIGN PH1
07-28-2023	DETAILED DESIGN PH1
10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PH1, AD02

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 720448

1ST FLR - ZONE B -
PHASE 1 -
POWER/SYSTEMS

EP1001-B-1

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SYSTEMS GENERAL NOTES:

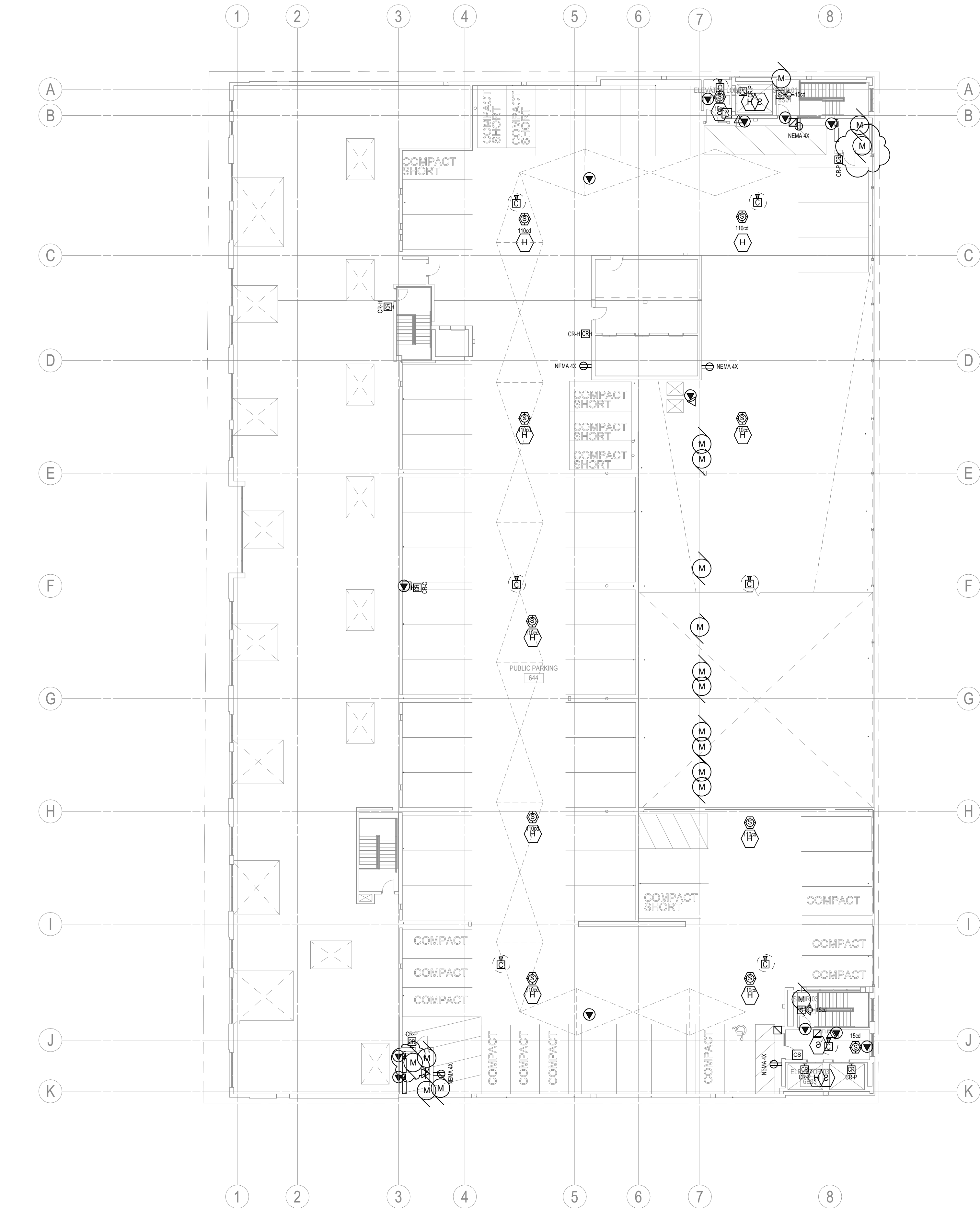
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- TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING. SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
- COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
- COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.

ACCESS CONTROL GENERAL NOTES:

- REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
- DIVISION 26 CONTRACTOR SHALL PROVIDE ALL CONDUIT PATHWAYS, BACKBOXES, JUNCTION BOXES, DISCONNECT SWITCHES AND BRANCH/FEEDER CONDUCTORS AS SHOWN AND/OR SPECIFIED TO ALLOW INSTALLATION OF DOOR CONTROL AND SECURITY DEVICES.
- DOOR HARDWARE DEVICES INCLUDING BUT NOT LIMITED TO ELECTRIC STRIKES, ELECTRONIC LOCKS, ELECTRIC POWER TRANSFER, ELECTRIC HINGES, DOOR MOTOR OPERATORS, PUSH BUTTONS, KEY SWITCHES, CONTROLLERS, EMERGENCY RELEASE BUTTONS, DOOR OPERATOR AND POWER SUPPLIES SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AND THE ACCESS CONTROL CONTRACTOR. DEVICES SHALL BE INSTALLED AND WIRE BY ACCESS CONTROL CONTRACTOR.
- COORDINATE ALL REQUIREMENTS AT EACH DOOR WITH OWNER AND CONSTRUCTION MANAGER PRIOR TO THE INSTALLATION OF ANY DEVICES.
- LOW VOLTAGE ACCESS CONTROL SYSTEM CABLING SHALL BE PROVIDED AND INSTALLED BY THE ACCESS CONTROL CONTRACTOR. CABLE INSTALLATION SHALL UTILIZE CONDUIT TO ACCESSIBLE CEILING AND J-HOOK TYPE SUPPORT TO NEAREST CABLE TRAY SYSTEM. ACCESS CONTROL AND SECURITY SYSTEM CABLING SHALL BE SEPARATELY BUNDLED WITHIN CABLE TRAYS. LOW VOLTAGE CABLING SHALL MEET FLAME PROPAGATION REQUIREMENTS OF IEEE 1202.
- COORDINATE LOCATIONS OF PATHWAYS, OUTLET BOXES AND ACCESS CONTROL HARDWARE WITHIN BUILDING WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY DEVICES.
- ALL SECURITY SYSTEM DEVICES, INCLUDING BUT NOT LIMITED TO CARD READERS, DOOR POSITION SWITCHES, "REQUEST TO EXIT" DEVICES, MAGNETIC LOCKS, POWER SUPPLIES, DOOR CONTROLLERS AND LOW VOLTAGE WIRING BETWEEN THESE DEVICES AT EACH DOOR ARE PROVIDED BY THE CONTRACTOR. REFER TO SPECIFICATION DIVISION 28.

POWER GENERAL NOTES:

- REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
- THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THWN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
- VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
- ACCESS CONTROL SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - C - CITY
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - P - PARKING UTILITY
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - H - HOUSING
 - *PHASE 1 CONTRACTOR TO PROVIDE ROUGH-IN BOX AND CONDUIT FOR PHASE 2 INSTALLATION. COORDINATE FINAL LOCATION/ REQUIREMENTS WITH PHASE 2 CONTRACTOR.
- LOW VOLTAGE DATA SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - B - BUS TERMINAL
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - C - CITY
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
- LOW VOLTAGE SURVEILLANCE SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
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 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - C - CITY
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.



1 EP1006-1 P6 FLR OVERALL - PHASE 1 - POWER/SYSTEMS SCALE: 1/16" = 1'-0"



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JDR Project No: 22.0249

PROJECT INFORMATION

STATE STREET
CAMPUS GARAGE
MIXED-USE

D

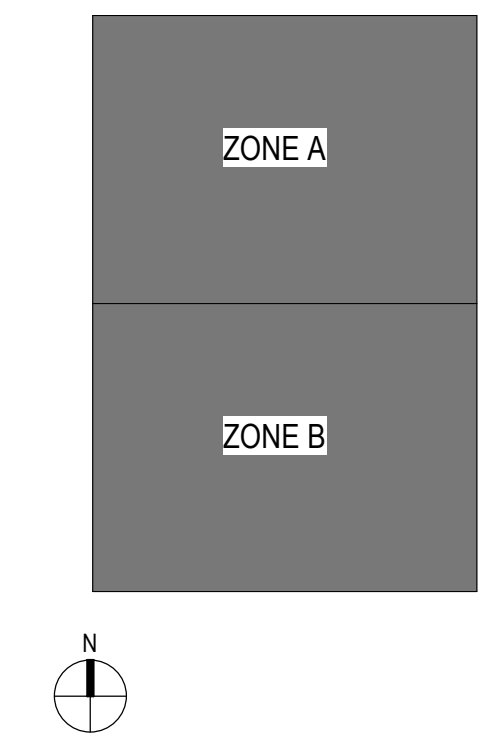
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10-02-2023	CONSTRUCTION DOCUMENTS PH 1
11-02-2023	PH1, AD02

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

A

PROJECT NUMBER 720448

P6 FLR OVERALL -
PHASE 1 -
POWER/SYSTEMS

EP1006-1

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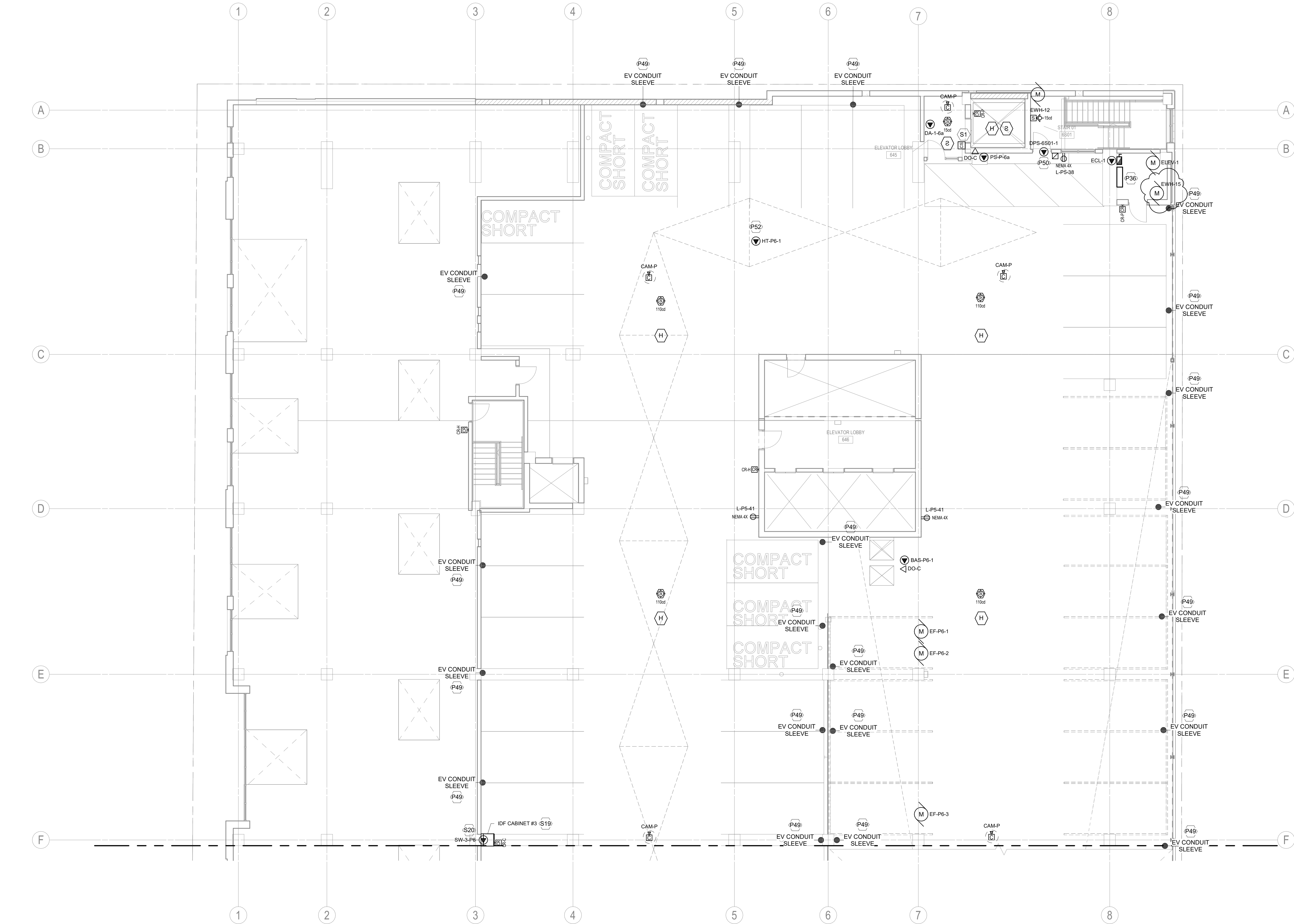
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1 P6 FLR - ZONE A - PHASE 1 - POWER/SYSTEMS
EP1006-A-1 SCALE: 1/8" = 1'-0"

SYSTEMS GENERAL NOTES:

1. REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. ALL LOW VOLTAGE CABLES OR CONDUCTORS OPERATING AT LESS THAN 50 VOLTS SHALL BE IN ELECTRICAL METAL TUBING (EMT) WHERE INSTALLED WITHIN WALLS OR INACCESSIBLE SPACES.
3. TELEPHONE OUTLETS, AND DATA OUTLETS SHALL CONSIST OF A BACK BOX WITH CONDUIT STUBBED ABOVE THE ACCESSIBLE CEILING, SEE ROUGH-IN DETAIL. VERIFY SIZE OF BACK BOX REQUIRED WITH DEVICE TO BE INSTALLED. LOCATE BACK BOXES 6" FROM ADJACENT POWER RECEPTACLE INTENDED FOR COMPUTER USE.
4. COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
5. COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.

ACCESS CONTROL GENERAL NOTES:

1. REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. DIVISION 26 CONTRACTOR SHALL PROVIDE ALL CONDUIT PATHWAYS, BACKBOXES, JUNCTION BOXES, DISCONNECT SWITCHES AND BRANCH FEEDER CONDUCTORS AS SHOWN AND/OR SPECIFIED TO ALLOW INSTALLATION OF DOOR CONTROL AND SECURITY DEVICES.
3. DOOR HARDWARE DEVICES INCLUDING BUT NOT LIMITED TO ELECTRIC STRIKES, ELECTRONIC LOCKS, ELECTRIC POWER TRANSFER, ELECTRIC HINGES, DOOR MOTOR OPERATORS, PUSH BUTTONS, KEY SWITCHES, CONTROLLERS, EMERGENCY RELEASE BUTTONS, DOOR OPERATOR AND POWER SUPPLIES SHALL BE PROVIDED BY THE GENERAL CONTRACTOR AND THE ACCESS CONTROL CONTRACTOR. DEVICES SHALL BE INSTALLED AND WIRE BY ACCESS CONTROL CONTRACTOR.
4. COORDINATE ALL REQUIREMENTS AT EACH DOOR WITH OWNER AND CONSTRUCTION MANAGER PRIOR TO THE INSTALLATION OF ANY DEVICES.
5. LOW VOLTAGE ACCESS CONTROL SYSTEM CABLING SHALL BE PROVIDED AND INSTALLED BY THE ACCESS CONTROL CONTRACTOR. CABLE INSTALLATION SHALL UTILIZE CONDUIT TO ACCESSIBLE CEILING AND J-HOOK TYPE SUPPORT TO NEAREST CABLE TRAY SYSTEM. ACCESS CONTROL AND SECURITY SYSTEM CABLING SHALL BE SEPARATELY BUNDLED WITHIN CABLE TRAYS. LOW VOLTAGE CABLING SHALL MEET FLAME PROPAGATION REQUIREMENTS OF IEEE 1202.
6. COORDINATE LOCATIONS OF PATHWAYS, OUTLET BOXES AND ACCESS CONTROL HARDWARE WITHIN BUILDING WITH GENERAL CONTRACTOR PRIOR TO INSTALLATION OF ANY DEVICES.
7. ALL SECURITY SYSTEM DEVICES, INCLUDING BUT NOT LIMITED TO CARD READERS, DOOR POSITION SWITCHES, "REQUEST TO EXIT" DEVICES, MAGNETIC LOCKS, POWER SUPPLIES, DOOR CONTROLLERS AND LOW VOLTAGE WIRING BETWEEN THESE DEVICES AT EACH DOOR ARE PROVIDED BY THE CONTRACTOR. REFER TO SPECIFICATION DIVISION 28.

POWER GENERAL NOTES:

1. REFER TO SHEET E0000-1 FOR ALL SYMBOLS, ABBREVIATIONS, AND DETAILS.
2. THE CONTRACTOR MAY INSTALL UP TO THREE (3) CURRENT CARRYING CONDUCTORS IN A CONDUIT. LOADINGS ARE BASED ON THW IN INSULATION, 40°C AMBIENT WITH DERATINGS FOR TEMPERATURE AND UP TO THREE (3) CONDUCTORS IN A CONDUIT. CONTACT THE ENGINEER FOR WIRING IN OTHER CONDITIONS.
3. VERIFY ALL MOUNTING HEIGHTS OF DEVICES ABOVE MILLWORK WITH ARCHITECTURAL PLANS.
4. ACCESS CONTROL SYMBOLS SHOWN HAVE SUFFIXES SERVING THE FOLLOWING PORTIONS OF THE BUILDING:
 - C - CITY
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - P - PARKING UTILITY
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.
 - H - HOUSING
 - *PHASE 1 CONTRACTOR TO PROVIDE ROUGH-IN BOX AND CONDUIT FOR PHASE 2 INSTALLATION. COORDINATE FINAL LOCATION/REQUIREMENTS WITH PHASE 2 CONTRACTOR.
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 - B - BUS TERMINAL
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 - C - CITY
 - *REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.

KEYED NOTES


(KEYED NOTES PER PROJECT)

- P36 ELECTRICAL CONTRACTOR TO PROVIDE SHUNT TRIP BREAKER AT ELEVATOR CONTROLLER LOCATION. PROVIDE A MANUAL STATER LABELED 'ELEVATOR CAR LIGHTS' FOR ELEVATOR CAR LIGHTING CONTROL. FEED ELEVATOR CAR LIGHTS FROM DEDICATED CIRCUIT SHOWN. PROVIDE POWER WIRING FROM PANEL, THROUGH DISCONNECT, TO ELEVATOR CONTROLLER, TO MOTOR. PROVIDE A BUSSMAN POWER MODULE OR EQUIVALENT, FOR ELEVATOR RECALL.
- P49 ELECTRICAL CONTRACTOR TO PROVIDE 1-1/2" SLEEVE PENETRATION FOR ELECTRIC VEHICLE CHARGER. PROVIDE SLEEVE CAP FOR FUTURE ELECTRIC VEHICLE CHARGER LOCATIONS. COORDINATE FINAL SLEEVE LOCATION WITH OWNER/GC.
- P50 ELECTRICAL CONTRACTOR TO PROVIDE JUNCTION BOX AND FEEDER FOR ACCESS CONTROL POWER SUPPLY. COORDINATE JUNCTION BOX LOCATION WITH ACCESS CONTROL SUPPLIER.
- P52 ELECTRICAL CONTRACTOR TO PROVIDE HEAT TRACE FOR PLUMBING PIPING. COORDINATE EXACT LOCATION WITH PC.
- S1 PROVIDE AND INSTALL EMERGENCY CALL DEVICE FOR ELEVATOR TWO WAY COMMUNICATION. POST SIGNS AT DEVICE. COORDINATE EXACT LOCATION WITH OWNER. CONNECT TO BASE STATION POWER SUPPLY LOCATED IN 1ST FLOOR FIRE COMMAND CENTER.
- S19 PROVIDE AND INSTALL WALL MOUNTED DATA CABINET. REFER TO DIVISION 27 SPECIFICATION FOR ALL REQUIREMENTS. COORDINATE FINAL LAYOUT/REQUIREMENTS WITH OWNER. PROVIDE AND INSTALL (1) 2" PVC CONDUIT WITH (1) 240T FIBER CABLE ROUTED TO IDF BOX, AND (1) 2" PVC CONDUIT FOR FUTURE FIBER CABLE.
- S20 PROVIDE AND INSTALL FIBER SWITCH EQUAL TO CISCO IE-3220-24PX WITH 24 PORTS. REFER TO DIVISION 27 SPECIFICATION FOR ALL REQUIREMENTS. COORDINATE FINAL LAYOUT/REQUIREMENTS WITH OWNER.



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PH: 608.277.1728 FAX: 608.271.7046
JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

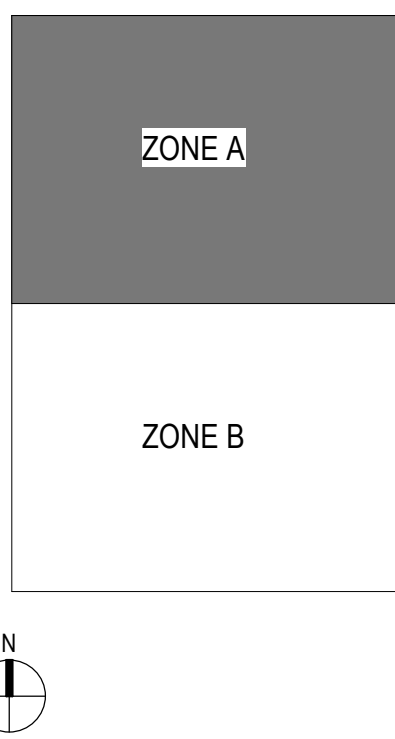
**415 N. LAKE STREET
MADISON, WI 53715**

ISSUANCE AND REVISIONS

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11-02-2023	PH1, ADD2

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KEY PLAN



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SHEET INFORMATION

PROJECT MANAGER

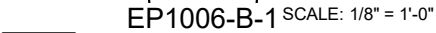
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PROJECT NUMBER 720448

**P6 FLR - ZONE A -
PHASE 1 -
POWER/SYSTEMS**

EP1006-A-1

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- COORDINATE JACK/CABLING REQUIREMENTS AND COLORS WITH OWNER.
- COORDINATE LOCATIONS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND DETAILS. ARCHITECTURAL ELEVATIONS AND DETAILS TAKE PRECEDENCE OVER LOCATIONS SHOWN ON ELECTRICAL DRAWINGS.

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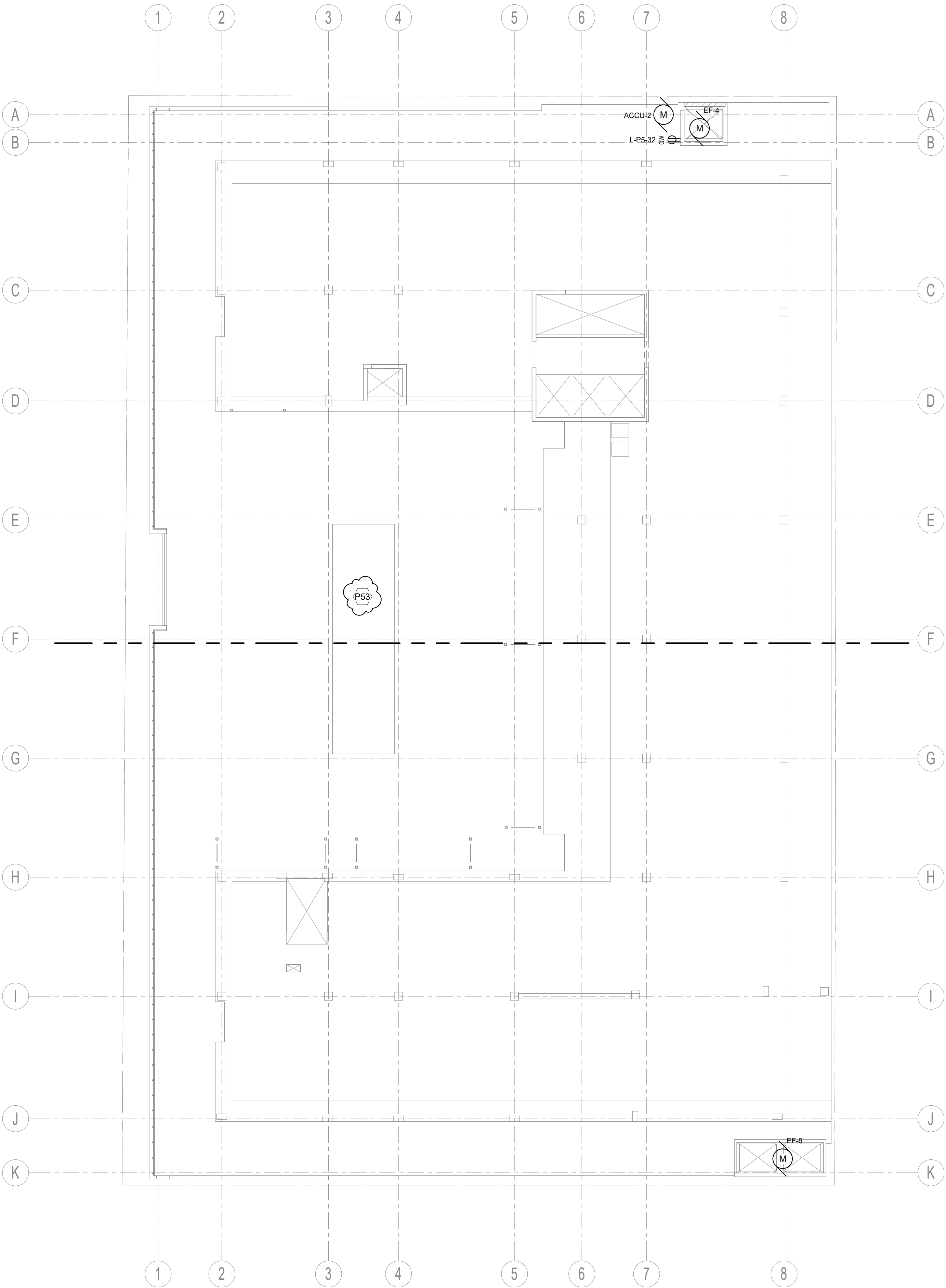
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 - C - CITY
 - * REFER TO DIVISION 27 SPECIFICATIONS FOR FINAL REQUIREMENTS. COORDINATE FINAL LOCATION/REQUIREMENTS WITH OWNER.

KEYED NOTES
(KEYED NOTES PER PROJECT)

P53 ELECTRICAL CONTRACTOR TO PROVIDE BONDING LEADS FROM BUILDING STRUCTURE TO THE POOL DEPRESSION EQUIPOTENTIAL BONDING GRID. PROVIDE A BONDING LEAD IN ANY AREA WHERE THE REINFORCING OF THE STRUCTURE IS NOT TIED TOGETHER. COORDINATE EXACT NUMBER AND LOCATION OF BONDING LEADS WITH PHASE 2 CONTRACTOR/POOL DESIGNER.



1 7TH FLR OVERALL - PHASE 1 - POWER/SYSTEMS
EP1007-1 SCALE: 1/8" = 1'-0"



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JDR Project No: 22.0249

PROJECT INFORMATION

**STATE STREET
CAMPUS GARAGE
MIXED-USE**

D

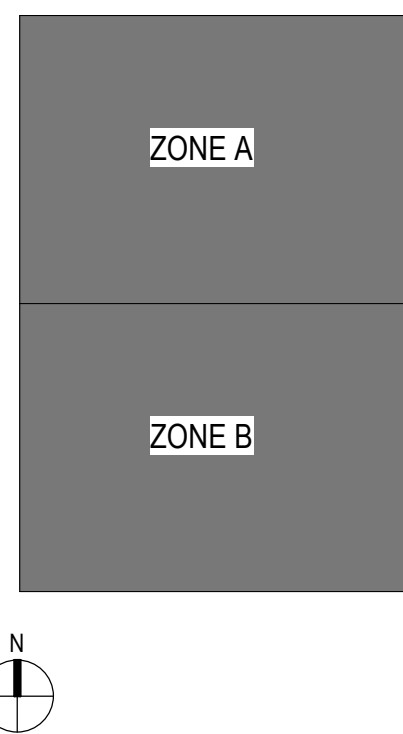
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11-02-2023	PH1_A002

C

KEY PLAN



B

SHEET INFORMATION

PROJECT MANAGER

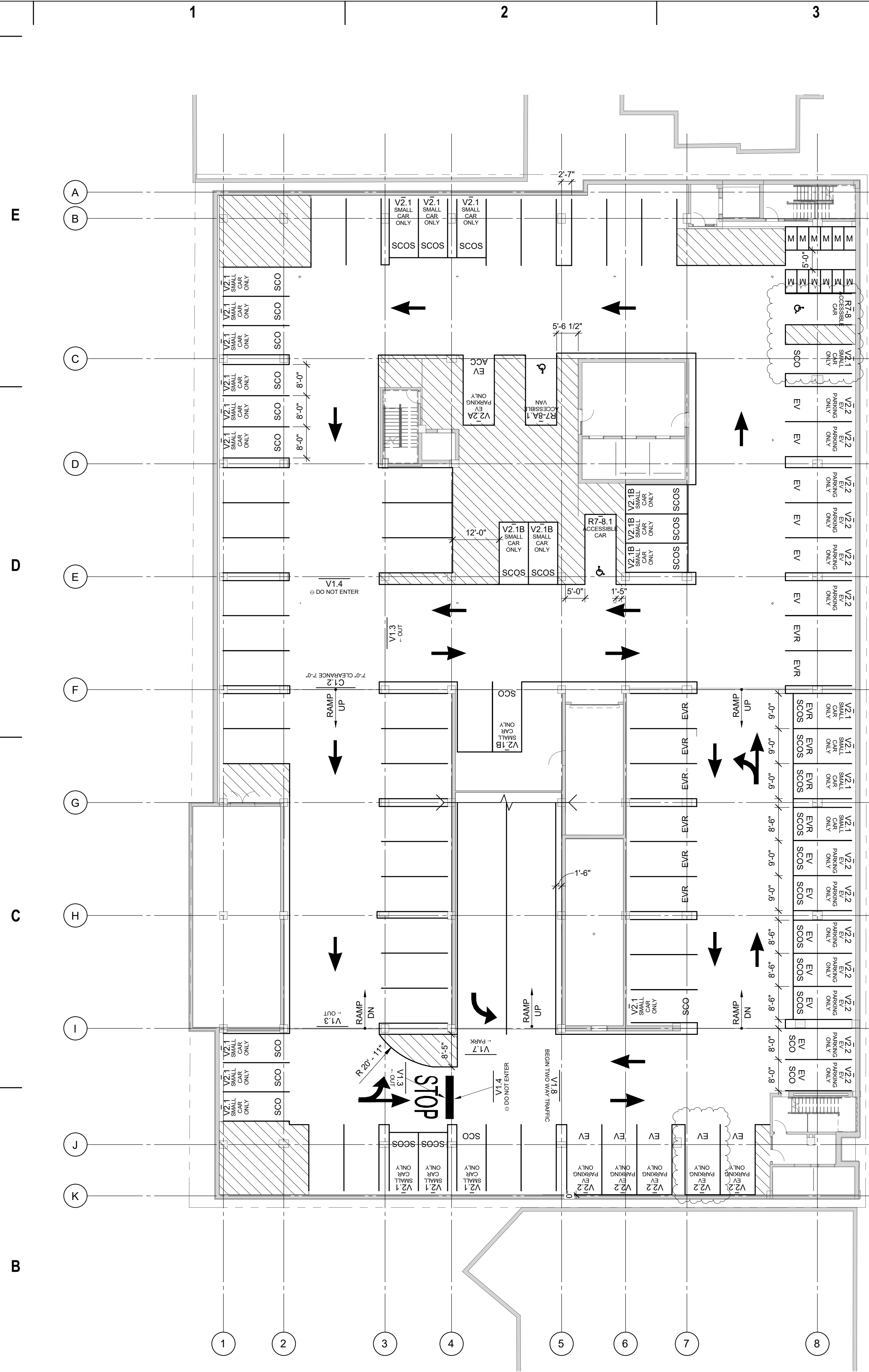
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PROJECT NUMBER 720448

**7TH FLR OVERALL -
PHASE 1 -
POWER/SYSTEMS**

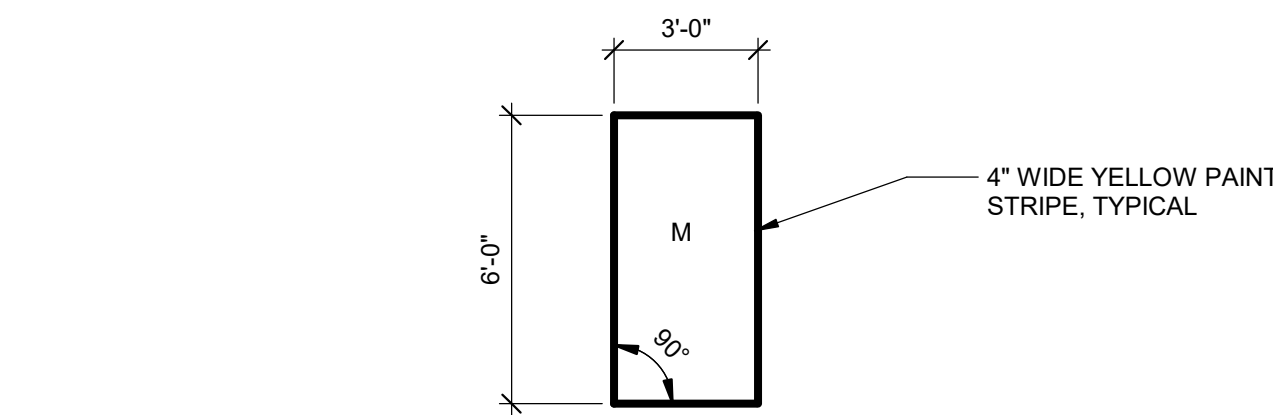
EP1007-1

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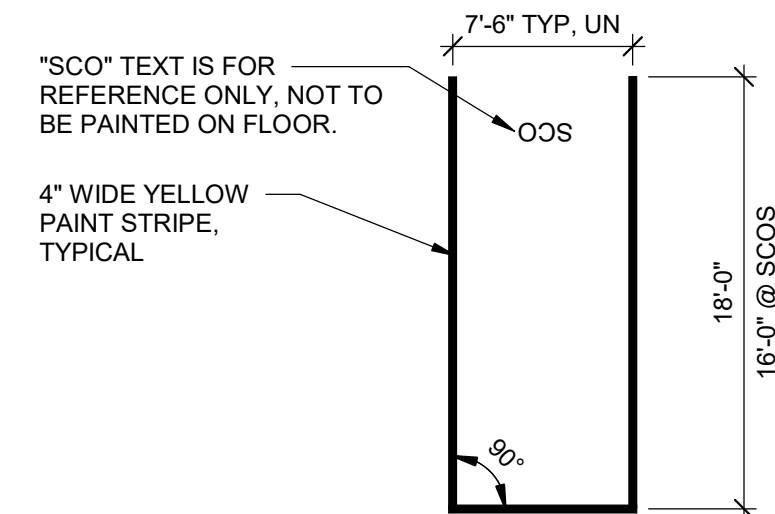


1 LOWER LEVEL STRIPING PLAN
1/16" = 1'-0"

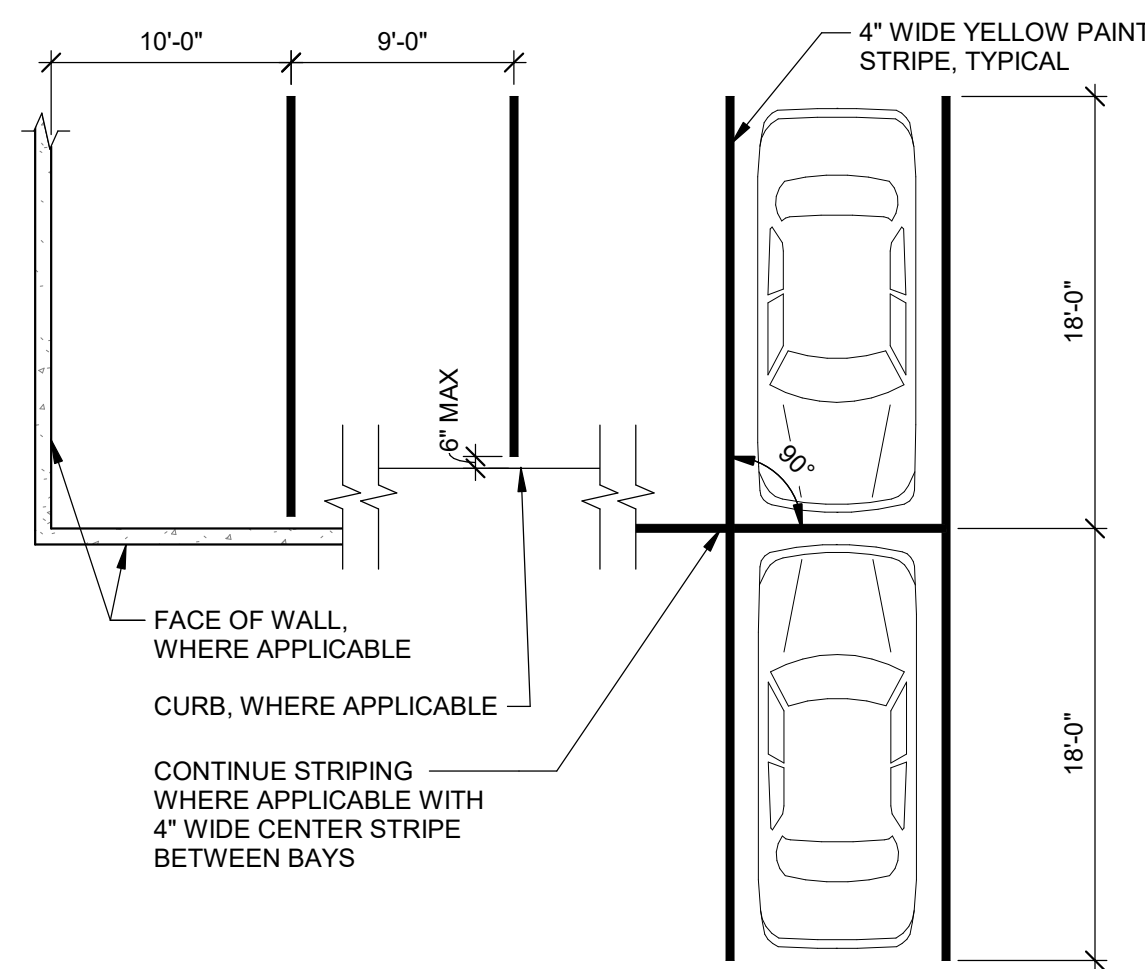
PARKING SCHEDULE - OVERALL									
TIER	STANDARD	COMPACT	ACCESSIBLE CAR	ACCESSIBLE VAN	EV ACCESSIBLE VAN	EV	COMPACT EV	EV READY	TOTAL
LOWER LEVEL	34	23	2	7	11	11	12	12	91
1ST FLOOR	8	3	0	0	0	5	0	3	19
P2	36	13	1	1	1	0	1	23	76
P3	38	14	1	1	1	0	1	23	79
P4	40	17	3	0	0	0	1	23	84
P5	56	17	1	0	0	10	0	84	
P6	54	16	1	0	0	0	1	0	72
TOTAL	266	103	9	3	3	16	11	94	505



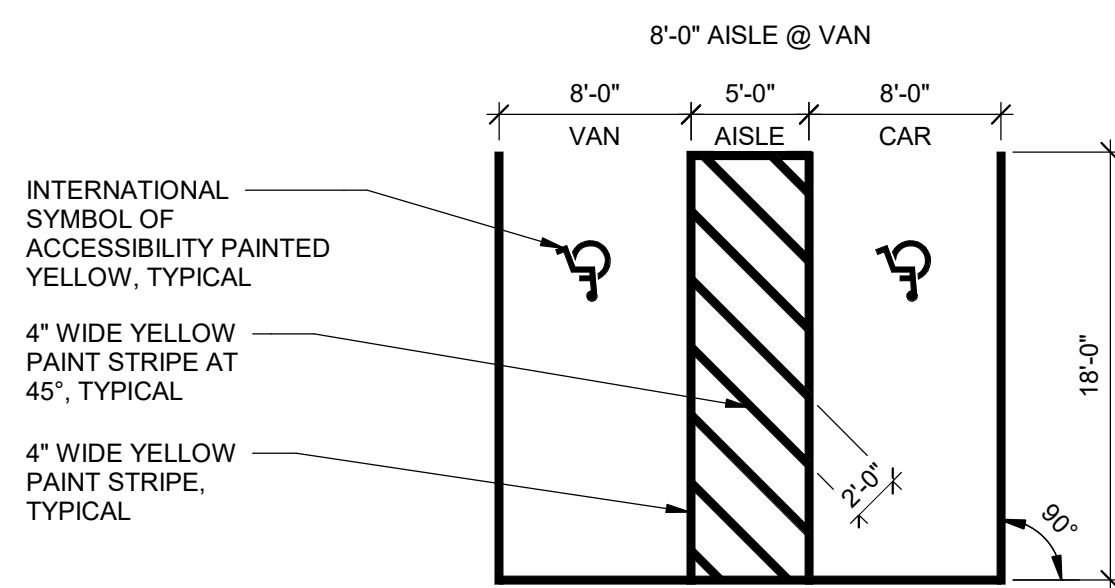
5 MOPED STRIPING DETAIL



4 SCO/SCOS STRIPING DETAIL



3 90° STRIPING DETAIL



2 90° STRIPING DETAIL

SHEET NOTES

1. INDICATES PLAN MATCH LINE.
2. FOR TYPICAL STRIPING DETAILS AND FLOOR ARROWS, SEE SHEET PG1000-1.
3. ALL DIMENSIONS FOR STRIPING ARE FROM FACE OF COLUMN OR INSIDE FACE OF WALL UNO.
4. SPACES ARE CENTERED BETWEEN COLUMNS, UNO.
5. SEE ARCHITECTURAL SHEET FOR BICYCLE PARKING REQUIREMENTS AND LOCATIONS.
6. PG SHEETS ARE FOR STRIPING AND VEHICULAR WAYFINDING SIGNAGE ONLY. SEE ARCHITECTURAL DRAWINGS FOR ALL OTHER ITEMS.
7. "SCO", "SCOS", "EV", "EVR", "ADA EV" AND "VAN" TEXT IS FOR REFERENCE ONLY, NOT TO BE PAINTED ON FLOOR.



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PROJECT INFORMATION

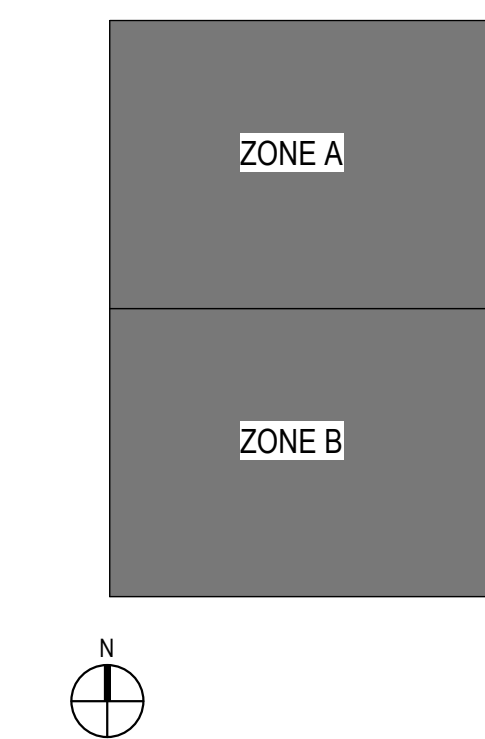
STATE STREET
CAMPUS

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
11/02/2023	PH1_A002

KEY PLAN



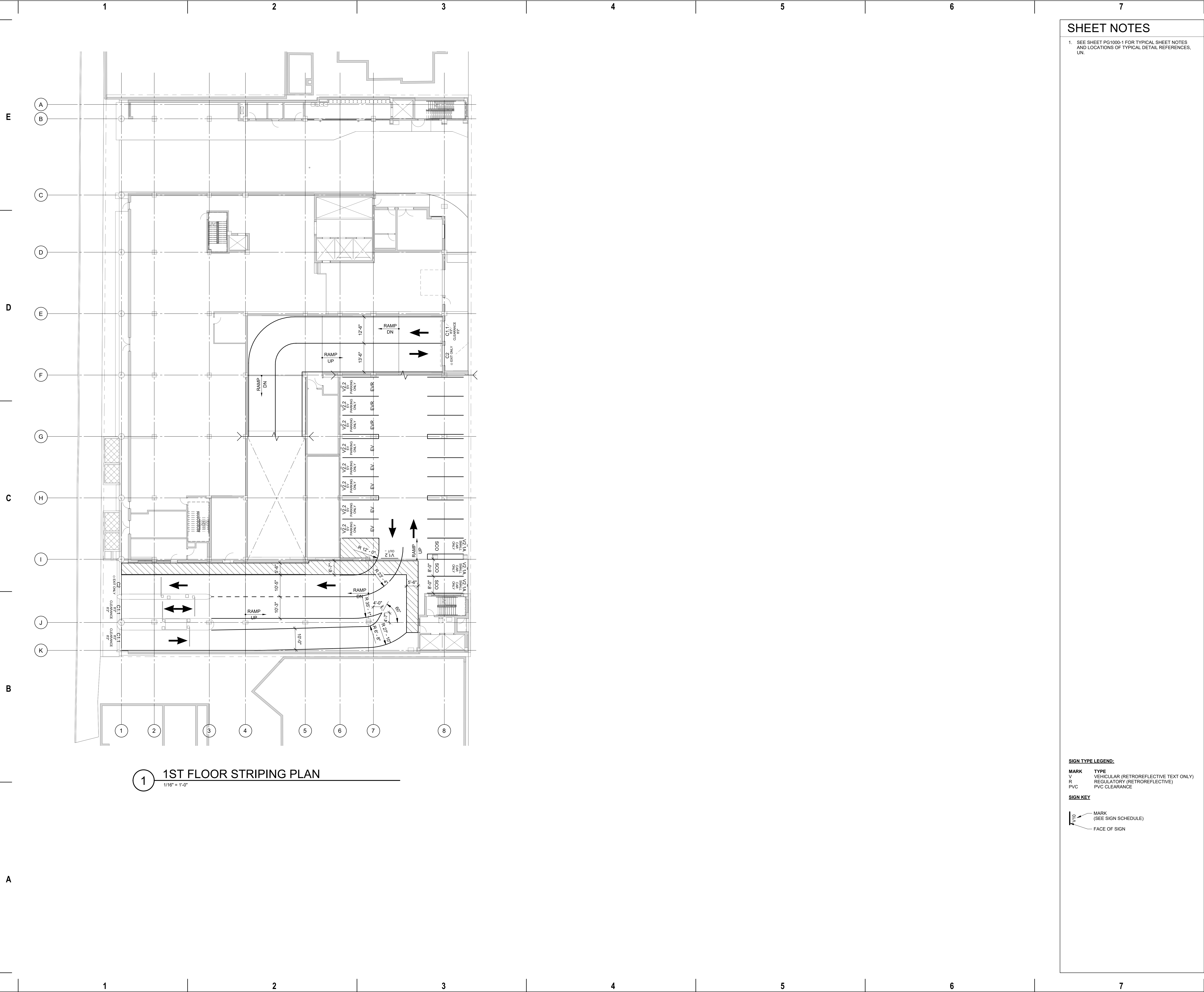
SHEET INFORMATION

PROJECT MANAGER

PROJECT NUMBER 13-003947.00

LOWER LEVEL
STRIPING PLAN

PG1000-1



SHEET NOTES

1. SEE SHEET PG1000-1 FOR TYPICAL SHEET NOTES AND LOCATIONS OF TYPICAL DETAIL REFERENCES, UN.



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PROJECT INFORMATION

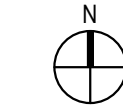
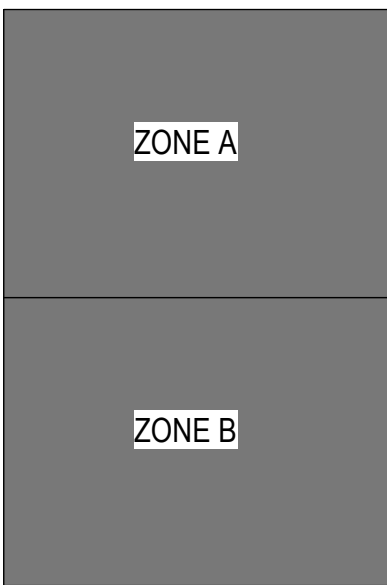
STATE STREET
CAMPUS

415 N. LAKE STREET
MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
------	-------------

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER

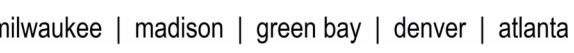
PROJECT NUMBER 13-003947.00

1ST FLOOR
STRIPING PLAN

PG1001-1



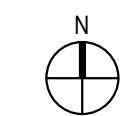
1. SEE SHEET PG1000-1 FOR TYPICAL SHEET NOTES AND LOCATIONS OF TYPICAL DETAIL REFERENCES, UN.

STATE STREET
CAMPUS

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DATE	DESCRIPTION
11/02/2023	PH1_AD02

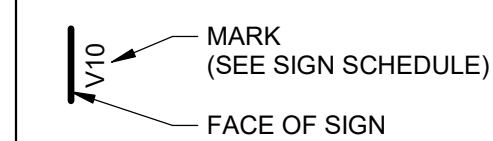
A diagram showing a rectangular area divided into two horizontal zones. The top zone is labeled 'ZONE A' and the bottom zone is labeled 'ZONE B'.



SIGN TYPE LEGEND:

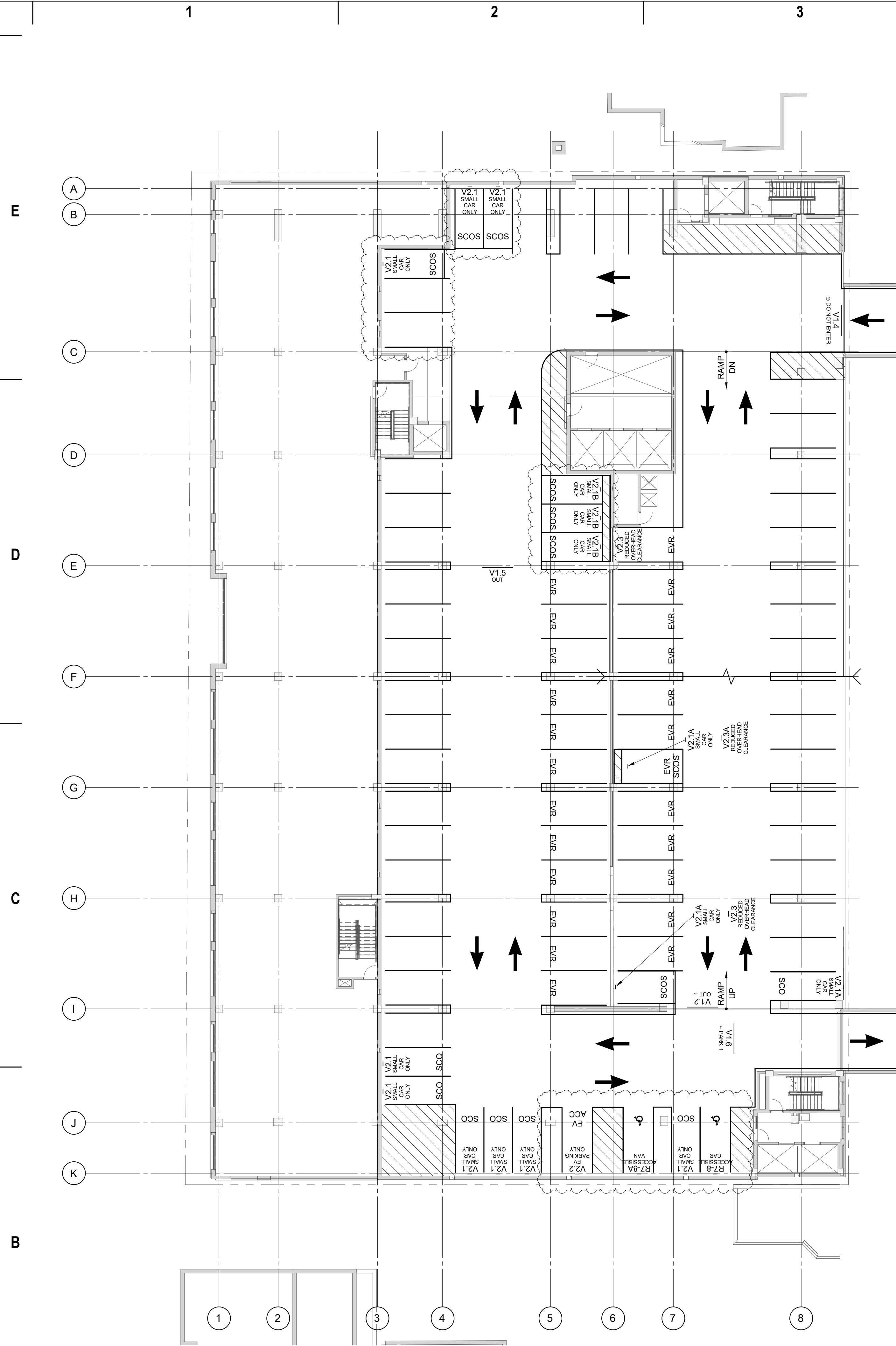
MARK	TYPE
V	VEHICULAR (RETROREFLECTIVE TEXT ONLY)
R	REGULATORY (RETROREFLECTIVE)
PVC	PVC CLEARANCE

SIGN KEY



PROJECT NUMBER 13-003947.00

PG1002-1



1 P3 STRIPING PLAN
1/16" = 1'-0"

SHEET NOTES

1. SEE SHEET PG1000-1 FOR TYPICAL SHEET NOTES AND LOCATIONS OF TYPICAL DETAIL REFERENCES, UN.



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PROJECT INFORMATION

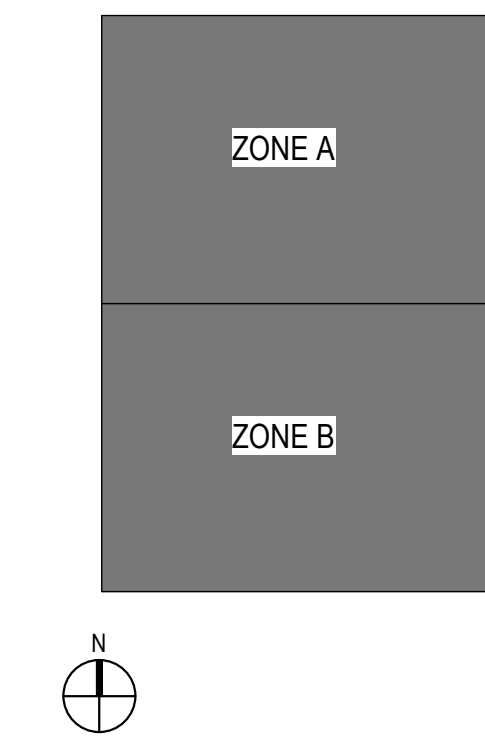
STATE STREET
CAMPUS

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ISSUANCE AND REVISIONS

DATE	DESCRIPTION
11/02/2023	PH1_A002

KEY PLAN



SHEET INFORMATION

PROJECT MANAGER
PROJECT NUMBER 13-003947.00

P3 STRIPING PLAN

PG1003-1



1 P4 STRIPING PLAN

SHEET NOTES

1. SEE SHEET PG1000-1 FOR TYPICAL SHEET NOTES AND LOCATIONS OF TYPICAL DETAIL REFERENCES, UN.



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PROJECT INFORMATION

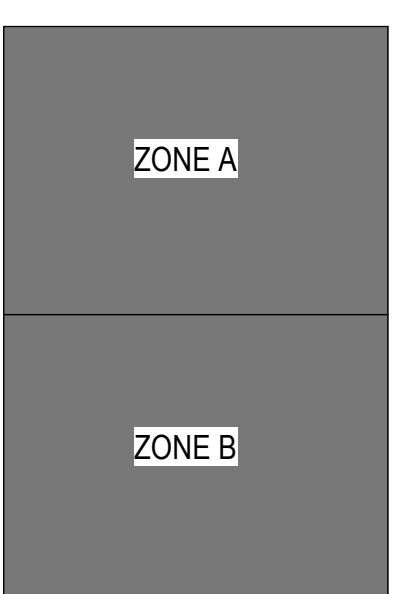
STATE STREET
CAMPUS

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MADISON, WI 53715

ISSUANCE AND REVISIONS

DATE	DESCRIPTION
11/02/2023	PH1_AD02

KEY PLAN



SHEET INFORMATION

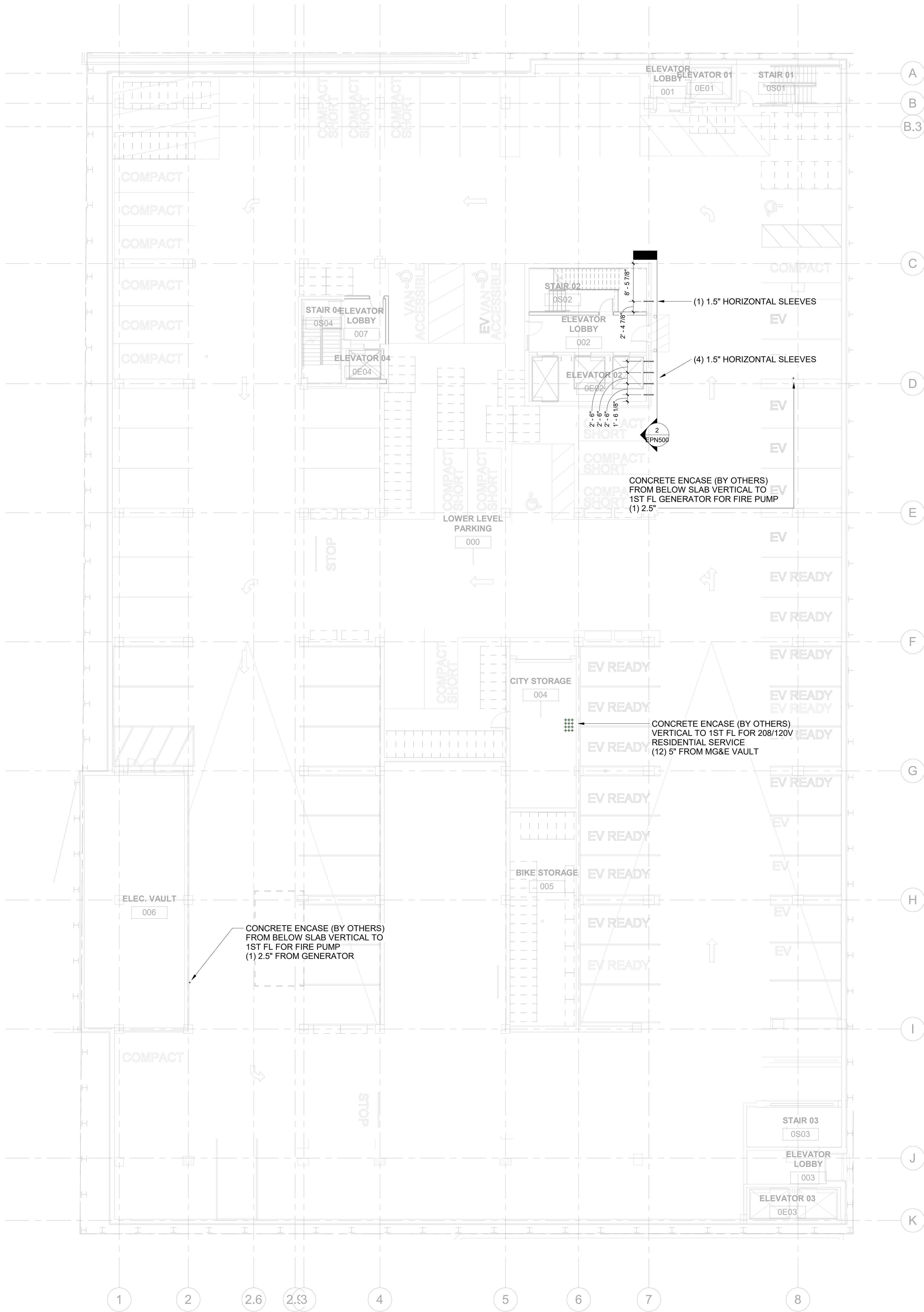
PROJECT MANAGER

A PROJECT NUMBER 13-003947.00

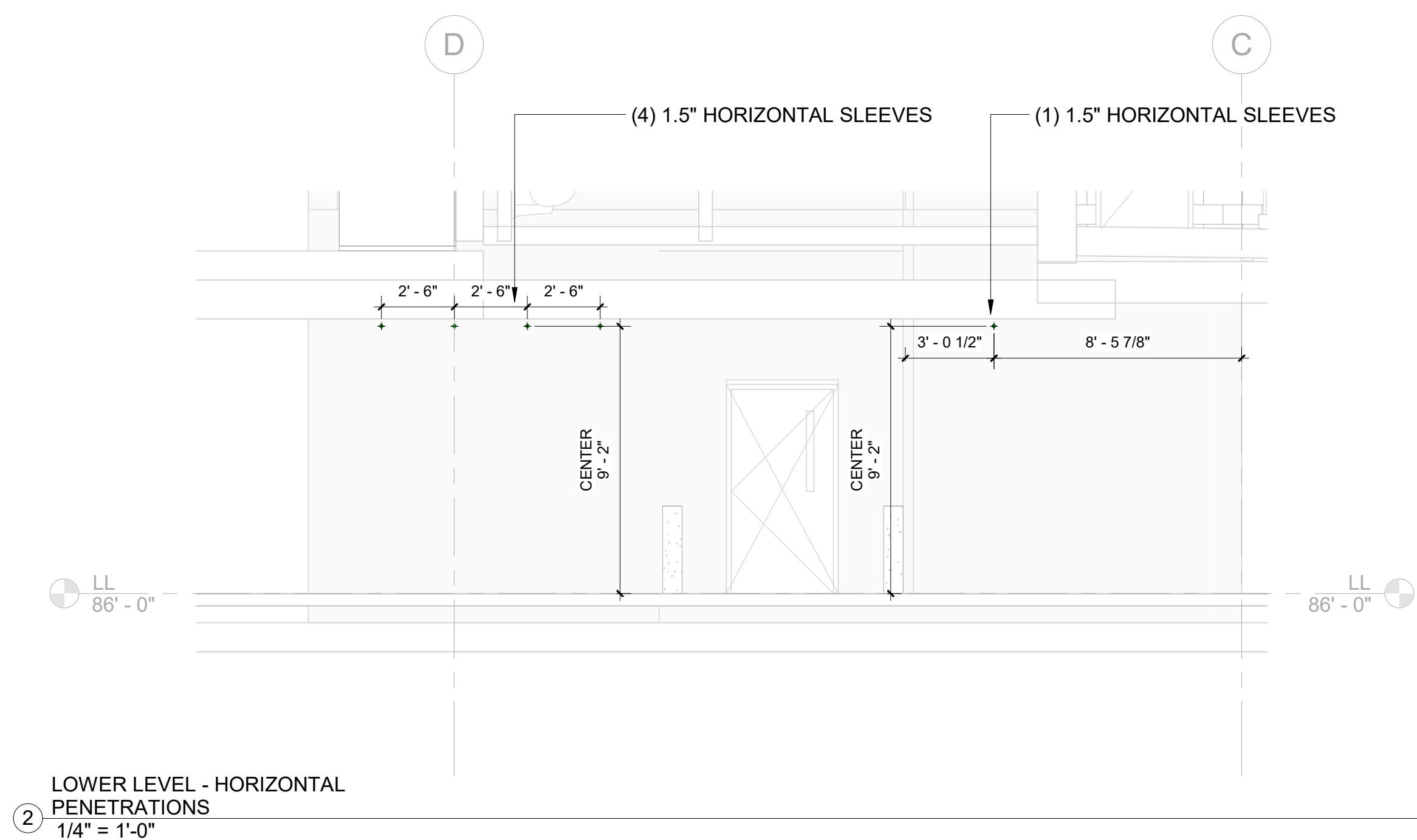
P4 STRIPING PLAN

PG1004-1

Date	Description
09/01/2023	75% DD Set



① PENETRATION PLAN - LOWER LEVEL
3/32" = 1'-0"



② LOWER LEVEL - HORIZONTAL
PENETRATIONS
1/4" = 1'-0"

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LOWER
LEVEL

SCALE:

As indicated

PROJECT MANAGER:

MADISON

DRAWN BY:

