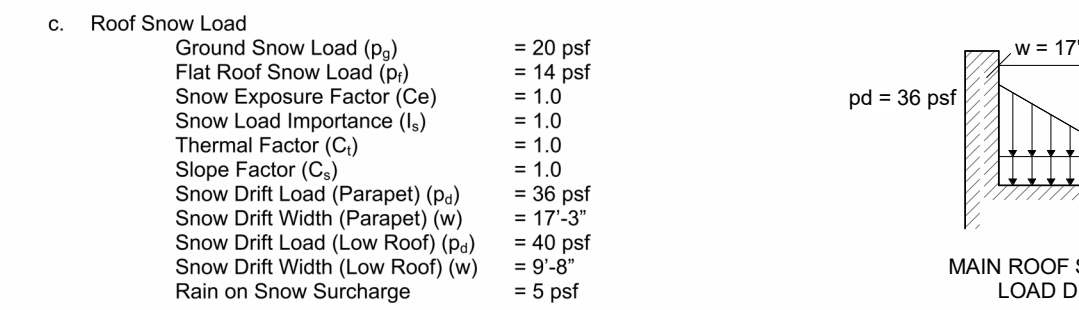
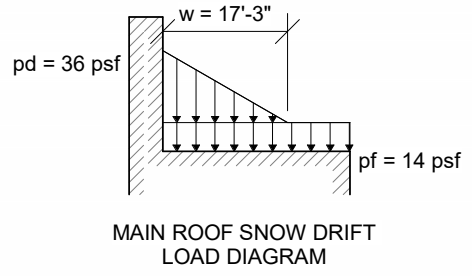


A. DESIGN CRITERIA

1. Design Codes:
- a. International Building Code, IBC 2018
  - b. Minimum Design Loads for Buildings and Other Structures: ASCE 7-16
2. Design Loads:
- a. Dead Loads
    - Wood Floors = 27 psf
    - Composite Deck w/ LW concrete = 51 psf
    - Partitions in Residential Units = 15 psf (additive to floor load)
    - Roof = 20 psf plus mechanical equipment shown on roof plan
  - b. Live Loads (reducible per code UNO)
    - Slab on Grade = 100 psf
    - Parking Garage Slab on Grade = 100 psf + 3000lb point load
    - Residential Units = 40 psf
    - Corridors (Public) = 100 psf
    - Mechanical/Storage = 125 psf (non-reducible)
    - Balconies = 60 psf (1.5 x Occupancy Served)
    - Typical Roof = 20 psf
    - Handrails = 200 lb point load at any point on handrail or on top rail
    - 50 psf linear load on top rail
  - c. Roof Snow Load
    - Ground Snow Load ( $p_g$ ) = 20 psf
    - Flat Roof Snow Load ( $p_f$ ) = 14 psf
    - Snow Exposure Factor ( $C_e$ ) = 1.0
    - Snow Load Importance ( $I_s$ ) = 1.0
    - Thermal Factor ( $C_t$ ) = 1.0
    - Slope Factor ( $C_s$ ) = 1.0
    - Snow Drift Load (Parapet) ( $p_d$ ) = 36 psf
    - Snow Drift Width (Parapet) ( $w$ ) = 17'-3"
    - Snow Drift Load (Low Roof) ( $p_u$ ) = 40 psf
    - Snow Drift Width (Low Roof) ( $w$ ) = 9'-8"
    - Rain on Snow Surcharge = 5 psf
  - d. Wind Load
    - Basic Design Wind Speed,  $V$  = 109 mph (3 sec. Gust)
    - ASD Wind Speed,  $V_{WD}$  = 85 mph
    - Risk Category = II
    - Exposure = C
    - Internal pressure Coefficient ( $C_{pi}$ ) = ±0.18
    - Components and Cladding (psf):

Zone	A=10R <sup>2</sup>	A=50 R <sup>2</sup>	A=100 R <sup>2</sup>
1	+16/-52	+16/-44	+16/-41
2	+16/-69	+16/-59	+16/-54
3	+16/-69	+16/-59	+16/-54
4	+30/-33	+27/-30	+26/-28
5	+30/-40	+27/-34	+26/-31



Notes:

- 1. A is the Effective Wind Area as defined in ASCE 7 Ch. 26.
- 2. Linear interpolation between tabulated values is permitted.
- 3. Elements with Tributary Area ( $A$ ) > 700 R<sup>2</sup> shall be permitted to be designed using provisions for MWFRS.

4. Earthquake Load

Risk Category = II

Seismic Importance Factor ( $I_p$ ) = 1.0

Mapped Spectral Response Acceleration Parameters

$S_a = 0.099g$   $S_i = 0.069g$

Soil Site Class = C

Design Spectral Response Acceleration Parameters

$S_{D1} = 0.086$   $S_{D2} = 0.068$

Seismic Design Category = B

Basic Seismic Force Resisting System(s)

Wood Walls with Wood Structural Panels (ASCE 7 Table 12.2-1 Line A.15)

$R = 6.5$   $C_d = 3.0$   $C_e = 0.013$   $C_p = 4.0$

( $C_d$  reduced to 2.5 per ASCE7-16 Table 12.2-1 footnote b)

Wood Walls with Panels of other Materials (Gypsum) (ASCE 7 Table 12.2-1 Line A.17)

$R = 2.0$   $C_d = 2.5$   $C_e = 0.043$   $C_p = 1.75$

( $C_d$  reduced to 2.0 per ASCE7-16 Table 12.2-1 footnote b)

Ordinary Reinforced Masonry Shear Walls (ASCE 7 Table 12.2-1 Line A.9)

$R = 5.0$   $C_d = 2.5$   $C_e = 0.043$   $C_p = 1.75$

Design Base Shear,  $V = C_s \times W$

Analysis Procedure = Equivalent Lateral Force Procedure (ASCE 7-16 Chapter 12.8)

f. Rain Load

100 Year 15 min. Rain Intensity ( $i$ ) = 7.5 in/hr

3. Allowable Deflections:
- |  | Total Load | Live/Snow/Wind Load | Absolute Maximum |
|--|------------|---------------------|------------------|
| Floor Joists/Trusses                   | L/240      | L/360               | 1.5"             |
| Wall Framing (flexible finish)         | L/600      | L/360               | 0.75"            |
| Wall Framing (brittle/flexible finish) | L/600      | L/360               | 0.5"             |
- Canviler deflection limits are the more restrictive of a) the appropriate  $L/i$ —limit (e.g.  $2L/360 = L/180$ ) or absolute maximum value listed above, measured at the tip of the cantilever U.N.O.
4. Soil Properties:
- a. Foundation design is based on the following to be considered part of the construction documents:
    - i. Geotechnical Report prepared by Olson, dated Aug. 10, 2023
    - ii. Signed and Sealed Letter from Own Inc. dated July 15, 2024 regarding use of Rammed Aggregate Piers as a foundation option.
    - iii. Signed Letter from Ground Improvement Engineering by Vaughn Rupnow, PE, dated May 31, 2024 confirming Rammed Aggregate Piers as a viable foundation option with **allowable subgrade bearing pressure of 6,000 psf**.
  - b. It is the Owner's decision to proceed with Rammed Aggregate Piers.

B. STRUCTURAL ENGINEERING DESIGN NARRATIVE

1. McClure Engineering Company (McClure, MEC) is the Structural Engineer of Record (EOR) responsible for the documentation of structural design criteria, strength and stability of the primary vertical and lateral load-carrying systems in their completed form, and conformance of the structural design to the applicable building codes. These drawings produced by McClure convey the structural engineering design for the project, which includes the following components and systems:
- a. Foundations consisting of concrete footings, pedestals, and footings supported by rammed aggregate piers.
  - b. Residential Building Framing:
    - i. Load-bearing wood wall and opening framing – Level 2 and above.
    - ii. Plywood sheathing on dimensional lumber wood floor and roof joists – Level 3 and roof.
    - iii. Elevated concrete floor slab with composite steel framing – Level 2
    - iv. Steel framed balconies with non-composite deck.
  - c. Structural steel framing identified on the drawings.
  - d. The lateral force resisting system of the structure consisting of sheathed wood structural walls, gypsum sheathed wood walls, masonry shear walls, composite deck diaphragms and wood sheathing diaphragms.
2. The following items are Deferred Submittals. Framing intent and additional requirements for these structural components are provided within these drawings\*:
- a. Structural steel connections – see general notes section "Structural Steel".
  - b. Wood roof/rafter trusses – see general notes section "Wood Framing and Fastening" / see S001 and S002 for applicable design criteria.
  - c. All premanufactured canopy and awning framing including connections to the structure.
  - d. Handrails at balconies – see S001 "Design Criteria" for applicable loading.
  - e. Cold-formed steel wall framing and miscellaneous Cold-formed steel framing.
- \* Reference section "D. Submittal Requirements." Coordinate requirements of these drawings with those of other design consultant drawings and the Project Specifications.
3. The following items are specifically excluded from McClure's design scope as represented on these drawings:
- a. Requirements for fire rating of assemblies or fire protection of structural members.
  - b. Global stability of soil mass.
  - c. Any exterior slabs, bollards, curbs, and any enclosures not shown on these drawings.
  - d. Interior non-load-bearing wood framed walls or framing.
  - e. Shoring design, formwork design, temporary bracing, and other means and methods items.
  - f. Cold-formed steel framing below the Level 2 structural steel framing.

C. GENERAL NOTES

1. All construction shall conform to the Design Codes in Section "A. Design Criteria," including all applicable standards and documents referenced within these drawings.
2. Plan and detail notes provided on specific sheets within these drawings supplement information in these General Notes. Always coordinate the requirements of these notes with what is shown within the drawings.
3. Unless noted specifically on a plan, all floor plans show framing for the floor indicated and vertical framing (walls, openings, posts, columns) supporting that floor.
4. Contract Document Coordination:
  - a. The drawings contained herein are intended to be utilized in conjunction with other design consultant's drawings (architectural, civil, mechanical, etc.). It is the responsibility of the Contractor to coordinate the requirements of the drawings into their shop drawings and construction.
  - b. Refer to the Project Specifications issued as part of the contract documents for information supplemental to these drawings.
  - c. Should conflicts between these drawings and the Specifications exist, the Contractor shall bring them to the attention of the structural engineer for clarification.
  - d. Refer to the architectural, mechanical, electrical, and civil drawings for location and size of block outs, insets, openings, curbs, bases & pads, and dimensions not shown on these drawings.
  - e. Refer to the architectural drawings for size and location of doors and window openings, exterior wall assemblies, and floor, wall, and roof finishes. Refer to the mechanical and electrical drawings for additional information including locations of mechanical units, generators, etc.
  - f. Omissions or conflicts between various elements of the drawings, notes and details shall be brought to the attention of the structural engineer and resolved before proceeding with the work.
5. Use of Drawings in Construction:
  - a. The Contractor shall verify all dimensions and conditions at the job site before commencing work and shall report any discrepancies to the engineer responsible for the design of that work.
  - b. Do not use scaled dimensions; use written dimensions or, where no dimension is provided, consult the structural engineer for clarification before proceeding with the work.
  - c. Where member locations are not specifically dimensioned, members are either located on columns lines or are equally spaced between located members.
  - d. Details and keynotes shown shall be incorporated into the project at all appropriate locations, whether specifically called out or not.
  - e. The Contractor may provide the contractor with concrete and steel reinforcement details. These drawings are not to be used for construction documents; the contractor is not relieved of his duty to fully comply with the contract documents, including the need to conform and coordinate all dimensions and details, take field measurements, verify field conditions, and coordinate the contractor's work with that of other contractors for the project.
6. Changes During Construction:
  - a. Openings shall not be cut or otherwise made in any structural member unless that opening is specifically shown on these drawings. The Contractor shall seek approval in writing from the structural engineer prior to any design incorporating additional openings.
  - b. Support details shown for Architectural, Mechanical, Electrical, and Plumbing equipment as well as elevators is based upon available information from the manufacturer (if any). The Contractor shall coordinate requirements of actual equipment supplied with details and shall provide any additional framing required.
  - c. The Contractor has the responsibility to notify the structural engineer of any architectural, mechanical, electrical, or plumbing load imposed on the structure that is not documented on the Contract Documents or differs from what is originally shown. Provide documentation of location, load, size, and anchorage of all undocumented loads in excess of 250 lbs.
7. Construction Sequence and Methods:
  - a. These drawings and the related Specifications represent the finished structure and, except where specifically shown, do not indicate the method or means of construction. Loads on the structure during construction shall not exceed the design loads indicated in Section "A. Design Criteria" as a maximum. The Contractor shall supervise and direct the work and shall be solely responsible for all construction means, methods, procedures, techniques, and sequence.
  - b. The Contractor is responsible for compliance with all applicable job-related safety standards proceeding from governing organizations (e.g. OSHA).
  - c. It is the responsibility of the Contractor to ensure the stability of the structural elements during construction as a result of means and sequence by providing shoring, bracing, etc., as required.
  - d. Stability considerations should include all applicable temporary construction and environmental loads per ASCE 37 which may include wind and seismic forces.
  - e. Temporary bracing shall remain in place until positive connection is made between the floor/roof diaphragm and the lateral force resisting elements. This is a means and methods item.
  - f. The Contractor shall consider the effects of thermal movements due to hot or cold weather construction and the potential for extreme temperature variations before the structure is complete.
  - g. The Contractor is responsible for the protection and repair of any adjacent existing structures, surfaces, and areas which may be damaged.

D. SUBMITTAL REQUIREMENTS

1. Submittal Procedures:
  - a. The Contractor shall provide all submittals in PDF format unless otherwise requested or indicated otherwise in the Project Specifications.
  - b. All submittals must be reviewed by the Contractor prior to McClure's review. The Contractor is responsible for reviewing each submittal for basic coordination with these drawings and all the required components of the submittal are incorporated. The Contractor shall bear the electronic review stamp of the Contractor before McClure will proceed with the review.
  - c. Incomplete submittals or submittals not meeting the requirements of this section will not be reviewed. McClure will notify the contractor that the submittal is incomplete or unacceptable and that resubmission is required.
  - d. Submittals requiring engineering calculations for all or a portion of the work are considered incomplete without the sealed calculations and will not be reviewed.
  - e. Shop Drawings shall be original drawings. Submissions incorporating any portion or reproduction of the contract documents will not be reviewed.
  - f. Deferred Submittals not meeting the seal requirements of section D.2.b are considered incomplete and will not be reviewed.
  - g. Resubmittals with comments from a previous review remain left unaddressed or without any response will not be reviewed.
  - h. Allow two weeks for review of all submittals unless an agreement for expedited review is made in writing by McClure.
  - i. McClure's submittal review scope of work includes a single submittal review and one review of the revised submittal if required (two reviews total of the same submittal). Time required for more than two reviews of a submittal is considered an additional service and will be billed hourly. McClure reserves the right to withhold review of a submittal surpassing this allowance until proper billing to the responsible party can be established.
  - j. Submittals must be returned to the Contractor by McClure bearing a stamp marked "Reviewed No Exception Taken" or "Reviewed With Comments/Exceptions" to proceed with the work. Submittals marked "Reviewed No Exception Taken" must be revised according to the comments provided prior to commencing with the respective scope of work.
2. Deferred Submittals:
  - a. See Section "B. Structural Engineering Design Narrative" for the list of items considered Deferred Submittals.
  - b. Deferred Submittals shall bear the seal of a professional engineer licensed in the state where the project is located. If the project requires a licensed Structural Engineer (S.E.) as the Engineer of Record according to state laws, the same qualification level applies to the engineer sealing the Deferred Submittals.
  - c. Deferred Submittal items shall not be installed until the Deferred Submittal documents have been approved by the Building Official.
3. Submittal List:
  - a. Submittals (product data, test records, shop drawings, and/or calculations) are required for the following:

Submittal Name	Product Data	Shop Drawings	Test Records	Engineering Drawings	Engineering Calculations
1. Concrete Mix Designs	X				
2. Concrete Break Reports		X			
3. Concrete Reinforcing Layout		X			
4. Concrete Anchor Bolts & Embedded Plates	X	X			
5. Concrete & CMU Anchors (Post-Installed)	X				
6. Post-Installed Anchor Substitutions					X
7. Post-Installed Connection Geometry Alteration	X			X	X
8. Rammed Aggregate Piers	X			X	X
9. Structural Steel Framing		X			X
10. Structural Steel Framing Connections		X			X
11. Steel Floor Deck	X	X			X
12. Exterior Non-Load-Bearing Cold-Formed Steel Framing			X		X
13. Metal Railings & Connections	X	X			X
14. Metal Ladders & Connections	X	X			X
15. Fall Arrest Systems	X				X
16. Wood Framing Materials	X				X
17. Wood Floor & Roof Trusses incl. Reactions				X	X
18. Wood Truss Connections to Supporting Structure			X		X
19. Specialty Wood Fasteners	X				X
20. Manufactured Wood Shear Panels	X				X

- \* "Product Data" may indicate mill certifications, material data sheets, Evaluation Service Reports (ESRs), etc. See requirements of each material section of the general notes for further information.
- c. Where "Engineering Drawings" and/or "Engineering Calculations" are indicated, the submittal must comply with the requirements of item "2. Deferred Submittals" above.
4. Submittals For Record:
  - a. The following items impact the structural design and therefore must be submitted to the engineer; however, they do not require review. They will be returned stamped as "Received for Record".
    - i. Elevator Shop Drawings with Loads to Structure
    - ii. Mechanical Equipment Shop Drawings with Weight

E. CONCRETE

1. Reinforced concrete shall have the following minimum 28 day compressive strengths:
- a. Slab on grade, unless noted otherwise: 4000 psi normal weight
  - b. Foundations: 5000 psi normal weight
  - c. Slabs on non-composite metal deck: 4000 psi normal weight
  - d. Slabs on composite metal deck: 4000 psi lightweight
  - e. All concrete exposed to weather shall have 6% (+/- 1%) air entrainment.
2. All concrete composite to weather shall have 6% (+/- 1%) air entrainment.
3. Submit mix designs for all concrete mixes prior to placement. All submittals shall include the following:
- a. Batch quantities including admixture dosage rates
  - b. Strength test results for trial mixes
  - c. Cured unit weight results (for lightweight concrete mixes only)
  - d. Aggregate source(s) and gradation(s)
  - e. Product data for cement, fly ash and other cementitious materials.
  - f. Product data for all admixtures.
4. Provide protection for reinforcing bars as follows:
- a. Cast-in-place concrete
    - i. Concrete cast against and permanently exposed to earth: 3"
    - ii. Concrete exposed to earth and weather (formed): 1-1/2"
    - iii. #5 and smaller: 1-1/2"
    - iv. #6 and larger: 2"
  - b. Concrete not exposed to weather and not in contact with ground:
    - i. Slabs and walls: 3/4"
    - ii. Beams and columns: 1-1/2"
5. Provide construction or control joints in slab on grade as shown on plans. If joint pattern is not shown, provide joints at 10'-0" x 10'-0" and at locations to conform to bay spacing wherever possible (at column centerlines, half bays, third bays, etc.).
6. Interface of all slab and beam construction joints shall be roughened with 1/4" amplitude. Surface of construction joints shall be clean and free of laitance. Immediately before new concrete is placed, construction joints shall be wetted and standing water removed.
7. Construction joints in walls shall be keyed and placed at locations approved by the Architect and Structural Engineer.
8. Provide control joints in all retaining walls at 15 ft to 20 ft intervals.
9. Elevator pit walls shall not have control joints as they are part of the lateral system.
10. Provide P.V.C. waterproofing in all below grade construction joints and at other locations as shown.
11. Provide compressible filler and sealant in all slab-on-grade and wall and column interfaces that are not dovetailed together.
12. All column pockets shall be filled with concrete after column is erected.
13. Sleeves and openings in slabs not shown on structural drawings or outside the parameters of typical sleeve details are not permitted, unless approved by the Structural Engineer.
14. Conduit and pipes embedded in slabs, walls, or grade beams shall be no larger in outside dimension than 1/3 the overall member thickness and shall be placed no closer than 3 diameters or within 3" on center.
15. Conduits and pipes shall not be permitted in concrete plasters or columns.
16. See "G. Foundations" section 5 for requirements at slab on grade.
17. Bond break material for slip joints shall be 1/8" thick tempered wood particleboard, 1/8" thick high-density plastic elastomeric strips, two layers of 10mil polyethylene sheeting or equivalent.
18. Provide concrete housekeeping pads under all mechanical, plumbing, fire protection, and electrical equipment per plans. Pads shall extend beyond equipment a nominal 6" on all sides. Provide reinforcing per details.
19. At floor drains, locally slope floor towards drain. See architectural and plumbing drawings for drain locations.
20. Foundation walls shall be temporarily braced until positive attachment is made to floor framing per details. This is a means and methods item.

F. REINFORCING FOR CONCRETE

1. General:
  - a. All reinforcing steel to be ASTM A615, Grade 60, deformed bars, unless noted otherwise.
    - i. Any reinforcing to be welded shall be ASTM A706 and welded with E80 electrodes.
    - ii. Alternatively, ASTM A615 reinforcing may be welded with E90 electrodes and proper preheat according to AWS D1.4.
  - b. E70 electrodes are not permitted for welding of reinforcing steel.
  - c. The Contractor shall consider the effects of thermal movements due to hot or cold weather construction and the potential for extreme temperature variations before the structure is complete.
  - d. The Contractor is responsible for the protection and repair of any adjacent existing structures, surfaces, and areas which may be damaged.
2. Development and Splice Lengths for  $f_y = 50,000$  psi:
- | Bar Size | Development |           | Class "B" Splice |           | Standard 90 deg. Hook |           |
|----------|-------------|-----------|------------------|-----------|-----------------------|-----------|
|          | Top Bar     | Other Bar | Top Bar          | Other Bar | Embed Length          | Bend Dia. |
| #3       | 17          | 13        | 22               | 17        | 6                     | 6         |
| #4       | 22          | 17        | 22               | 17        | 6                     | 6         |
| #5       | 28          | 22        | 36               | 28        | 8                     | 10        |
| #6       | 33          | 26        | 43               | 33        | 9                     | 12        |
| #7       | 49          | 37        | 63               | 49        | 11                    | 14        |
| #8       | 55          | 43        | 72               | 55        | 12                    | 16        |
| #9       | 63          | 48        | 81               | 63        | 14                    | 19        |
| #10      | 70          | 54        | 91               | 70        | 15                    | 22        |
| #11      | 78          | 60        | 101              | 78        | 17                    | 24        |
| #14      | 94          | 72        | ---              | ---       | 29                    | 31        |
| #18      | 125         | 96        | ---              | ---       | 43                    | 41        |

Bar Size	Development		Class "B" Splice		Standard 90 deg. Hook	
	Top Bar	Other Bar	Top Bar	Other Bar	Embed Length	Bend Dia.
#3	19	15	24	19	6	6
#4	25	19	32	25	7	8
#5	31	24	40	31	9	10
#6	37	29	48	37	10	12
#7	54	42	70	54	12	14
#8	62	48	80	62	14	16
#9	70	54	91	70	15	19
#10	79	61	102	79	17	22
#11	87	67	113	87	19	24
#14	105	81	---	---	32	31
#18	139	107	---	---	43	41

1. Straight development and Class "B" splice lengths shown in above tables are based on uncoated bars assuming center-to-center bar spacing  $\geq 3d$ , without ties or stirrups or cross ties, and bars are clear cover  $\geq 1.0d$ . Normal weight concrete as well as no transverse reinforcing are both assumed.

2. Standard 90 deg. hook embedment lengths are based on bar size cover  $\geq 2.5d$  and bar and cover  $\geq 2d$  without ties around hook.

3. For special seismic considerations, refer to ACI 318 Code Chapter 21.

4. All tension splices shall be Class "B" splices unless noted otherwise on plans.

- g. All welded wire fabric shall be lapped 12" or 48 wire diameters, whichever is greater.
- h. Provide (2) #5 or #6 diagonal bars at each corner unless noted otherwise.
- i. Dowels between foundation and walls shall be installed and shall be same grade, size, and spacing as the vertical wall reinforcing, unless noted otherwise.
- j. Provide 1/2" diameter longitudinal reinforcing in all footings. Provide (2) corner bars at all intersections.
- k. Provide 500 pounds of miscellaneous straight bar reinforcing (#4 & #5) to be used in field for special conditions. Labor for placing same to be included.
2. Slabs and Slab-on-Grade:
  - a. All slabs on grade to be reinforced with 6x6 – W2.9xW2.9 welded wire fabric, unless noted otherwise.

G. FOUNDATIONS

1. Foundation design is based on the following to be considered part of the construction documents:
- a. Geotechnical Report prepared by Olson, dated Aug. 10, 2023
  - b. Signed and Sealed Letter from Own Inc. dated July 15, 2024 regarding use of Rammed Aggregate Piers as a foundation option.
  - c. Signed Letter from Ground Improvement Engineering by Vaughn Rupnow, PE, dated May 31, 2024 confirming Rammed Aggregate Piers as a viable foundation option with **allowable subgrade bearing pressure of 6,000 psf**.
2. It is the Owner's decision to proceed with Rammed Aggregate Piers.
3. A geotechnical representative shall be retained on site for all construction activity to verify that all proper requirements have been met to meet the design requirements outlined in the geotechnical report. Representative shall be Olsson Engineers or someone familiar with all documents of the geotechnical investigation provided for the project.
4. The Contractor shall provide dewatering of excavations from surface water and ground water. Do not place concrete if water is present at base of excavation.
5. Rammed Aggregate Piers:
  - a. The Rammed Aggregate Pier system shall be designed in accordance with locally accepted engineering practices.
  - b. Allowable bearing pressure for footings supported by RAP reinforced soils shall be 6,000 psf.
  - c. Total settlement shall be limited to 1" or less.
6. Slab on Grade:
  - a. Slabs shall be constructed as shown on the plans.
  - b. Parking slab-on-grade shall be placed on subgrade prepared in accordance with the requirements of the geotechnical report and the details in these construction documents.
  - c. A 10mil minimum vapor retarder shall be installed under all slabs on grade in occupied or conditioned spaces per the drawings. See the geotechnical report for additional information regarding the installation of the vapor retarder.
  - d. Slab-on-grade shall be founded on 6" deep 3/4" clean aggregate base.
  - e. The upper 24" of subgrade extending 5' beyond the footprint of the building shall consist of low volume change material such as rotted or waste lime. Gravel fill shall be compacted to a minimum of 95% of the ASTM D698 maximum dry Standard Proctor density. The 6" aggregate base shall be included in the 24" depth required for the low volume change layer.
  - f. Provide joints at 30 x slab thickness (+/-) in both directions and located to conform to bay spacing wherever possible (at column centerlines, half bays, third bays, etc.). Submit control joint layout for approval by the Structural Engineer.
  - g. Saw cut control joints shall be done late enough to prevent raveling of the cut edges and early enough to prevent racking of the slab ahead of the saw blade.
  - h. Plumbing and utilities passing through the slab on grade shall be constructed with flexible fittings to allow for slab movement. The expected slab movement for the parking slab shall be considered up to 2" minimum for fillings.
  - i. Concrete slab to be cured according to ACI Standards. Concrete slab cure to be compatible with any sealer, grout, or adhesive that may be used in the floor later.
  - j. Locally slope floor towards any floor drains. See architectural and plumbing drawings for drain locations.
7. Geotechnical Testing Agency Requirements:
  - a. If the geotechnical representative on site takes exception to anything in the Geotechnical Report and requires additional field investigation to clarify those exceptions, the cost of such investigation shall be included in the additional fee for field quality control and testing and identified as such. All other exceptions shall be documented and approved by the geotechnical engineer.
  - b. The geotechnical representative must have read all documents pertaining to the geotechnical report for the project and have understood and accepted the criteria contained in the report.
  - c. The geotechnical representative must understand and be able to make decisions affecting the work for field observations and conditions described in the report during construction. The representative must be capable of advising the owner or contractor for procedures regarding, but not limited to, sub-grade preparation, dewatering activities, and other construction considerations.
  - d. See notes on sheets and details for additional information.