M. KRAUSE

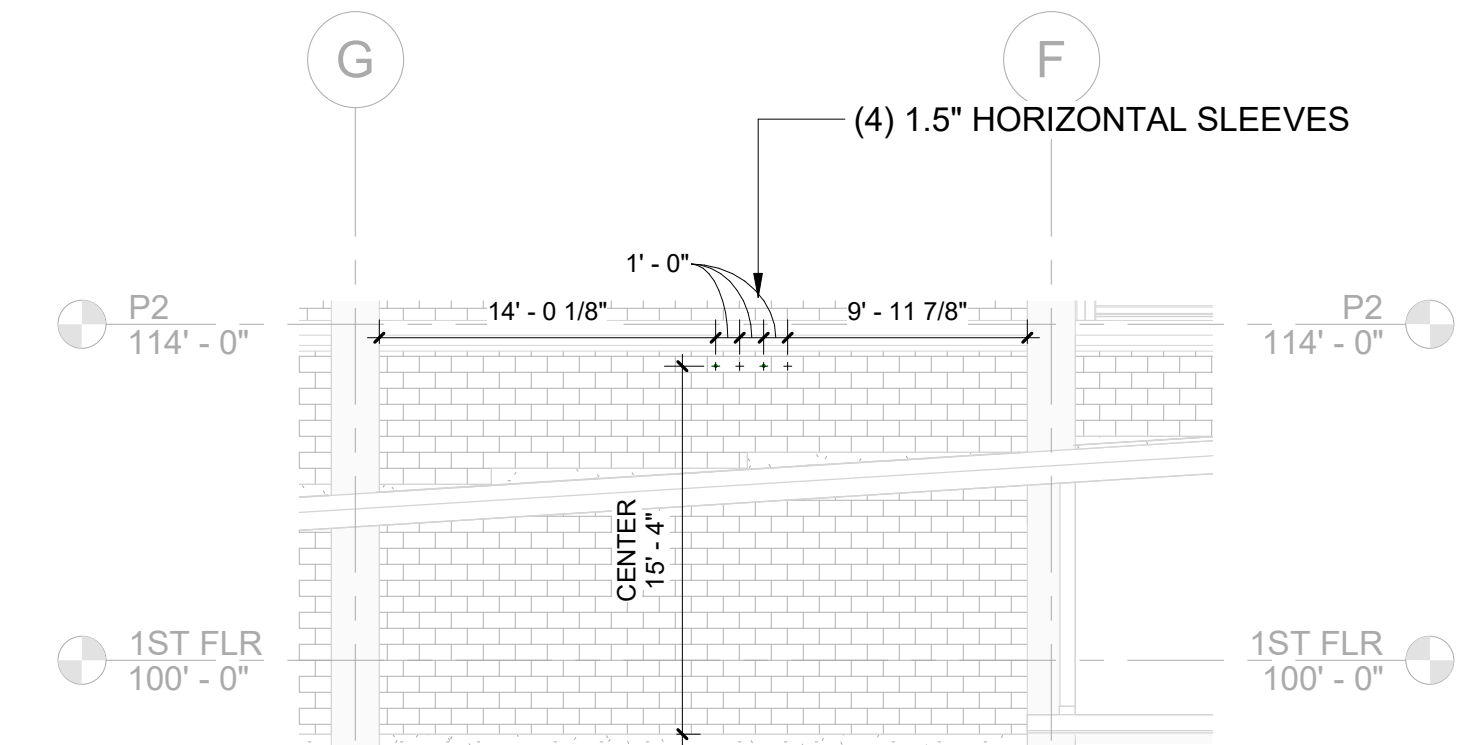
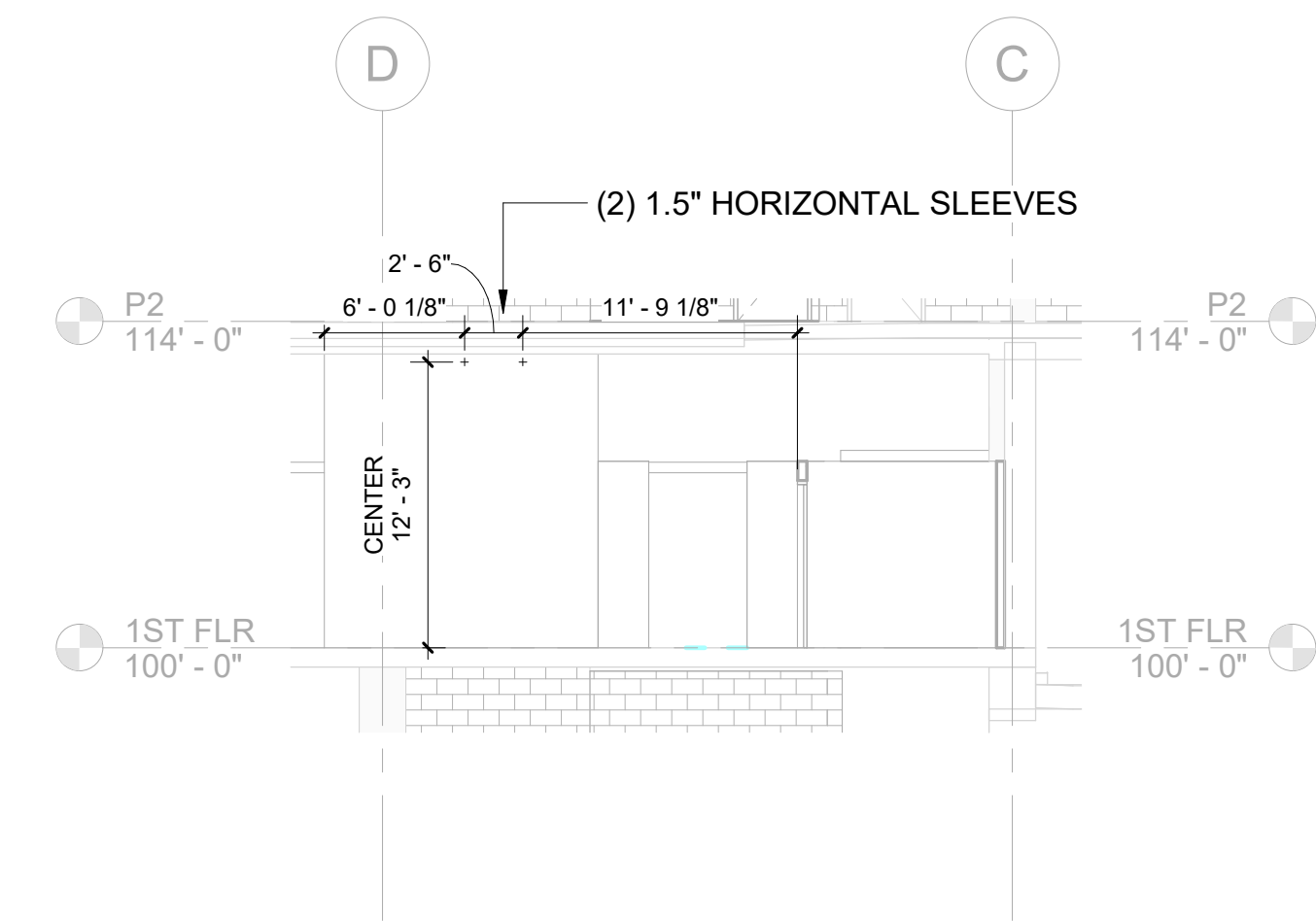
ISSUE DATE:

7/27/2023

SHEET NO:

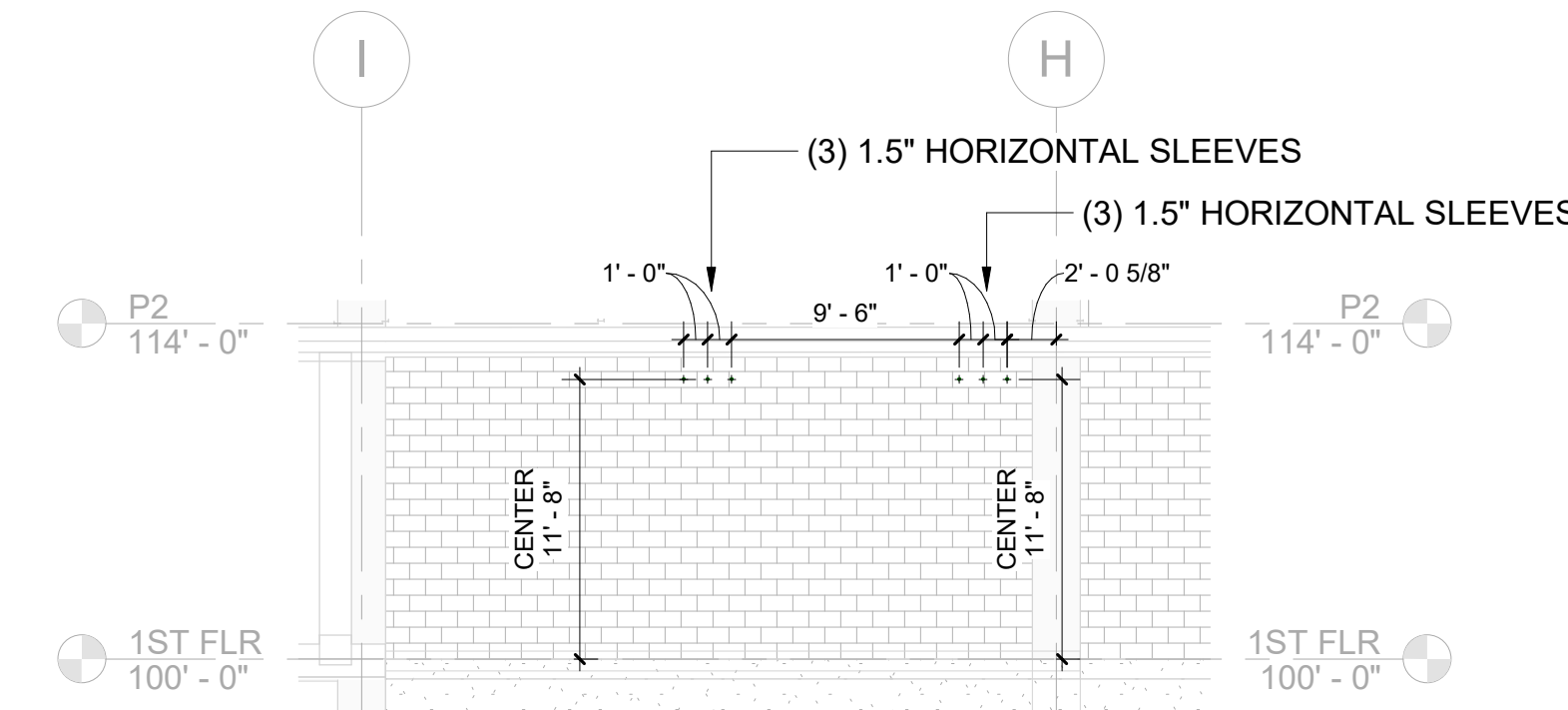
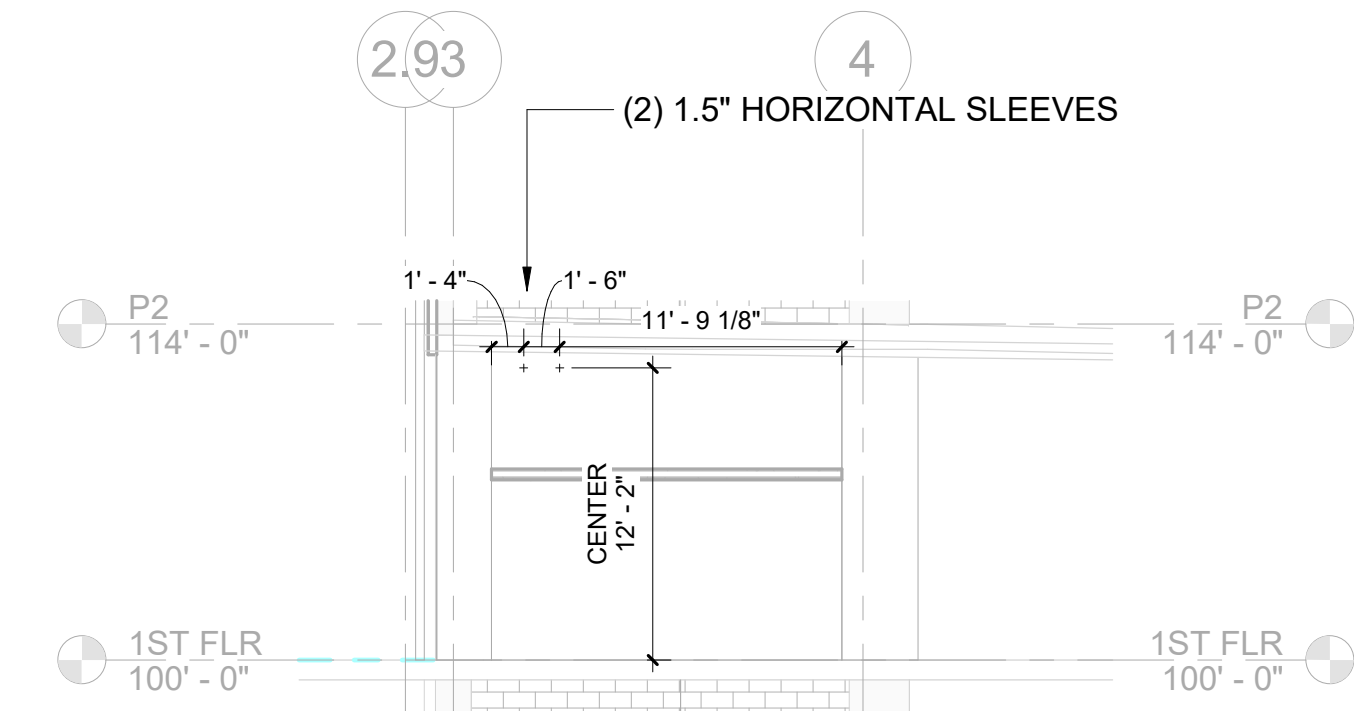
EPN500

Date	Description
09/01/2023	75% DD Set



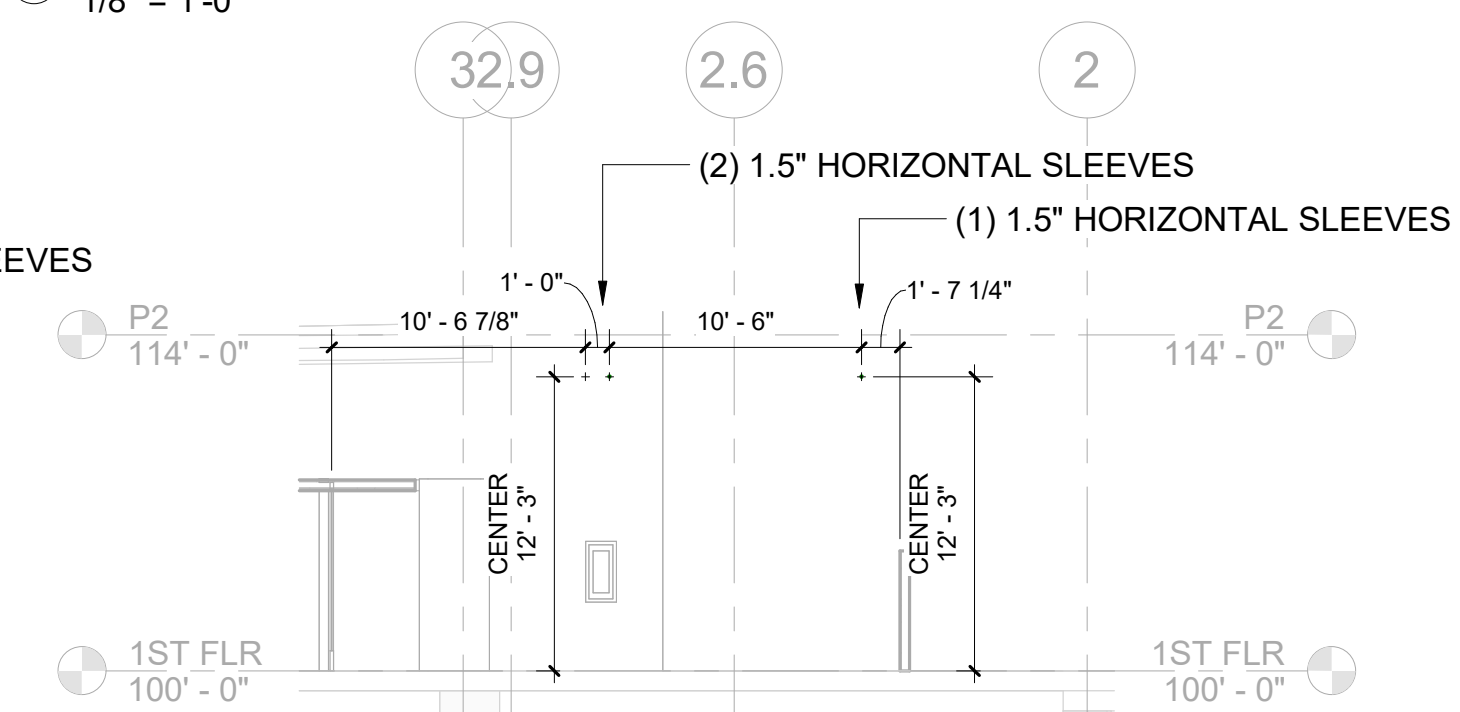
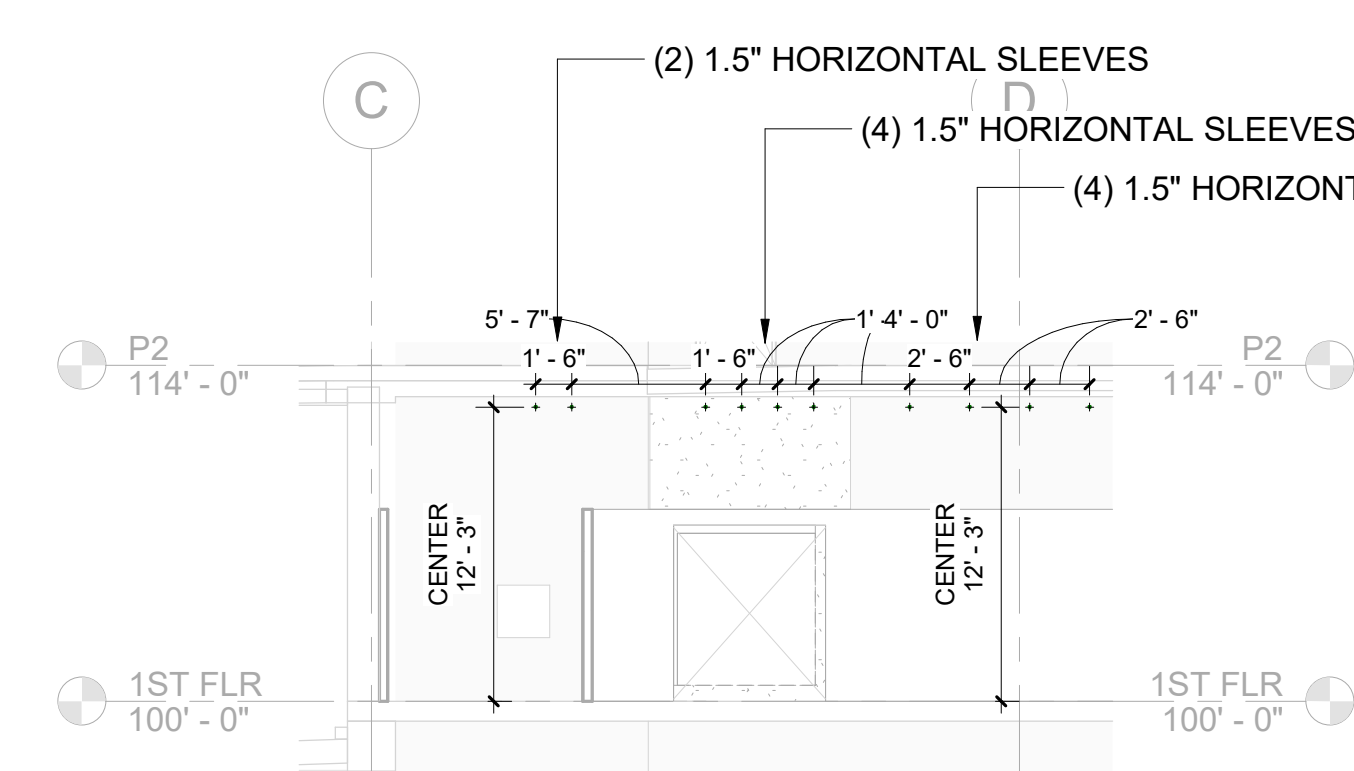
LEVEL 01 - HORIZONTAL PENETRATIONS - 1
1/8" = 1'-0"

LEVEL 01 - HORIZONTAL PENETRATIONS - 6
1/8" = 1'-0"



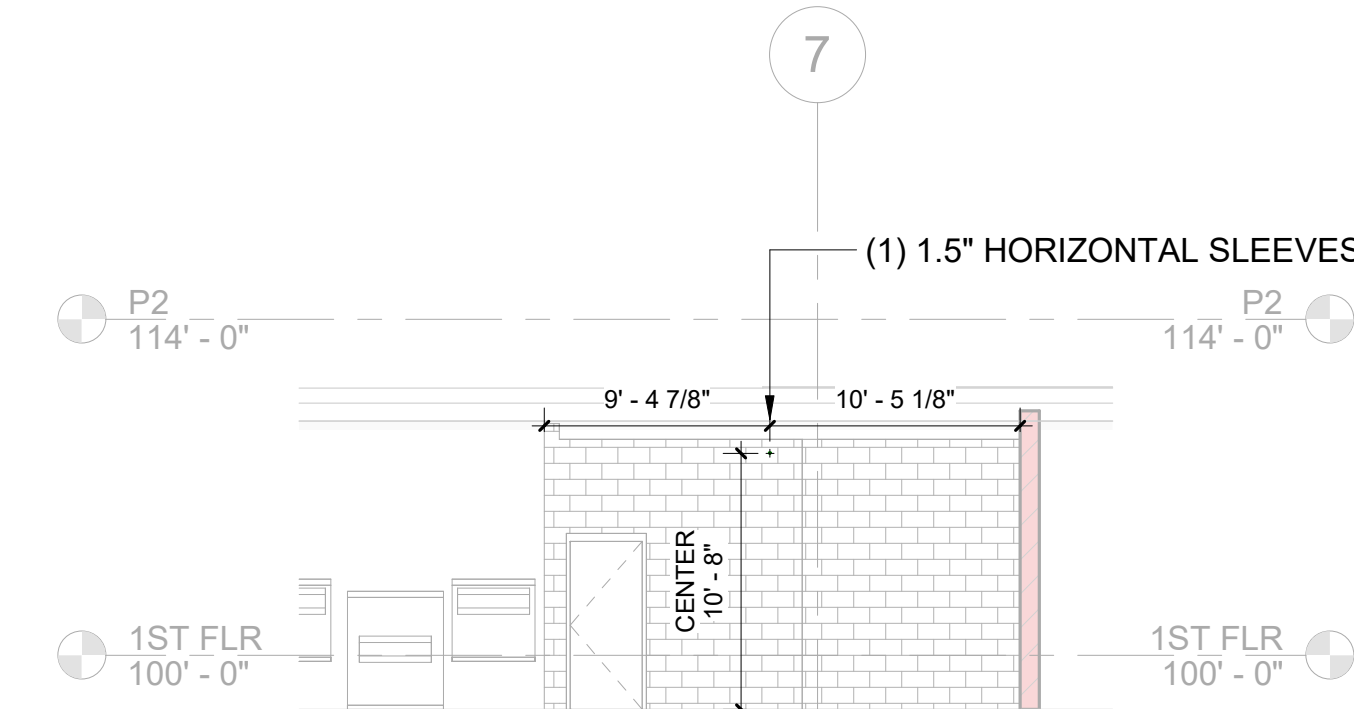
LEVEL 01 - HORIZONTAL PENETRATIONS - 2
1/8" = 1'-0"

LEVEL 01 - HORIZONTAL PENETRATIONS - 7
1/8" = 1'-0"

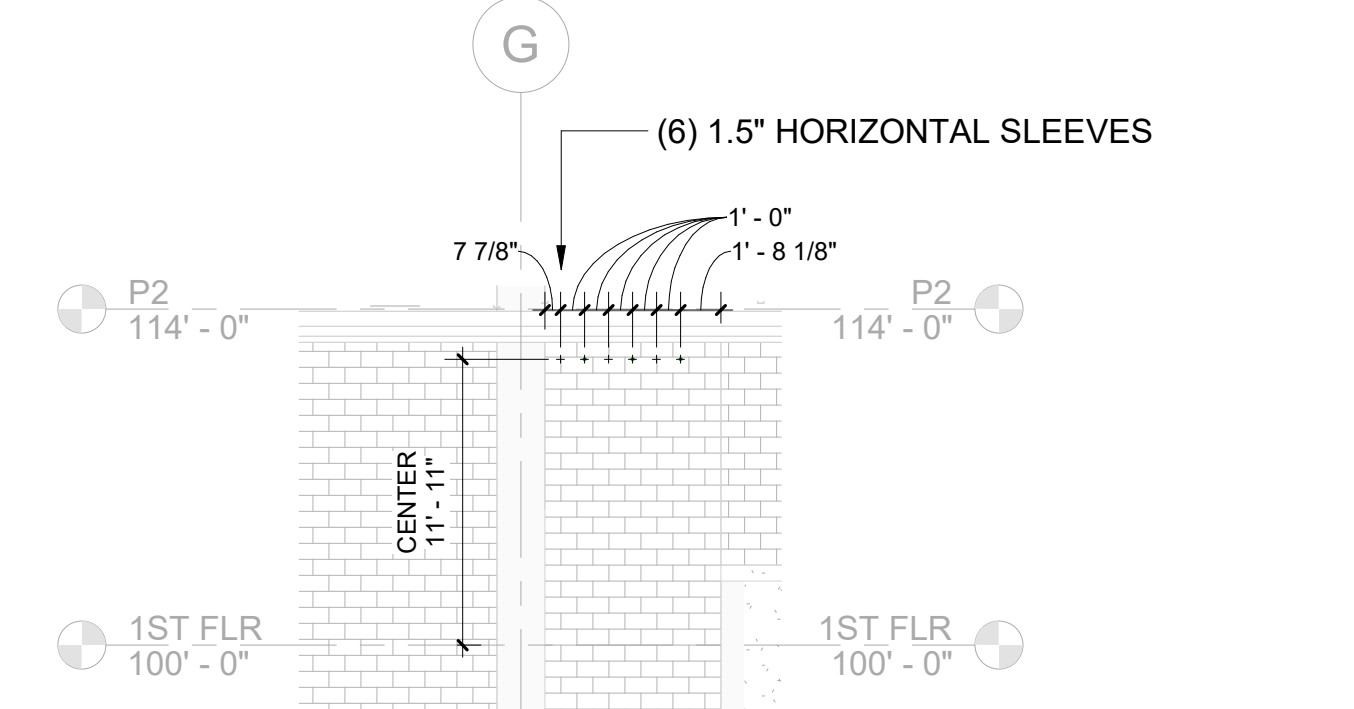


LEVEL 01 - HORIZONTAL PENETRATIONS - 3
1/8" = 1'-0"

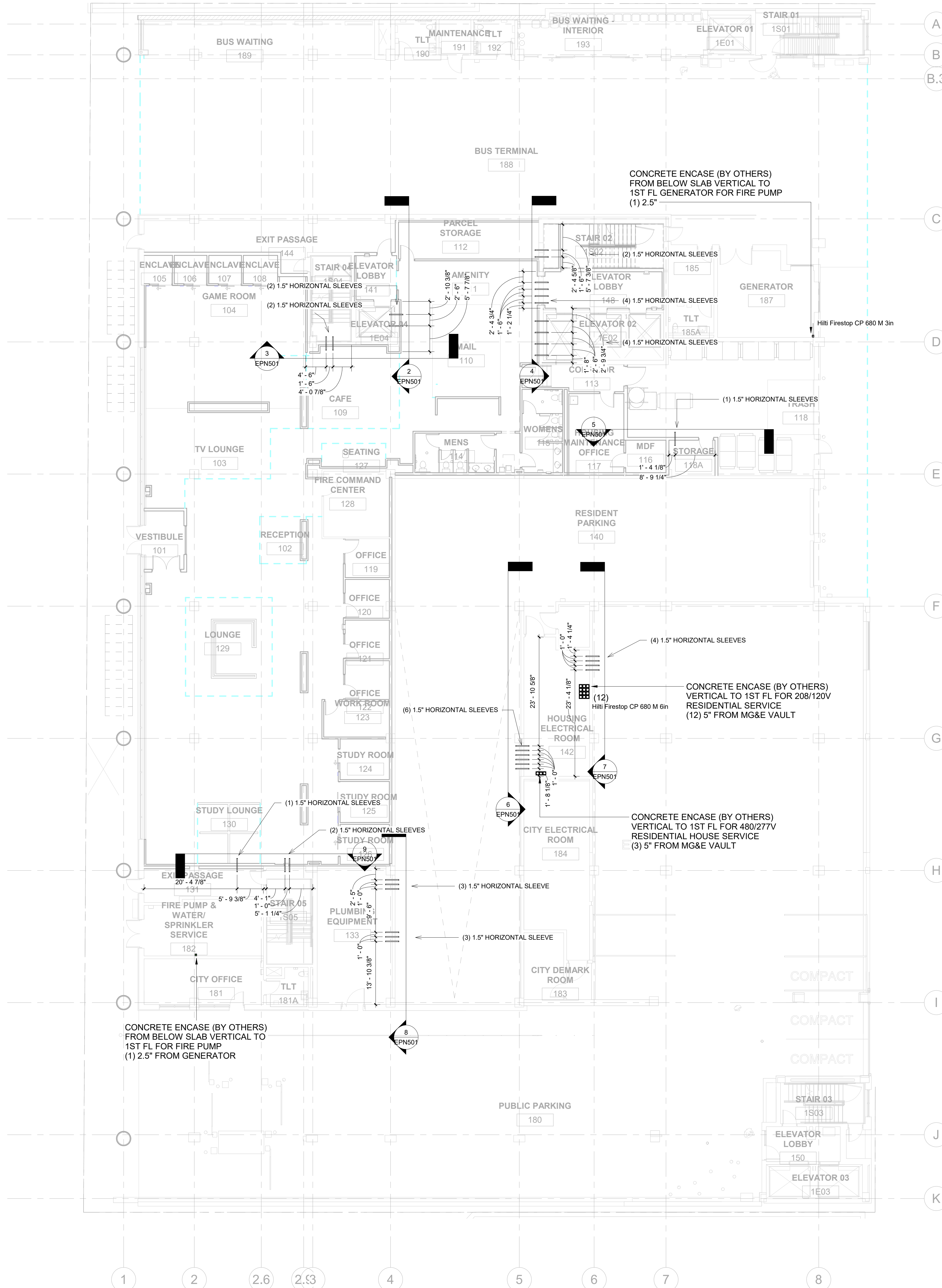
LEVEL 01 - HORIZONTAL PENETRATIONS - 8
1/8" = 1'-0"



LEVEL 01 - HORIZONTAL PENETRATIONS - 4
1/8" = 1'-0"



LEVEL 01 - HORIZONTAL PENETRATIONS - 5
1/8" = 1'-0"



PENETRATION PLAN - LEVEL 01
3/32" = 1'-0"

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL 01

SCALE:

As indicated

PROJECT MANAGER:

MADISON

DRAWN BY:

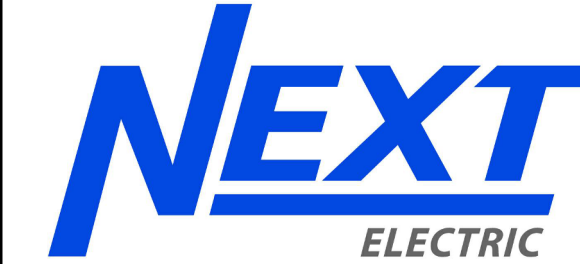
M. KRAUSE

ISSUE DATE:

7/27/2023

SHEET NO:

EPN501



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223 EAST TYRANENA PARK ROAD
LAKE MILLS 53551
4009 FELLAND RD SUITE 106
MADISON, WI 53718

PROJECT NAME:

STATE ST. STUDENT HOUSING

PROJECT ADDRESS:
**415 N. LAKE STREET
MADISON, WI 53715**

PROJECT NO. 23605

REVISIONS

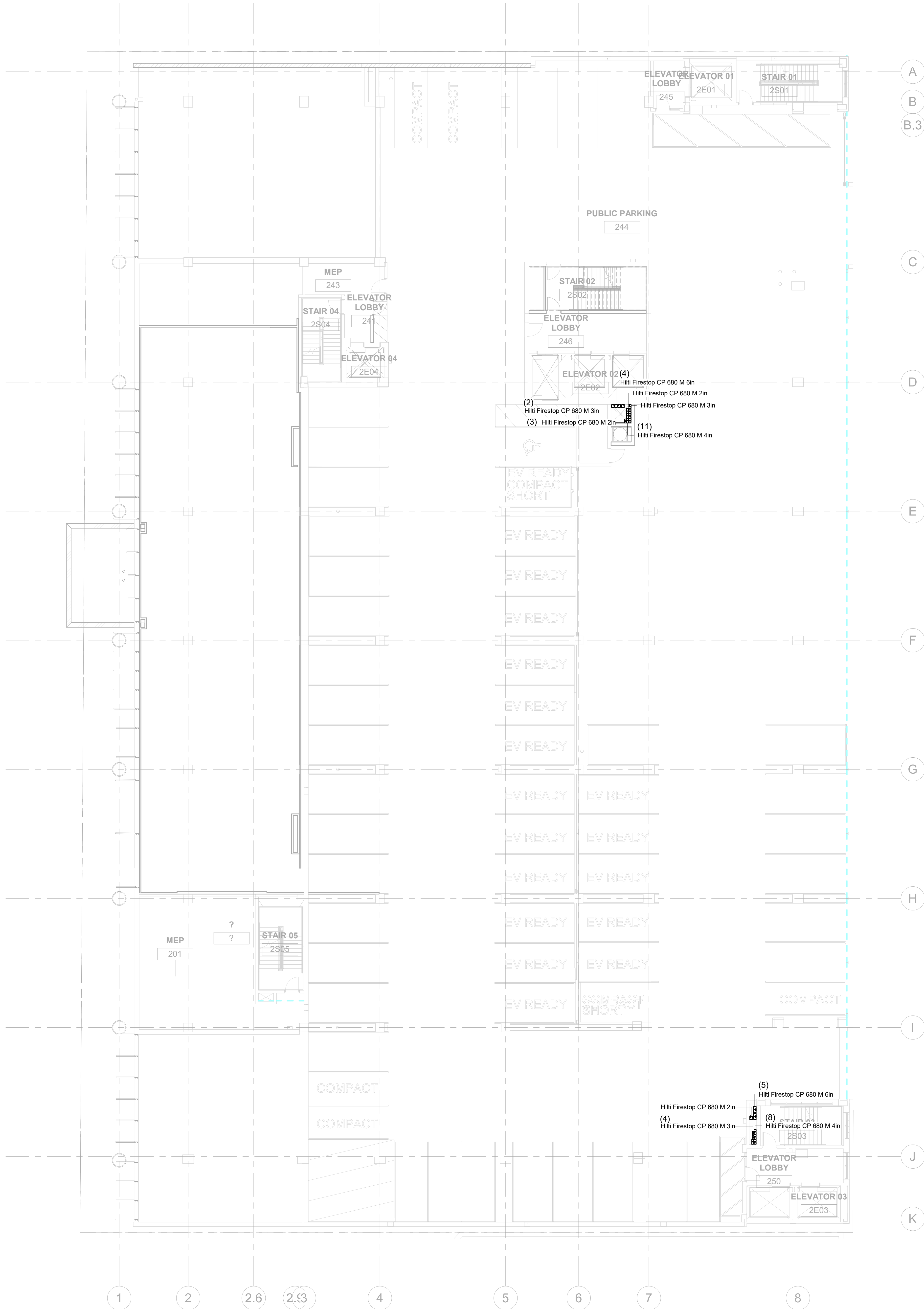
Date	Description
09/01/2023	75% DD Set

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL P2

SCALE: 3/32" = 1'-0"
PROJECT MANAGER: MADISON
DRAWN BY: M.KRAUSE
ISSUE DATE: 7/27/2023
SHEET NO: **EPN502**



1 PENETRATION PLAN - LEVEL P2
3/32" = 1'-0"



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PROJECT NAME:

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PROJECT ADDRESS:

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PROJECT NO.

23605

REVISIONS

Date	Description
09/01/2023	75% DD Set

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL P3

SCALE:

3/32" = 1'-0"

PROJECT MANAGER:

MADISON

DRAWN BY:

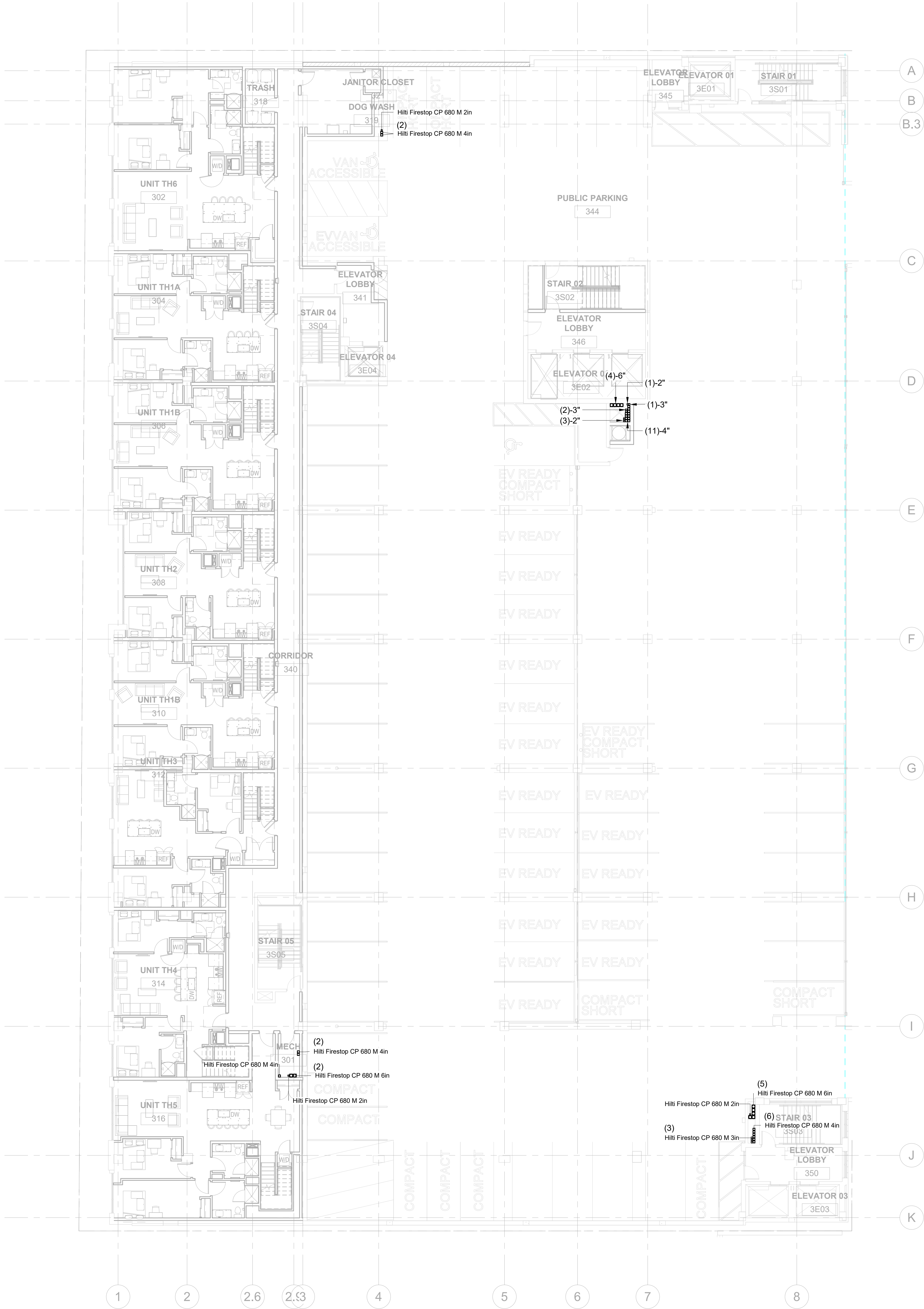
M.KRAUSE

ISSUE DATE:

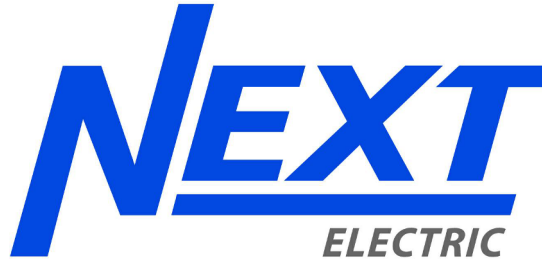
7/27/2023

SHEET NO:

EPN503



1 PENETRATION PLAN - LEVEL P3
3/32" = 1'-0"



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4009 FELLAND RD SUITE 106
MADISON, WI 53718

PROJECT NAME:

STATE ST. STUDENT HOUSING

PROJECT ADDRESS:

415 N. LAKE STREET
MADISON, WI 53715

PROJECT NO. 23605

REVISIONS

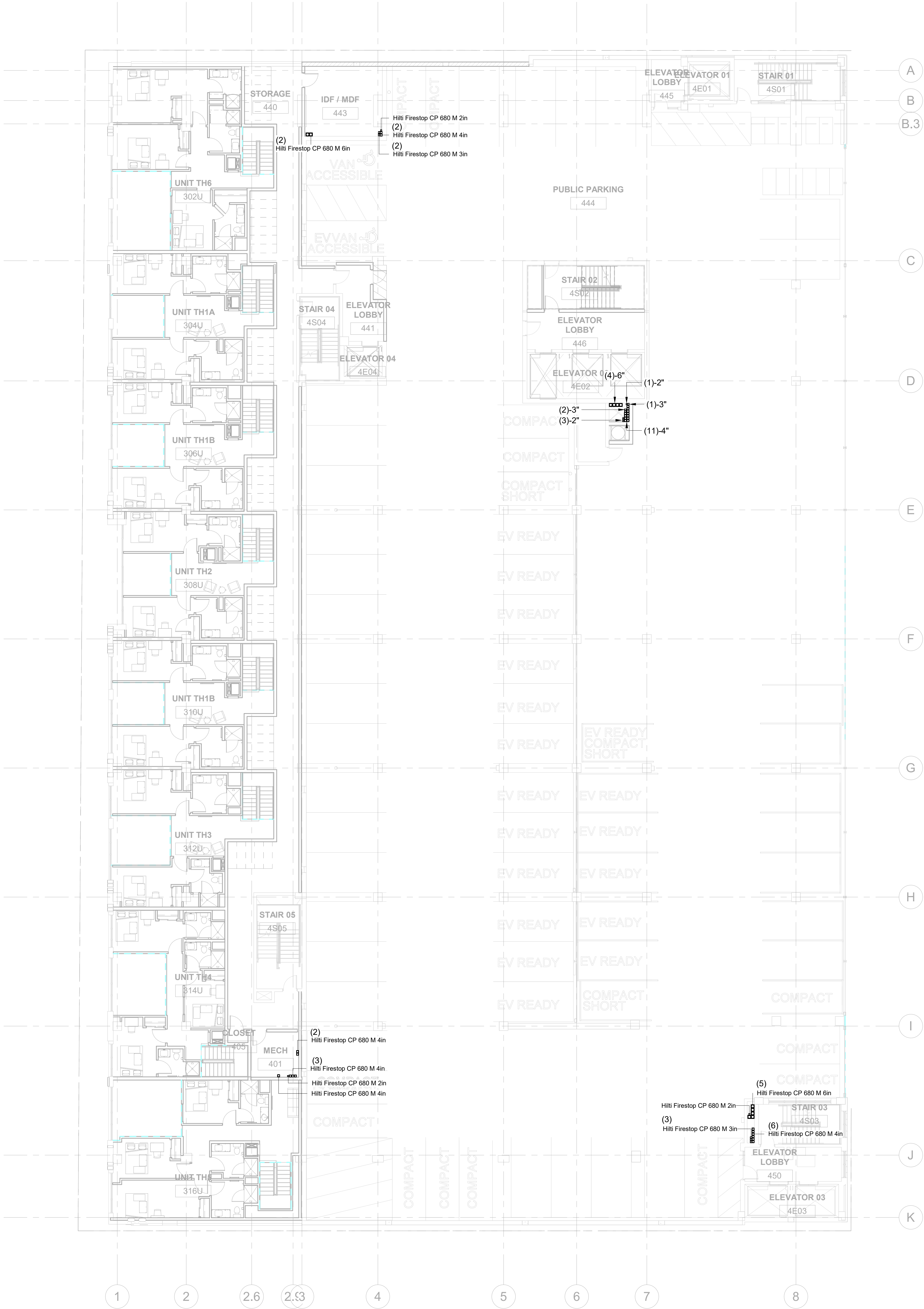
Date	Description
09/01/2023	75% DD Set

SHEET INFO

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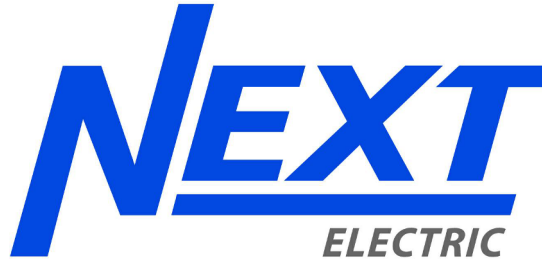
PENETRATIONS PLAN - LEVEL P4

SCALE: 3/32" = 1'-0"
PROJECT MANAGER: MADISON
DRAWN BY: M.KRAUSE
ISSUE DATE: 7/27/2023
SHEET NO: EPN504



1 PENETRATION PLAN - LEVEL P4
3/32" = 1'-0"





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4009 FELLAND RD SUITE 106

MADISON, WI 53718

PROJECT NAME:

STATE ST. STUDENT HOUSING

PROJECT ADDRESS:

415 N. LAKE STREET

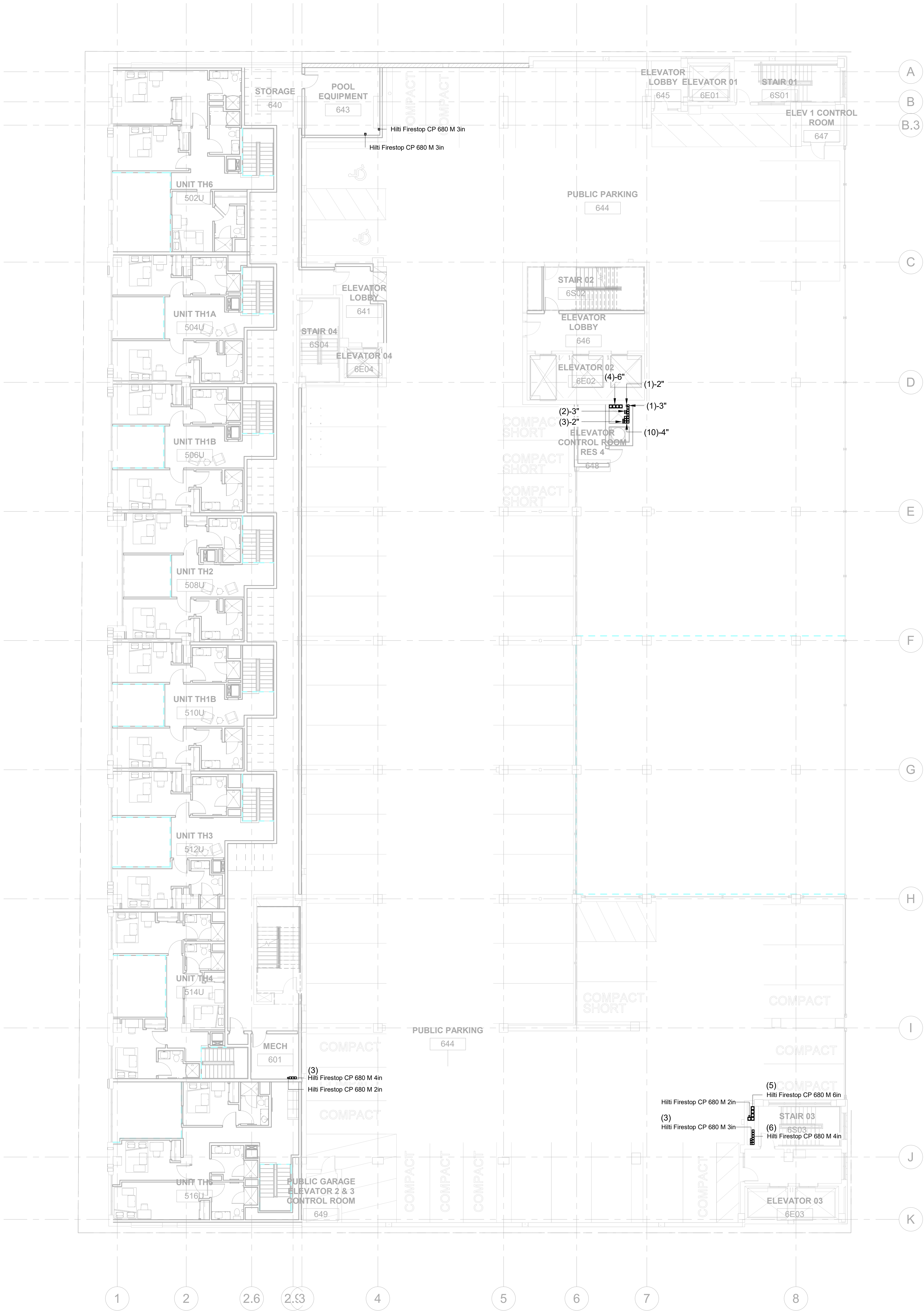
MADISON, WI 53715

PROJECT NO.

23605

REVISIONS

Date	Description
09/01/2023	75% DD Set



1 PENETRATION PLAN - LEVEL P6
3/32" = 1'-0"

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL P6

SCALE:

3/32" = 1'-0"

PROJECT MANAGER:

MADISON

DRAWN BY:

M.KRAUSE

ISSUE DATE:

7/27/2023

SHEET NO:

EPN506

PROJECT NAME:

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PROJECT ADDRESS:

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PROJECT NO.

23605

REVISIONS

Date	Description
09/01/2023	75% DD Set

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL 09

SCALE:

As indicated

PROJECT MANAGER:

MADISON

DRAWN BY:

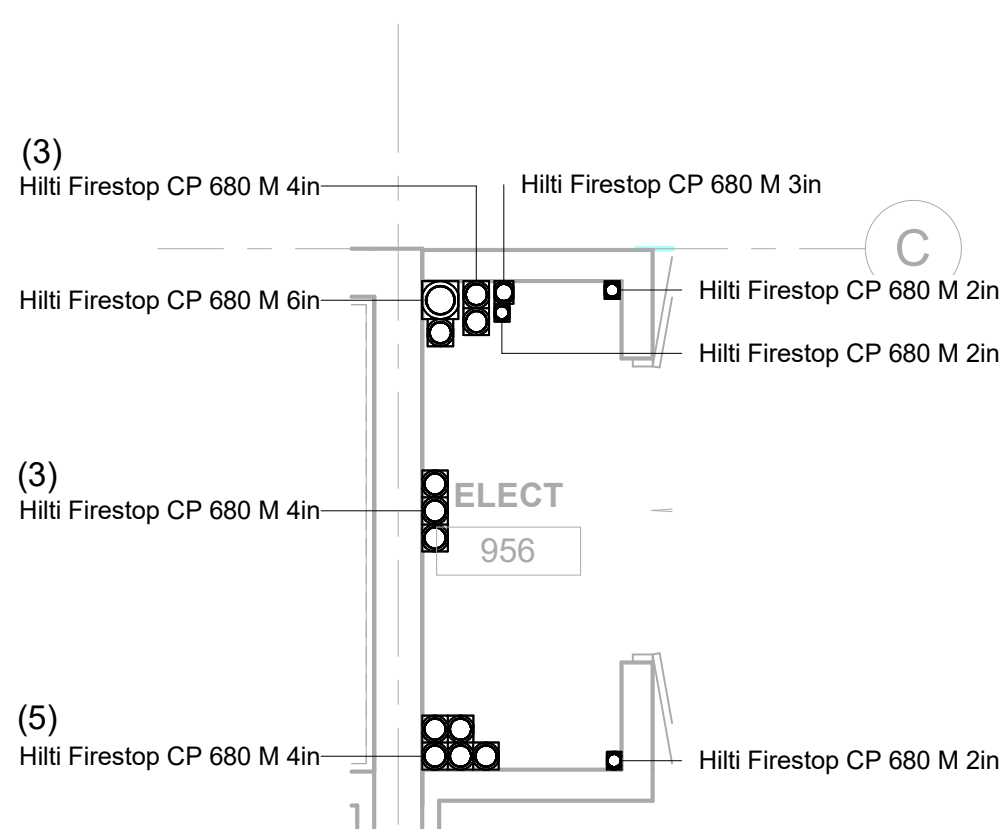
M. KRAUSE

ISSUE DATE:

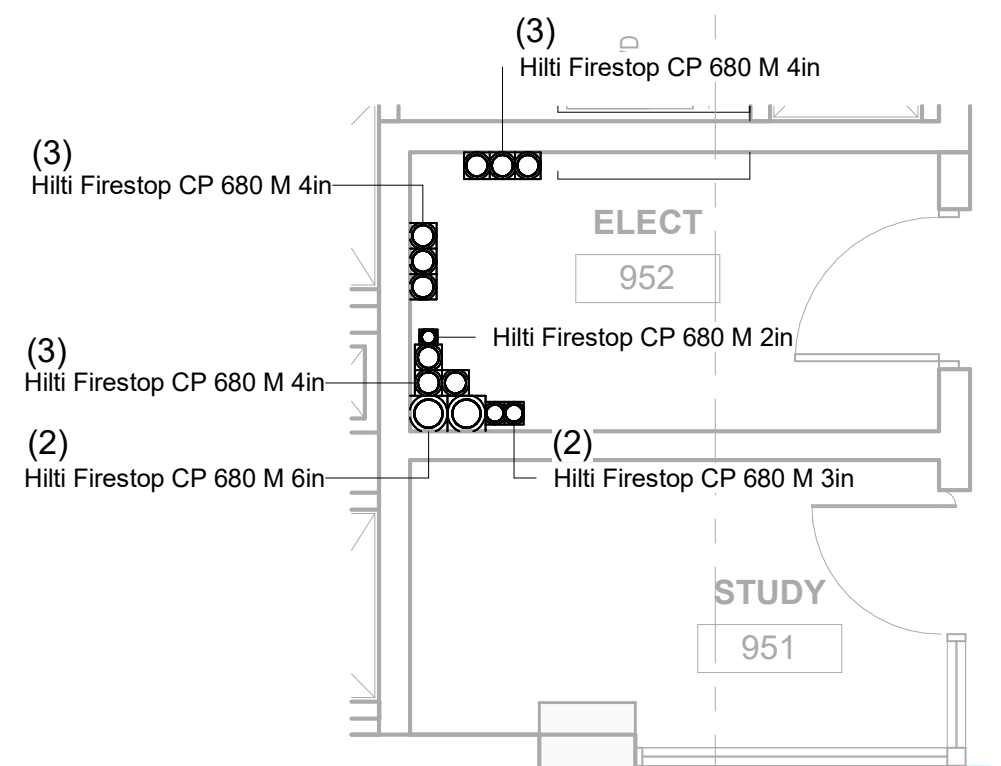
7/27/2023

SHEET NO:

EPN509



③ 09 - ELECTRICAL 956 (NORTH)
1/4" = 1'-0"



② 09 - ELECTRICAL 952 (SOUTH)
1/4" = 1'-0"

① PENETRATION PLAN - LEVEL 09
3/32" = 1'-0"

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PROJECT NAME:

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PROJECT NO.

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REVISIONS

Date	Description
09/01/2023	75% DD Set

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL 10

SCALE:

As indicated

PROJECT MANAGER:

MADISON

DRAWN BY:

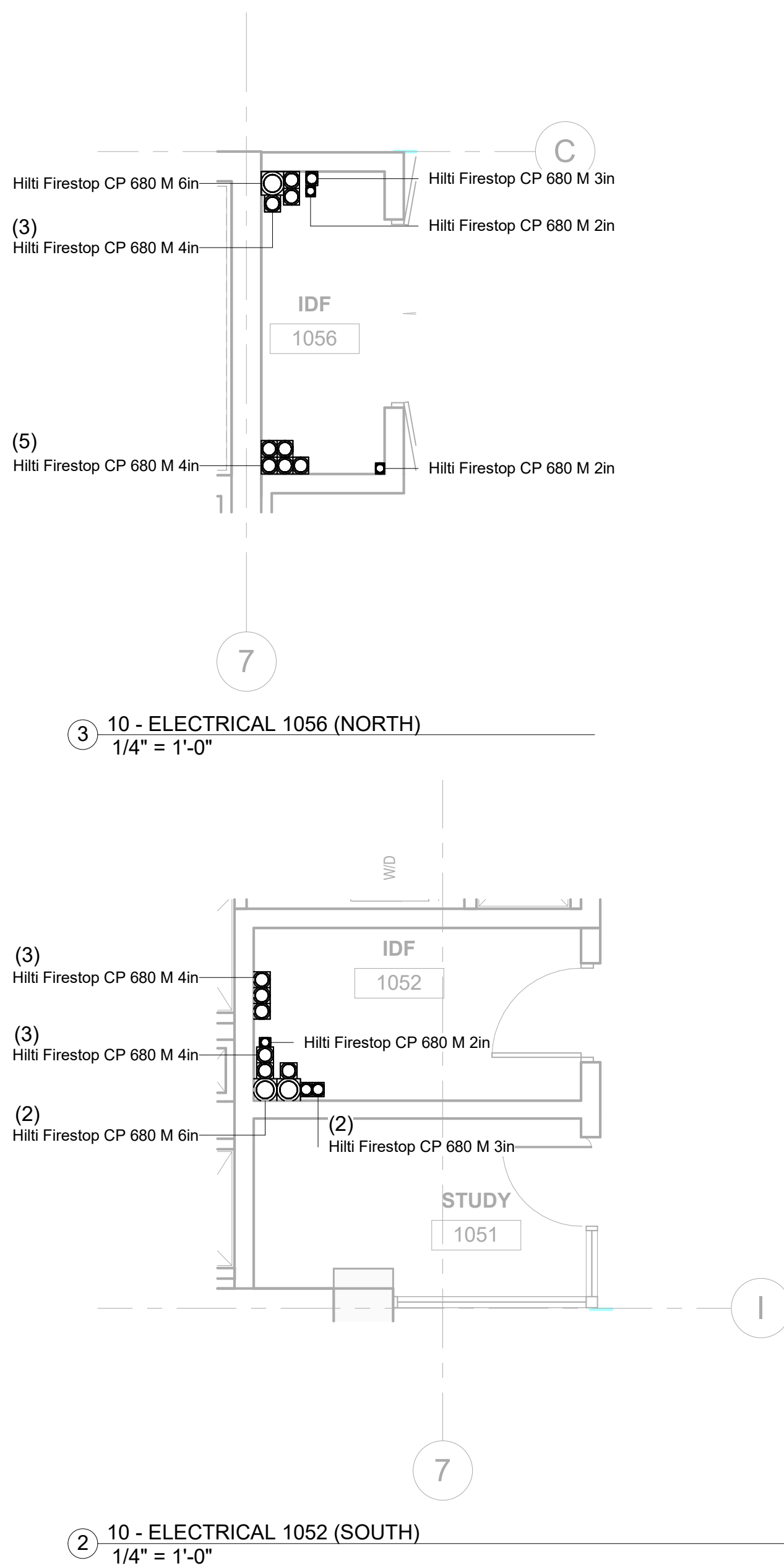
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ISSUE DATE:

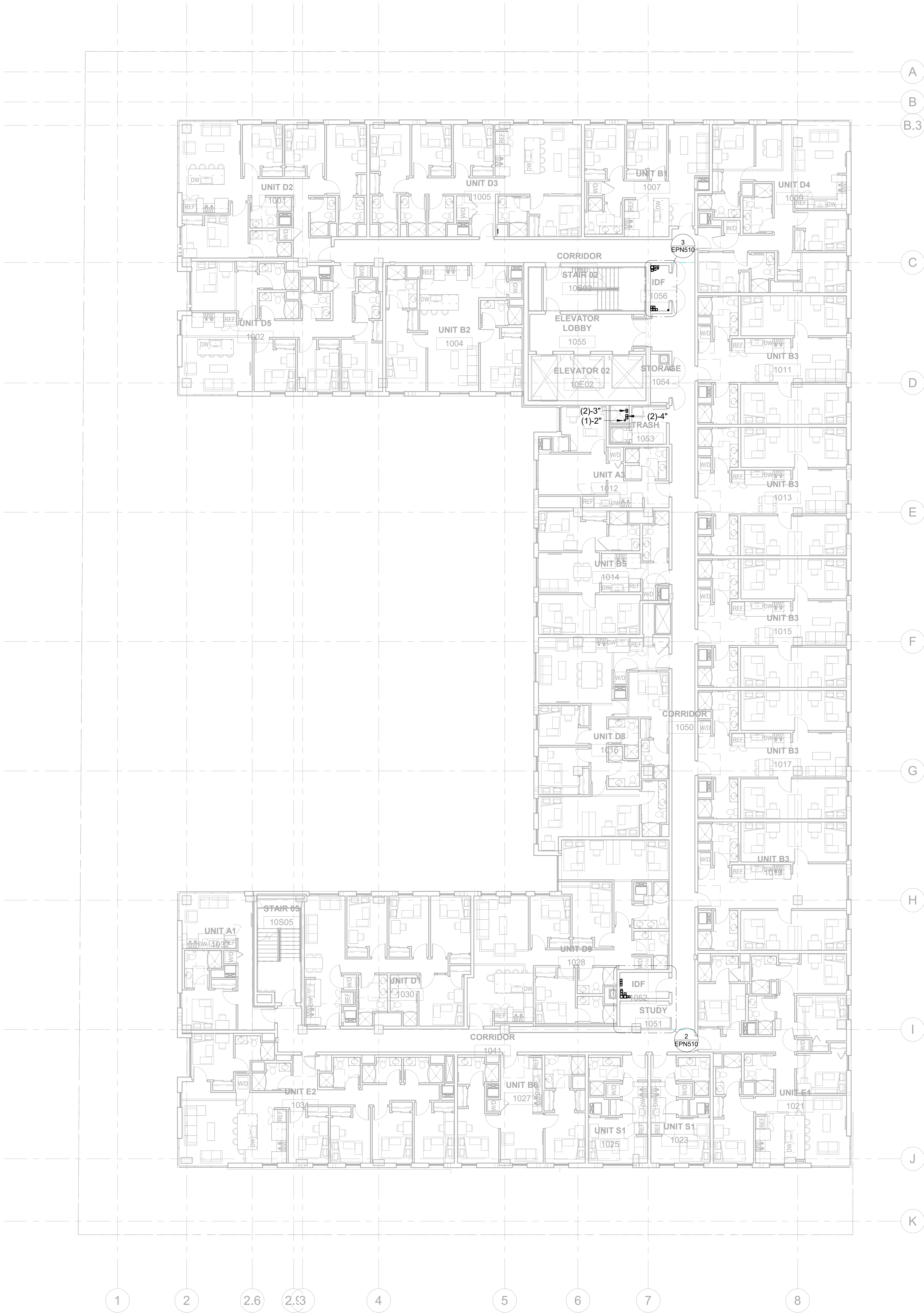
7/27/2023

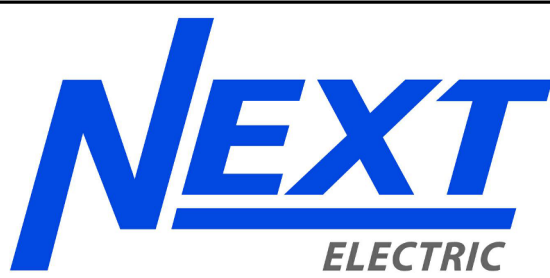
SHEET NO:

EPN510



1 PENETRATION PLAN - LEVEL 10
3/32" = 1'-0"





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MADISON, WI 53718

PROJECT NAME:

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PROJECT ADDRESS:

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PROJECT NO.

23605

REVISIONS

Date	Description
09/01/2023	75% DD Set

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL 12

SCALE:

As indicated

PROJECT MANAGER:

MADISON

DRAWN BY:

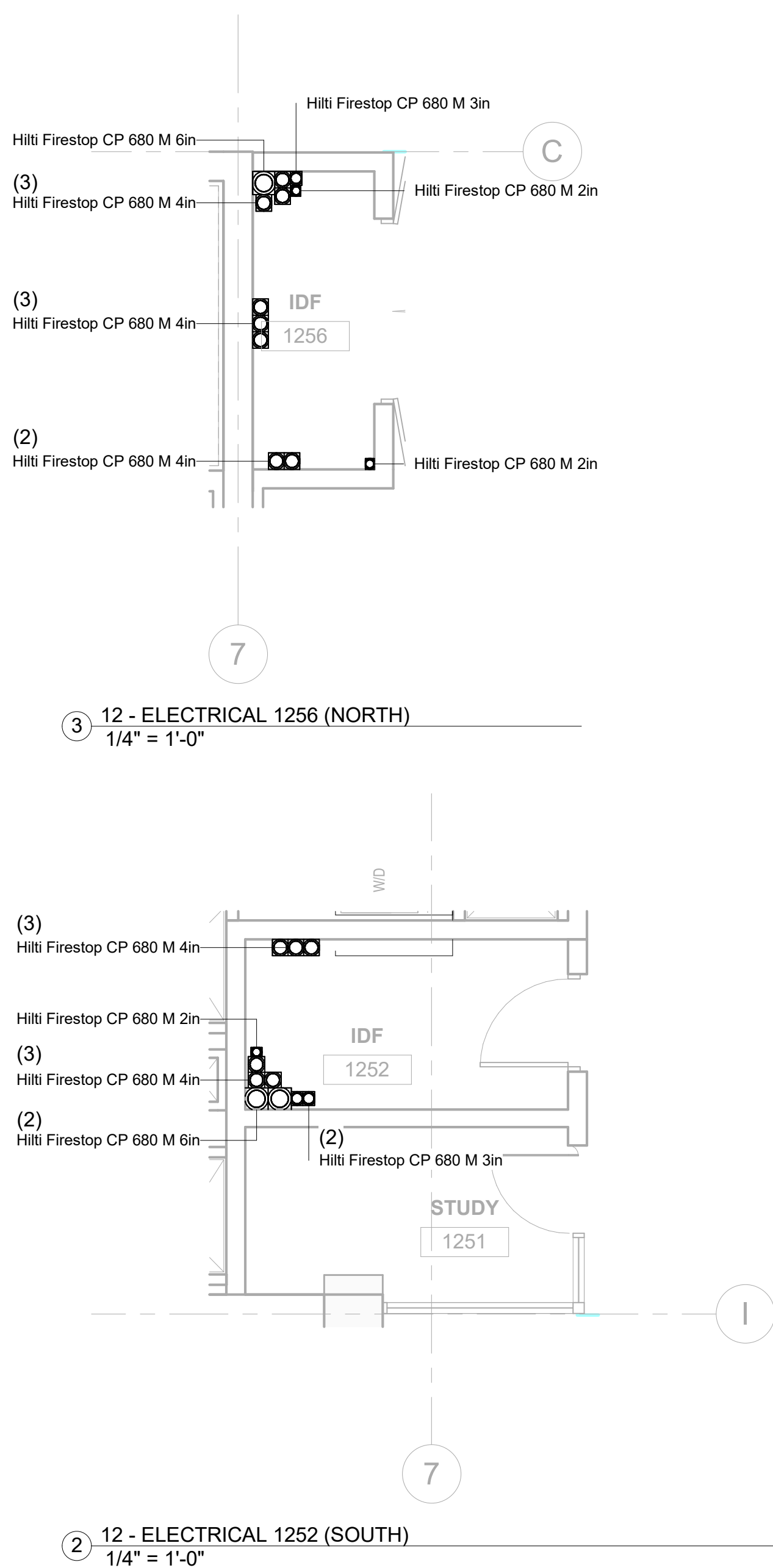
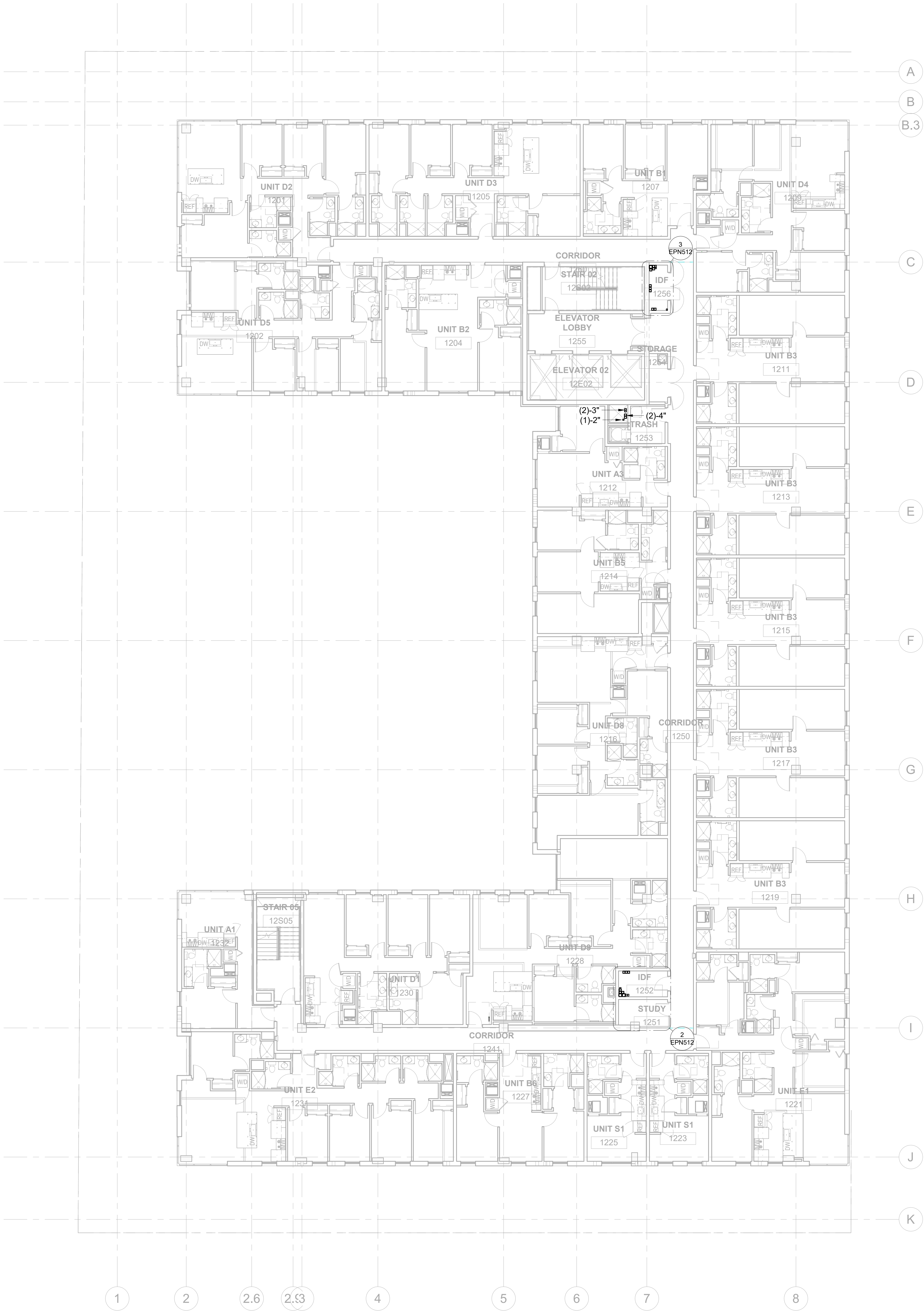
M.KRAUSE

ISSUE DATE:

7/27/2023

SHEET NO:

EPN512



1 PENETRATION PLAN - LEVEL 12
3/32" = 1'-0"

2 12 - ELECTRICAL 1252 (SOUTH)
1/4" = 1'-0"

3 12 - ELECTRICAL 1256 (NORTH)
1/4" = 1'-0"

NEXT ELECTRIC, LLC

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LAKE MILLS 53551

4009 FELLAND RD SUITE 106

MADISON, WI 53718

PROJECT NAME:

STATE ST. STUDENT HOUSING

PROJECT ADDRESS:

415 N. LAKE STREET

MADISON, WI 53715

PROJECT NO.