H. POST-INSTALLED ANCHORS TO CONCRETE AND MASONRY

1. Post installed anchors shall be expansion, adhesive, or screw anchors as indicated in the details, unless noted otherwise. Only use the anchor type indicated. All anchors on the project of each type must be by the same manufacturer, see below for substitution requirements.
- a. Expansion anchors:
    - i. Concrete
      - HiLi Kwik Bolt TZ (ICC-ES ESR1917)
      - Simpson Strong-Bolt 2 (ICC-ES ESR3037)
      - DeWalt Power-Stud S202 (ICC-ES ESR2502)
    - Grout-filled Concrete Masonry:
      - HiLi Kwik Bolt 3 (ICC-ES ESR1385)
      - Simpson Strong-Bolt 2 (UES ER0240)
      - DeWalt Power-Stud S201 (ICC-ES ESR2966)
  - b. Adhesive anchors (threaded rods shall be ASTM A193 B7 for all anchors):
    - i. Concrete
      - HiLi HIT RE 500-SD (ICC-ES ESR2322) or HiLi HIT-HY 200 (ICC-ES ESR3187)
      - Simpson AT-XP (UES ER283), SET-XP (UES ESR2508) or ET-HP (ICC-ES ESR3372)
      - DeWalt Pure 110+ (ICC-ES ESR3208), PE1000+ (ICC-ES ESR2833), Pure 50+ (ICC-ES ESR3576), AC 200+ (ICC-ES ESR4027), or AC100+ Gold (ICC-ES ESR2582)
    - ii. Solid grouted concrete masonry:
      - HiLi HIT-HY 70 anchor adhesive (ICC-ES ESR3342)
      - Simpson AT-XP (UES ER0281), SET-XP (UES ER0285) or ET-HP (UES ER0241)
      - DeWalt AC100+ Gold (ICC-ES ESR3200)
    - iii. Hollow concrete or multi-void clay masonry:
      - HiLi HIT-HY 70 with screen tubes (ICC-ES ESR3342)
      - Simpson SET-XP (UES ER0285)
      - DeWalt AC100+ Gold with screen tubes (ICC-ES ESR3200)
  - c. Screw anchors:
    - i. Concrete:
      - HiLi Kwik HUS EZ (ICC-ES ESR3027)
      - Simpson Titen HD (ICC-ES ESR2713)
      - DeWalt Screw-Bolt (ICC-ES ESR2526)
    - ii. Grout-filled concrete masonry:
      - HiLi Kwik HUS EZ (ICC-ES ESR3027)
      - Simpson Titen HD (ICC-ES ESR1056)
      - DeWalt Screw-Bolt (ICC-ES ESR1678)
2. Post-installed anchors shall only be used where specified in the drawings. The Contractor shall obtain approval from the engineer prior to using post-installed anchors for missing or misplaced cast-in-place anchors.
3. All personnel installing anchors shall be trained and certified by the anchoring system manufacturer or by ACI. Contractor shall submit current certifications for all personnel. ACI certification required for all personnel installing adhesive anchors in horizontal or overhead conditions. If a failure occurs at any time during testing or construction, personnel shall be retrained and recertified.
4. Installation:
  - a. Do not cut existing reinforcing.
  - b. The hole through the supported steel member shall be 1/16" larger in diameter (1/8" for screw anchors) than the anchor unless noted otherwise. Use plate washers with a standard size hole welded to steel members where oversized holes must be used.
  - c. Holes shall be drilled per the manufacturer's written instructions as outlined in the ESR.
  - d. Where applicable, installation shall follow cleaning procedure indicated in the ESR. Holes shall be made with a hammer drill. Use of a core drill is not allowed.
5. Special inspection reports shall be provided for all post installed anchors as required by the building code and/or ICC-ES report. Written special inspection reports shall be submitted to the registered design professional in responsible charge by the special inspector. The reports shall record and report the following as a minimum:
  - a. One of every ten anchors installed by each technician in locations listed below shall be randomly tested in direct tension. At least one anchor shall be tested on each day that anchors are installed.
  - b. Test anchors in the following locations:
    - i. Shear wall hold down anchors.
    - ii. Anchors supporting dead or live loads in tension.
    - iii. Test anchor to twice the allowable tension load as provided in the ESR. Test load shall not exceed 80 percent of the yield strength of the anchor ( $0.8 \times A_n \times f_u$ ).
    - iv. Post-installed anchors shall not be tested using a torque wrench.
    - v. If any anchor fails quality control testing, all anchors of the same type shall be randomly tested until (10) consecutive anchors pass. Resume normal frequency after this with approval of the engineer. The failed anchor(s) shall be removed and the affected area patched per engineer's direction. Consult the engineer for anchor replacement instructions. The cost for additional work and testing required due to anchor failure is the responsibility of the installing contractor.
  - c. Prior to and during installation of anchors, inspection and report shall include:
    - i. Installer shall have reviewed manufacturer's ESR report and written installation procedures and has been certified by the manufacturer or ACI.
    - ii. General concrete or CMU block conditions (cracked or uncracked, wet or dry, grouted or hollow, etc.)
    - iii. Whether manufacturer's written procedures for preparation of hole were followed. Include if hole is wet or dry.
    - iv. Whether hole was made with a hammer drill.
    - v. Whether manufacturer's written procedures for anchor installation were followed.
    - vi. Embedment depth and concrete or block thickness.
    - vii. Anchor diameter, length and type.
  - d. After installing anchors, inspection and report shall include:
    - i. All fast locations.
    - ii. Anchor size and/or type.
    - iii. Applied load, loading procedure, load increments and rate of loading.
    - iv. Mode of failure.
    - v. Photographs of test equipment and typical failures.
6. Substitution requests for products other than those listed above shall be submitted to the engineer with calculations that are prepared and sealed by a registered structural engineer at least two weeks prior to scheduled installations. Calculations shall demonstrate that the substituted product will achieve an equivalent or better performance to the appropriate design procedure required by the building code. Product ICC-ES code reports shall be included with the submittal package.

O. COLD FORMED STRUCTURAL STUD FRAMING

1. Any dimensional information shown is included for engineering purposes only. It is the responsibility of the contractor to verify building dimensions with the A/E and MEP drawings and to comply with all other requirements of the Contract Documents.
2. All materials shall have 33 ksi minimum yield strength, except studs and track of 16 gauge or heavier shall have a minimum yield strength of 50 ksi.
3. All material properties, fabrication, and erection shall be in accordance the latest edition of the AISI "Specifications for the Design of Cold-Formed Structural Members".
4. Any proprietary connectors shown have been selected based on specifications and capacities published by the manufacturer. Weld design values have been based on the latest edition of the AISI "Specifications for the Design of Cold-Formed Structural Members." Any deviance from the brand, type, size or quantity of connectors indicated on these drawings must be approved by the engineer prior to construction.
5. All framing components shall be cut



J. STRUCTURAL STEEL

1. Materials:
- i. Materials shall conform to the following, unless noted otherwise.
  - l. Rolled WF shapes ASTM A992, Fy = 50ksi
  - ii. Plates and angles ASTM A572-50
  - iii. Channels ASTM A36
  - iv. HSS: Rectangular ASTM A500, Grade C
  - v. HSS: Round ASTM A500, Grade C
  - vi. Bolts ASTM F3125
  - 1. All bolts shall be Grade A325 or F1852, UNO
  - 2. Bolts designed as "A490" shall be Grade A490 or F2280
  - vii. Nuts ASTM A563 DH or A194
  - viii. Washers ASTM F436
  - ix. Anchor Bolts ASTM F1554 Grade 36, UNO
  - x. Threaded Rod ASTM A36
  - xi. Studs ASTM A108, Type B Nelson headed shear stud connectors or equal.
  - xii. Electrodes Matching weld metal, 70 ksi minimum strength.
  - b. Finishes
  - i. Prepare all surfaces that will be exposed in accordance with SSPC SP3.
  - ii. All exterior steel components exposed to view or weather shall be galvanized in accordance with ASTM A123 for framing members and ASTM A153 for fasteners.
  - iii. All exterior welded connections shall be cold galvanized in accordance with ASTM A780.
2. Fabricator:
- a. Steel fabricator shall be AISC Certified.
  - b. Structural members shall be detailed, fabricated, and erected in accordance with the latest edition AISC Code of Standard Practice.
  - c. Structural steel fabrication and erection drawings must be submitted to the engineer for review and approval prior to fabrication.
  - d. Fabricator shall engage a professional engineer registered in the state of the project for the design and detailing of:
  - i. Steel connections.
  - ii. Temporary bracing.
  - iii. Steel deck (for continuity and load transfer).
3. Connections:
- a. The contractor has the option to use bolted or welded connections. Any connections not specifically detailed on the drawings shall be designed by a professional structural engineer licensed in the project state and retained by the fabricator. In general, any connections shown on the drawings are schematic and are intended to show only the relative relationship of the connected members.
  - b. Structural design calculations for all beam and bracing connections shall be submitted to the engineer prior to fabrication and should include the following (as a minimum):
  - i. All plate dimensions and grades (minimum plate thickness shall be 3/8").
  - ii. All weld sizes, lengths, pitches and returns.
  - iii. Number and type of bolts.
  - c. Connection design forces:
  - i. Beam shear connections shall be designed for the actual reactions indicated on the drawings. Connection forces shown on drawings are envelope reactions based on ASD load combinations.
  - ii. Connections indicated on the drawings as moment-resisting shall be designed for the moment shown. If moment is not indicated on the drawings, connection shall be designed to develop the full capacity of the member.
  - iii. Columns have not been checked for local effects at connections. Fabricator shall verify if stiffener or web doubler plates are required and provide as necessary. Column size may also be increased with approval of the Structural Engineer.
  - iv. Connection loads indicated on the drawings include compensation for Code permitted stress increases and load reductions for connection design.
  - d. Bolted Connections:
  - i. Minimum bolt diameter shall be 3/4".
  - ii. Slip critical connections shall be used for bracing members, moment-resisting connections, cantilevers, and as indicated on the drawings. Standard oversized and long-slotted holes are permitted for friction-type connections.
  - iii. All non-slip-critical connections shall be of standard bearing type. Oversized or slotted holes are not permitted unless indicated on the drawings.
  - iv. The fabricator is responsible for verifying the tensile capacity of axially loaded members with the presence of bolt holes. Increase member size, add plates (etc) as required.
  - e. Welded Connections:
  - i. All fillet welds shall be sized according to AISC minimums, but never less than 3/16" (UNO).
  - ii. All welds shall be performed in accordance with the latest edition of the AWS Structural Welding Code.
4. Erection:
- a. All structural steel to be fabricated and erected in accordance with latest AISC specifications.
  - i. It is the responsibility of the contractor to ensure that structure is maintained in a safe, stable configuration at all times.
  - ii. Any shoring required shall be submitted with engineering calculations for approval.
  - b. Splitting of steel members not specifically shown on the drawings is prohibited without prior approval from the engineer.
  - c. All beams shall be installed with the mill camber up.
5. Steel Linets:
- a. Loose linets for King Brick Masonry at all openings shall be the following:
  - i. L 3-1/2 x 2-1/2 x 1/2 for spans less than 6'-4"
  - ii. L 5 x 3 x 3/8 for spans between 6'-5" and 8'-3"
  - iii. L 6 x 3-1/2 x 3/8 for spans between 9'-4" and 10'-0"
  - iv. L 7 x 4 x 7/16 for spans between 10'-1" and 12'-1"
  - 1. Linet sizes are based on 27 pcf brick weight with 6"-0" max height of brick above the linet.
  - b. Loose linets for Large Format Masonry at all openings shall be the following:
  - i. L 5 x 3-1/2 x 5/16 for spans less than 6'-3"
  - ii. L 7 x 4 x 3/8 for spans between 6'-4" and 9'-3"
  - iii. L 8 x 4 x 7/16 for spans between 9'-4" and 11'-0"
  - iv. L 8 x 4 x 5/8 for spans between 11'-1" and 12'-1"
  - ix. L 8 x 4 x 1 for spans between 12'-2" and 13'-1"
  - 1. Linet sizes are based on 65 pcf masonry weight with 12'-0" max height of brick above the linet.
  - c. Linets shall bear 8" minimum each end.
  - d. Linets carrying masonry shall be galvanized.
  - e. All double angle linets back-to-back shall be bolted at 32" o.c. maximum spacing, with 5/8" diameter A307 bolts, a minimum of two bolts per span.
  - f. See architectural and mechanical drawings for opening sizes and locations.

K. WOOD FRAMING AND CONNECTIONS

1. Install rough carpentry according to the American Institute of Timber Construction Manual. It is the responsibility of the contractor to verify all dimensions prior to erection.
2. Material:
- a. Sawn lumber
  - i. Sawn lumber shall be grade stamped and visually graded with maximum 19% moisture content.
  - ii. All members shall meet strength requirements in NDS "National Design Specification for Wood Construction".
  - iii. Joists, rafters, and nailers with nominal depth 8" or less shall be Southern Pine (SP) or Douglas Fir-Larch (DFL), No. 2 or better, UNO.
  - iv. Joists, rafters, and nailers with nominal depth greater than 8" shall be Southern Pine (SP) or Douglas Fir-Larch (DFL), No. 1 or better, UNO.
  - v. All members used as columns or beams (including headers) shall be void of any significant defects (ie. Checking, warping, etc.) at the time of erection.
  - vi. All exterior posts shall be Western Red Cedar No. 2 or better.
  - vii. Bearing and shear wall studs, and wall plates, shall be Douglas Fir-Larch (DFL), No. 2 or better.
  - b. Structural Composite Lumber
  - i. SCL shall meet material specifications in ASTM D5456
  - ii. SCL shall include laminated veneer lumber (LVL), laminated strand lumber (LSL), oriented strand lumber (OSL) and parallel strand lumber (PSL)
  - iii. All SCL materials shall be graded as indicated on the plans.
  - c. Glue-laminated timber (Glulam) shall be manufactured and identified as required in ANSI/APTC A-190.1 and ASTM D3737.
  - i. Glulam shall be graded as indicated on the plans.
  - d. Structural Panels
  - i. All plywood or oriented strand board (OSB) panels shall meet the strength requirements in Department of Commerce (DOC) PS 1 and PS 2 or ANSI/APA PRP 210.
  - ii. All structural panels (walls, floor and roof) shall meet the Structural 1 grading standard.
  - e. Connectors and Fasteners
  - i. Metal connectors and associated fasteners used for the applications indicated shall meet the following minimum standards:
  - a. Untreated Lumber
  - 1. Connectors
  - 2. Bolts and Anchor Rods
  - 3. Nails and Staples
  - b. Sodium Borate (SBX) Pressure Treated Lumber
  - 1. Connectors
  - 2. Bolts
  - 3. Anchor Rods
  - c. Nails and Staples
  - 1. Connectors
  - 2. Bolts
  - 3. Anchor Rods
  - ii. Fasteners utilizing dissimilar materials are prohibited.
  - iii. Power driven fasteners shall comply with NES NER-272.
  - iv. Fastener installation when used in accordance with the Building Code and the manufacturer's recommendations. In general fastener heads shall be installed normally flush with the outer ply of the connection. Sheathing and support framing damaged by overdriven fasteners shall be removed and replaced.
  - v. Aluminum fasteners and flashing shall not be in contact with pressure treated lumber.
3. General:
- a. All light framed wood construction shall be fastened as indicated on the plans. Connections not detailed shall be fastened in accordance with the table below.
  - b. Sill plates shall be anchored to the foundation as shown on the drawings.
  - c. Plywood/OSBS wall, floor or roof sheathing shall be fastened per the requirements shown on the drawings.
  - d. Splicing of structural members is not permitted under any circumstances.
  - e. All framing in direct contact with water, soil, concrete, masonry, or permanently exposed to weather shall be preservative treated lumber in accordance with the AWWA Standard U1 and M4
  - f. All framing indicated to be fire-retardant treated or fire resistant on the drawings (Architectural or Structural) shall comply with AWWA U1 UCFA, Type A or IC-ES ESR-245 and shall have UL FR-S surface burning characteristics.
  - g. All wood shall be stored on site and protected from the elements to prevent warping, cupping, bowing, crooking and twisting. Use only material that is straight. All stored wood shall be held off the ground with sacrificial damage blocks.
  - h. Wood connectors shall be installed to prevent wood from splitting or other member.
  - i. All wood denoted as requiring fire-resistive treatment shall be pressure treated according to AWWA Standard requirements.
  - j. All multi-ply beams, joists and headers shall be fastened together.
  - k. Use 4x4, 4x6 and 6x6 columns as shown on plans. Built-up sections of 2x studs shall not be substituted for timber posts.
  - l. Fasten sawn lumber members per schedule below.
  - ii. Fasten structural composite lumber per manufacturer's literature.
  - m. Standard cut washers shall be used under bolt heads and nuts bearing against wood, unless noted otherwise per shear wall anchorage details.
  - n. Wall studs are designed based on being fully braced by sheathing. Design of temporary or permanent blocking or bridging for support of construction loads shall be the responsibility of the contractor. Allow two weeks for review.
  - o. Subject to compliance with the project requirements, wood connectors, joist hangers, post caps and bases, hold downs, and related hardware shall be installed in accordance with the requirements of the manufacturer.
  - i. Contractor shall follow the manufacturer's latest recommendations for installation of connectors.
  - ii. Other manufacturers may be acceptable. Submit substitution request demonstrating that the proposed hardware has the same or greater capacity as the manufacturer's product. Allow two weeks for review.
  - p. All beams and joists not bearing on supporting members shall be framed with Simpson joist hangers. Use joist hangers per schedule and details. The joist hangers shall be installed using nails or screws supplied by the hanger manufacturer as required for the hanger type.
  - q. Sill plates of all bearing walls on concrete shall be anchored with anchors as shown on the drawings. Sill plate anchors shall be located a maximum of 1'-0" from corners, ends of walls and sill plate splices. Provide (2) anchors minimum in each sill plate segment Refer to plans and details for shear wall anchorage requirements.
  - r. All nailers shall be direct contact with water, soil, concrete, masonry, or permanently exposed to weather shall be preservative treated 2x4" on center (alternate sides), unless noted otherwise.
  - s. Wall studs, jamb studs, and beam support studs shall have adequate vertical blocking installed to transfer all vertical loads to the foundation.
4. Wood Floor and Roof Trusses:
- a. Provide wood trusses capable of withstanding the design loads within the limits and under the conditions indicated. Truss design shall be in accordance with the Building Code and TPI-1 Nation Design Standard for Metal Plate Connected Wood Truss Construction.
  - b. Metal gusset plates shall be designed, manufactured, and approved according to IBCO requirements.
  - c. Wood trusses shall be of sawn lumber with 2x nominal thickness. Minimum grade for any truss member shall be #2.
  - d. In addition to the loads indicated in section "A. Design Criteria", wood trusses shall be designed for all applicable wind, seismic, and snow (including drift) loads required by Building Code and noted on plans.
  - e. Truss design and shop drawing preparation shall be supervised by a registered professional engineer licensed in the state where the project is located. Submittals shall be signed and sealed and include comprehensive truss layout plans and design calculations that indicate species and grades of lumber, design stresses, size and type of connector plates used.
  - f. Fabricator shall determine truss diagonal locations. Truss configurations shown on drawings are diagrammatic only. Bearing points shall coincide with intersections of diagonals and chords. All dimensions shall be determined by the truss manufacturer. The manufacturer and contractor shall coordinate all architectural and MEP components with the truss layout and profile.
  - g. The manufacturer shall provide all open web trusses and accessories as shown on the structural and architectural drawings and as required for a complete project. This includes all blocking, bridging, bracing, and drag components required for construction.
  - h. All truss-to-truss connections and truss to supporting member connections shall be designed and detailed by the truss supplier and the size and type of connectors included in the sealed shop drawing submittal. Coordinate size, species, and grade of supporting chord and web members with the truss hanger selected.
  - i. All temporary and permanent bracing shall be in accordance with the TPI standards for bracing. The bracing shall be furnished and installed by the Contractor. Do not use ceilings as uplift bracing at truss bottom chord.
  - j. Girder trusses shown on drawings shall be designed to carry concentrated reactions from supported members. Girder trusses shall not be located directly above openings unless coordinated with the Structural Engineer.
  - k. Wood trusses shall be handled and erected in accordance with TPI HB-91. Trusses shall be unloaded and stored in bundles in an upright position out of contact with the ground until ready for installation.
  - l. Any damage to the trusses shall be brought to the immediate attention of the Structural Engineer and truss supplier. Field repair and modification of trusses shall not be made without prior written approval from the supplier, except for nominal trimming to correct length where such trimming will not impair the load carrying capacity of the truss.
5. Roof trusses shall be designed for the following:
- | TC DL = 10 psf | TC LL = 20 psf | TC SL = 20 psf | C&C TC WL = +24-48 psf           | MWFRS TC WL = +17 psf |
|----------------|----------------|----------------|----------------------------------|-----------------------|
| BC DL = 10 psf | BC LL = N/A    |                | C&C BC WL = +5 psf               | MWFRS BC WL = +5 psf  |
|                |                |                | End/Parapet C&C WL = +89/-60 psf |                       |
- Snow Drift Snow Load:
- | Balanced TC SL = 14psf                     | Drift Surcharge TC SL = 36 psf | Drift Width = 17'-3" |
|--|--------------------------------|----------------------|
| TC DL = 17 psf + 15psf partition dead load | TC LL = 40/100/125 psf         |                      |
| BC DL = 10 psf                             | BC LL = +5 psf                 |                      |
- \*Coordinate LL with Architectural plans and general note section "A. Design Criteria"
7. The allowable deflection is:
- a. Roof Trusses
  - i. Total Load: L/240
  - ii. Roof Live or Snow Load: L/360
  - iii. Absolute Maximum: 1.5"
  - b. Floor Trusses
  - i. Total Load: L/360
  - ii. Live Load: L/480
  - iii. Absolute Maximum: 1"

L. WOOD SHRINKAGE

1. IBC 2304.3.3 requires that architectural, mechanical, electrical, and plumbing systems be designed to accommodate movement due to shrinkage. McClure Engineering Co. takes no responsibility for the naturally occurring shrinkage that will occur.
2. Estimated values are based upon the following moisture content:
- a. At installation (MC) = 19%
  - b. At equilibrium (EQMC) = 6%
3. The following recommendations are intended to minimize the potential issues associated with wood shrinkage. Implementation and liability are ultimately up to the contractor and design professional responsible for the associated trade.
- a. Mechanical, Electrical, Plumbing
  - i. Allow construction gaps in the wood framing to close by delaying installation of MEP as long as possible to allow for additional dead load to be installed.
  - ii. Provide oversized or long slotted holes at pipe penetrations. Holes must be within conformance of typical penetration details.
  - iii. Rigid connections shall be adjusted before closing of wall and ceiling assemblies.
  - iv. All vertical sheet metal down spouts shall have intermediate slip joints.
  - v. Roof Drains shall utilize adjustable fittings. Fittings must be adjusted at the completion of construction and then as required to maintain proper drainage.
  - b. Architectural Considerations
  - i. Stucco, EIFS and brittle finishes shall have horizontal expansion joints, slip joints with appropriate waterproofing.
  - ii. Brick and stone finishes shall have ties that accommodate differential movement.
  - iii. Provide adjustable thresholds or transitions at rigid transitions such as CMU or concrete stair and elevator shafts.
  - c. Connection tolerance
  - i. Limit shortening due to nesting by cutting all studs level square and tight against plates.
  - ii. Structural wood panels shall have 1/4" relief gaps at each foot to limit bulging.
  - iii. Floor sheathing shall have 1/8" gaps on all sides during installation to accommodate movement.
  - iv. Shear wall hold downs shall be checked and retightened immediately prior to sheathing walls.
  - v. Delay gyp topping around concrete and CMU stair or elevator shafts until completion of construction.
  - d. Material storage
  - i. Stored materials shall be covered and elevated to provide protection from the elements.
  - ii. Do not allow water to pond on floor sheathing. Provide drain holes if required to allow water to quickly drain if water does temporarily pond.
  - e. Post occupancy
  - i. McClure recommends a review of roof drains every 3 months for the first 24 months of occupancy and then annually. Adjust drains as required to maintain watertight integrity.
  - ii. McClure recommends review of joints at exterior doors, windows and finish transitions. Waterproof as needed where original joints fail per the architect's recommendations.
  - iii. Remedial self-leveling work may be required around concrete or CMU stair and elevator towers to accommodate shrinkage.