23605

REVISIONS

Date	Description
09/01/2023	75% DD Set

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL 13

SCALE:

As indicated

PROJECT MANAGER:

MADISON

DRAWN BY:

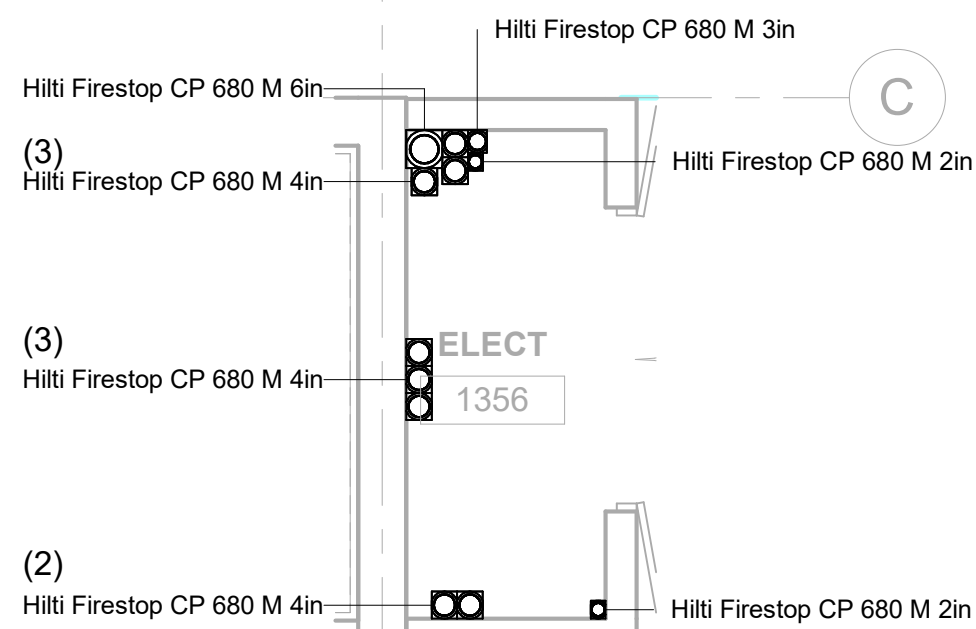
M. KRAUSE

ISSUE DATE:

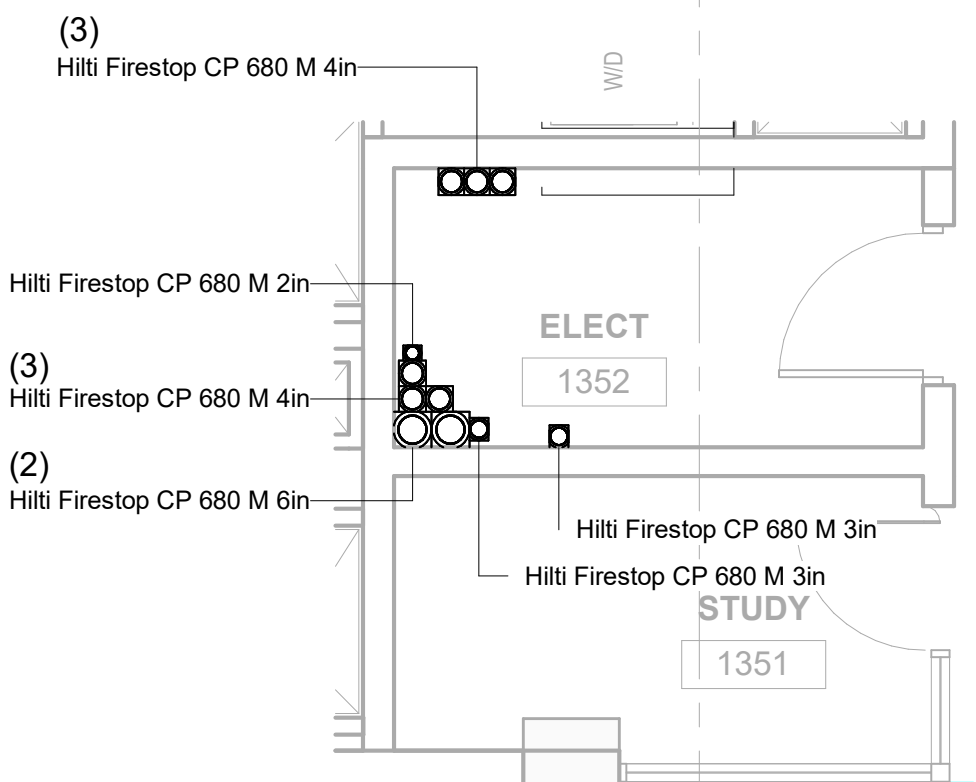
7/27/2023

SHEET NO:

EPN513



13 - ELECTRICAL 1356 (NORTH)
1/4" = 1'-0"



13 - ELECTRICAL 1352 (SOUTH)
1/4" = 1'-0"

1 PENETRATION PLAN - LEVEL 13
3/32" = 1'-0"

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4009 FELLAND RD SUITE 106

MADISON, WI 53718

PROJECT NAME:

STATE ST. STUDENT HOUSING

PROJECT ADDRESS:

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MADISON, WI 53715

PROJECT NO.

23605

REVISIONS

Date	Description
09/01/2023	75% DD Set

SHEET INFO

SHEET NAME:

PENETRATIONS PLAN - LEVEL 14

SCALE:

As indicated

PROJECT MANAGER:

MADISON

DRAWN BY:

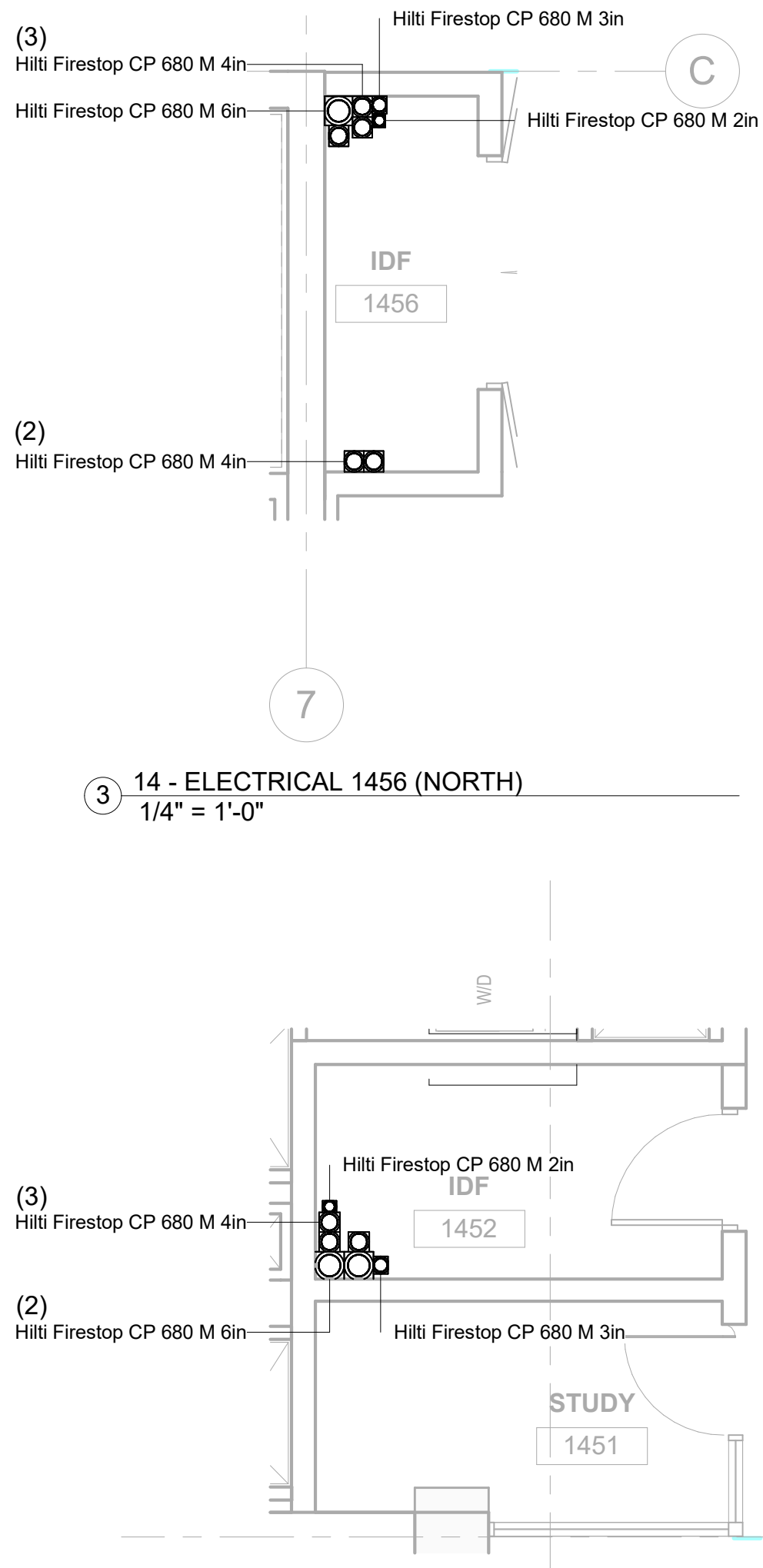
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ISSUE DATE:

7/27/2023

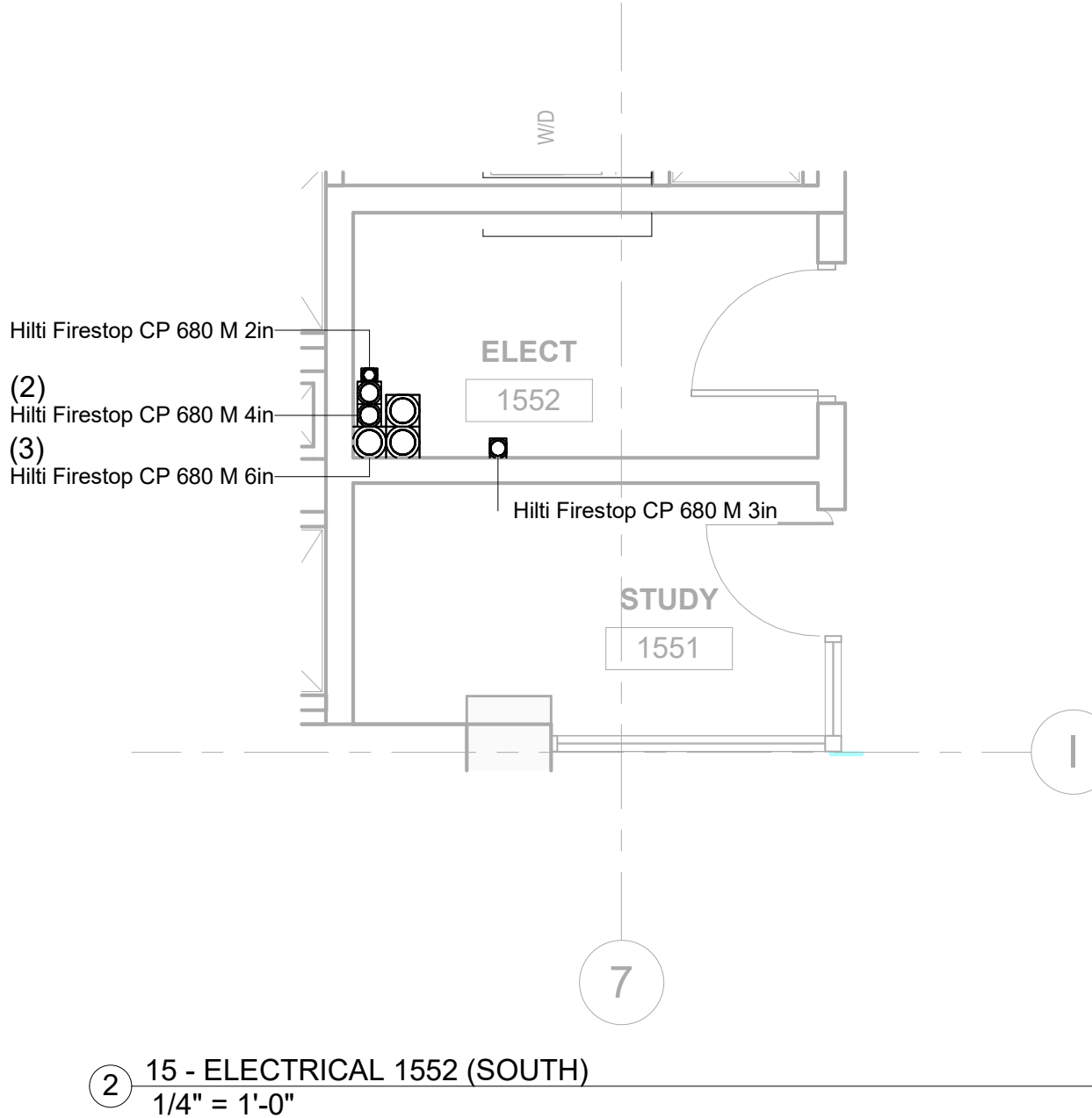
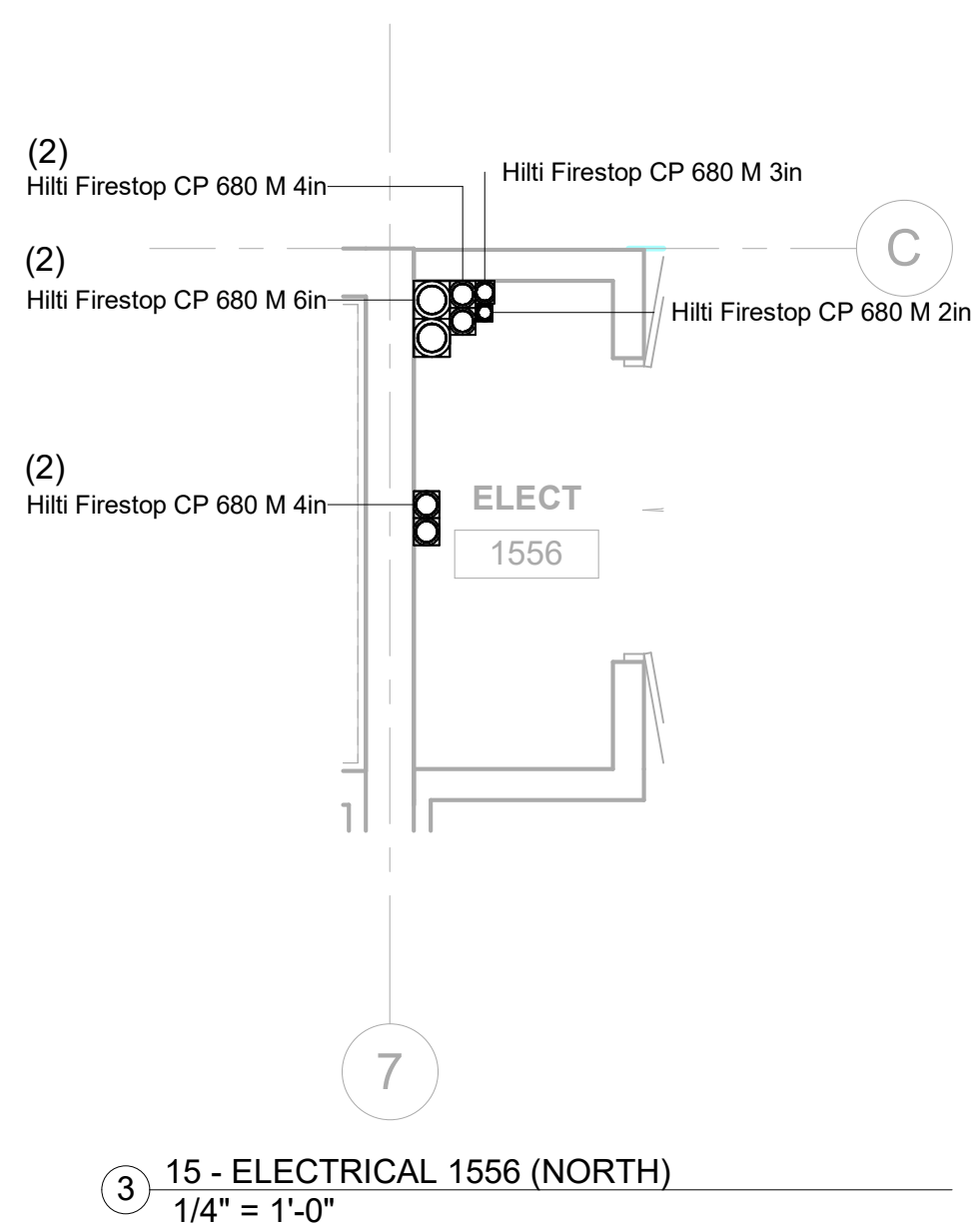
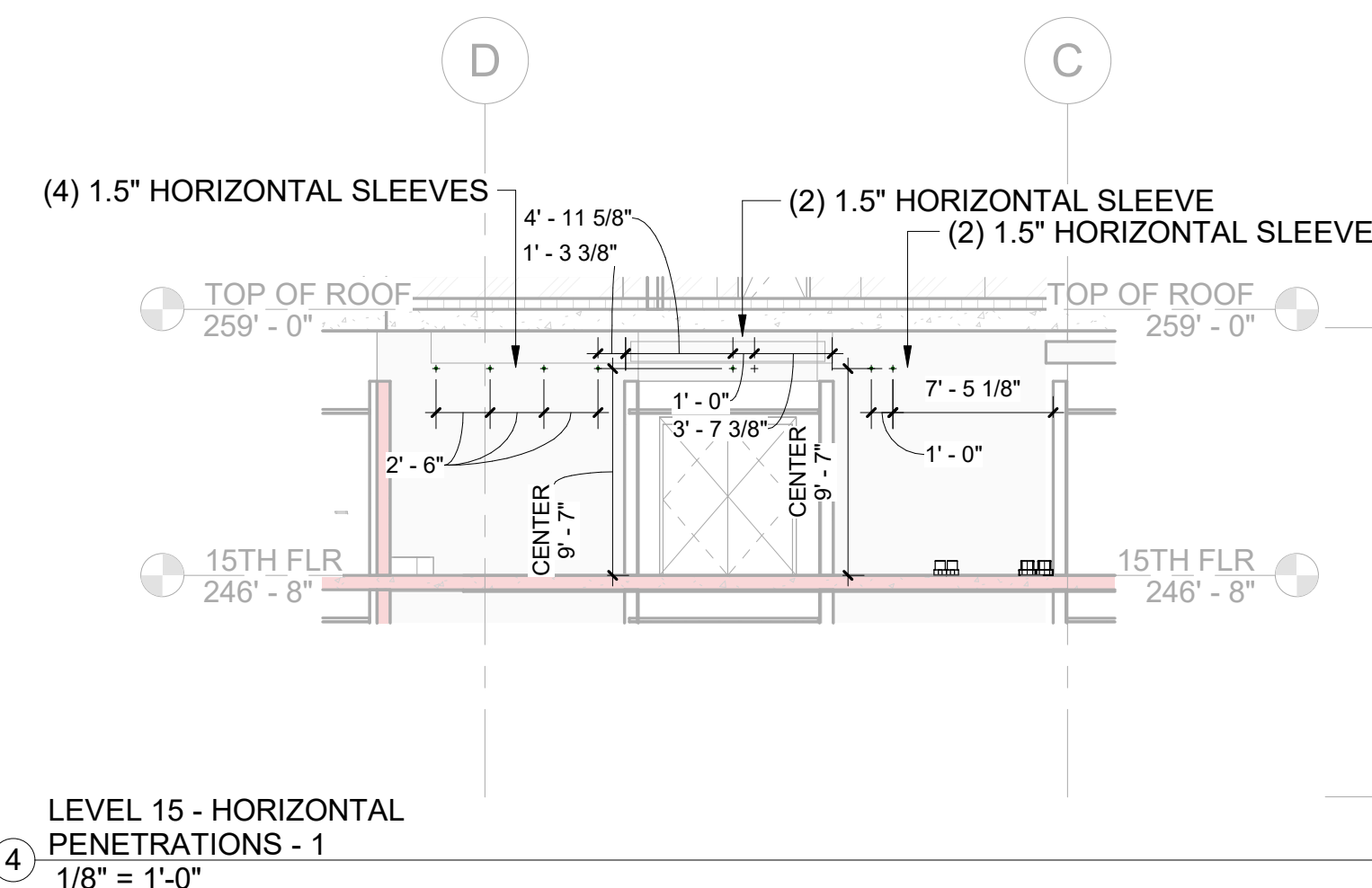
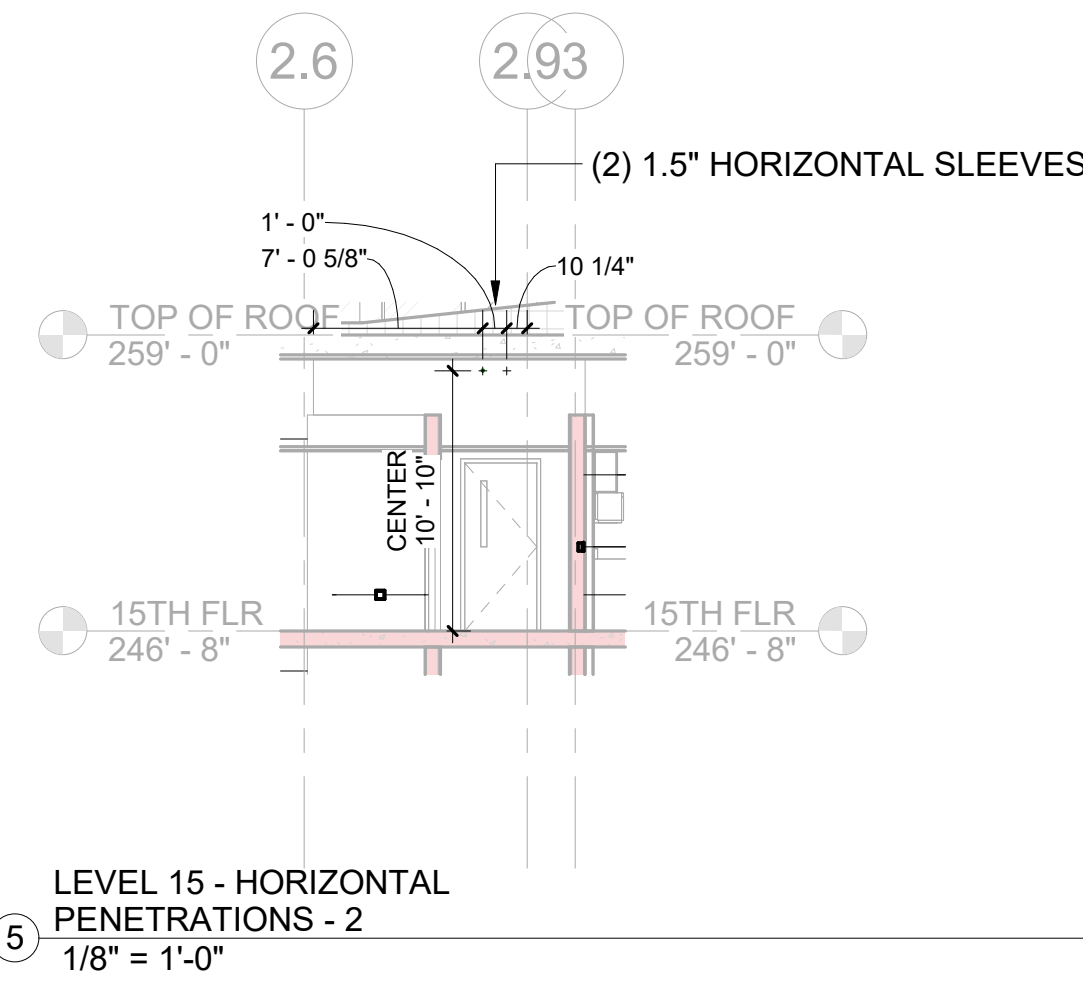
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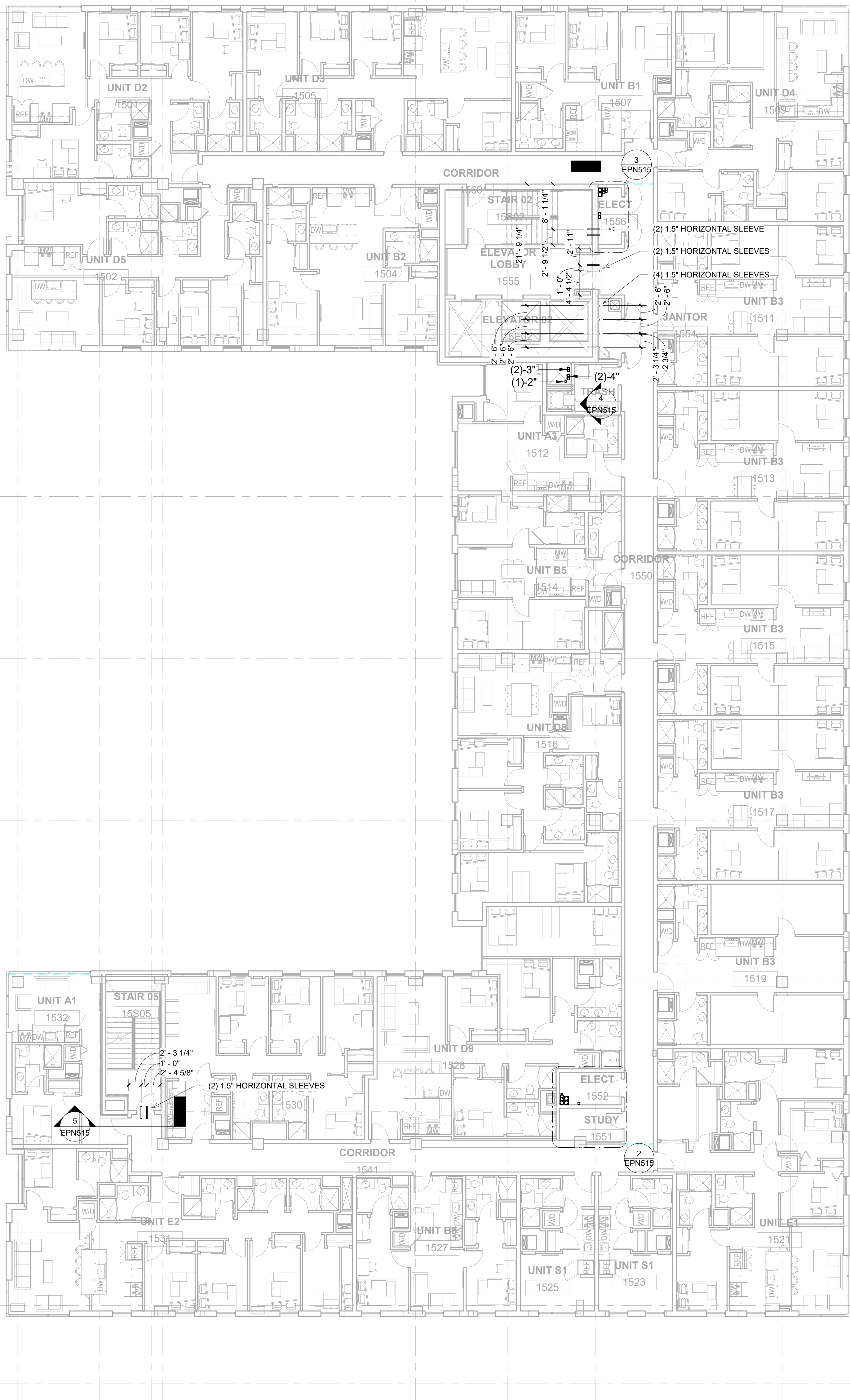


① PENETRATION PLAN - LEVEL 14
3/32" = 1'-0"

Date	Description
09/01/2023	75% DD Set



1 PENETRATION PLAN - LEVEL 15
3/32" = 1'-0"

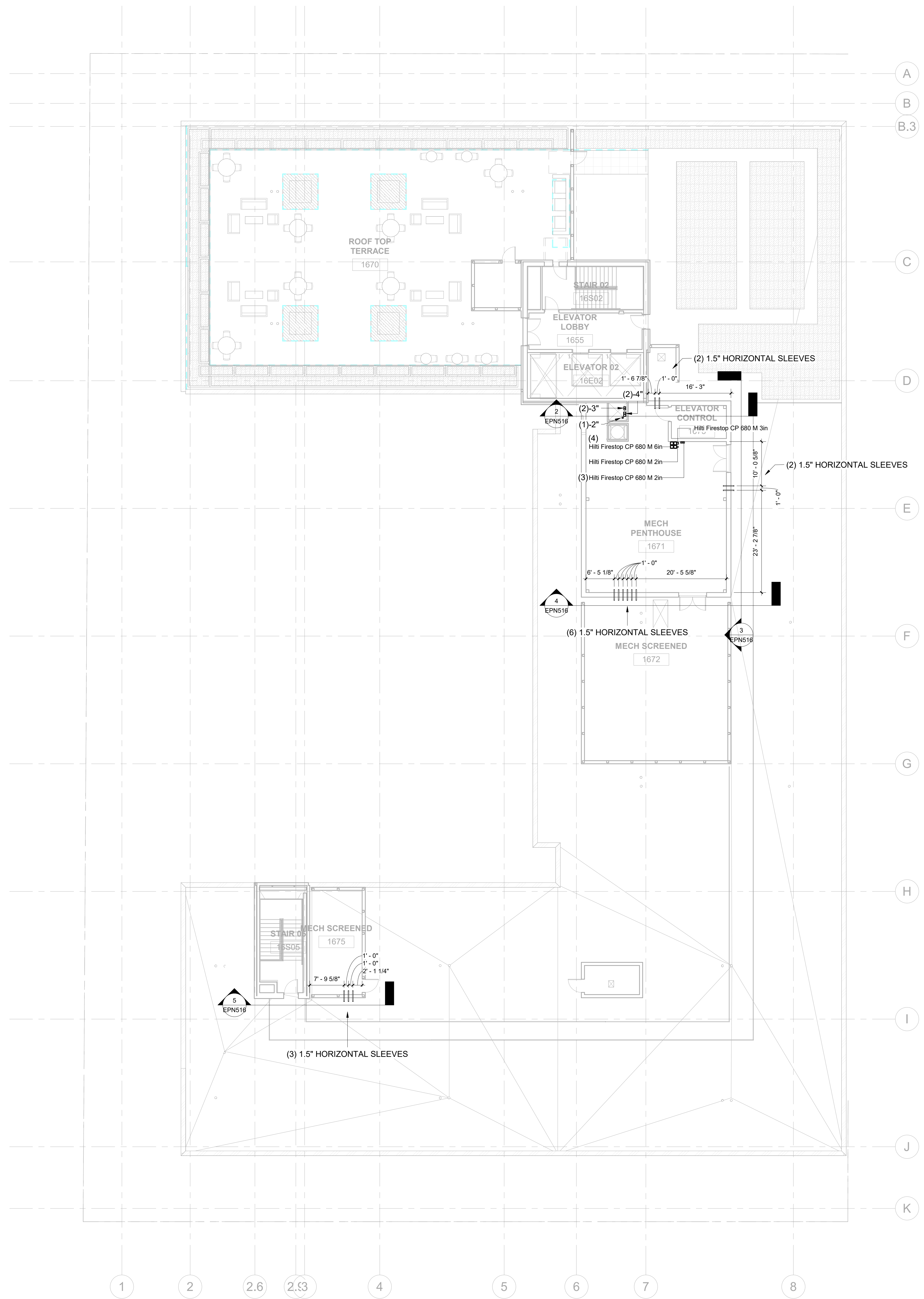
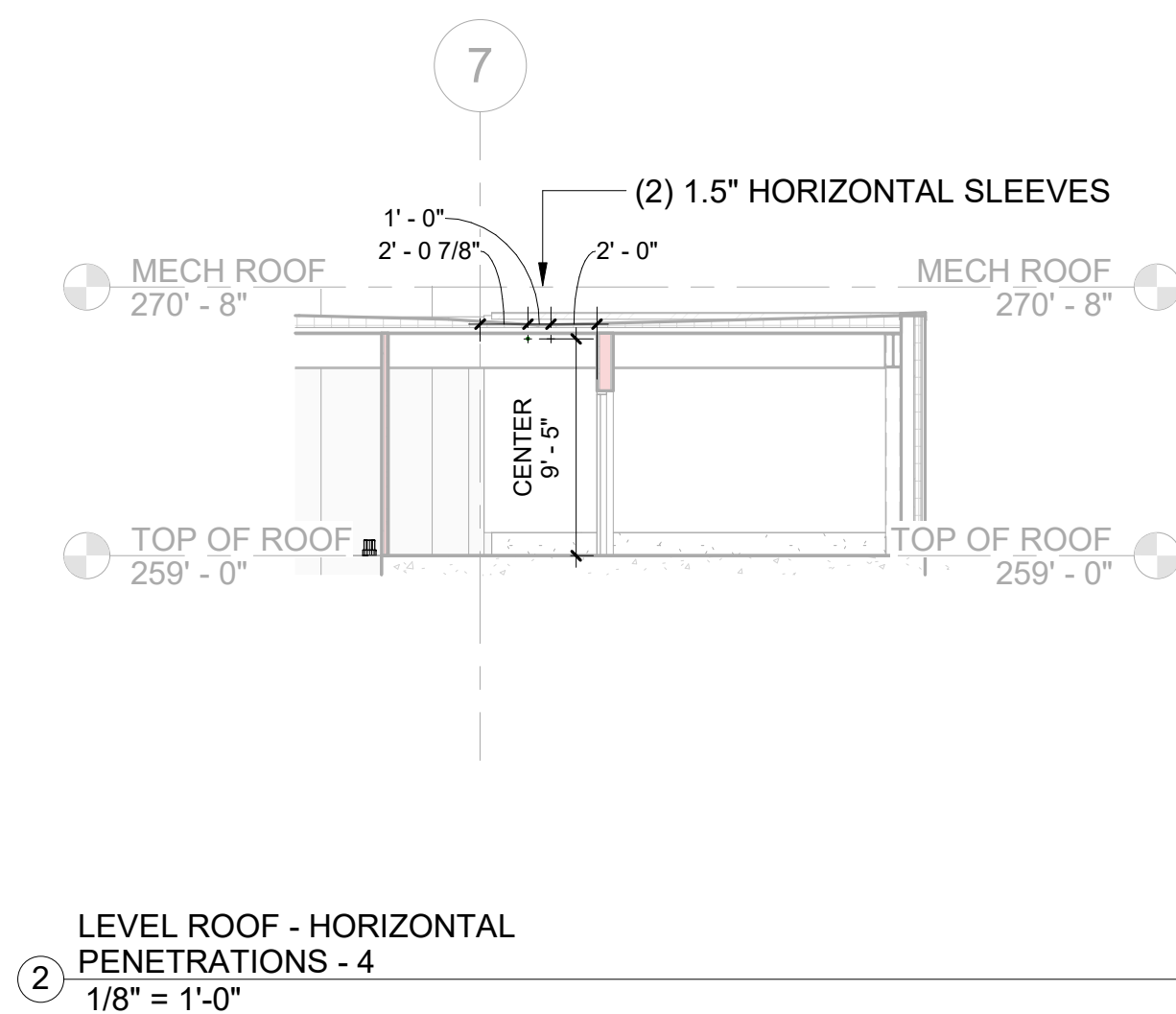


SHEET INFO

LEVEL

PROJECT MANAGER: MADISON

SUE DATE: 7/27/2023



① PENETRATION PLAN - ROOF LEVEL
3/32" = 1'-0"

**SECTION 03 30 00
CAST-IN-PLACE CONCRETE**

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. This section specifies cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes.

1.02 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.

- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.03 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete Subcontractor.
 - e. Special concrete finish Subcontractor.
2. Review the following:
 - a. Special inspection and testing and inspecting agency procedures for field quality control.
 - b. Construction joints, control joints, isolation joints, and joint-filler strips.
 - c. Semirigid joint fillers.
 - d. Vapor-retarder installation.
 - e. Anchor rod and anchorage device installation tolerances.
 - f. Cold and hot weather concreting procedures.
 - g. Concrete finishes and finishing.
 - h. Curing procedures.
 - i. Forms and form-removal limitations.
 - j. Shoring and reshoring procedures.
 - k. Methods for achieving specified floor and slab flatness and levelness.
 - l. Floor and slab flatness and levelness measurements.
 - m. Concrete repair procedures.
 - n. Concrete protection.
 - o. Initial curing and field curing of field test cylinders (ASTM C31/C31M.)
 - p. Protection of field cured field test cylinders.

1.04 ACTION SUBMITTALS

- A. Product Data: For each of the following.

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement
7. Aggregates.
8. Admixtures:

- a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
 9. Color pigments.
 10. Fiber reinforcement.
 11. Vapor retarders.
 12. Floor and slab treatments.
 13. Liquid floor treatments.
 14. Curing materials.
 15. Joint fillers.
 16. Repair materials.
- B. Design Mixtures: For each concrete mixture, include the following:
1. Mixture identification.
 2. Minimum 28-day compressive strength.
 3. Historical compressive strength results including statistical analysis in accordance with ACI 318 or compressive strength test results related to trial batch procedure.
 4. Durability exposure class.
 5. Maximum w/cm.
 6. Calculated equilibrium unit weight, for lightweight concrete.
 7. Slump limit.
 8. Air content.
 9. Nominal maximum aggregate size.
 10. Steel-fiber reinforcement content.
 11. Synthetic micro-fiber content.
 12. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
 13. Include manufacturer's certification that permeability-reducing admixture is compatible with mix design.
 14. Include certification that dosage rate for permeability-reducing admixture matches dosage rate used in performance compliance test.
 15. Intended placement method.
 16. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Steel Reinforcement Shop Drawings:
1. Placing drawings that detail fabrication, bending, and placement. Include bar sizes, lengths, material, grade, bar schedules, stirrup spacing, bent bar diagrams, bar arrangement, splices and laps, mechanical connections, tie spacing, hoop spacing, and supports for concrete reinforcement.
- D. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:
1. Concrete Class designation.
 2. Location within Project.
 3. Exposure Class designation.
 4. Formed Surface Finish designation and final finish.
 5. Final finish for floors.
 6. Curing process.
 7. Floor treatment, if any.
- E. General contractor to submit a coordinated penetration plan (composite of all disciplines requiring penetrations through walls and slabs) two weeks prior to the issuance of construction documents.
- F. Thermal Control Plan Submittal for the concrete placements greater than or equal to 48 inches thick or for placements containing greater than 660 lb/yd³ cementitious material to be submitted by the general contractor and shall include the following:

1. Calculation of maximum concrete temperature to ensure that the maximum temperature will not exceed 158 degrees Fahrenheit with the specific concrete mix design.
2. Plan to ensure that a 35 degree Fahrenheit thermal gradient is not exceeded from the center to the exterior edge of the mat.
3. Thermal monitoring plan, including temperature gauges.
4. Insulation plan including anticipated duration of continuous insulation.
5. Dowel bar insulation plan.

1.05 INFORMATIONAL SUBMITTALS

A. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Form materials and form-release agents.
4. Steel reinforcement and accessories
5. Fiber reinforcement.
6. Waterstops.
7. Curing compounds.
8. Floor and slab treatments.
9. Bonding agents.
10. Adhesives.
11. Vapor retarders.
12. Semirigid joint filler.
13. Joint-filler strips.
14. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement.
7. Aggregates.
8. Admixtures:
 - a. Permeability-Reducing Admixture: Include independent test reports, indicating compliance with specified requirements, including dosage rate used in test.

1.06 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician with experience installing and finishing concrete.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

- C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.
1. Personnel performing laboratory tests to be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency laboratory supervisor to be an ACI-certified Concrete Laboratory Testing Technician, Grade II.
- D. Field Quality-Control Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
1. Personnel conducting field tests to be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
1. ACI 301, "Specification for Structural Concrete"
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials"

1.07 DELIVERY, STORAGE, AND HANDLING

- A. Comply with ASTM C94/C94M and ACI 301.

1.08 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1.
- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1 .

PART 2 PRODUCTS

2.01 FORM-FACING MATERIALS

- A. Smooth-Formed Finished Concrete: Form-facing panels that will provide continuous, true, and smooth concrete surfaces. Furnish in largest practicable sizes to minimize number of joints.
- B. Rough-Formed Finished Concrete: Plywood, Lumber, Metal, or another approved material. Provide lumber dressed on at least two edges and one side for a tight fit.

2.02 STEEL REINFORCEMENT

- A. Reinforcing Bars: ASTM A 615/A 615M, Grade 60, deformed. Reinforcing bars to be welded shall conform to ASTM A706.
1. Epoxy-Coated Reinforcing Bars: ASTM A 775/A 775M, epoxy coated, with less than 2 percent damaged coating in each 12-inch bar length.
- B. Plain-Steel Welded Wire Reinforcement: ASTM A 1064/A 1064M, plain, fabricated from as-drawn steel wire into flat sheets.
- C. Deformed-Steel Welded Wire Reinforcement: ASTM A 497, flat sheet.
- D. Epoxy-Coated Welded Wire Reinforcement: ASTM A 884/A 884M, Class A coated, Type 1, plain steel.
- E. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire reinforcement in place. Manufacture bar supports from steel wire, plastic, or precast concrete according to CRSI's "Manual of Standard Practice."
1. For concrete surfaces exposed to view where legs of wire bar support contact forms, use CRSI Class 1 plastic-protected steel wire or CRSI Class 2 stainless-steel bar supports.
 2. For epoxy-coated reinforcement, use epoxy-coated or other dielectric-polymer-coated wire bar supports.
- F. Fabricate steel reinforcement according to CRSI's "Manual of Standard Practice."
- G. Shear Stud Rail Reinforcement. As shown in plans and details.
1. The shear studs shall be Low Carbon Steel, C1010 to C1020 in accordance with ASTM-A108. Minimum shear stud head area shall be 10 times greater than shear stud shaft area and minimum shear stud head thickness shall be 2/3 the shear stud shaft diameter. The strength and ductility requirements are:
 - a. Yield strength: 50,000 psi minimum

- b. Tensile strength: 60,000 psi minimum
 - c. Elongation in 2 in: 20% minimum
 - d. Reduction of Area: 50% minimum
 2. The bottom rails shall be Low Carbon Steel Type 44W. Minimum rail width shall be 2.5 times the shear stud diameter and minimum rail thickness shall be 0.5 times the stud diameter. The strength and ductility requirements are:
 - a. Yield strength: 44,000 psi minimum
 - b. Tensile strength: 65,000 psi minimum
 - c. Elongation in 8 in: 20% minimum
 3. Shear stud rail assembly shall be welded in accordance with AWS D1.1. Provide chairs which securely hold shear stud rail assembly in vertical position and maintain proper concrete coverage during concrete placement.

2.03 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.04 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of the same type, brand, and source, throughout Project:
 1. Portland Cement: ASTM C150/C150M, Type I/II Supplement with the following:
 - a. Fly Ash: ASTM C618, Class C.
 - b. Ground Granulated Blast-Furnace Slag: ASTM C 989, Grade 100 or 120
- B. Silica Fume: ASTM C 1240, amorphous silica
- C. Normal-Weight Aggregates: ASTM C 33 Free of materials with deleterious reactivity to alkali in cement.
- D. Water: ASTM C 94/C 94M and potable
- E. Air-Entraining Admixture: ASTM C260.
- F. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride in steel-reinforced concrete.
 1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
 2. Retarding Admixture: ASTM C494/C494M, Type B.
 3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
 6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
 7. Crystalline waterproofing:
 - a. Products: Xypex Admix C-500, Kryton Internal Membrane (KIM), **Penetron Admix SB**
 - b. Crystalline waterproofing powder shall be added to the concrete mix at time of batching at a rate of 2 percent to 3 percent by weight of Portland cement content **for the Xypex Admix C-500 and Kryton Internal Membrane.**
 - c. **Crystalline waterproofing powder shall be added to the concrete mix at time of batching at a rate of 1 percent to 2 percent by weight of Portland cement content for the Penetron Admix SB**

2.05 FIBER REINFORCEMENT

- A. Macrosynthetic fiber reinforcement: ASTM C1116, Type III, 1 ½" to 2 ½" long.

2.06 VAPOR BARRIERS

- A. Vapor Barriers: Install ASTM E 1745 Class A not less than 10mil vapor barrier (minimum tensile strength = 50lb/in) with permeance less than .01 perms after ASTM E 154 – Sections 8, 11,12, & 13 per manufacturers recommendations, include accessories (i.e. /seaming tape, mastic, etc.) required for a complete installation.

2.07 LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Clear, chemically reactive, waterborne solution of inorganic silicate or silicate materials and proprietary components; odorless; that penetrates, hardens, and densifies concrete surfaces.
- B. densifies concrete surfaces.

2.08 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.
- C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.
 - 1. Color:
 - a. Ambient Temperature Below 50 deg F: Black.
 - b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
 - c. Ambient Temperature Above 85 deg F: White.
- D. Water: Potable or complying with ASTM C1602/C1602M.
- E. Clear, Waterborne, Membrane-Forming, Dissipating Curing Compound: ASTM C309, Type 1, Class B.
- F. Clear, Waterborne, Membrane-Forming, Nondissipating Curing Compound: ASTM C309, Type 1, Class B, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- G. Clear, Waterborne, Membrane-Forming, Curing Compound: ASTM C309, Type 1, Class B, 18 to 25 percent solids, nondissipating, certified by curing compound manufacturer to not interfere with bonding of floor covering.
- H. Clear, Solvent-Borne, Membrane-Forming, Curing and Sealing Compound: ASTM C1315, Type 1, Class A.

2.09 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber or ASTM D1752, cork or self-expanding cork.
- B. Self-Expanding Butyl Strip Waterstops: Manufactured rectangular or trapezoidal strip, butyl rubber with sodium bentonite or other hydrophilic polymers, for adhesive bonding to concrete, 3/4 by 1 inch.

2.10 CONCRETE MIXTURES

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.

Type of construction	28 day strength (psi) (ASTM C39)	Exposure Categories, reference ACI 318	Percent of air entraining +/- 1-1/2%	Maximum water/cementitious material ratio
Footings	Refer to Plans	F0	--	--
Frost walls	Refer to Plans	F1	5	0.55
Basement Walls	Refer to Plans	F1	--	0.55
Interior Walls	Refer to Plans	F0	--	--
Exterior Walls	Refer to Plans	F2	6	0.45
Interior Columns/ Interior Shearwalls	Refer to Plans	F0	--	--
Exterior Columns/ Exterior Shearwalls	Refer to Plans	F2	6	0.45
Interior Parking Slab on Grade	Refer to Plans	C2	--	0.40

Exterior Slab on Grade	Refer to Plans	F3/C2	6	0.40
Elevated Interior Non-Parking Slabs and Beams	Refer to Plans	F0	--	--
Elevated Interior Parking Slabs and Beams	Refer to Plans	C2	--	0.40
Elevated Exterior Slabs and Beams	Refer to Plans	F3/C2	6	0.40
Interior Concrete Topping and Stair Landings/Treads	Refer to Plans	F0	--	--
Exterior Concrete Topping and Stair Landings/Treads	Refer to Plans	F3/C2	6	0.40
Slabs on Metal Deck	Refer to Plans	F0	--	--
Lean Concrete	Refer to Plans	F0	--	--

B. General Notes:

1. Corrosion exposure to be C0 unless noted otherwise in the Exposure Category column.
2. Maximum aggregate size for all mixes to be ¾ inches; footings may be 1 ½ inches.
3. Concrete supplier and finisher shall coordinate approximate set times of proposed mix design under various weather conditions and adjust mix design as necessary to assure set time is acceptable to complete placing and finishing of slab in a timely manner. Slump may be increased when chemical admixtures are used, provided that the admixture treated concrete has the same or lower water-cement ratio and does not exhibit segregation potential or excessive bleeding,
4. Concrete supplier, in concert with the general contractor, to provide concrete mix such that the maximum temperature will not exceed 158 degrees Fahrenheit. Likewise, a thermal gradient (from the center to the edge of the concrete placement) that exceeds 35 degrees Fahrenheit is not permitted.
5. Provide 5% Air Entrainment at all exposed conditions not explicitly indicated above.
6. Columns integral with walls shall match strength specified in column schedule
7. For Exposure Category F3, maximum percent of total cementitious materials by mass as follows:
 - a. Fly Ash or other pozzolans conforming to ASTM C618 – 25%
 - b. Slag cement conforming to ASTM C989 – 50%
 - c. Silica fume conforming to ASTM C1240 – 10%
 - d. Total of fly ash or other pozzolans and silica fume – 35%
 - e. Total of fly ash or other pozzolans, slag cement, and silica fume – 50%
8. For concrete floor slabs and toppings, the minimum cementitious material content is 540 lbs/yd³ unless approved by engineer of record.
9. A target slump for each mix is to be determined by the general contractor/mix designer. The target slump shall not exceed 9 inches.

2.11 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M and ASTM C1116/C1116M, and furnish batch ticket information.

PART 3 EXECUTION

3.01 EXAMINATION

- A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not proceed until unsatisfactory conditions have been corrected.

3.02 PREPARATION

- A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:
 1. Daily access to the Work.
 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
 4. Security and protection for test samples and for testing and inspection equipment at Project site.

3.03 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301 (ACI 301M), to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117 (ACI 117M).
- C. Limit concrete surface irregularities, designated by ACI 347 as abrupt or gradual, as follows:
 1. Class A, 1/8 inch for smooth-formed finished surfaces
 2. Class B, 1/4 inch for rough-formed finished surfaces
- D. Chamfer exterior corners and edges of permanently exposed concrete.

3.04 INSTALLATION OF EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.
 1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
 2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
 3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.05 INSTALLATION OF VAPOR RETARDER

- A. Sheet Vapor Retarders: Place, protect, and repair sheet vapor retarder in accordance with ASTM E1643 and manufacturer's written instructions.
 1. Install vapor retarder with longest dimension parallel with direction of concrete pour.
 2. Face laps away from exposed direction of concrete pour.
 3. Lap vapor retarder over footings and grade beams not less than 6 inches, sealing vapor retarder to concrete.
 4. Lap joints 6 inches and seal with manufacturer's recommended tape.
 5. Terminate vapor retarder at the top of floor slabs, grade beams, and pile caps, sealing entire perimeter to floor slabs, grade beams, foundation walls, or pile caps.
 6. Seal penetrations in accordance with vapor retarder manufacturer's instructions.
 7. Protect vapor retarder during placement of reinforcement and concrete.
 - a. Repair damaged areas by patching with vapor retarder material, overlapping damages area by 6 inches on all sides, and sealing to vapor retarder.
- B. Bituminous Vapor Retarders: Place, protect, and repair bituminous vapor retarder in accordance with manufacturer's written instructions.

3.06 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for placing reinforcement.

1. Do not cut or puncture under-slab waterproofing or vapor barrier. Repair damage and reseal before placing concrete.
- B. Clean reinforcement of loose rust and mill scale, earth ice, and other foreign materials that would reduce bond to concrete.
- C. Accurately position, support, and secure reinforcement against displacement. Locate and support reinforcement with bar supports to maintain minimum concrete cover. Do not tack weld crossing to reinforcing bars.
 1. Weld reinforcing bars according to AWS D1.4, where indicated.
- D. Set wire ties with ends directed into concrete, not toward exposed concrete surfaces.
- E. Install welded wire reinforcement in longest practicable lengths on bar supports spaced to minimize sagging. Lap edges and ends of adjoining sheets at least one mesh spacing. Offset laps of adjoining sheets widths to prevent continuous laps in either direction. Lace overlaps with wire.
- F. Epoxy-Coated Reinforcement: Repair cut and damaged epoxy coatings with epoxy repair coating according to ASTM D 3963/D 3963M. Use epoxy-coated steel wire ties to fasten epoxy-coated steel reinforcement.

3.07 JOINTS

- A. Construct joints true to line, with faces perpendicular to surface plane of concrete.
- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
 1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Architect.
 2. Place joints perpendicular to main reinforcement.
 - a. Continue reinforcement across construction joints unless otherwise indicated.
 3. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
- C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
 1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.
- D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
 1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants, specified in Section 079200 "Joint Sealants," are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.

3.08 WATERSTOPS

- A. Self-Expanding Strip Waterstops: Install in construction joints and at other locations indicated, according to manufacturer's written instructions, adhesive bonding, mechanically fastening, and firmly pressing into place. Install in longest length practicable.

3.09 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.
 - 1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
 - 2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Architect and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect in writing, but not to exceed the amount indicated on the concrete delivery ticket.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
 - 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
 - 1. If a section cannot be placed continuously, provide construction joints as indicated.
 - 2. Deposit concrete to avoid segregation.
 - 3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
 - a. Do not use vibrators to transport concrete inside forms.
 - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
 - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.
 - d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Do not place concrete floors and slabs in a checkerboard sequence.
 - 2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 3. Maintain reinforcement in position on chairs during concrete placement.
 - 4. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 5. Level concrete, cut high areas, and fill low areas.
 - 6. Slope surfaces uniformly to drains where required.
 - 7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
 - 8. Do not further disturb slab surfaces before starting finishing operations.

3.10 FINISHING FORMED SURFACES

- A. General: After removal of forms, give each formed surface one or more of the finishes described below. When Contract Documents do not specify a finish, finish surfaces as required by Unspecified Finishes.
- B. As-Cast Finishes: Coordinate finishes of all "as-cast" concrete finishes with construction of formwork. Produce as-cast form finishes in accordance with the following requirements:
 - 1. Rough-Form Finish: Patch tie holes and defects. Chip or rub off fins exceeding 1/2 inch in height. Leave surfaces with the texture imparted by the forms.
 - 2. Smooth-Form Finish: Patch tie holes and defects. Remove fins exceeding 1/8 inch in height. Leave surfaces with the texture imparted by the forms.

3. Architectural Finish: Patch tie holes and defects and remove fins. Produce architectural finishes as specified in the Contract Documents.
- C. Exposed underside slab finish in units: Grade B minimum
- D. Rubbed Finish: Apply the following to smooth-formed-finished as-cast concrete where indicated:
 1. Smooth-Rubbed Finish: Patch tie holes and defects and remove fins. Not later than one day after form removal, moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture. Do not apply cement grout other than that created by the rubbing process.
 2. Grout-Cleaned Finish: Patch tie holes and defects and remove fins. Wet concrete surfaces and apply grout of a consistency of thick paint to coat surfaces and fill small holes. Mix 1 part portland cement to 1-1/2 parts fine sand with a 1:1 mixture of bonding admixture and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap and keep surface damp by fog spray for at least 36 hours.
 3. Cork-Floated Finish: Patch tie holes and defects and remove fins. Wet concrete surfaces and apply a stiff grout. Mix 1 part portland cement and 1 part fine sand with a 1:1 mixture of bonding agent and water. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces. Compress grout into voids by grinding surface. In a swirling motion, finish surface with a cork float.
- E. Unspecified Finishes: When a specific finish is not specified in Contract Documents for a concrete surface, apply the following finishes:
 1. Rough-form finish on concrete surfaces not exposed to public view.
 2. Smooth-form (smooth rubbed) finish on concrete surfaces exposed to public view.
- F. Related Unformed Surfaces: At tops of walls, horizontal offsets, and similar unformed surfaces adjacent to formed surfaces, strike off smooth and finish with a texture matching adjacent formed surfaces. Continue final surface treatment of formed surfaces uniformly across adjacent unformed surfaces unless otherwise indicated.

3.11 FINISHING FLOORS AND SLABS

- A. Comply with ACI 302.1R recommendations for screeding, restraightening, and finishing operations for concrete surfaces. Do not wet concrete surfaces.
- B. Scratch Finish:
 1. While still plastic, texture concrete surface that has been screeded and bull-floated or darbied.
 2. Use stiff brushes, brooms, or rakes to produce a profile depth of 1/4 inch in one direction.
 3. Apply scratch finish to surfaces indicated and surfaces to receive concrete floor toppings or to receive mortar setting beds for bonded cementitious floor finishes.
- C. Float Finish:
 1. When bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operation of specific float apparatus, consolidate concrete surface with power-driven floats or by hand floating if area is small or inaccessible to power-driven floats.
 2. Repeat float passes and restraightening until surface is left with a uniform, smooth, granular texture and complies with ACI 117 tolerances for conventional concrete.
 3. Apply float finish to surfaces to receive trowel finish and to be covered with fluid-applied or sheet waterproofing, built-up or membrane roofing, or sand-bed terrazzo.
- D. Trowel Finish:
 1. After applying float finish, apply first troweling and consolidate concrete by hand or power-driven trowel.
 2. Continue troweling passes and restraighten until surface is free of trowel marks and uniform in texture and appearance.
 3. Grind smooth any surface defects that would telegraph through applied coatings or floor coverings.
 4. Do not add water to concrete surface.

5. Do not apply hard-troweled finish to concrete, which has a total air content greater than 3 percent.
6. Apply a trowel finish to surfaces exposed to view or to be covered with resilient flooring, carpet, ceramic or quarry tile set over a cleavage membrane, paint, or another thin-film-finish coating system.
7. Finish surfaces to the following tolerances, in accordance with ASTM E1155, for a randomly trafficked floor surface:
 - a. Slabs on Ground:
 - 1) Specified overall values of flatness, F_F 25; and of levelness, F_L 20; with minimum local values of flatness, F_F 17; and of levelness, F_L 15.
 - b. Suspended Slabs:
 - 1) Specified overall values of flatness, F_F 25; and of levelness, F_L 20; with minimum local values of flatness, F_F 17; and of levelness, F_L 15.
- E. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated on Drawings where ceramic or quarry tile is to be installed by either thickset or thinset method. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.
 1. Coordinate required final finish with Architect before application.
 2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- F. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.
 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
 2. Coordinate required final finish with Architect before application.

3.12 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

- A. Filling In:
 1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
 2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
 3. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Steel Pan Stairs: Provide concrete fill for steel pan stair treads, landings, and associated items.
 1. Cast-in inserts and accessories, as shown on Drawings.
 2. Screed, tamp, and trowel finish concrete surfaces.

3.13 CONCRETE CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
 2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
 3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h before and during finishing operations with an evaporation retarder. Apply according to manufacturer's written instruction after placing, screeding, and bull floating or dabbing concrete, but before float finishing.
- B. Curing Formed Surfaces: Comply with ACI 308.1 as follows:
 1. Cure formed concrete surfaces, including underside of beams, supported slabs, and other similar surfaces.
 2. Cure concrete containing color pigments in accordance with color pigment manufacturer's instructions.
 3. If forms remain during curing period, moist cure after loosening forms.
 4. If removing forms before end of curing period, continue curing for remainder of curing period, as follows:
 - a. Continuous Fogging: Maintain standing water on concrete surface until final setting of concrete.
 - b. Continuous Sprinkling: Maintain concrete surface continuously wet.

- c. Absorptive Cover: Pre-dampen absorptive material before application; apply additional water to absorptive material to maintain concrete surface continuously wet.
 - d. Water-Retention Sheetting Materials: Cover exposed concrete surfaces with sheetting material, taping, or lapping seams.
 - e. Membrane-Forming Curing Compound: Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 1) Recoat areas subject to heavy rainfall within three hours after initial application.
 - 2) Maintain continuity of coating and repair damage during curing period.
- C. Curing Unformed Surfaces: Comply with ACI 308.1 as follows:
1. Begin curing immediately after finishing concrete.
 2. Interior Concrete Floors:
 - a. Floors to Receive Floor Coverings Specified in Other Sections: Contractor has option of the following:
 - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - (a) Lap edges and ends of absorptive cover not less than 12 inches.
 - (b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
 - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
 - (a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - (b) Cure for not less than seven days.
 - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - (a) Water.
 - (b) Continuous water-fog spray.
 - b. Floors to Receive Penetrating Liquid Floor Treatments: Contractor has option of the following:
 - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - (a) Lap edges and ends of absorptive cover not less than 12 inches.
 - (b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
 - 2) Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive.
 - (a) Immediately repair any holes or tears during curing period, using cover material and waterproof tape.
 - (b) Cure for not less than seven days.
 - 3) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:
 - (a) Water.
 - (b) Continuous water-fog spray.
 - c. Floors to Receive Polished Finish: Contractor has option of the following:
 - 1) Absorptive Cover: As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - (a) Lap edges and ends of absorptive cover not less than 12 inches.
 - (b) Maintain absorptive cover water saturated, and in place, for duration of curing period, but not less than seven days.
 - 2) Ponding or Continuous Sprinkling of Water: Maintain concrete surfaces continuously wet for not less than seven days, utilizing one, or a combination of, the following:

- (a) Water.
 - (b) Continuous water-fog spray.
- d. Floors to Receive Chemical Stain:
 - 1) As soon as concrete has sufficient set to permit application without marring concrete surface, install curing paper over entire area of floor.
 - 2) Install curing paper square to building lines, without wrinkles, and in a single length without end joints.
 - 3) Butt sides of curing paper tight; do not overlap sides of curing paper.
 - 4) Leave curing paper in place for duration of curing period, but not less than 28 days.
- e. Floors to Receive Urethane Flooring:
 - 1) As soon as concrete has sufficient set to permit application without marring concrete surface, install prewetted absorptive cover over entire area of floor.
 - 2) Rewet absorptive cover and cover immediately with polyethylene moisture-retaining cover with edges lapped 6 inches and sealed in place.
 - 3) Secure polyethylene moisture-retaining cover in place to prohibit air from circulating under polyethylene moisture-retaining cover.
 - 4) Leave absorptive cover and polyethylene moisture-retaining cover in place for duration of curing period, but not less than 28 days.
- f. Floors to Receive Curing Compound:
 - 1) Apply uniformly in continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
 - 3) Maintain continuity of coating, and repair damage during curing period.
 - 4) Removal: After curing period has elapsed, remove curing compound without damaging concrete surfaces by method recommended by curing compound manufacturer unless manufacturer certifies curing compound does not interfere with bonding of floor covering used on Project.
- g. Floors to Receive Curing and Sealing Compound:
 - 1) Apply uniformly to floors and slabs indicated in a continuous operation by power spray or roller in accordance with manufacturer's written instructions.
 - 2) Recoat areas subjected to heavy rainfall within three hours after initial application.
 - 3) Repeat process 24 hours later and apply a second coat. Maintain continuity of coating, and repair damage during curing period.

3.14 TOLERANCES

- A. Conform to ACI 117.

3.15 APPLICATION OF LIQUID FLOOR TREATMENTS

- A. Penetrating Liquid Floor Treatment: Prepare, apply, and finish penetrating liquid floor treatment in accordance with manufacturer's written instructions.
 - 1. Remove curing compounds, sealers, oil, dirt, laitance, and other contaminants and complete surface repairs.
 - 2. Do not apply to concrete that is less than seven days' old or as recommended by the manufacturer.
 - 3. Apply liquid until surface is saturated, scrubbing into surface until a gel forms; rewet; and repeat brooming or scrubbing.
 - 4. Rinse with water; remove excess material until surface is dry.
 - 5. Apply a second coat in a similar manner if surface is rough or porous.
- B. Sealing Coat: Uniformly apply a continuous sealing coat of curing and sealing compound to hardened concrete by power spray or roller in accordance with manufacturer's written instructions.

3.16 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least three month(s).
 - 2. Do not fill joints until construction traffic has permanently ceased.

- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

3.17 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
 - 1. Repair and patch defective areas when approved by Architect.
 - 2. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
 - a. Limit cut depth to 3/4 inch.
 - b. Make edges of cuts perpendicular to concrete surface.
 - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
 - d. Fill and compact with patching mortar before bonding agent has dried.
 - e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.
 - a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
 - b. Compact mortar in place and strike off slightly higher than surrounding surface.
 - 3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces:
 - 1. Test unformed surfaces, such as floors and slabs, for finish, and verify surface tolerances specified for each surface.
 - a. Correct low and high areas.
 - b. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
 - 2. Repair finished surfaces containing surface defects, including spalls, popouts, honeycombs, rock pockets, crazing, cracks and other conditions that are deemed unacceptable by the structural engineer or architect.
 - 3. After concrete has cured at least 14 days, correct high areas by grinding.
 - 4. Correct localized low areas during, or immediately after, completing surface-finishing operations by cutting out low areas and replacing with patching mortar.
 - a. Finish repaired areas to blend into adjacent concrete.
 - 5. Correct other low areas scheduled to receive floor coverings with a repair underlayment.
 - a. Prepare, mix, and apply repair underlayment and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - b. Feather edges to match adjacent floor elevations.
 - 6. Correct other low areas scheduled to remain exposed with repair topping.
 - a. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations.
 - b. Prepare, mix, and apply repair topping and primer in accordance with manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 - 7. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete.