M. STEEL FLOOR AND ROOF DECK

1. General:
- a. Install steel deck according to procedures outlined in the latest edition of the "SDI Manual of Construction with Steel Deck" published by the Steel Deck Institute. One copy shall be maintained on site.
  - b. All steel roof deck shall be welded to supporting beams and joists and erected in accordance with manufacturer's latest recommendations.
  - c. Deck shall be continuous over 3 spans, unless noted otherwise.
  - d. Provide welds or screws at parallel edges equal to specified fastening as supports. Fasten to all parallel supports – both at edges and in the field of the deck. Raise steel support beams or field points if the deck valley does not engage the support.
  - e. Provide welding washers as required by manufacturer's recommendations.
  - f. All miscellaneous accessories – pour stops, column closures, etc. – will be installed in accordance with manufacturer recommendations and the Steel Deck Institute.
  - g. Pour stops shall be A36 steel angles (1/4") to finish floor height unless otherwise noted.
  - h. Composite deck has been designed for a uniform construction live load of 20 psf and concentrated construction live load of 160 lbs. These loads are considered adequate for concrete transport and placement by hose and concrete finishing using hand tools. Bulk dumping of concrete using buckets, chutes, or handcrats, and the use of motorized finishing equipment (such as power sweepers) may require design for larger construction live loads and the addition of deck shoring during concrete placement. Requests for approval to use concrete pumps or finishing machines shall be submitted to the engineer. All shoring loads must be made by the contractor to the engineer prior to submittal of deck and supporting structure shop drawings to be considered.
  - i. Concrete placed on steel deck shall have a constant thickness. Thickness shall be maintained by probing the deck at supports and at mid-span between supports. It is not permissible to finish the deck to be flat unless a design is submitted demonstrating that the deck and supporting structure can support the additional concrete weight.
2. Roof Deck @ Canopy:
- a. Roof deck properties shall be as follows based on deck type indicated on plans:
  - 1. 1/2" wide rib 22 Ga.  $L_w = 0.0295'$ ,  $E = 0.155 \text{ in}^2/\text{ft}$ ,  $S_x = 0.186 \text{ in}^3/\text{ft}$ ,  $S_y = 0.192 \text{ in}^3/\text{ft}$ , and  $F_y = 33 \text{ ksi}$
  - b. Roof deck shall be G90 Galvanized unless noted otherwise.
  - c. Roof deck shall be fastened to supports with X-HS24N PAF and fastened at sidelaps with #10 screws as follows:
  - 1. SB: 3/64 fastener pattern w/ (1) sidelap fastener per span
  - ii. Refer to general notes section "P. Power-Actuated Fasteners" for spacing and edge distance requirements of PAFs.
  - b. Floor Deck: Roof deck properties shall be as follows based on deck type indicated on plans:
  - i. Main Floor Slab: 5 1/2" Total Depth Lightweight Concrete with 3" Composite Deck
  - a. Reinforcing: 6x6-W1.4xW1.4 Welded Wire Mesh
  - b. Deck: 3" Composite 20 Ga.  $L_w = 0.0359'$ ,  $E = 0.919 \text{ in}^2/\text{ft}$ ,  $S_x = 0.512 \text{ in}^3/\text{ft}$ ,  $S_y = 0.539 \text{ in}^3/\text{ft}$ ,  $F_y = 50 \text{ ksi}$ .
  - c. Maximum Unshored Spans: Single Span = 12'-2", Double Span = 13'-1", Triple Span = 13'-7"
  - ii. Levels 3 and 4: Battery Structural Slab: 2 1/2" Total Depth Light Weight Concrete With 9/16" form deck
  - a. Reinforcing: 6x6-W1.4xW1.4 Welded Wire Mesh
  - b. Deck: 9/16" non-composite 28 Ga.  $L_w = 0.0149'$ ,  $E = 0.012 \text{ in}^2/\text{ft}$ ,  $S_x = 0.035 \text{ in}^3/\text{ft}$ ,  $S_y = 0.036 \text{ in}^3/\text{ft}$ ,  $F_y = 60 \text{ ksi}$ .
  - c. Floor deck shall be fastened to supports with X-ENP-19 L15 w/ (5) fasteners per rib & (1) @ 2' o.c. along edge of panel, with sidelap fasteners at 36" o.c. within 30ft of CMU. When not within 30ft of CMU, fasten to supports w/ X-ENP-19 L15 PAFs w/ (1) fastener per rib & (1) @ 36" o.c. along edge of panel with sidelap fasteners at 36" o.c.
  - 1. Refer to general notes section "P. Power-Actuated Fasteners" for spacing and edge distance requirements of PAFs.
  - 2. (5) X-ENP-19 L15 PAFs may be replaced with (1) X/O HAS welded to the support through the deck, along the edge of a panel the PAFs may be replaced by (1) 3/8" HAS welded to the support through the deck @ 12" o.c.
  - 3. Alternatively, floor deck may be fastened to supports (At embed plate at CMU) with 5/8" Ø puddle welds (2) per rib & (1) every other rib & (1) weld @ 4" o.c. along edge of panel, with sidelap fasteners at 36" o.c. within 30ft of CMU. When not within 30ft of CMU, fasten to supports w/ (1) 5/8" Ø puddle weld per rib & (1) weld @ 36" o.c. along edge of panel with sidelap fasteners at 36" o.c.
  - 4. Sidelap fasteners may be #10 screws or button punch interchangeably.
  - d. Non-composite floor deck at Balconies shall be fastened to supports with X-ENP-19 L15 PAFs w/ 30/4 pattern, with 0 sidelap fasteners.
  - 1. Refer to general notes section "P. Power-Actuated Fasteners" for spacing and edge distance requirements of PAFs.
  - e. Metal floor deck shall be galvanized in accordance with the requirements of ASTM A653-94 G60.
  - f. Metal floor deck exposed to weather (at balconies) shall be galvanized in accordance with the requirements of ASTM A653-94 G90.

Schedule of minimum nailing for standard connections <sup>1</sup>		Number, or spacing, of fasteners required per connection											
Connection <sup>2,3</sup>		Nail lengths are minimum, nominal lengths, in inches.											
		Nail shank diameters are minimum, nominal diameters, in inches.											
Equiv. Common Nail		16d	10d	8d	6d	4d	3d	2d	1 1/2"	1 1/4"	1 1/8"	1 1/16"	3/16"
Floor Framing													
Joist to band joist		3	5	5	5	N/A	6	6	N/A	N/A	N/A	N/A	N/A
Ledger strip		3	4	4	4	6	4	4	N/A	N/A	N/A	N/A	N/A
Joist to sill or girder		3	3	3	3	3	4	4	N/A	N/A	N/A	N/A	N/A
Blocking between joist or rafter to top plate		3	3	3	4	3	4	4	N/A	N/A	N/A	N/A	N/A
Bridging to joist		N/A	N/A	N/A	N/A	N/A	2"	3	3	3	4	3	4
Rim joist to top plate		8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.
Build-up Girders & Beams		24" o.c.	24" o.c.	24" o.c.	24" o.c.	24" o.c.	16" o.c.	16" o.c.	16" o.c.	16" o.c.	16" o.c.	16" o.c.	16" o.c.
Spacing along edges, # at ends & splices		3	3	3	3	3	4	4	3	3	3	4	4
Ceiling and Roof Framing													
Ceiling joists to plate		3	4	5	5	5	5	5	6	N/A	N/A	N/A	N/A
Ceiling joists, laps over partitions		3	4	4	4	6	4	4	N/A	N/A	N/A	N/A	N/A
Ceiling joist to parallel rafter		3	4	4	4	6	4	4	N/A	N/A	N/A	N/A	N/A
Collar tie to rafter		3	3	4	4	5	4	4	N/A	N/A	N/A	N/A	N/A
Jack rafter to hip, toe-nailed		3	3	4	4	5	4	4	N/A	N/A	N/A	N/A	N/A
Jack rafter to hip, face nailed		2	3	3	3	3	4	4	N/A	N/A	N/A	N/A	N/A
Roof rafter to plate		3	3	3	3	3	4	4	5	5	5	5	6
Roof rafter to 2-by ridge beam (driven through beam into end of ridge)		2	3	3	3	3	4	4	N/A	N/A	N/A	N/A	N/A
Roof rafter to 2-by ridge beam (toe-nail rafter to beam)		2	3	3	3	3	4	4	N/A	N/A	N/A	N/A	N/A
Wall Framing													
Top or sole plate to stud (End nailed)		2	3	3	3	5	4	4	N/A	N/A	N/A	N/A	N/A
Stud to top or sole plate (toe-nailed)		2	3	3	3	5	4	4	5	5	5	5	5
Cap/Top plate laps and intersections (each side of lap)		2	3	3	3	4	3	3	N/A	N/A	N/A	N/A	N/A
Diagonal bracing		2	2	2	2	2	3	3	3	4	4	4	4
Sole plate to joist or blocking @ braced panels (number per 16" joist space)		2	3	3	4	4	4	4	N/A	N/A	N/A	N/A	N/A
Sole plate to joist or blocking		16" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	N/A	N/A	N/A	N/A
Double top plate		16" o.c.	16" o.c.	12" o.c.	12" o.c.	12" o.c.	8" o.c.	12" o.c.	12" o.c.	N/A	N/A	N/A	N/A
Double studs		12" o.c.	12" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	8" o.c.	N/A	N/A	N/A	N/A
Corner studs		24" o.c.	16" o.c.	16" o.c.	16" o.c.	16" o.c.	8" o.c.	12" o.c.	12" o.c.	N/A	N/A	N/A	N/A

N/A – Fastener not applicable to connection  
<sup>1</sup>The fastening schedule applies to framing members having an actual thickness of 1 1/2"(Nominal "2-by" lumber).  
<sup>2</sup>Fastenings listed above may also be used for other connections that are not listed but that have the same configuration and the same code requirement for fastener quantity/spacing and fastener size (penweight and style, e.g., 8d common, 8-penny common nail).  
<sup>3</sup>Fastening schedule only applies to buildings of conventional wood frame construction. Connections of shear walls and floor and roof diaphragms shall be as shown on the drawings.

N. CONCRETE MASONRY

1. All construction shall comply with applicable provisions of the following latest ACI standards:
- a. ACI 530/ASCE 52/TMS 402 – Building Code Requirements for Masonry Structures.
  - b. ACI 530.1/ASCE 6/TMS 602 – Specifications for Masonry Structures.
  - c. IBC Chapter 21 Masonry
2. Concrete block units shall conform to the requirements for Grade N Type 1, load-bearing normal-weight units per ASTM C-90. Use Grade S blocks below grade. All below grade block shall be solid grouted.
3. Net area compressive strength of masonry,  $F_m = 2,000 \text{ psi}$ .
4. Standard units shall have nominal face dimensions of 16 long x 8 inches high & waterproofed x 8 inches wide. The minimum compressive strength of the masonry units shall be as follows:
- |                                | Net Area Compressive Strength Of Concrete Masonry Units (psi) | Net Area Compressive Strength Of Concrete Masonry Units (psi) |
|--------------------------------|---|---|
| Masonry (F <sub>m</sub> = psi) | Type M or S mortar  | Type N mortar   |
| 2,000                          | 2000  | 2650  |
5. Mortar for unit masonry shall be proportioned per ASTM C270. The minimum mortar compressive strength is as follows:
- a. Type S: 1,800 psi
  - b. Type M: 2,500 psi
6. Grout for unit masonry shall be proportioned per ASTM C476. The minimum grout compressive strength is the larger of 2,000 psi or  $F_m$ .
7. Maximum coarse aggregate size is 3/8".
8. Reinforce all CMU walls with vertical rebar full height, centered in cell as shown on the drawings. Grout reinforced cells solid.
- a. When reinforcing is not specified, provide #5 @ 48" o.c. minimum.
9. All vertical cells to be filled shall have vertical alignment to maintain an unobstructed cell area not less than 2 in. x 3 in.
10. All bond beams shall be grouted solid and reinforced.
- a. Provide bent dowels at all wall intersections – one per bond beam at corners, and two at tee intersections.
11. Provide bond beams at all walls supporting roof and floors.
12. Grout jambs solid under all beams and lintels for full height of wall.
13. All masonry walls shall have ladder type horizontal joint reinforcement with two gage wires spaced at 16" o.c. vertically, unless noted otherwise.
- a. All wall intersections shall be reinforced with prefabricated tie or corner units.
14. Use low lift method of grouting. Maximum grout lift = 5'-0". Alternative methods of grouting may be acceptable. Submit method for approval two weeks in advance.
15. Masonry reinforcing lap lengths shall be as follows:
- |          | Masonry Strength, F <sub>m</sub> (psi) |
|----------|--|
| Bar Size | 2,000                                  |
| #3       | 12"                                    |
| #4       | 17"                                    |
| #5       | 27"                                    |
| #6       | 51"                                    |
| #7       | 69"                                    |
| #8       | 105"                                   |
| #9       | 132"                                   |
- Notes:
1. Development length is based on 21/2" masonry cover for all bars. Use bar spacers to maintain cover.
16. Brace all masonry walls until floor and roof framing and metal deck are installed.
- a. Design and installation of bracing is the responsibility of the masonry contractor.
  - b. Submit bracing plan for review.
17. When grouting is stopped for more than one hour, horizontal construction joints shall be formed by stopping the pour of grout 1'-1/2" below the top of the uppermost course.
18. Provide control vertical joints in wall every 40 ft. Vertical control reinforcing in first cell each side of control joint. Do not locate control joint within 2'-0" of end or opening.
19. Conduit pipes and sleeves in masonry shall not displace more than 2 percent of the net cross-sectional area and shall be placed no closer than 3 diameters or widths on center.
20. The Contractor shall include in his bid an allowance of 300 lbs of reinforcing steel "in place" to be used in the field as the architect or structural engineer may direct.

P. POWER-ACTUATED FASTENERS (PAFs)

-



Project Name: Discovery Park Lee's Summit Lot Address: 1901 NE Discovery Ave, Lee's Summit, MO 64064

2. The Special Inspector shall keep records of all inspections and shall furnish inspection reports to the Building Official and the Registered Design Professional in Responsible Charge. Discovered discrepancies shall be brought to the immediate attention of the Contractor for correction. If such discrepancies are not corrected, the discrepancies shall be brought to the attention of the Building Official and the Registered Design Professional in Responsible Charge. The Special Inspection program does not relieve the Contractor of his or her responsibilities.

4. A Final Report of Special Inspections documenting completion of all required Special Inspections, testing and correction of any discrepancies noted in the inspections shall be submitted prior to issuance of a Certificate of Use and Occupancy.

x Fabricators                      x Soils

- x Soils
- x Rammed Aggregate Piers
- o Cast-In-Place Deep Foundation Elements

### Wood Shear Walls with Structural Plywood or Gypsum Board Sheathing

### Wood Shear Walls with Structural Plywood or Gypsum Board Sheathing

### Special Inspection Schedule: Fabricators

### Special Inspection Schedule: Soils

### Special Inspection Schedule: Cast-In-Place Foundation Elements

### Special Inspection Schedule: Aggregate Piers

### Special Inspection Schedule: Concrete Construction

### Special Inspection Schedule: Structural Steel Construction

### Special Inspection Schedule: Wood Construction

Special Inspection Schedule: Masonry Construction - Level 1

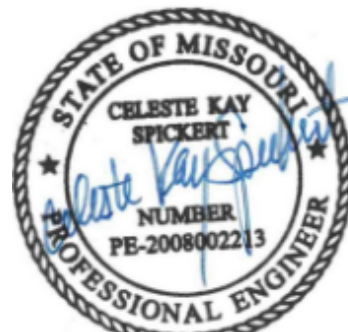
### Special Inspection Schedule: Wind Resistance

### Special Inspection Schedule: Seismic Resistance

1	12/21/2023	RESPONSE TO CITY COMMENTS
2	1/19/2024	ADDENDUM #2
3	3/06/2024	IN RESPONSE TO GOV. COMMENTS
4	9/20/2024	FOUNDATION



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09/20/2024

# TOWNEPLACE SUITES

11901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

PROJECT NUMBER: 2023000333

SHEET NUMBER

S003



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11/01/23 - CITY SUBMITTAL

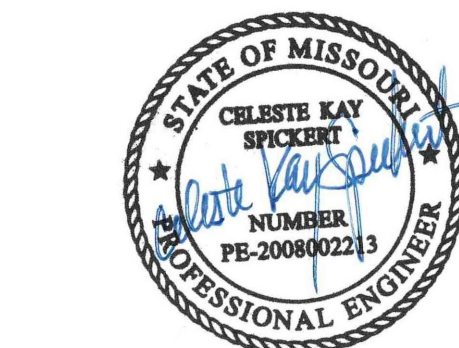
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1 12/21/2023 RESPONSE TO CITY COMMENTS  
2 1/19/2024 ADDENDUM #2  
3 3/06/2024 IN RESPONSE TO GC COMMENTS  
4 9/20/2024 FOUNDATION  
5 12/20/2024 ASI 3.1



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EXPIRES: DECEMBER 31, 2024



12/20/2024

TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

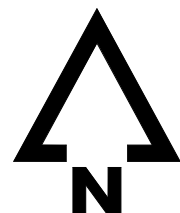
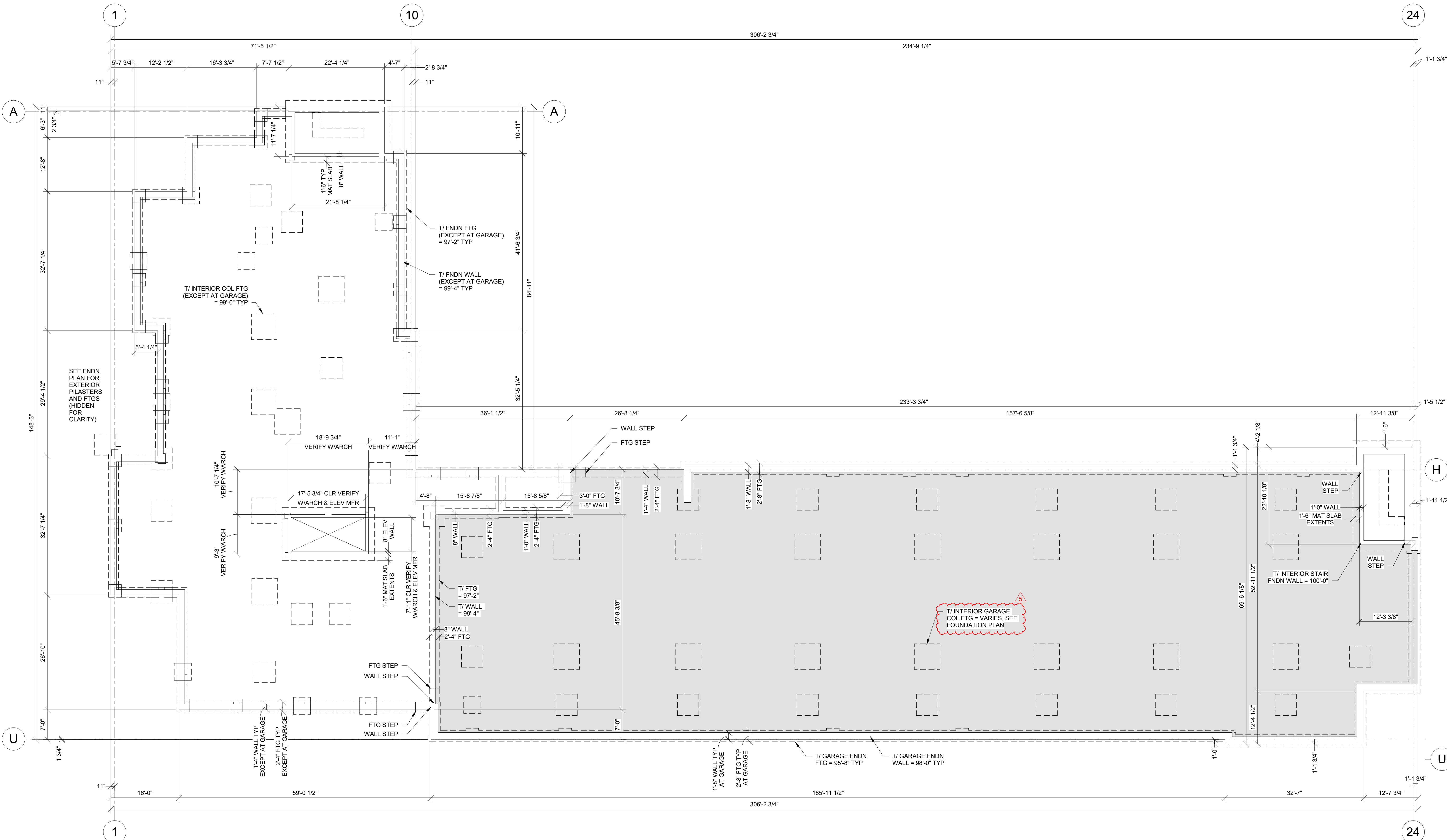
SHEET TITLE  
FOUNDATION WALL DIMENSION  
PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S100

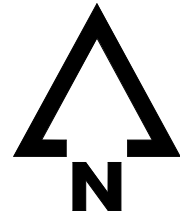
WHOLE SHEET  
FOUNDATION  
REVISIONS



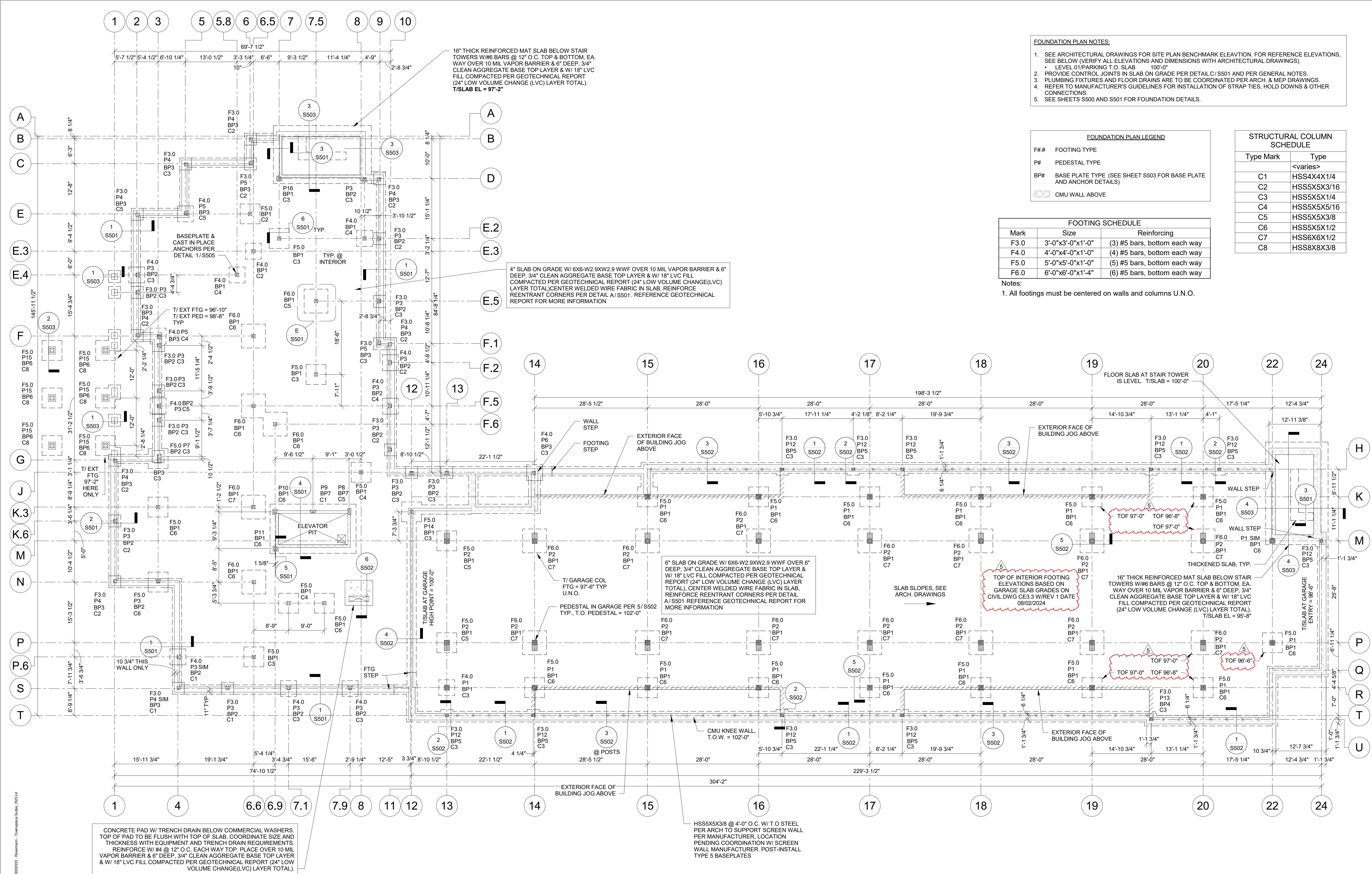
1 FOUNDATION WALL DIMENSION PLAN  
S100 3/32" = 1'-0"



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Audrey Lora 202300033  
Discovery Park Lee's Summit 202300033  
Residential - Towneplace Suites, 102'x14'



1 FOUNDATION PLAN  
S101 3/32" = 1'-0"



FOUNDATION PLAN NOTES:

- SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS).
  - LEVEL 01/PARKING T.O. SLAB 100'-0"
- PROVIDE CONTROL JOINTS IN SLAB ON GRADE PER DETAIL C/S501 AND PER GENERAL NOTES.
- PLUMBING FIXTURES AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
- REFER TO MANUFACTURER'S GUIDELINES FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
- SEE SHEETS S500 AND S501 FOR FOUNDATION DETAILS.

FOUNDATION PLAN LEGEND

F#/# FOOTING TYPE  
P# PEDESTAL TYPE  
BP# BASE PLATE TYPE (SEE SHEET S503 FOR BASE PLATE AND ANCHOR DETAILS)  
CMU WALL ABOVE

FOOTING SCHEDULE

Mark	Size	Reinforcing
F3.0	3'-0"x3'-0"x1'-0"	(3) #5 bars, bottom each way
F4.0	4'-0"x4'-0"x1'-0"	(4) #5 bars, bottom each way
F5.0	5'-0"x5'-0"x1'-0"	(5) #5 bars, bottom each way
F6.0	6'-0"x6'-0"x1'-4"	(6) #5 bars, bottom each way

Notes:

- All footings must be centered on walls and columns U.N.O.

STRUCTURAL COLUMN SCHEDULE

Type Mark	Type
C1	HSS4X4X1/4
C2	HSS5X5X3/16
C3	HSS5X5X1/4
C4	HSS5X5X5/16
C5	HSS5X5X3/8
C6	HSS5X5X1/2
C7	HSS6X6X1/2
C8	HSS8X8X3/8

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4 9/20/2024 FOUNDATION  
5 12/20/2024 ASI 3.1

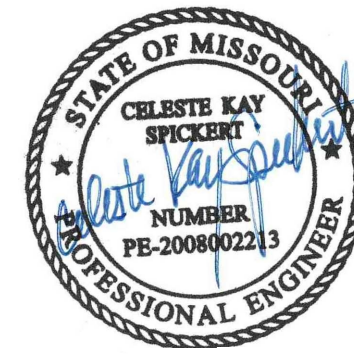


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TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

SHEET TITLE  
FOUNDATION PLAN

PROJECT NUMBER: 2023000333

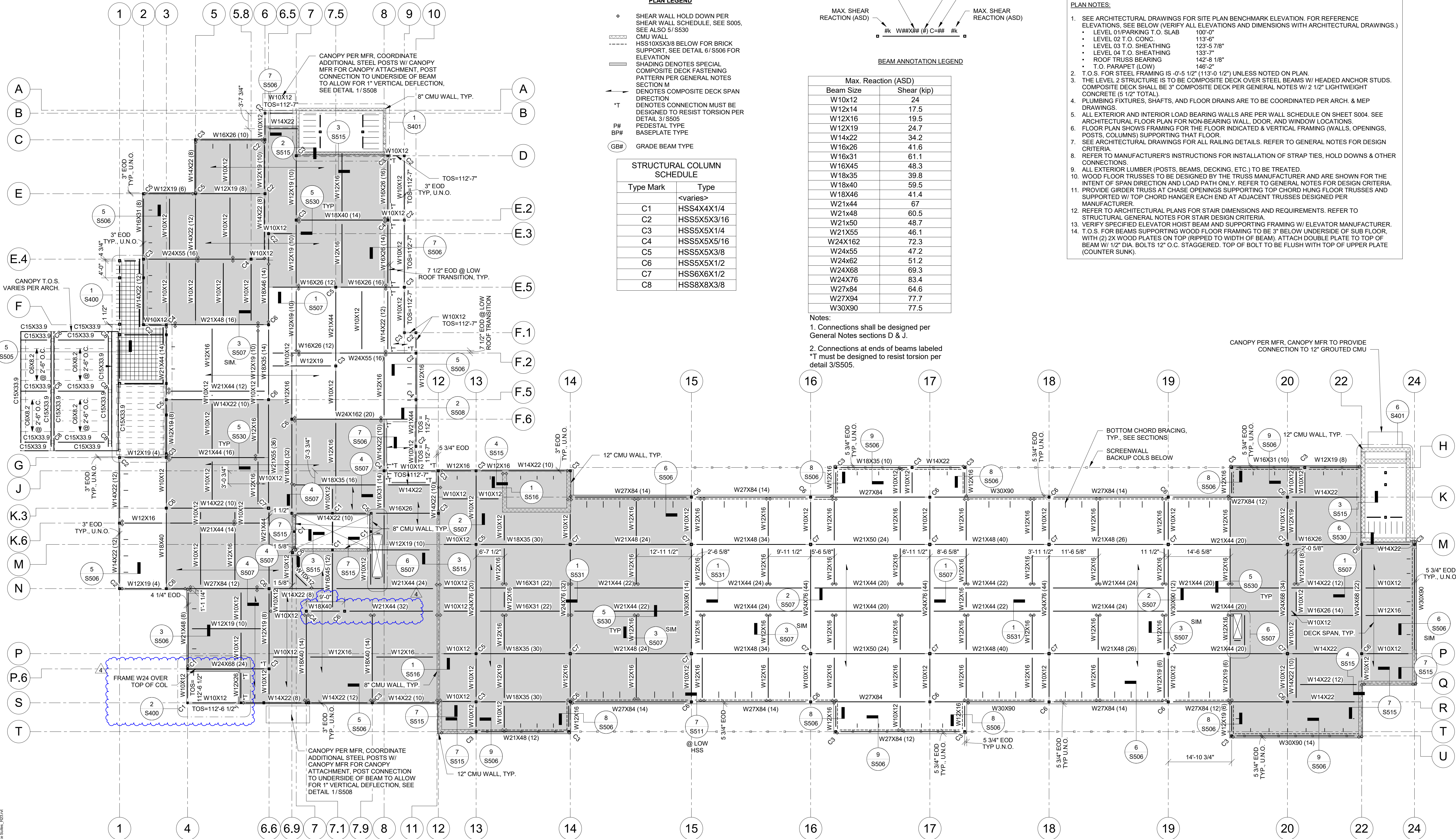
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S101

WHOLE SHEET  
FOUNDATION  
REVISIONS



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Autodesk AutoCAD 2023  
Discovery Park, Lee's Summit 65053  
Roussin - Towneplace Suites, R24-14



PLAN LEGEND

- ◆ SHEAR WALL HOLD DOWN PER SHEAR WALL SCHEDULE, SEE S505, SEE ALSO 5/ S530
- CMU WALL
- HSS10X5X3/8 BELOW FOR BRICK SUPPORT, SEE DETAIL 6/ S506 FOR ELEVATION
- SHADING DENOTES SPECIAL COMPOSITE DECK FASTENING PATTERN PER GENERAL NOTES
- SECTION M DENOTES COMPOSITE DECK SPAN DIRECTION
- DENOTES CONNECTION MUST BE DESIGNED TO RESIST TORSION PER DETAIL 3/ S505
- P# PEDESTAL TYPE
- BP# BASEPLATE TYPE
- GB# GRADE BEAM TYPE

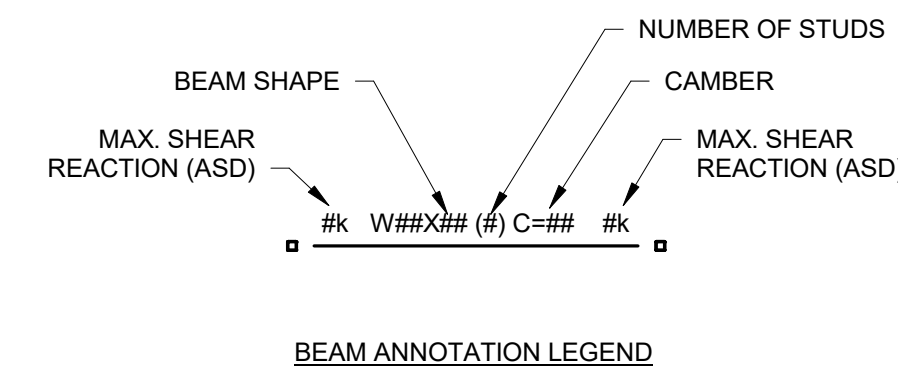
STRUCTURAL COLUMN SCHEDULE

Type Mark	Type
	<varies>
C1	HSS4X4X1/4
C2	HSS5X5X3/16
C3	HSS5X5X1/4
C4	HSS5X5X5/16
C5	HSS5X5X3/8
C6	HSS5X5X1/2
C7	HSS6X6X1/2
C8	HSS8X8X3/8

Beam Size	Max. Reaction (ASD)
W10x12	24
W12x14	17.5
W12x16	19.5
W12x19	24.7
W14x22	34.2
W16x26	41.6
W16x31	61.1
W16x45	48.3
W18x35	39.8
W18x40	59.5
W18x46	41.4
W21x44	67
W21x48	60.5
W21x50	48.7
W21x55	48.1
W24X162	72.3
W24x55	47.2
W24x62	51.2
W24x68	69.3
W24x76	83.4
W27x84	64.6
W27x94	77.7
W30X90	77.5

Notes:

- Connections shall be designed per General Notes sections D & J.
- Connections at ends of beams labeled \*T must be designed to resist torsion per detail 3/S505.



PLAN NOTES:

- SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION, FOR REFERENCE ELEVATIONS. SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
  - LEVEL 01/PARKING T.O. SLAB 100'-0"
  - LEVEL 02 T.O. CONC. 113'-6"
  - LEVEL 03 T.O. SHEATHING 123'-5 7/8"
  - LEVEL 04 T.O. SHEATHING 133'-7"
  - ROOF TRUSS BEARING 142'-8 1/8"
  - T.O. PARAPET (LOW) 146'-2"
- T.O.S. FOR STEEL FRAMING IS -0'-5 1/2" (113'-0 1/2") UNLESS NOTED ON PLAN.
- THE LEVEL 2 STRUCTURE IS TO BE COMPOSITE DECK OVER STEEL BEAMS W/ HEADED ANCHOR STUDS. COMPOSITE DECK SHALL BE 3" COMPOSITE DECK PER GENERAL NOTES W/ 2 1/2" LIGHTWEIGHT CONCRETE (5 1/2" TOTAL).
- PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
- ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE ON SHEET S004. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
- FLOOR PLAN SHOWS FRAMING FOR THE FLOOR INDICATED & VERTICAL FRAMING (WALLS, OPENINGS, POSTS, COLUMNS) SUPPORTING THAT FLOOR.
- SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
- REFER TO MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
- ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
- WOOD FLOOR TRUSSES TO BE DESIGNED BY THE TRUSS MANUFACTURER AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
- VERIFY SPECIFIED ELEVATOR HOIST BEAM AND SUPPORTING FRAMING W/ ELEVATOR MANUFACTURER.
- T.O.S. FOR BEAMS SUPPORTING WOOD FLOOR FRAMING TO BE 3" BELOW UNDERSIDE OF SUB FLOOR WITH (2) 2X WOOD PLATES ON TOP (RIPPED TO WIDTH OF BEAM). ATTACH DOUBLE PLATE TO TOP OF BEAM W/ 1/2" DIA. BOLTS 12" O.C. STAGGERED. TOP OF BOLT TO BE FLUSH WITH TOP OF UPPER PLATE (COUNTER SUNK).

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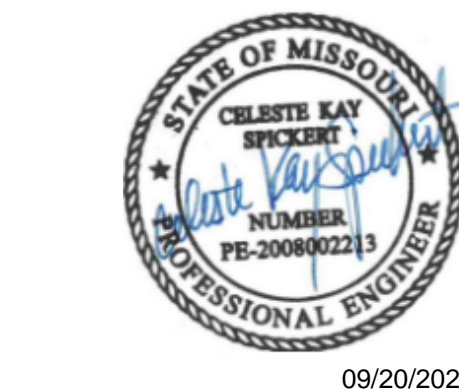
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1 12/21/2023 RESPONSE TO CITY COMMENTS  
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TOWNEPLACE SUITES

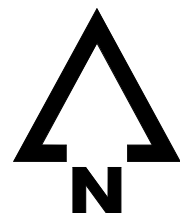
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LEE'S SUMMIT, MO 64064

SHEET TITLE  
LEVEL 2 FRAMING PLAN

PROJECT NUMBER: 2023000333

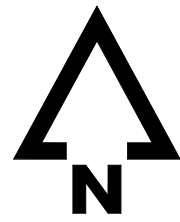
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S102

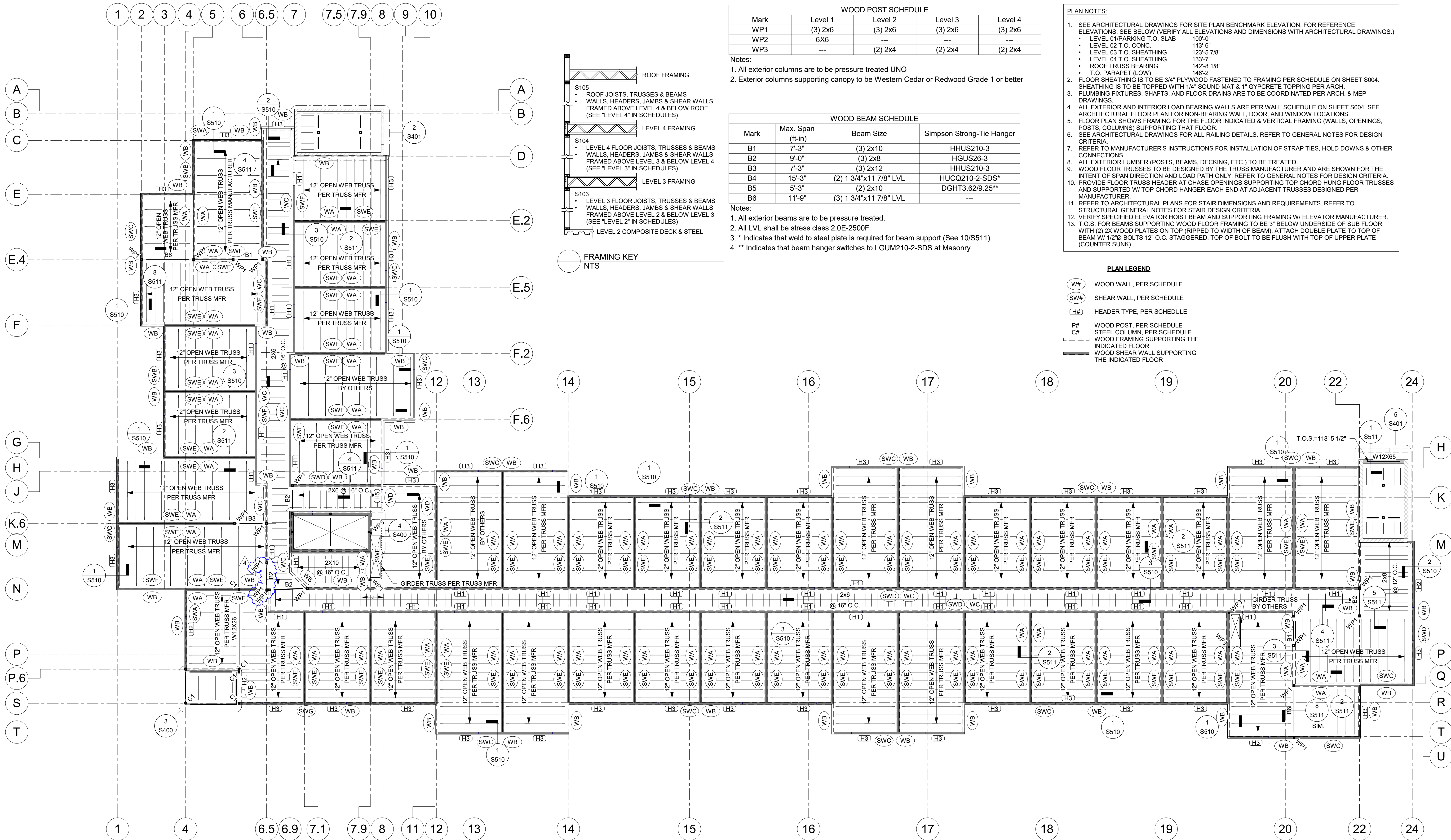


1 LEVEL 2 STEEL & PODIUM PLAN  
S102 3/32" = 1'-0"





1 LEVEL 3 FRAMING PLAN  
S103 3/32" = 1'-0"



WOOD POST SCHEDULE				
Mark	Level 1	Level 2	Level 3	Level 4
WP1	(3) 2x6	(3) 2x6	(3) 2x6	(3) 2x6
WP2	6X6	---	---	---
WP3	---	(2) 2x4	(2) 2x4	(2) 2x4

Notes:

- All exterior columns are to be pressure treated UNO
- Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better

WOOD BEAM SCHEDULE			
Mark	Max. Span (ft-in)	Beam Size	Simpson Strong-Tie Hanger
B1	7'-3"	(3) 2x10	HHUS210-3
B2	9'-0"	(3) 2x8	HGUS26-3
B3	7'-3"	(3) 2x12	HHUS210-3
B4	15'-3"	(2) 1 3/4"x11 7/8" LVL	HUCQ210-2-SDS*
B5	5'-3"	(2) 2x10	DGHT3.62/9.25**
B6	11'-9"	(3) 1 3/4"x11 7/8" LVL	---

Notes:

- All exterior beams are to be pressure treated.
- All LVL shall be stress class 2.0E-2500F
- \* Indicates that weld to steel plate is required for beam support (See 10/S511)
- \*\* Indicates that beam hanger switches to LGUM210-2-SDS at Masonry.

PLAN NOTES:

- SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS, SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS.)
  - LEVEL 01 PARKING T.O. SLAB 100'-0"
  - LEVEL 02 T.O. CONC 113'-6"
  - LEVEL 03 T.O. SHEATHING 123'-5 7/8"
  - LEVEL 04 T.O. SHEATHING 133'-7"
  - ROOF TRUSS BEARING 142'-8 1/8"
  - T.O. PARAPET FLOW 148'-2"
- FLOOR SHEATHING IS TO BE 3/4" PLYWOOD FASTENED TO FRAMING PER SCHEDULE ON SHEET S004. SHEATHING IS TO BE TOPPED WITH 1/4" SOUND MAT & 1" GYPCRETE TOPPING PER ARCH.
- PLUMBING FIXTURES, SHAFTS, AND FLOOR DRAINS ARE TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
- ALL EXTERIOR AND INTERIOR LOAD BEARING WALLS ARE PER WALL SCHEDULE ON SHEET S004. SEE ARCHITECTURAL FLOOR PLAN FOR NON-BEARING WALL, DOOR, AND WINDOW LOCATIONS.
- FLOOR PLAN SHOWS FRAMING FOR THE FLOOR INDICATED & VERTICAL FRAMING (WALLS, OPENINGS, POSTS, COLUMNS) SUPPORTING THAT FLOOR.
- SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
- REFER TO MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
- ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
- WOOD FLOOR TRUSSES TO BE DESIGNED BY THE TRUSS MANUFACTURER AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
- PROVIDE FLOOR TRUSS HEADER AT CHASE OPENINGS SUPPORTING TOP CHORD HANGING FLOOR TRUSSES AND SUPPORTED W/ TOP CHORD HANGER EACH END AT ADJACENT TRUSSES DESIGNED PER MANUFACTURER.
- REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.
- VERIFY SPECIFIC ELEVATOR HOIST BEAM AND SUPPORTING FRAMING W/ ELEVATOR MANUFACTURER.
- T.O.S. FOR BEAMS SUPPORTING WOOD FLOOR FRAMING TO BE 3" BELOW UNDERSIDE OF SUB FLOOR WITH (2) 2X WOOD PLATES ON TOP (RIPPED TO WIDTH OF BEAM), ATTACH DOUBLE PLATE TO TOP OF BEAM W/ 1/2" Ø BOLTS 12" O.C. STAGGERED. TOP OF BOLT TO BE FLUSH WITH TOP OF UPPER PLATE (COUNTER SUNK).

PLAN LEGEND

- (W#) WOOD WALL, PER SCHEDULE  
(SW#) SHEAR WALL, PER SCHEDULE  
(H#) HEADER TYPE, PER SCHEDULE  
P# WOOD POST, PER SCHEDULE  
C# STEEL COLUMN, PER SCHEDULE  
--- WOOD FRAMING SUPPORTING THE INDICATED FLOOR  
--- WOOD SHEAR WALL SUPPORTING THE INDICATED FLOOR

WOOD WALL SCHEDULE			
Mark	Level 2	Level 3	Level 4
WA	(2) 2x4	(1) 2x4	(1) 2x4
WB	(1) 2x6	(1) 2x6	(1) 2x6
WC	(1) 2x6	(1) 2x6	(1) 2x6
WD	(2) 2x4*	(1) 2x4	(1) 2x4

Notes:

- All wall studs are 16" o.c. U.N.O. on plans or followed by an \* (see note 8).
- Bottom sill plates at Level 2 Podium to be fastened w/ 3/8" Ø x 3-1/2" Hilti Kwik HUS EZ Bolts @ 48" o.c. U.N.O.
- Bottom sill plate connections shall have a 3"x3"x1/4" steel plate washer at each anchor bolt on shear walls only.
- Bottom and top plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
- Shear walls shall be sheathed per shear wall schedule
- Non-load bearing walls not shown, refer to architectural drawings.
- All top plates are to be continuous. Splice per S3500.
- \* Indicates studs or stud pack at 12" o.c.

TYPICAL WALL HEADER SCHEDULE (STACKED OPENINGS)													
Header Mark	Max. Span (ft-in)	Header			Kings & Jacks								Sills* All Levels (if applicable)
		Level 2	Level 3	Level 4	Header Top Plates*		Level 2		Level 3		Level 4		
					All Levels	Kings	Jacks	Kings	Jacks	Kings	Jacks		
H1	3'-3"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	
H2	6'-3"	(3) 2x10	(3) 2x10	(3) 2x8	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6	
H3	6'-3"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6	
H4	6'-4"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	
H5	3'-3"	(2) 2x8	(2) 2x8	(2) 2x8	(1) 2x4	(3) 2x4	(1) 2x4	(2) 2x4	(1) 2x4	(1) 2x4	(1) 2x4	(1) 2x4	

H = An opening which requires a header

Notes:

- See S500 for typical opening framing.
- All openings shall stack.
- Coordinate all dimensions and elevations with architectural drawings.
- Cripple studs should match the adjacent wall framing.
- \* Header top plates and sills shall match the adjacent wall studs.

PRINTS ISSUED

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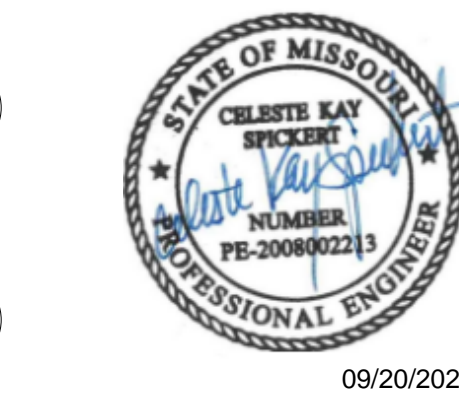
REVISIONS:

1	12/21/2023	RESPONSE TO CITY COMMENTS
2	1/19/2024	ADDENDUM #2
3	3/06/2024	IN RESPONSE TO GC COMMENTS
4	9/20/2024	FOUNDATION



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MISSOURI CERTIFICATE OF AUTHORITY  
NO. E-2006023253  
EXPIRES: DECEMBER 31, 2024



TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

SHEET TITLE

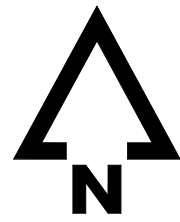
LEVEL 3 FRAMING PLAN

PROJECT NUMBER: 2023000333

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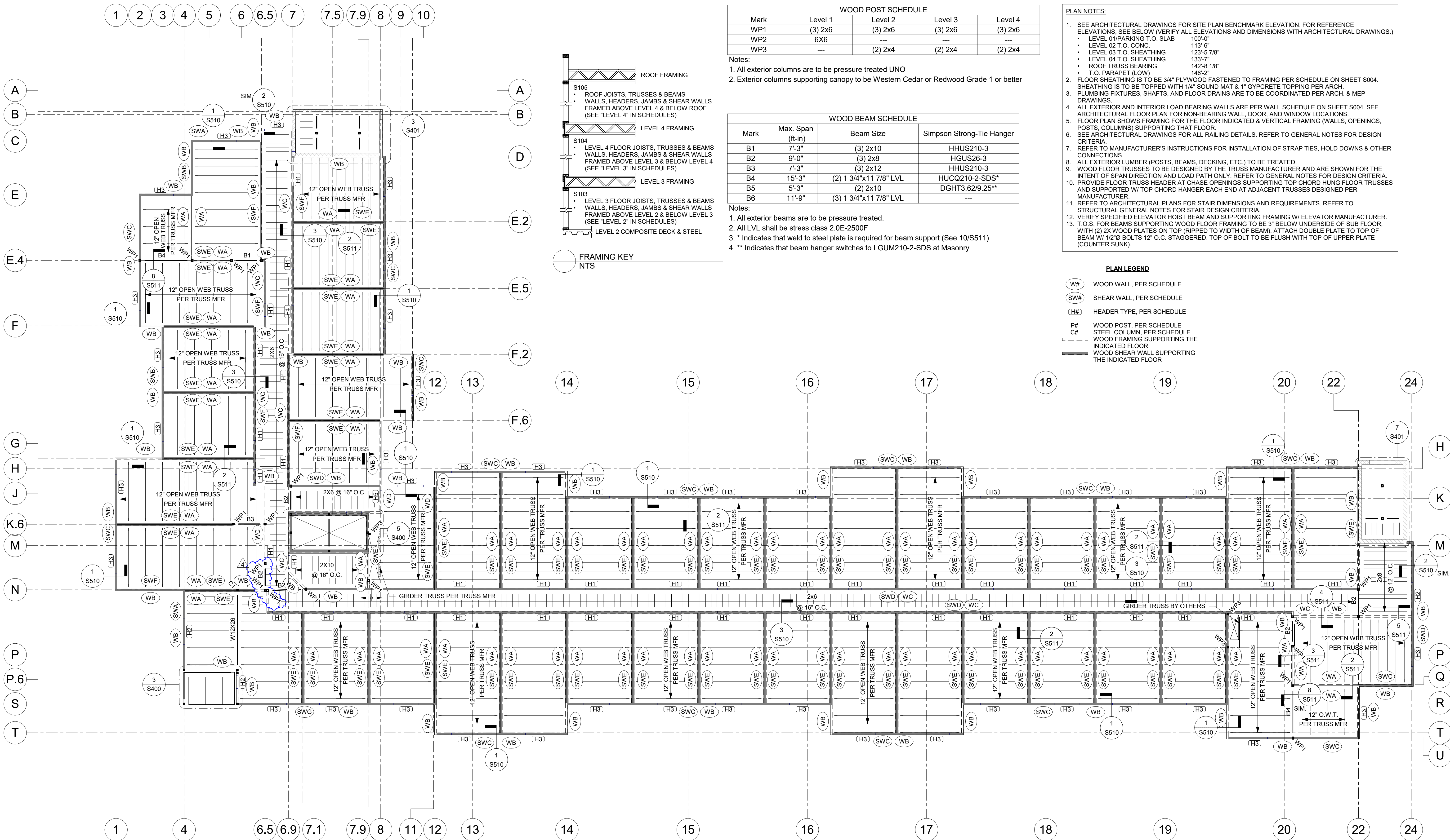
S103





1  
S104

LEVEL 4 FRAMING PLAN  
3/32" = 1'-0"



WOOD POST SCHEDULE				
Mark	Level 1	Level 2	Level 3	Level 4
WP1	(3) 2x6	(3) 2x6	(3) 2x6	(3) 2x6
WP2	6X6	---	---	---
WP3	---	(2) 2x4	(2) 2x4	(2) 2x4

Notes:

- All exterior columns are to be pressure treated UNO
- Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better

WOOD BEAM SCHEDULE			
Mark	Max. Span (ft-in)	Beam Size	Simpson Strong-Tie Hanger
B1	7'-3"	(3) 2x10	HHUS210-3
B2	9'-0"	(3) 2x8	HGUS26-3
B3	7'-3"	(3) 2x12	HHUS210-3
B4	15'-3"	(2) 1 3/4"x11 7/8" LVL	HUCQ210-2-SDS*
B5	5'-3"	(2) 2x10	DGHT3.62/9.25**
B6	11'-9"	(3) 1 3/4"x11 7/8" LVL	---

Notes:

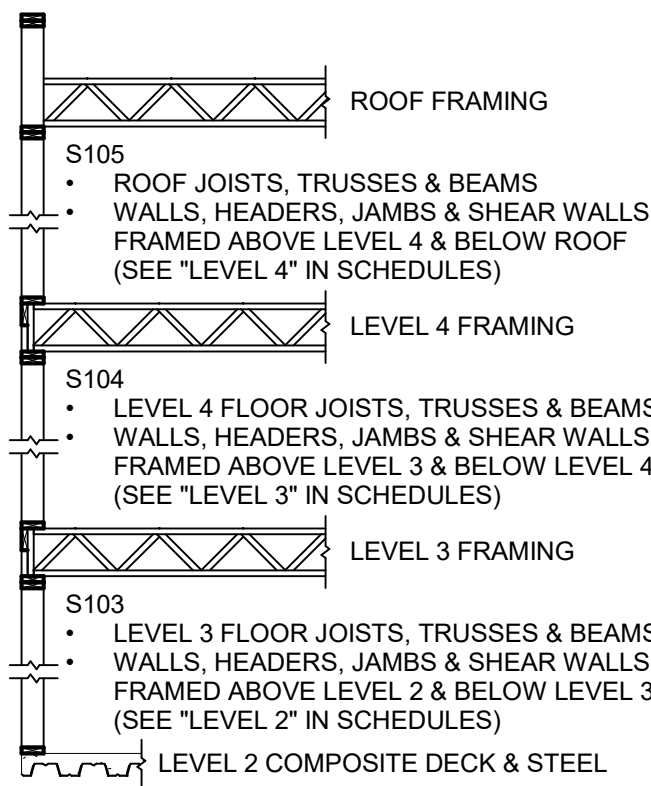
- All exterior beams are to be pressure treated.
- All LVL shall be stress class 2.0E-2500F
- \* Indicates that weld to steel plate is required for beam support (See 10/S511)
- \*\* Indicates that beam hanger switches to LGUM210-2-SDS at Masonry.