- a. Remove defective areas with clean, square cuts, and expose steel reinforcement with at least a 3/4-inch clearance all around.
 - b. Dampen concrete surfaces in contact with patching concrete and apply bonding agent.
 - c. Mix patching concrete of same materials and mixture as original concrete, except without coarse aggregate.
 - d. Place, compact, and finish to blend with adjacent finished concrete.
 - e. Cure in same manner as adjacent concrete.
8. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
- a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
 - b. Dampen cleaned concrete surfaces and apply bonding agent.
 - c. Place patching mortar before bonding agent has dried.
 - d. Compact patching mortar and finish to match adjacent concrete.
 - e. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.18 FIELD QUALITY CONTROL

- A. Special Inspections: When required by local jurisdiction, owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
- B. Testing Agency: Owner will engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
1. Testing agency shall be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
 2. Testing agency shall immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
 3. Testing agency shall report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
 - a. Test reports shall include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
 - 1) Project name.
 - 2) Name of testing agency.
 - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
 - 4) Name of concrete manufacturer.
 - 5) Date and time of inspection, sampling, and field testing.
 - 6) Date and time of concrete placement.
 - 7) Location in Work of concrete represented by samples.
 - 8) Date and time sample was obtained.
 - 9) Truck and batch ticket numbers.
 - 10) Design compressive strength at 28 days.
 - 11) Concrete mixture designation, proportions, and materials.
 - 12) Field test results.
 - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
 - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.
- D. Inspections:

1. Steel reinforcement placement.
 2. Steel reinforcement welding.
 3. Headed bolts and studs.
 4. Verification of use of required design mixture.
 5. Concrete placement, including conveying and depositing.
 6. Curing procedures and maintenance of curing temperature.
 7. Verification of concrete strength before removal of shores and forms from beams and slabs.
 8. Batch Plant Inspections: On a random basis, as determined by Architect.
- E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M shall be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 100 cu. yd. or fraction thereof.
 - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C143/C143M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - b. Perform additional tests when concrete consistency appears to change.
 3. Slump Flow: ASTM C1611/C1611M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - b. Perform additional tests when concrete consistency appears to change.
 4. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete.
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 5. Concrete Temperature: ASTM C1064/C1064M:
 - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
 6. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 7. Compression Test Specimens: ASTM C31/C31M:
 - a. Cast and laboratory cure two sets of two 6-inch by 12-inch or two sets of three 4-inch by 8-inch cylinder specimens for each composite sample.
 - b. Cast, initial cure, and field cure two sets of two standard cylinder specimens for each composite sample.
 8. Compressive-Strength Tests: ASTM C39/C39M.
 - a. Test one set of two 6-inch or three 4-inch laboratory-cured specimens at seven days and one set of two 6-inch or three 4-inch specimens at 28 days.
 - b.
 - c. Test one set of two 6-inch or three 4-inch field-cured specimens at seven days and one set of two 6-inch or three 4-inch specimens at 28 days.
 - d. A compressive-strength test shall be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor shall evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
 10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than

- 1 10 percent of specified compressive strength if specified compressive strength is greater than
2 5000 psi.
- 3 11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be
4 permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- 5 12. Additional Tests:
- 6 a. Testing and inspecting agency shall make additional tests of concrete when test results
7 indicate that slump, air entrainment, compressive strengths, or other requirements have not
8 been met, as directed by Architect.
- 9 b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by
10 cored cylinders complying with ASTM C42/C42M or by other methods as directed by
11 Architect.
- 12 1) Acceptance criteria for concrete strength shall be in accordance with ACI 301,
13 Section 1.6.6.3.
- 14 13. Additional testing and inspecting, at Contractor's expense, will be performed to determine
15 compliance of replaced or additional work with specified requirements.
- 16 14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the
17 Contract Documents.
- 18 F. Measure floor and slab flatness and levelness in accordance with ASTM E1155 within 24 hours of
19 completion of floor finishing and promptly report test results to Architect.

20 **3.19 PROTECTION**

- 21 A. Protect concrete surfaces as follows:
- 22 1. Protect from petroleum stains.
- 23 2. Diaper hydraulic equipment used over concrete surfaces.
- 24 3. Prohibit vehicles from interior concrete slabs.
- 25 4. Prohibit use of pipe-cutting machinery over concrete surfaces.
- 26 5. Prohibit placement of steel items on concrete surfaces.
- 27 6. Prohibit use of acids or acidic detergents over concrete surfaces.
- 28 7. Protect liquid floor treatment from damage and wear during the remainder of construction period.
29 Use protective methods and materials, including temporary covering, recommended in writing by
30 liquid floor treatments installer.
- 31 8. Protect concrete surfaces scheduled to receive surface hardener or polished concrete finish
32 using Floor Slab Protective Covering.

33 **END OF SECTION**

**SECTION 08 51 13
ALUMINUM WINDOWS**

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Extruded aluminum windows with fixed sash.
- B. Operating hardware.

1.02 RELATED REQUIREMENTS

- A. Section 07 25 11 - Weather Barriers - Fire Retardant Fluid Applied: Sealing frame to weather barrier installed on adjacent construction.
- B. Section 07 92 00 - Joint Sealants: Sealing joints between window frames and adjacent construction.
- C. Section 08 80 00 - Glazing: Glass and Glazing standards.

1.03 REFERENCE STANDARDS

- A. AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for Windows, Doors, and Skylights 2017.
- B. AAMA CW-10 - Care and Handling of Architectural Aluminum from Shop to Site 2015.
- C. AAMA 502 - Voluntary Specification for Field Testing of Newly Installed Fenestration Products 2021.
- D. AAMA 609 & 610 - Cleaning and Maintenance Guide for Architecturally Finished Aluminum (Combined Document) 2015.
- E. AAMA 1503 - Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections 2009.
- F. ASTM B209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate 2014.
- G. ASTM B209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) 2014.
- H. ASTM B221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes 2021.
- I. ASTM B221M - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Profiles, and Tubes (Metric) 2021.
- J. ASTM E783 - Standard Test Method for Field Measurement of Air Leakage Through Installed Exterior Windows and Doors 2002 (Reapproved 2018).
- K. ASTM E1105 - Standard Test Method for Field Determination of Water Penetration of Installed Exterior Windows, Skylights, Doors, and Curtain Walls, by Uniform or Cyclic Static Air Pressure Difference 2015.
- L. ASTM Standard Test Methods
 - 1. ASTM E283, Determining Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors Under Specified Pressure Differences Across the Specimen
 - 2. ASTM E330, Structural Performance of Exterior Windows, Doors by Uniform Static Air Pressure Difference
 - 3. ASTM E331, Water Penetration of Exterior Windows, Skylights, Doors, and Curtain Walls by Uniform Static Air Pressure Difference
 - 4. ASTM E1105, Field Determination of Water Penetration of Installed Exterior Windows, Glazed aluminum facade systems and Doors by Uniform or Cyclic Static Air Pressure Difference.

1.04 SUBMITTALS

- A. See Section 01 33 23-Submittals, for submittal procedures.

- B. Product Data: Provide component dimensions, information on glass and glazing, internal drainage details, descriptions of hardware and accessories, and thermal performance data including system U values, Solar Heat Gain Coefficient, and Condensation Resistance Factor..
- C. Shop Drawings: Indicate opening dimensions, elevations of different types, framed opening tolerances, method for achieving air and vapor barrier seal to adjacent construction, anchorage locations, and installation requirements.
- D. Grade Substantiation: Prior to submitting shop drawings or starting fabrication, submit one of the following showing compliance with specified grade:
 - 1. Evidence of AAMA Certification.
 - 2. Evidence of WDMA Certification.
 - 3. Evidence of CSA Certification.
 - 4. Test report(s) by independent testing agency itemizing compliance and acceptable to authorities having jurisdiction.
- E. Test Reports: Prior to submitting shop drawings or starting fabrication, submit test report(s) by independent testing agency showing compliance with performance requirements in excess of those prescribed by specified grade.
- F. Design Data: Provide framing member structural and physical characteristics and engineering calculations, and identify dimensional limitations; include load calculations at points of attachment to building structure.
- G. Manufacturer's Installation Instructions: Include complete preparation, installation, and cleaning requirements.
- H. Field Quality Control Submittals: Report of field testing for water penetration and air leakage.
- I. Warranty: Submit manufacturer warranty and ensure that forms have been completed in Owner's name and registered with manufacturer.

1.05 QUALITY ASSURANCE

- A. Designer Qualifications: Design structural support framing components under direct supervision of a Professional Structural Engineer experienced in design of this Work and licensed at the State in which the Project is located.
- B. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum three years of experience.
- C. Installer Qualifications: Company specializing in performing work of type specified and with at least three years of experience.
- D. Full-Size Mock-up Testing: Have a specimen representative of project conditions tested by an independent testing agency for compliance with specified thermal, structural, air infiltration, water penetration, and sound attenuation criteria.

1.06 DELIVERY, STORAGE, AND HANDLING

- A. Comply with requirements of AAMA CW-10.
- B. Protect finished surfaces with wrapping paper or strippable coating during installation. Do not use adhesive papers or sprayed coatings that bond to substrate when exposed to sunlight or weather.

1.07 FIELD CONDITIONS

- A. Do not install sealants when ambient temperature is less than 40 degrees F.

1.08 WARRANTY

- A. See Section 01 78 36-Warranties, for additional warranty requirements.
- B. Correct defective Work within a five year period after Date of Substantial Completion.
- C. Provide five year manufacturer warranty against failure of glass seal on insulating glass units, including interpane dusting or misting. Include provision for replacement of failed units.

- D. Provide five year manufacturer warranty against excessive degradation of exterior finish. Include provision for replacement of units with excessive fading, chalking, or flaking.

PART 2 PRODUCTS

2.01 MANUFACTURERS

- A. Aluminum Windows (window wall): Basis of Design - Kawneer; MetroView FG 601T PG; www.kawneer.us
1. Acceptable alternate manufacturers subject to compliance with requirements:
 - a. EFCO, a Pella Company; 645X: www.efcocorp.com/#sle.
 - b. **Tubelite; 900RW TU; www.tubeliteusa.com**

2.02 WINDOWS

- A. Performance Requirements: Provide products that comply with the following **specified performance requirements without failure due to defective manufacture, fabrication, installation, or other defects in construction as determined by testing of glazed aluminum window wall representing those indicated for the project:**
1. ~~Grade: AAMA/WDMA/CSA 101/I.S.2/A440 requirements for specific window type:~~
 - a. ~~Performance Class (PC): AW-PC 100 for fixed windows.~~
 2. Condensation Resistance Factor of Frame: 76, Glass: 74, measured in accordance with AAMA 1503.
 3. Overall U-value, Including Glazing: ~~0.34~~ **0.36** (fixed) maximum, measured on the window size required for this project **based on a center of glass U-Value of 0.26 with warm edge spacer.**
 4. Solar Heat Gain Coefficient: ~~0.35~~ **0.26 overall**
 5. Visible Light Transmittance: ~~0.70~~ **0.58 overall**
 6. Air Infiltration: Fixed window air infiltration shall not exceed 0.01 cfm/ft² when tested in accordance with ASTM E 283 with a pressure difference of 6.27 psf / 300 Pa.
 7. Water Penetration Resistance:
 - a. There shall be no uncontrolled leakage for fixed windows when tested in accordance with ASTM E547 with a pressure difference of 12 psf / 720 Pa (Laboratory Test, Static).
 8. Uniform Load Deflection Test: The deflection of fixed window shall not exceed L/175 and there shall be no permanent set when tested in accordance with ASTM E330, ~~with a design pressure of 100 psf (fixed) / 4800 Pa (fixed), positive and negative.~~
- B. Fixed, Non-Operable Type:
1. Construction: Thermally broken.
 2. Glazing: Double; clear; low-e.
 3. Exterior Finish: Class I natural anodized.
 4. Interior Finish: Class I natural anodized.

2.03 COMPONENTS

- A. Frames: Manufacturers standard section as required for the configurations indicated in the drawings (7 inch depth maximum); thermally broken with interior portion of frame insulated from exterior portion;
- B. Glazing: As specified in Section 08 80 00.
- C. Sills: 0.125 inch thick, extruded aluminum; sloped for positive wash; fit under sash leg to 1/2 inch beyond wall face; one piece full width of opening; jamb angles to terminate sill end.
- D. Glazing Materials: As specified in Section 08 80 00.
- E. Sealant for Setting Sills and Sill Flashing: Non-curing butyl type.
- F. Closed Cell Foam Insulation: Gun-grade, single-component, low-expanding, polyurethane foam joint filler formulated to achieve thermal, sound, and air barrier continuity at the perimeter of opening frames in exterior walls:
1. Manufacturer/Product: Tremco ExoAir LEF.

- 1 **2.04 MATERIALS**
- 2 A. Extruded Aluminum: ASTM B221 (ASTM B221M), 6063 alloy, T6 temper.
- 3 **2.05 FINISHES**
- 4 A. Class I Natural Anodized Finish: AAMA 611 AA-M12C22A41 Clear anodic coating not less than 0.7
- 5 mils thick.
- 6 **PART 3 EXECUTION**
- 7 **3.01 EXAMINATION**
- 8 A. Verify that wall openings and adjoining air and vapor seal materials are ready to receive aluminum
- 9 windows.
- 10 **3.02 INSTALLATION**
- 11 A. Install windows and doors in accordance with manufacturer's instructions.
- 12 B. Attach window frame and shims to perimeter opening to accommodate construction tolerances and
- 13 other irregularities.
- 14 C. Align window plumb and level, free of warp or twist. Maintain dimensional tolerances and alignment
- 15 with adjacent work.
- 16 D. Install sill and sill end angles.
- 17 E. Set sill members and sill flashing in continuous bead of sealant.
- 18 F. Provide thermal isolation where components penetrate or disrupt building insulation. Spray closed cell
- 19 polyurethane foam insulation in shim spaces at perimeter of assembly to maintain continuity of
- 20 thermal barrier.
- 21 G. Install glass in accordance with requirements specified in Section 08 80 00.
- 22 **3.03 TOLERANCES**
- 23 A. Maximum Variation from Level or Plumb: 1/16 inches every 3 ft non-cumulative or 1/8 inches per 10
- 24 ft, whichever is less.
- 25 **3.04 FIELD QUALITY CONTROL**
- 26 A. Provide field testing of installed aluminum windows by independent laboratory in accordance with
- 27 AAMA 502 and AAMA/WDMA/CSA 101/I.S.2/A440 during construction process and before installation
- 28 of interior finishes.
- 29 1. Perform tests on one individual window of each type in designated locations as indicated on
- 30 drawings.
- 31 2. Field test for water penetration in accordance with ASTM E1105 using Procedure B - cyclic static
- 32 air pressure difference; test pressure shall not be less than 1.9 psf.
- 33 3. Field test for air leakage in accordance with ASTM E783 with uniform static air pressure
- 34 difference of 1.57 psf.
- 35 B. Repair or replace fenestration components that have failed designated field testing, and retest to
- 36 verify performance complies with specified requirements.
- 37 **3.05 ADJUSTING**
- 38 A. Adjust hardware for smooth operation and secure weathertight closure.
- 39 **3.06 CLEANING**
- 40 A. Remove protective material from factory finished aluminum surfaces.
- 41 B. Upon completion of installation, thoroughly clean aluminum surfaces in accordance with AAMA 609 &
- 42 610.
- 43 C. Remove excess glazing sealant by moderate use of mineral spirits or other solvent acceptable to
- 44 sealant and window manufacturer.

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1 SECTION 087100 - DOOR HARDWARE

2 PART 1 - GENERAL

3 1.01 SUMMARY

4 A. Section includes:

- 5 1. Mechanical and electrified door hardware
6 2. Electronic access control system components

7 B. Section excludes:

- 8 1. Windows
9 2. Cabinets (casework), including locks in cabinets
10 3. Signage
11 4. Toilet accessories
12 5. Overhead doors

13 C. Related Sections:

- 14 1. Division 01 Section "Alternates" for alternates affecting this section.
15 2. Division 06 Section "Rough Carpentry"
16 3. Division 06 Section "Finish Carpentry"
17 4. Division 07 Section "Joint Sealants" for sealant requirements applicable to threshold
18 installation specified in this section.
19 5. Division 08 Sections:
20 a. "Metal Doors and Frames"
21 b. "Flush Wood Doors"
22 c. "Stile and Rail Wood Doors"
23 d. "Interior Aluminum Doors and Frames"
24 e. "Aluminum-Framed Entrances and Storefronts"
25 f. "Stainless Steel Doors and Frames"
26 g. "Special Function Doors"
27 h. "Entrances"
28 6. Division 26 "Electrical" sections for connections to electrical power system and for low-
29 voltage wiring.
30 7. Division 28 "Electronic Safety and Security" sections for coordination with other
31 components of electronic access control system and fire alarm system.

32 1.02 REFERENCES

33 A. UL LLC

- 34 1. UL 10B - Fire Test of Door Assemblies
35 2. UL 10C - Positive Pressure Test of Fire Door Assemblies
36 3. UL 1784 - Air Leakage Tests of Door Assemblies
37 4. UL 305 - Panic Hardware

1 B. DHI - Door and Hardware Institute

- 2 1. Sequence and Format for the Hardware Schedule
3 2. Recommended Locations for Builders Hardware
4 3. Keying Systems and Nomenclature
5 4. Installation Guide for Doors and Hardware

6 C. NFPA – National Fire Protection Association

- 7 1. NFPA 70 – National Electric Code
8 2. NFPA 80 – 2016 Edition – Standard for Fire Doors and Other Opening Protectives
9 3. NFPA 101 – Life Safety Code
10 4. NFPA 105 – Smoke and Draft Control Door Assemblies
11 5. NFPA 252 – Fire Tests of Door Assemblies

12 D. ANSI - American National Standards Institute

- 13 1. ANSI A117.1 – 2017 Edition – Accessible and Usable Buildings and Facilities
14 2. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and
15 Specialties
16 3. ANSI/BHMA A156.28 - Recommended Practices for Keying Systems
17 4. ANSI/WDMA I.S. 1A - Interior Architectural Wood Flush Doors
18 5. ANSI/SDI A250.8 - Standard Steel Doors and Frames

19 1.03 SUBMITTALS

20 A. General:

- 21 1. Submit in accordance with Conditions of Contract and Division 01 Submittal Procedures.
22 2. Prior to forwarding submittal:
23 a. Review drawings and Sections from related trades to verify compatibility with
24 specified hardware.
25 b. Highlight, encircle, or otherwise specifically identify on submittals: deviations from
26 Contract Documents, issues of incompatibility or other issues which may
27 detrimentally affect the Work.

28 B. Action Submittals:

- 29 1. Product Data: Submit technical product data for each item of door hardware, installation
30 instructions, maintenance of operating parts and finish, and other information necessary
31 to show compliance with requirements.
32 2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of
33 electrified door hardware, indicating:
34 a. Wiring Diagrams: For power, signal, and control wiring and including:
35 1) Details of interface of electrified door hardware and building safety and security
36 systems.
37 2) Schematic diagram of systems that interface with electrified door hardware.
38 3) Point-to-point wiring.
39 4) Risers.

- 1 3. Samples for Verification: If requested by Architect, submit production sample of
2 requested door hardware unit in finish indicated and tagged with full description for
3 coordination with schedule.
4 a. Samples will be returned to supplier. Units that are acceptable to Architect may, after
5 final check of operations, be incorporated into Work, within limitations of key
6 coordination requirements.
- 7 4. Door Hardware Schedule:
8 a. Submit concurrent with submissions of Product Data, Samples, and Shop Drawings.
9 Coordinate submission of door hardware schedule with scheduling requirements of
10 other work to facilitate fabrication of other work critical in Project construction
11 schedule.
12 b. Submit under direct supervision of a Door Hardware Institute (DHI) certified
13 Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC) with
14 hardware sets in vertical format as illustrated by Sequence of Format for the
15 Hardware Schedule published by DHI.
16 c. Indicate complete designations of each item required for each opening, include:
17 1) Door Index: door number, heading number, and Architect's hardware set number.
18 2) Quantity, type, style, function, size, and finish of each hardware item.
19 3) Name and manufacturer of each item.
20 4) Fastenings and other pertinent information.
21 5) Location of each hardware set cross-referenced to indications on Drawings.
22 6) Explanation of all abbreviations, symbols, and codes contained in schedule.
23 7) Mounting locations for hardware.
24 8) Door and frame sizes and materials.
25 9) Degree of door swing and handing.
26 10) Operational Description of openings with electrified hardware covering egress,
27 ingress (access), and fire/smoke alarm connections.
- 28 5. Key Schedule:
29 a. After Keying Conference, provide keying schedule that includes levels of keying,
30 explanations of key system's function, key symbols used, and door numbers
31 controlled.
32 b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as
33 guideline for nomenclature, definitions, and approach for selecting optimal keying
34 system.
35 c. Provide 3 copies of keying schedule for review prepared and detailed in accordance
36 with referenced DHI publication. Include schematic keying diagram and index each
37 key to unique door designations.
38 d. Index keying schedule by door number, keyset, hardware heading number, cross
39 keying instructions, and special key stamping instructions.
40 e. Provide one complete bitting list of key cuts and one key system schematic
41 illustrating system usage and expansion. Forward bitting list, key cuts and key
42 system schematic directly to Owner, by means as directed by Owner.
43 f. Prepare key schedule by or under supervision of supplier, detailing Owner's final
44 keying instructions for locks.

45 **6. Pre-Procurement/Installation Meeting Requirement:**

1 a. ***After submission of all door/frame/hardware submittals (and related low voltage***
2 ***door hardware submittals) Contractor will organize a meeting(s) with Owner,***
3 ***Architect, General Contractor, Electrician, Door/Frame/Hardware***
4 ***Supplier/Installer, Low-Voltage Supplier/Installer, and others as applicable to***
5 ***comprehensively review and explain each door opening's submitted hardware***
6 ***package operation. No procurement of door hardware (and related low voltage***
7 ***components) shall be procured until this meeting is completed; and until related***
8 ***submittals are returned to by the Owner/Architect team.***

9 C. Informational Submittals:

- 10 1. Provide Qualification Data for Supplier, Installer and Architectural Hardware Consultant.
11 2. Provide Product Data:
12 a. Certify that door hardware approved for use on types and sizes of labeled fire-rated
13 doors complies with listed fire-rated door assemblies.
14 b. Include warranties for specified door hardware.

15 D. Closeout Submittals:

- 16 1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
17 a. Complete information on care, maintenance, and adjustment; data on repair and
18 replacement parts, and information on preservation of finishes.
19 b. Catalog pages for each product.
20 c. Final approved hardware schedule edited to reflect conditions as installed.
21 d. Final keying schedule
22 e. Copy of warranties including appropriate reference numbers for manufacturers to
23 identify project.
24 f. As-installed wiring diagrams for each opening connected to power, both low voltage
25 and 110 volts.

26 E. Inspection and Testing:

- 27 1. Submit written reports to the Owner and Authority Having Jurisdiction (AHJ) of the results
28 of functional testing and inspection for:
29 a. Fire door assemblies, in compliance with NFPA 80.
30 b. Required egress door assemblies, in compliance with NFPA 101.

31 1.04 QUALITY ASSURANCE

32 A. Qualifications and Responsibilities:

- 33 1. Supplier: Recognized architectural hardware supplier with a minimum of 5 years
34 documented experience supplying both mechanical and electromechanical door
35 hardware similar in quantity, type, and quality to that indicated for this Project. Supplier
36 to be recognized as a factory direct distributor by the manufacturer of the primary
37 materials with a warehousing facility in the Project's vicinity. Supplier to have on staff, a
38 certified Architectural Hardware Consultant (AHC) or Door Hardware Consultant (DHC)
39 available to Owner, Architect, and Contractor, at reasonable times during the Work for
40 consultation.

2. Installer: Qualified tradesperson skilled in the application of commercial grade hardware with experience installing door hardware similar in quantity, type, and quality as indicated for this Project.
3. Architectural Hardware Consultant: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
 - a. For door hardware: DHI certified AHC or DHC.
 - b. Can provide installation and technical data to Architect and other related subcontractors.
 - c. Can inspect and verify components are in working order upon completion of installation.
 - d. Capable of producing wiring diagram and coordinating installation of electrified hardware with Architect and electrical engineers.
4. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

B. Certifications:

1. Fire-Rated Door Openings:
 - a. Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction.
 - b. Provide only items of door hardware that are listed products tested by UL LLC, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
2. Smoke and Draft Control Door Assemblies:
 - a. Provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105
 - b. Comply with the maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
3. Electrified Door Hardware
 - a. Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.
4. Accessibility Requirements:
 - a. Comply with governing accessibility regulations cited in "REFERENCES" article 087100, 1.02.D3 herein for door hardware on doors in an accessible route. This project must comply with all Federal Americans with Disability Act regulations and all Local Accessibility Regulations.

C. Pre-Installation Meetings

1. Keying Conference
 - a. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - 1) Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - 2) Preliminary key system schematic diagram.
 - 3) Requirements for key control system.
 - 4) Requirements for access control.

- 1 5) Address for delivery of keys.
- 2 2. Pre-installation Conference
- 3 a. Review and finalize construction schedule and verify availability of materials,
- 4 Installer's personnel, equipment, and facilities needed to make progress and avoid
- 5 delays.
- 6 b. Inspect and discuss preparatory work performed by other trades.
- 7 c. Inspect and discuss electrical roughing-in for electrified door hardware.
- 8 d. Review sequence of operation for each type of electrified door hardware.
- 9 e. Review required testing, inspecting, and certifying procedures.
- 10 f. Review questions or concerns related to proper installation and adjustment of door
- 11 hardware.
- 12 3. Electrified Hardware Coordination Conference:
- 13 a. Prior to ordering electrified hardware, schedule and hold meeting to coordinate door
- 14 hardware with security, electrical, doors and frames, and other related suppliers.

15 1.05 DELIVERY, STORAGE, AND HANDLING

- 16 A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to
- 17 Project site. Promptly replace products damaged during shipping.
- 18 B. Tag each item or package separately with identification coordinated with final door hardware
- 19 schedule, and include installation instructions, templates, and necessary fasteners with each
- 20 item or package. Deliver each article of hardware in manufacturer's original packaging.
- 21 C. Maintain manufacturer-recommended environmental conditions throughout storage and
- 22 installation periods.
- 23 D. Provide secure lock-up for door hardware delivered to Project. Control handling and
- 24 installation of hardware items so that completion of Work will not be delayed by hardware
- 25 losses both before and after installation.
- 26 E. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or
- 27 repair products damaged during Work. Protect products against malfunction due to paint,
- 28 solvent, cleanser, or any chemical agent.
- 29 F. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.

30 1.06 COORDINATION

- 31 A. Coordinate layout and installation of floor-recessed door hardware with floor construction.
- 32 Cast anchoring inserts into concrete.
- 33 B. Installation Templates: Distribute for doors, frames, and other work specified to be factory or
- 34 shop prepared. Check Shop Drawings of other work to confirm that adequate provisions are
- 35 made for locating and installing door hardware to comply with indicated requirements.
- 36 C. Security: Coordinate installation of door hardware, keying, and access control with Owner's
- 37 security consultant.

- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

1.07 WARRANTY

- A. Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within published warranty period.

1. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.
2. Warranty Period: Beginning from date of Substantial Completion, for durations indicated in manufacturer's published listings.

a. Mechanical Warranty

- 1) Locks
 - a) 3 years
- 2) Exit Devices
 - a) 3 years
- 3) Closers
 - a) 30 years
- 4) Automatic Operators
 - a) 2 years

b. Electrical Warranty

- 1) Locks
 - a) 1 year
- 2) Exit Devices
 - a) 1 year

1.08 MAINTENANCE

- A. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

- B. Turn over unused materials to Owner for maintenance purposes.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

- A. Approval of alternate manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category are only to be considered by official substitution request in accordance with section 01 25 00.

- B. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.

- C. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.02 MATERIALS

A. Fabrication

1. Provide door hardware manufactured to comply with published templates generally prepared for machine, wood, and sheet metal screws. provide screws according to manufacturer's recognized installation standards for application intended.
2. Finish exposed screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners wherever possible for hardware units exposed when door is closed. Coordinate with "Metal Doors and Frames", "Flush Wood Doors", "Stile and Rail Wood Doors" to ensure proper reinforcements. Advise the Architect where visible fasteners, such as thru bolts, are required.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors:

1. Where scheduled in the hardware sets, provide each item of electrified hardware and wire harnesses with number and gage of wires enough to accommodate electric function of specified hardware.
2. Provide Molex connectors that plug directly into connectors from harnesses, electric locking and power transfer devices.
3. Provide through-door wire harness for each electrified locking device installed in a door and wire harness for each electrified hinge, electrified continuous hinge, electrified pivot, and electric power transfer for connection to power supplies.

2.03 HINGES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Ives 5BB series
2. Acceptable Manufacturers and Products:
 - a. Hager
 - b. Stanley

B. Requirements:

1. Provide hinges conforming to ANSI/BHMA A156.1.
2. Provide five knuckle, ball bearing hinges.
3. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
 - b. Interior: Heavy weight, steel, 4-1/2 inches (114 mm) high
4. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
 - a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
 - b. Interior: Heavy weight, steel, 5 inches (127 mm) high

5. Adjust hinge width for door, frame, and wall conditions to allow proper degree of opening.
6. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
7. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
 - a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins

2.04 CONTINUOUS HINGES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Pemko
 - b. Roton

B. Requirements:

1. Provide aluminum geared continuous hinges conforming to ANSI/BHMA A156.26, Grade 1.
2. Provide aluminum geared continuous hinges, where specified in the hardware sets, fabricated from 6063-T6 aluminum.
3. Provide split nylon bearings at each hinge knuckle for quiet, smooth, self-lubricating operation.
4. Provide hinges capable of supporting door weights up to 450 pounds, and successfully tested for 1,500,000 cycles.
5. On fire-rated doors, provide aluminum geared continuous hinges classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
6. Provide aluminum geared continuous hinges with electrified option scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
7. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 ELECTRIC POWER TRANSFER

A. Manufacturers:

1. Scheduled Manufacturer and Product:
 - a. Von Duprin EPT-10
2. Acceptable Manufacturers and Products:
 - a. Securitron

B. Requirements:

1. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires enough to accommodate electric function of specified hardware.
2. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.06 COORDINATORS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Trimco
 - b. Rockwood

B. Requirements:

1. Where pairs of doors are equipped with automatic flush bolts, an astragal, or other hardware that requires synchronized closing of the doors, provide bar-type coordinating device, surface applied to underside of stop at frame head.
2. Provide filler bar of correct length for unit to span entire width of opening, and appropriate brackets for parallel arm door closers, surface vertical rod exit device strikes, or other stop mounted hardware. Factory-prepared coordinators for vertical rod devices as specified.

2.07 MORTISE LOCKS

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage L9000 series
2. Acceptable Manufacturers and Products:
 - a. Sargent 8200

B. Requirements:

1. Provide mortise locks conforming to ANSI/BHMA A156.13 Series 1000, Grade 1, and UL Listed for 3-hour fire doors.
2. Indicators: Where specified, provide indicator window measuring a minimum 2-inch x 1/2 inch with 180-degree visibility. Provide messages color-coded with full text and/or symbols, as scheduled, for easy visibility.
3. Provide locks manufactured from heavy gauge steel, containing components of steel with a zinc dichromate plating for corrosion resistance.
4. Provide lock case that is multi-function and field reversible for handing without opening case. Cylinders: Refer to "KEYING" article, herein.
5. Provide locks with standard 2-3/4 inches (70 mm) backset with full 3/4 inch (19 mm) throw stainless steel mechanical anti-friction latchbolt. Provide deadbolt with full 1-inch (25 mm) throw, constructed of stainless steel.

- 1 6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
- 2 Provide electrified options as scheduled in the hardware sets. Where scheduled, provide
- 3 switches and sensors integrated into the locks and latches.
- 4 7. Provide motor based electrified locksets that comply with the following requirements:
- 5 a. Universal input voltage – single chassis accepts 12 or 24VDC to allow for changes in
- 6 the field without changing lock chassis.
- 7 b. Fail Safe/Fail Secure – changing mode between electrically locked (fail safe) and
- 8 electrically unlocked (fail secure) is field selectable without opening the lock case.
- 9 c. Low maximum current draw – maximum 0.4 amps to allow for multiple locks on a
- 10 single power supply.
- 11 d. Low holding current – maximum 0.01 amps to produce minimal heat, eliminate “hot
- 12 levers” in electrically locked applications, and to provide reliable operation in wood
- 13 doors that provide minimal ventilation and air flow.
- 14 e. Connections – provide quick-connect Molex system standard.
- 15 8. Lever Trim: Solid brass, bronze, or stainless steel, cast or forged in design specified, with
- 16 wrought roses and external lever spring cages. Provide thru-bolted levers with 2-piece
- 17 spindles.
- 18 a. Vandlgard: Provide levers with vandal resistant technology for use at heavy traffic or
- 19 abusive applications.
- 20 b. Lever Design: LON.

21 2.08 MORTISE LOCKS – NARROW STYLE

22 A. Manufacturer and Product:

- 23 1. Scheduled Manufacturer:
- 24 a. Accurate
- 25 2. Acceptable Manufacturers:
- 26 a. Adams Rite

27 B. Requirements:

- 28 1. Provide narrow style mortise locks conforming to ANSI/BHMA A156.13, Grade 1
- 29 Operational and manufactured from heavy gauge steel, containing components of steel
- 30 with zinc dichromate plating for corrosion resistance. Cylinders: Refer to "KEYING"
- 31 article, herein.
- 32 2. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
- 33 3. Provide motor based electrified locksets with electrified options as scheduled in the
- 34 hardware sets.
- 35 4. Lever Trim: Matching levers and roses or escutcheons from manufacturer of standard
- 36 mortise locks. Provide all necessary fasteners, spindles, and parts to make complete
- 37 functioning unit.
- 38 a. Provide levers that return to within 1/2 inch (13 mm) of door face.

39 2.09 CYLINDRICAL LOCKS – GRADE 1

40 A. Manufacturers and Products:

- 41 1. Scheduled Manufacturer and Product:

- 1 a. Schlage ND series
- 2 2. Acceptable Manufacturers and Products:
- 3 a. Sargent 11-Line
- 4 B. Requirements:
- 5 1. Provide cylindrical locks conforming to ANSI/BHMA A156.2 Series 4000, Grade 1, and
- 6 UL Listed for 3-hour fire doors.
- 7 2. Cylinders: Refer to "KEYING" article, herein.
- 8 3. Provide locks with standard 2-3/4 inches (70 mm) backset, unless noted otherwise, with
- 9 1/2-inch latch throw. Provide proper latch throw for UL listing at pairs.
- 10 4. Provide locksets with separate anti-rotation thru-bolts, and no exposed screws.
- 11 5. Provide independently operating levers with two external return spring cassettes mounted
- 12 under roses to prevent lever sag.
- 13 6. Provide standard ASA strikes unless extended lip strikes are necessary to protect trim.
- 14 7. Provide electrified options as scheduled in the hardware sets.
- 15 8. Lever Trim: Solid cast levers without plastic inserts and wrought roses on both sides.
- 16 a. Lever Design: LON.

17 2.10 EXIT DEVICES

- 18 A. Manufacturers and Products:
- 19 1. Scheduled Manufacturer and Product:
- 20 a. Von Duprin 98/35A series
- 21 2. Acceptable Manufacturers and Products:
- 22 a. Sargent 19-43-GL-80 Series
- 23 B. Requirements:
- 24 1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1 and UL listed for Panic Exit or
- 25 Fire Exit Hardware.
- 26 2. Cylinders: Refer to "KEYING" article, herein.
- 27 3. Provide smooth touchpad type exit devices, fabricated of brass, bronze, stainless steel,
- 28 or aluminum, plated to standard architectural finishes to match balance of door hardware.
- 29 4. Touchpad must extend a minimum of one half of door width. No plastic inserts are
- 30 allowed in touchpads.
- 31 5. Provide exit devices with deadlatching feature for security and for future addition of alarm
- 32 kits and/or other electrified requirements.
- 33 6. Provide exit devices with weather resistant components that can withstand harsh
- 34 conditions of various climates and corrosive cleaners used in outdoor pool environments.
- 35 7. Provide flush end caps for exit devices.
- 36 8. Provide exit devices with manufacturer's approved strikes.
- 37 9. Provide exit devices cut to door width and height. Install exit devices at height
- 38 recommended by exit device manufacturer, allowable by governing building codes, and
- 39 approved by Architect.
- 40 10. Mount mechanism case flush on face of doors or provide spacers to fill gaps behind
- 41 devices. Where glass trim or molding projects off face of door, provide glass bead kits.
- 42 11. Provide cylinder or hex-key dogging as specified at non fire-rated openings.

12. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled.
15. Top latch mounting: double- or single-tab mount for steel doors, face mount for aluminum doors eliminating requirement of tabs, and double tab mount for wood doors.
16. Provide exit devices with optional trim designs to match other lever and pull designs used on the project.

2.11 ELECTRIC STRIKES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Security Door Controls 55
2. Acceptable Manufacturers:
 - a. Von Duprin

B. Requirements:

1. Provide electric strikes designed for use with type of locks shown at each opening.
2. Provide electric strikes UL Listed as burglary resistant.
3. Provide electric strikes that are field selectable fail-safe and fail-secure.
4. Provide electric strikes cycle tested to endure a minimum of 250,000 cycles.
5. Where required, provide electric strikes UL Listed for fire doors and frames.
6. Provide transformers and rectifiers for each strike as required. Verify voltage with electrical contractor.

2.12 POWER SUPPLIES

A. Manufacturers and Products:

1. Scheduled Manufacturer and Product:
 - a. Schlage/Von Duprin PS900 Series
2. Acceptable Manufacturers and Products:
 - a. Securitron

B. Requirements:

1. Provide power supplies approved by manufacturer of supplied electrified hardware.
2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
3. Provide regulated and filtered 24 VDC power supply, and UL class 2 listed.
4. Provide power supplies with the following features:
 - a. 12/24 VDC Output, field selectable.

- 1 b. Class 2 Rated power limited output.
- 2 c. Universal 120-240 VAC input.
- 3 d. Low voltage DC, regulated and filtered.
- 4 e. Polarized connector for distribution boards.
- 5 f. Fused primary input.
- 6 g. AC input and DC output monitoring circuit w/LED indicators.
- 7 h. Cover mounted AC Input indication.
- 8 i. Tested and certified to meet UL294.
- 9 j. NEMA 1 enclosure.
- 10 k. Hinged cover w/lock down screws.
- 11 l. High voltage protective cover.

12 2.13 CYLINDERS

13 A. Manufacturers and Products:

- 14 1. Scheduled Manufacturer and Product:
- 15 a. Schlage Everest 29 T
- 16 2. Acceptable Manufacturers and Products:
- 17 a. Sargent XC series

18 B. Requirements:

- 19 1. Provide cylinders/cores compliant with ANSI/BHMA A156.5; latest revision; cylinder face
- 20 finished to match lockset; manufacturer's series as indicated. Refer to "KEYING" article,
- 21 herein.
- 22 2. Provide cylinders in the below-listed configuration(s), distributed throughout the Project
- 23 as indicated.
- 24 a. Patented Restricted: cylinder with interchangeable core with patented, restricted
- 25 keyway.
- 26 3. Patent Protection: Cylinders/cores requiring use of restricted, patented keys, patent
- 27 protected.
- 28 4. Nickel silver bottom pins.

29 2.14 KEYING

30 A. Scheduled System:

- 31 1. New factory registered system:
- 32 a. Provide a factory registered keying system, complying with guidelines in
- 33 ANSI/BHMA A156.28, incorporating decisions made at keying conference.

34 B. Requirements:

- 35 1. Construction Keying:
- 36 a. Replaceable Construction Cores.
- 37 1) Provide temporary construction cores replaceable by permanent cores, furnished
- 38 in accordance with the following requirements.
- 39 a) 3 construction control keys
- 40 b) 12 construction change (day) keys.

2) Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2. Permanent Keying:

- a. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - 1) Master Keying system as directed by the Owner.
- b. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements will be cause for replacement of cylinders/cores involved at no additional cost to Owner.
- c. Provide keys with the following features:
 - 1) Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 2) Patent Protection: Keys and blanks protected by one or more utility patent(s).
- d. Identification:
 - 1) Mark permanent cylinders/cores and keys with applicable blind code for identification. Do not provide blind code marks with actual key cuts.
 - 2) Identification stamping provisions must be approved by the Architect and Owner.
 - 3) Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - 4) Failure to comply with stamping requirements will be cause for replacement of keys involved at no additional cost to Owner.
 - 5) Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
- e. Quantity: Furnish in the following quantities.
 - 1) Change (Day) Keys: 3 per cylinder/core.
 - 2) Permanent Control Keys: 3.
 - 3) Master Keys: 6.

2.15 KEY CONTROL SYSTEM

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Telkee
2. Acceptable Manufacturers:
 - a. Lund

B. Requirements:

1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
 - a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
 - b. Provide hinged-panel type cabinet for wall mounting.

2.16 DOOR CLOSERS

1 A. Manufacturers and Products:

2 1. Scheduled Manufacturer and Product:

3 a. LCN 4040XP series

4 2. Acceptable Manufacturers and Products:

5 a. Sargent 280 Series

6 B. Requirements:

- 7 1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA
8 certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date
9 of manufacture code.
- 10 2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast
11 iron cylinder, and full complement bearings at shaft.
- 12 3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter
13 double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
- 14 4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal
15 closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
- 16 5. Spring Power: Continuously adjustable over full range of closer sizes, and providing
17 reduced opening force as required by accessibility codes and standards. Provide snap-on
18 cover clip, with plastic covers, that secures cover to spring tube.
- 19 6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for
20 latch speed, general speed, and backcheck. Provide graphically labelled instructions on
21 the closer body adjacent to each adjustment valve. Provide positive stop on reg valve
22 that prevents reg screw from being backed out.
- 23 7. Provide closers with solid forged steel main arms and factory assembled heavy-duty
24 forged forearms for parallel arm closers.
- 25 8. Pressure Relief Valve (PRV) Technology: Not permitted.
- 26 9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating
27 finish which has been certified to exceed 100 hours salt spray testing as described in
28 ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
- 29 10. Provide special templates, drop plates, mounting brackets, or adapters for arms as
30 required for details, overhead stops, and other door hardware items interfering with closer
31 mounting.

32 2.17 ELECTRO-MECHANICAL AUTOMATIC OPERATORS

33 A. Manufacturers and Products:

34 1. Scheduled Manufacturer and Product:

35 a. LCN Senior Swing

36 2. Acceptable Manufacturers and Products:

37 a. Stanley Magic Force

38 B. Requirements:

- 39 1. Provide low energy automatic operator units that are electro-mechanical design
40 complying with ANSI/BHMA A156.19.
- 41 a. Opening: Powered by DC motor working through reduction gears.
- 42 b. Closing: Spring force.
- 43 c. Manual, hydraulic, or chain drive closers: Not permitted.

- d. Operation: Motor is off when door is in closing mode. Door can be manually operated with power on or off without damage to operator. Provide variable adjustments, including opening and closing speed adjustment.
 - e. Cover: Aluminum.
- 2. Provide units with manual off/auto/hold-open switch, push and go function to activate power operator, vestibule interface delay, electric lock delay, hold-open delay adjustable from 1 to 32 seconds, and logic terminal to interface with accessories, mats, and sensors.
 - 3. Provide drop plates, brackets, and adapters for arms as required to suit details.
 - 4. Provide motion sensors and/or actuator switches, and receivers for operation as specified. Provide weather-resistant actuators at exterior applications.
 - 5. Provide key switches, with LED's, recommended and approved by manufacturer of automatic operator as required for function as described in operation description of hardware sets. Cylinders: Refer to "KEYING" article, herein.
 - 6. Provide complete assemblies of controls, switches, power supplies, relays, and parts/material recommended and approved by manufacturer of automatic operator for each individual leaf. Actuators control both doors simultaneously at pairs. Sequence operation of exterior and vestibule doors with automatic operators to allow ingress or egress through both sets of openings as directed by Architect. Locate actuators, key switches, and other controls as directed by Architect.

2.18 PROTECTION PLATES

A. Manufacturers:

- 1. Scheduled Manufacturer:
 - a. Ives
- 2. Acceptable Manufacturers:
 - a. Trimco
 - b. Rockwood

B. Requirements:

- 1. Provide protection plates with a minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
- 2. Sizes plates 2 inches (51 mm) less width of door on single doors, pairs of doors with a mullion, and doors with edge guards. Size plates 1 inch (25 mm) less width of door on pairs without a mullion or edge guards.
- 3. At fire rated doors, provide protection plates over 16 inches high with UL label.

2.19 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS

A. Manufacturers:

- 1. Scheduled Manufacturers:
 - a. Glynn-Johnson
- 2. Acceptable Manufacturers:
 - a. Rixson

B. Requirements:

1. Provide overhead stop at any door where conditions do not allow for a wall stop or floor stop presents tripping hazard.
2. Provide friction type at doors without closer and positive type at doors with closer.

2.20 DOOR STOPS AND HOLDERS

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Ives
2. Acceptable Manufacturers:
 - a. Trimco
 - b. Rockwood

B. Provide door stops at each door leaf:

1. Provide wall stops wherever possible. Provide concave type where lockset has a push button or thumbturn.
2. Where a wall stop cannot be used, provide universal floor stops.
3. Where wall or floor stop cannot be used, provide overhead stop.
4. Provide roller bumper where doors open into each other, and overhead stop cannot be used.

2.21 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Zero International
2. Acceptable Manufacturers:
 - a. National guard

B. Requirements:

1. Provide thresholds, weather-stripping, and gasketing systems as specified and per architectural details. Match finish of other items.
2. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
4. Size thresholds 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width unless otherwise specified in the hardware sets or detailed in the drawings.

2.22 DOOR POSITION SWITCHES

A. Manufacturers:

1. Scheduled Manufacturer:
 - a. Schlage
 2. Acceptable Manufacturers:
 - a. GE
- B. Requirements:
1. Provide recessed or surface mounted type door position switches as specified.
 2. Coordinate door and frame preparations with door and frame suppliers. If switches are being used with magnetic locking device, provide minimum of 4 inches (102 mm) between switch and magnetic locking device.

2.23 FINISHES

- A. FINISH: BHMA 626/652 (US26D); EXCEPT:
1. Hinges at Exterior Doors: BHMA 630 (US32D)
 2. Aluminum Geared Continuous Hinges: BHMA 628 (US28)
 3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
 4. Protection Plates: BHMA 630 (US32D)
 5. Overhead Stops and Holders: BHMA 630 (US32D)
 6. Door Closers: Powder Coat to Match
 7. Wall Stops: BHMA 630 (US32D)
 8. Weatherstripping: Clear Anodized Aluminum
 9. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance. Verify doors, frames, and walls have been properly reinforced for hardware installation.
- B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.
- C. Submit a list of deficiencies in writing and proceed with installation only after unsatisfactory conditions have been corrected.

3.02 INSTALLATION

- A. Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 2. Custom Steel Doors and Frames: HMMA 831.

- 1 3. Interior Architectural Wood Flush Doors: ANSI/WDMA I.S. 1A
- 2 4. Installation Guide for Doors and Hardware: DHI TDH-007-20
- 3 B. Install door hardware in accordance with NFPA 80, NFPA 101 and provide post-install
- 4 inspection, testing as specified in section 1.03.E unless otherwise required to comply with
- 5 governing regulations.
- 6 C. Install each hardware item in compliance with manufacturer's instructions and
- 7 recommendations, using only fasteners provided by manufacturer.
- 8 D. Do not install surface mounted items until finishes have been completed on substrate. Protect
- 9 all installed hardware during painting.
- 10 E. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate
- 11 as necessary for proper installation and operation.
- 12 F. Drill and countersink units that are not factory prepared for anchorage fasteners. Space
- 13 fasteners and anchors according to industry standards.
- 14 G. Install operating parts so they move freely and smoothly without binding, sticking, or
- 15 excessive clearance.
- 16 H. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than
- 17 quantity recommended by manufacturer for application indicated.
- 18 I. Lock Cylinders:
- 19 1. Install construction cores to secure building and areas during construction period.
- 20 2. Replace construction cores with permanent cores as indicated in keying section.
- 21 3. Furnish permanent cores to Owner for installation.
- 22 J. Wiring: Coordinate with Division 26, ELECTRICAL and Division 28 ELECTRONIC SAFETY
- 23 AND SECURITY sections for:
- 24 1. Conduit, junction boxes and wire pulls.
- 25 2. Connections to and from power supplies to electrified hardware.
- 26 3. Connections to fire/smoke alarm system and smoke evacuation system.
- 27 4. Connection of wire to door position switches and wire runs to central room or area, as
- 28 directed by Architect.
- 29 5. Connections to panel interface modules, controllers, and gateways.
- 30 6. Testing and labeling wires with Architect's opening number.
- 31 K. Key Control System: Tag keys and place them on markers and hooks in key control system
- 32 cabinet, as determined by final keying schedule.
- 33 L. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair
- 34 side of stairway doors from corridors. Mount closers so they are not visible in corridors,
- 35 lobbies and other public spaces unless approved by Architect.
- 36 M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible
- 37 ceilings or in equipment room, or alternate location as directed by Architect.

- 1 N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in
2 Division 07 Section "Joint Sealants."
- 3 O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door
4 hardware schedule. Do not mount floor stops where they may impede traffic or present
5 tripping hazard.
- 6 P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- 7 Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- 8 R. Door Bottoms and Sweeps: Apply to bottom of door, forming seal with threshold when door is
9 closed.

10 3.03 ADJUSTING

- 11 A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to
12 ensure proper operation or function of every unit. Replace units that cannot be adjusted to
13 operate as intended. Adjust door control devices to compensate for final operation of heating
14 and ventilating equipment and to comply with referenced accessibility requirements.
- 15 1. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage
16 lock bolt.
- 17 2. Door Closers: Adjust sweep period to comply with accessibility requirements and
18 requirements of authorities having jurisdiction.
- 19 B. Occupancy Adjustment: Approximately three to six months after date of Substantial
20 Completion, examine and readjust each item of door hardware, including adjusting operating
21 forces, as necessary to ensure function of doors and door hardware.

22 3.04 CLEANING AND PROTECTION

- 23 A. Clean adjacent surfaces soiled by door hardware installation.
- 24 B. Clean operating items per manufacturer's instructions to restore proper function and finish.
- 25 C. Provide final protection and maintain conditions that ensure door hardware is without damage
26 or deterioration at time of Substantial Completion.

27 3.05 DOOR HARDWARE SCHEDULE

- 28 A. The intent of the hardware specification is to specify the hardware for interior and exterior
29 doors, and to establish a type, continuity, and standard of quality. However, it is the door
30 hardware supplier's responsibility to thoroughly review existing conditions, schedules,
31 specifications, drawings, and other Contract Documents to verify the suitability of the
32 hardware specified.

1 B. Discrepancies, conflicting hardware, and missing items are to be brought to the attention of
2 the architect with corrections made prior to the bidding process. Omitted items not included in
3 a hardware set should be scheduled with the appropriate additional hardware required for
4 proper application.

5 C. Hardware items are referenced in the following hardware schedule. Refer to the above
6 specifications for special features, options, cylinders/keying, and other requirements.

7 D. Hardware Sets:
8

9 94258 OPT0329622 Version 5

10 Hardware Group No. 01

11 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	CONT. HINGE	112XY EPT	628	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	STOREROOM LOCK	L9080L LONA LLL LLL LESS LOCK CASE	626	SCH
1	EA	NARROW STILE MORTISE LOCK BODY (FAIL SECURE ELEC)	STOREROOM 8859EU X RX SWITCH	626	ACC
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	MORTISE CYLINDER	26-094 X CORRECT CAM	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	OH STOP & HOLDER	100H	630	GLY
1	EA	SURFACE CLOSER	4040XP REG ST-1630 X 4040XP-18TJ	689	LCN
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	NOTE	WEATHERSTRIPPING, MEETING STILE SEALS, THRESHOLD, SWEEP BY DOOR/FRAME SUPPLIER	UNF	BYO

12 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
13 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
14 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.
15

16 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

- 17 1) CREDENTIAL READER DEVICE.
18 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
19 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.
20

1 Hardware Group No. 02

2 Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
2	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	REMOVABLE MULLION	4954 STAB	689	VON
2	EA	ELEC PANIC HARDWARE	LXRX-LC-QEL-98-L-NL-LON-CON 24 VDC	626	VON
2	EA	RIM HOUSING	20-079	626	SCH
2	EA	FSIC CORE	23-030 EV29 T	626	SCH
2	EA	FSIC CORE	23-030 ICX	ORG	SCH
2	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
2	SET	MEETING STILE	328AA-S	AA	ZER
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
2	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
2	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
2	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 900-2RS 120/240 VAC	LGR	SCE

3 CREDENTIAL READER DEVICES ARE TO RETRACT THE LATCHES AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR SWITCH ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICES.

9 2) WIRING TO THE PS902 POWER SUPPLY, WHICH POWERS THE QEL LATCH RETRACTION
10 FEATURE AS WELL AS WIRING TO THE QEL LATCH RETRACTION FEATURE ITSELF.

11 3) REQUIRED POWER AND WIRING TO THE DOOR CONTACTS AND THE LX AND RX SWITCHES
12 INSIDE THE PANIC HARDWARE.

13

1 Hardware Group No. 03

2 Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	FIRE EXIT HARDWARE	9847-EO-F	626	VON
1	EA	FIRE EXIT HARDWARE	9875-L-NL-F-LON	626	VON
1	EA	MORTISE CYLINDER	26-094 X CORRECT CAM	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	COORDINATOR	COR X FL (MTG BRACKETS AS REQD)	628	IVE
1	EA	CARRYBAR	CB1	652	IVE
2	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
2	EA	KICK PLATE	8400 10" X 1" LDW B-CS	630	IVE
1	SET	OVERLAPPING ASTRAGAL	322A-S	A	ZER
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
2	EA	DOOR SWEEP	39A	A	ZER
1	EA	ASTRAGAL	43SP	SP	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER

3

1 Hardware Group No. 04

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	LXRX-LC-98-L-F-M996-LON-FS	626	VON
1	EA	RIM HOUSING	20-079	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	328AA	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 FA900 120/240 VAC	LGR	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR SWITCH ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 REMOTE UNLOCKING WITHOUT UNLATCHING IS AVAILABLE.

8
9 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

- 10 1) CREDENTIAL READER DEVICE.
11 2) WIRING TO THE PS902 POWER SUPPLY, WHICH POWERS THE M996 ELECTRIFIED LEVER
12 TRIM AS WELL AS WIRING TO THE M996 LEVER TRIM ITSELF.
13 3) REQUIRED POWER AND WIRING TO THE DOOR CONTACT AND THE LX AND RX SWITCHES
14 INSIDE THE PANIC HARDWARE.

15

1 Hardware Group No. 05

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	LXRX-LC-98-L-F-M996-LON-FS	626	VON
1	EA	RIM HOUSING	20-079	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH SRI	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 FA900 120/240 VAC	LGR	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR SWITCH ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 REMOTE UNLOCKING WITHOUT UNLATCHING IS AVAILABLE.

8
9 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

- 10 1) CREDENTIAL READER DEVICE.
11 2) WIRING TO THE PS902 POWER SUPPLY, WHICH POWERS THE M996 ELECTRIFIED LEVER
12 TRIM AS WELL AS WIRING TO THE M996 LEVER TRIM ITSELF.
13 3) REQUIRED POWER AND WIRING TO THE DOOR CONTACT AND THE LX AND RX SWITCHES
14 INSIDE THE PANIC HARDWARE.
15

1 Hardware Group No. 06

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1HW 5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	ELEC PANIC HARDWARE	LD-LXRX-LC-98-L-M996-LON-FSE	626	VON
1	EA	RIM HOUSING	20-079	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP HCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR SWITCH ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LEVER TRIM, THE DOOR CONTACT
10 AND THE LX AND RX SWITCHES INSIDE THE PANIC HARDWARE.

11

1 Hardware Group No. 07

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
1	EA	FIRE EXIT HARDWARE	98-L-BE-F-LON	626	VON
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 OPENING TO BE MONITORED ONLY

4

5 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

6 1) REQUIRED POWER AND WIRING TO THE DOOR CONTACT.

7

8 Hardware Group No. 08

9 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
1	EA	FIRE EXIT HARDWARE	98-L-BE-F-LON	626	VON
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	328AA	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

10 OPENING TO BE MONITORED ONLY

11

12 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

13 1) REQUIRED POWER AND WIRING TO THE DOOR CONTACT.

14

1 Hardware Group No. 09

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	LXRX-LC-98-EO-F	626	VON
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	RAIN DRIP	142AA	AA	ZER
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 OPENING TO BE MONITORED ONLY

4

5 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

6 1) REQUIRED POWER AND WIRING TO THE DOOR CONTACT AND THE LX AND RX SWITCHES
7 INSIDE THE PANIC HARDWARE.

8

1 Hardware Group No. 10

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	652	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EL STOREROOM LOCK	ND80JDEL LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 FA900 120/240 VAC	LGR	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 REMOTE UNLOCKING WITHOUT UNLATCHING IS AVAILABLE.

8
9 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

10 1) CREDENTIAL READER DEVICE.

11 2) WIRING TO THE PS902 POWER SUPPLY, WHICH POWERS THE ELECTRIFIED LOCK AS WELL
12 AS WIRING TO THE ELECTRIFIED LOCK ITSELF.

13 3) REQUIRED POWER AND WIRING TO THE DOOR CONTACT, THE LX MONITOR STRIKE AND
14 THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.

15

1 Hardware Group No. 11

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
4	EA	HINGE	5BB1HW 5 X 4.5	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	OH STOP	90S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	GASKETING	328AA	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
10 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.

11

1 Hardware Group No. 12

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	328AA	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
10 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.

11

1 Hardware Group No. 13

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP H	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	328AA	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
10 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.

11

1 Hardware Group No. 14

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EL STOREROOM LOCK	ND80JDEL LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 FA900 120/240 VAC	LGR	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 REMOTE UNLOCKING WITHOUT UNLATCHING IS AVAILABLE.

8
9 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

10 1) CREDENTIAL READER DEVICE.

11 2) WIRING TO THE PS902 POWER SUPPLY, WHICH POWERS THE ELECTRIFIED LOCK AS WELL
12 AS WIRING TO THE ELECTRIFIED LOCK ITSELF.

13 3) REQUIRED POWER AND WIRING TO THE DOOR CONTACT, THE LX MONITOR STRIKE AND
14 THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.

15

1 Hardware Group No. 15

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SHCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.
6

7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
10 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.
11

1 Hardware Group No. 16

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SHCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.
6

7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
10 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.
11

1 Hardware Group No. 17

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.
6

7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
10 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.
11

1 Hardware Group No. 18

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	PRIVACY W/DB & IND	LV9496J LONA L583-363 XL11-986 RX	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	ELECTRIC STRIKE	55 - D - LBM - DBM	630	SDC
1	EA	SURF. AUTO OPERATOR	9542 MS AS REQ (120/240 VAC)	ANCLR	LCN
2	EA	ACTUATOR, TOUCHLESS	8310-813R	BLK	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE ELECTRIC STRIKE, SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR SWITCH INSIDE THE
5 ELECTRIC STRIKE AND ENABLE THE PULL SIDE AUTO-OPERATOR HAND-WAVE ACTUATOR
6 ALLOWING MANUAL OR AUTOMATIC INGRESS. IMMEDIATE MANUAL OR AUTOMATIC EGRESS
7 IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

8
9 ONCE INSIDE THE RESTROOM THE DEADBOLT MONITOR SWITCH IN THE ELECTRIC STRIKE IS
10 TO DISABLE THE CREDENTIAL READER AND THE AUTO-OPERATOR HAND-WAVE ACTUATOR.

11
12 POWER FOR THE AUTO-OPERATOR IS BY THE ELECTRICAL CONTRACTOR.

13
14 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

15 1) CREDENTIAL READER DEVICE.

16 2) REQUIRED POWER AND WIRING TO THE ELECTRIC STRIKE, THE DOOR CONTACT, THE LX
17 MONITOR SWITCH INSIDE THE ELECTRIC STRIKE, THE DEADBOLT MONITOR SWITCH INSIDE
18 THE ELECTRIC STRIKE AND THE RX SWITCH INSIDE THE LOCK.

19

1 Hardware Group No. 18A

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HANGING DEVICES	WELD-ON PIVOTS BY TGP	AL	TGP
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	OH STOP	90S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	DOOR BOTTOM	420APKL	AL	PEM
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR STRIKE ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6
7 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

8 1) CREDENTIAL READER DEVICE.

9 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACT, THE LX
10 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.

11

12 Hardware Group No. 19

13 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
1	EA	PASSAGE SET	ND10S LON	626	SCH
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	328AA	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER

14

1 Hardware Group No. 20

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 5 X 4.5	630	IVE
1	EA	PASSAGE SET	ND10S LON	626	SCH
1	EA	OH STOP	90S	630	GLY
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	GASKETING	328AA	AA	ZER
1	EA	DOOR SWEEP	39A	A	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER

3

4 Hardware Group No. 21

5 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	652	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	LXR-XC-98-L-F-M996-LON-FS	626	VON
1	EA	RIM HOUSING	20-079	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 FA900 120/240 VAC	LGR	SCE

6 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
7 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR SWITCH ALLOWING
8 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

9

10 REMOTE UNLOCKING WITHOUT UNLATCHING IS AVAILABLE.

11

12 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

13 1) CREDENTIAL READER DEVICE.

14 2) WIRING TO THE PS902 POWER SUPPLY, WHICH POWERS THE M996 ELECTRIFIED LEVER
15 TRIM AS WELL AS WIRING TO THE M996 LEVER TRIM ITSELF.

16 3) REQUIRED POWER AND WIRING TO THE DOOR CONTACT AND THE LX AND RX SWITCHES
17 INSIDE THE PANIC HARDWARE.

18

1 Hardware Group No. 22

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	ELEC FIRE EXIT HARDWARE	LXRX-LC-98-L-F-M996-LON-FS	626	VON
1	EA	RIM HOUSING	20-079	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
1	EA	DOOR CONTACT	679-05HM	BLK	SCE
1	EA	POWER SUPPLY	PS902 FA900 120/240 VAC	LGR	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PULL SIDE LEVER AND SHUNT ANY ALARMS
4 ASSOCIATED WITH THE DOOR CONTACT OR THE LATCHBOLT MONITOR SWITCH ALLOWING
5 INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO AVAILABLE.

6

7 REMOTE UNLOCKING WITHOUT UNLATCHING IS AVAILABLE.

8

9 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

10 1) CREDENTIAL READER DEVICE.

11 2) WIRING TO THE PS902 POWER SUPPLY, WHICH POWERS THE M996 ELECTRIFIED LEVER
12 TRIM AS WELL AS WIRING TO THE M996 LEVER TRIM ITSELF.

13 3) REQUIRED POWER AND WIRING TO THE DOOR CONTACT AND THE LX AND RX SWITCHES
14 INSIDE THE PANIC HARDWARE.

15

16 Hardware Group No. 23

17 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
1	EA	FIRE EXIT HARDWARE	98-L-BE-F-LON	626	VON
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER
1	EA	DOOR CONTACT	679-05HM	BLK	SCE

18 OPENING TO BE MONITORED ONLY

19

20 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

21 1) REQUIRED POWER AND WIRING TO THE DOOR CONTACT.

22

1 Hardware Group No. 24

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	FIRE EXIT HARDWARE	98-L-BE-F-LON	626	VON
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

3

1 Hardware Group No. 24A

2 Provide each PR door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
6	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
2	EA	POWER TRANSFER	EPT10 CON	689	VON
1	EA	CONST LATCHING BOLT	FB51P	630	IVE
1	EA	DUST PROOF STRIKE	DP2	626	IVE
1	EA	EU STOREROOM LOCK	ND80JDEU LON RX CON 12V/24V DC	626	SCH
1	EA	MONITOR STRIKE	4570-T1 24 VDC	626	VON
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	COORDINATOR	COR X FL (MTG BRACKETS AS REQD)	628	IVE
1	EA	OH STOP	90S	630	GLY
2	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	SET	OVERLAPPING ASTRAGAL	322A-S	A	ZER
1	SET	JAMB SEALS	328AA-S	628	ZER
1	EA	HEAD SEAL (MOUNT PRIOR TO OTHER HEAD MTD HDW)	429A	AA	ZER
1	EA	ASTRAGAL	43SP	SP	ZER
2	EA	DOOR SWEEP	8198AA	AA	ZER
1	EA	THRESHOLD	566A-V3-223	A	ZER
2	EA	WIRE HARNESS	CON-XX X REQUIRED LENGTH		SCH
2	EA	DOOR CONTACT	679-05HM	BLK	SCE

3 CREDENTIAL READER DEVICE IS TO RELEASE THE PUSH SIDE LEVER AND SHUNT ANY
4 ALARMS ASSOCIATED WITH THE DOOR CONTACTS OR THE LATCHBOLT MONITOR STRIKE
5 ALLOWING INGRESS. IMMEDIATE EGRESS IS ALWAYS AVAILABLE. KEYED INGRESS IS ALSO
6 AVAILABLE.

7

8 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

9 1) CREDENTIAL READER DEVICE.

10 2) REQUIRED POWER AND WIRING TO THE ELECTRIFIED LOCK, THE DOOR CONTACTS, THE LX
11 MONITOR STRIKE AND THE RX SWITCH INSIDE THE ELECTRIFIED LOCK.

12

1 Hardware Group No. 25

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80JD LON	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

3

4 Hardware Group No. 26

5 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	STOREROOM LOCK	ND80JD LON	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH SRI	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

6

7 Hardware Group No. 26A

8 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5 NRP	630	IVE
1	EA	STOREROOM LOCK	ND80JD LON	626	SCH
1	EA	FSIC CORE	23-030 EV29 T	626	SCH
1	EA	FSIC CORE	23-030 ICX	ORG	SCH
1	EA	SURFACE CLOSER	4040XP SCUSH SRI	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

9

1 Hardware Group No. 27

2 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	630	IVE
1	EA	PASSAGE SET	ND10S LON	626	SCH
1	EA	SURFACE CLOSER	4040XP REG	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE
1	EA	GASKETING	488SBK PSA	BK	ZER

3

4 Hardware Group No. 28

5 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
3	EA	HINGE	5BB1HW 4.5 X 4.5	652	IVE
1	EA	PRIVACY LOCK	ND40S LON	626	SCH
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS	630	IVE
1	EA	MOP PLATE	8400 4" X 1" LDW B-CS	630	IVE
1	EA	WALL STOP	WS406/407CCV	630	IVE

6

7 Hardware Group No. 29

8 Provide each SL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	DOOR CONTACT	674-OH	628	SCE
1	EA	NOTE	ALL OTHER HARDWARE BY DOOR MFG.	UNF	B/O

9 OPENING TO BE MONITORED ONLY

10

11 ITEMS TO BE SUPPLIED BY THE DIVISION 28 SUPPLIER:

12 1) REQUIRED POWER AND WIRING TO THE DOOR CONTACT.

13

14 Hardware Group No. 30

15 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA		OPENING ONLY. NO HDW REQD	UNF	MIS

16

17 Hardware Group No. 31

18 Provide each SGL door(s) with the following:

QTY		DESCRIPTION	CATALOG NUMBER	FINISH	MFR
1	EA	NOTE	ALL HARDWARE BY DOOR SUPPLIER	UNF	B/O

19

20

1 END OF SECTION
2
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12

H. ~~Capacities and Characteristics:~~

1. ~~Maximum Heat Output: [6 W/ft.] [7.5 W/ft.].~~
2. ~~Piping Diameter: <Insert NPS>.~~
3. ~~Number of Parallel Cables: .~~
4. ~~Spiral Wrap Pitch: <Insert inches>.~~
5. ~~Electrical Characteristics for Single Circuit Connection:~~
 - a. ~~Volts: [120] [208] [240] [277] [480].~~
 - b. ~~Phase: <Insert value>.~~
 - c. ~~Hertz: <Insert value>.~~
 - d. ~~Full Load Amperes: <Insert value>.~~
 - e. ~~Minimum Circuit Ampacity: <Insert value>.~~
 - f. ~~Maximum Overcurrent Protection: <Insert amperage>.~~

2.2 SELF-REGULATING, PARALLEL-RESISTANCE HEATING CABLES

A. Comply with IEEE 515.1.

B. Heating Element: Pair of parallel **No. 16** ~~No. 18~~ AWG, ~~tinned~~ **nickel-coated**, stranded copper bus wires embedded in crosslinked conductive polymer core, which varies heat output in response to temperature along its length. Terminate with waterproof, factory-assembled, nonheating leads with connectors at one end, and seal the opposite end watertight. Cable shall be capable of crossing over itself once without overheating.