PLAN NOTES:

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  - LEVEL 01 PARKING T.O. SLAB 100'-0"
  - LEVEL 02 T.O. CONC 113'-6"
  - LEVEL 03 T.O. SHEATHING 123'-5 7/8"
  - LEVEL 04 T.O. SHEATHING 133'-7"
  - ROOF TRUSS BEARING 142'-8 1/8"
  - T.O. PARAPET (LOW) 148'-2"
- FLOOR SHEATHING IS TO BE 3/4" PLYWOOD FASTENED TO FRAMING PER SCHEDULE ON SHEET S004. SHEATHING IS TO BE TOPPED WITH 1/4" SOUND MAT & 1" GYPCRETE TOPPING PER ARCH.
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- T.O.S. FOR BEAMS SUPPORTING WOOD FLOOR FRAMING TO BE 3" BELOW UNDERSIDE OF SUB FLOOR WITH (2) 2X WOOD PLATES ON TOP (RIPPED TO WIDTH OF BEAM), ATTACH DOUBLE PLATE TO TOP OF BEAM W/ 1/2"Ø BOLTS 12" O.C. STAGGERED. TOP OF BOLT TO BE FLUSH WITH TOP OF UPPER PLATE (COUNTER SUNK).

PLAN LEGEND

- (W#) WOOD WALL, PER SCHEDULE  
(SW#) SHEAR WALL, PER SCHEDULE  
(H#) HEADER TYPE, PER SCHEDULE  
P# WOOD POST, PER SCHEDULE  
C# STEEL COLUMN, PER SCHEDULE  
--- WOOD FRAMING SUPPORTING THE INDICATED FLOOR  
--- WOOD SHEAR WALL SUPPORTING THE INDICATED FLOOR



FRAMING KEY  
NTS

PRINTS ISSUED

11/01/23 - CITY SUBMITTAL

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Columbia, MO 65203  
P 573-814-1568

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MISSOURI CERTIFICATE OF AUTHORITY  
NO. E-2006023253  
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09/20/2024

TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

WOOD WALL SCHEDULE			
Mark	Level 2	Level 3	Level 4
WA	(2) 2x4	(1) 2x4	(1) 2x4
WB	(1) 2x6	(1) 2x6	(1) 2x6
WC	(1) 2x6	(1) 2x6	(1) 2x6
WD	(2) 2x4*	(1) 2x4	(1) 2x4

Notes:

- All wall studs are 16" o.c. U.N.O. on plans or followed by an \* (see note 8).
- Bottom sill plates at Level 2 Podium to be fastened w/ 3/8"Ø x 3-1/2" Hilti Kwik HUS EZ Bolts @ 48" o.c. U.N.O.
- Bottom sill plate connections shall have a 3"x3"x1/4" steel plate washer at each anchor bolt on shear walls only.
- Bottom and top plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
- Shear walls shall be sheathed per shear wall schedule
- Non-load bearing walls not shown, refer to architectural drawings.
- All top plates are to be continuous. Splice per S3500.
- \* Indicates studs or stud pack at 12" o.c.

TYPICAL WALL HEADER SCHEDULE (STACKED OPENINGS)														
Header Mark	Max. Span (ft-in)	Header			Header Top Plates*	Kings & Jacks								Sills*  (if applicable)
		Level 2	Level 3	Level 4		Level 2		Level 3		Level 4		All Levels		
					All Levels	Kings	Jack	Kings	Jack	Kings	Jack			
H1	3'-3"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6		
H2	6'-3"	(3) 2x10	(3) 2x10	(3) 2x8	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6		
H3	6'-3"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6		
H4	6'-4"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6		
H5	3'-3"	(2) 2x8	(2) 2x8	(2) 2x8	(1) 2x4	(3) 2x4	(1) 2x4	(2) 2x4	(1) 2x4	(1) 2x4	(1) 2x4	(1) 2x4		

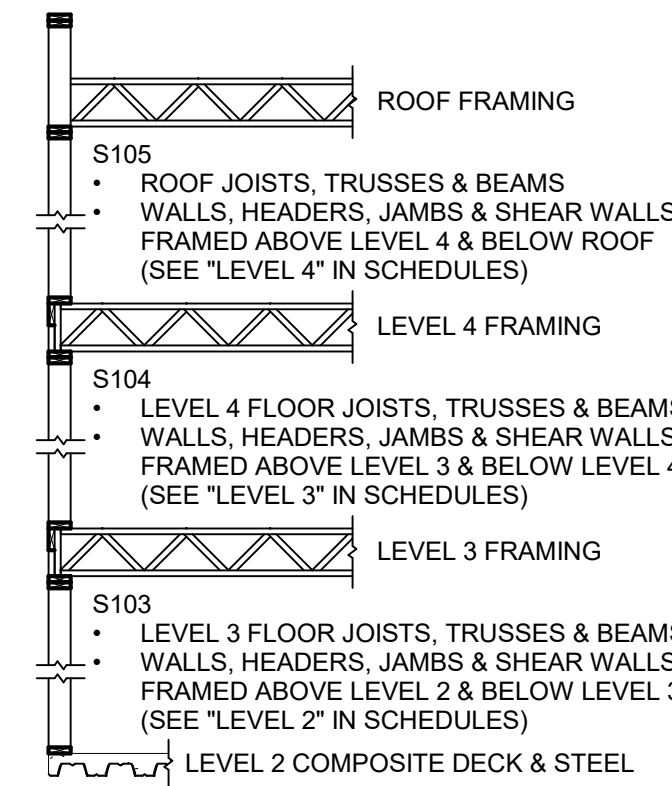
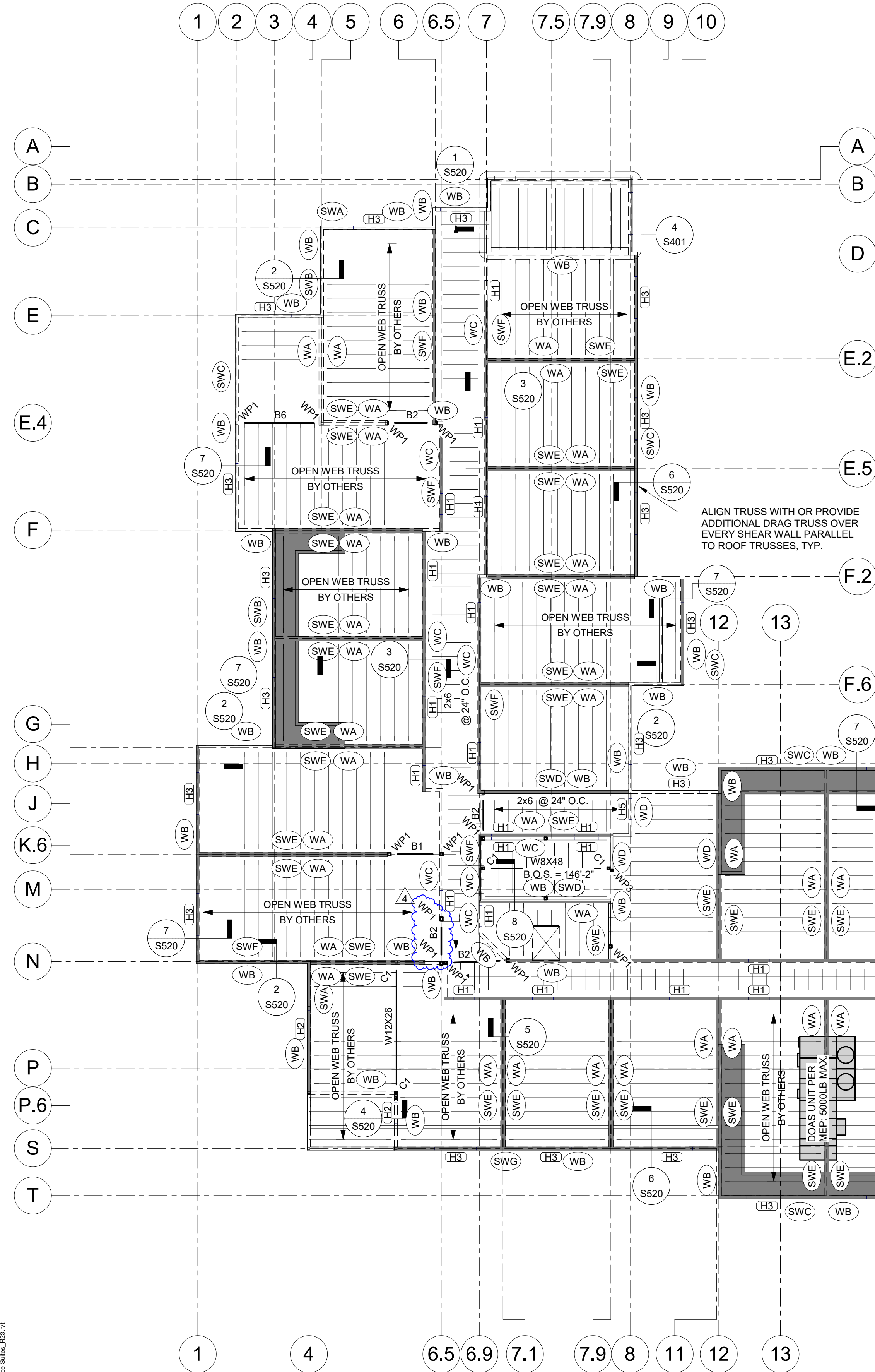
H = An opening which requires a header

Notes:

- See S500 for typical opening framing.
- All openings shall stack.
- Coordinate all dimensions and elevations with architectural drawings.
- Cripple studs should match the adjacent wall framing.
- \* Header top plates and sills shall match the adjacent wall studs.



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Autodesk User: 2023000333  
Discovery Park/Less Summit 2023000333  
Residential - Townhouse Suites, R24-14



FRAMING KEY  
NTS

WOOD POST SCHEDULE				
Mark	Level 1	Level 2	Level 3	Level 4
WP1	(3) 2x6	(3) 2x6	(3) 2x6	(3) 2x6
WP2	6X6	---	---	---
WP3	---	(2) 2x4	(2) 2x4	(2) 2x4

Notes:

- All exterior columns are to be pressure treated UNO
- Exterior columns supporting canopy to be Western Cedar or Redwood Grade 1 or better

WOOD BEAM SCHEDULE			
Mark	Max. Span (ft-in)	Beam Size	Simpson Strong-Tie Hanger
B1	7'-3"	(3) 2x10	HHUS210-3
B2	9'-0"	(3) 2x8	HGUS26-3
B3	7'-3"	(3) 2x12	HHUS210-3
B4	15'-3"	(2) 1 3/4"x11 7/8" LVL	HUCQ210-2-SDS*
B5	5'-3"	(2) 2x10	DGHT3.62/9.25**
B6	11'-9"	(3) 1 3/4"x11 7/8" LVL	---

Notes:

- All exterior beams are to be pressure treated.
- All LVL shall be stress class 2.0E-2500F
- \* Indicates that weld to steel plate is required for beam support (See 10/S511)
- \*\* Indicates that beam hanger switches to LGUM210-2-SDS at Masonry.

#### ROOF PLAN NOTES:

- SEE ARCHITECTURAL DRAWINGS FOR SITE PLAN BENCHMARK ELEVATION. FOR REFERENCE ELEVATIONS. SEE BELOW (VERIFY ALL ELEVATIONS AND DIMENSIONS WITH ARCHITECTURAL DRAWINGS).
  - LEVEL 01 PARKING T.O. SLAB 100'-0"
  - LEVEL 02 T.O. CONC 113'-6"
  - LEVEL 03 T.O. GYPCRETE 123'-7 1/8"
  - LEVEL 04 T.O. GYPCRETE 133'-8 1/4"
  - ROOF TRUSS BEARING 142'-8 1/8"
  - T.O. PARAPET (LOW) 144'-10 1/8"
- ROOF TRUSS MANUFACTURER TO DESIGN TRUSSES TO BE AS SHALLOW AS POSSIBLE. TRUSSES TO BE DESIGNED & MANUFACTURED TO INCLUDE PARAPET.
- ROOF SHEATHING IS TO BE 3/4" PLYWOOD FASTENED TO FRAMING PER SCHEDULE ON SHEET S004. SHEATHING IS TO BE TOPPED WITH SLOPED RIGID INSULATION PER ARCH.
- RTU PENETRATIONS TO BE COORDINATED PER ARCH. & MEP DRAWINGS.
- PARAPET FRAMING IS TO BE PER DETAILS PART OF THE ROOF TRUSSES DESIGNED BY THE TRUSS MANUFACTURER.
- SEE ARCHITECTURAL DRAWINGS FOR ALL RAILING DETAILS. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
- REFER TO MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF STRAP TIES, HOLD DOWNS & OTHER CONNECTIONS.
- ALL EXTERIOR LUMBER (POSTS, BEAMS, DECKING, ETC.) TO BE TREATED.
- WOOD ROOF TRUSSES TO BE DESIGNED BY THE TRUSS MANUFACTURER AND ARE SHOWN FOR THE INTENT OF SPAN DIRECTION AND LOAD PATH ONLY. REFER TO GENERAL NOTES FOR DESIGN CRITERIA.
- PROVIDE ROOF TRUSS HEADER AT CHASE OPENINGS SUPPORTING TOP CHORD HUNG ROOF TRUSSES AND SUPPORTED W/ TOP CHORD HANGER EACH END AT ADJACENT TRUSSES DESIGNED PER MANUFACTURER.
- REFER TO ARCHITECTURAL PLANS FOR STAIR DIMENSIONS AND REQUIREMENTS. REFER TO STRUCTURAL GENERAL NOTES FOR STAIR DESIGN CRITERIA.
- VERIFY SPECIFIED ELEVATOR HOIST BEAM AND SUPPORTING FRAMING W/ ELEVATOR MANUFACTURER.
- T.O.S. FOR STEEL FRAMING IS TO MATCH TOP OF ROOF FRAMING UNLESS SPECIFICALLY NOTED ON PLAN.

#### PLAN LEGEND

- W# WOOD WALL, PER SCHEDULE  
SW# SHEAR WALL, PER SCHEDULE  
H# HEADER TYPE, PER SCHEDULE  
P# WOOD POST, PER SCHEDULE  
C# WOOD FRAMING SUPPORTING THE INDICATED FLOOR  
--- WOOD SHEAR WALL SUPPORTING THE INDICATED FLOOR

SHADING INDICATES  
WIDE ROOF PARAPET,  
SEE ARCH. DRAWINGS

SHADING INDICATES  
WIDE ROOF PARAPET,  
SEE ARCH. DRAWINGS

WOOD WALL SCHEDULE			
Mark	Level 2	Level 3	Level 4
WA	(2) 2x4	(1) 2x4	(1) 2x4
WB	(1) 2x6	(1) 2x6	(1) 2x6
WC	(1) 2x6	(1) 2x6	(1) 2x6
WD	(2) 2x4*	(1) 2x4	(1) 2x4

Notes:

- All wall studs are 16" o.c. U.N.O. on plans or followed by an \* (see note 8).
- Bottom sill plates at Level 2 Podium to be fastened w/ 3/8"Ø x 3-1/2" Hilti Kwik HUS EZ Bolts @ 48" o.c. U.N.O.
- Bottom sill plate connections shall have a 3"x3"x1/4" steel plate washer at each anchor bolt on shear walls only.
- Bottom and top plates at all other levels to be fastened w/ (2) 16d nails @ 16" o.c. U.N.O.
- Shear walls shall be sheathed per shear wall schedule
- Non-load bearing walls not shown, refer to architectural drawings.
- All top plates are to be continuous. Splice per S3500.
- \* Indicates studs or stud pack at 12" o.c.

TYPICAL WALL HEADER SCHEDULE (STACKED OPENINGS)														
Header Mark	Max. Span (ft-in)	Header			Header Top Plates*	Kings & Jacks								Sills* (if applicable)
		Level 2	Level 3	Level 4		Level 2		Level 3		Level 4				
H1	3'-3"	(3) 2x8	(3) 2x8	(3) 2x8	All Levels	Kings	Jack	Kings	Jack	Kings	Jack			
H2	6'-3"	(3) 2x10	(3) 2x10	(3) 2x8	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6		
H3	6'-3"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(2) 2x6	(1) 2x6	(1) 2x6		
H4	6'-4"	(3) 2x8	(3) 2x8	(3) 2x8	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6	(1) 2x6		
H5	3'-3"	(2) 2x8	(2) 2x8	(2) 2x8	(1) 2x4	(3) 2x4	(1) 2x4	(2) 2x4	(1) 2x4	(1) 2x4	(1) 2x4	(1) 2x4		

H = An opening which requires a header

Notes:

- See S500 for typical opening framing.
- All openings shall stack.
- Coordinate all dimensions and elevations with architectural drawings.
- Cripple studs should match the adjacent wall framing.
- \* Header top plates and sills shall match the adjacent wall studs.

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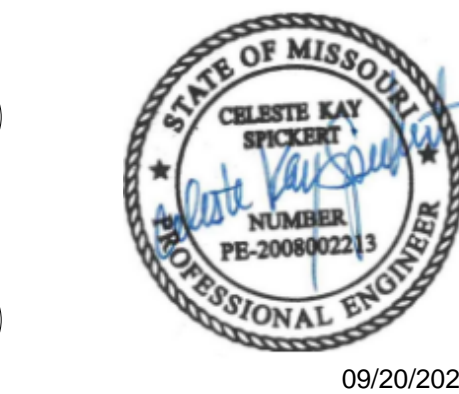
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- |   |            |                            |
|---|------------|----------------------------|
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NO. E-2006023253  
EXPIRES: DECEMBER 31, 2024



TOWNEPLACE SUITES

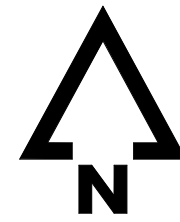
1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

SHEET TITLE  
ROOF FRAMING PLAN

PROJECT NUMBER: 2023000333

SHEET NUMBER:

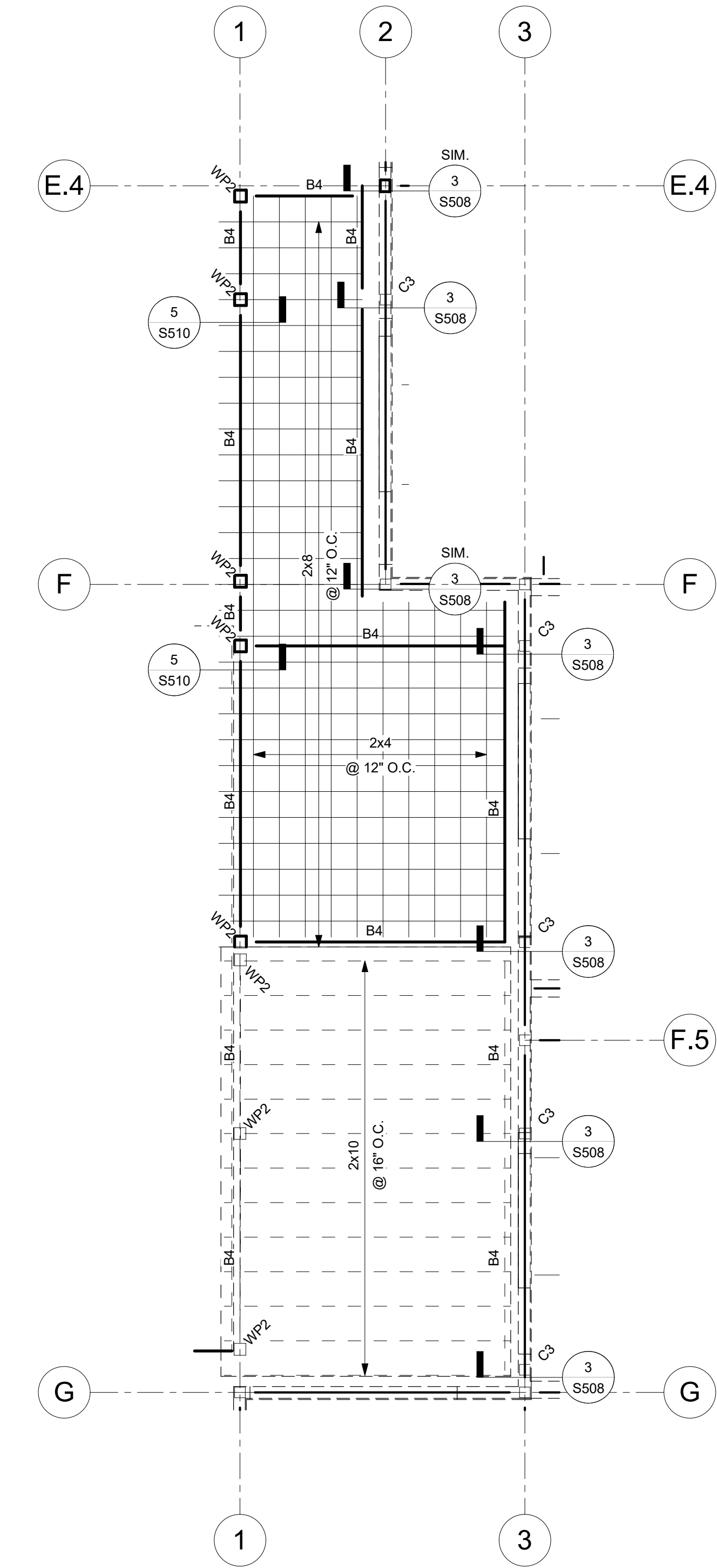
S105



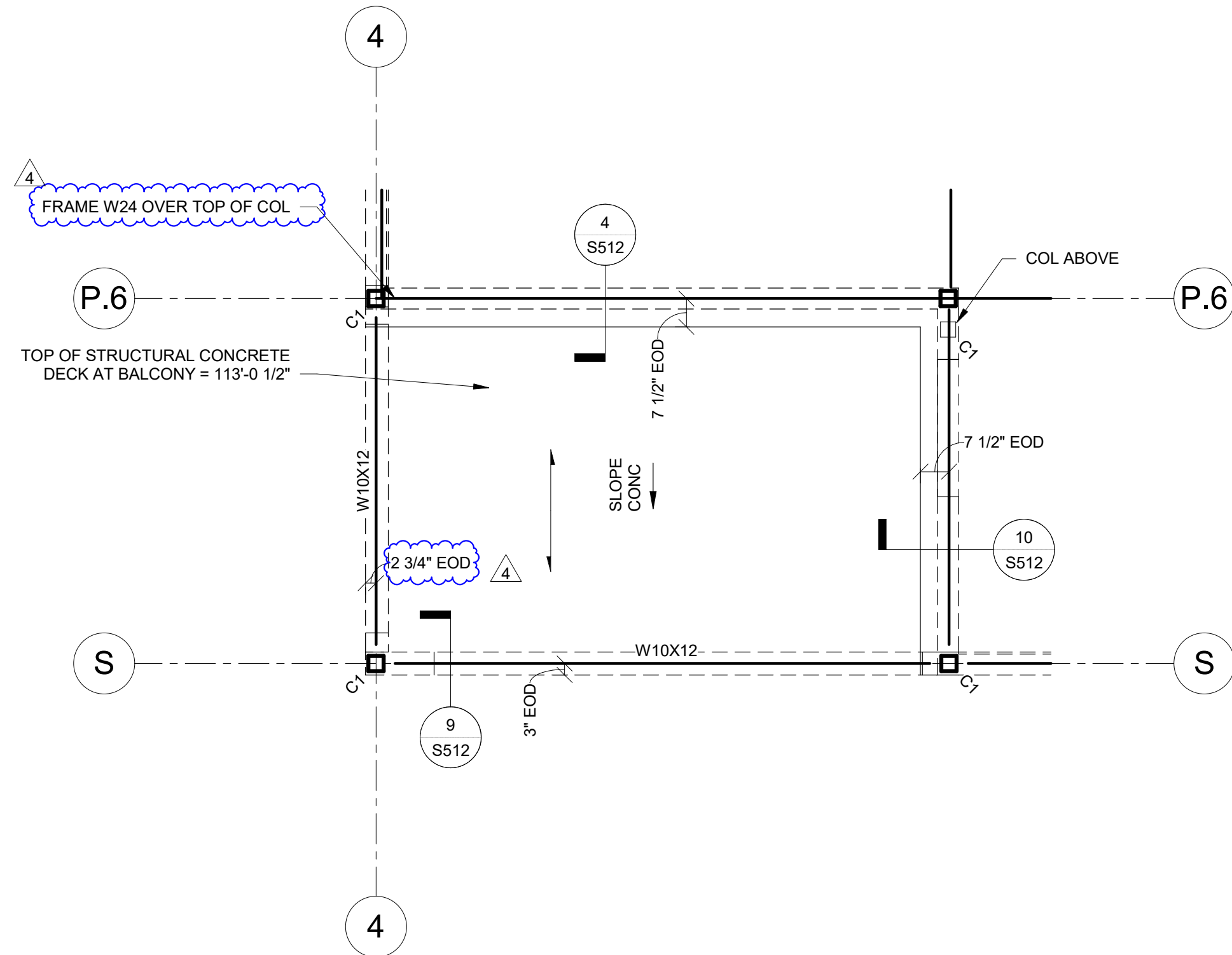
1 ROOF FRAMING PLAN  
S105 3/32" = 1'-0"



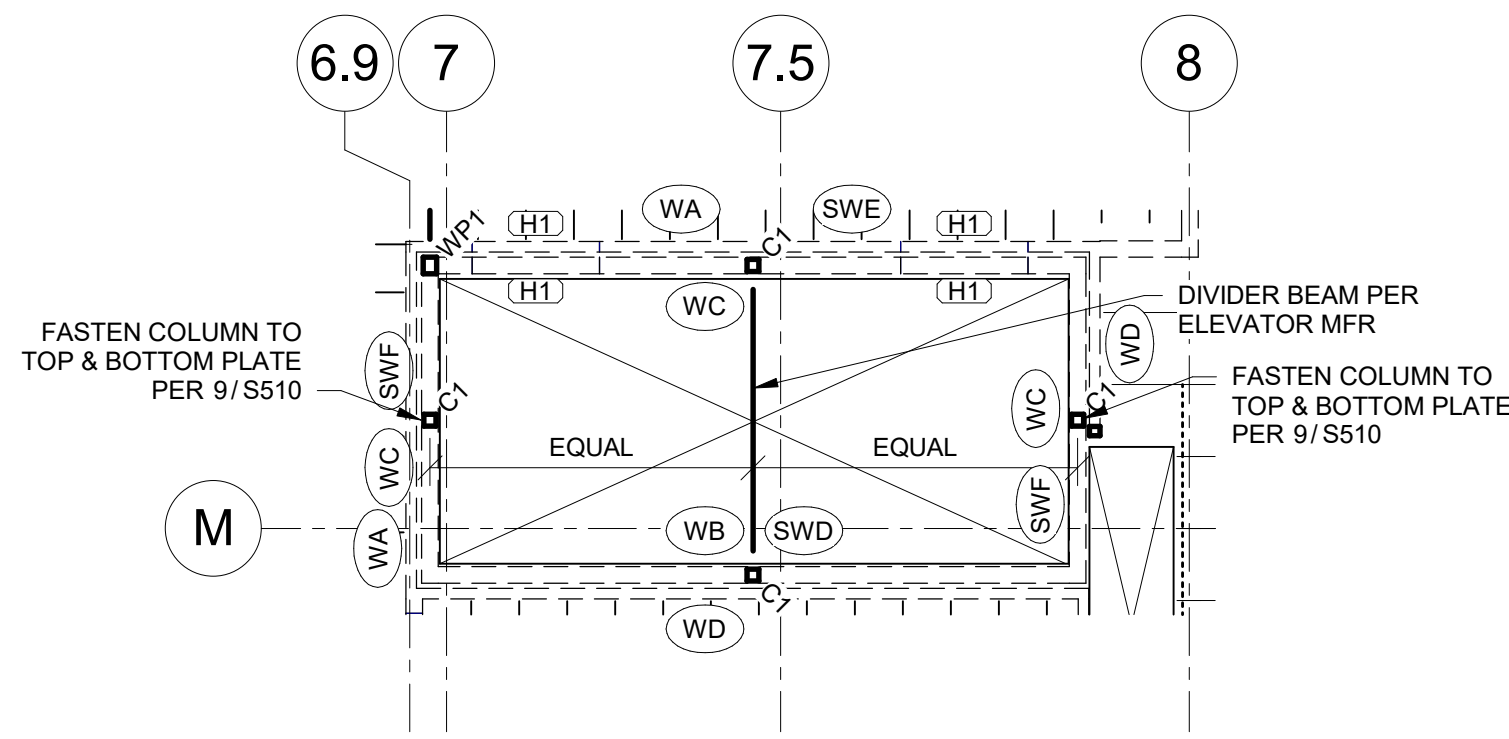
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Autodesk AutoCAD 2023.000333  
Discovery Park, Lee's Summit 652030033  
Rousselle - Towneplace Suites, 02/14



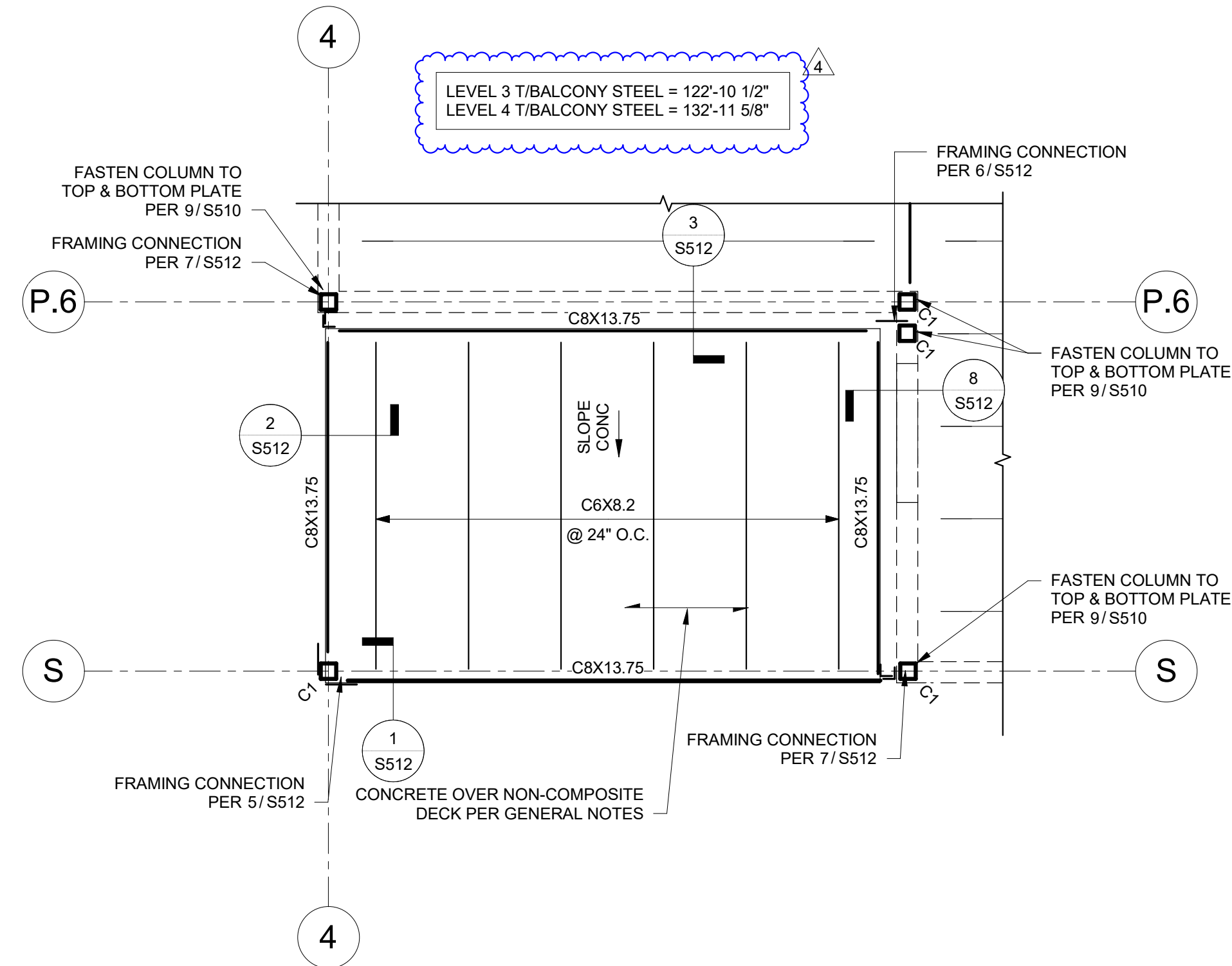
1  
S400  
ENLARGED PERGOLA PLAN  
1/4" = 1'-0"



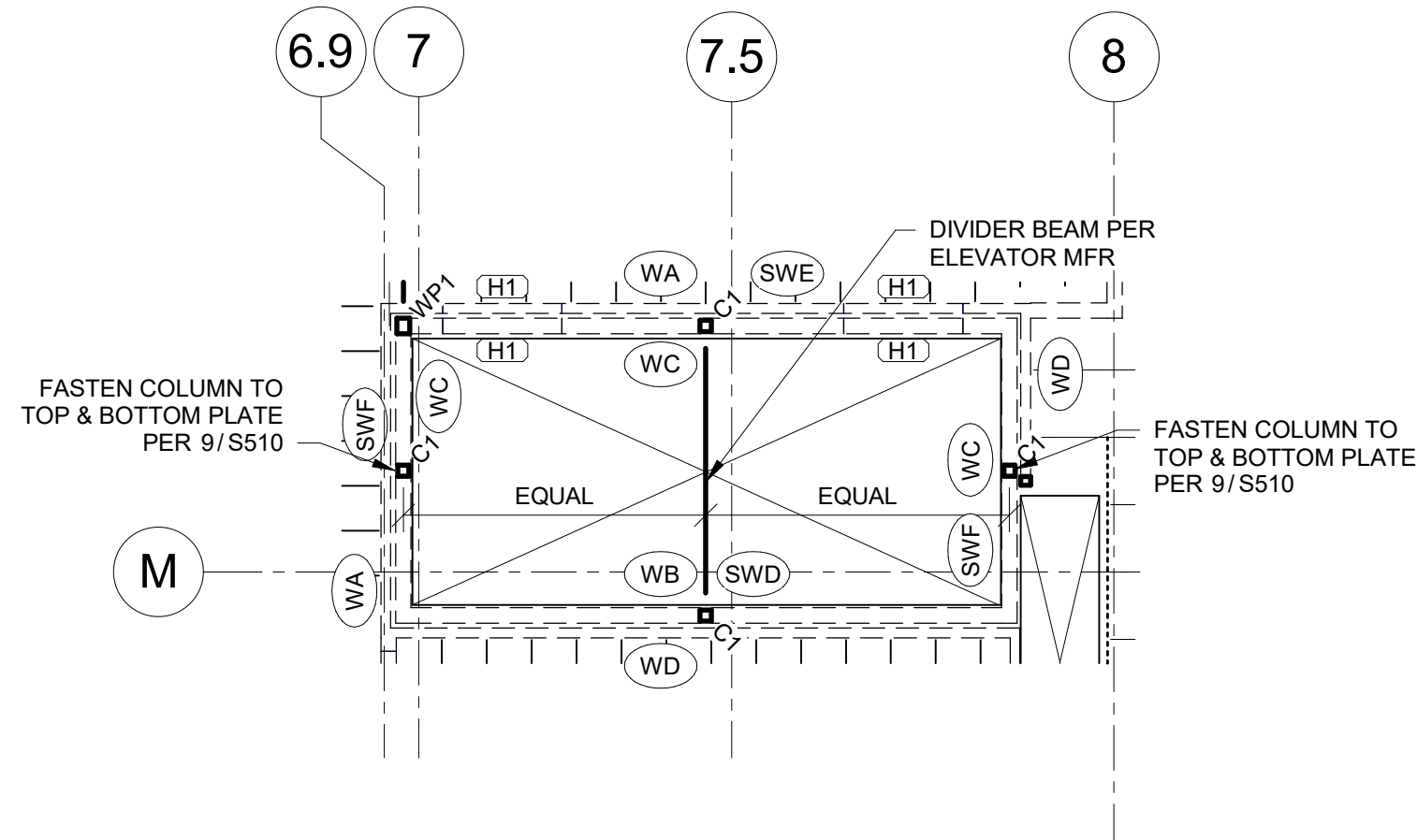
2  
S400  
LEVEL 2 BALCONY FRAMING PLAN  
3/8" = 1'-0"



4  
S400  
ENLARGED ELEVATOR PLAN - L3  
3/16" = 1'-0"



3  
S400  
LEVELS 3 & 4 BALCONY FRAMING PLAN  
3/8" = 1'-0"



5  
S400  
ENLARGED ELEVATOR PLAN - L4  
3/16" = 1'-0"

PRINTS ISSUED  
11/01/23 - CITY SUBMITTAL

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4 9/20/2024 FOUNDATION



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NO. E-2006023253  
EXPIRES: DECEMBER 31, 2024



TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

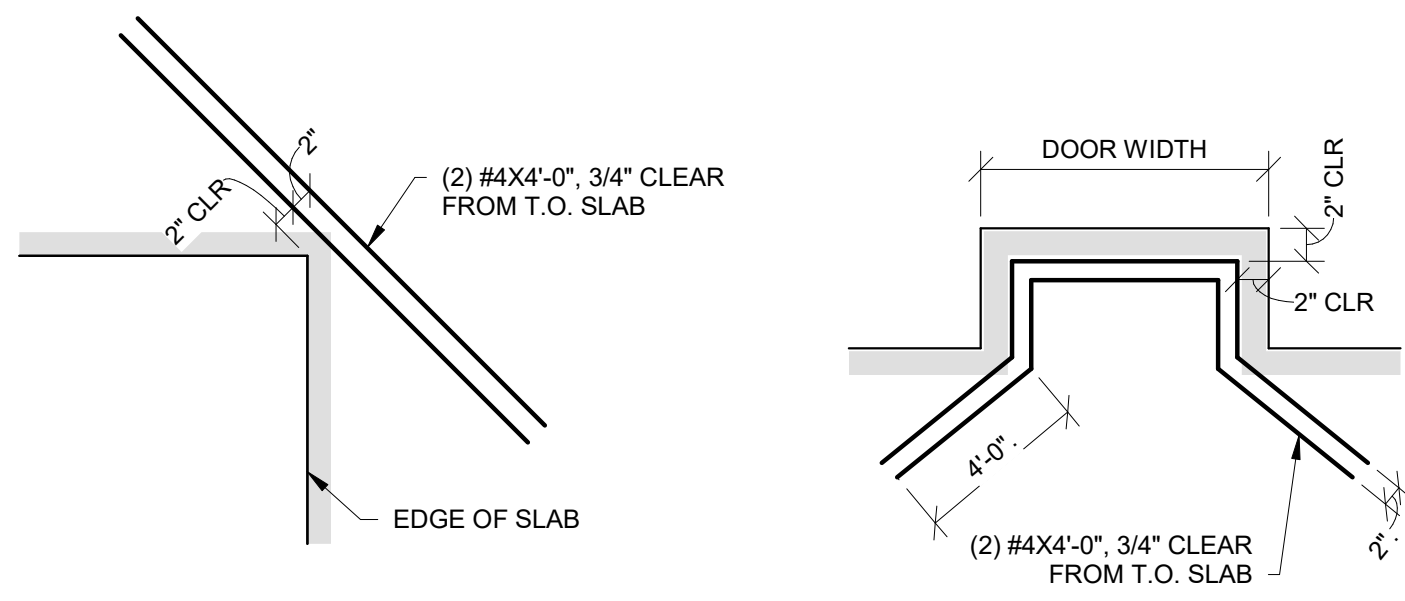
SHEET TITLE  
ENLARGED VIEWS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

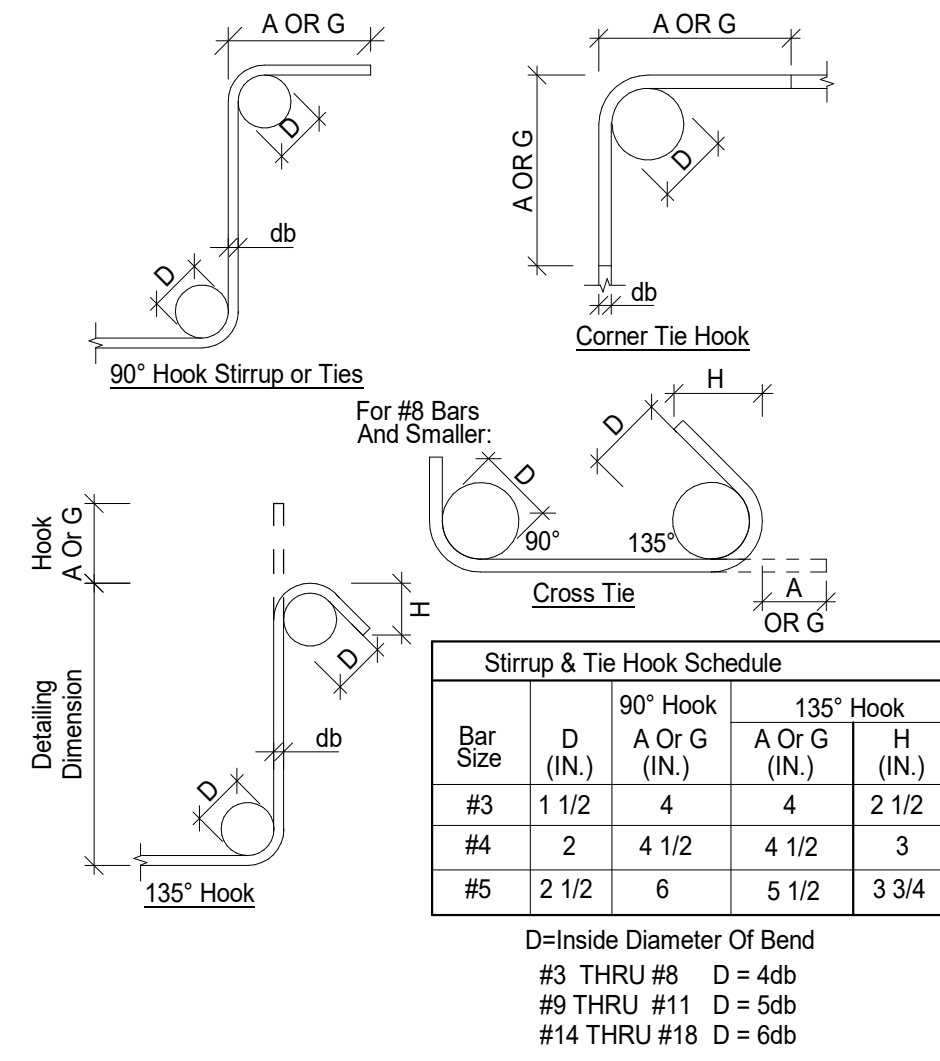
S400



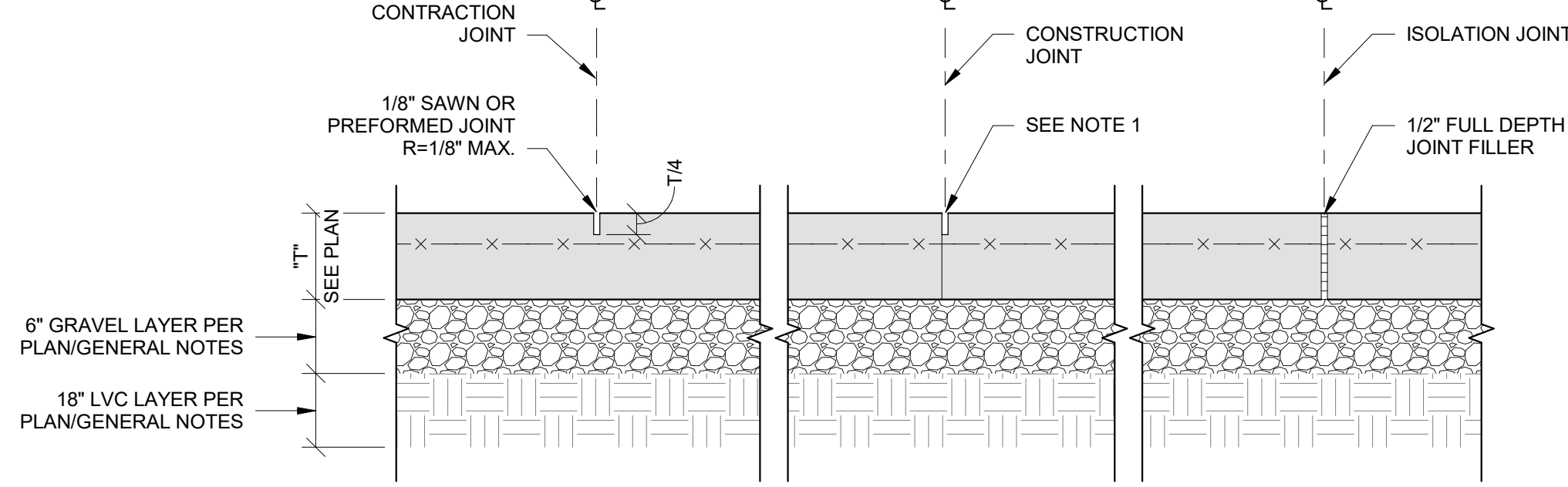


RE-ENTRANT CORNERS

THRESHOLDS

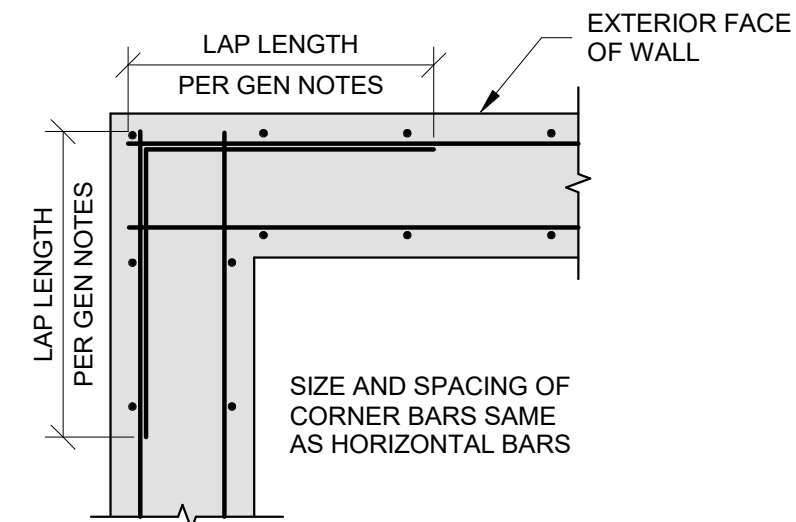


STIRRUP AND TIE BAR BENDING DETAIL NTS

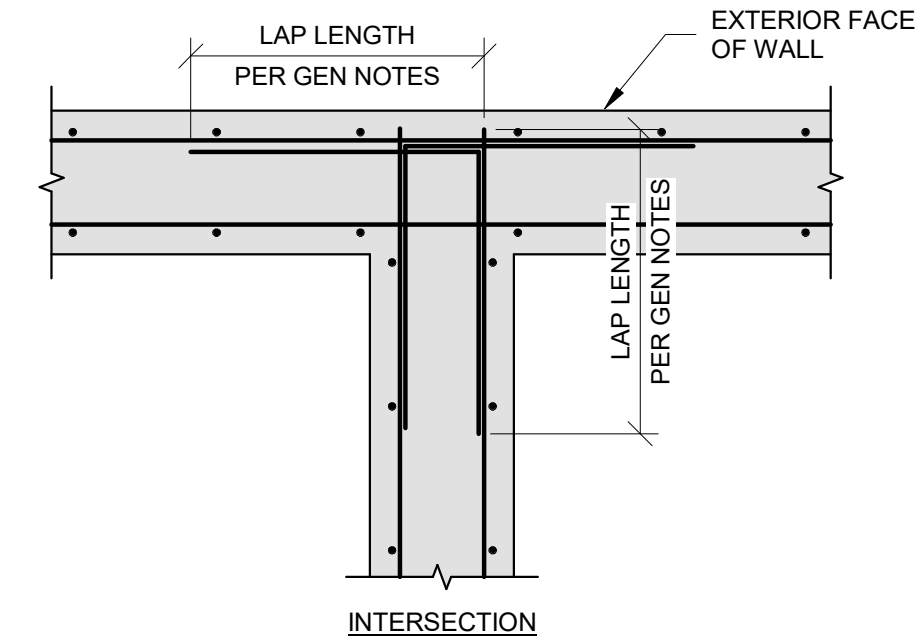


- NOTES:
1. LOCATE CONSTRUCTION JOINTS AT SAW JOINT LOCATIONS. MATCH SAW JOINT PROFILE. ALL CONSTRUCTION JOINT LOCATIONS TO BE REVIEWED AND APPROVED BY ER PRIOR TO CONSTRUCTION.
  2. MAXIMUM SPACING BETWEEN SAW JOINTS = 15'-0" FOR 6" SLABS & 10'-0" FOR 4" SLABS. SEE PLAN FOR LOCATIONS.
  3. CONTINUE SLAB ON GRADE REINFORCING, UNO. PROVIDE TENSION LAP SPLICE AS REQUIRED.
  4. DO NOT PLACE DOWELS WITHIN 12" OF A SLAB CORNER.