C. Electrical Insulating Jacket: Flame-retardant polyolefin.

D. Cable Cover: **Tinned-copper** ~~Stainless-steel~~ braid and **polyolefin outer jacket with ultraviolet inhibitor.**

E. Maximum Operating Temperature (Power On): **150 deg F.**

F. Maximum Exposure Temperature (Power Off): **185 deg F.**

G. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

H. ~~Capacities and Characteristics:~~

1. ~~Maximum Heat Output: [3 W/ft.] [5 W/ft.] [8 W/ft.] [10 W/ft.] [12 W/ft.] <Insert value>.~~
2. ~~Piping Diameter: <Insert NPS>.~~
3. ~~Number of Parallel Cables: <Insert number>.~~
4. ~~Spiral Wrap Pitch: <Insert inches>.~~
5. ~~Electrical Characteristics for Single Circuit Connection:~~
 - a. ~~Volts: [120] [208] [240] [277] [480] <Insert value>.~~
 - b. ~~Phase: <Insert value>.~~
 - c. ~~Hertz: <Insert value>.~~
 - d. ~~Full Load Amperes: <Insert value>.~~
 - e. ~~Minimum Circuit Ampacity: <Insert value>.~~
 - f. ~~Maximum Overcurrent Protection: <Insert amperage>.~~

2.3 CONTROLS

A. Pipe-Mounted Thermostats for Freeze Protection:

1. Remote bulb unit with adjustable temperature range from **30 to 50 deg F.**

2. Snap action; open-on-rise, single-pole switch with minimum current rating adequate for connected cable.
3. Remote bulb on capillary, resistance temperature device, or thermistor for directly sensing pipe-wall temperature.
4. Corrosion-resistant, waterproof control enclosure.

2.4 ACCESSORIES

- A. Cable Installation Accessories: Fiberglass tape, heat-conductive putty, cable ties, silicone end seals and splice kits, and installation clips all furnished by manufacturer, or as recommended in writing by manufacturer.
- B. Warning Labels: Refer to Section 22 05 53 "Identification for Plumbing Piping and Equipment."
- C. Warning Tape: Continuously printed "Electrical Tracing"; vinyl, at least 3 mils thick, and with pressure-sensitive, permanent, waterproof, self-adhesive back.
 1. Width for Markers on Pipes with OD, Including Insulation, Less Than 6 Inches: 3/4 inch minimum.
 2. Width for Markers on Pipes with OD, Including Insulation, 6 Inches or Larger: 1-1/2 inches minimum.

PART 3 - EXECUTION

3.1 APPLICATIONS

- A. Install the following types of electric heating cable for the applications described:
 - ~~1. Snow and Ice Melting on Roofs and in Gutters and Downspouts: [Plastic-insulated, series-resistance] [Self-regulating, parallel-resistance] heating cable.~~
 - ~~2. Temperature Maintenance for Domestic Hot Water: Self-regulating, parallel-resistance heating cable.~~
 3. **Freeze Protection for Sanitary Waste, Storm, Clearwater Waste, Domestic Water: Self-regulating, parallel-resistance heating cable.**

3.2 INSTALLATION

- ~~A. Install electric heating cable across expansion, construction, and control joints according to manufacturer's written instructions; use cable protection conduit and slack cable to allow movement without damage to cable.~~
- ~~B. Electric Heating Cable Installation for Snow and Ice Melting on Roofs and in Gutters and Downspouts: Install on roof and in gutters and downspouts with clips furnished by manufacturer that are compatible with roof, gutters, and downspouts.~~
- C. Electric Heating-Cable Installation for Freeze Protection for Piping:
 1. Install electric heating cables after piping has been tested and before insulation is installed.
 2. Install electric heating cables according to IEEE 515.1.
 3. Install insulation over piping with electric cables according to Section 22 07 19 "Plumbing Piping Insulation."
 4. Install warning tape on piping insulation where piping is equipped with electric heating cables.

1 ~~D. Electric Heating Cable Installation for Temperature Maintenance for Domestic Hot Water:~~

- 2 ~~1. Install electric heating cables after piping has been tested and before insulation is~~
3 ~~installed.~~
4 ~~2. Install insulation over piping with electric heating cables according to Section 22 07 19~~
5 ~~"Plumbing Piping Insulation."~~
6 ~~3. Install warning tape on piping insulation where piping is equipped with electric heating~~
7 ~~cables.~~

8 E. Set field-adjustable switches and circuit-breaker trip ranges.

9 F. Ground equipment according to Section 26 05 26 "Grounding and Bonding for Electrical
10 Systems."

11 G. Connect wiring according to Section 26 05 19 "Low-Voltage Electrical Power Conductors and
12 Cables."

13 **3.3 FIELD QUALITY CONTROL**

14 A. Perform the following tests and inspections with the assistance of a factory-authorized service
15 representative:

- 16 1. Perform tests after cable installation but before application of coverings such as
17 insulation, wall or ceiling construction, or concrete.
18 2. Test cables for electrical continuity and insulation integrity before energizing.
19 3. Test cables to verify rating and power input. Energize and measure voltage and current
20 simultaneously.

21 B. Repeat tests for continuity, insulation resistance, and input power after applying thermal
22 insulation on pipe-mounted cables.

23 C. Cables will be considered defective if they do not pass tests and inspections.

24 D. Prepare test and inspection reports.

25 E. Remove and replace damaged heat-tracing cables.

26 **END OF SECTION 22 05 33**

1 **SECTION 23 05 20**

2 **VARIABLE FREQUENCY DRIVES**

3 **1.01 RELATED DOCUMENTS**

- 4 A. Section 23 05 00 "Common Work Results for HVAC".
- 5 B. Section 23 09 23 "Direct Digital Control (DDC) System for HVAC".
- 6 C. Applicable sections in Division 26.

7 **1.02 SUMMARY**

- 8 A. Section includes variable frequency drives consisting of a pulse width modulated (PWM) inverter
- 9 designed for use with both asynchronous and permanent magnet motors.

10 **1.03 REFERENCE STANDARDS**

- 11 A. ANSI/IEEE – Guide for Harmonic Controls and Reactive Compensation of Static Power
- 12 Converters
- 13 B. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum)
- 14 C. NEMA ICA 7-2014 – Adjustable Speed Drives
- 15 D. NFPA 70 – National Electrical Code (NEC)

16 **1.04 SUBMITTALS**

- 17 A. Product Data: For each VFD indicated.
- 18 1. Include dimensions and finishes for VFDs.
- 19 2. Include rated capacities, operating characteristics, electrical characteristics, and furnished
- 20 specialties and accessories.
- 21 B. Shop Drawings: For each VFD indicated.
- 22 1. Include mounting and attachment details.
- 23 2. Include diagrams for power, signal, and control wiring.
- 24 C. Product Certificates: For each VFD from manufacturer.
- 25 D. Harmonic Analysis Report: Provide Project-specific calculations and manufacturer's statement of
- 26 compliance with IEEE 519.
- 27 E. Source quality-control reports.
- 28 F. Field quality-control reports.
- 29 G. Sample Warranty: For special warranty.

1.05 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For VFDs to include in emergency, operation, and maintenance manuals.

1. In addition to items specified in Section 01 78 23 "Operation and Maintenance Data," include the following:
 - a. Manufacturer's written instructions for testing and adjusting thermal-magnetic circuit breaker and motor-circuit protector trip settings and overload settings as applicable.
 - b. Manufacturer's written instructions for setting field-adjustable overload relays.
 - c. Manufacturer's written instructions for testing, adjusting, and reprogramming microprocessor control modules.
 - d. Manufacturer's written instructions for setting field-adjustable timers, controls, and status and alarm points.
 - e. Start-up report for each VFD listing complete procedures and tests performed.
 - f. Load-Current and List of Settings of Adjustable Overload Relays: Compile after motors have been installed and arrange to demonstrate that switch settings for motor-running overload protection suit actual motors to be protected.

1.06 MAINTENANCE MATERIAL SUBMITTALS

- A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Power Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than three of each size and type.
2. Control Power Fuses: Equal to 10 percent of quantity installed for each size and type, but no fewer than two of each size and type.
3. Indicating Lights: Two of each type and color installed.
4. Auxiliary Contacts: Furnish one spare(s) for each size and type of magnetic controller installed.
5. Power Contacts: Furnish three spares for each size and type of magnetic contactor installed.

1.07 QUALITY ASSURANCE

- A. Testing Agency Qualifications: Certified by the manufacture.

1. Testing Agency's Field Supervisor: Certified by the manufacture to supervise on-site testing. Submit manufacture's approved start-up report and certification credentials

1.08 DELIVERY, STORAGE, AND HANDLING

- A. If stored in space that is not permanently enclosed and air conditioned, remove loose packing and flammable materials from inside controllers and install temporary electric heating, with at least 250 W per controller.

- B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for VFDs, including clearances between VFDs, and adjacent surfaces and other items.

1.09 WARRANTY

- A. Special Warranty: Manufacturer agrees to repair or replace VFDs that fail in materials or workmanship within specified warranty period of 1 year from the date of shipment. The warranty shall include parts, labor and travel.

2.01 MANUFACTURERS

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

1. Danfoss
2. Or approved equal.

2.02 SYSTEM DESCRIPTION

- A. General Requirements for VFDs:

1. VFDs and Accessories: Listed and labeled as defined in NFPA 70, UL labeled as a complete assembly, and marked for intended location and application.
2. Comply with NEMA ICS 7, NEMA ICS 61800-2, and UL508A.

- B. Application: Variable torque per the application requirements.

- C. VFD Description: Variable-frequency motor controller, consisting of power converter that employs pulse-width-modulated inverter, factory built and tested in an enclosure, with integral disconnecting means, fuses and overload protection; listed and labeled by UL a complete unit.

1. Units suitable for operation of NEMA MG 1, Design A and Design B motors, as defined by NEMA MG 1, Section IV, Part 30, "Application Considerations for Constant Speed Motors Used on a Sinusoidal Bus with Harmonic Content and General Purpose Motors Used with Adjustable-Voltage or Adjustable-Frequency Controls or Both."
2. Units suitable for operation of inverter-duty motors as defined by NEMA MG 1, Section IV, Part 31, "Definite-Purpose Inverter-Fed Polyphase Motors."
3. Listed and labeled for integrated short-circuit current rating of 100KA by UL 508A.

- D. Design and Rating: Match load type, such as fans, blowers, and pumps; and type of connection used between motor and load such as direct or through a power-transmission connection.

- E. Output Rating: Three phase; 10 to 60 Hz, with voltage proportional to frequency throughout voltage range; maximum voltage equals input voltage.

- F. Unit Operating Requirements:

1. Input AC Voltage Tolerance: Plus 10 and minus 10 percent of VFD input voltage rating.
2. Input AC Voltage Unbalance: Not exceeding 3 percent.
3. Input Frequency Tolerance: Plus or minus 5 percent of VFD frequency rating.
4. Minimum Efficiency: 96 percent at 60 Hz, full load.
5. Minimum Displacement Primary-Side Power Factor: 96 percent under any load or speed condition.
6. Minimum Short-Circuit Current (Withstand) Rating: 10 kA.
7. Ambient Temperature Rating: Not less than 32 deg F and not exceeding 104 deg F.

- 1 **a. VFD shall be able to start and remain operational at outside air temperature of**
2 **-15 deg F.**
- 3 8. Humidity Rating: Less than 95 percent (noncondensing).
4 9. Altitude Rating: Not exceeding 3300 feet.
5 10. Vibration Withstand: Comply with NEMA ICS 61800-2.
6 11. Overload Capability: 1.1 times the base load current for 60 seconds; minimum of 1.8 times
7 the base load current for three seconds.
8 12. Starting Torque: Minimum 100 percent of rated torque from 3 to 60 Hz.
9 13. Speed Regulation: Plus or minus 5 percent.
10 14. Output Carrier Frequency: Selectable; 0.5 to 15 kHz.
11 15. Stop Modes: Programmable; includes fast, free-wheel, and dc injection braking.
- 12 G. Inverter Logic: Microprocessor based, 16 bit, isolated from all power circuits.
- 13 H. Isolated Control Interface: Allows VFDs to follow remote-control signal over a minimum 10:1
14 speed range.
- 15 1. Signal: Electrical.
- 16 I. Internal Adjustability Capabilities:
- 17 1. Minimum Speed: 5 to 25 percent of maximum rpm.
18 2. Maximum Speed: 80 to 100 percent of maximum rpm.
19 3. Acceleration: 0.1 to 999.9 seconds.
20 4. Deceleration: 0.1 to 999.9 seconds.
21 5. Current Limit: 30 to minimum of 150 percent of maximum rating.
- 22 J. Self-Protection and Reliability Features:
- 23 1. Surge Suppression: Factory installed as an integral part of the VFD, complying with
24 UL 1449 SPD, Type 1 or Type 2. Provide phase to phase and phase to ground protection.
25 2. Loss of Input Signal Protection: Selectable response strategy, including speed default to a
26 percent of the most recent speed, a preset speed, or stop; with alarm.
27 3. Under- and overvoltage trips. (-35% and +30%)
28 4. Inverter overcurrent trips and ground fault protection (start and running).
29 5. VFD and Motor-Overload/Overtemperature Protection: Microprocessor-based thermal
30 protection system for monitoring VFDs and motor thermal characteristics, and for providing
31 VFD overtemperature and motor-overload alarm and trip; settings selectable via the
32 keypad.
33 6. Critical frequency rejection, with three selectable, adjustable deadbands.
34 7. Instantaneous line-to-line and line-to-ground overcurrent trips.
35 8. Loss-of-phase protection.
36 9. Reverse-phase protection.
37 10. Short-circuit protection.
38 11. Motor-overtemperature fault.
- 39 K. Automatic Reset/Restart: Attempt three restarts after drive fault or on return of power after an
40 interruption and before shutting down for manual reset or fault correction; adjustable delay time
41 between restart attempts.
- 42 L. Power-Interruption Protection: To prevent motor from re-energizing after a power interruption until
43 motor has stopped, unless "Bidirectional Autospeed Search" feature is engaged.

- 1 M. Bidirectional Autospeed Search: Capable of starting VFD into rotating loads spinning in either
2 direction and returning motor to set speed in proper direction, without causing damage to drive,
3 motor, or load.
- 4 N. Torque Boost: Automatically varies starting and continuous torque to at least 1.5 times the
5 minimum torque to ensure high-starting torque and increased torque at slow speeds.
- 6 O. Motor Temperature Compensation at Slow Speeds: Adjustable current fall-back based on output
7 frequency for temperature protection of self-cooled, fan-ventilated motors at slow speeds.
- 8 P. Integral Input Disconnecting Means and OCPD: Door interlocked switch and fuses with pad-
9 lockable, door-mounted handle mechanism.
- 10 1. Disconnect Rating: Not less than 125 percent of VFD input current rating.
11 2. Disconnect Rating: Not less than 115 percent of NFPA 70 motor full-load current rating or
12 VFC input current rating, whichever is larger.
13 3. Auxiliary Contacts: NO or NC, arranged to activate before switch blades open.
14 4. Auxiliary contacts "a" and "b" arranged to activate with circuit-breaker handle.
15 5. [NC] [NO] alarm contact that operates only when circuit breaker has tripped.
- 16 **2.03 PERFORMANCE REQUIREMENTS**
- 17 **2.04 CONTROLS AND INDICATION**
- 18 A. Status Lights: Door-mounted LED indicators displaying the following conditions:
- 19 1. Power on.
20 2. Run.
21 3. Overvoltage.
22 4. Line fault.
23 5. Overcurrent.
24 6. External fault.
- 25 B. Door-Mounted Operator Station: Manufacturer's front-accessible, sealed keypad and plain-
26 English-language digital display; allows complete programming, program copying, operating,
27 monitoring, and diagnostic capability. All drives shall utilize the same (keypad) user interface
- 28 1. Keypad: In addition to required programming and control keys, include keys for HAND,
29 OFF, and AUTO modes.
30 2. Security Access: Provide electronic security access to controls through identification and
31 password with at least three levels of access: View only; view and operate; and view,
32 operate, and service.
33 a. Control Authority: Supports at least four conditions: Off, local manual control at VFD,
34 local automatic control at VFD, and automatic control through a remote source.
- 35 C. Historical Logging Information and Displays:
- 36 1. Real-time clock with current time and date.
37 2. Running log of total power versus time.
38 3. Total run time, fan operation time, power up time
39 4. Fault log, maintaining last four faults with time and date stamp for each.
40 5. Event log, last 10 operating changes with date and time stamps.

D. Indicating Devices: Digital display and additional readout devices as required, mounted flush in VFD door and connected to display VFD parameters including, but not limited to:

1. Output frequency (Hz).
2. Motor speed (rpm).
3. Motor status (running, stop, fault).
4. Motor current (amperes).
5. Motor torque (percent).
6. Fault or alarming status (no codes).
7. PID feedback signal (percent).
8. DC-link voltage (V dc).
9. Set point frequency (Hz).
10. Motor output voltage (V ac).
11. Status of digital and analog inputs and outputs
12. The control panel shall include at minimum the followings controls:
 - a. Four navigation keys (Up, Down, Left, Right) and two soft keys.
 - b. Hand-Off-Auto selection, Fault Reset, and manual speed control.

E. A Help key shall include assistance for programming and troubleshooting

F. Control Signal Interfaces:

1. Electric Input Signal Interface:
 - a. A minimum of two programmable analog inputs: 4- to 20-mA dc
 - b. A minimum of six multifunction programmable digital inputs.
2. Remote Signal Inputs: Capability to accept any of the following speed-setting input signals from the DDC system for HVAC or other control systems:
 - a. 0- to 10-V dc.
 - b. 4- to 20-mA dc.
 - c. Potentiometer using up/down digital inputs.
 - d. Fixed frequencies using digital inputs.
3. Output Signal Interface: A minimum of one programmable analog output signal(s) 4- to 20-mA dc, which can be configured for any of the following:
 - a. Output frequency (Hz).
 - b. Output current (load).
 - c. DC-link voltage (V dc).
 - d. Motor torque (percent).
 - e. Motor speed (rpm).
 - f. Set point frequency (Hz).
4. Remote Indication Interface: A minimum of two programmable dry-circuit relay outputs (120-V ac, 1 A) for remote indication of the following:
 - a. Motor running.
 - b. Set point speed reached.
 - c. Fault and warning indication (overtemperature or overcurrent).
 - d. PID high- or low-speed limits reached.

G. Interface with DDC System for HVAC: Factory-installed hardware and software shall interface with DDC system for HVAC to monitor, control, display, and record data for use in processing reports. VFD settings shall be retained within VFD's nonvolatile memory. MSTP BACnet (BTL Listed), Modbus and N2 bus shall be supported as standard.

1. Hardwired Points:
 - a. Monitoring: On-off status.
 - b. Control: On-off operation.

2. Communication Interface: Comply with ASHRAE 135 Communication shall interface with DDC system for HVAC to remotely control and monitor from a DDC system for HVAC operator workstation.

2.05 LINE CONDITIONING AND FILTERING

- A. Input Line Conditioning: Based on the manufacturer's harmonic analysis study and report, provide input filtering, as required, to limit total demand (harmonic current) distortion and total harmonic voltage demand at the defined point of common coupling to meet IEEE 519 recommendations. The minimum filtering shall be a 5% impedance from AC line reactors or dual DC bus reactors. Micro drives are not acceptable.
- B. Output Filtering: N/A
- C. EMI/RFI Filtering: CE marked; certify compliance with IEC 61800-3 for Category C2.
- D. EMI/RFI Filtering: N/A

2.06 OPTIONAL FEATURES

- A. Multiple-Motor Capability: VFD suitable for variable-speed service to multiple motors. Overload protection shuts down VFD and motors served by it and generates fault indications when overload protection activates.
1. Configure to allow two or more motors to operate simultaneously at the same speed; separate overload relay for each controlled motor.
 2. Configure to allow two motors to operate separately; operator selectable via local or remote switch or contact closures; single overload relay for both motors; separate output magnetic contactors for each motor.
 3. Configure to allow two motors to operate simultaneously and in a lead/lag mode, with one motor operated at variable speed via the power converter and the other at constant speed via the bypass controller; separate overload relay for each controlled motor.
- B. Sleep Function: Senses a minimal deviation of a feedback signal and stops the motor. On an increase in speed-command signal deviation, VFD resumes normal operation.
- C. Motor Preheat Function: Preheats motor when idle to prevent moisture accumulation in the motor.
- D. Remote Indicating Circuit Terminals: Mode selection, controller status, and controller fault.

2.07 ENCLOSURES

- A. VFD Enclosures: NEMA 250, to comply with environmental conditions at installed location.
1. All locations Type 4X.

2.08 ACCESSORIES

- A. General Requirements for Control-Circuit and Pilot Devices: NEMA ICS 5; factory installed in VFD enclosure cover unless otherwise indicated.
1. Push Buttons: Lockable.
 2. Pilot Lights: Push to test.

- 1 3. Selector Switches: Rotary type.
- 2 4. Stop and Lockout Push-Button Station: Momentary-break, push-button station with a
- 3 factory-applied hasp arranged so padlock can be used to lock push button in depressed
- 4 position with control circuit open.
- 5 B. [NC] [NO] [Reversible NC/NO] bypass contactor auxiliary contact(s).
- 6 C. Control Relays: Auxiliary and adjustable solid-state time-delay relays.
- 7 D. Phase-Failure, Phase-Reversal, and Undervoltage and Overvoltage Relays: Solid-state sensing
- 8 circuit with isolated output contacts for hard-wired connections. Provide adjustable undervoltage,
- 9 overvoltage, and time-delay settings.
- 10 1. Current Transformers: Continuous current rating, basic impulse insulating level (BIL)
- 11 rating, burden, and accuracy class suitable for connected circuitry. Comply with
- 12 IEEE C57.13.
- 13 E. Supplemental Digital Meters:
- 14 1. Elapsed-time meter.
- 15 2. Kilowatt meter.
- 16 3. Kilowatt-hour meter.
- 17 F. Breather and drain assemblies, to maintain interior pressure and release condensation in
- 18 NEMA 250, Type 4X enclosures installed outdoors or in unconditioned interior spaces subject to
- 19 humidity and temperature swings.
- 20 G. Space heaters, with NC auxiliary contacts, to mitigate condensation in NEMA 250, Type 4X
- 21 enclosures installed outdoors or in unconditioned interior spaces subject to humidity and
- 22 temperature swings.
- 23 H. Cooling Fan and Exhaust System: For NEMA 250, Type 4X; UL 508 component recognized:
- 24 Supply fan, with intake and exhaust grills and filters ; 120 V ac; obtained from integral CPT.
- 25 I. Spare control-wiring terminal blocks ; wired.

26 **2.09 SOURCE QUALITY CONTROL**

- 27 A. Testing: Test and inspect VFDs according to requirements in NEMA ICS 61800-2.
- 28 1. Test each VFD while connected to its specified motor.
- 29 2. Verification of Performance: Rate VFDs according to operation of functions and features
- 30 specified.
- 31 B. VFDs will be considered defective if they do not pass tests and inspections.
- 32 C. Prepare test and inspection reports.

33 **3.01 EXAMINATION**

- 34 A. Examine areas, surfaces, and substrates to receive VFDs, with Installer present, for compliance
- 35 with requirements for installation tolerances, and other conditions affecting performance of the
- 36 Work.

- 1 B. Examine VFD before installation. Reject VFDs that are wet, moisture damaged, or mold
2 damaged.
- 3 C. Examine roughing-in for conduit systems to verify actual locations of conduit connections before
4 VFD installation.
- 5 D. Prepare written report, endorsed by Installer, listing conditions detrimental to performance of the
6 Work
- 7 E. Proceed with installation only after unsatisfactory conditions have been corrected.

8 **3.02 INSTALLATION**

- 9 A. Wall-Mounting Controllers: Install with tops at uniform height and with disconnect operating
10 handles not higher than 79 inches above finished floor, unless otherwise indicated, and by bolting
11 units to wall or mounting on lightweight structural-steel channels bolted to wall. For controllers not
12 on walls, provide freestanding racks complying with Section 26 05 29 "Hangers and Supports for
13 Electrical Systems."
- 14 B. Temporary Lifting Provisions: Remove temporary lifting eyes, channels, and brackets and
15 temporary blocking of moving parts from enclosures and components.
- 16 C. Install fuses in each fusible-switch VFC.
- 17 D. Install, connect, and fuse thermal-protector monitoring relays furnished with motor-driven
18 equipment.
- 19 E. Install heaters in thermal-overload relays. Select heaters based on actual nameplate full-load
20 amperes after motors are installed.
- 21 F. Comply with NECA 1.

22 **3.03 CONTROL WIRING INSTALLATION**

- 23 A. Install wiring between VFDs and remote devices and facility's central-control system. Comply with
24 requirements in Section 26 05 23 "Control-Voltage Electrical Power Cables."
- 25 B. Bundle, train, and support wiring in enclosures.
- 26 C. Connect selector switches and other automatic-control devices where applicable.
 - 27 1. Connect selector switches to bypass only those manual- and automatic-control devices
28 that have no safety functions when switches are in manual-control position.
 - 29 2. Connect selector switches with control circuit in both manual and automatic positions for
30 safety-type control devices such as low- and high-pressure cutouts, high-temperature
31 cutouts, and motor-overload protectors.

32 **3.04 IDENTIFICATION**

- 33 A. Identify VFDs, components, and control wiring. Comply with requirements for identification
34 specified in Section 26 05 53 "Identification for Electrical Systems."

1. Identify field-installed conductors, interconnecting wiring, and components; provide warning signs.
2. Label each VFD with engraved nameplate.
3. Label each enclosure-mounted control and pilot device.

- B. Operating Instructions: Frame printed operating instructions for VFDs, including control sequences and emergency procedures. Fabricate frame of finished metal, and cover instructions with clear acrylic plastic. Mount on front of VFD units.

3.05 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a factory certified testing agency to perform tests and inspections.
- B. Perform tests and inspections with the assistance of a factory-authorized service representative.
- C. Acceptance Testing Preparation:
1. Test insulation resistance for each VFD element, bus, component, connecting supply, feeder, and control circuit.
 2. Test continuity of each circuit.
- D. Tests and Inspections:
1. Inspect VFD, wiring, components, connections, and equipment installation. Test and adjust controllers, components, and equipment.
 2. Test insulation resistance for each VFD element, component, connecting motor supply, feeder, and control circuits.
 3. Test continuity of each circuit.
 4. Verify that voltages at VFD locations are within ASHARE 90.1 Section 8.4 percent of motor nameplate rated voltages. If outside this range for any motor, notify Architect before starting the motor(s).
 5. Test each motor for proper phase rotation.
 6. Perform tests according to the Inspection and Test Procedures for Adjustable Speed Drives stated in NETA Acceptance Testing Specification. Certify compliance with test parameters.
 7. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.
 8. Test and adjust controls, remote monitoring, and safeties. Replace damaged and malfunctioning controls and equipment.
- E. VFDs will be considered defective if they do not pass tests and inspections.
- F. Prepare test and inspection reports, including a certified report that identifies the VFD and describes scanning results. Include notation of deficiencies detected, remedial action taken, and observations made after remedial action.

3.06 STARTUP SERVICE

- A. Engage a factory-authorized service representative to perform startup service.
1. Complete installation and startup checks according to manufacturer's written instructions.

3.07 ADJUSTING

- A. Program microprocessors for required operational sequences, status indications, alarms, event recording, and display features. Clear events memory after final acceptance testing and prior to Substantial Completion.
- B. Set field-adjustable switches, auxiliary relays, time-delay relays, timers, and overload-relay pickup and trip ranges.
- C. Adjust the trip settings of instantaneous-only circuit breakers and thermal-magnetic circuit breakers with adjustable, instantaneous trip elements. Initially adjust to 6 times the motor nameplate full-load amperes and attempt to start motors several times, allowing for motor cool-down between starts. If tripping occurs on motor inrush, adjust settings in increments until motors start without tripping. Do not exceed 8 times the motor full-load amperes (or 11 times for NEMA Premium Efficient motors if required). Where these maximum settings do not allow starting of a motor, notify Architect before increasing settings.
- D. Set the taps on reduced-voltage autotransformer controllers.
- E. Set field-adjustable circuit-breaker trip ranges coordinating with electrical contractor Short-Circuit and Coordination Studies.

3.08 PROTECTION

- A. Temporary Heating: Apply temporary heat to maintain temperature according to manufacturer's written instructions until controllers are ready to be energized and placed into service.
- B. Replace VFDs whose interiors have been exposed to water or other liquids prior to Substantial Completion.

3.09 DEMONSTRATION

- A. Train Owner's maintenance personnel to adjust, operate, reprogram, and maintain VFDs.

END OF SECTION 23 05 20

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1 **SECTION 23 09 03**

2 **CONTROL INSTRUMENTATION**

3 **PART 1 - GENERAL**

4 **1.01 RELATED WORK**

- 5 A. Section 23 09 23 – Direct Digital Control (DDC) for HVAC.
- 6 B. Section 23 09 05 - Instrument Point List
- 7 C. Section 23 09 93 - Control Sequences

8 **1.02 SUBMITTALS**

- 9 A. Devices shall be indexed by bill of material for each system as detailed in Section 23 0901 -
10 Control Systems Integration.
- 11 B. Device data sheets submittal shall be submitted simultaneously with Control Systems Integration
12 submittal. Refer to submittals section in 23 0901.
- 13 C. Thermostat/Room Temperature Sensor Schedules:
- 14 1. Submit thermostat/room temperature sensor schedule with shop drawings.
15 Thermostat/room temperature sensor schedule shall have detailed listing of which type is
16 used for each room, including data concerning service and model numbers, sizes, cover
17 types, and engineering data sheets for each control device.
- 18 D. Warranty
- 19 1. Provide 1 year warranty on all materials and labor.
- 20 2. Warranty requirements shall include furnishing and installing software upgrades issued by
21 the manufacturer during the 1 year warranty period.

22 **1.03 FCC COMPLIANCE**

- 23 A. Digital equipment furnished under this Contract shall be tested and made to comply with limits for
24 Class A computing devices pursuant to Subpart J of Part 15 of FCC Rules, which are designed
25 to provide reasonable protection against interference when operated in commercial
26 environments. Literature shall so note and equipment shall be so labeled.

27

28 **PART 2 - PRODUCTS**

29 **2.01 GENERAL**

- 30 A. Instruments of same type shall be by same manufacturer, for instance, pressure transmitters,
31 gauge, absolute, and differential pressure shall be of same manufacturer.

1 B. Pressure and temperature ratings of devices indicated in Part 2 - of this Section are minimum
2 required. Devices shall be designed to withstand maximum pressures and temperatures
3 encountered in respective systems.

4 C. No devices containing mercury will be allowed under this Specification.

5 **2.02 GENERAL INSTRUMENTATION**

6 A. Pressure Gauges:

7 1. Refer to Section 23 2120 - Piping Specialties

8 B. Thermometers (Dial-Type):

9 1. Refer to Section 23 2120 - Piping Specialties

10 C. Analog Electronic Instrument Indicators:

11 1. Electronic indicators, used for displaying sensor and/or output values as measured by
12 current or voltage, shall be panel mount type and at least 2" square. Output may be either
13 analog needle type or digital with 1/2" high LED or backlit LCD displays.

14 2. Electronic indicators shall be marked in appropriate units (degrees, psi, % rh, gpm, cfm,
15 etc.) and with appropriate range of values. Panel mounted indicators shall have minimum
16 accuracy of 1% of scale range. Digital units shall be scaled to show 3 digits plus 1 decimal
17 point.

18 **2.03 DISCRETE ELECTRIC INSTRUMENTATION**

19 A. General:

20 1. Electrical devices, switches, and relays shall be UL listed and of type meeting current and
21 voltage characteristics of project. Terminal connections shall be made at terminal blocks
22 inside of NEMA 1 enclosures unless otherwise specified. Outdoor units (garage parking
23 area is considered outside) shall be NEMA 4 with concealed adjustment.

24 2. Ratings of normally open and normally closed contacts shall be adequate for applied load
25 (minimum 5 amps at 240 Volts).

26 3. Accuracy of devices shall be $\pm 1\%$ of scale with adjustable offset unless otherwise
27 specified.

28 B. Temperature Switches (Electric Thermostats):

29 1. Line voltage or low voltage type suitable for application with adjustable setpoint and
30 setpoint indication.

31 2. Low voltage type to have heat anticipation.

32 3. Thermostats with remote sensing bulb shall have liquid filled sensing element and exposed
33 setpoint adjustment.

34 4. Wall mounted space thermostat enclosure shall have concealed sensing element and
35 exposed setpoint adjustment.

36 5. Unless otherwise stated, space thermostat covers shall be manufacturer's standard plastic.

37 C. Relays

1. Manufacturers: IDEC, Potter Brumfield, Square D, or Allen Bradley
2. Equal to IDEC Type RH2B-U, miniature 8 blade pilot relay with DPDT silver cadmium oxide contacts rated at 10A, 30 VDC, or 120 VAC. Coil shall match control circuit characteristics. DDC outputs shall be 24 VDC with maximum current burden of 50 milliamps. Rectangular base socket mount with blade type plug-in terminals and polycarbonate dust cover.
3. Provide DIN rail mountable (Snap type) mounting sockets equal to IDEC SH2B-05.

D. Enclosed Relay (Relay in Box):

1. Manufacturers: Veris Industries, Kele & Associates, Functional devices, Inc. or approved equal
2. 1 or 2 SPDT relays in NEMA 1 or better enclosure. Coil shall be selected for control circuit characteristics.
3. Contacts rated at 10A, 28 VDC or 120 VAC. Conduit nipple is 1/2" NPT. Maximum coil current burden 50 milliamps.

E. Pressure Differential Switches (Air Systems):

1. Manufacturers: Cleveland Controls, Dwyer, Honeywell, Johnson Controls/Penn, Siemens Building Technologies, or TAC
2. Adjustable set point, differential pressure type. Select switches for accuracy, ranges (20 to 80% of operating range) and dead-band to match process conditions, electrical requirements and to implement intended functions.
3. Pressure differential switches for air systems shall have pressure rating of at least 10" WC.
4. Switches used to protect installed system shall be manual reset type with two single pole double through contacts (SPDT)
5. Pressure indicating differential switches for air systems shall be equal to Dwyer Series 3000 photohelic gauge.
 - a. Maximum Temperature Rating: 180°F
 - b. Repeatability: ± 1%

F. Current Switches – Constant load, Constant Speed:

1. Manufacturers: Veris Industries, N-K Technologies, Absolute Process Instruments, Kele & Associates, R-K Electronics or approved equal
2. These shall be Induction type sensors clamped over single phase conductor of AC electrical power and shall be solid-state sensors with adjustable threshold and normally open contacts. Each current switch shall be selected for proper operating range of current.
 - a. Output: Solid state relay or relay contacts
 - b. Trip Setpoint: Adjustable by multi-turn potentiometer
 - c. Operating Temperature: 32 to 131°F
 - d. Response Time: < 0.5 seconds

G. Current Switches - Variable Load, Variable Speed

1. Manufacturers: Veris Industries, N-K Technologies or approved equal
2. These shall be induction type sensors clamped over single-phase conductor of AC electrical power and shall consist of solid-state sensors with self-calibrating threshold and normally open Contacts.
 - a. Output: Solid state relay or relay contacts
 - b. Trip Setpoint: Adjustable by multi-turn potentiometer
 - c. Operating Temperature: 32 to 131°F
 - d. Response Time: < 0.5 seconds

- H. Mechanical Room and Local Control Panel Alarm Horns:
1. Manufacturers: Honeywell, Johnson Controls, Siemens, Panalarm, TAC, or Ronan
 2. 24 V alarm horn suitable for panel mounting.
- I. Plant Alarm Horns:
1. Manufacturers: Panalarm, Johnson Controls/Penn, Honeywell, Siemens Building Technologies, or Sonalert
 2. Equal to Honeywell model SC806A rated at 64-100 dBa at 10 ft, 24 VAC operation. UL Listed and FM approved
- J. Indicator Lights:
1. Manufacturers: Allen Bradley, GE, Square-D, or Idec
 2. 1/4" minimum size or 1-1/4" maximum size, push-to-test type. Use green for normal, yellow for warning (low/high values), and red for alarm or fail (low-low or high-high conditions). AC or DC type with voltage matched to control circuit without transformers.
- K. Drain Pan Moisture Detector:
1. Manufacturers: Kele and Associates, DiversiTech or approved alternate.
 2. Moisture detector is small, electronic control relay for detecting rising water levels, within drain pans or other containments. Moisture detector shall alarm when water levels reach 0.43" to prevent damage from overflow of drain pans. Relay shall reset when water levels decrease to 0.31" and relay re-energizes.
 3. Relay is normally energized upon powering up and no water is present. When water level reaches the trip point the relay de-energizes for alarming in BAS.
 4. Moisture Detector Relay Module (Model LD1-24):
 - a. Supply Voltage: 24 VAC, 60 Hz
 - b. Power Consumption: 1 W
 - c. Cable length: 18-inches
 - d. Relays Contacts:
 - 1) Type: SPDT
 - 2) Rating: 2.5A at 24 VDC; 5.0A at 120 VAC
 - e. Enclosure Rating: Hermetically Sealed
 - f. Dimensions: 0.87" H x 2.0" W x 1.25" L

2.04 PNEUMATIC INSTRUMENTATION

- A. Space Static Pressure Sensor:
1. Manufacturers: Air Monitor Corporation, Tek-Air or Thermo Electron Corporation
 2. Space static pressure probe shall be brushed aluminum with anodized finish or stainless steel with polished or painted finish selected by Architect.
 3. Shielded static air probe shall be similar to Air Monitor Corporation Model 3 for flush ceiling mounting, complete with multiple sensing ports, pressure impulse suppression chamber, air flow shielding, and 3/8" FPT take-off fitting. Sensor shall be capable of sensing static pressure within 1% of actual pressure value while being subjected to maximum air flow of 100 fpm from radial source.
- B. Differential Air Pressure Indicator:

1. Dwyer model 2000 Series magnehelic gauge for surface or panel mounting. 4" dial readout, die cast aluminum housing. Case and aluminum parts Iridite-dipped. Exterior finish to be baked dark grey hammerloid. Hi/lo 1/8" pressure taps. Provide adapters to match tubing type.
 - a. Accuracy: $\pm 2\%$ of full scale.
 - b. Ambient Temperature Range: 20 to 140°F
 - c. Rated Total Pressure: -20" Hg to 15 psig
 - d. Range: 0-2 times normal setpoint. (Use 0-0.25" WC for building and space pressure indication.)

C. Plastic Tubing:

1. Fire resistant virgin polyethylene, meeting stress-crack test ASTM D1693. Individual tube polyethylene or multi-tube instrument tubing bundle shall be classified as flame retardant under UL94. Polyethylene material shall be rated as self-extinguishing when tested in accordance with ASTM 9 D635. 94. Polyethylene material shall be rated as self-extinguishing when tested in accordance with ASTM 9 D635.

2.05 ANALOG ELECTRONIC INSTRUMENTATION

A. Gas Detection Systems:

1. Manufacturers: **ACI**, Toxalert, Dräger, Enmet, Honeywell Analytical, MSA or approved alternate
2. Provide gas detectors as listed below. Each detector shall be complete package with remote or local space sensors, detection instruments, local indication of current measured value for each sensor and status indicator lights for power and status of each sensor. Devices not requiring remote mounting shall be housed in metal control panel. Status indicators shall be mounted on panel faceplate.
3. Units shall have adjustable setpoints and self-test diagnostics.
 - a. Gas to be Detected **H2, CO, and NO2**
 - b. Alarm Setpoint:
 - 1) CO: low level control signal alarms ~~15 PPM, 25 PPM, 35 PPM and high alarm 400 PPM~~
 - 2) NO2: low alarm 1 PPM, ~~high alarm 3 PPM~~
 - 3) **H2: high alarm 1% by volume**
 - c. Range:
 - 1) CO: 0-2 times Alarm Setpoint
 - 2) NO2: 0-10 ppm NO2
 - 3) **H2: 0-100% LEL**
 - d. Remote Sensor: As required.
 - e. Signal: 4-20 mA; Below 4 mA indicates sensor failure
 - f. Housing: NEMA 4X
 - g. Temperature:
 - 1) **CO: -4°F to 122°F**
 - 2) **NO: -4°F to 122°F**
 - 3) **H2: 14°F to 122°F**
 - h. Locations: See floor plans.

B. Space Temperature Sensors:

1. Sensors shall be platinum RTD type, with the following minimum performance:
 - a. Temperature Coefficient of Resistivity (TCR): 0.00385 ohm/ohm/°C

- b. Accuracy: $\pm .54^{\circ}\text{F} + (0.005 \times T)$ (Class B)
- c. Accuracy: $\pm .27^{\circ}\text{F} + (0.005 \times T)$ (Class A)
T = Temperature of interest
- d. Conformance: DIN-IEC 751
- e. Operating Range: 32 to 122°F, 0 to 99% rh
2. Thermistors will be acceptable in lieu of RTD provided thermistor carries 5 year guarantee that device will maintain its accuracy within tolerance of $\pm 0.36^{\circ}\text{F}$ between 32°F and 150°F, and 0.5°F between 41 -20°F and 212°F.
3. Unless otherwise stated, space sensor cover shall be manufacturer's standard plastic cover.

C. Duct Mounted or Insertion Temperature Sensors:

1. Platinum RTD type, with the following minimum performance:
 - a. Temperature Coefficient: 0.00385 ohm/ohm/°C
 - b. Accuracy: $\pm .54^{\circ}\text{F} + (0.005 \times T)$ (Class B)
 - c. Accuracy: $\pm .27^{\circ}\text{F} + (0.005 \times T)$ (Class A)
T = Temperature of interest
 - d. Conformance: DIN-IEC 751
 - e. Operating Range: -50 to 170°F, 0 to 99% RH
2. Install insertion sensors in stainless steel probes or wells.
3. Outside air sensors shall be weatherproof of noncorrosive construction and protected with solar shield. Mount outside air sensors on north side of building or in area intake wells for air handling systems to avoid thermal effects from direct sunlight.
4. Sensors mounted in air streams, such as air handling units, supply ducts, exhaust ducts or return ducts, shall be averaging type. Averaging type sensor to be installed in ducts larger than 24" x 24" or greater than 576in². Mount averaging sensor across duct area in a "Z" pattern using mounting clips specific for averaging temperature sensor probes.
5. Thermistors will be acceptable in lieu of RTD provided thermistor carries 5 year guarantee that the device will maintain its accuracy within a tolerance of $\pm 0.36^{\circ}\text{F}$ between 32°F and 150°F, and 0.5°F between -20°F and 212°F.

D. Ducted Air System Static Pressure and Differential Pressure (Velocity) Transmitters:

1. Manufacturers: GE Modus, Setra, Ashcroft XLDP or approved equal
2. Provide transducers/transmitters to convert velocity pressure differential or static duct pressure relative to sensor location into electronic signal.
3. Unit shall be capable of transmitting linear 4 - 20 mA DC output signal proportional to differential (total minus static or static minus ambient) pressure input signals with the following minimum performance and application criteria:
 - a. Span: Not greater than twice duct static or velocity pressure at maximum flow rate, or more than 16 times velocity pressure at minimum flow rate.
 - b. Accuracy: $\pm 1.0\%$ of span or $\pm 1.0\%$ of full scale
 - c. Dead Band: Less than 0.5% of output
 - d. Hysteresis: Within 0.5% of span or within 0.5% of full scale
 - e. Linearity: Within 1.0% of span or within 0.5% of full scale
 - f. Repeatability: Within 0.5% of output
 - g. Response: Less than 1 second for full span input
4. Return and exhaust air system static pressure transducers/transmitters shall be furnished with protective integral air filters on pressure sensing lines from static pressure sensing stations and with static air probes to prevent migration of moisture and particulate matter into transducers. If inputs to pressure transducers/transmitters are dead-ended, integral air filters are not required. Supply air system sensors do not require integral air filters.

1 E. Differential Pressure Flow Element: Pitot Tube

- 2 1. Manufacturers: Dieterich Standard, Preso, Veris Inc. or approved alternate
3 2. These shall be averaging differential pressure type flow elements. Flow element shall
4 consist of:
5 a. Sensing tube with two internal chambers. One shall sense upstream pressure and
6 one shall sense downstream pressure.
7 b. These chambers shall have ports of quantity and size to accurately sense flowrate
8 in piping line-size into which these are specified to be installed.
9 c. Sensing tube shall have form so shaped as to minimize measurement inaccuracies.
10 d. Sensing assemblies shall be provided with suitable supports to prevent damage to
11 these assemblies at maximum flow-rate.
12 1) Accuracy: Error $\pm 1.0\%$ of sensor rated range
13 2) Repeatability: Error $\pm 0.5\%$
14 3) Sensor Materials of Construction: Stainless Steel unless otherwise noted
15 e. Insert/Retract "Hot Tap" including insertion device and isolation valve:
16 1) Each sensor, which is required to be Hot-Tap shall be provided with isolating
17 valve, packing gland and retraction tube assembly.
18 2) Each sensor that is specified to be installed into line in which pressure is
19 greater than 200 psig, or for acid or caustic service, or for hazardous chemical
20 service shall be provided with retaining hardware to allow mechanical
21 retraction and insertion.
22 f. Refer to Section 23 2120 - Piping Specialties for Flow Sensors, provided for
23 balancing purposes
24 e.

25 F. Rotary (Damper) Position Sensors:

- 26 1. Manufacturers: Kele & Associates, Fisher Controls or Westlock
27 2. Provide position 4-20 mA transmitter with potentiometer type (variable resistance) sensor
28 for damper position measurement. Measurement to be linear to damper stroke.
29 a. Performance:
30 1) Power Supply: 24 VDC unregulated
31 2) Accuracy: $\pm 1\%$ of output span
32 3) Repeatability: $\pm 0.5\%$ of full span
33 4) Maximum Temperature: 125°F

34 G. P-E Transducers (Pressure Transmitters):

- 35 1. Manufacturers: Ashcroft, Mamac, Setra, Kele & Associates or GE Modus
36 2. Units shall have the following characteristics:
37 a. Input: Pressure 0-15 psig, minimum
38 b. Output Signal: 4-20 mA, 0-5 VDC, 1-5 VDC, 1-10 VDC
39 c. Accuracy: 1% of span
40 d. Operating Temperature 32 to 125°F
41 e. Power Requirements: 24 VDC (10-30 VDC)

42 H. Air Flow Stations:

- 43 1. **Manufacturers: Ruskin, or approved equal**
44 2. **Provide duct mounted airflow station type based on the following minimum design**
45 **velocities. Pitot or thermal dispersion flow stations can be used for fan inlet flow**
46 **stations. Outside air flow stations shall be thermal dispersion type only. Turndown**

of variable volume fan systems must be considered. Provide and airflow station schedule detailing the airflow range to be measured, corresponding velocity pressure, differential pressure transducer range, and the airflow station size.

a. Air velocity: Duct Mounted Air Flow Station Type

b. 0-700 FPM: Thermal Dispersion

c. >700 FPM: Thermal Dispersion or Multi-probe velocity pressure pitot style

3. Duct mounted Multi-probe velocity pressure pitot air flow stations:

a. Casing: Galvanized steel sheet at least 0.079 inch thick with coating complying with ASTM A653/A653M, G90.

b. Performance:

1) Power Supply: 24 VAC

2) Pressure Loss: 0.015-inch wg at 1000 fpm, or 0.085-inch wg at 2000 fpm.

3) Sensor Accuracy: Within $\pm 2\%$ of reading

4) Installed Accuracy: Within $\pm 10\%$

5) Temperature: -20°F to +120°F

6) Self-Generated Sound: NC 40 and sound level within the duct shall not be amplified.

7) Performance rated and tested according to AMCA 610. Each station shall bear the AMCA seal.

I. Occupancy Pushbutton with Timer:

1. Provide industrial grade stainless steel enclosed push-button switch.

a. Enclosure shall be NEMA 4X.

b. Enclosure shall include START message above Push Button.

2. Provide stainless steel wall plate indicating "PUSH FOR SPACE HEATING OPERATION". Coordinate final size, location, verbiage with A/E.

3. Timer shall be integral to building automation system and permit adjustable run time.

PART 3 - EXECUTION

3.01 GENERAL

A. Install control equipment and wiring in neat and workmanlike manner and in accordance with manufacturer's Recommendations. Maintain clearances, straight length distances, etc., required for proper operation of each device. Mark and detail on coordination drawings, exact locations of inline devices, wells, and taps to be installed by Mechanical Contractor.

B. Coordinate timely delivery of materials and supervise activities of other trade Contractors to install inline devices such as immersion wells, pressure tappings, any associated shut-off valves, flow switches, level switches, flow meters, air flow stations, and other such items furnished by Control Contractor which are to be installed by Mechanical Contractor.

C. Install control devices in accessible location.

D. Mount motor control devices within 5 ft of disconnect switch, or starting device furnished by Electrical Contractor unless noted otherwise. Maintain required NEC clearances.

E. Control Contractor and Mechanical Contractor shall review proposed static pressure sensor and flow meter locations with Owner and Engineer for approval prior to installation.

3.02 GENERAL INSTRUMENTATION

A. Local Control Panels:

1. Install remote mounted devices, controllers, I/O terminal blocks, power supplies, etc., inside of local control panels.
2. Locate panels as shown on drawings.
3. Locate panels adjacent to equipment served with minimum of 3 ft clearance in front of door. Provide sufficient clearances to allow full door swing and full access to internal components. Submit proposed panel locations with shop drawing submittals.
4. Mount top of panels between 5 and 6 ft above floor so that gauges and indicators are at eye level.

3.03 DISCRETE AND ANALOG INSTRUMENTATION

A. Wall Mounted Space Thermostats/Temperature Sensors:

1. Install space thermostats/sensors where indicated, as required to perform specified control sequences, and as directed to meet job site conditions.
2. Provide space temperature sensors without remote setpoint adjustment in all public spaces, hallways, and mechanical rooms unless otherwise specified.
 - a. Mount space thermostats/sensors at 5 ft above floor unless otherwise indicated.
 - b. Mount space thermostats/sensors with accessible setpoint adjustment or temperature reading (thermometer or digital temperature readout) at 4 ft above floor meeting ADA requirements.
3. Space thermostats/sensors located on exterior walls shall be mounted on thermally insulated sub- base.
4. Relocate space thermostats/sensors if required due to draft, interferences with cabinets, chalkboards, etc., or improper sensing.
5. Mount space thermostats/sensors in corridors, stairways and public toilets 7 ft above floor. Space thermostats/sensors in corridor, stairways, vestibules and toilets shall be aspirating type. Space thermostats/sensors shall be protected by heavy-duty cast and die formed guard.

B. RTD Temperature Transmitters:

1. Provide RTD temperature transmitters whenever DDCPs cannot receive RTD type inputs.

C. Static Pressure and Air Flow Stations:

1. Furnish static pressure and air flow measuring stations to Mechanical Contractor for installation.
2. Stations shall be installed in strict accordance with manufacturer's published requirements. These stations serve as primary signals for airflow control systems; therefore it shall be responsibility of Control Contractor to verify location and installation to assure that accurate primary signals are obtained.
3. Pressure differential switches shall be piped across device creating differential between fan discharge and fan suction.

D. Outside Air Temperature Sensors:

1. Mount on north side of building or in intake area wells for air handling systems. Provide solar shields for installations where sensors may be exposed to sunlight conditions.

E. Transmitters, Indicators, and Transducers:

1. Locate transmitters at sensing devices or within 100 ft of remote mounted transmitters. For hot systems (150°F and higher) mount electronics on side of pipe or remotely mount. For indicating type instruments, locate indicating element within 6 ft of floor with readout easily visible from floor level. Provide remote readouts if necessary.
2. Provide P-E transducers to convert analog pressure signals to analog electronic signals for input to DDC panels.

3.04 PNEUMATIC PIPING

- A. Conceal all piping, except for piping in mechanical rooms and other areas where mechanical system piping is exposed.

- B. Install exposed piping and conduit parallel to or at right angles to building structure and support adequately at uniform intervals.

1. Provide tubing clamps with insulated standoffs where metallic tubing may come into contact with other dissimilar metals to prevent galvanic corrosion from occurring. Use of wire ties or hose clamps to fasten tubing to structure or other piping is not allowed.
2. Use of tubing channel designed for mounting polyethylene tubing shall be allowed.

- C. Polyethylene tubing not exceeding 18" exposed may be used for connection to instrument or actuator.

- D. Install polyethylene tubing with no concealed splices and number code all tubing.

- E. Piping type shall be as follows:

1. Inside Panels:
 - a. Use polyethylene tubing.
2. Exposed:
 - a. Polyethylene tubing may be used if run in fully enclosed rigid metal raceway or metal conduit where environment is within temperature limits of polyethylene tubing. Use PVC coated copper tubing or stainless steel tubing for wet environments.
3. Concealed:
 - a. Use polyethylene tubing.

END OF SECTION 23 09 03

1 **SECTION 23 83 23**

2 **ELECTRIC INFRARED RADIANT HEATER**

3 **PART 1 - GENERAL**

4 **1.01 RELATED DOCUMENTS**

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

7 **1.02 SUMMARY**

- 8 A. Section includes infrared radiant heater.

9 **1.03 SUBMITTALS**

- 10 A. Product Data: For each type of product.

- 11 1. Include rated capacities, operating characteristics, and furnished specialties and
12 accessories.

- 13 B. Shop Drawings: For electric infrared radiant heaters. Include plans, elevations, sections, and
14 attachment details.

- 15 1. Include details of equipment assemblies. Indicate dimensions, weights, loads, required
16 clearances, method of field assembly, components, and location of each field connection.
17 2. Include diagrams for power, signal, and control wiring.

18 **1.04 CLOSEOUT SUBMITTALS**

- 19 A. Operation and Maintenance Data: For electric radiant heaters. Include operation and
20 maintenance manuals.

21 **1.05 WARRANTY**

- 22 A. Electric Radiant Heaters shall have a two-year warranty equipment warranty.

23 **PART 2 - PRODUCTS**

24 **2.01 MANUFACTURERS**

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

- 27 1. Schwank
28 2. Or approved equal

29 **2.02 PERFORMANCE REQUIREMENTS**

- 30 A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by
31 a qualified testing agency, and marked for intended location and application.

1 B. All electrical connections shall be in compliance with National Electrical Code [NEC] and local
2 codes for outdoor wiring.

3 C. Use only wiring components UL/CUL/CE listed for outdoor use with IPX4 minimum rating.

4 **2.03 MANUFACTURED UNITS**

5 A. Description: Outdoor rated Infrared heaters with medium wave dual element heated quartz bulbs
6 featuring a low heat and high heat option.

7 B. Brushed stainless steel cabinet.

8 C. Clearance:

- 9 1. 6" above the heater
- 10 2. 36" below the heater
- 11 3. 18" on each side of the heater

12 D. Factory mounting swivel bracket that ensures clearance distances are maintained.

13 E. Adjacent heaters shall be installed no less than 3' apart.

14 F. Heater shall come pre-drilled and threaded for standard 1/2" conduit fittings. The installing
15 electrician will need to provide the appropriate rigid metallic, flexible or liquid tight conduit for the
16 installation location.

17 G. Manufacturer shall be a UL 508 Listed Controls Manufacturer

18 **2.04 CONTROLS**

19 A. Temperature Controls Contractor shall provide electric capacity controller(s), space
20 thermostat(s), and occupancy push button with timer for complete operating system. Refer to
21 M5000 drawings for Control Diagrams, Points Lists, and Sequence of Operations.

22 **PART 3 - EXECUTION**

23 **3.01 EXAMINATION**

24 A. Examine surfaces and substrates to receive electric heaters for compliance with requirements for
25 installation tolerances and other conditions affecting performance.

26 B. Ensure surfaces in contact with electric heaters are free of burrs and sharp protrusions. Ensure
27 surfaces and substrates are level and plumb.

28 **3.02 INSTALLATION**

29 A. Install radiant-heaters level and plumb. Heater must be installed with the Quartz bulb horizontally
30 level.

31 B. Verify locations of controls with Drawings and room details before installation. Install control
32 devices 60 inches (1525 mm) above finished floor.

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1 **SECTION 26 05 33**

2 **RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS**

3 **PART 1 - GENERAL**

4 **1.1 SUMMARY**

5 A. Section Includes:

- 6 1. Type EMT-S raceways and elbows.
7 2. Type ERMC-S raceways, elbows, couplings, and nipples.
8 3. Type IMC raceways.
9 4. Type LFMC raceways.
10 5. Type PVC raceways and fittings.
11 6. Fittings for conduit, tubing, and cable.
12 7. Solvent cements.
13 8. Surface metal raceways and fittings.
14 9. Wireways and auxiliary gutters.
15 10. Metallic outlet boxes, device boxes, rings, and covers.
16 11. Nonmetallic outlet boxes, device boxes, rings, and covers.
17 12. Termination boxes.
18 13. Cabinets, cutout boxes, junction boxes, and pull boxes.
19 14. Cover plates for device boxes.

20 B. Related Requirements:

- 21 1. 26 05 00 "Common Work Requirements for Electrical" for additional abbreviations,
22 definitions, submittals, qualifications, testing agencies, and other Project requirements
23 applicable to Work specified in this Section.

24 **1.2 SUBMITTALS**

25 A. Product Data: For the following:

- 26 1. Wireways and auxiliary gutters.
27 2. Surface metal raceways.
28 3. Floor boxes.
29 4. Cabinets and cutout boxes.

30 B. Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and
31 attachment details. Show that floor boxes are located to avoid interferences and are structurally
32 allowable. Indicate floor thickness where boxes are embedded in concrete floors and underfloor
33 clearances where boxes are installed in raised floors.

34 **PART 2 - PRODUCTS**

35 **2.1 TYPE EMT-S RACEWAYS AND ELBOWS**

36 A. Performance Criteria:

- 37 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked
38 for intended location and use.
39 2. General Characteristics: UL 797 and UL Category Control Number FJMX.

B. Steel Electrical Metal Tubing (EMT-S) and Elbows:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; Atkore International.
 - b. Calconduit; Atkore International.
 - c. Emerson Electric Co.
 - d. Republic Conduit; Nucor Corporation, Nucor Tubular Products.
 - e. Topaz Lighting & Electric.
 - f. Western Tube; Zekelman Industries.
 - g. Wheatland Tube; Zekelman Industries.
 - h. ABB, Electrification Business.
 - i. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - j. Erickson Electrical Equipment Company.
 - k. Hoffman; brand of nVent Electrical plc.
 - l. Or approved equal
2. Material: Steel.
3. Options:
 - a. Exterior Coating: Zinc .
 - b. Interior Coating: Zinc with organic top coating .
 - c. Minimum Trade Size: Metric designator 21 (trade size 3/4).
 - d. Colors: As indicated on Drawings.

2.2 TYPE ERMCS RACEWAYS, ELBOWS, COUPLINGS, AND NIPPLES

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: UL 6 and UL Category Control Number DYIX.

B. Galvanized-Steel Electrical Rigid Metal Conduit (ERMC-S-G), Elbows, Couplings, and Nipples:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Allied Tube & Conduit; Atkore International.
 - b. Calconduit; Atkore International.
 - c. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - d. Republic Conduit; Nucor Corporation, Nucor Tubular Products.
 - e. Topaz Lighting & Electric.
 - f. Western Tube; Zekelman Industries.
 - g. Wheatland Tube; Zekelman Industries.
 - h. Or approved equal
2. Exterior Coating: Zinc.
3. Options:
 - a. Interior Coating: Zinc with organic top coating.
 - b. Minimum Trade Size: Metric designator 21 (trade size 3/4).
 - c. Colors: As indicated on Drawings.

2.3 TYPE IMC RACEWAYS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.

2. General Characteristics: UL 1242 and UL Category Control Number DYBY.

B. Steel Electrical Intermediate Metal Conduit (IMC):

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

- a. ABB, Electrification Business.
- b. Allied Tube & Conduit; Atkore International.
- c. Calconduit; Atkore International.
- d. Republic Conduit; Nucor Corporation, Nucor Tubular Products.
- e. Topaz Lighting & Electric.
- f. Western Tube; Zekelman Industries.
- g. Wheatland Tube; Zekelman Industries.
- h. Or approved equal

2. Options:

- a. Exterior Coating: Zinc .
- b. Interior Coating: Zinc with organic top coating .
- c. Minimum Trade Size: Metric designator 21 (trade size 3/4).
- d. Colors: As indicated on Drawings.

2.4 TYPE LFMC RACEWAYS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: UL 360 and UL Category Control Number DXHR.

B. Steel Liquidtight Flexible Metal Conduit (LFMC-S):

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

- a. ABB, Electrification Business.
- b. Anaconda Sealtite; Anamet Electrical, Inc.
- c. Electri-Flex Company.
- d. International Metal Hose Co.
- e. Or approved equal

2. Material: Steel.

3. Options:

- a. Minimum Trade Size: Metric designator 21 (trade size 3/4).
- b. Colors: As indicated on Drawings.

2.5 TYPE PVC RACEWAYS AND FITTINGS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: UL 651 and UL Category Control Number DZYR.

B. Schedule 40 Rigid PVC Conduit (PVC-40) and Fittings:

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

- a. ABB, Electrification Business.

- b. Calconduit; Atkore International.
- c. JM Eagle; J-M Manufacturing Co., Inc.
- d. NAPCO; Westlake Chemical Corp.
- e. Opti-Com Manufacturing Network, Inc (OMNI).
- f. Topaz Lighting & Electric.
- g. Or approved equal
2. Dimensional Specifications: Schedule 40.
3. Options:
 - a. Minimum Trade Size: Metric designator 21 (trade size 3/4).
 - b. Markings: For use with maximum 90 deg C wire.

C. Schedule 80 Rigid PVC Conduit (PVC-80) and Fittings:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Calconduit; Atkore International.
 - c. JM Eagle; J-M Manufacturing Co., Inc.
 - d. Opti-Com Manufacturing Network, Inc (OMNI).
 - e. Topaz Lighting & Electric.
 - f. Or approved equal
2. Dimensional Specifications: Schedule 80.
3. Options:
 - a. Minimum Trade Size: Metric designator 21 (trade size 3/4).
 - b. Markings: For use with maximum 90 deg C wire.

2.6 FITTINGS FOR CONDUIT, TUBING, AND CABLE

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.

B. Fittings for Type ERM, Type IMC, and Type PVC Raceways:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - d. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - e. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - f. Southwire Company, LLC.
 - g. Topaz Lighting & Electric.
 - h. Or approved equal
2. General Characteristics: UL 514B and UL Category Control Number DWTT.
3. Options:
 - a. Material: Steel .
 - b. Coupling Method: Raintight compression coupling with distinctive color gland nut .
 - c. Conduit Fittings for Hazardous (Classified) Locations: UL 1203.
 - d. Expansion and Deflection Fittings: UL 651 with flexible external bonding jumper.

C. Fittings for Type EMT Raceways:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Allied Tube & Conduit; Atkore International.
 - c. Calconduit; Atkore International.
 - d. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - e. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - f. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - g. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - h. Southwire Company, LLC.
 - i. Topaz Lighting & Electric.
 - j. Or approved equal
2. General Characteristics: UL 514B and UL Category Control Number FKAV.
3. Options:
 - a. Material: Steel .
 - b. Coupling Method: Compression coupling .
 - c. Conduit Fittings for Hazardous (Classified) Locations: UL 1203.
 - d. Expansion and Deflection Fittings: UL 651 with flexible external bonding jumper.

D. Fittings for Type LFMC Raceways:

1. Manufacturers: Subject to compliance with requirements, undefined:
 - a. Liquid Tight Connector Co.
 - b. Or approved equal
2. General Characteristics: UL 514B and UL Category Control Number DXAS.

2.7 SOLVENT CEMENTS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: As recommended by conduit manufacturer in accordance with UL 514B and UL Category Control Number DWTT.

2.8 SURFACE METAL RACEWAYS AND FITTINGS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: UL 5 and UL Category Control Number RJBT.

B. Surface Metal Raceways and Fittings with Metal Covers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - b. MonoSystems, Inc.
 - c. Wiremold; Legrand North America, LLC.
 - d. Or approved equal
2. Options:
 - a. Galvanized steel base with snap-on covers.

- b. Manufacturer's standard enamel finish in color selected by Architect .
- c. Wiring Channels: Dual . Multiple channels must be capable of housing a standard 20 to 30 A NEMA device flush within the raceway.

2.9 WIREWAYS AND AUXILIARY GUTTERS

A. Performance Criteria:

- 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
- 2. General Characteristics: UL 870 and UL Category Control Number ZOYX.

B. Metal Wireways and Auxiliary Gutters:

- 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Cooper B-line; brand of Eaton, Electrical Sector.
 - c. Hoffman; brand of nVent Electrical plc.
 - d. MonoSystems, Inc.
 - e. Square D; Schneider Electric USA.
 - f. Wiegmann; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - g. Or approved equal
- 2. Additional Characteristics:
 - a. Fittings and Accessories: Include covers, couplings, offsets, elbows, expansion joints, adapters, hold-down straps, end caps, and other fittings to match and mate with wireways as required for complete system.
 - b. Finish: Manufacturer's standard enamel finish.
- 3. Options:
 - a. Degree of Protection: Type 1 unless otherwise indicated.
 - b. Wireway Covers: Screw-cover type unless otherwise indicated.

2.10 METALLIC OUTLET BOXES, DEVICE BOXES, RINGS, AND COVERS

A. Performance Criteria:

- 1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
- 2. General Characteristics: UL 514A and UL Category Control Number QCIT.

B. Metallic Outlet Boxes:

- 1. Description: Box having pryout openings, knockouts, threaded entries, or hubs in either the sides of the back, or both, for entrance of conduit, conduit or cable fittings, or cables, with provisions for mounting outlet box cover, but without provisions for mounting wiring device directly to box.
- 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - d. Hubbell Premise Wiring; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - e. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated.

- f. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - g. Pass & Seymour; Legrand North America, LLC.
 - h. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - i. Topaz Lighting & Electric.
 - j. Wiremold; Legrand North America, LLC.
 - k. Or approved equal
3. Options:
- a. Material: Sheet steel .
 - b. Sheet Metal Depth: Minimum 2.5 inch.
 - c. Cast-Metal Depth: Minimum 2.4 inch.
 - d. Luminaire Outlet Boxes and Covers: Nonadjustable, listed and labeled for attachment of luminaire weighing more than 50 lb and marked with maximum allowable weight.
 - e. Paddle Fan Outlet Boxes and Covers: Nonadjustable, designed for attachment of paddle fan weighing up to 70 lb.

C. Metallic Conduit Bodies:

1. Description: Means for providing access to interior of conduit or tubing system through one or more removable covers at junction or terminal point. In the United States, conduit bodies are listed in accordance with outlet box requirements.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - d. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - e. Pass & Seymour; Legrand North America, LLC.
 - f. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - g. Topaz Lighting & Electric.
 - h. Or approved equal

D. Metallic Device Boxes:

1. Description: Box with provisions for mounting wiring device directly to box.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - d. Hubbell Premise Wiring; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - e. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - f. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - g. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - h. Topaz Lighting & Electric.
 - i. Or approved equal
3. Options:
 - a. Material: Sheet steel.
 - b. Sheet Metal Depth: minimum 2.5 inch.
 - c. Cast-Metal Depth: minimum 2.4 inch.

E. Metallic Recessed Access-Floor Boxes and Recessed Floor Box Covers:

1. Description: Floor box with provisions for mounting wiring devices below floor surface and floor box cover with provisions for passage of cords to recessed wiring devices mounted within floor box.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. FSR Inc.
 - b. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - c. Wiremold; Legrand North America, LLC.
 - d. Or approved equal

F. Metallic Concrete Boxes and Covers:

1. Description: Box intended for use in poured concrete.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. Hubbell Premise Wiring; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - d. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - e. Topaz Lighting & Electric.
 - f. Wiremold; Legrand North America, LLC.
 - g. Or approved equal

2.11 NONMETALLIC OUTLET BOXES, DEVICE BOXES, RINGS, AND COVERS

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics: UL 514C and UL Category Control Number QCMZ.

B. Nonmetallic Floor Boxes and Floor Box Covers:

1. Description: Box mounted in floor with floor box cover and other components to complete floor box enclosure.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Allied Tube & Conduit; Atkore International.
 - c. Arlington Industries, Inc.
 - d. Cantex Inc.
 - e. JM Eagle; J-M Manufacturing Co., Inc.
 - f. Pass & Seymour; Legrand North America, LLC.
 - g. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - h. Wiremold; Legrand North America, LLC.
 - i. Or approved equal

2.12 CABINETS, CUTOUT BOXES, JUNCTION BOXES, AND PULL BOXES

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics:
 - a. Non-Environmental Characteristics: UL 50.
 - b. Environmental Characteristics: UL 50E.