TYPICAL SLAB ON GRADE JOINTS 1" = 1'-0"



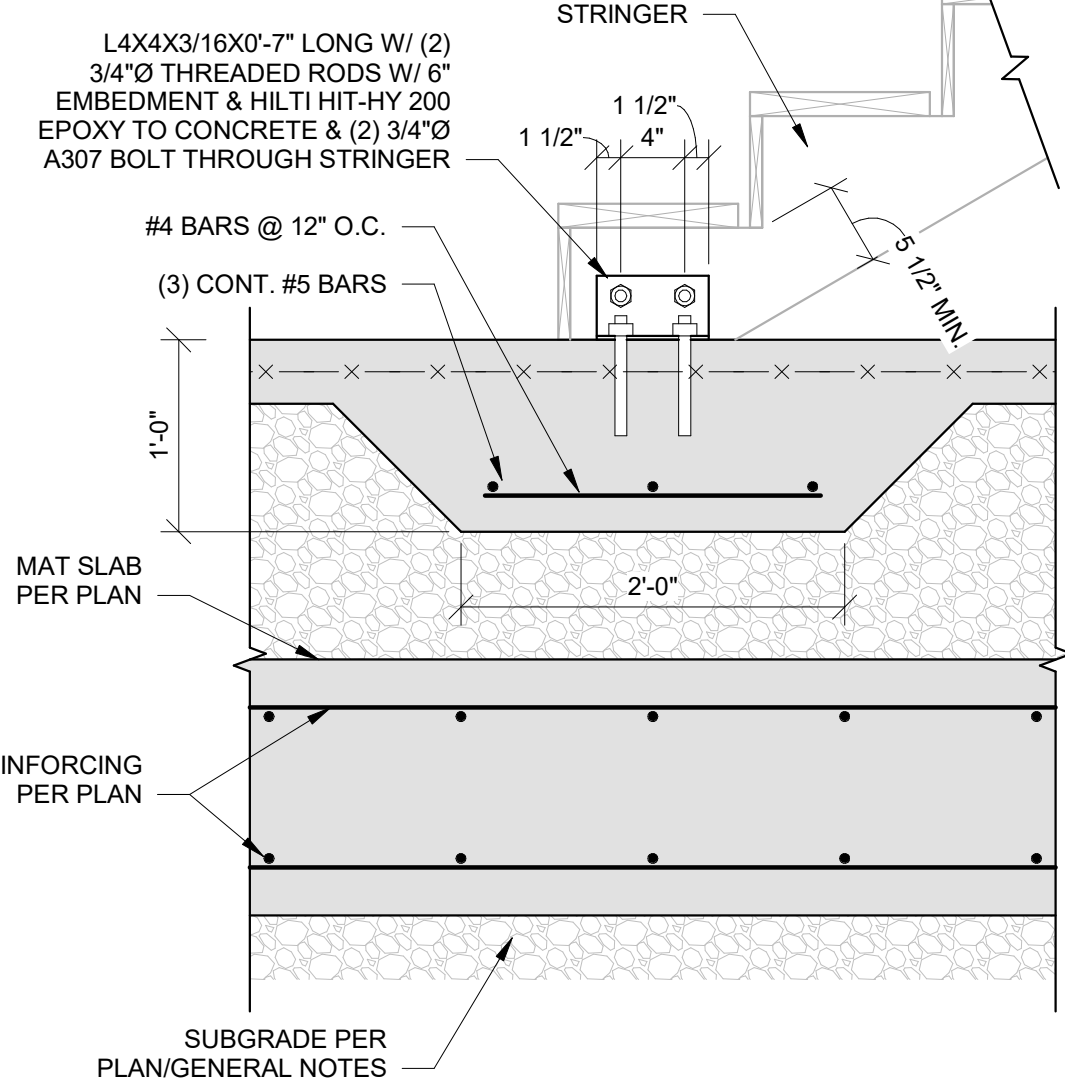
EXTERIOR CORNER



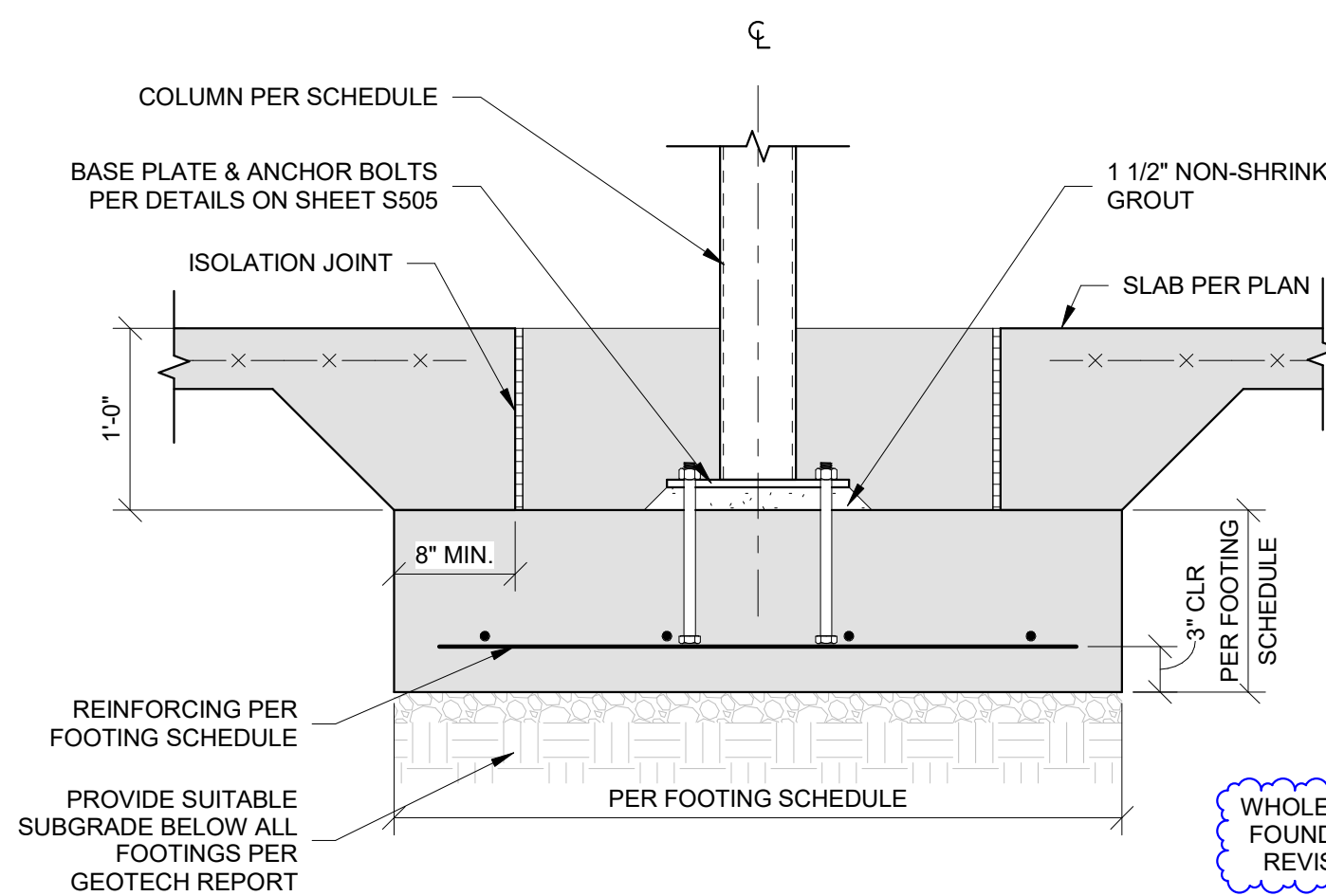
INTERSECTION

CORNER BAR DETAIL 3/4" = 1'-0"

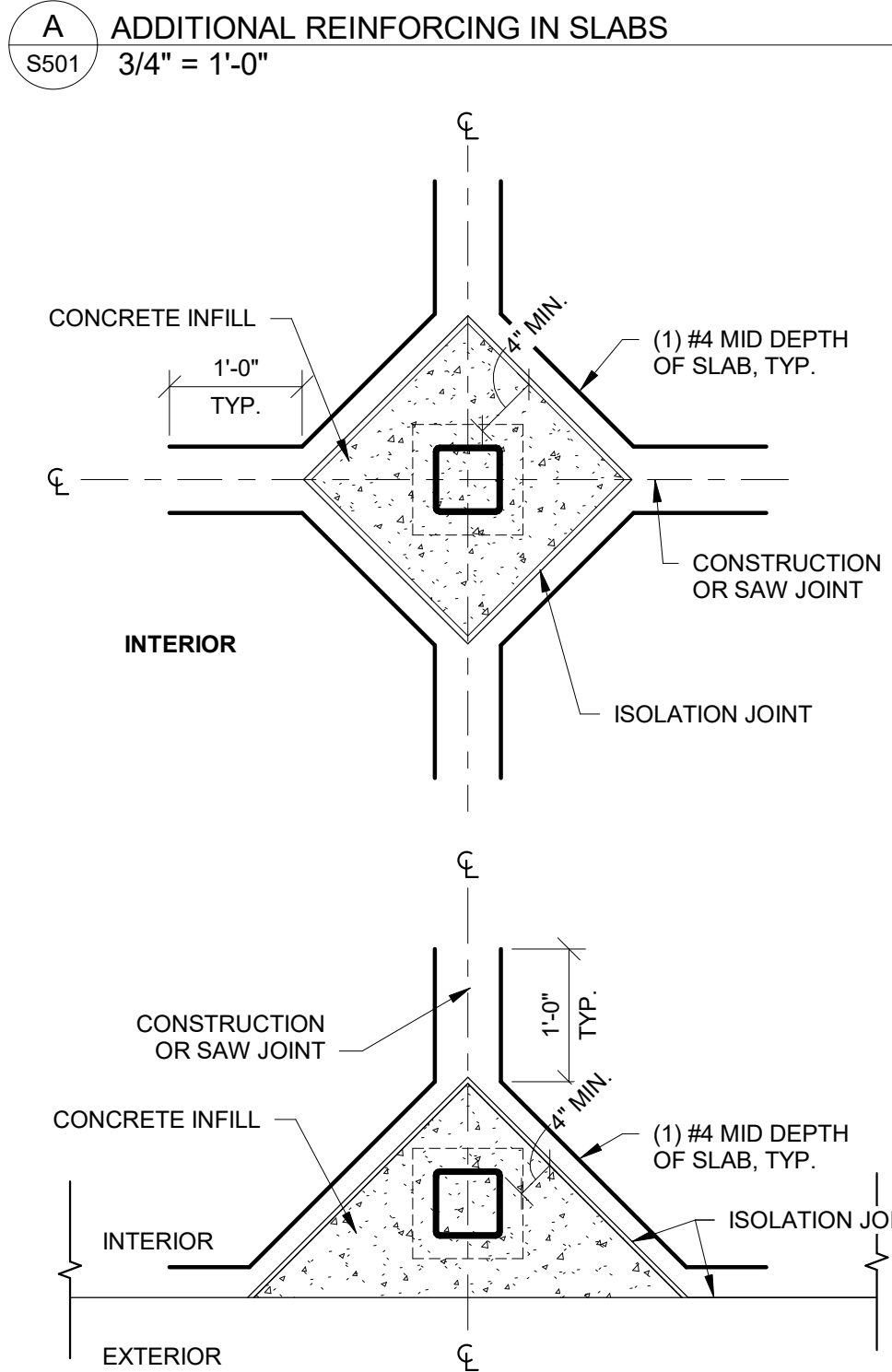
NOTE:  
DO NOT OVERCUT STRINGER



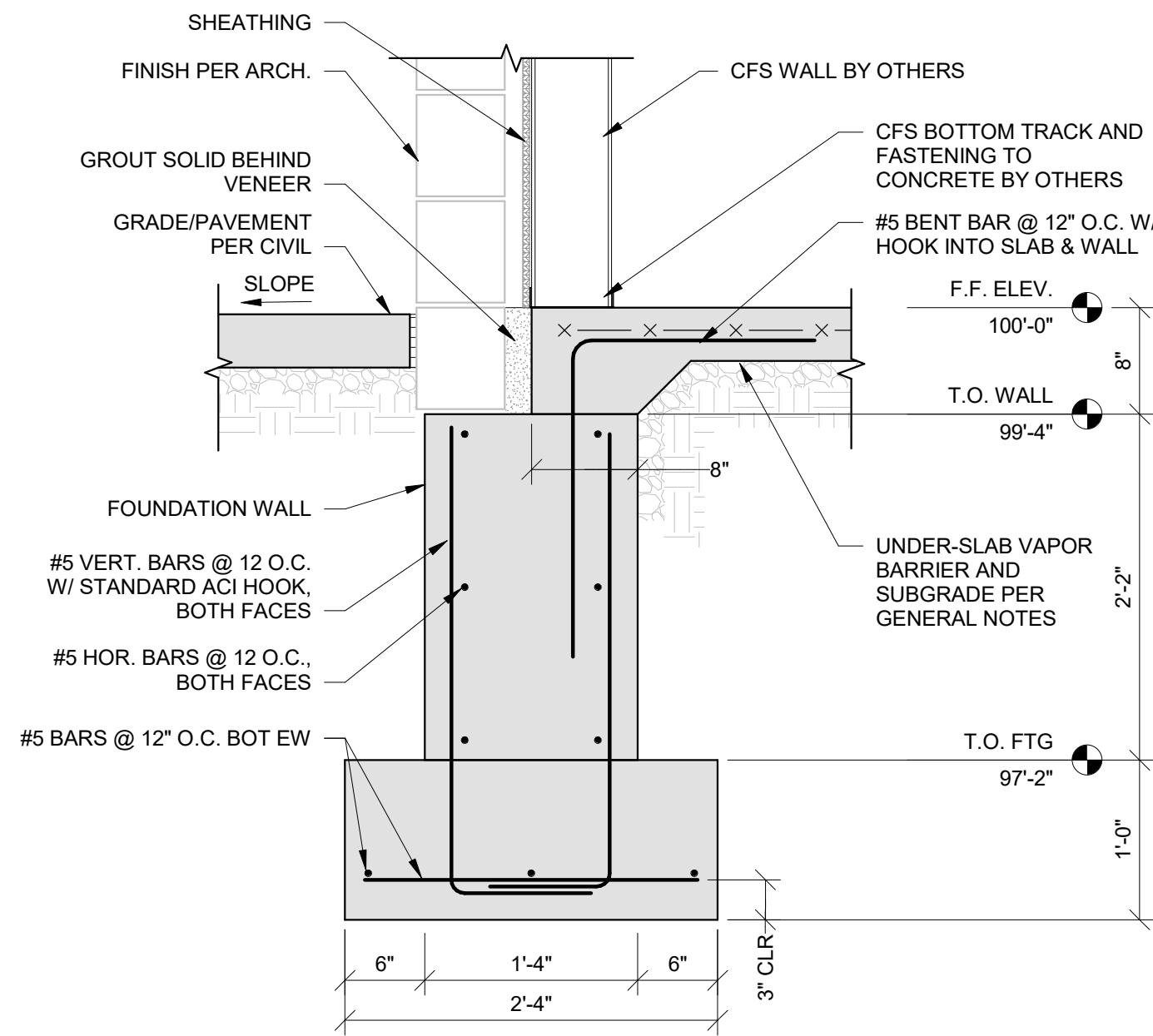
STAIR TO THICKENED SLAB 1" = 1'-0"



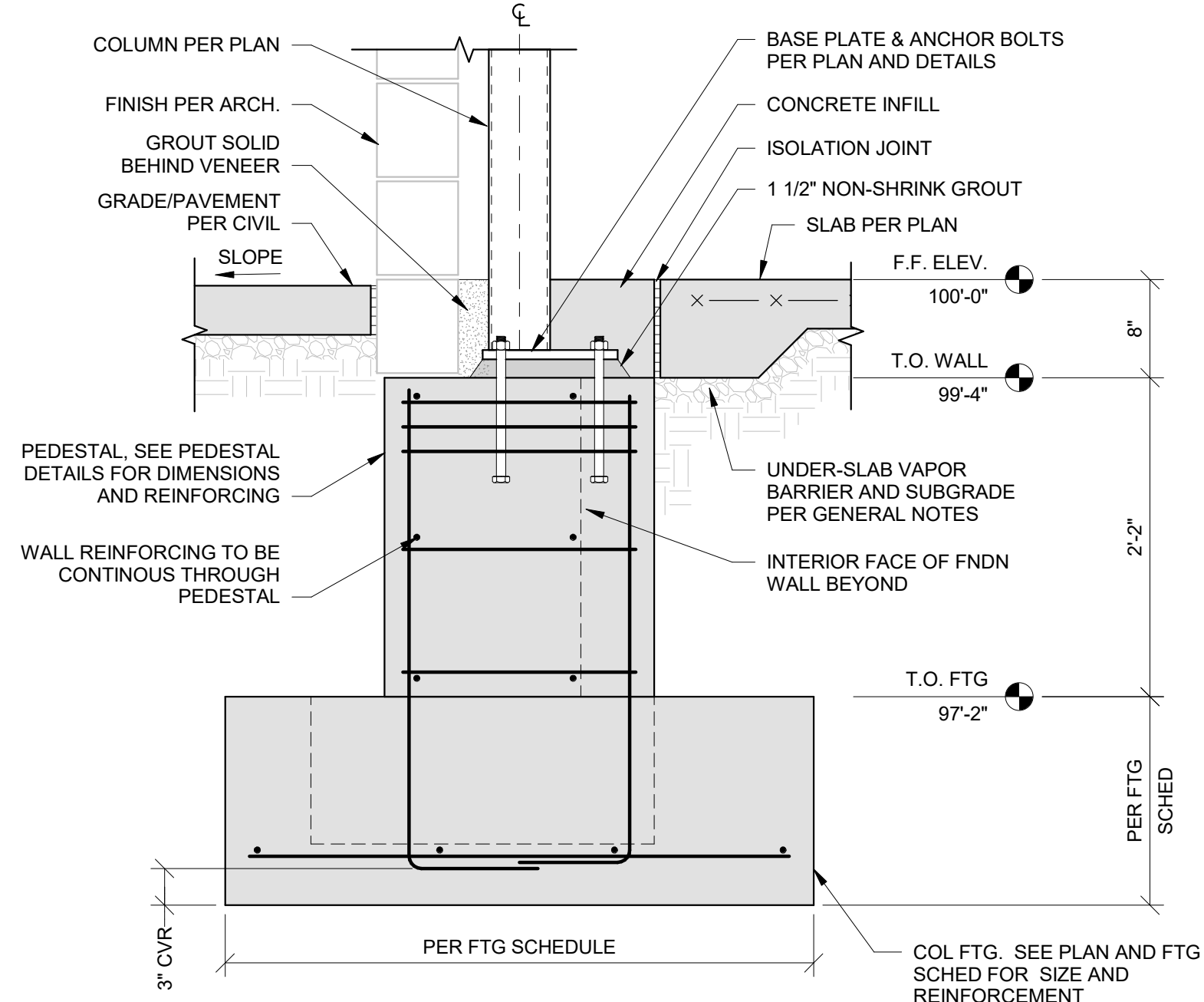
TYPICAL INTERIOR COLUMN FOOTING 1" = 1'-0"



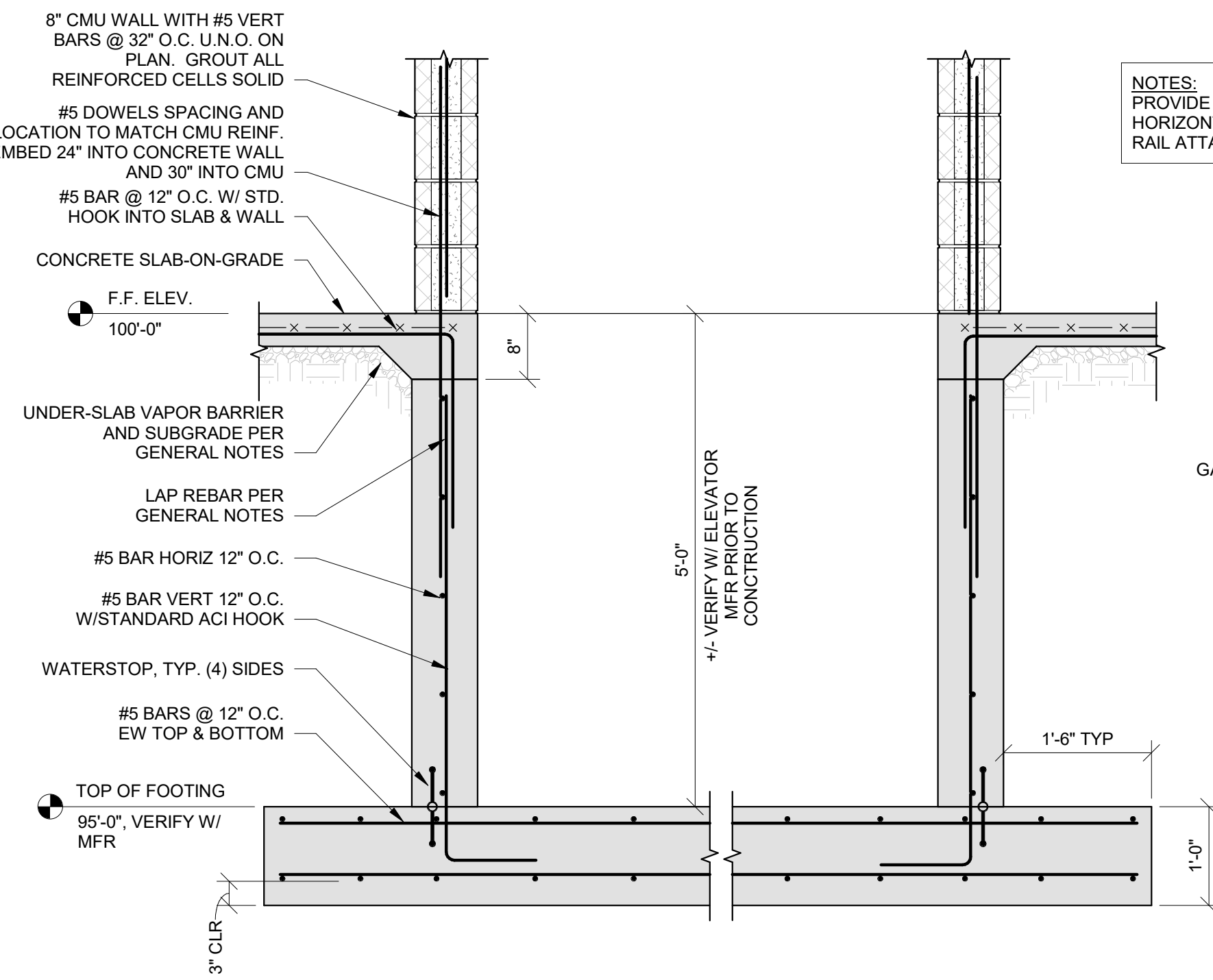
SLAB ON GRADE ISOLATION JOINT AT COLUMNS 3/4" = 1'-0"



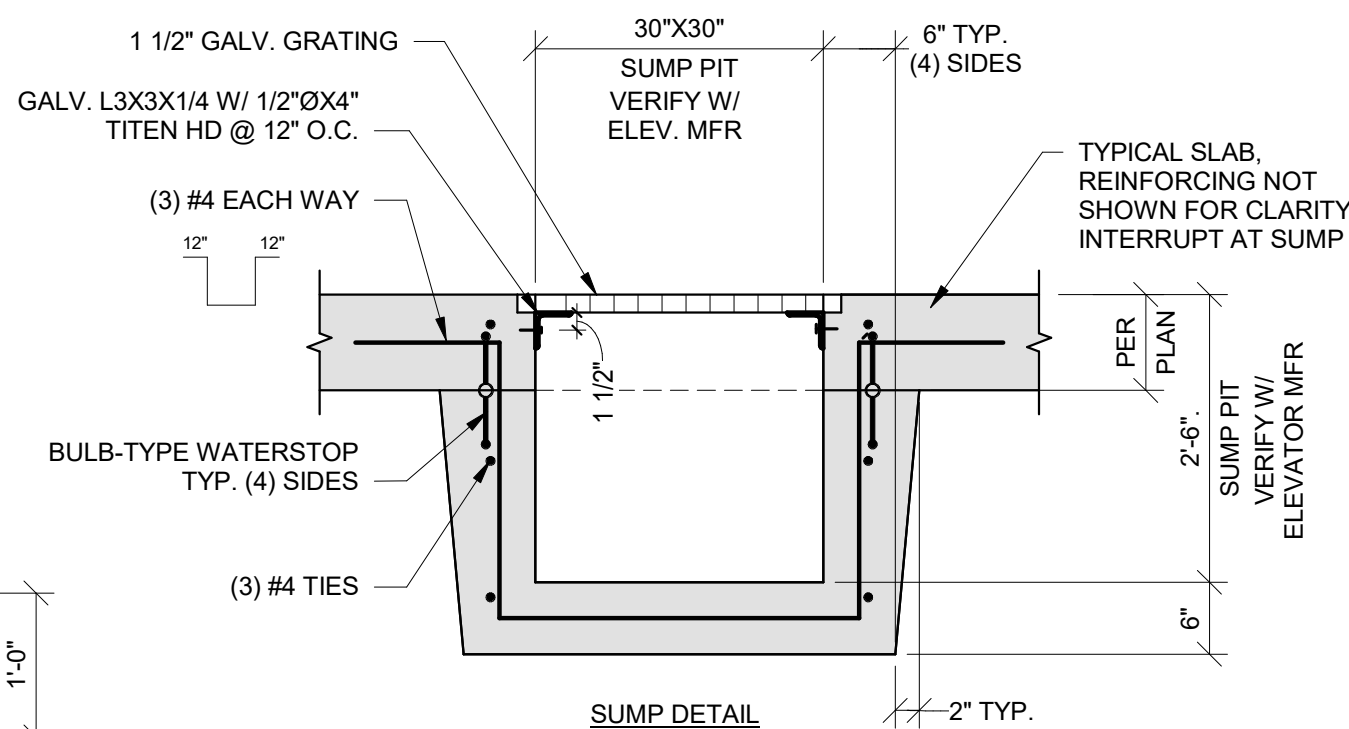
FOUNDATION SECTION - EXTERIOR WALL (NOT AT PARKING GARAGE) 1" = 1'-0"