B. Indoor Sheet Metal Cabinets:

1. Description: Enclosure provided with frame, mat, or trim in which swinging door or doors are or can be hung.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Adalet.
 - c. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - d. Erickson Electrical Equipment Company.
 - e. FSR Inc.
 - f. Hoffman; brand of nVent Electrical plc.
 - g. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - h. Robroy Enclosures; Robroy Industries.
 - i. Or approved equal
3. Additional Characteristics: UL Category Control Number CYIV.
4. Options:
 - a. Degree of Protection: Type 1.

C. Indoor Sheet Metal Junction and Pull Boxes:

1. Description: Box with a blank cover that serves the purpose of joining different runs of raceway or cable.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adalet.
 - b. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - c. FSR Inc.
 - d. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - e. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - f. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - g. Or approved equal
3. Additional Characteristics: UL Category Control Number BGUZ.
4. Options:
 - a. Degree of Protection: Type 1.

D. Indoor Cast-Metal Junction and Pull Boxes:

1. Description: Box with a blank cover that serves the purpose of joining different runs of raceway or cable.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adalet.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - d. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.

- e. Or approved equal
- 3. Additional Characteristics: UL Category Control Number BGUZ.
- 4. Options:
 - a. Degree of Protection: Type 1.

E. Outdoor Sheet Metal Cabinets:

- 1. Description: Enclosure provided with frame, mat, or trim in which swinging door or doors are or can be hung.
- 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Adalet.
 - c. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - d. Erickson Electrical Equipment Company.
 - e. FSR Inc.
 - f. Hoffman; brand of nVent Electrical plc.
 - g. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - h. Robroy Enclosures; Robroy Industries.
 - i. Or approved equal
- 3. Additional Characteristics: UL Category Control Number CYIV.
 - a. Options:
 - b. Degree of Protection: Type 3R.

F. Outdoor Cast-Metal Junction and Pull Boxes:

- 1. Description: Box with a blank cover that serves the purpose of joining different runs of raceway or cable.
- 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Adalet.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - d. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - e. Or approved equal
- 3. Additional Characteristics: UL Category Control Number BGUZ.
- 4. Options:
 - a. Degree of Protection: Type 3R.

G. Outdoor Polymeric Junction and Pull Boxes:

- 1. Description: Box with a blank cover that serves the purpose of joining different runs of raceway or cable.
- 2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Allied Tube & Conduit; Atkore International.
 - c. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - d. JM Eagle; J-M Manufacturing Co., Inc.
 - e. Robroy Enclosures; Robroy Industries.
 - f. Topaz Lighting & Electric.
 - g. Or approved equal
- 3. Additional Characteristics: UL Category Control Number BGUZ.

4. Options:
a. Degree of Protection: Type 3R.

2.13 COVER PLATES FOR DEVICES BOXES

A. Performance Criteria:

1. Regulatory Requirements: Listed and labeled in accordance with NFPA 70 and marked for intended location and use.
2. General Characteristics:
 - a. Reference Standards: UL 514D and UL Category Control Numbers QCIT and QCMZ.
 - b. Wallplate-Securing Screws: Metal with head color to match wallplate finish.

B. Metallic Cover Plates for Device Boxes:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. ABB, Electrification Business.
 - b. Crouse-Hinds; brand of Eaton, Electrical Sector.
 - c. EGS; Emerson Electric Co., Automation Solutions, Appleton Group.
 - d. Hubbell Premise Wiring; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - e. Hubbell Wiring Device-Kellems; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - f. O-Z/Gedney; brand of Emerson Electric Co., Automation Solutions, Appleton Group.
 - g. Panduit Corp.
 - h. Pass & Seymour; Legrand North America, LLC.
 - i. Raco Taymac Bell; brand of Hubbell Electrical Solutions; Hubbell Incorporated.
 - j. Topaz Lighting & Electric.
 - k. Wiremold; Legrand North America, LLC.
 - l. Or approved equal
2. Options:
 - a. Damp and Wet Locations: Listed, labeled, and marked for location and use. Provide gaskets and accessories necessary for compliance with listing.

PART 3 - EXECUTION

3.1 SELECTION OF RACEWAYS

- A. Unless more stringent requirements are specified in Contract Documents or manufacturers' written instructions, comply with NFPA 70 for selection of raceways. Consult Architect for resolution of conflicting requirements.

B. Outdoors:

1. Exposed and Subject to Physical Damage: ERM, IMC .
 - a. Locations less than 2.5 m above finished floor.
2. Exposed and Not Subject to Physical Damage: ERM, IMC, PVC-80.
3. Concealed Aboveground: ERM, IMC, EMT .
4. Direct Buried: PVC-80, PVC-40.
5. **Parking garage vertical risers in exposed spaces: ERM**
 - a. Horizontal exposed runs under parking deck: IMC, PVC-80.

C. Indoors:

1. Exposed and Subject to Physical Damage: ERM C IMC . Subject to physical damage includes the following locations:
 - a. Locations less than 2.5 m above finished floor.
 - b. Stub-ups to above suspended ceilings.
2. Exposed and Not Subject to Physical Damage: ERM C IMC EMT .
3. Concealed in Ceilings and Interior Walls and Partitions: ERM C IMC EMT .
4. Damp or Wet Locations: ERM C IMC Corrosion-resistant EMT.
5. Connection to Vibrating Equipment (Including Transformers and Hydraulic, Pneumatic, Electric Solenoid, or Motor-Driven Equipment): LFMC .

D. Raceway Fittings: Select fittings in accordance with NEMA FB 2.10 guidelines.

1. ERM C and IMC: Provide threaded type fittings unless otherwise indicated.

3.2 SELECTION OF BOXES AND ENCLOSURES

A. Unless more stringent requirements are specified in Contract Documents or manufacturers' written instructions, comply with NFPA 70 for selection of boxes and enclosures. Consult Architect for resolution of conflicting requirements.

B. Degree of Protection:

1. Outdoors:
 - a. Type 3R unless otherwise indicated.
 - b. Locations Exposed to Hosedown: Type 4.
2. Indoors:
 - a. Type 1 unless otherwise indicated.

C. Exposed Boxes Installed Less Than 2.5 m Above Floor:

1. Boxes with knockouts or unprotected openings are prohibited.
2. Provide exposed cover. Flat covers with angled mounting slots or knockouts are prohibited.

3.3 INSTALLATION OF RACEWAYS

A. Installation Standards:

1. Unless more stringent requirements are specified in Contract Documents or manufacturers' written instructions, comply with NFPA 70 for installation of raceways. Consult Architect for resolution of conflicting requirements.
2. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.
3. Comply with requirements in Section 26 05 29 "Hangers and Supports for Electrical Systems" for hangers and supports.
4. Comply with NECA NEIS 101 for installation of steel raceways.
5. Comply with NECA NEIS 102 for installation of aluminum raceways.
6. Comply with NECA NEIS 111 for installation of nonmetallic raceways.
7. Install raceways square to the enclosure and terminate at enclosures without hubs with locknuts on both sides of enclosure wall. Install locknuts hand tight, plus one-quarter turn more.
8. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to metric designator 35 (trade size 1-

- 1/4) and insulated throat metal bushings on metric designator 41 (trade size 1-1/2) and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.
9. Raceway Terminations at Locations Subject to Moisture or Vibration:
- a. Provide insulating bushings to protect conductors, including conductors smaller than No. 4 AWG. Install insulated throat metal grounding bushings on service conduits.

B. General Requirements for Installation of Raceways:

1. Complete raceway installation before starting conductor installation.
2. Provide stub-ups through floors with coupling threaded inside for plugs, set flush with finished floor. Plug coupling until conduit is extended above floor to final destination or a minimum of 2 ft above finished floor.
3. Install no more than equivalent of three 90-degree bends in conduit run. Support within 12 inch of changes in direction.
4. Make bends in raceway using large-radius preformed ells except for parallel bends. Field bending must be in accordance with NFPA 70 minimum radii requirements. Provide only equipment specifically designed for material and size involved.
5. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines.
6. Support conduit within 12 inches of enclosures to which attached.
7. Install raceway sealing fittings at accessible locations in accordance with NFPA 70 and fill them with listed sealing compound. For concealed raceways, install fitting in flush steel box with blank cover plate having finish similar to that of adjacent plates or surfaces. Install raceway sealing fittings in accordance with NFPA 70.
8. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal interior of raceways at the following points:
 - a. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces.
 - b. Where an underground service raceway enters a building or structure.
 - c. Conduit extending from interior to exterior of building.
 - d. Conduit extending into pressurized duct and equipment.
 - e. Conduit extending into pressurized zones that are automatically controlled to maintain different pressure set points.
 - f. Where otherwise required by NFPA 70.
9. Do not install conduits within 2 inches of the bottom side of a metal deck roof.
10. Keep raceways at least 6 inches away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.
11. Cut conduit perpendicular to the length. For conduits metric designator 53 (trade size 2) and larger, use roll cutter or a guide to make cut straight and perpendicular to the length. Ream inside of conduit to remove burrs.
12. Install pull wires in empty raceways. Provide polypropylene or monofilament plastic line with not less than 200 lb tensile strength. Leave at least 12 inches of slack at both ends of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

C. Requirements for Installation of Specific Raceway Types:

1. Types ERM and IMC:
 - a. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound that maintains electrical conductivity to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

2. Type ERM-C-S-PVC:
 - a. Follow manufacturer's installation instructions for clamping, cutting, threading, bending, and assembly.
 - b. Provide PVC-coated sealing locknut for exposed male threads transitioning into female NPT threads that do not have sealing sleeves, including transitions from PVC couplings/female adapters to Type ERM-C-S-PVC elbows in direct-burial applications. PVC-coated sealing locknuts must not be used in place of conduit hub. PVC-coated sealing locknut must cover exposed threads on Type ERM-C-S-PVC raceway.
 - c. Coat field-cut threads on PVC-coated raceway with manufacturer-approved corrosion-preventing conductive compound prior to assembly.
3. Types FMC and LFM-C:
 - a. Comply with NEMA RV 3. Provide a maximum of 72 inches of flexible conduit for recessed and semi recessed luminaires, equipment subject to vibration, noise transmission, or movement, and for transformers and motors.
4. Type PVC:
 - a. Do not install Type PVC conduit where ambient temperature exceeds 122 deg F . Conductor ratings must be limited to 75 deg C except where installed in a trench outside buildings with concrete encasement, where 90 deg C conductors are permitted.
 - b. Comply with manufacturer's written instructions for solvent welding and fittings.

D. Stub-ups to Above Recessed Ceilings:

1. Provide EMT, IMC, or ERM-C for raceways.
2. Provide a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

E. Raceway Fittings: Install fittings in accordance with NEMA FB 2.10 guidelines.

1. ERM-C-S-PVC: Provide only fittings listed for use with this type of conduit. Patch and seal joints, nicks, and scrapes in PVC coating after installing conduits and fittings. Provide sealant recommended by fitting manufacturer and apply in thickness and number of coats recommended by manufacturer.
2. EMT: Provide compression, fittings. Comply with NEMA FB 2.10.
3. Flexible Conduit: Provide only fittings listed for use with flexible conduit type. Comply with NEMA FB 2.20.

F. Expansion-Joint Fittings:

1. Install in runs of aboveground PVC that are located where environmental temperature change may exceed 30 deg F and that have straight-run length that exceeds 25 ft. Install in runs of aboveground ERM-C and EMT conduit that are located where environmental temperature change may exceed 100 deg F and that have straight-run length that exceeds 100 ft.
2. Install type and quantity of fittings that accommodate temperature change listed for the following locations:
 - a. Outdoor Locations Not Exposed to Direct Sunlight: 125 deg F temperature change.
 - b. Outdoor Locations Exposed to Direct Sunlight: 155 deg F temperature change.
 - c. Indoor Spaces Connected with Outdoors without Physical Separation: 125 deg F temperature change.
 - d. Attics: 135 deg F temperature change.
3. Install fitting(s) that provide expansion and contraction for at least 0.00041 inch per foot of length of straight run per deg F of temperature change for PVC conduits. Install

- fitting(s) that provide expansion and contraction for at least 0.000078 inch per foot of length of straight run per deg F of temperature change for metal conduits.
4. Install expansion fittings at locations where conduits cross building or structure expansion joints.
 5. Install expansion-joint fitting with position, mounting, and piston setting selected in accordance with manufacturer's written instructions for conditions at specific location at time of installation. Install conduit supports to allow for expansion movement.

G. Raceways Penetrating Rooms or Walls with Acoustical Requirements:

1. Seal raceway openings on both sides of rooms or walls with acoustically rated putty or firestopping.

3.4 INSTALLATION OF SURFACE RACEWAYS

- A. Install surface raceways only where indicated on Drawings.
- B. Install surface raceway with a minimum 2-inch radius control at bend points.
- C. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inch and with no less than two supports per straight raceway section. Support surface raceway in accordance with manufacturer's written instructions. Tape and glue are unacceptable support methods.

3.5 INSTALLATION OF BOXES AND ENCLOSURES

- A. Provide boxes in wiring and raceway systems wherever required for pulling of wires, making connections, and mounting of devices or fixtures.
- B. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.
- C. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box, whether installed indoors or outdoors.
- D. Horizontally separate boxes mounted on opposite sides of walls, so they are not in the same vertical channel.
- E. Locate boxes so that cover or plate will not span different building finishes.
- F. Support boxes in recessed ceilings independent of ceiling tiles and ceiling grid.
- G. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for purpose.
- H. Fasten junction and pull boxes to, or support from, building structure. Do not support boxes by conduits.
- I. Set metal floor boxes level and flush with finished floor surface.
- J. Set nonmetallic floor boxes level. Trim after installation to fit flush with finished floor surface.

1 K. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in
2 the locknut area prior to assembling conduit to enclosure to ensure a continuous ground path.

3 L. Boxes and Enclosures in Areas or Walls with Acoustical Requirements:

4 1. Seal openings and knockouts in back and sides of boxes and enclosures with
5 acoustically rated putty.

6 2. Provide gaskets for wallplates and covers.

7 **3.6 FIRESTOPPING**

8 A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with
9 requirements in Section 07 84 13 "Penetration Firestopping."

10 **3.7 PROTECTION**

11 A. Protect coatings, finishes, and cabinets from damage and deterioration.

12 1. Repair damage to galvanized finishes with zinc-rich paint recommended by
13 manufacturer.

14 2. Repair damage to PVC coatings or paint finishes with matching touchup coating
15 recommended by manufacturer.

16 **3.8 CLEANING**

17 A. Boxes: Remove construction dust and debris from device boxes, outlet boxes, and floor-
18 mounted enclosures before installing wallplates, covers, and hoods.

19 **END OF SECTION 26 05 33**

Open Cell Insulating Units

SHAPES AND SIZES



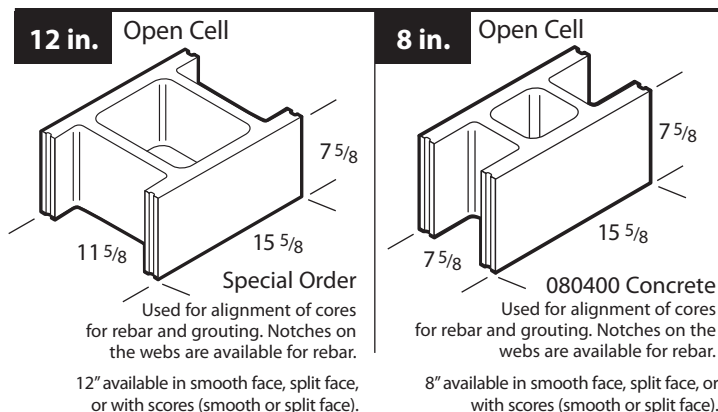
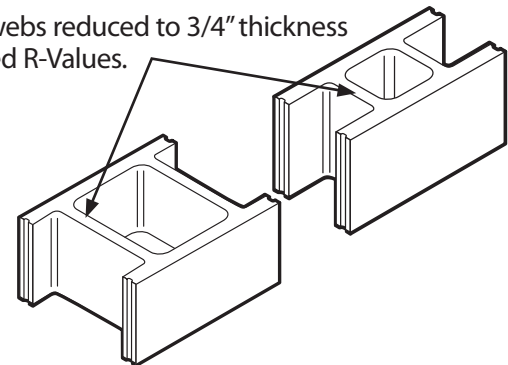
Block Type	Density - pcf	Weight lbs.	Percent Difference
8" Regular - (2) core	Normal Weight - 135 pcf	38	16%
8" Open Cell - (1) core	Normal Weight - 135 pcf	31.9	
12" Regular - (2) core	Normal Weight - 135 pcf	49	21%
12" Open Cell - (1) core	Normal Weight - 135 pcf	38.8	

OPEN CELL

Open Cell Single Core units installed with insulating core materials enhance R-values and result in better energy performance for CMU cavity wall construction. Open Cell units are manufactured with 3/4" webs that improve R-Values, increase occupant comfort levels, and lower energy and equipment costs over the life cycle of the building.

Open Cell units are NCMA & ASHRAE Approved Series Parallel (Isothermal Planes) R-Values

Now with webs reduced to 3/4" thickness for improved R-Values.



Benefits:

- Reduced web thickness to 3/4"
- Improved R-Value
- Units pass energy code requirements
- Lower weight (see chart above) increases efficiency for masons and reduces injury potential
- Meets ASTM C90 requirement

Available in Decorative Finishes Split Face and Premier Ultra Burnished.

County Materials Corporation - Open Cell Unit with Reduced Webs Thermal R-Values, U-Values, and Heat Capacity (HC) Values													
Size Nominal width	Density lbs/cu.ft.	Core Material Makeup											
		Empty			Grouted Solid			Plastic Foam			Perlite		
		R	U	HC	R	U	HC	R	U	HC	R	U	HC
One Core; (1) 1-1/2" & (1) 1-1-4" Face Shells; (2) 3/4 " Webs (Equivalent Thickness = 3.1")													
12"	135	3.08	0.325	8.76	2.05	0.489	26.54	10.28	0.097	9.03	9.18	0.109	8.92
	115	3.35	0.298	7.53	2.22	0.451	25.31	14.26	0.070	7.80	12.15	0.082	7.69
	105	3.46	0.289	6.92	2.29	0.436	24.70	16.01	0.062	7.18	13.37	0.075	7.08
One Core; (2) 1-1/4" Face Shells; (2) 3/4 " Webs (Equivalent Thickness = 2.4")													
8"	135	2.24	0.447	7.34	1.64	0.610	23.01	6.40	0.156	7.58	5.76	0.174	7.48
	115	2.44	0.410	6.32	1.79	0.559	21.99	8.74	0.114	6.56	7.52	0.133	6.46
	105	2.53	0.396	5.81	1.85	0.539	21.48	9.77	0.102	6.05	8.25	0.121	5.95
Medium Weight Two Core: (2) 1 1/3" Face Shells, (3) 1" Webs (Equivalent Thickness = 4.8")													
12"	125	2.3	0.436	na	2.25	0.444	na	8.07	0.124	na	7.5	0.133	na
	115	2.2	0.455	na	2.16	0.463	na	6.87	0.146	na	6.47	0.155	na
Medium Weight Two Core: (2) 1 1/4" Face Shells, (3) 1" Webs (Equivalent Thickness = 3.9")													
8"	125	2.2	0.455	na	1.81	0.553	na	5.49	0.182	na	5.09	0.196	na
	115	2.09	0.478	na	1.73	0.579	na	4.72	0.211	na	4.45	0.225	na

All dimensions nominal.

Thermal Block Insulating Units

SHAPES AND SIZES

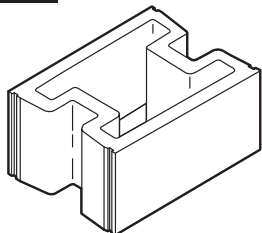


THERMAL BLOCK

THERMAL BLOCK have **rigid insulating inserts installed** in them during the manufacturing process to reduce jobsite labor. Additional thermal protection between units may be installed in the field. Note: *These units are available in Splitface / Fullface Split / Premier Ultra Burnished / or Smoothface.*



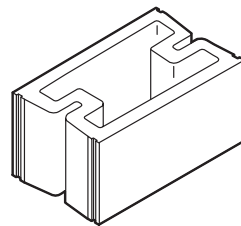
12 in. Thermal



120030

Special Order Required

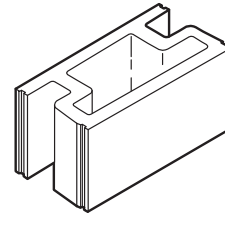
10 in. Thermal



100030

Special Order Required

8 in. Thermal



080030

Special Order Required

FACTORY INSTALLED INSERT SIZE

$1\frac{7}{16}'' \times 7\frac{5}{8}'' \times 11\frac{15}{16}''$ – 152010

FIELD INSTALLED INSERT SIZE

$1\frac{1}{2}'' \times 6'' \times 16''$ – 8" & 12" – 152040

$\frac{3}{4}'' \times 6'' \times 16''$ – 10" – Special Order

*Insert sizes vary by location

U-Values & Fire Ratings	BLOCK SIZE					
	12"		10"		8"	
	CONCRETE U-VALUE	LIGHT WEIGHT U-VALUE	CONCRETE U-VALUE	LIGHT WEIGHT U-VALUE	CONCRETE U-VALUE	LIGHT WEIGHT U-VALUE
Unfilled	0.301	0.215	.0318	0.235	0.4	0.305
Fire Rating	3 Hours	4 Hours	2 Hours	3 Hours	2 Hours	2 Hours
One Factory Installed Insulation Insert	0.281	0.184	0.292	0.205	0.355	0.25
Fire Rating	3 Hours	4 Hours	2 Hours	3 Hours	2 Hours	2 Hours
Two Factory Installed Insulation Inserts	0.261	0.16	0.267	0.182	-	-
Fire Rating	3 Hours	4 Hours	2 Hours	3 Hours	-	-
One Factory & One 1½" Field Installed	0.236	0.176	0.269	0.182	0.32	0.212
Fire Rating	3 Hours	4 Hours	2 Hours	3 Hours	2 Hours	2 Hours
Two Factory & One 1½" Field Installed	0.223	0.144	0.25	0.164	-	-
Fire Rating	3 Hours	4 Hours	2 Hours	3 Hours	-	-
EPS Loose Fill Only – Field Installed	0.21	0.134	0.255	0.166	0.324	0.217
Fire Rating	3 Hours	4 Hours	2 Hours	3 Hours	2 Hours	2 Hours
One Factory & EPS Loose Fill – Field Installed	0.209	0.132	0.254	0.165	0.322	0.213
Fire Rating	3 Hours	4 Hours	2 Hours	3 Hours	2 Hours	2 Hours


Note: The chart above shows "U"-Values for concrete and lightweight Thermal Block using the "Series-Parallel Method," effective 4/1/97 for compliance with ASHRAE – IES Standard 90.1. State of Wisconsin Block Approval #930043-R

All dimensions nominal.

CITY OF MADISON
FACILITIES MANAGEMENT SPECIFICATION
SEPT. 29, 2023

3.4. SUBSTITUTION REQUEST FORM

For Pre-bid Substitution Requests all text boxes on this form are required information for a complete request.



Substitution Request

Today's Date: 10/26/23

Project Title: City of Madison, State Street Campus Garage Mixed-Use Project

Project Number: 720448 Contract Number: 9361

By completing and submitting this form for review the General Contractor affirms that all of the following statements are correct:

- The General Contractor affirms that this request is in compliance with the requirements described in *Specification 01 25 13 Product Substitution Procedures*.
- The function, appearance, and quality of the proposed substitution are equal or superior to the specified item.
- The proposed substitution does not affect dimensions shown on the drawings.
- The proposed substitution will have no adverse affects on other trades, the construction schedule, or any specified warranty requirements.
- Maintenance and service parts will be locally available for the proposed substitution. (GC shall provide supporting documentation in the attachments section below.)
- ~~The General Contractor shall be responsible for any and all costs associated with this substitution request if approved. This includes but is not limited to fees for building design, engineering design fees, detailing fees, plan review fees, construction costs, and inspection fees.~~ - None should be necessary

GC Substitution Request:

General Title: Aluminum Windows

Related Specification: 08 51 13

Reason for Substitution: Competitive bidding. Tubelite is already listed as an approved manufacturer for section 08 43 13, and any glazing subcontractor bidding Tubelite on this project would prefer to use Tubelite for both sections, rather than splitting up their bid.

Proposed Substitution:
(include Name, Model, etc.) Tubelite 900RW TU

Submitted By: Rick Hillesheim

Company: Hillesheim Architectural Products, Inc. - Representing Tubelite, Inc.

Phone: 507-412-9244

Email: rick@hap-inc.net

END OF SECTION



Date: Thursday 26 October 2023
To: Eppstein Uhen Architects – Mike Oates
Phone: 608-442-5350
Email: mikeo@eua.com

From: Tubelite

Subject: Product Substitution Request Submittal
Project: State Street Campus Lake Garage Mixed Use
Bid Date: 11/09/2023

We propose furnishing the following Tubelite materials in lieu of those specified in sections:

900RW Series Thermal Ribbon Window (2 1/4" profile, 6" system depth, dual p&d, 1" glazing) in lieu of Kawneer
<https://tubelite.org/spectool-dev/details.php?location=900RW->

Enclosed are the CSI format submittal forms and product side by side comparisons.

The **details, installation instructions, product specifications, and test reports/summaries** for each system can be found in the blue web links above.

If you require more information, please contact us.

Thank you for considering the use of Tubelite products in your project.

Sincerely,

Signature

Matt Tschida

Cc: Rick Hillesheim
Client Development Manager
Phone: 507-412-9244
Email:rick@Hap-Inc.net



Advancement
of Construction
Technology

SUBSTITUTION REQUEST

(During the Bidding Phase)

Project: State Street Campus Lake Garage Mixed Use
Address: 415 N Lake Street Madison, WI 53703
Substitution Request Number: 1 From: Tubelite
To: Eppstein Uhen Architects Date: Thursday 26 October 2023
- Mike Oates A/E Project #: 720448
Address: 309 W Johnson St, Suite 202 Madison, WI 53703
Re: PROJECT SUBSTITUTION REQUEST Project For: Division 8

Specification: Aluminum Windows Description: 2-1/4" x 6" Ultra Thermal Ribbon Window
Section: 085113 Page: 3 Article/Paragraph: 2.01-2.02

Proposed Substitution: 900RW
Manufacturer: Tubelite Inc. Address: 3056 Walker Ridge NW, Suite G Phone: 800-866-2227
Trade Name: 900RW Series Thermal Ribbon Window (2 1/4" profile, 6" system depth, dual p&-
d, 1" glazing)
Model No: 900RW
Differences between proposed substitution and specified product. Please see side-by-side comparison

☒ Point by point comparative data attached. REQUIRED BY A/E attach appropriate Tubelite literature.

The Undersigned certifies:

- Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
- Same warranty will be furnished for proposed substitution as for specified product.
- Same maintenance service and source of replacement parts, as applicable, is available.
- Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
- Proposed substitution does not affect dimensions and functional clearances.

Submitted By: Matt Tschida
Signed By: Matt Tschida
Firm: Hillesheim Architectural Products, Inc.- Representing Tubelite, Inc.
Address: FARIBAULT, MN 55021
Telephone: 612-387-7294

A/E REVIEW AND ACTION:

- ☐ Substitution approved - Make submittals in accordance with Specification Section 01330.
- ☐ Substitution approved as noted - Make submittals in accordance with Specification Section 01330.
- ☐ Substitution rejected - Use specified materials.
- ☐ Substitution Request received too late - Use specified materials.

Signed By:

Date:

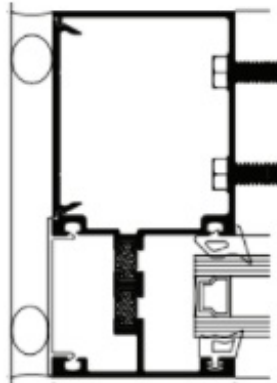
Supporting Data Attached: ☒ Drawings ☒ Product Data ☐ Samples (avail.upon request) ☒ Tests Reports ☒ Comparisons



Side by Side Comparison

900RW Compared to Specified


Company Profile Tubelite	Company Profile Kawneer (specified)
Product Name 900RW	Product Name MetroView FG 601T PG (specified)
Siteline 2-1/4"	Siteline
System depths 4-1/2" and 6"	System depths
Glass Thicknesses 1"	Glass Thicknesses 1" (specified)
Thermal Break Single or Dual pour and debridge polyurethane	Thermal Break
Condensation Resistance Factor AAMA 1503 Single pour: 68 CRFf, 70 CRFg, Dual pour: 72 CRFf, 72 CRFg	Condensation Resistance Factor AAMA 1503 76 CRFf, 74 CRFg (specified)
U Factor NFRC 100 0.32	U Factor NFRC 100 0.34 (specified)
Acoustic ASTM E90 ASTM E1332 1 IGU: STC-31, OITC-25, 1- 1/16" IGU: STC-35, OITC-31, 1- 1/16" lami IGU: STC-36, OITC-32 "	Acoustic ASTM E90 ASTM E1332 Not specified
Air Infiltration ASTM E283 0.06 cfm/ft2 @ 6.24psf	Air Infiltration ASTM E283 0.01 cfm/ft2 @ 6.27 psf (specified)
Water static ASTM E331 15 psf	Water static ASTM E331 Not specified
Water cyclic ASTM E547 15 psf	Water cyclic ASTM E547 12 psf (specified)
Water dynamic AAMA 501 1 15 psf	Water dynamic AAMA 501 1 Not specified
Thermal cycling AAMA 501 5 -20 °F to 180 °F : 200 °F differential	Thermal cycling AAMA 501 5 Not specified
Structural ASTM E330 L/175 @ 30 psf design - 45 psf overload	Structural ASTM E330 L/175 @ 100 psf (specified)
Interstory vertical displacement AAMA 501 7 +/- 1/2"	Interstory vertical displacement AAMA 501 7 Not specified
Interstory horizontal displacement AAMA 501 4 +/- 3/8"	Interstory horizontal displacement AAMA 501 4 Not specified
Warranty Finish 70% PVDF: 10 yrs. (20 yrs. opt.) 50% PVDF: 5 years std.(10 yrs. opt.) Baked Enamel: 1 year (adhesion only) Anodized Class I: 5 yrs. (10 yrs. opt.) Anodized Class II: 2 yrs.	Warranty Finish 5 years (specified)
Warranty Product 2-year std., up to 10 years available	Warranty Product 5 years (specified)



CITY OF MADISON
FACILITIES MANAGEMENT SPECIFICATION
SEPT. 29, 2023

3.4. SUBSTITUTION REQUEST FORM

For Pre-bid Substitution Requests all text boxes on this form are required information for a complete request.



Substitution Request

Today's Date: 10/26/23

Project Title: City of Madison, State Street Campus Garage Mixed-Use Project

Project Number: 720448 Contract Number: 9361

By completing and submitting this form for review the General Contractor affirms that all of the following statements are correct:

- The General Contractor affirms that this request is in compliance with the requirements described in *Specification 01 25 13 Product Substitution Procedures*.
- The function, appearance, and quality of the proposed substitution are equal or superior to the specified item.
- The proposed substitution does not affect dimensions shown on the drawings.
- The proposed substitution will have no adverse affects on other trades, the construction schedule, or any specified warranty requirements. - Door hardware will need to be hardware that has been tested & UL listed for use in Aluflam's doors
- Maintenance and service parts will be locally available for the proposed substitution. (GC shall provide supporting documentation in the attachments section below.)
- ~~The General Contractor shall be responsible for any and all costs associated with this substitution request if approved. This includes but is not limited to fees for building design, engineering design fees, detailing fees, plan review fees, construction costs, and inspection fees.~~ - None should be necessary

GC Substitution Request:

General Title: Fire Rated Aluminum Framed Entrances and Storefronts

Related Specification: 08 41 24

Reason for Substitution: Competitive bidding. The proposed Aluflam system has weeps systems built into the framing to allow any water that infiltrates the system to weep to the exterior.

Proposed Substitution:
(include Name, Model, etc.) Aluflam AF85 fire-rated aluminum framing & doors with Vetrotech's Contraflam 60 IGU fire-rated glazing

Submitted By: Matt Tschida

Company: Hillesheim Architectural Products, Inc. - Representing Aluflam USA

Phone: 612-387-7294

Email: matt@hap-inc.net

END OF SECTION

aluflam

20/45/60 MINUTE FIRE-RATED FIXED OPENINGS
FOR WINDOWS & WALLS

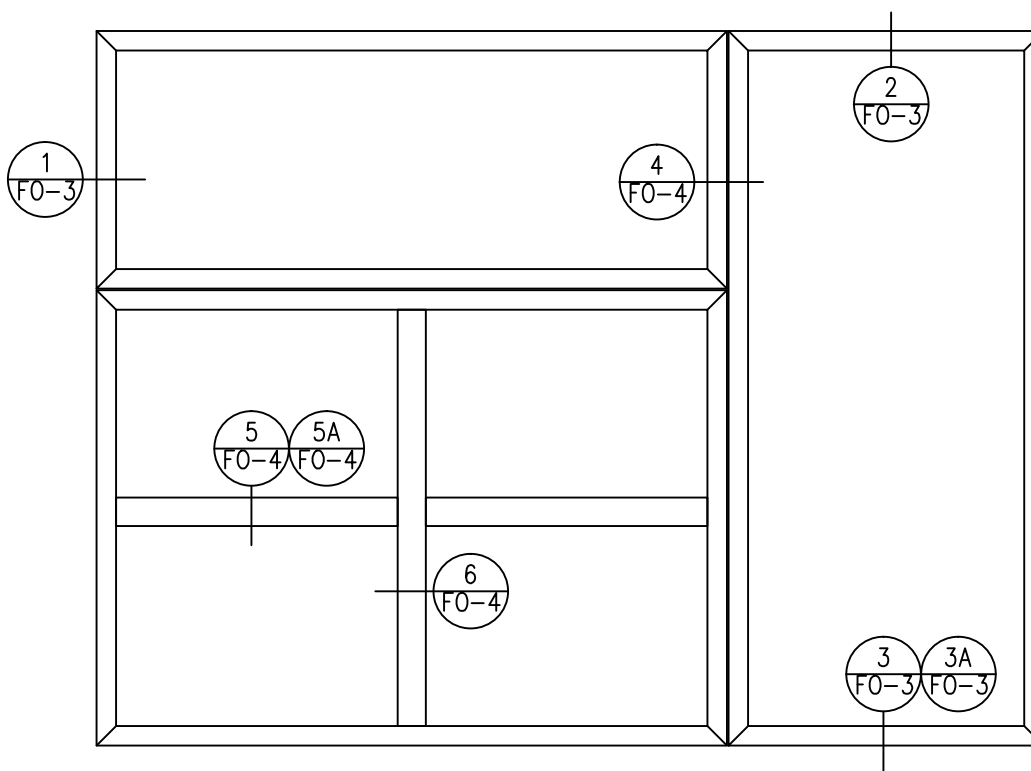
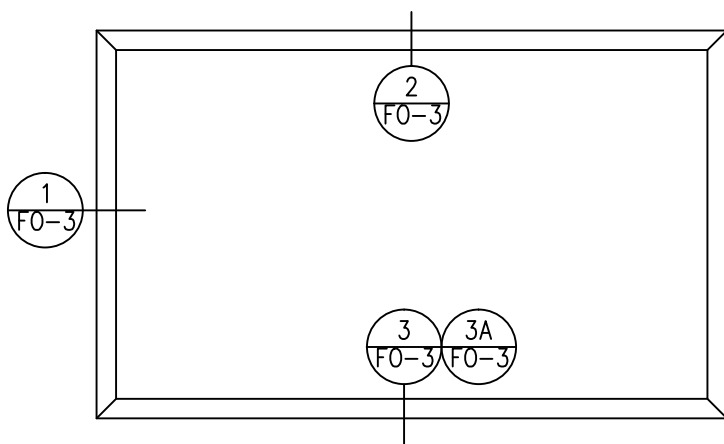
(p) 562.926.9520
(f) 562.404.1394

www.aluflam-usa.com



SCALE: NONE

- 2-7/16" Wide x 3-3/8" Deep standard dimensions
- Available in Anodized, Powder Coated and Architectural Painted finishes
- Interior and exterior installation
- Factory finished, assembled, and ready for installation
- Glazing stops to accommodate various glass thicknesses (20/45/60 minute) – see page 5
- Please refer to literature for max. sizes / ratings



aluflam

20/45/60 MINUTE FIRE-RATED FIXED OPENINGS
FOR WINDOWS & WALLS

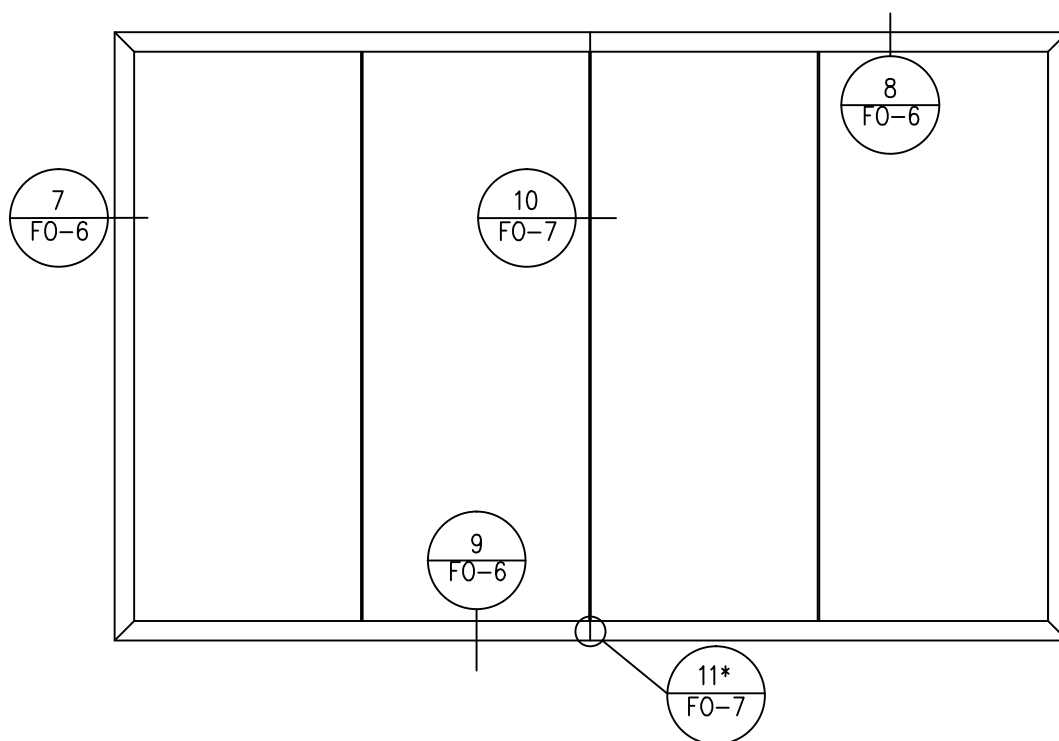
(p) 562.926.9520
(f) 562.404.1394

www.aluflam-usa.com



SCALE: NONE

****EXAMPLE OF OPTIONAL BUTT GLAZED WALL SYSTEM**
(RATED ONLY AT 60 MIN. & FOR INTERIOR APPLICATIONS ONLY)
USES CONTRAFLAM 60 STRUCTURE



*(CONNECTION NECESSARY IF OVERALL FRAME LENGTH GREATER THAN 7' [84"])

aluflam

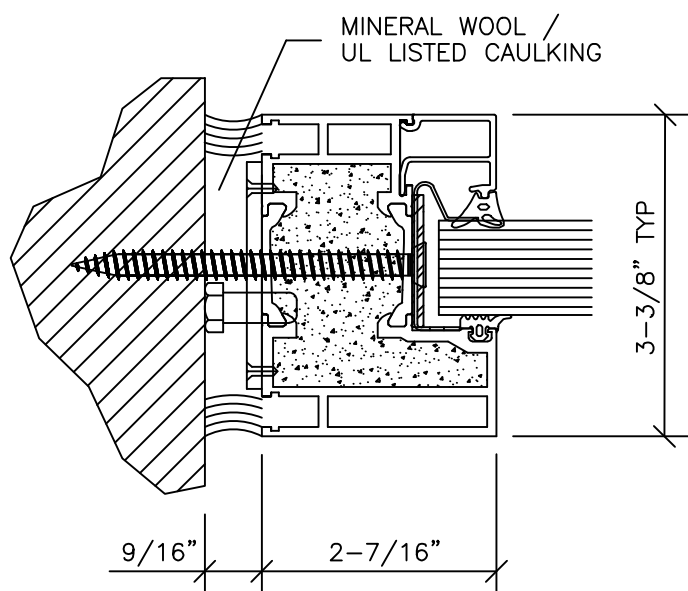
20/45/60 MINUTE FIRE-RATED FIXED OPENINGS
FOR WINDOWS & WALLS

(p) 562.926.9520
(f) 562.404.1394

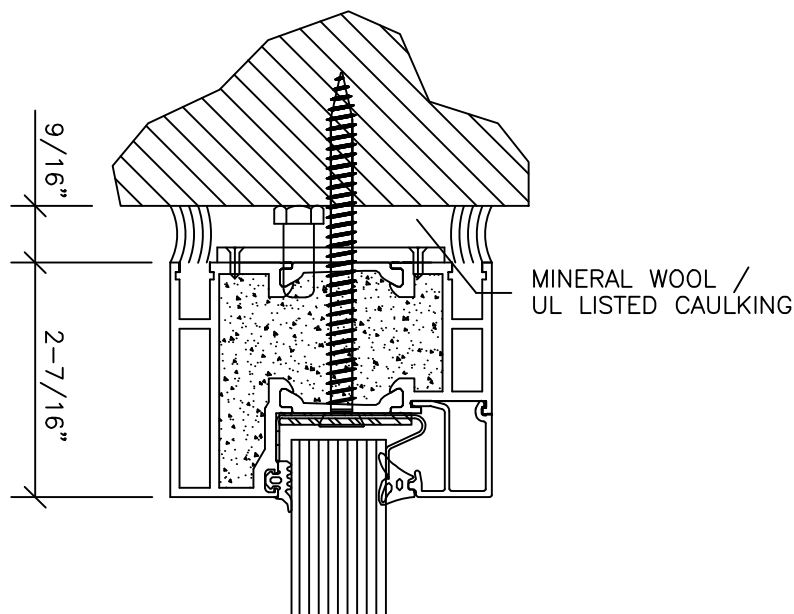
www.aluflam-usa.com



SCALE: 1/2 FULL SIZE



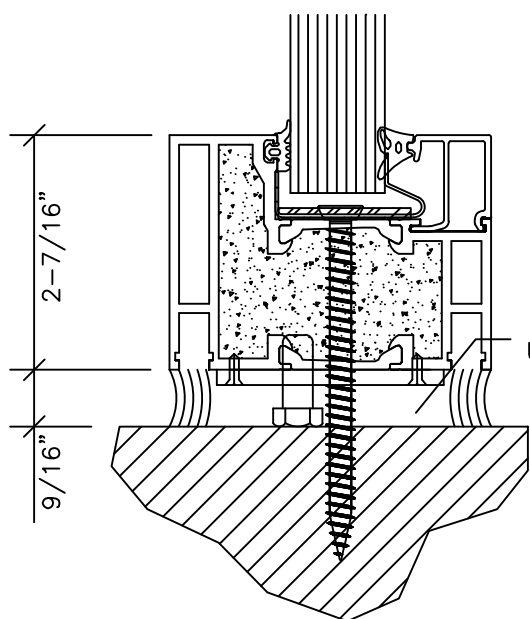
1 VERT. SECTION
60 MIN. GLASS



2 HEAD SECTION
60 MIN. GLASS

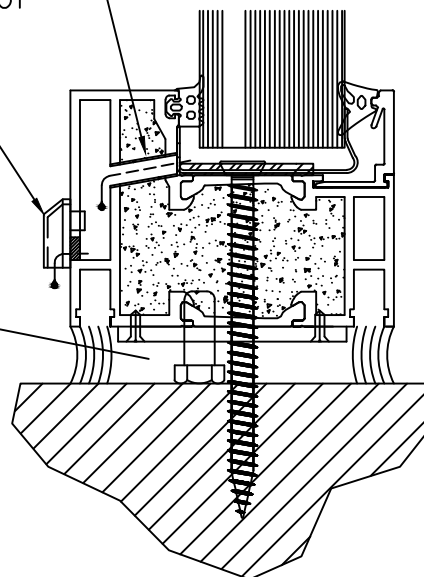
2 SIDE BY SIDE THRU HOLES
DIAMETER - 11 [7/16]

PVC DRAIN CAP (BLACK)
SNAPPED INTO 6 x 25 SLOT



3 SILL SECTION
60 MIN. GLASS

MINERAL WOOL /
UL LISTED CAULKING



3A SILL SECTION (FOR EXTERIOR INSTALL)
60 MIN. GLASS

aluflam

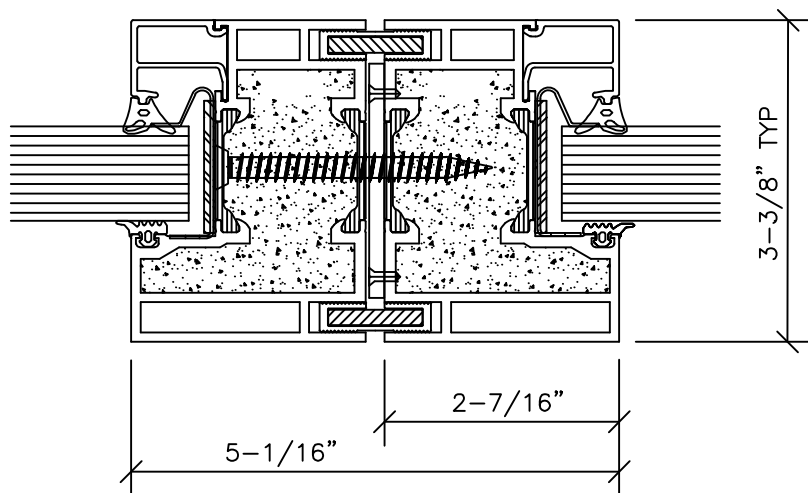
20/45/60 MINUTE FIRE-RATED FIXED OPENINGS
FOR WINDOWS & WALLS

(p) 562.926.9520
(f) 562.404.1394

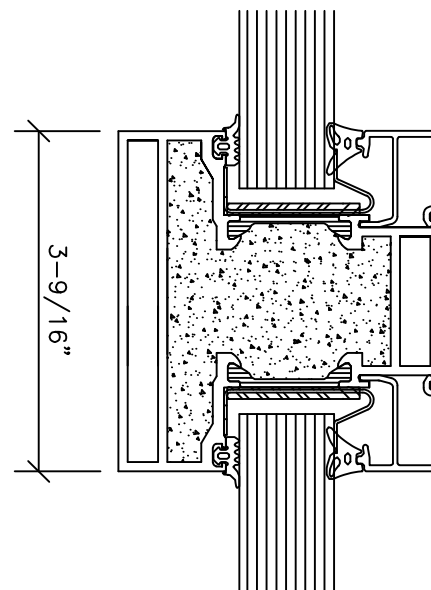
www.aluflam-usa.com



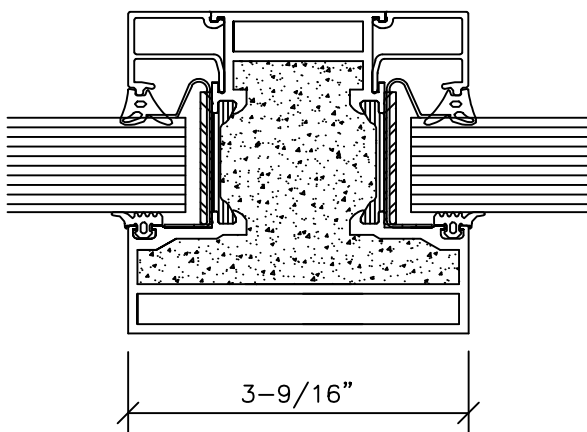
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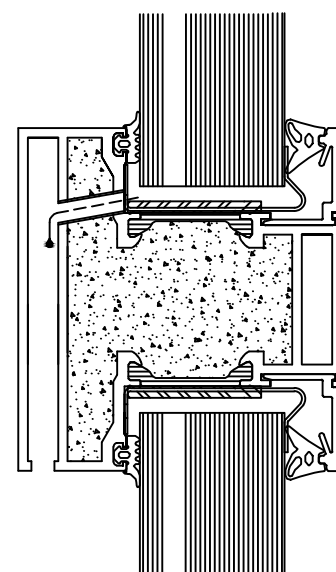
4 SEGMENTED MULLION SECTION
60 MIN. GLASS



5 HOR. MULLION SECTION
60 MIN. GLASS



6 VERT. MULLION SECTION
60 MIN. GLASS



5A HOR. MULLION SECTION (FOR EXTERIOR INSTALL)
60 MIN. GLASS

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20/45/60 MINUTE FIRE-RATED FIXED OPENINGS
FOR WINDOWS & WALLS

(p) 562.926.9520
(f) 562.404.1394

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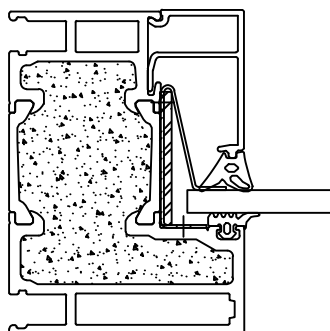


SCALE: 1/2 FULL SIZE

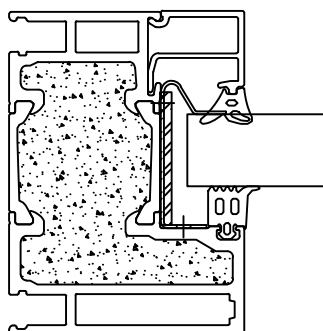
GLAZING CONFIGURATIONS

INTERIOR

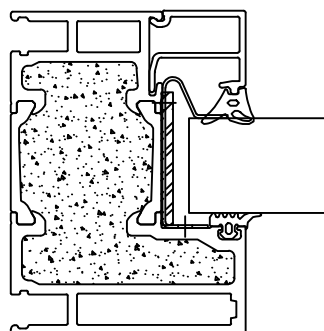
20 Min. Rating - w Pyroswiss US



45 Min. Rating - w Contraflam 45



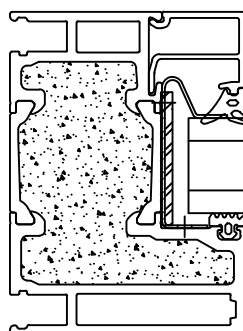
60 Min. Rating - w Contraflam 60



EXTERIOR

(INSULATED GLASS UNITS)

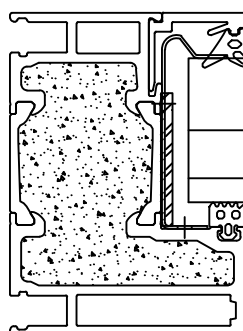
20 Min. Rating - w Pyroswiss US IGU



1/4" SGG Pyroswiss US
1/2" Air Space
1/4" Hardcoat Low-E Outboard Lite

(1" Overall Glass Thickness)

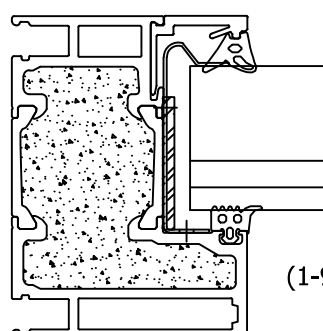
45 Min. Rating - w Contraflam 45 IGU



3/4" SGG Contraflam 45
1/2" Air Space
1/4" Hardcoat Low-E Outboard Lite

(1-1/2" Overall Glass Thickness)

60 Min. Rating - w Contraflam 60 IGU



1-1/16" SGG Contraflam 60
1/4" Air Space
1/4" Hardcoat Low-E Outboard Lite

(1-9/16" Overall Glass Thickness)

alufam

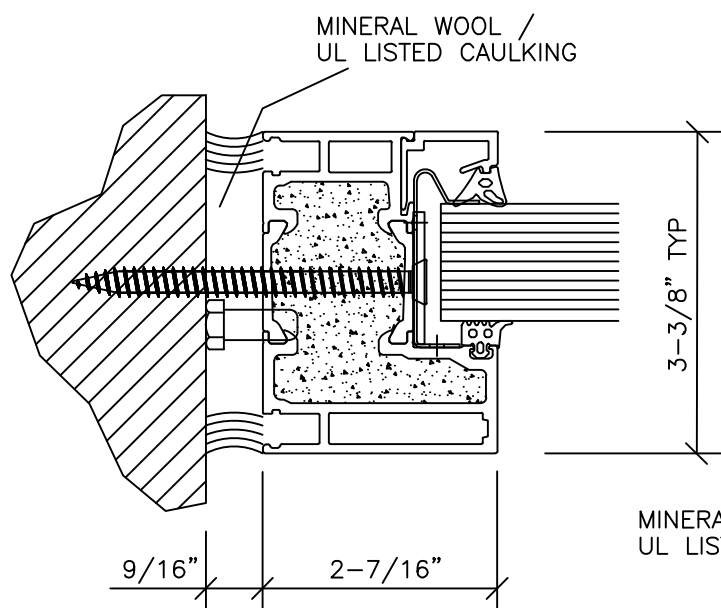
20/45/60 MINUTE FIRE-RATED FIXED OPENINGS
FOR WINDOWS & WALLS

(p) 562.926.9520
(f) 562.404.1394

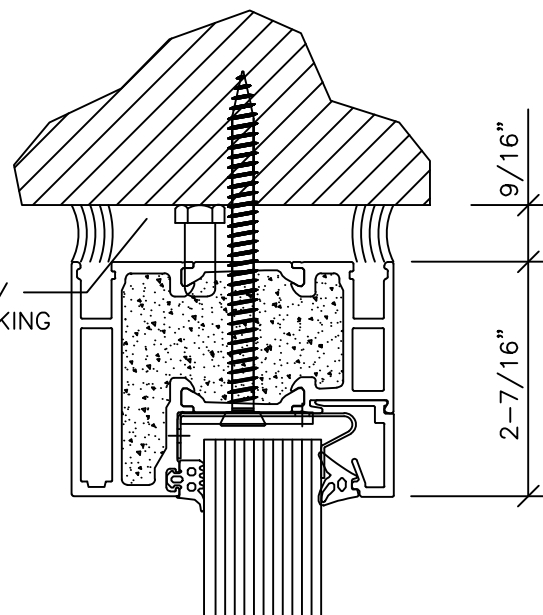
www.alufam-usa.com



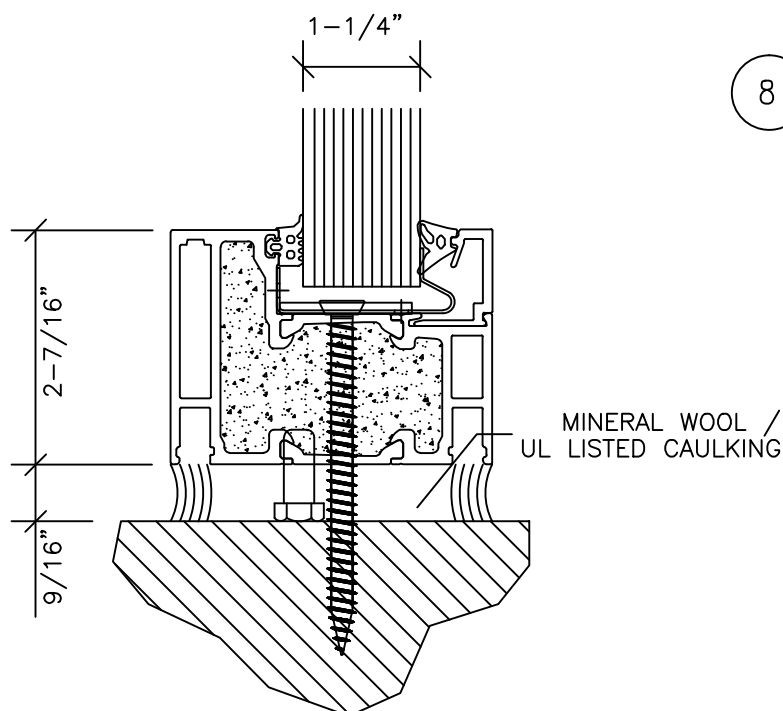
SCALE: 1/2 FULL SIZE



7 VERT. SECTION
60 MIN. CONTRAFLAM STRUCTURE



8 HEAD SECTION
60 MIN. CONTRAFLAM STRUCTURE



9 SILL SECTION
60 MIN. CONTRAFLAM STRUCTURE

aluflam

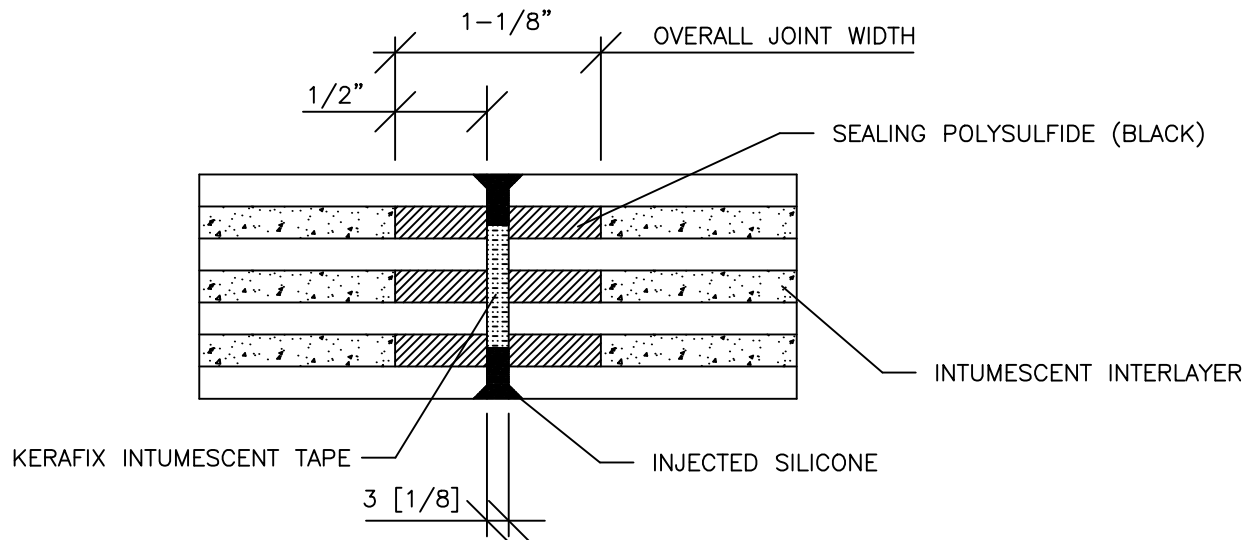
20/45/60 MINUTE FIRE-RATED FIXED OPENINGS
FOR WINDOWS & WALLS

(p) 562.926.9520
(f) 562.404.1394

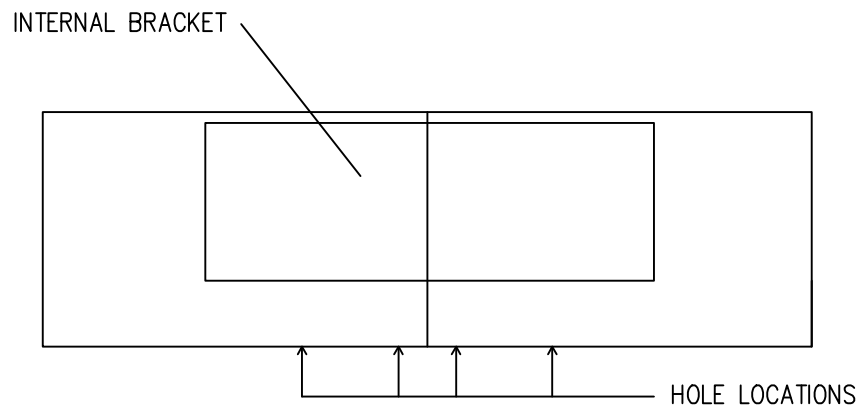
www.aluflam-usa.com



SCALE: 1/2 FULL SIZE



10 BUTT GLAZED JOINT SECTION
60 MIN. CONTRAFLAM STRUCTURE



11 STRAIGHT JOINT CONNECTION (*IF NECESSARY)
60 MIN. CONTRAFLAM STRUCTURE

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(p) 714.899.3990
(f) 714.899.3993

20/45/60 MINUTE FIRE-RATED FULL VISION DOORS

www.alufam-usa.com

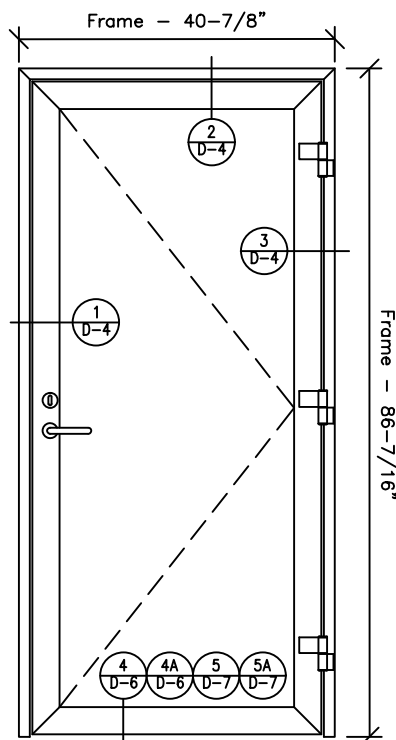
D - 1 of 12



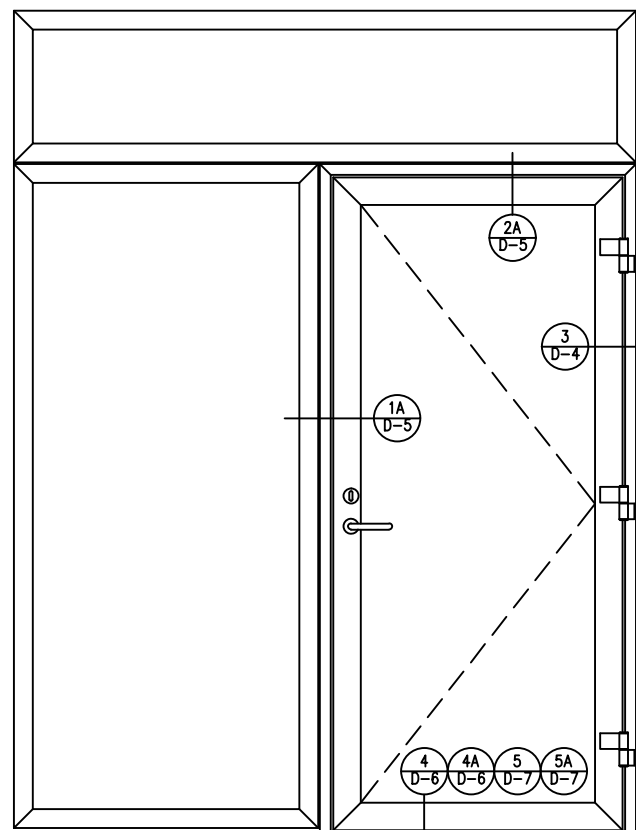
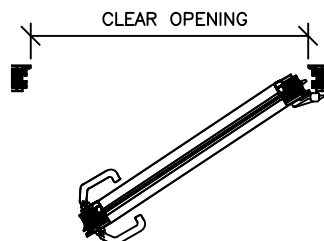
SCALE: NONE

- 3-3/8" standard thickness
- Maximum door opening 3'0"x8'0" (SD) / 6'0"x8'0" (DD)
- Available in Anodized, Powdercoated and Architectural Painted finishes
- Interior and exterior installation
- Factory finished, assembled, and ready for installation
- Glazing stops to accommodate various glass thicknesses (20/45/60 minute) - see page 12
- Door frames integrate with Alufam Storefront & Curtainwall Systems for sidelites/transoms.
- Surface applied muntins are available

Frame Size for standard 3'0" x 7'0" SD



Single Door (SD)
(RHR shown)



Door Shown w/ transom
& Sidelite

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(p) 714.899.3990
(f) 714.899.3993

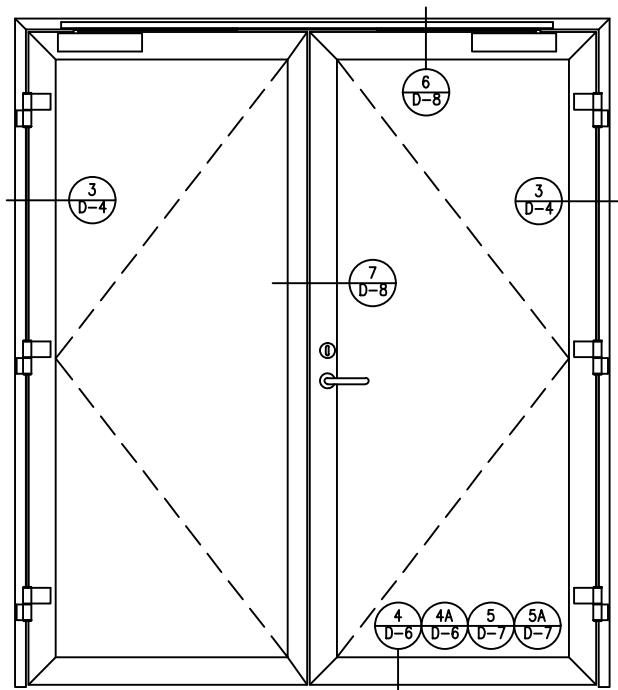
20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

www.alufam-usa.com

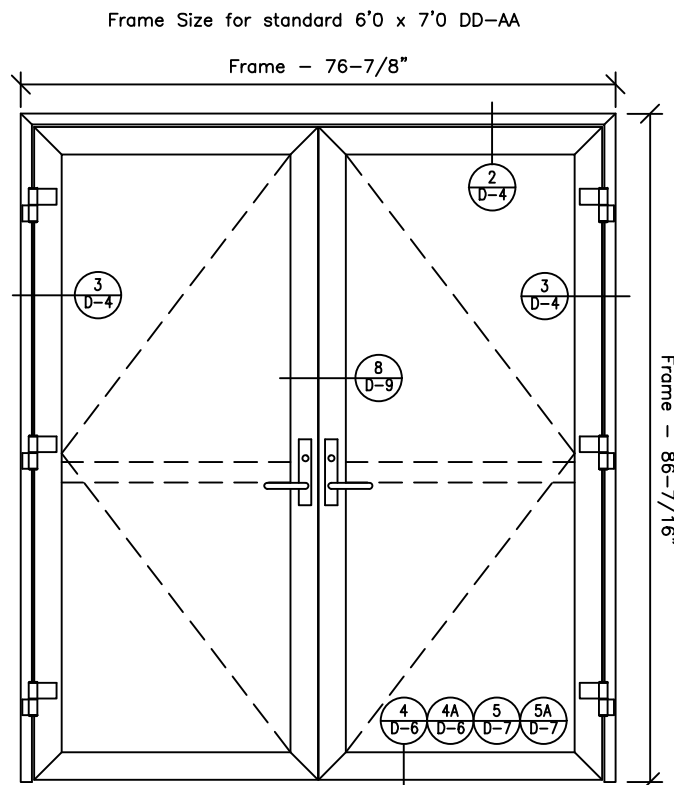
D - 2 of 12



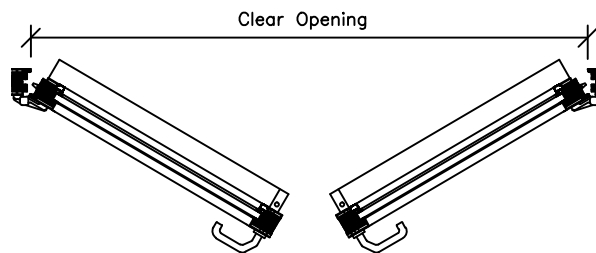
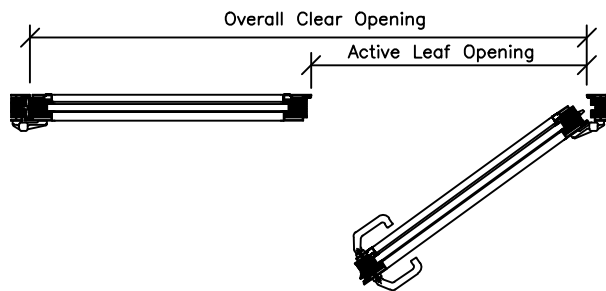
SCALE: NONE



Double Door - Active/Fixed (DD-AF)
(RHR shown)



Double Door - Active/Active (DD-AA)
(LHR/RHR shown)



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(p) 714.899.3990
(f) 714.899.3993

20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

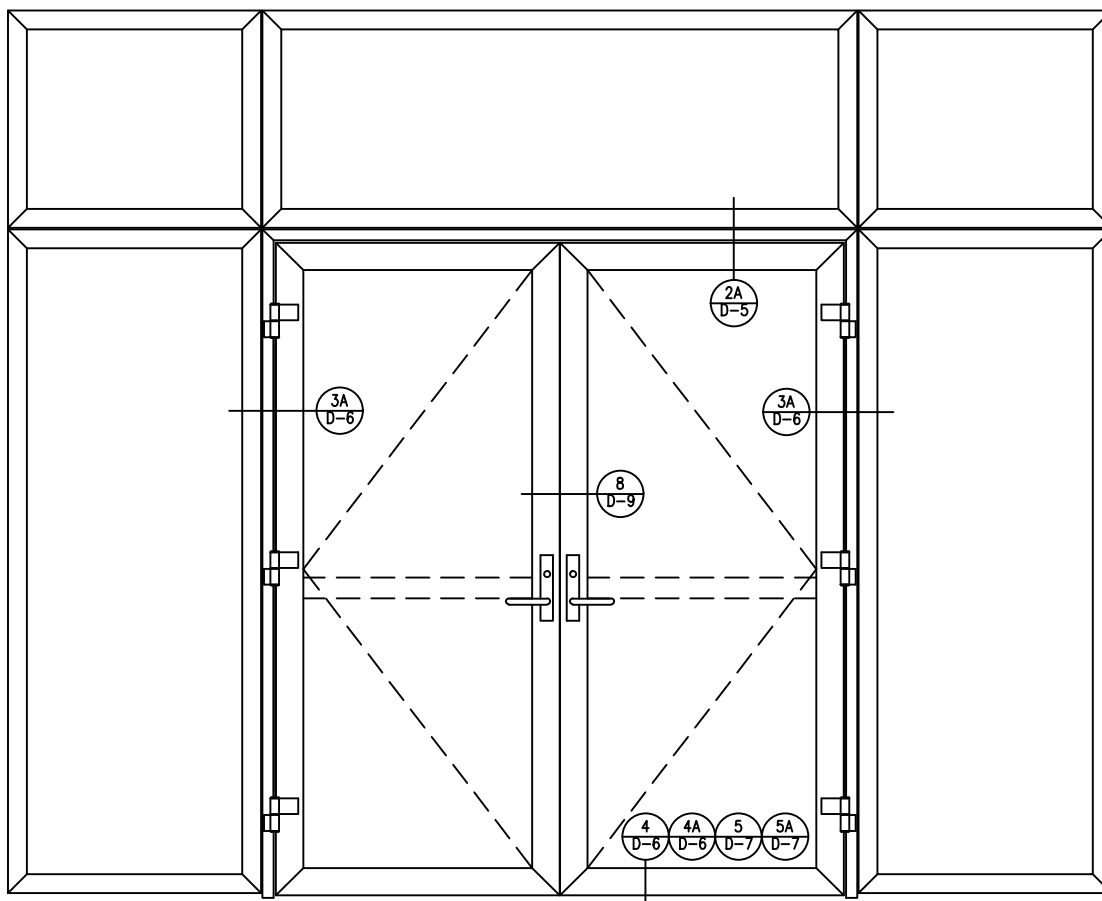
www.aluflam-usa.com

D - 3 of 12



SCALE: NONE

Doors Shown w/ transom
& Sidelite(s)



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(p) 714.899.3990
(f) 714.899.3993

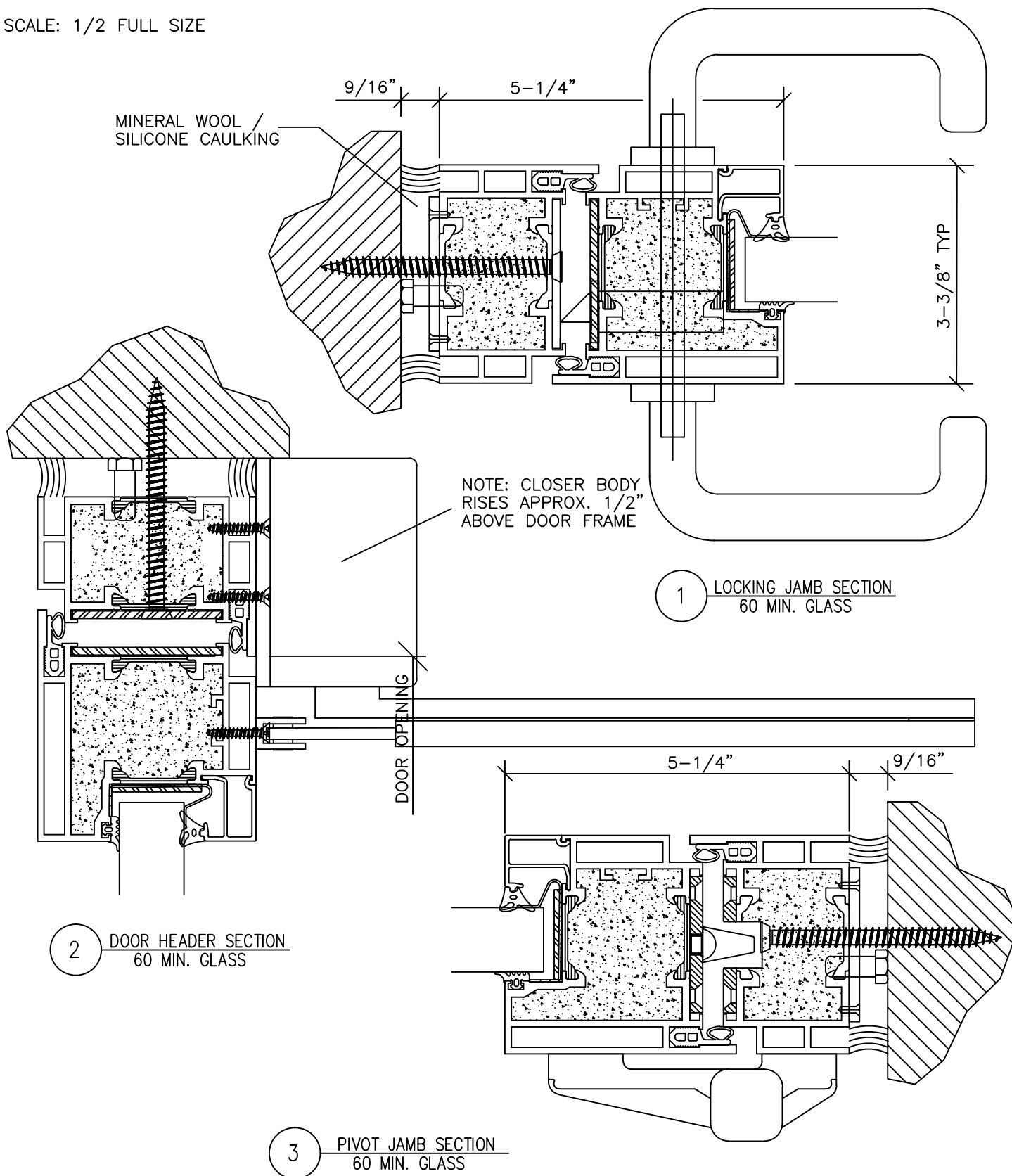
20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

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D - 4 of 12



SCALE: 1/2 FULL SIZE



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(p) 714.899.3990

(f) 714.899.3993

20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

www.alufam-usa.com

D - 5 of 12



SCALE: 1/2 FULL SIZE

1A

LOCKING JAMB SECTION w/ SIDELITE
& OPTIONAL RIM PANIC DEVICE
60 MIN. GLASS

DOOR OPENING

3-3/8" TYP

7-7/8" TYP

DOOR OPENING

2A

DOOR HEADER SECTION w/TRANSOM
60 MIN. GLASS

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(p) 714.899.3990
(f) 714.899.3993

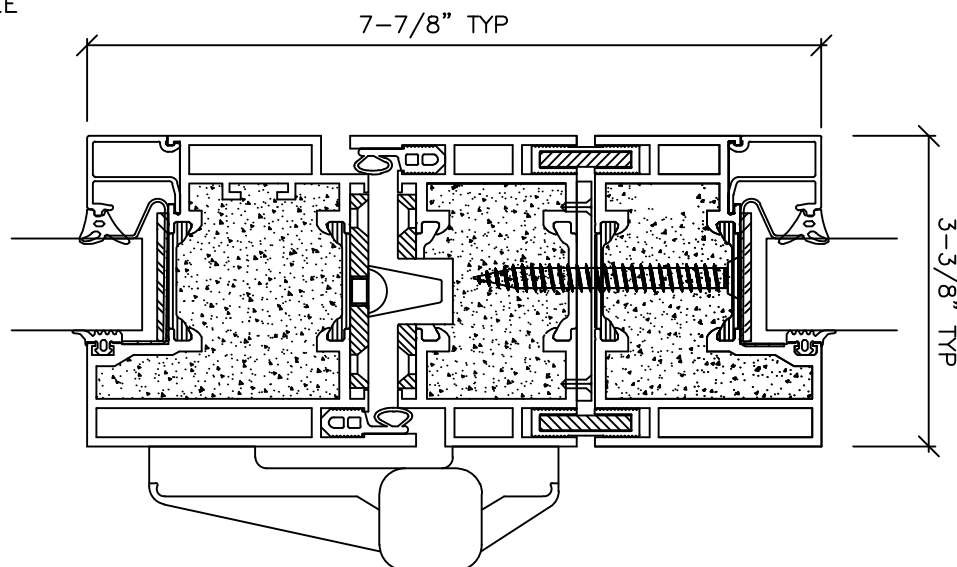
20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

www.alufam-usa.com

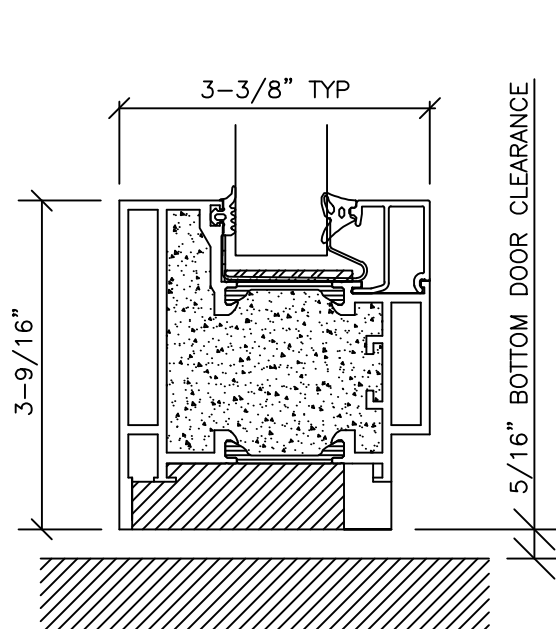
D - 6 of 12



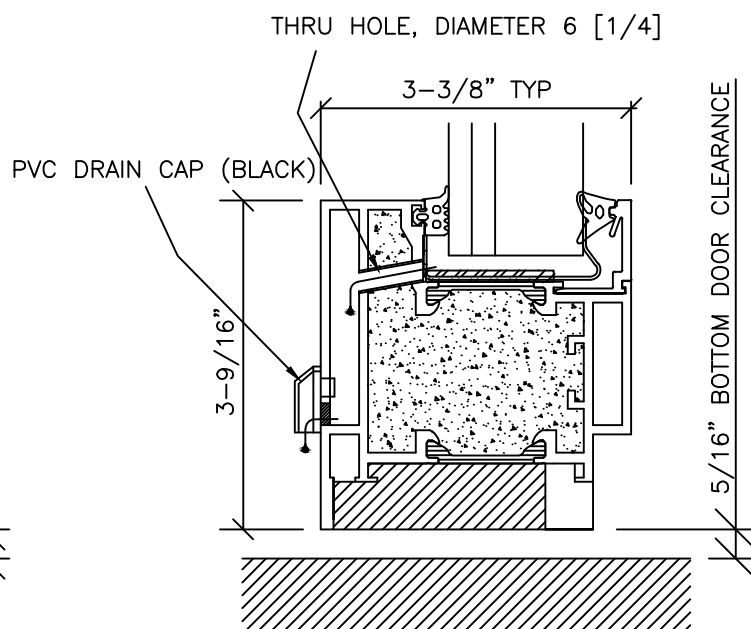
SCALE: 1/2 FULL SIZE



3A PIVOT JAMB SECTION w/ SIDELITE
60 MIN. GLASS



4 BOTTOM DOOR RAIL SECTION
60 MIN. GLASS



4A BOTTOM DOOR RAIL SECTION (FOR EXT. INSTALL)
60 MIN. GLASS

aluflam

(p) 714.899.3990
(f) 714.899.3993

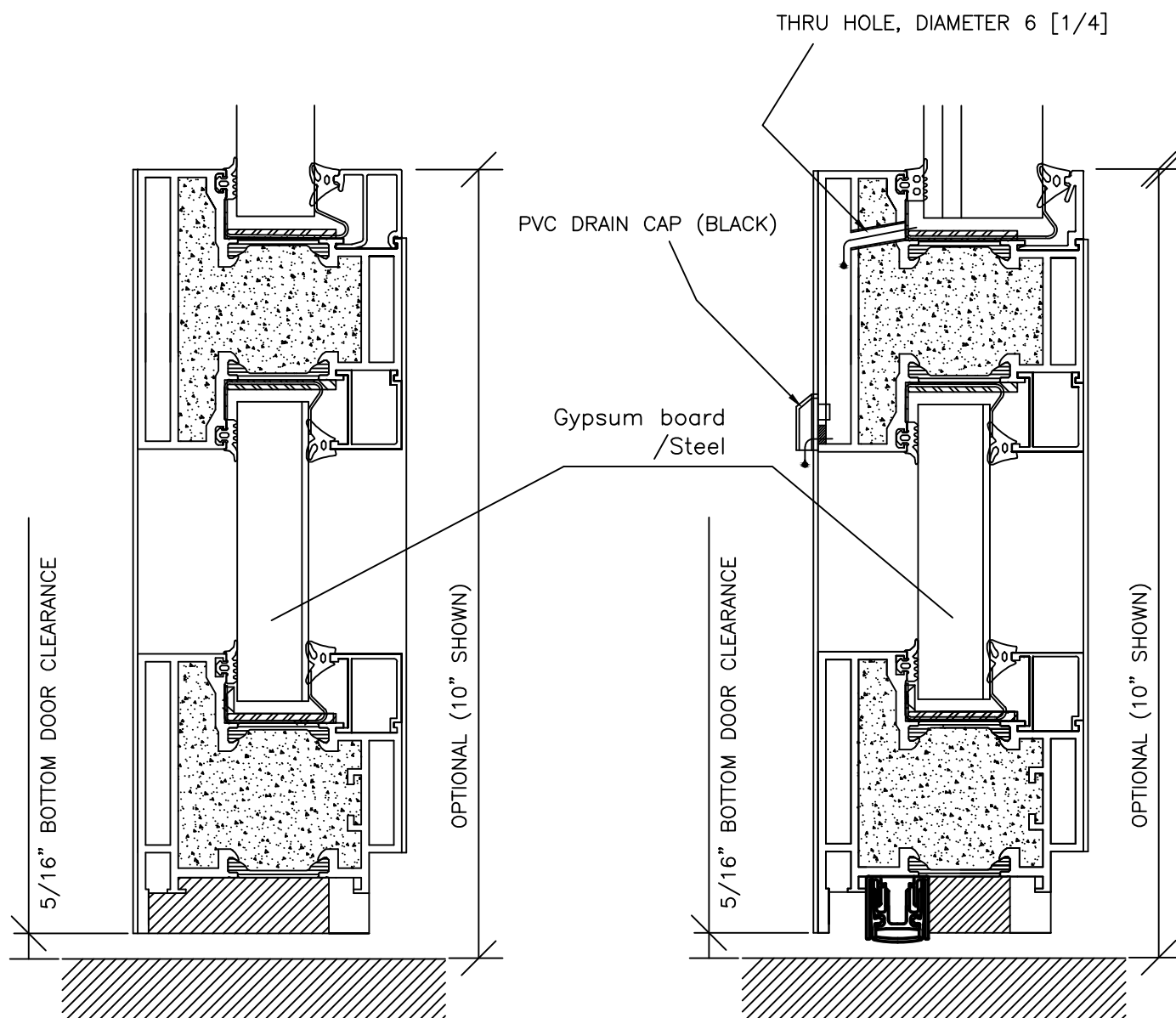
20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

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D - 7 of 12



SCALE: 1/2 FULL SIZE



OPTION

5

BOTTOM DOOR RAIL SECTION
60 MIN. GLASS

OPTION

5A

BOTTOM DOOR RAIL SECTION SHOWN W/
AUTO FLOOR SEAL & DRAINAGE FOR EXTERIOR INSTALL
60 MIN. GLASS

alufam

(p) 714.899.3990

(f) 714.899.3993

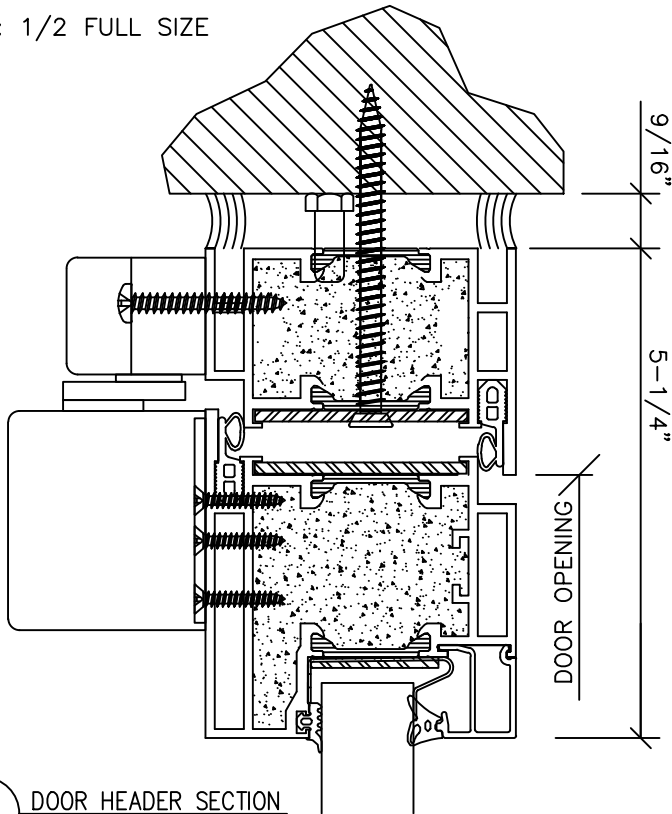
20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

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D - 8 of 12

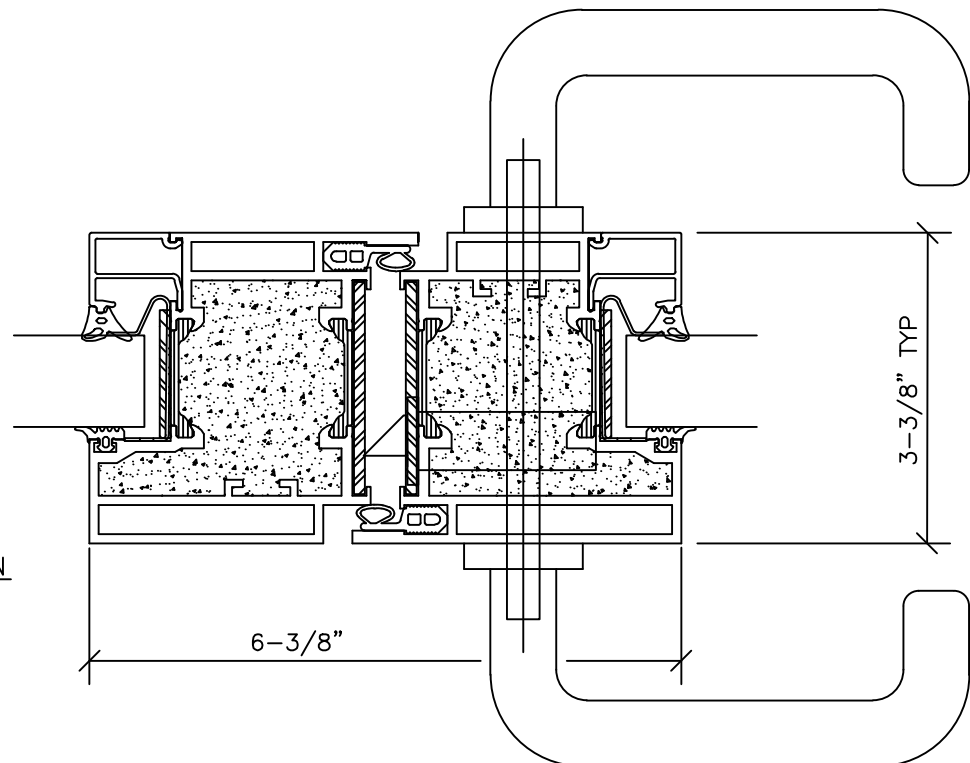


SCALE: 1/2 FULL SIZE



6

DOOR HEADER SECTION
60 MIN. GLASS



7

MEETING STILE SECTION
60 MIN. GLASS

aluflam

(p) 714.899.3990
(f) 714.899.3993

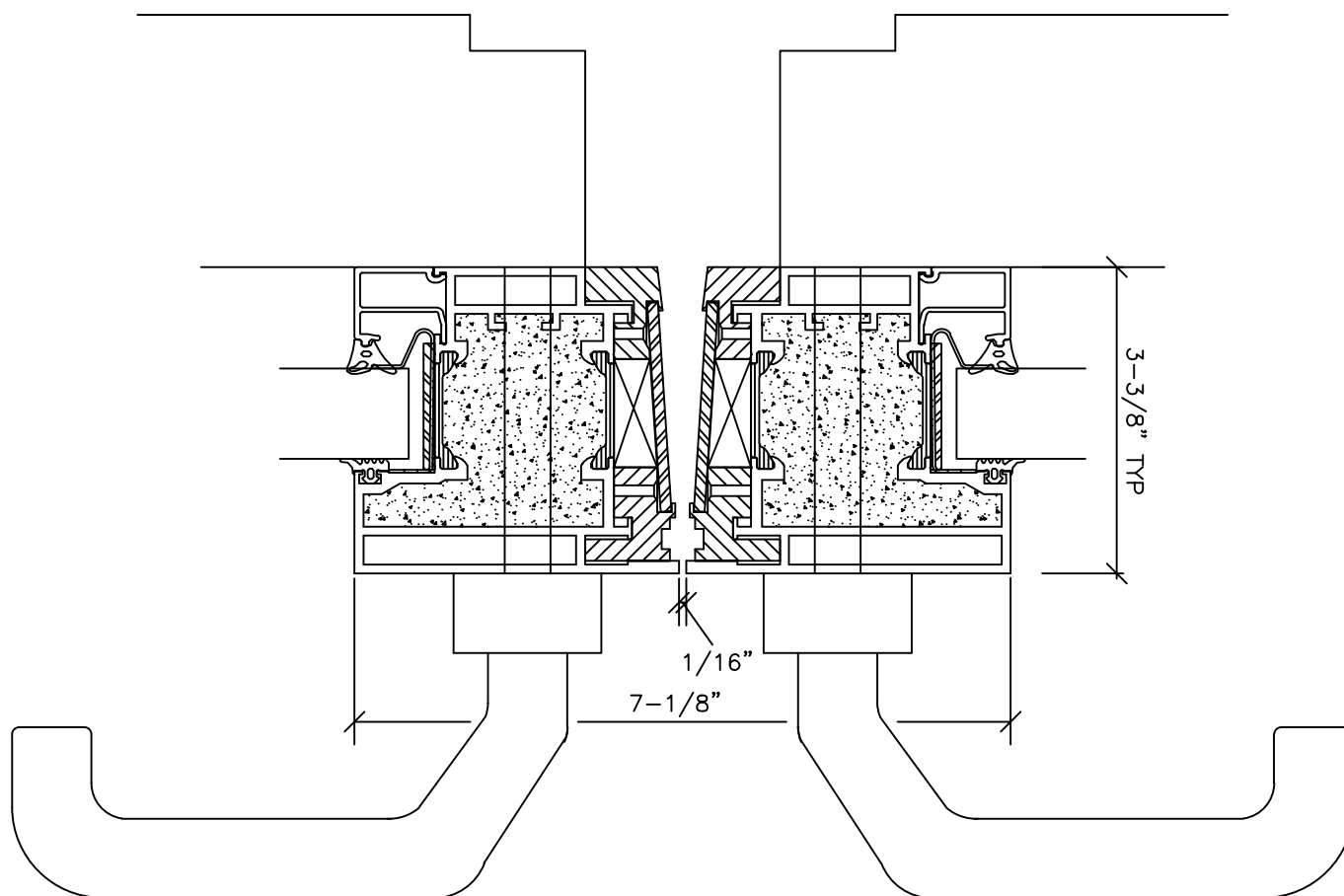
20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

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D - 9 of 12



SCALE: 1/2 FULL SIZE



8 MEETING STILE SECTION
60 MIN. GLASS



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20/45/60 MINUTE FIRE-RATED FULL VISION DOORS

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STANDARD HARDWARE SETS

SD (SINGLE DOOR)

- [1] Surface Closer - LCN 4040XP w/ 4040XP-18 DROP PLATE
- [3] Offset Pivots, Aluminum - Dr. Hahn A925 Turband 4 Series
- [1] Mortise Lock - Accurate 8656 1-1/4" US32D
- [1] Swivel Spindle - Accurate Custom
- [2] Lever, Satin Stainless - FSB 1080-003-6204
- [2] Rose, Satin Stainless - FSB 1758-0301-6204
- [1] Mortise Cylinder, Schlage "C" Keyway - Baldwin 8324/8330 Series
- [1] Cylinder Ring, Satin Stainless - FSB 0450-9001-6204
- [2] 10" Aluminum Kickplates
- [1] Set of Gaskets/Seals

(OPTIONS)

Rim Exit Device - Dorma F9700 Series w/ Lever Trim
Auto Floor Seal - Planet MF (Standard on Exterior Doors)
Electric Strike - Von Duprin 6226 (w/ mortise lock ONLY)
Electric Function on panic w/ Electric Power Transfer (VD EPT2/10)

DD-AF (DOUBLE DOOR, ACTIVE/FIXED)

- [1] Surface Closer/Coordinator - Dorma TS93-15-GSR
- [6] Offset Pivots, Aluminum - Dr. Hahn A925 Turband 4 Series
- [1] Mortise Lock - Accurate 8656 1-1/4" US32D
- [1] Swivel Spindle - Accurate Custom
- [2] Lever, Satin Stainless - FSB 1080-003-6204
- [2] Rose, Satin Stainless - FSB 1758-0301-6204
- [1] Mortise Cylinder, Schlage "C" Keyway - Baldwin 8324/8330 Series
- [1] Cylinder Ring, Satin Stainless - FSB 0450-9001-6204
- [1] Internal Flush Bolt Assembly - BKS-B1899/1895 (Top of In-Active Leaf ONLY)
- [4] 10" Aluminum Kickplates
- [1] Set of Gaskets/Seals

(OPTIONS)

Rim Exit Device - Dorma F9700 Series w/ Lever Trim
Auto Floor Seals - Planet MF (Standard on Exterior Doors)
Electric Strike - Von Duprin 6226 (w/ mortise lock ONLY)
Electric Function on panic w/ Electric Power Transfer (VD EPT2/10)

* Precision Apex 2400/Sargent 8500/Falcon 24 Series Narrow Stile RIM Exit Devices are available at additional cost & lead time.
NOTE: Von Duprin 33/35 Series RIM Exit Devices are NOT UL Listed for Fire Doors - not available on Single or DD-AF Doors

DD-AA (DOUBLE DOOR, ACTIVE/ACTIVE)

- [2] Surface Closer - LCN 4040XP w/ 4040XP-18 DROP PLATE
- [6] Offset Pivots, Aluminum - Dr. Hahn A925 Turband 4 Series
- [2] Surface Vertical Rod (SVR-Top Rod ONLY) Panics w/ Lever Trim - Dorma F9800 Series
- [2] Mortise Cylinder, Schlage "C" Keyway
- [4] 10" Aluminum Kickplates
- [1] Set of Gaskets/Seals

(OPTIONS)

Auto Floor Seals - Planet MF (Standard on Exterior Doors)
Electric Function on panic w/ Electric Power Transfer (VD EPT2/10)

* Von Duprin 33/35 Series SVR Exit Devices are available at additional cost & lead time.

* Any additional hardware not listed here is not required for Fire rating and if desired, would be "By Others" *

- These lists contain ALUFLAM's standard packages and most commonly specified hardware options
- SCHLAGE "C" Keyway is standard unless otherwise specified - Other options are available
- Please inquire about additional options
- See Accurate literature for available mortise lock functions (www.accurate.to)
- See FSB literature for optional lever trim designs (www.fsbna.com)

* Dorma TS93 Narrow profile Track type closer used with Curtainwall System or limited above door frame clearance. Note limited opening angle, range of approximately 95 degrees. - Floor stop recommended

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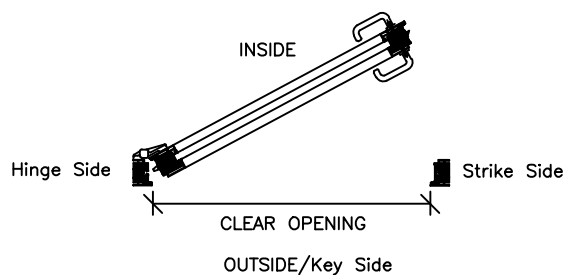
20/45/60 MINUTE FIRE-RATED FULL
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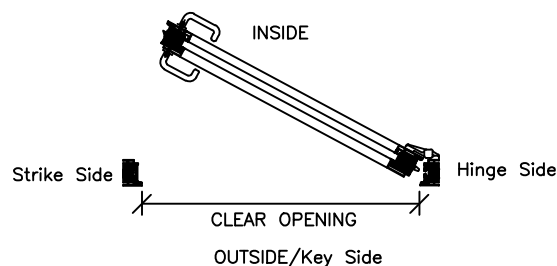
D - 11 of 12



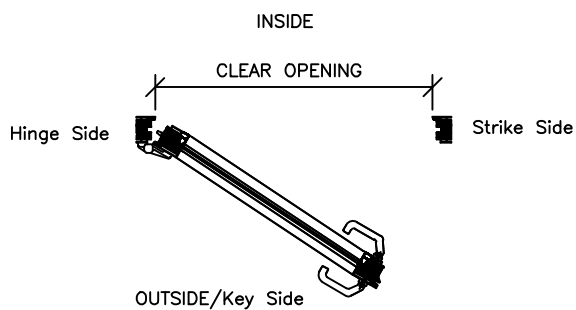
ANSI A250.7-1997 Door Handing Chart



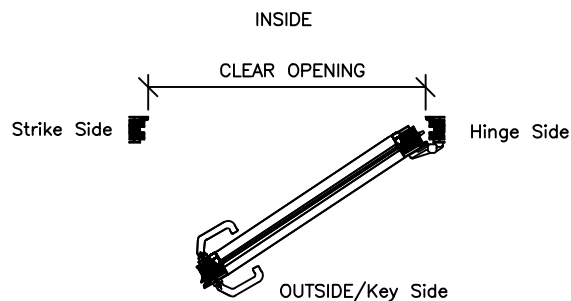
LEFT HAND DOOR (SWING IN)



RIGHT HAND DOOR (SWING IN)



LEFT HAND REVERSE (SWING OUT)



RIGHT HAND REVERSE (SWING OUT)

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20/45/60 MINUTE FIRE-RATED FULL
VISION DOORS

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D - 12 of 12

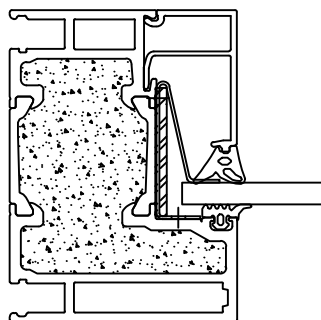


SCALE: 1/2 FULL SIZE

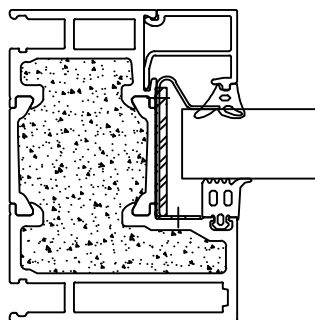
GLAZING CONFIGURATIONS

INTERIOR

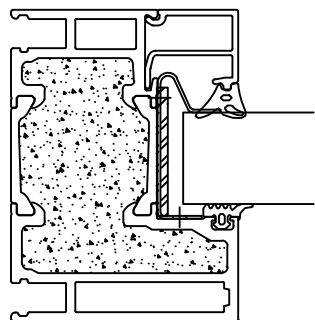
20 Min. Rating - w Pyroswiss US



45 Min. Rating - w Swissflam 45



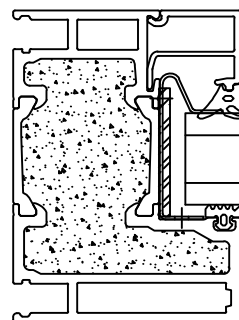
60 Min. Rating - w Contraflam 60



EXTERIOR

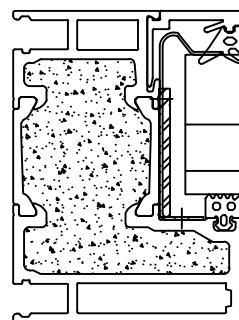
(INSULATED GLASS UNITS)

20 Min. Rating - w Pyroswiss US IGU



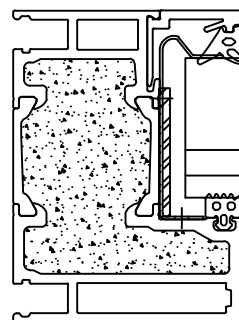
1/4" SGG Pyroswiss US
1/2" Air Space
1/4" Hardcoat Low-E Outboard Lite
(1" Overall Glass Thickness)

45 Min. Rating - w Swissflam 45 IGU



3/4" SGG Swissflam 45 N2
1/2" Air Space
1/4" Hardcoat Low-E Outboard Lite
(1-1/2" Overall Glass Thickness)

60 Min. Rating - w Contraflam 60 IGU



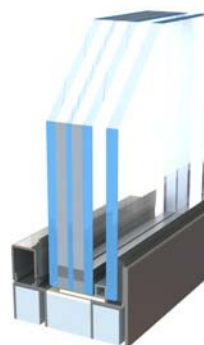
1" SGG Contraflam 60 N2
1/4" Air Space
1/4" Hardcoat Low-E Outboard Lite
(1-1/2" Overall Glass Thickness)

CONTRAFLAM® 60 IGU

Fire-Rated Clear Tempered Safety Glass - Exterior Application

CLASSIFICATION

PRODUCT FEATURES



TECHNICAL SPECIFICATION

Fire Rating	60 min. Fire-Resistance-Rated
Testing / Standard Conformity	UL 10b, 10c, 263 NFPA 80/251/252/257 ASTM E-119 CAN/ULC-S101, S104, S106
Building Code Marking	D-H-T-60, OH-60, W-60
Impact Safety Rating	CPSC 16CFR 1201-CAT II; CAN/CGSB-12.1-M
Nominal Thickness (in.; mm)	1-1/2" (33 mm)
Tolerance (in.; mm)	+ 1/8" to - 1/16" (+3 mm to -1.5 mm)
U-Value (BTU/hr*sq.ft*°F)	0.34
STC Rating (dB)	44
Visible Light Transmission (%)	80
Weight (lbs./ft.²; kg/m²)	14.9 (73.0)
Groove (in.; mm)	Depth: 7/8" (22mm) Width: 1-3/4" (45mm)

MAXIMUM DIMENSIONS

	Window, Transom Sidelight	Door Non-Temp Rise	Door Temp Rise
Maximum Exposed Height (in.; m)*	94-13/16 (2.41)	89-1/2 (2.27)	89-1/2 (2.27)
Maximum Exposed Width (in.; m)*	94-13/16 (2.41)	30 (0.76)	30 (0.76)
Maximum Exposed Area (in.²; m²)	4,449 (2.87)	2,685 (1.73)	2,685 (1.73)

*Height multiplied by width cannot exceed maximum exposed area.

APPLICATION OPTIONS


- | | | |
|--|---|---|
| <input checked="" type="checkbox"/> VDS Door | <input type="checkbox"/> VDS Lite Door | <input checked="" type="checkbox"/> Hollow Metal Temp Rise Door |
| <input checked="" type="checkbox"/> VDS Frame | <input type="checkbox"/> VDS Lite Frame | <input checked="" type="checkbox"/> Hollow Metal Non-Temp Rise Door |
| <input checked="" type="checkbox"/> VDS Curtain Wall | | <input checked="" type="checkbox"/> Hollow Metal Frame |

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CITY OF MADISON
FACILITIES MANAGEMENT SPECIFICATION
SEPT. 29, 2023

3.4. SUBSTITUTION REQUEST FORM

For Pre-bid Substitution Requests all text boxes on this form are required information for a complete request.



Substitution Request

Today's Date:

Project Title:

Project Number: Contract Number:

By completing and submitting this form for review the General Contractor affirms that all of the following statements are correct:

- 1 The General Contractor affirms that this request is in compliance with the requirements described in *Specification 01 25 13 Product Substitution Procedures*.
- 2 The function, appearance, and quality of the proposed substitution are equal or superior to the specified item.
- 3 The proposed substitution does not affect dimensions shown on the drawings.
- 4 The proposed substitution will have no adverse affects on other trades, the construction schedule, or any specified warranty requirements.
- 5 Maintenance and service parts will be locally available for the proposed substitution. (GC shall provide supporting documentation in the attachments section below.)
- 6 The General Contractor shall be responsible for any and all costs associated with this substitution request if approved. This includes but is not limited to fees for building design, engineering design fees, detailing fees, plan review fees, construction costs, and inspection fees.

GC Substitution Request:

General Title:

Related Specification:

Reason for Substitution:

Proposed Substitution:
(include Name, Model, etc.)

Submitted By:

Company:

Phone:

Email:

END OF SECTION



Eppstein Uhen Architects (EUA)
333 East Chicago Street
Milwaukee, WI, 53202
ATTN: Mike Oates

October 24, 2023

City of Madison Facility Managements
210 Martin Luther King Jr. Blvd, Room 115
Madison, WI, 53703
ATTN: Brent Pauba

RE: State Street Campus Garage Mixed-Use Project, Contract No. 9361

Subject: Substitution request to replace Xypex Admix C-500 and Kryton Internal Membrane with Penetron Admix SB.

Herewith Penetron USA, Inc. formally requests the review of Penetron Admix SB as a suitable substitute for Xypex Admix C-500 and Kryton Internal Membrane for use in the State Street Campus Garage Mixed-Use Project in Madison, Wisconsin. Penetron Admix SB is an alternative and/or equal to the basis of design product as specified in Section 03 30 00 "Cast-in-Place Concrete" 2.04, F.7.a. and Drawing S0002 "Concrete Materials Schedule Notes" 4.

Penetron Admix SB is a crystalline waterproofing admixture (a.k.a. permeability reducing admixture for hydrostatic conditions - PRAH) added to concrete during batching. Penetron Admix SB treated concrete will self-heal and seal all pores, capillaries, and cracks up to 0.5mm (1/51"), resulting in a concrete matrix with decreased permeability, waterproofing properties, increased durability, and an extended service life.

The use of the proposed substitutes will have no negative effect on the construction schedule. There will be no costs of redesign or claims from other contractors as a result of the use of the proposed substitute. The incorporation or use of the proposed substitute will not be subject to any license fee or royalty.

General Notes:

1. Penetron Admix SB is dosed at one 6.6lb soluble bag per cubic yard of concrete for ease of batching and quality control. This is based on our concentrated dosage rate of 1% by weight of total cementing materials compared to Xypex Admix C-500 and Kryton Internal Membrane which are dosed at 2-3% by weight of cement.
2. Penetron Admix SB contains a non-toxic, non-staining green tracer which is present in the bleed water during concrete placement and curing. This is a built-in visual quality control measure to ensure Penetron Admix SB has been added to the concrete.

PENETRON USA, INC.

45 Research Way, Suite 203, East Setauket, NY 11733
[631] 941-9700 • info@penetron.com • penetron.com



3. Penetron product range offers a complete waterproofing solution including waterstops and cementitious repair materials (i.e., Penebar SW55, Penetron, Penecrete Mortar, and Peneplug).
4. Penetron USA provides complimentary technical and on-site support services. A technical representative can be present (in-person or virtually depending on availability) for the pre-installation conference if sufficient notice is given.

Should you require sample product for testing or pilot/trial project purposes, please let us know as we would gladly provide you with complimentary material.

Please find attached submittal documents for review. If you have any questions, please contact me at tdubord@penetron.com or 952-715-9149.

Sincerely,

Tyler DuBord
Account Manager
Penetron USA, Inc.

PENETRON USA, INC.

45 Research Way, Suite 203, East Setauket, NY 11733
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PENETRON ADMIX SB

TOTAL CONCRETE PROTECTION



MADE IN AMERICA

Penetron USA Certificate of Conformance to “Ensuring the Future Is Made in All of America by All of America’s Workers” Executive Order – January 25, 2021.

Penetron USA, Inc. is an American based company with manufacturing facilities for construction materials within the United States of America. In accordance with the Executive Order, “Ensuring the Future Is Made in All of America by All of America’s Workers” signed by the President on January 25, 2021, as follows:

It is the policy of my Administration that the United States Government should, consistent with applicable law, use terms and conditions of Federal financial assistance awards and Federal procurements to maximize the use of goods, products, and materials produced in, and services offered in, the United States. The United States Government should, whenever possible, procure goods, products, materials, and services from sources that will help American businesses compete in strategic industries and help America’s workers thrive. (Section 1, Policy)

“Made in America Laws” means all statutes, regulations, rules, and Executive Orders relating to Federal financial assistance awards or Federal procurement, including those that refer to “Buy America” or “Buy American,” that require, or provide a preference for, the purchase or acquisition of goods, products, or materials produced in the United States, including iron, steel, and manufactured goods offered in the United States. (Section 2, (b))

We hereby certify that Penetron USA products are compliant with this Executive Order and other “Buy America” or “Buy American” regulations.

PENETRON USA, INC.

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(631) 941-9700 • info@penetron.com • penetron.com



PENETRON ADMIX® SB

CRYSTALLINE WATERPROOFING AND DURABILITY ADMIXTURE

DESCRIPTION

PENETRON ADMIX® SB (Soluble Bag integral crystalline waterproofing and durability admix) is added to the concrete mix at the time of batching. PENETRON ADMIX® SB's various active, proprietary chemicals react with the moisture in fresh concrete and with the by-products of cement hydration to cause a catalytic reaction generating a non-soluble crystalline formation throughout the pores and capillary tracts of the concrete. Thus, the concrete becomes permanently sealed against the penetration of water or liquids from any direction. However, PENETRON ADMIX® SB treated concrete will still allow the passage of vapor through the structure (i.e. the concrete will be able to "breathe"). Even after the concrete has cured, PENETRON ADMIX® SB remains dormant in the concrete and will reactivate in the presence of moisture to seal capillary tracts and hairline cracks. The concrete is also protected from deterioration due to harsh environmental conditions.

PENETRON ADMIX® SB has been specially formulated to meet varying project and temperature conditions (see **Setting time and strength**). Consult with a Penetron technical representative for additional detailed support on your project.

APPLICATIONS

- Reservoirs
- Sewage and water treatment plants
- Secondary containment structures
- Tunnels and subway systems
- Underground vaults
- Foundations
- Parking structures
- Swimming pools
- Precast, cast-in-place and shotcrete applications

DIRECTIONS FOR USE

Dosage rate:

PENETRON ADMIX® SB is designed to be dosed at the rate of one soluble bag per cubic yard (or cubic meter) of concrete. For most mix designs in use, this falls within the range of acceptability of 1% by weight of cementing materials. Consult with Penetron's Technical Department for assistance in verifying the appropriate dosage rate and for further information regarding enhanced chemical resistance and optimum concrete performance for your project.

Mixing:

PENETRON ADMIX® SB must be added to the concrete at the time of batching.

The sequence of procedures for addition will vary according to the type of batch plant operation and equipment. The following are some typical mixing guidelines. For more detailed information on dosing procedures, contact your Penetron representative.

Ready mix plant - Dry batch operation: Add PENETRON ADMIX® SB directly into the drum of the ready-mix truck and immediately before charging the drum with 60%-70% of the required mix water, along with 300-500 lb (136-227 kg) of aggregate. Mix the materials for 2-3 minutes to ensure the PENETRON ADMIX® SB is distributed evenly throughout the mix water. Add the balance of materials to the ready-mix truck in accordance with standard batching practices.

Ready mix plant - Central mix operation: Ideally, PENETRON ADMIX® SB should be added directly into the central mix drum before all other ingredients. However, when this is impractical or unsafe, PENETRON ADMIX® SB can be added directly into the drum of the ready-mix truck immediately before charging with concrete. The dosed concrete should be allowed to mix in accordance with ACI guidelines or for a minimum of 70 revolutions at standard mixing speeds (approximately 5 minutes) to ensure even distribution of PENETRON ADMIX® SB throughout the concrete.

Precast batch plant: Consult with a Penetron technical representative to determine if PENETRON ADMIX® SB would suit your precast batch plant operation or if one of our other packaging solutions may be more appropriate.

NOTE: It is important to obtain a homogeneous mixture of PENETRON ADMIX® SB with the concrete. To avoid clumping and improve thorough dispersion, Penetron Admix should not be added to wet concrete. Please contact your Penetron Technical Representative for additional project specific guidelines should none of above recommended dosing methods not be implementable. For further information regarding the proper use of PENETRON ADMIX® SB for a specific project, consult with a Penetron technical representative.

PENETRON ADMIX® SB

Setting time and strength:

The setting time of concrete is affected by the chemical and physical composition of ingredients, temperature of the concrete and climatic conditions. Retardation of set may occur when using PENETRON ADMIX® SB. The amount of retardation will depend upon the concrete mix design and the dosage rate of PENETRON ADMIX® SB. However, under normal conditions, PENETRON ADMIX® SB will provide a normal set concrete. Concrete containing PENETRON ADMIX® SB may develop higher ultimate strengths than plain concrete. Trial mixes should be carried out under project conditions to determine setting time and strength of the concrete.

Concrete treated with PENETRON ADMIX® SB should be placed and finished in accordance with good concrete practices. ACI guidelines and recommendations should be observed.

SPECIAL CONSIDERATIONS

When incorporating PENETRON ADMIX® SB, the temperature of the concrete mix should be above 40°F (4°C).

PACKAGING

PENETRON ADMIX® SB is available in 6.6-lb (3-kg) soluble bags, packed 6 bags to a plastic pail. For large projects, customized packaging is available.

STORAGE / SHELF LIFE

PENETRON products must be stored dry at a minimum temperature of 45°F (7°C). Shelf life is 24 months when stored under proper conditions.

TECHNICAL SERVICES

For more detailed instructions, alternative application methods, or information concerning the compatibility of the PENETRON treatment with other products or technologies, contact the Penetron Technical Department or your local Penetron representative.

SAFE HANDLING INFORMATION

PENETRON ADMIX® SB is alkaline. As a cementitious powder or mixture, PENETRON ADMIX® SB may cause significant skin and eye irritation. Directions for treating these problems are clearly detailed on all Penetron pails and packaging. Penetron International, Ltd. also maintains comprehensive and up-to-date Safety Data Sheets on all its products. Each sheet contains health and safety information for the protection of your employees and customers. KEEP OUT OF REACH OF CHILDREN.

Contact Penetron International, Ltd. or your local Penetron representative to obtain copies of Safety Data Sheets prior to product storage or use.

ADVANTAGES

Resists extreme hydrostatic pressure from either positive or negative surface of the concrete element
Becomes an integral part of the concrete
Highly resistant to aggressive chemicals
Seals hairline cracks up to 1/51" (0.5 mm)
Allows concrete to breathe
Non-toxic (NSF 61 certified for potable water applications)
Less expensive than traditional methods
Permanent
Added to the concrete at the time of batching and therefore not subject to climatic restraints
Reduces construction scheduling time
Improves durability of concrete
Permeability Reducing Admixture for Hydrostatic conditions (PRAH)
Zero VOC – PENETRON powdered products contain zero volatile organic compounds and are safe for use both outdoors and in confined indoor spaces
Exceeds requirements of ASTM C494-S (Specific Performance Admixtures)
A non-toxic, non-staining green tracer in the bleed water during concrete placement and curing visually confirms the addition of Penetron Admix® SB



004aCPR2013-07-10
EN 934-2

Penetron International, Ltd.
601 South Tenth Street, Unit 300
Allentown, PA 18103
08

PENETRON ADMIX
Crystalline Capillary Admixture
Water Resisting Admixture

Chloride content: < 0,10 % by mass

Alkali content: < 10,3 % by mass

Compressive strength: ≥ 85 % of control

Conventional dry material content: > 99,5 %

Air content in fresh concrete: ≤ 2 % by volume

Capillary Absorption (after 90 day curing): ≤ 60 % by mass

WARRANTY: PENETRON INTERNATIONAL, LTD. warrants that the products manufactured by it shall be free from material defects and will conform to formulation standards and contain all components in their proper proportion. Should any of the products be proven defective, the liability to PENETRON INTERNATIONAL, LTD. shall be limited to replacement of the material proven to be defective, and PENETRON INTERNATIONAL, LTD. shall in no case be liable otherwise or for incidental or consequential damages. **PENETRON INTERNATIONAL, LTD. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESSED OR IMPLIED.** User shall determine the suitability of the product for its intended use and assume all risks and liability in connection therewith.

PENETRON INTERNATIONAL, LTD.

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January 1, 2023

To whom it may concern,

Re: Certification of Conformance - Penetron Crystalline Waterproofing Products

This is to certify that the Penetron System of Crystalline Waterproofing products (Penetron Admixture, Penetron, Penecrete Mortar, Peneplug, and Penetron Plus) are manufactured under strict ISO 9001 control conditions by Penetron USA, Inc. and used as directed is compatible with other standard admixtures used in the production of concrete.

The Penetron System of Crystalline Waterproofing products (incl. Penetron Admix with tracer) are manufactured to the additional standards as required by the National Sanitation Foundation (NSF 61) for potable water applications and by the European Union (CE) Standards.

Penetron USA, Inc. further certifies that no calcium chloride are used in the manufacture of Penetron System of Crystalline Waterproofing product sand based on chlorides originating from all ingredients used in manufacture, it contributes less than 0.00010 (1.0 ppm) chloride by weight, which is substantially lower than the maximum level as defined by ACI 318.4.4.1 for Chemical Admixtures for Concrete

Additionally, Penetron USA, Inc. provides technical and quality control support to ensure the completion of a successful project.

If you need any addition information, please feel free to contact Penetron USA, Inc. at any time.

Sincerely,

Dale Williams
Regional Sales Manager
Penetron USA, Inc.

PENETRON USA, INC.

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CRYSTALLINE WATERPROOFING PERFORMANCE STANDARDS

- Permeability (ASTM D5084, DIN 1048) - By reducing the effective pore size of concrete, Penetron reduces the permeability of the concrete. This makes Penetron treated concrete ideal for use in all water containment structures.
- Chloride Resistance and Steel Corrosion Reduction (ASTM C1202, AASHTO T-277, NCHRP 244, AASHTO T-259) – Without water transport through the concrete, any steel embedded in the concrete cannot be attacked by chloride ions and other salts that can begin the corrosion process. This makes Penetron ideal for use in marine environments and other conditions where salt is a factor.
- Freeze/Thaw Resistance (ASTM C 666, NYDOT Method 502-3P) - During a freeze/thaw cycle, water inside concrete would normally expand during the freeze cycle creating micro cracks within the concrete and then melt during the thaw cycle allowing the water to be absorbed deeper into the micro cracks. Each freeze/thaw cycle damages the concrete deeper within. Elimination of the moisture within the concrete greatly reduces the effect that freeze, and thawing cycles have internal concrete damage.
- Scaling Resistance (ASTM C 672) - Scaling happens in the same way that freeze/thaw damage does, but its effect is at the surface of the concrete. Spalling of the concrete surface is seen as the water freezes beneath the top layers of the concrete and pops off the small scales of it. Eliminating water penetration into the concrete again reduces the effect of this kind of damage.
- Sulfate Resistance (ASTM C1012) - Penetron's tightening effect helps to mitigate the effects of sulfates in soil and water.
- Autogenous Crack Healing (ASTM C 856, SEM Analysis) – Scanning Electron Microscope photos confirm the crack healing ability of Penetron. This ability can occur under heads of pressure up to 512 psi.
- Non-Toxic (NSF 61) – Penetron products are certified by the National Sanitation Foundation and approved for use in potable water applications. It is inherently a Green product as it eliminates the need to use toxic and potentially toxic bituminous based products, epoxies and other coatings that have high volatile organic content and deleterious effects on the immediate environment.

PENETRON USA, INC.

45 Research Way, Suite 203, East Setauket, NY 11733
(631) 941-9700 • info@penetron.com • penetron.com



PENETRON ADMIX TEST REPORTS

TOTAL CONCRETE PROTECTION



September 26, 2016

Subject: **Report of Results for CRD-C 48-92 Water Permeability
Testing Project Name: Penetron Permeability Testing
TEC Services Project No: 05-0526
TEC Laboratory No: 16-136-15055-001- Control**

Dear Sirs:

Testing, Engineering and Consulting Services, Inc. (TEC Services) is an AASTHO R18, ANS/ISO/IEC 17025:2005 and Army Corp of Engineers accredited laboratory. TEC Services is pleased to present this report of our results on the submitted concrete cylinder specimen designated as "Mix # - 15055-001 - Control" for water permeability testing. Our services were performed in accordance with the terms and conditions of our Service Agreement TEC-PRO-05-0526. The test results presented only pertain to the samples tested.

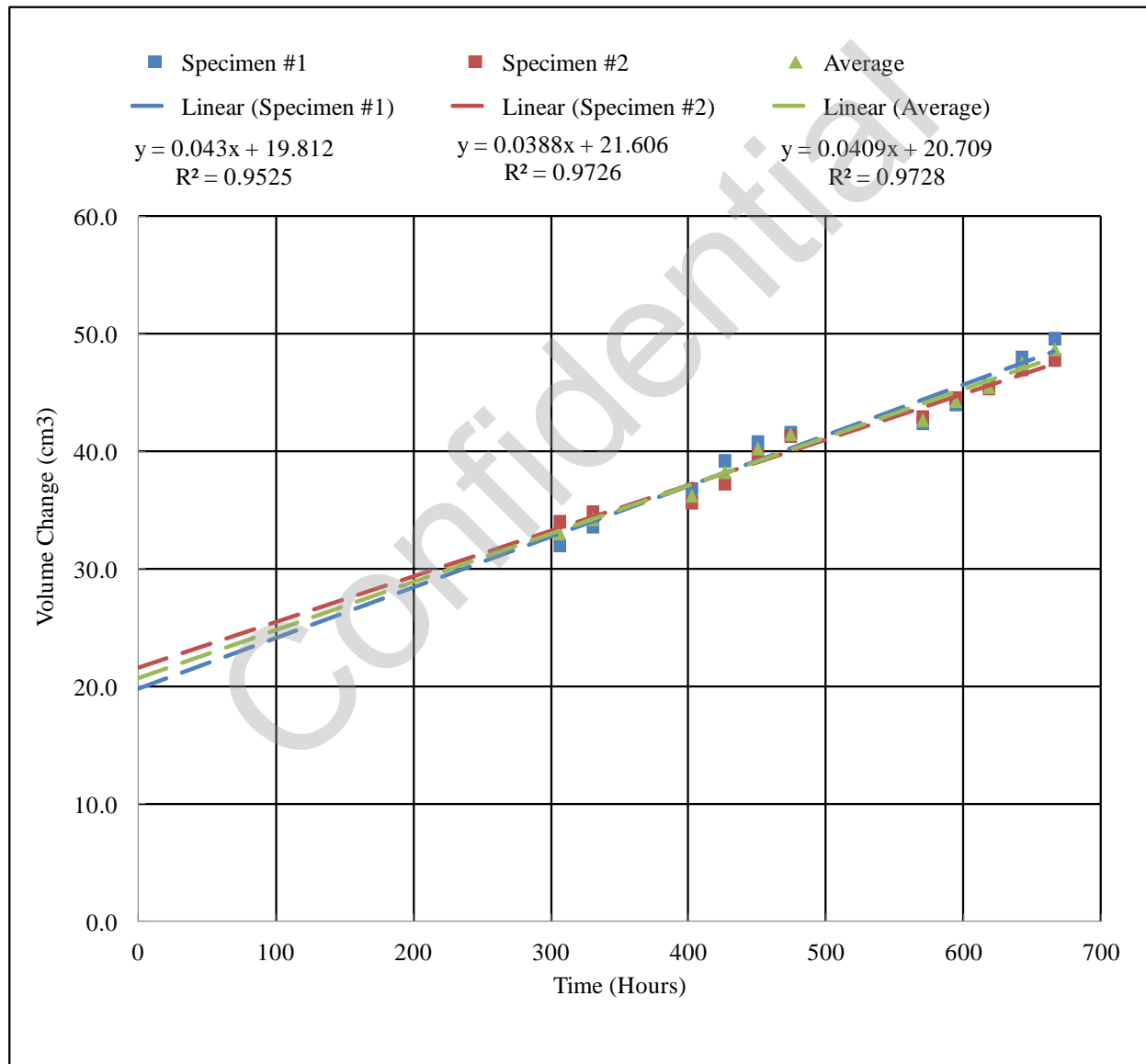
The purpose of our testing was to evaluate the submitted specimen in accordance with the U.S. Army Corp of Engineers test method CRD-C 48-92 *Standard Test Method for Water Permeability of Concrete*. It is our understanding that the received specimen had been moist cured for a minimum of 28 days. Using a wet diamond table saw, the 6" x 12" cylinder was cut to produce the required 6" x 6" cylindrical specimen size for testing. The sample was tested using an applied pressure of 200 psi at the request of the client. Results of the water permeability testing are reported in Table 1. A graphical representation of the CRD-C 48-92 test results are presented in Figure 1. Photos of the tested specimen and the testing set-up are presented in Photos 1 & 2.

Project Name: Penetration Permeability Testing
TEC Services Project #: 05-0526
TEC Services Lab #: 16-136-15055-001-Control

Table 1 – CRD-C 48-92 – Water Permeability Test Results

Average Flow Rate for Last 5 Days of Testing (cm ³ /hr):	0.052
Average Water Permeability (ft ³ /sec)/ft ² (ft head/ft)	2.86 E-12
Average Total Change in Volume of Water Based on Readings (cm ³)	48.70
Average Total Volume of Water Passed Through Specimen - Drip Pan (cm ³)	0.00

Figure 1 – Results of USACE CRD-C 48-92 Permeability Testing



Project Name: Penetration Permeability Testing
TEC Services Project #: 05-0526
TEC Services Lab #: 16-136-15055-001- Control

Photo 1 – Photo of Tested Specimen Showing Depth of Water Penetration



Photo 2 – Photo of CRD-C 48-92 Water Permeability Testing Set-Up



*Project Name: Penetration Permeability Testing
TEC Services Project #: 05-0526
TEC Services Lab #: 16-136-15055-001- Control*

Testing, Engineering and Consulting Services, Inc. appreciates the opportunity to provide our professional services for this important project. If you have any questions regarding this report, or if we can be of further assistance please contact us at 770-995-8000.

TESTING, ENGINEERING & CONSULTING SERVICES, INC.



Chip P. Sherwood Jr.
Project Manager



Shawn P. McCormick
Laboratory Principal

Confidential



September 26, 2016

Subject: **Report of Results for CRD-C 48-92 Water Permeability
Testing Project Name: Penetron Permeability Testing
TEC Services Project No: 05-0526
TEC Laboratory No: 16-136-15055-004 - Penetron Admix**

Dear Sirs:

Testing, Engineering and Consulting Services, Inc. (TEC Services) is an AASTHO R18, ANSI/ISO/IEC 17025:2005 and Army Corp of Engineers accredited laboratory. TEC Services is pleased to present this report of our results on the submitted concrete cylinder specimen designated as "Mix # - 15055-004 - Penetron Admix" for water permeability testing. Our services were performed in accordance with the terms and conditions of our Service Agreement TEC-PRO-05-0526. The test results presented only pertain to the samples tested.

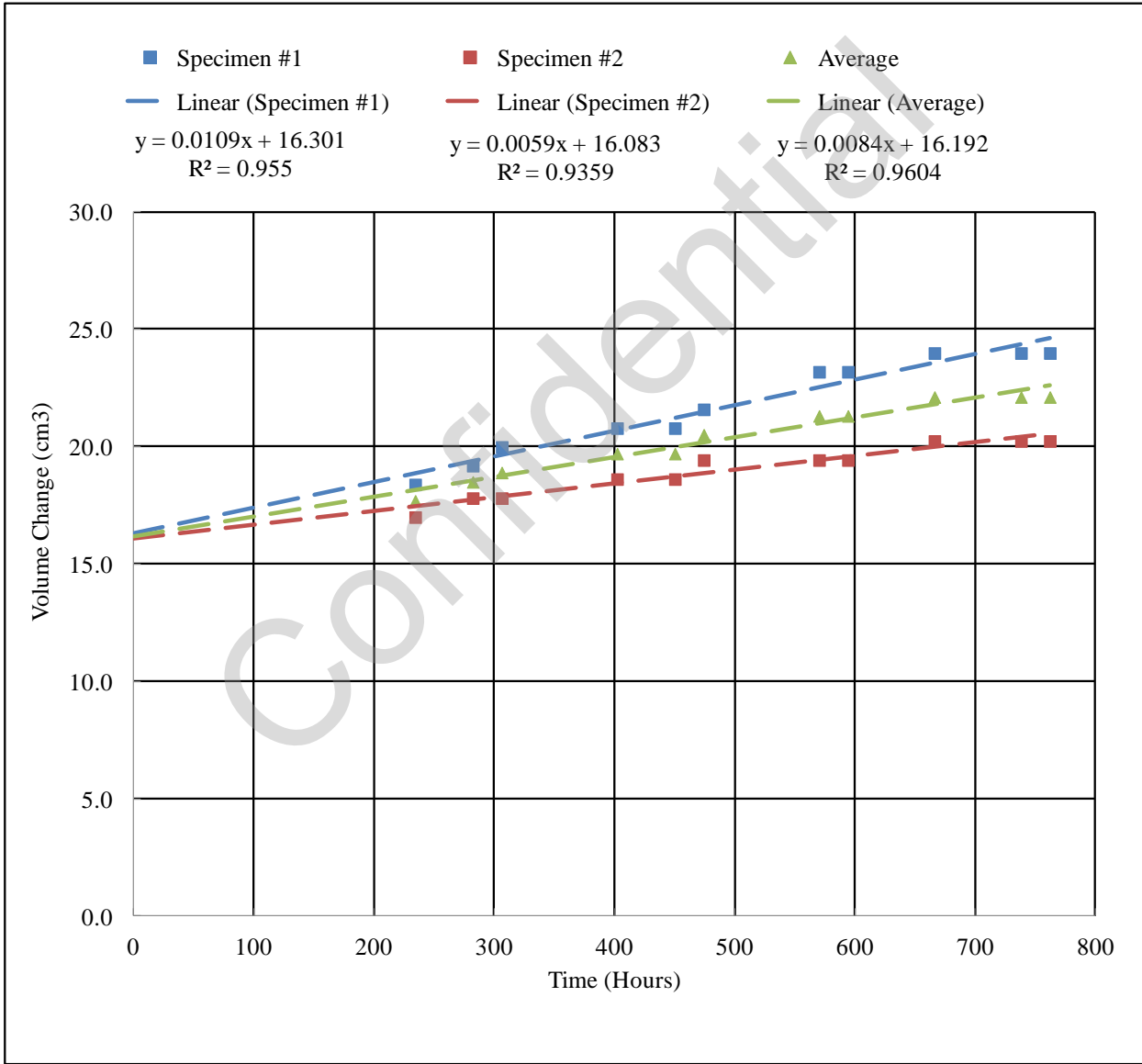
The purpose of our testing was to evaluate the submitted specimen in accordance with the U.S. Army Corp of Engineers test method CRD-C 48-92 *Standard Test Method for Water Permeability of Concrete*. It is our understanding that the received specimen had been moist cured for a minimum of 28 days. Using a wet diamond table saw, the 6" x 12" cylinder was cut to produce the required 6" x 6" cylindrical specimen size for testing. The sample was tested using an applied pressure of 200 psi at the request of the client. Results of the water permeability testing are reported in Table 1. A graphical representation of the CRD-C 48-92 test results are presented in Figure 1. Photos of the tested specimen and the testing set-up are presented in Photos 1 & 2.

Project Name: Penetron Permeability Testing
TEC Services Project #: 05-0526
TEC Services Lab #: 16-136-15055-004- Penetron Admix 1%

Table 1 – CRD-C 48-92 – Water Permeability Test Results

Average Flow Rate for Last 5 Days of Testing (cm ³ /hr):	0.009
Average Water Permeability (ft ³ /sec)/ft ² (ft head/ft)	4.82 E-13
Average Total Change in Volume of Water Based on Readings (cm ³)	22.13
Average Total Volume of Water Passed Through Specimen - Drip Pan (cm ³)	0.00

Figure 1 – Results of USACE CRD-C 48-92 Permeability Testing



Project Name: Penetron Permeability Testing
TEC Services Project #: 05-0526
TEC Services Lab #: 16-136-15055-004- Penetron Admix 1%

Photo 1 – Photo of Tested Specimen Showing Depth of Water Penetration



Photo 2 – Photo of CRD-C 48-92 Water Permeability Testing Set-Up



Project Name: Penetron Permeability Testing
TEC Services Project #: 05-0526
TEC Services Lab #: 16-136-15055-004 - Penetron Admix 1%

Testing, Engineering and Consulting Services, Inc. appreciates the opportunity to provide our professional services for this important project. If you have any questions regarding this report, or if we can be of further assistance please contact us at 770-995-8000.

TESTING, ENGINEERING & CONSULTING SERVICES, INC.

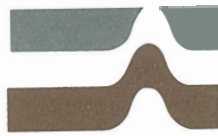


Chip P. Sherwood Jr.
Project Manager



Shawn P. McCormick
Laboratory Principal

Confidential



Ardaman & Associates, Inc.

Geotechnical, Environmental and
Materials Consultants

February 12, 2015
File Number 14-13-0133

PENETRON USA, Inc.
45 Research Way, Suite 203
Setauket, NY 11733

Attention: Jeremy J. Swartzfager, Sales Representative

Subject: ASTM Standard D5084 Permeability Tests on Treated and Untreated Concrete

Gentlemen:

As requested, permeability tests have been completed on two 4-inch diameter by 8-inch long field molded cylindrical concrete samples provided by your firm. The samples were received November 18, 2014 and were labeled: CF-1 AMEC Untreated Plant Test and CF-2 AMEC Treated Field Test. The samples were collected by AMEC from the S150 South Florida Water Management District Culvert replacement project from mixes made on October 24, 2014 (see attached AMEC field sample logs).

Permeability tests were performed in general accordance with ASTM Standard D5084 "Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter" using both the constant rate of flow test method (Method D) and the constant head test method (Method A). The permeability test results are presented on the attached Hydraulic Conductivity Test Reports with values of hydraulic conductivity shown for selected flow durations. Hydraulic conductivity versus time is plotted on the attached figure.

- Untreated Sample: The untreated concrete sample displayed a hydraulic conductivity at the end of the 14 day test period, corresponding to a sample age of 40 days, of 2.1×10^{-9} cm/sec.
- Treated Sample: The treated concrete sample displayed a hydraulic conductivity at the end of the initial 3 day test period, corresponding to a sample age of 29 days, of 4.5×10^{-11} cm/sec. After an additional 15 days of curing within the permeameter and then one day of permeation, corresponding to a sample age of 45 days, the untreated sample displayed a hydraulic conductivity of 3.1×10^{-11} cm/sec. The measured hydraulic conductivity of the treated sample, at similar ages of 40 to 45 days, was 68 times less than the measured hydraulic conductivity of the untreated sample.

The test samples were reported to be from the client-specified designations herein. The test results are indicative of only the specimens that were actually tested. The test results presented are based upon accepted industry practice as well as the test method(s) listed. Ardaman & Associates, Inc. neither accepts responsibility for, nor makes claims to the final use and purpose of the test results.

Please contact us if you have any questions about the test results or require additional information.

Very truly yours,
ARDAMAN & ASSOCIATES, INC.


Thomas S. Ingraham, P.E.
Laboratory Director
Florida License No. 31987

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
CONCRETE CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: PENETRON USA, Inc.
PROJECT: Comparison Testing
FILE NO.: 14-13-0133
DATE SAMPLE RECEIVED: 11/18/14 SET UP: 11/19/14
DATE REPORTED: 01/19/15 REVISED: 02/12/15
INCOMING LABORATORY SAMPLE NO.: CF-1 AMEC UNTREATED PLANT TEST
LABORATORY IDENTIFICATION NO.: 140133/Untreated
SAMPLE DESCRIPTION: Concrete
DATE POURED: 10/24/14 AGE WHEN TESTED: 26 Days

ASTM D5084 TEST METHOD:
☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☒ D - Constant Rate of Flow
☐ F - Constant Volume; Falling Head - Rising Tailwater
PERMEANT: ☒ Deaired Tap Water ☐ Other
Gs: 2.70 ☒ Assumed ☐ Measured
B-factor: 80 % ☒ Beginning of Test; ☐ End of Test
 $\Delta\sigma_c$ (lb/in²): 9

SPECIMEN PREPARATION			
Type	Diameter (inch)	Diameter Trimmed	
<input type="checkbox"/> Undisturbed Sample		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Drive Cylinder		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Rock Core		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Compacted	<input type="checkbox"/> Tamped Uniform Lifts:		No. of Lifts
	<input type="checkbox"/> Kneading:		No. of Lifts Spring lb. Blows per Lift
<input checked="" type="checkbox"/> Other	4" Diameter by 8" Long Field Molded Cylinders		

Initial Conditions				Test Conditions						Final Conditions					Hydraulic Conductivity							
H (cm)	D (cm)	V _o (cm ³)	WDS (grams)	w _c (%)	V _d (lb/ft ³)	S (%)	Date Permeation Started	Test Method	Cell	Inflow	Outflow	i _{avg}	ΣQ (cm ³)	Σt _r (hours)	H (cm)	ΔV/V _o (%)	w _c (%)	V _d (lb/ft ³)	S (%)	k ₂₀ (cm/sec)		
17.33	10.27	1,436.2	3,084.6	7.4	134.1	78	11/25/14	A	190	169.5	150.0	80	3.5	28.6							4.1x10 ⁻⁹	
									190	168.9	150.0	77	7.1	94.6								2.6x10 ⁻⁹
									190	170.7	150.0	84	9.4	143.3								2.3x10 ⁻⁹
							12/01/14	D	190	169.0	148.2	84	10.3	161.0							2.2x10 ⁻⁹	
									190	161.5	144.2	70	11.0	185.4								1.7x10 ⁻⁹
							12/03/14	A	190	169.2	148.2	85	11.1	188.0	17.33	0.0	9.0	134.1	94		2.1x10 ⁻⁹	
COMMENTS: Sample maintained at as-received diameter. Ends trimmed square and to length. Back-pressure saturation was started on the sample 26 days after it had been molded, permeation was started 6 days later (32 days) and terminated after 8 days of flow (40 days).																						
The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.																						
Where: H = Specimen height; D = Specimen diameter; V _o = Initial volume; WDS = Dry mass; w _c = Water content (ASTM D2216); V _d = Dry density; S = Saturation; i _{avg} = Average hydraulic gradient; ΣQ = Cumulative flow volume; Σt _r = Cumulative flow duration; ΔV/V _o = Volume change ("−" denotes consolidation, "+ " denotes swelling); k ₂₀ = Saturated hydraulic conductivity at 20°C; and G _s = Specific gravity.																						

Checked By: TM Date: 02/12/15
Form SR-2:Rev. 2

ARDAMAN & ASSOCIATES, INC. GEOTECHNICAL TESTING LABORATORY
CONCRETE CORE HYDRAULIC CONDUCTIVITY TEST REPORT

CLIENT: PENETRON USA, Inc.
PROJECT: Comparison Testing
FILE NO.: 14-13-0133
DATE SAMPLE RECEIVED: 11/18/14 SET UP: 11/19/14
DATE REPORTED: 01/19/15 REVISED: 02/12/15
INCOMING LABORATORY SAMPLE NO.: CF-2 AMEC TREATED FIELD TEST
LABORATORY IDENTIFICATION NO.: 140133/Treated
SAMPLE DESCRIPTION: Concrete
DATE POURED: 10/24/14 AGE WHEN TESTED: 26 Days

ASTM D5084 TEST METHOD:
☒ A - Constant Head
☐ B - Falling Head; Constant Tailwater
☐ C - Falling Head; Rising Tailwater
☒ D - Constant Rate of Flow
☐ F - Constant Volume; Falling Head - Rising Tailwater

PERMEANT: ☒ Deaired Tap Water ☐ Other _____
Gs: 2.70 ☒ Assumed ☐ Measured
B-factor: 90 % ☒ Beginning of Test; ☐ End of Test
 $\Delta\sigma_c$ (lb/in²): 9

SPECIMEN PREPARATION			
Type	Diameter (inch)	Diameter Trimmed	
<input type="checkbox"/> Undisturbed Sample		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Drive Cylinder		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Rock Core		<input type="checkbox"/> Yes	<input type="checkbox"/> No
<input type="checkbox"/> Compacted		<input type="checkbox"/> Tamped Uniform Lifts: No. of Lifts _____	
		<input type="checkbox"/> Kneading: No. of Lifts _____ Spring _____ lb.	
<input checked="" type="checkbox"/> Other	4" Diameter by 8" Long Field Molded Cylinders		

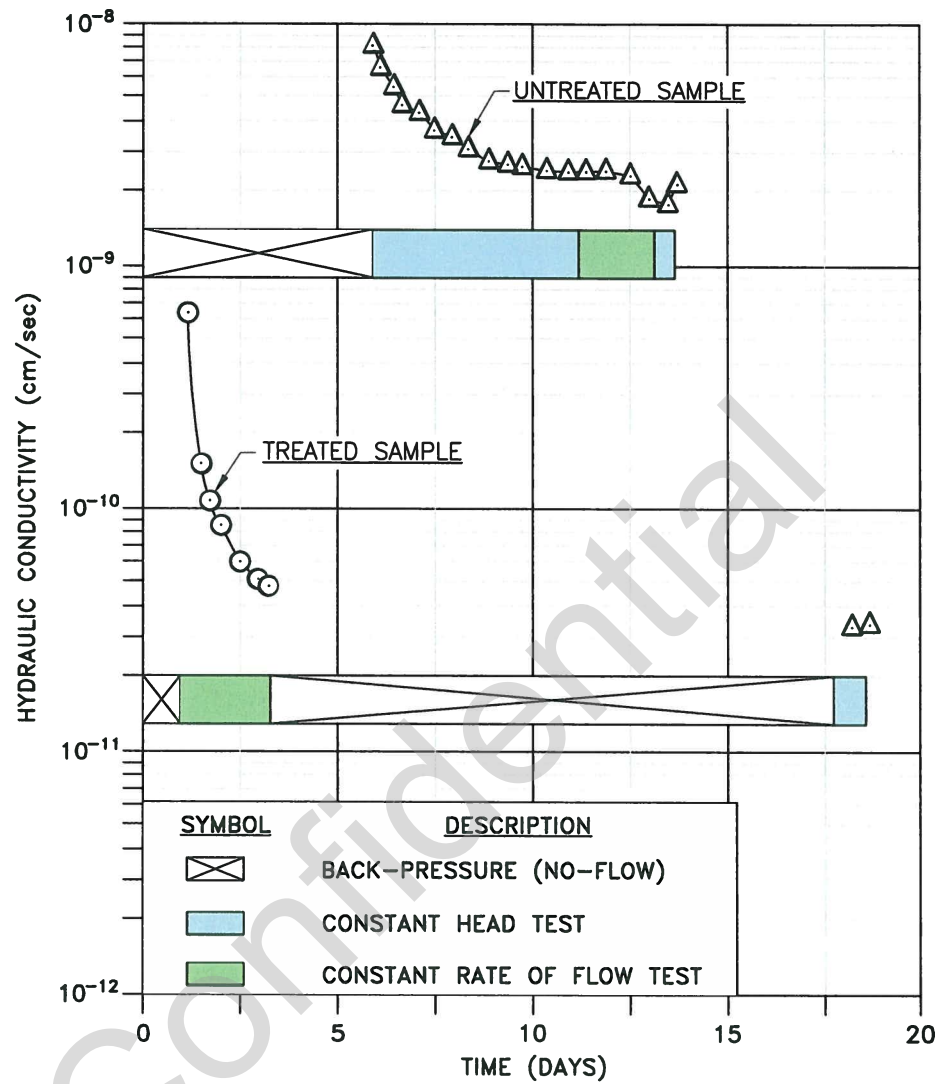
Initial Conditions					Test Conditions						Final Conditions					Hydraulic Conductivity k ₂₀ (cm/sec)			
H (cm)	D (cm)	V _o (cm ³)	WDS (grams)	w _c (%)	S (%)	Date Permeation Started	Test Method	Stresses (lb/in ²)			i _{avg}	ΣQ (cm ³)	Σt _r (hours)	H (cm)	ΔV/V _o (%)		w _c (%)	γ _d (lb/ft ³)	S (%)
17.32	10.27	1,434.7	3,016.8	9.2	87	11/20/14	D	Cell	Inflow	Outflow	1,186	0.71	23.7						
					600			568.0	275.9	2,273									
						12/07/14	A	190	171.0	99.0	292	1.76	78.3	17.32	0.0	9.7	131.3	93	

COMMENTS: Sample maintained at as-received diameter. Ends trimmed square and to length. Back-pressure saturation was started on the sample 26 days after it had been molded, permeation was started 1 day later (27 days) and terminated after about 2 days of flow (29 days). The sample was maintained in the permeameter under backpressure for 15 days, and the hydraulic conductivity measured again using the constant head test method over a period of 1 day (45 days).

The test data and all associated project information presented hereon shall be held in confidence and disclosed to other parties only with the authorization of the Client. Physical and electronic records of each project are kept for a minimum of 7 years. Test samples are kept in storage for at least 10 working days after mailing of the test report, prior to being discarded, unless a longer storage period is requested in writing and accepted by Ardaman & Associates, Inc.

Where: H = Specimen height; D = Specimen diameter; V_o = Initial volume; WDS = Dry mass; w_c = Water content (ASTM D2216); γ_d = Dry density; S = Saturation; i_{avg} = Average hydraulic gradient; ΣQ = Cumulative flow volume; Σt_r = Cumulative flow duration; ΔV/V_o = Volume change ("+" denotes consolidation, "-" denotes swelling); k₂₀ = Saturated hydraulic conductivity at 20°C; and G_s = Specific gravity.

Checked By: My Date: 02/12/15



HYDRAULIC CONDUCTIVITY VS. TIME ON TREATED AND UNTREATED CONCRETE



PROJ. NUMBER: _____
LAB. NUMBER: 104017
MIX STRENGTH: _____ DESIGN STRENGTH: 5000

GENERAL INFORMATION AND SAMPLING DATA

SPEC. MIN. COMP. STRENGTH _____ PSI _____ @ DAYS
MIX IDENTIFICATION NO: _____
MIX DESCRIPTION: 5000 Pcs 3B WC-505g NRWR
MIX TYPE: NORMAL WT. X LIGHTWEIGHT _____
CONCRETE SUPPLIER: Supermix
TIME CONCRETE BATCHED: _____
TIME SAMPLED: _____
SIZE OF LOAD:/SAMPLED AT: _____ C. Y.
TRUCK ARRIVAL TIME: _____ FINISH TIME: _____
TRUCK NUMBER: 3461
DISCHARGE HOSE _____ OTHER _____

100-6/08

D 504B UNTREATED

FIELD AND LABORATORY TEST DATA

[illegible]

West Palm Beach, FL 33407
+1 (561) 242-7713 Fax +1 (561) 242-5591



CLIENT: _____

PROJ. NUMBER: _____

PROJECT: _____

LAB. NUMBER: 104013

CONTRACTOR: _____

MIX STRENGTH: _____ DESIGN STRENGTH: 5000

DATE SAMPLED: 10/24/14

SPEC. MIN. COMP. STRENGTH _____ PSI _____ @ DAYS

SAMPLED BY: Humberto Naranjo

MIX IDENTIFICATION NO: _____

NO. OF CYLINDERS MOLDED: 3 (4 x 8")

MIX DESCRIPTION: 5000 Pkg 3B WC-505g NRH

DATE CYLINDERS RECEIVED: _____

MIX TYPE: NORMAL WT. X LIGHTWEIGHT

EXTRA WATER ADDED AT JOB SITE?YES__NO__

CONCRETE SUPPLIER: Supermix

IF YES, _____ GALLONS TO _____ C. Y.

TIME CONCRETE BATCHED: 7:10

EXTRA WATER AUTHORIZED BY: _____

TIME SAMPLED: 7:30

DELIVERY TICKET NUMBER: 5

SIZE OF LOAD: /SAMPLED AT: 10/3 C. Y.

APPROVED MIX: YES X NO

TRUCK ARRIVAL TIME: 7:25 FINISH TIME: 8:20

DRUM ROTATIONS: 186

TRUCK NUMBER: 3461

SAMPLED FROM: CHUTE X HOPPER _____

DISCHARGE HOSE _____ OTHER _____

DESCRIPTION AND LOCATION OF CONCRETE PLACEMENT:

GENERAL INFORMATION AND SAMPLING DATA

100-6/08

D 5048 TREATED

[illegible]



Chris Chen
 Penetron USA, Inc.
 45 Research Way, Suite 203
 East Setauket, NY 11733

Subject: Construction Materials Testing
 Penetron Admix® Mix Designs, ASTM C39 and DIN 1048:5 (EN 12390-8) Water
 Permeability Results
 PSI Project Number 08122128

Two concrete mix designs were batched on the same 4500 psi concrete mix with a 0.45 water/cement ratio. Mix 1P included the addition of Penetron Admix at the recommended dosage rate of 1% by weight of cement materials. Mix 2P was the control and did not include the Penetron Admix material.

Material	Source	Mix 1P Weight in lbs. (kg)	Mix 2P Weight in lbs.(kg)
Cement Type I	Essroc	564 (256)	564 (256)
#57 Limestone	Coolspring	1720 (780)	1720 (780)
Sand	Shelly Sand	1329 (603)	1329 (603)
Water	-	255 (116)	255 (116)
Air %	6%	0	0
Penetron Admix	Penetron USA	5.64 (2.56)	0
Total Batch Weight	-	3873.64	3868

Concrete samples were cast at the time of batching. The compressive strength was tested at 7 days and 28 days. Following is a summary of the ASTM C39 compressive strength test results at 7 and 28 days for Mix 1P and Mix 2P.

Sample	7-Day Compressive Strength (psi)	28-Day Compressive Strength (psi)
Mix 1P (Penetron Admix Treated)	5,595	6,300
Mix 2P (Control)	5,020	5,895
Percent Increase Treated over Control	11.5%	6.9%

When curing was complete, the concrete samples were exposed to a driving pressure of 72.5 psi (0.5 N/mm²) in accordance with DIN 1048 Part 5M Water Permeability for a period of 72 hours. The samples were removed from the permeability apparatus and each was split down its center. The amount of water penetration was immediately marked and measured. The maximum depth of penetration and the average depth of penetration are given in the following table and chart.

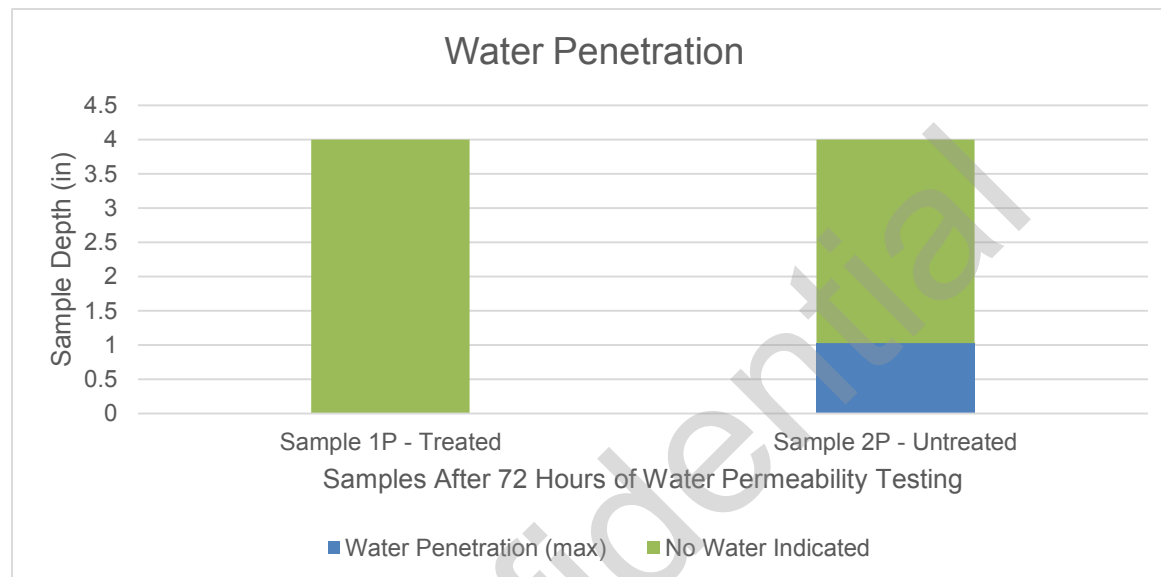
Sample	Maximum Water Penetration Depth in inches (mm)	Average Water Penetration Depth in Inches (mm)
1P (Penetron Admix Treated)	No Water Penetration	No Water Penetration
2P (Control)	1.026" (26 mm)	0.695" (18 mm)

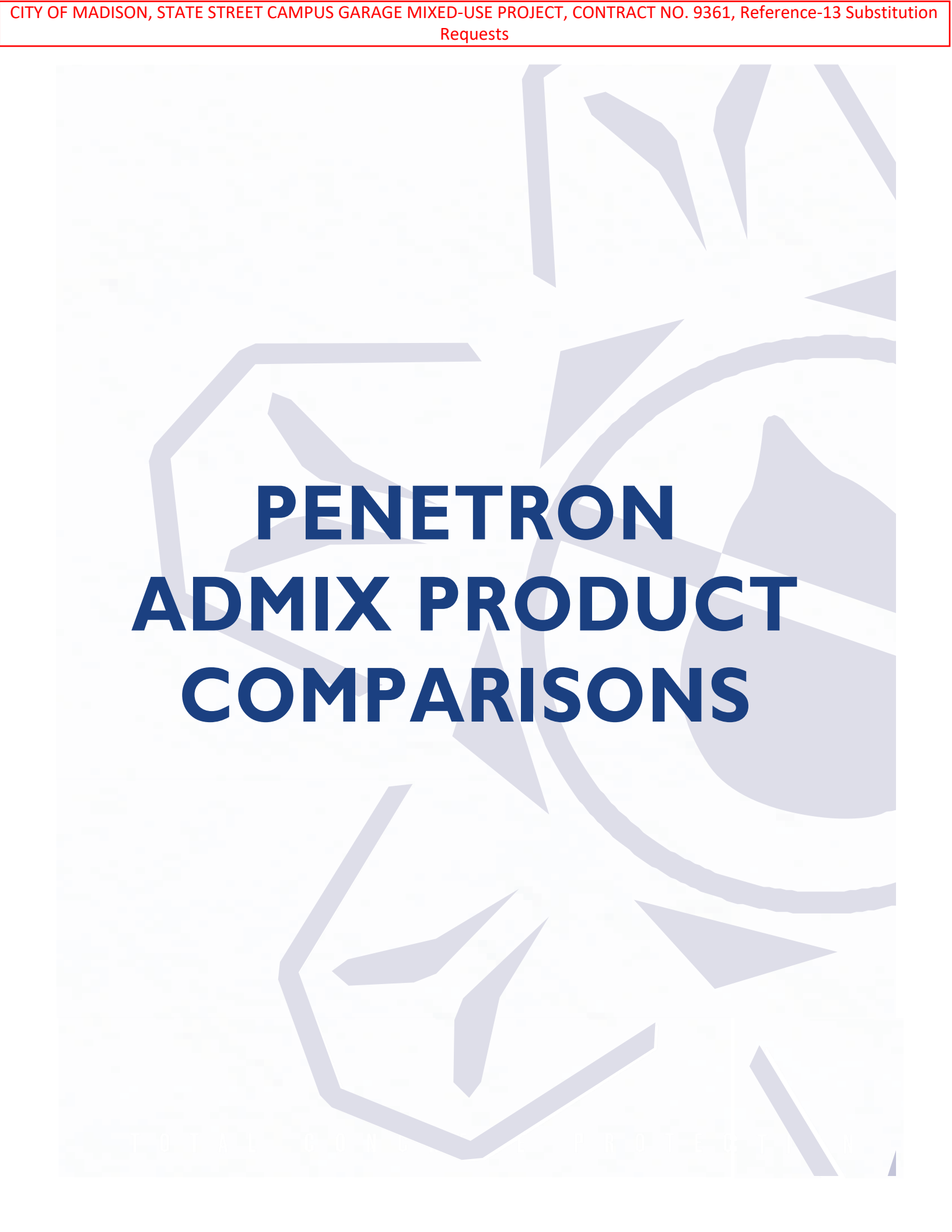


Conclusions:

Based on the ASTM C39 and DIN 1048:5 Water Permeability testing performed, we note the following:

- Penetron Admix treated samples exhibited an increase in compressive strength compared to the control.
- The use of Penetron Admix eliminated all visible water penetration into the treated sample.







PENETRON ADMIX PRODUCT COMPARISONS

TOTAL CONCRETE PROTECTION



PENETRON ADMIX SB / XYPEX ADMIX COMPARISON



	PENETRON ADMIX SB	XYPEX ADMIX
PACKAGING	<p>6 x 6.6lb Soluble Bags per Plastic Pail</p> 	<p>Soluble Bags in Cardboard Box & Metal Buckets for Xypex C-1000</p> 
STORAGE	<ul style="list-style-type: none"> • Pails are stackable with structural integrity to not compress product which makes it hard and unusable. Less wastage. • Pails protect the product from the elements. Less wastage. • Free Buckets. 	<ul style="list-style-type: none"> • Stacked boxes crush causing product compression resulting in wastage. • Boxes susceptible to the elements and thus need to be protected from the elements to prevent wastage. • Metal buckets not as useful post product usage.
DOSAGE RATE	<p>One 6.6lb soluble bag per cubic yard of concrete (1% by weight of total cementing materials).</p>	<p>1 – 3% by weight of total cementing materials depending on type of admixture and application.</p>
PURCHASING & SUPPORT	<ul style="list-style-type: none"> • One crystalline admixture for all applications. • One size packaging and one dosage rate simplifies stock purchasing and pricing. • Penetron has warehouses across the country and distribute themselves, not through distributors. • Less mark-up because the middleman is cut out. • In-house technical and on-site support, not through a third party. 	<ul style="list-style-type: none"> • Multiple crystalline admixtures for different applications, complicating the specification process • Multiple dosage rates and packaging sizes, complicating stock purchasing and pricing • Xypex is mainly sold through distributors. Areas without distributors, Xypex sells directly to customers.
QUALITY CONTROL MEASURE	<p>Penetron Admix SB contains a non-staining, non-toxic green tracer visible in the bleed-water during placement, verifying that Penetron Admix SB was indeed added to the concrete. The green color dissipates as the bleed-water evaporates.</p>	<p>None</p>

PENETRON USA, INC.

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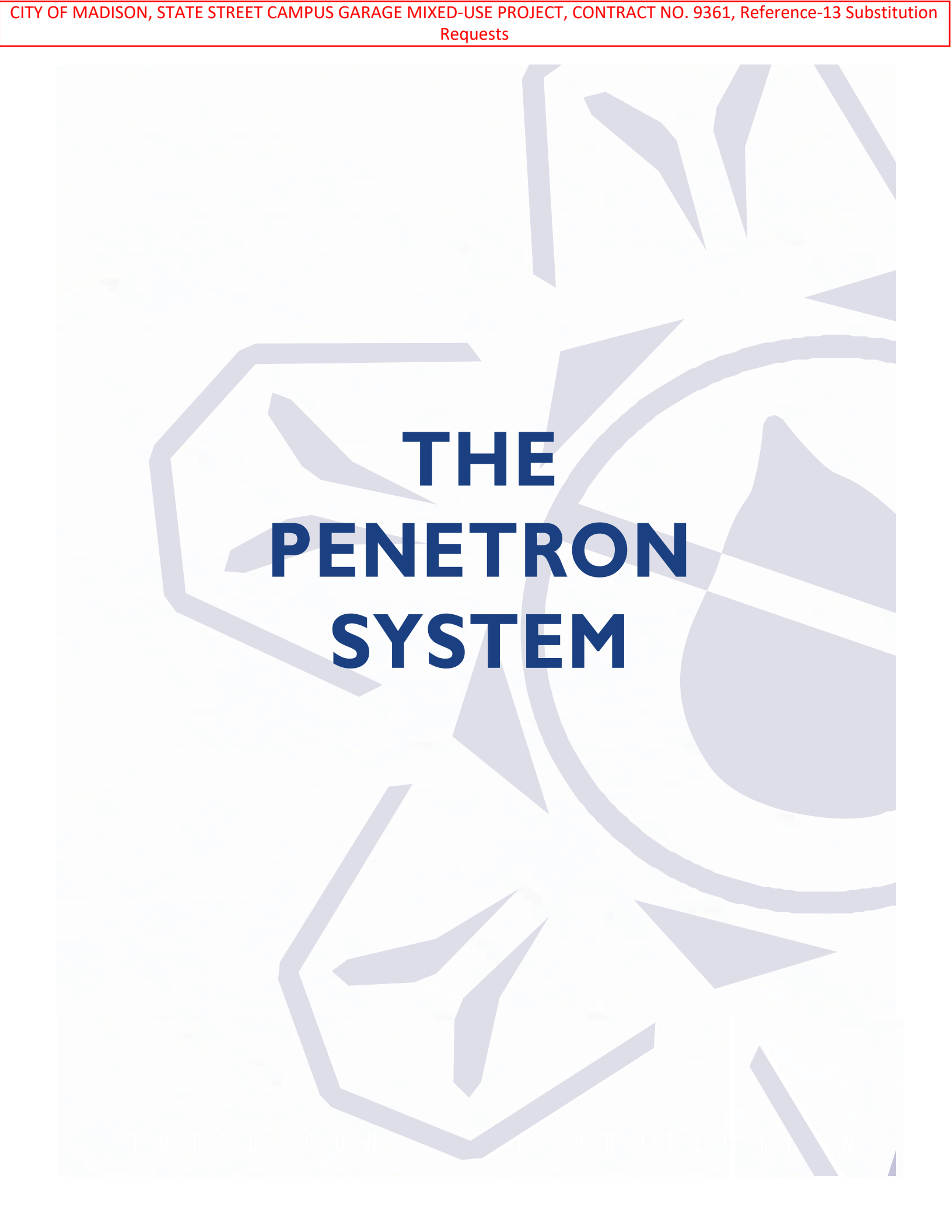


PENETRON ADMIX SB / KRYTON KIM COMPARISON

	PENETRON ADMIX SB	KIM
PACKAGING	6 x 6.6lb Soluble Bags per Plastic Pail 	11lb & 55lb Plastic Pails & Pulpable 
STORAGE	<ul style="list-style-type: none"> Pails are stackable with structural integrity to not compress product which makes it hard and unusable. Less wastage. Pails protect the product from the elements. Less wastage. 	<ul style="list-style-type: none"> Stacked bags cause product compression resulting in wastage. Bags susceptible to the elements and thus need to be protected from the elements to prevent wastage. Pails are stackable, less wastage. Pails protect the product from the elements. Less wastage.
DOSAGE RATE	One 6.6lb soluble bag per cubic yard of concrete (1% by weight of total cementing materials).	Vague dosage rates: Dose KIM up to a maximum of 13.5 lb/yd ³ in consultation with an authorized Kryton representative.
PURCHASING & SUPPORT	<ul style="list-style-type: none"> One crystalline admixture for all applications. One size packaging and one dosage rate simplifies stock purchasing and pricing. Penetron has warehouses across the country and distribute themselves, not through distributors. Less mark-up because the middleman is cut out. In-house technical and on-site support, not through a third party. 	<ul style="list-style-type: none"> Multiple packaging types & sizes, complicating stock purchasing and pricing. KIM is mainly sold through distributors and directly to customers depending on the project and location.
QUALITY CONTROL MEASURE	Penetron Admix SB contains a non-staining, non-toxic green tracer visible in the bleed-water during placement, verifying that Penetron Admix SB was indeed added to the concrete. <i>(Color dissipates as bleed-water evaporates)</i>	None

PENETRON USA, INC.

45 Research Way, Suite 203, East Setauket, NY 11733
 (631) 941-9700 • info@penetron.com • penetron.com



THE PENETRON SYSTEM

TOTAL CONCRETE PROTECTION



THE PENETRON SYSTEM

Performance & Packaging

Thank you for selecting PENETRON ADMIX as your preferred crystalline waterproofing admixture. PENETRON ADMIX SB has been designed to improve your concrete by lowering its permeability and imparting [self-healing](#) abilities to shutdown leaking cracks.

It has also been package formatted to make it simple and easy for concrete suppliers to add to their concrete with a high level of quality control.

Tracing Agent

PENETRON ADMIX is the only crystalline admixture in the concrete industry to contain a non-toxic, non-staining tracing agent. The [tracing agent](#) can be seen during the placement of concrete (florescent bleed water) and aids as an indicator that PENETRON ADMIX was in fact added to the concrete.

Good Concrete Practice

However, as great a job as concrete suppliers can do in supplying quality concrete to projects, concrete is still designed, produced, formed and placed by different project entities and care must be taken among them to ensure a well-designed concrete is placed, protected, and cured as per [ACI 318-05 Building Code Requirements for Structural Concrete](#) to ensure optimum results.

A System of Protection

When [PENETRON ADMIX](#) treated concrete is used, the concrete itself will be waterproof and durable. There are however various other areas which are subject to leaks and deterioration, for example construction joints, tie-holes, honeycombing, cracks etc.

Using the Topical Products in the Penetron Range to solve these issues will ensure the structure is waterproof and protected against deterioration with one single system and one point of contact should there be a need for support.

In order to realize the full benefit of The Penetron System, it is recommended that the supportive products be used as necessary to form a complete system of protection.

PENEBAR SW55 – [PENEBAR SW55](#) is a waterstop developed to stop water penetration through non-moving construction joints (horizontal/vertical) and around penetrations by expanding in a controlled fashion when exposed to water, forming a positive seal inside the concrete. PNEBAR SW55 can replace the more passive tied in PVC waterstop systems, eliminating welding irons, split forming and special shapes.

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PENECRETE MORTAR – [PENECRETE MORTAR](#) is a crystalline waterproofing repair mortar used to repair tie-holes, cracks and honeycombing. Repairs can be done from either the positive or the negative side of the concrete element.

PENETRON – [PENETRON](#) is a surface-applied, integral crystalline waterproofing material which waterproofs and protects the concrete matrix from within.

PENETRON can be used wherever a secondary coating of concentrated crystalline materials is desired to support the PENETRON ADMIX system.

PENEPLUG – [PENEPLUG](#) is a rapid setting, integral crystalline cementitious waterstop designed to stop active water leaks and moisture ingress.

Technical Support Services

Please share all the relevant construction documents with Penetron USA. A Penetron Representative will provide a complimentary review of the construction documents to ensure that the complete Penetron System is being utilized to minimize risks and maximize protection for the project.

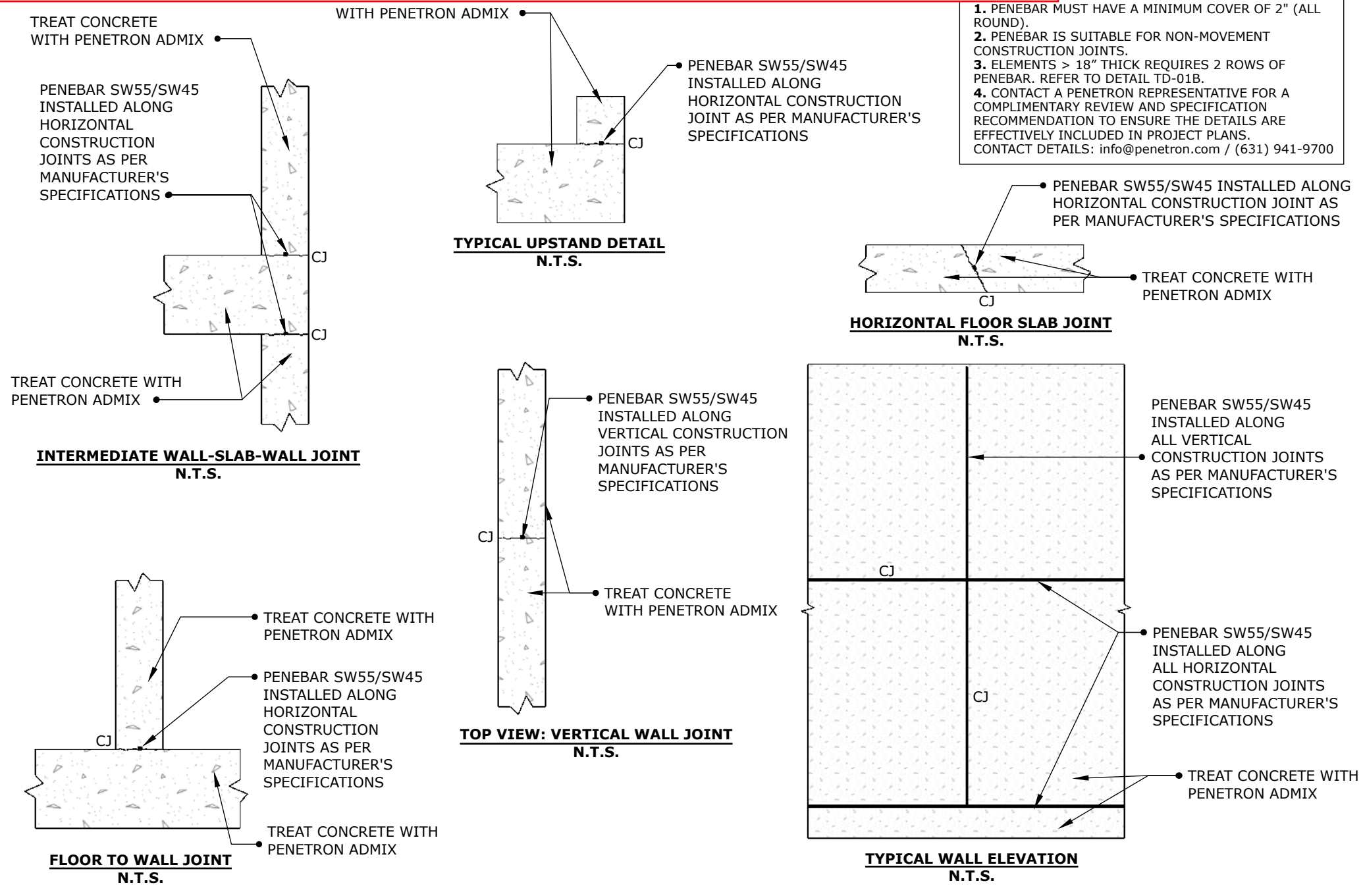
Regards,

The Penetron USA Technical Team

PENETRON USA, INC.

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Requests

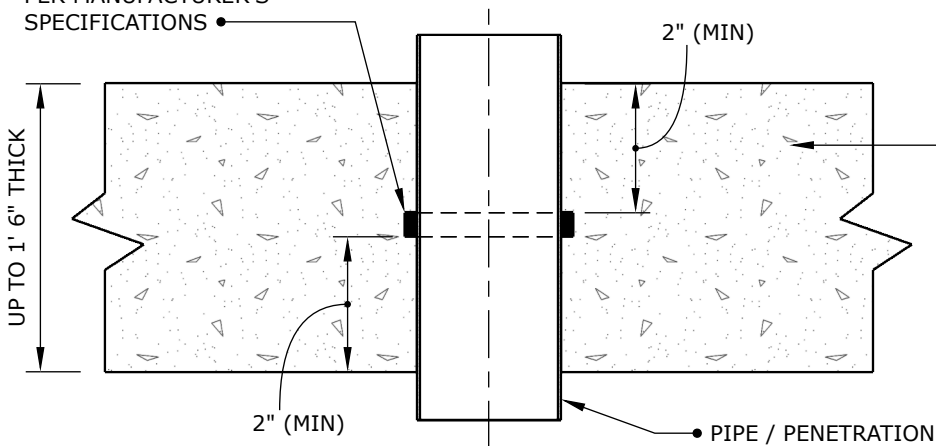


PENETRON USA
TYPICAL CONSTRUCTION DETAILS
CONSTRUCTION JOINT OVERVIEW

REVISION NUMBER	2
REVISION DATE	10/25/2022
DRAWN BY	C GOUWS
DRAWING NUMBER	TD-01

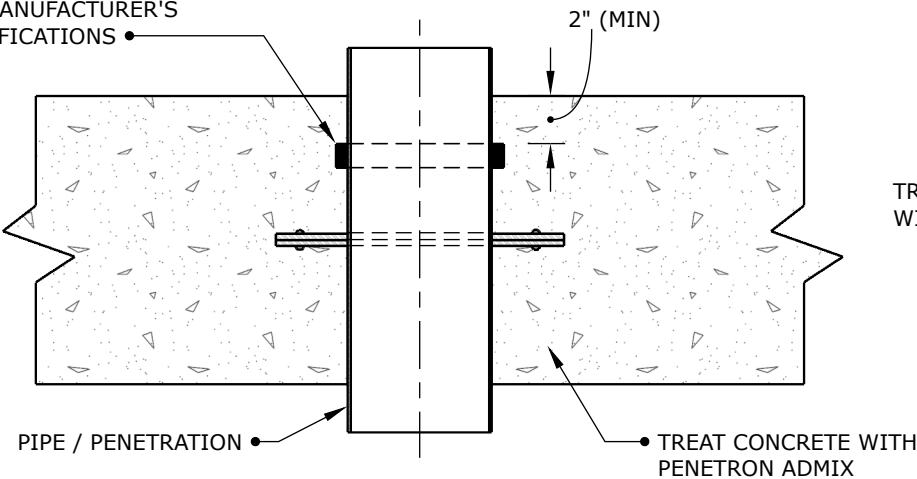
Requests

PENEBAR SW55/SW45
INSTALLED AROUND ALL
PIPES/PENETRATIONS AS
PER MANUFACTURER'S
SPECIFICATIONS



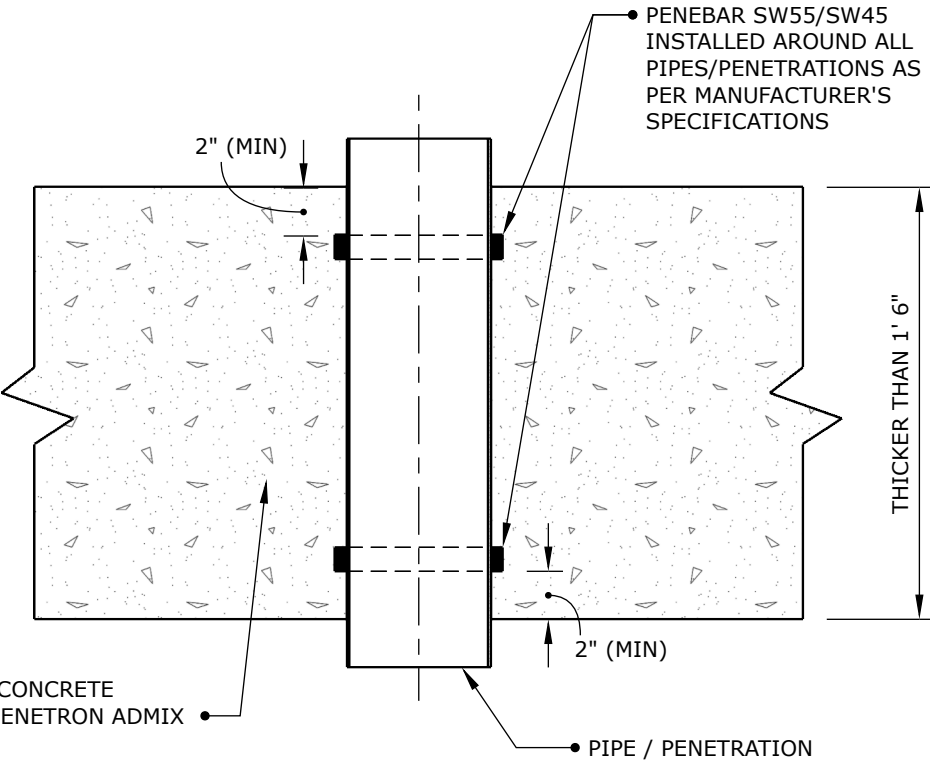
SECTION: CAST-IN PIPE/PENETRATION DETAIL
SLAB/WALL < 1' 6" THICK
N.T.S.

PENEBAR SW55/SW45
INSTALLED AROUND ALL
PIPES/PENETRATIONS AS
PER MANUFACTURER'S
SPECIFICATIONS



SECTION: CAST-IN PIPE WITH FLANGE DETAIL
N.T.S.

- NOTES:**
1. PENEBAR MUST HAVE A MINIMUM COVER OF 2" (ALL ROUND).
 2. TWO BEADS OF PENEBAR, ONE ON EACH SIDE, IS REQUIRED IF THE SLAB/WALL IS THICKER THAN 1' 6".
 3. CONTACT A PENETRON REPRESENTATIVE FOR A COMPLIMENTARY REVIEW AND SPECIFICATION RECOMMENDATION TO ENSURE THE DETAILS ARE EFFECTIVELY INCLUDED IN PROJECT PLANS.
CONTACT DETAILS: info@penetron.com / (631) 941-9700

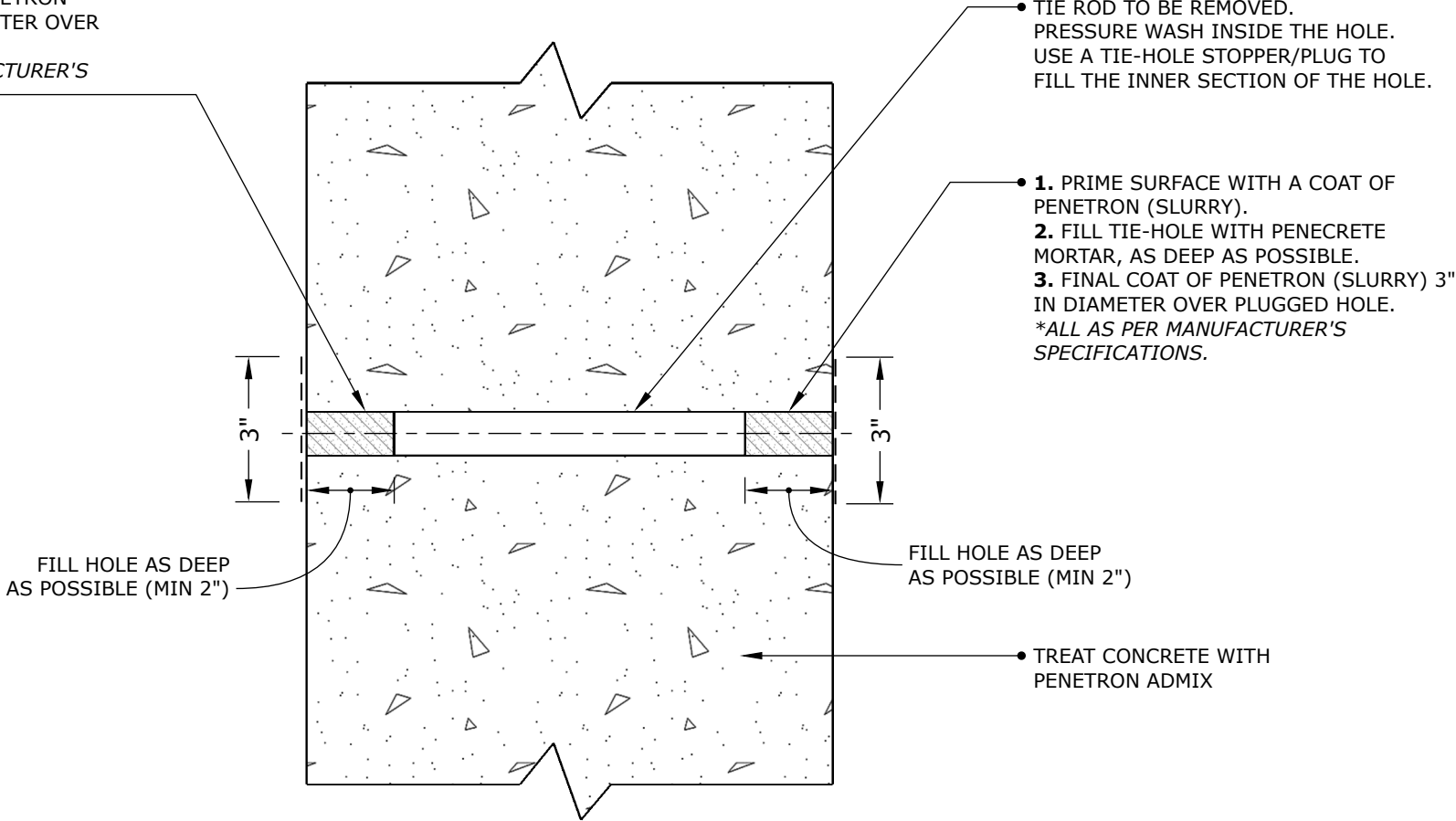


SECTION: CAST-IN PIPE/PENETRATION DETAIL
SLAB/WALL > 1' 6" THICK
N.T.S.

REVISION NUMBER	1
REVISION DATE	12/03/2019
DRAWN BY	C GOUWS
DRAWING NUMBER	TD-02

NOTE:
1. TIE-HOLE REPAIR MUST BE DONE ON BOTH SIDES OF THE WALL.
2. CONTACT A PENETRON REPRESENTATIVE FOR A COMPLIMENTARY REVIEW AND SPECIFICATION RECOMMENDATION TO ENSURE THE DETAILS ARE EFFECTIVELY INCLUDED IN PROJECT PLANS.
CONTACT DETAILS: info@penetron.com / (631) 941-9700

- 1. PRIME SURFACE WITH A COAT OF PENETRON (SLURRY).
 - 2. FILL TIE-HOLE WITH PENECRETE MORTAR, AS DEEP AS POSSIBLE.
 - 3. FINAL COAT OF PENETRON (SLURRY) 3" IN DIAMETER OVER PLUGGED HOLE.
- *ALL AS PER MANUFACTURER'S SPECIFICATIONS.*



SECTION: TIE-HOLE REPAIR DETAIL
N.T.S.

REVISION NUMBER	1
REVISION DATE	12/03/2019
DRAWN BY	C GOUWS
DRAWING NUMBER	TD-04



PENETRON ADMIX SAMPLE WARRANTY

TOTAL CONSTRUCTION PROTECTION



PENETRON ADMIX FIVE YEAR LIMITED WARRANTY

1. Warranty

The MANUFACTURER, Penetron USA, Inc., hereby warrants to the OWNER, subject to the included terms and conditions, that the PENETRON ADMIX Waterproofing System will perform according to the MANUFACTURER'S written specification. Penetron USA, Inc. warrants that concrete treated with PENETRON ADMIX, and where applicable, the PENETRON Waterstop, will remain waterproof for five (5) years when applied in accordance with MANUFACTURER'S written instructions and utilizing all the necessary Penetron products for a complete system. The Warranty set forth herein shall not cover, and MANUFACTURER makes no Warranty with respect to, items that are not part of the PENETRON ADMIX Waterproofing System.

2. Exclusive Remedy

If PENETRON ADMIX does not perform to Warranty, Penetron USA, Inc. will supply Penetron repair materials up to the amount originally applied to the work, or at Penetron USA, Inc.'s sole discretion, refund up to an amount equivalent to the original Penetron USA, Inc. invoice for Penetron products, which refund shall be the exclusive remedy and the limit of Penetron USA, Inc.'s liability. The OWNER agrees to accept the remedy provided herein as OWNER's exclusive remedy and as the limit of the MANUFACTURER's liability regardless of the OWNER'S legal theory, including tort, contract and strict liability, and regardless of whether resulting from, or arising out of, or in connection with, any failure of the PENETRON ADMIX Waterproofing System.

3. Limitation of Liability

The remedy stated above constitutes the exclusive remedy and Penetron USA, Inc.'s sole liability in connection with claims arising out of the use and/or purchase of the product. Penetron USA, Inc. shall not be liable for any sum exceeding the purchase price of the product claimed to be other than warranted. In no event, to the extent permitted by law, shall Penetron USA, Inc. be liable for incidental or consequential damages.

4. Exclusions to Warranty

A. This Warranty does not extend to, and the MANUFACTURER shall not be responsible for Product System damage due to:

1. Natural disasters or unusual conditions, such as, but not limited to, floods, lightning, hurricanes, hail, windstorms, tornadoes, earthquakes, or explosions.
2. Structural failures such as settling, shifting, distortion, and inadequate or faulty structural design.
3. Alteration of area or structure.
4. Falling objects or external contaminants from environmental fallout, chemical cleaning and general erosion.
5. Abnormal traffic, or changes in usage that could adversely affect the PENETRON ADMIX Waterproofing System.
6. Poor concrete placing and forming practices that do not confirm to recognized ACI guidelines.

B. The OWNER must notify MANUFACTURER in writing of any and all proposed repairs to, modification of, alteration, or addition to the PENETRON ADMIX Waterproofing System occurring after the effective date of this Warranty. Drawings and plans showing any such repair, modification, alteration

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or addition must be submitted to MANUFACTURER. No repair, modification or alteration of, or addition to, the PENETRON ADMIX Waterproofing System shall be undertaken without the prior written consent of the MANUFACTURER. Failure to obtain prior written consent shall render this Warranty void.

PENETRON USA, INC. HEREBY DISCLAIMS ANY OTHER WARRANTY, EXPRESSED OR IMPLIED, INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. PENETRON USA, INC. DISCLAIMS ANY LIABILITY FOR ANY CONSEQUENTIAL OR SPECIAL DAMAGES, INCLUDING LOSS OF USE, LOST PROFITS, OR ANY OTHER DAMAGES OF ANY NATURE WHATSOEVER.

5. Notification of Claim

Written notification of any claim must be sent to Penetron USA, Inc. The notification must contain the exact location of the site and application area and statement as to how the product failed to meet the Warranty. The statement must also indicate the date of effective completion of the job, and the name and contact details of the applicator/installer. Penetron USA, Inc. has the right to inspect the area stated in the claim. Any claim shall be waived unless OWNER has given Penetron USA, Inc. written notice thereof thirty (30) days following occurrence of damages, by certified or registered mail addressed to Penetron USA, Inc., 45 Research Way, Suite 203, East Setauket, NY 11733.

Please also include copies of product invoices issued by Penetron USA, Inc. or approved distributor.

6. Governing Law

This Warranty shall be governed and construed in accordance with the laws of the State of New York, excluding that State's choice-of-law principles, and all claims relating to or arising out of this Warranty, or the breach thereof, whether sounding in contract, tort or otherwise, shall likewise be governed by the laws of the State of New York, excluding that State's choice-of-law principles, and all parties consent to venue in a court of competent jurisdiction located in Suffolk County, New York, and agree that no other court shall be an appropriate venue for any disputes arising out of the relationship between MANUFACTURER and the OWNER.

This Warranty is null and void if payment for materials supplied by MANUFACTURER is not made within prearranged, authorized terms.

As to Owner: _____

As to Distributor: _____

Warranty No. _____

Issue Date: _____

Authorization Given By: _____



PROJECT INFORMATION FORM FOR PENETRON ADMIX

Project Name: _____

Project Address: _____

Project Description: _____

Ready-mix Supplier Signature Date

General Contractor Signature Date

Forming Contractor Signature Date

Penetron Representative Signature Date

Consulting Engineer Signature Date

PENETRON ADMIX added: _____ On Site _____ Batch Plant
_____ % of cementitious

Concrete Pour Completed: Date: _____

Project Completion: Date: _____

Pour History: (See attached Documentation Sheet or describe below)

Attach copies of batch tickets for verification of pour date and quantities. Unless otherwise specified, Warranty issued to OWNER for application indicated and approved. Form must be completed in full and submitted within 30 days of last pour of PENETRON ADMIX.

PRODUCT TERMS AND CONDITIONS

CONTRAFLAM® / SWISSFLAM® / CONTRAFLAM® STRUCTURE / KERALITE®-ULTRA

1. General: This document applies to CONTRAFLAM®, SWISSFLAM®, CONTRAFLAM® STRUCTURE, KERALITE®-ULTRA of all types and fire ratings including their combination in insulated glass units. When fire-resistant glass is used, it is assumed that the buyer will incorporate abovementioned glass into glazing systems approved by a valid and independent institution, e.g. UL/Underwriters Laboratories. Copies of authorized listing and specifications, as well as instructions for handling and installation are available online at vetrotechusa.com, or by calling 1-888-803-9533.

2. Limited 5 Year Warranty: Vetrotech Saint-Gobain warrants that its CONTRAFLAM®, SWISSFLAM®, CONTRAFLAM® STRUCTURE, KERALITE®-ULTRA fire rated glazing to be free of substantial obstruction of vision from dust or other foreign substances due to defective materials or workmanship for a period of five years from the date of shipment. When assembled to an Insulated Glass Unit (IGU), Vetrotech warrants only that its CONTRAFLAM®-IGU, SWISSFLAM®-IGU, CONTRAFLAM® STRUCTURE-IGU, KERALITE®-ULTRA-IGU will be free of substantial obstruction of vision from dust, film formation or moisture accumulation between glass lites resulting from seal failure due to defective materials or workmanship for a period of ten years from the date of shipment.

CONTRAFLAM®, SWISSFLAM®, CONTRAFLAM® STRUCTURE, KERALITE®-ULTRA is an engineered specialty fire resistant glazing material. Certain optical and visual faults are inherent to the production process. These characteristics may be evaluated according to the manufacturer's quality standards, but do not impair the transparency or affect the performance of the glass in case of fire, and shall not be considered cause for rejection.

This warranty shall not apply if the failure is caused by acts of God, intervening cause, mishandling, misuse, abuse, improper installation, installation by unqualified glaziers or by any other cause whatsoever not within our exclusive control, and shall not apply unless the failure occurs within five or ten years after the date of shipment. The obligation of this warranty is to replace the defective glass, F.O.B. manufacturer's warehouse, but in no event shall Vetrotech Saint-Gobain be responsible to cover any cost of removal, installation or reinstallation, loss of

use, incidentals or any consequential cost associated with defective product. Any glass replaced under this warranty is limited to the original warranty period and shall not be extended beyond the original five or ten years.

Vetrotech Saint-Gobain makes no warranty of merchantability nor that the product is fit for any particular purpose for use and no other warranty than the abovementioned warranty of any kind, expressed or implied.

3. Transportation and Storage Conditions: Transport and storage of CONTRAFLAM®, SWISSFLAM®, CONTRAFLAM® STRUCTURE, KERALITE®-ULTRA products must be in a vertical and dry state and at temperatures above 14°F (-10°C) and below 113°F (45°C). Extreme climatic conditions and exposure to direct sunlight or other heat sources must be avoided. When glass is installed in a not temperature controlled building, above storage conditions apply likewise.

4. Handling and Installation Requirements: The product warranty is subject to CONTRAFLAM®, SWISSFLAM®, CONTRAFLAM® STRUCTURE, KERALITE®-ULTRA glass having been handled and installed in accordance with published instructions. It is essential that glazing contractors or other handlers or installers be familiar with such instructions. All subsequent product processing, additions or alterations not authorized and monitored by Vetrotech Saint-Gobain are specifically prohibited. If the products are used in fire-rated applications not covered by Vetrotech Saint-Gobain product specifications, all warranty is null and void.


All notes and instructions on labels must be respected. If adhesives or sealing materials are applied during installation, compatibility must be verified and confirmed with Vetrotech Saint-Gobain beforehand or all warranty is null and void.

5. Product Use: CONTRAFLAM®, SWISSFLAM®, CONTRAFLAM® STRUCTURE, KERALITE®-ULTRA products must be used in temperature controlled environments ensuring a maximum glass temperature range between 14°F (-10°C) and 113°F (45°C). All circumstances resulting into heat build-up of the glass caused by window blinds, curtains, etc. must be avoided.

CITY OF MADISON
FACILITIES MANAGEMENT SPECIFICATION
SEPT. 29, 2023

3.4. SUBSTITUTION REQUEST FORM

For Pre-bid Substitution Requests all text boxes on this form are required information for a complete request.



Substitution Request

Today's Date: 10/25/2023

Project Title: State Street Campus Garage Mixed Use Project

Project Number: 720448 Contract Number:

By completing and submitting this form for review the General Contractor affirms that all of the following statements are correct:

- The General Contractor affirms that this request is in compliance with the requirements described in *Specification 01 25 13 Product Substitution Procedures*.
- The function, appearance, and quality of the proposed substitution are equal or superior to the specified item.
- The proposed substitution does not affect dimensions shown on the drawings.
- The proposed substitution will have no adverse affects on other trades, the construction schedule, or any specified warranty requirements.
- Maintenance and service parts will be locally available for the proposed substitution. (GC shall provide supporting documentation in the attachments section below.)
- The General Contractor shall be responsible for any and all costs associated with this substitution request if approved. This includes but is not limited to fees for building design, engineering design fees, detailing fees, plan review fees, construction costs, and inspection fees.

GC Substitution Request:

General Title:	Common Work Results for Flooring Preparation - Remedial Floor Coating		
Related Specification:	09 05 61		
Reason for Substitution:	Accelerate schedule, reduce labor and waste, improved warranty		
Proposed Substitution: (include Name, Model, etc.)	SINAK VECT-R s a ready-to-use, Zero-VOC Vapor Emission and Alkalinity Control System that eliminates flooring failures due to moisture, moisture vapor, hydrostatic pressure, and alkalinity emanating from or through concrete.		
Submitted By:	Michael Asire	Phone:	(619) 295-0076
Company:	SINAK	Email:	mike@sinak.com



VC-5

MOISTURE VAPOR CONTROL - NEW CONCRETE

SINAK VC-5 is a zero VOC, single component Moisture Vapor Control System that eliminates flooring, roofing, or coating failures due to moisture, moisture vapor, hydrostatic pressure, osmotic pressure, and alkalinity emanating from or through new concrete. VC-5 is designed for use on all structural and lightweight concrete to receive finishing flooring, roofing or coatings.

VC-5 permanently penetrates in the concrete substrate and does not leave a film or residue on the surface. VC-5 replaces all curing methods, moisture mitigation, and remediation systems. Use of VC-5 allows for same day slab access and installation of any flooring, coatings, or roofing in as soon as 7 days after concrete placement, saving weeks off the construction schedule. VC-5 is guaranteed to eliminate the costly delays from moisture remediation.

VC-5 warrants all adhesives, coating, flooring and roofing systems with a 20-year non-prorated labor, material, and adhesive bond warranty. VC-5 allows mechanical surface profiling up to 1/4" amplitude. VC-5 ensures compatibility and bond of all flooring adhesives, floor coverings, roofing systems, and surface treatments. VC-5 is non-toxic, contains no solvents, and is listed as UL GREENGUARD Gold Certified and super compliant with SCAQMD.

VC-5 will prevent and reduce moisture vapor rates up to 50lbs/1000 sq ft and RH up to 100% to well below accepted levels for subsequent application of flooring and coating systems such as epoxies, vinyl tiles, sheet vinyl, carpet, wood flooring, deck coatings and more.

FEATURES & BENEFITS

- 20-Year Flooring Replacement Warranty
- Compatible with all Flooring, Coating & Roofing Systems
- Eliminates Off Gassing/ Pinholing
- Reduces Permeability
- Flooring/Roofing Installation 7 days after concrete placement
- Controls Hydrostatic and Osmotic Pressure
- Controls Efflorescence
- Controls Alkalinity

WHERE TO USE VC-5

- Structural & Lightweight Concrete
- Rubber Tiles & Sheeting
- Vinyl Composition Tiles
- Moisture Sensitive Adhesives
- Sheet Vinyl
- Laminate Flooring
- Hardwood
- Sport Flooring
- Carpet Tile
- Tile
- Marble
- Terrazzo
- Hot & Cold Applied Roofing
- Membrane Roofing
- Green Roofs
- Epoxy Coatings
- Polyurethane Coatings
- Deck Coatings
- Moisture Sensitive Coatings
- Polishing Systems



VC-5 is excellent for use on interior and exterior concrete surfaces to receive a moisture sensitive floor, coating or roofing system. VC-5 penetrates deep into the concrete substrate and restricts the capillary matrix to reduce permeability and moisture intrusion.

- Zero VOCs
- UL 2818 Gold - GREENGUARD® Gold Certified
- Environmental Product Declaration
- LBC Red List Free Declare Label
- Health Product Declaration
- Listed as Super-Compliant by the South Coast Air Quality Management District (SCAQMD)
- Exceeds the regulatory limits in the SCAQMD Rule 1113
- Meets the requirements to contribute for LEED credit in the following areas: EQ Credit 1.0, 4.1 and 4.3, EQ Credit 10 3.1, MR Credit 5.1 and 5.2

- ASTM C-39 (Compressive Strength)
 - Meets or exceeds 28-day water cure
- ASTM C-309/C-1315: TYPE 1 CLASS A (Moisture Retention)
 - Exceeds water retention of less than 0.40 kg/m²
- BS 1881 Part 5 (Initial Surface Absorption ml/m²/sec)
 - Meets or exceeds 28-day water cure
- ASTM D-4262: (Test method for pH on Concrete Floors)
 - <11.5 pH
- ASTM D-4263: (Concrete Moisture Test)
 - Passed
- ASTM E-96: (Water Vapor Transmission)
 - 0.08 grams/hr m²
- ASTM F-1869: (Calcium Chloride)
 - <5lbs per 1000 sq ft
- ASTM F-2170: (Relative Humidity)
 - 100% Covered under warranty
- ASTM F-710-21: (Standard Practice for Preparing Concrete Floors)
 - Compliant

PRECAUTIONS

VC-5 is for use on freshly placed concrete surfaces only. VC-5 is designed for concrete surfaces to receive a moisture sensitive coating, flooring or roofing systems. SINAK recommends that all surface preparation adhere to the coating manufacturer's written instructions prior to the coating installation. SINAK recommends the concrete be minimum International Concrete Repair Institute (ICRI) concrete surface profile (CSP) of 3. For more information on this preparation requirement, visit the ICRI website. Hardwood and engineered glue down floors (may) require an application of SINAK V-Poxy.

Do not allow VC-5 to come into contact with any glass, metal, or painted surfaces. VC-5 left to dry on the surface may result in streaking, whitening, or staining. Immediately wipe affected surfaces with a clean water-saturated cloth, then wipe dry with a second clean cloth. For questions regarding VC-5, contact SINAK. SINAK allows for a MAXIMUM of 0.50 water to cement ratio for warranty compliance.

COVERAGE RATES

Two-coat coverage rate is 300 sq ft per gallon (7 sq m per liter) for horizontal surfaces.

Two-coat coverage rate is 300 sq ft per gallon (7 sq m per liter) for vertical surfaces.

INSTALLATION

Installation should be continuous. VC-5 application should begin after the surface is firm enough to tolerate foot traffic or immediately after the early entry saw cutting. Apply a small test area to confirm penetration. If rain should occur at any time during this process, see 'Interrupted Installation' at the end of this section.

1. Protect objects and areas not to be treated from spillage or overspray.
2. Apply first coat of VC-5 uniformly wetting the surface with an airless or tank-type sprayer.
DO NOT allow VC-5 to puddle or flood the surface.
3. Immediately after the first coat is dry, apply a second coat. Apply the second coat perpendicular to the first coat to create a crosshatched pattern. Drying time will vary from 10 to 30 minutes depending on temperature and environment.
NOTE: "Dry" means dry to the touch.
4. Pay special attention to apply material in joints and on slab edges. Treatment of these areas will eliminate slab curl.
5. Clean all equipment with warm soapy water.

VERTICAL CAST-IN-PLACE INSTALLATION

For vertical applications DO NOT allow the material to run down the surface.

INTERRUPTED INSTALLATION

If the application should be interrupted by rain, mark the place of interruption and continue the application as soon as weather permits.

If the delay exceeds 4 hours contact SINAK immediately.

HOT WEATHER INSTALLATION

In hot (above 100°F or 38°C), dry and/or windy conditions apply VC-5 shortly after loss (evaporation) of surface water. Contact SINAK for additional information.

COLD WEATHER INSTALLATION

Do not apply below 34°F (1°C). Allow ample time between coats for drying. Contact SINAK for additional information.

STORAGE & HANDLING

VC-5 has an infinite shelf life when stored in a cool dry area out of direct sunlight. Must be kept in tightly secured containers to prevent evaporation and contamination. VC-5 MUST be protected from freezing. Product that has frozen will not function as intended, and should be discarded.

AVAILABILITY

VC-5 is available in 5-gallon (18.9-liter) pails, 55-gallon (208.2-liter) drums and 275-gallon (1041-liter) totes from selected distributors.

TECHNICAL ASSISTANCE

Technical assistance is available from the manufacturer.

WARRANTY

A 20-Year non-prorated labor and materials warranty is available. Concrete must be placed in accordance with ACI manual section 302.1R-15 with a water to cement ratio of less than 0.50. Contact SINAK for warranty requirements.

SINAK warrants its products to be free from manufacturing defects and to meet the technical properties on the current product information sheet. To the maximum extent permitted by law, this express warranty and the remedies specified below are exclusive and in lieu of all other warranties and remedies. Any implied warranties including without limitation implied warranties of merchantability and fitness for a particular purpose are excluded. SINAK's liability under this product warranty shall be limited to a refund of purchase price or replacement of the product. SINAK shall have no liability for any loss of use, interruption of business, lost profits or goodwill, or for any special, incidental or consequential damages of any kind arising from the purchase or use of the warranted product, even if SINAK has been advised of the possibility of such loss, interruption or damage. This limited warranty may not be modified by representatives of SINAK, its distributors or dealers. Any claim made under this warranty must be made within one (1) year of purchase and shall be accompanied by any reports or test results that form the basis of the warranty claim. Prior to settlement of a warranty claim, SINAK shall have the right, but not the obligation, to conduct site inspections and perform tests pertaining to the customer's warranted product and its manner of use.