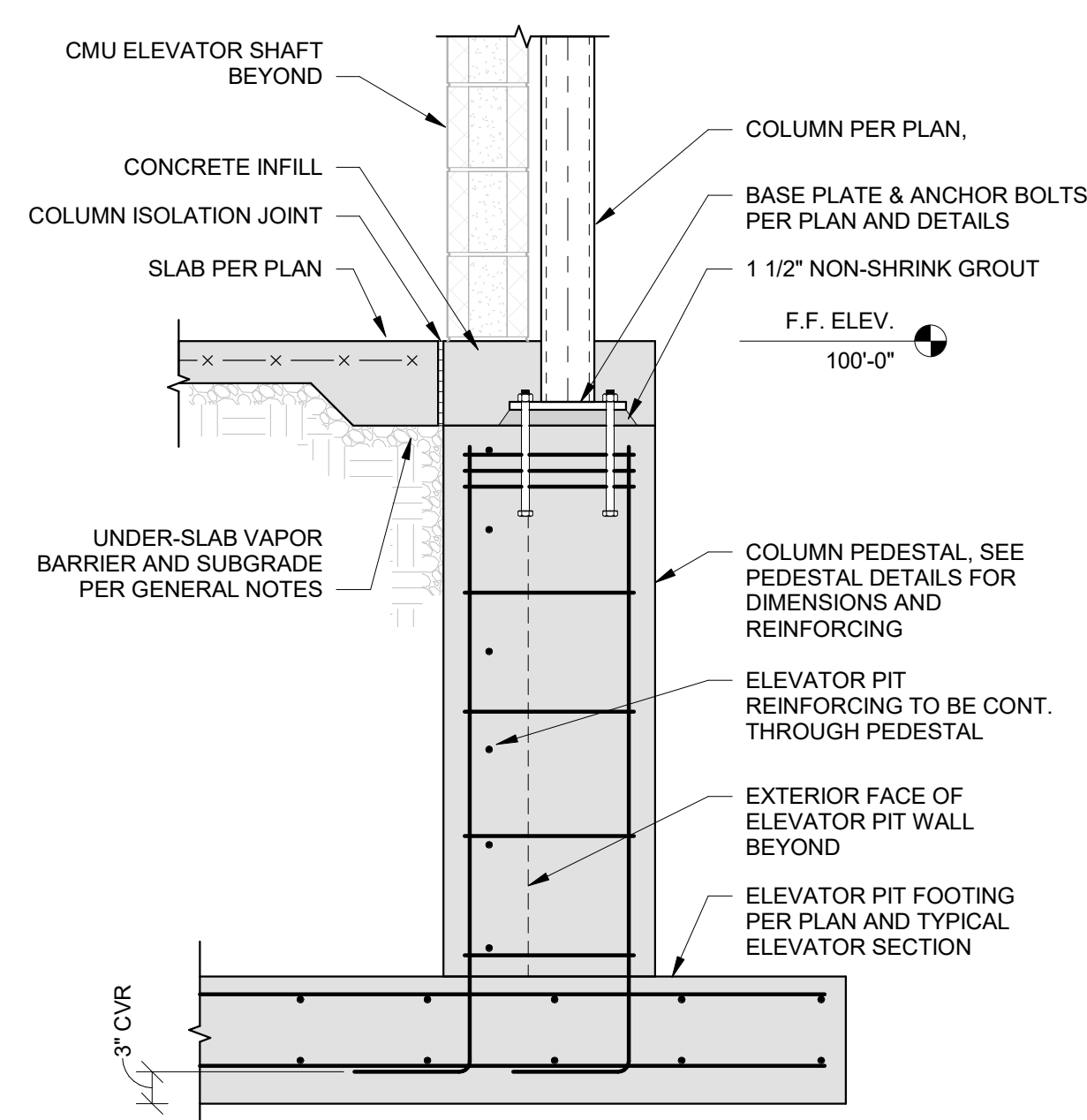
FOUNDATION SECTION - EXTERIOR WALL AT COLUMN PEDESTAL (NOT AT PARKING GARAGE) 1" = 1'-0"



ELEVATOR PIT DETAIL 3/4" = 1'-0"



SUMP DETAIL



FOUNDATION SECTION - COLUMN PEDESTAL AT ELEVATOR 3/4" = 1'-0"

PRINTS ISSUED  
11/01/23 - CITY SUBMITTAL

REVISIONS:  
 1 12/21/2023 RESPONSE TO CITY COMMENTS  
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**McCLURE**  
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 MISSOURI CERTIFICATE OF AUTHORITY  
 NO. E-2006023253  
 EXPIRES: DECEMBER 31, 2024



09/20/2024

TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

SHEET TITLE  
FOUNDATION DETAILS

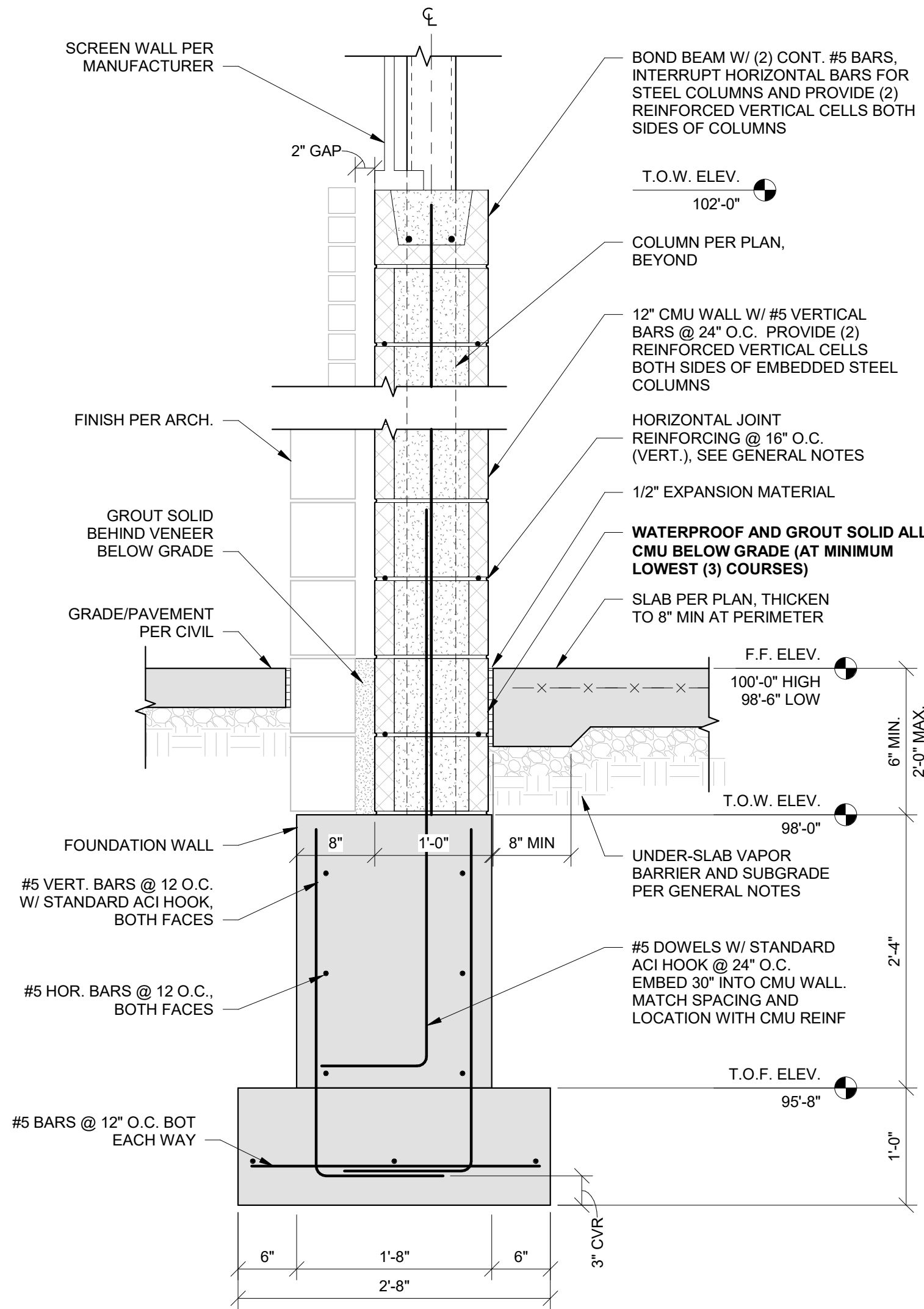
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SHEET NUMBER:

S501

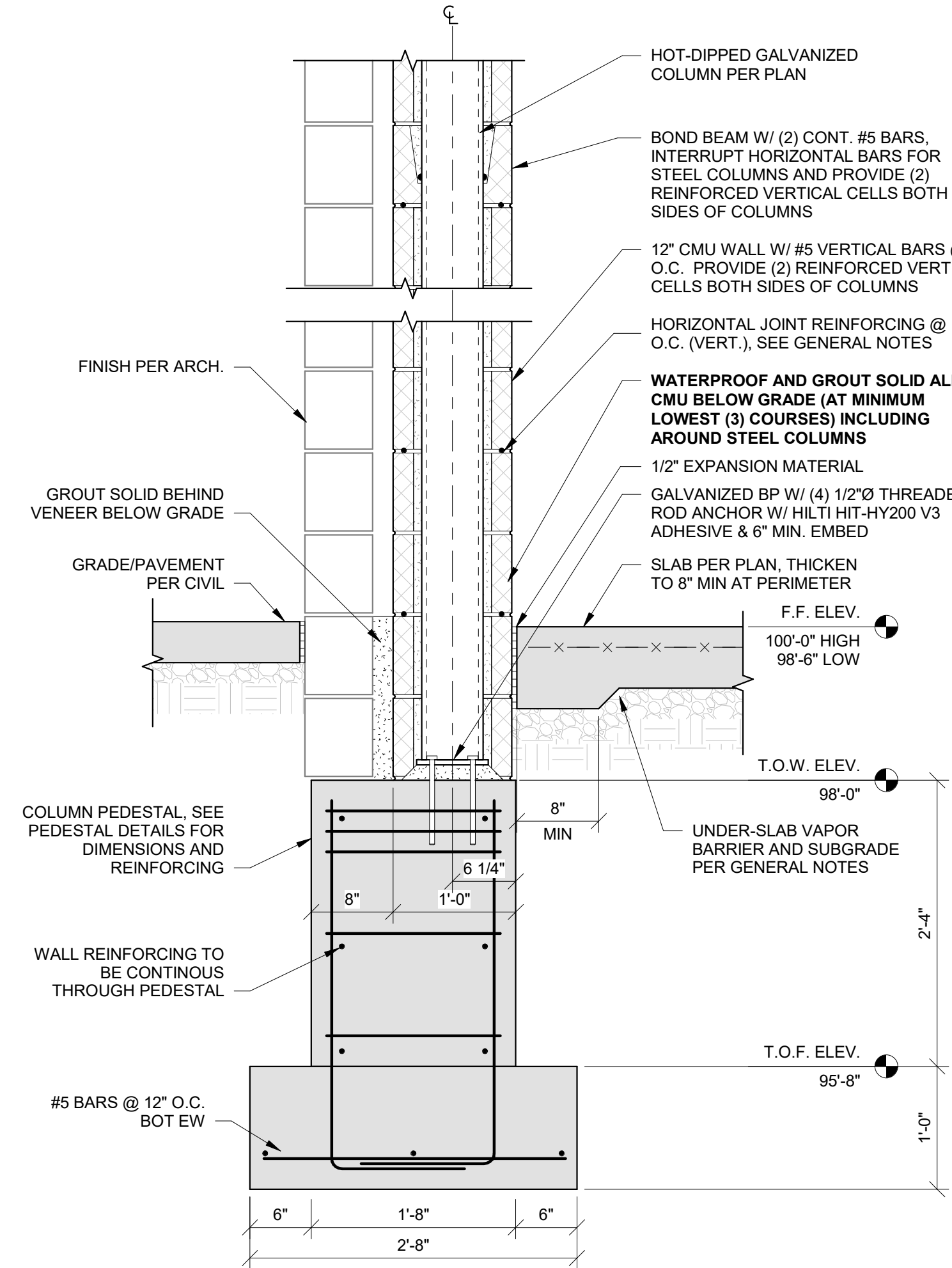
WHOLE SHEET  
FOUNDATION  
REVISIONS



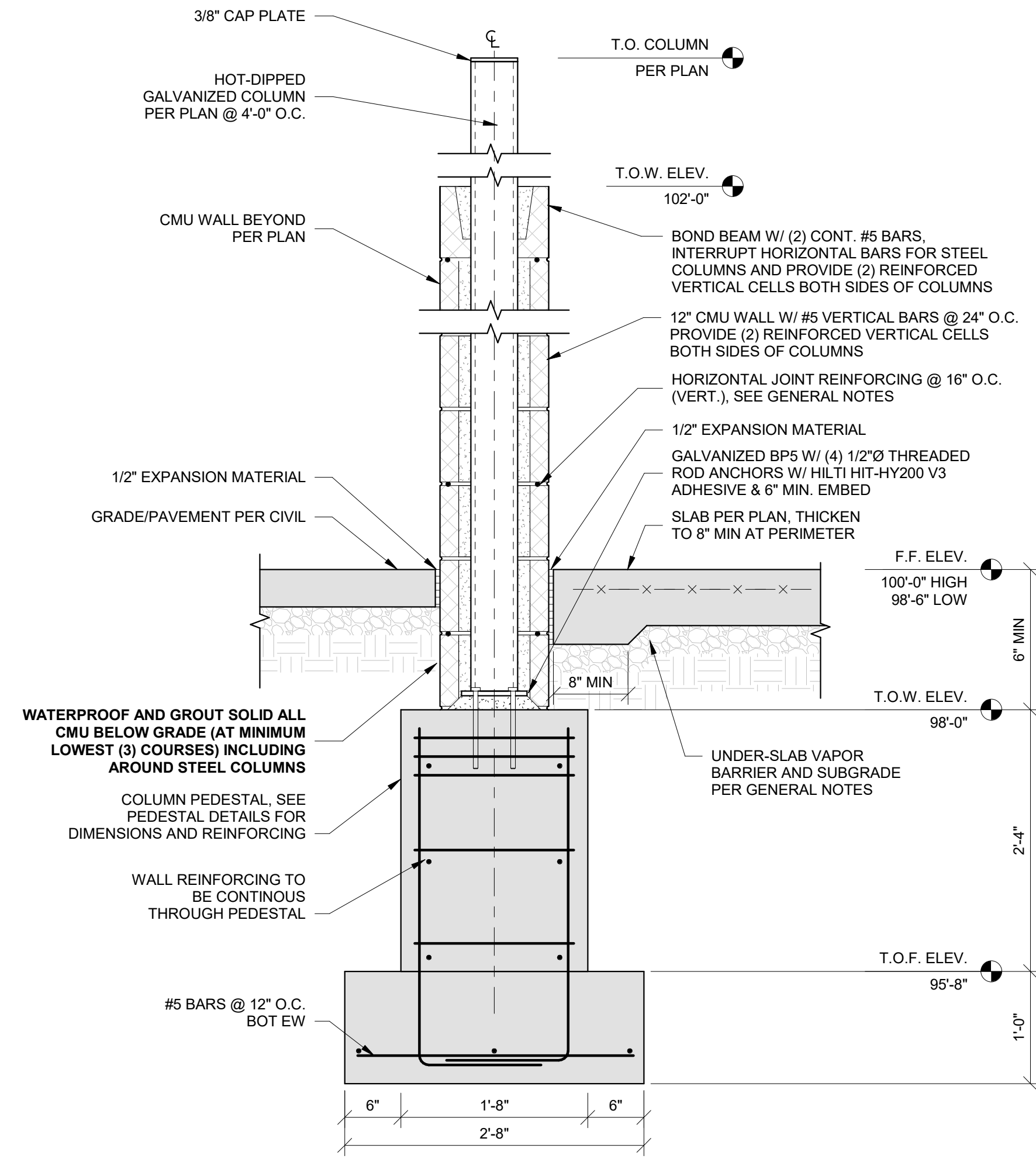
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Foundation - Towneplace Suites, 10214



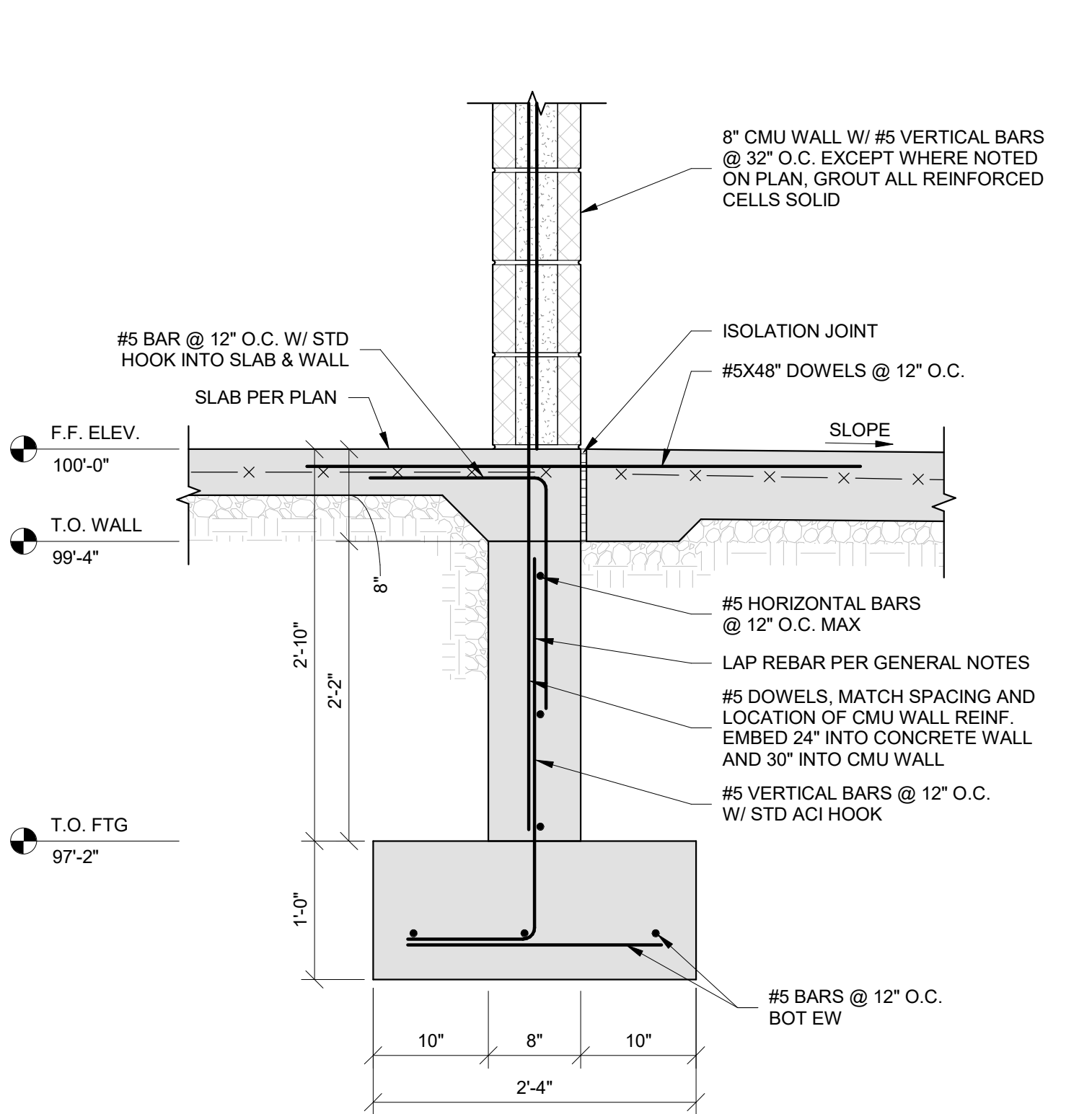
1  
S502 FOUNDATION SECTION - EXTERIOR WALL AT GARAGE  
1" = 1'-0"



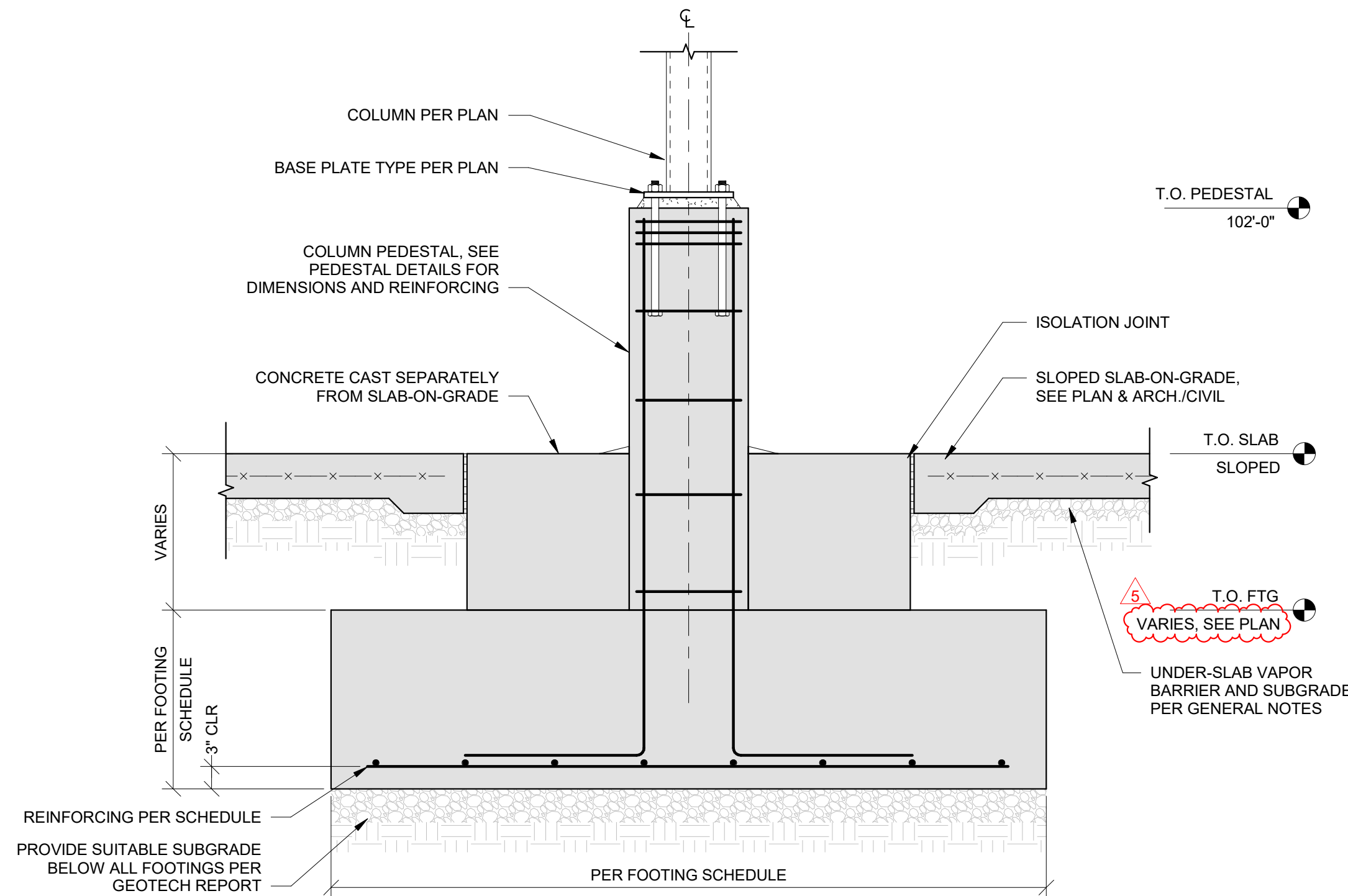
2  
S502 FOUNDATION SECTION - EXTERIOR WALL AT GARAGE  
COLUMN PEDESTAL  
1" = 1'-0"



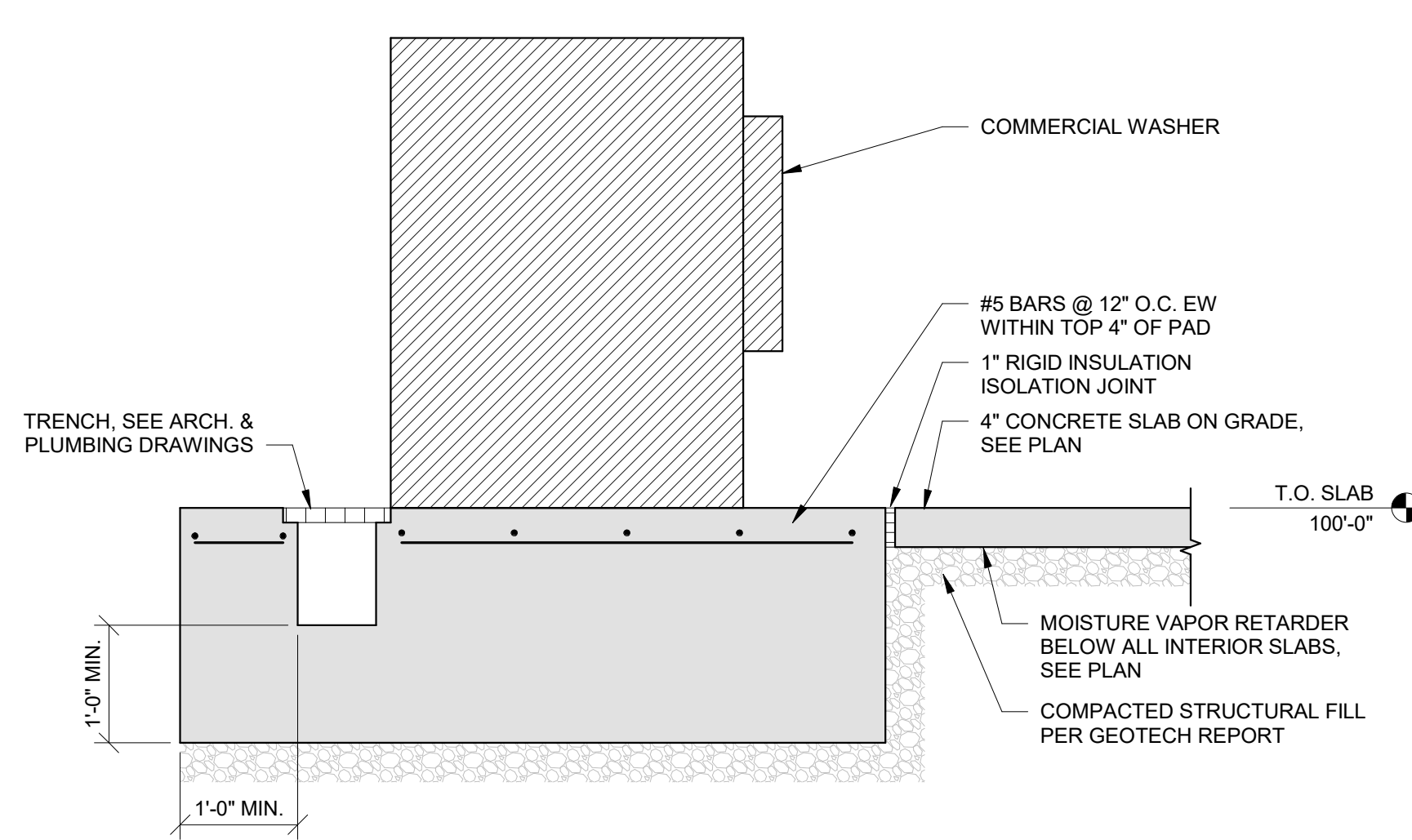
3  
S502 FOUNDATION SECTION AT CANTILEVERED COLUMN IN  
SCREEN WALL  
1" = 1'-0"



4  
S502 SECTION BETWEEN GARAGE & AMENITY AREAS  
1" = 1'-0"



5  
S502 GARAGE COLUMN PEDESTAL SECTION  
3/4" = 1'-0"



6  
S502 SECTION AT COMMERCIAL WASHER  
3/4" = 1'-0"

PRINTS ISSUED  
11/01/23 - CITY SUBMITTAL

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4 9/20/2024 FOUNDATION  
5 12/20/2024 ASI 3.1

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12/20/2024

TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

SHEET TITLE  
FOUNDATION DETAILS

PROJECT NUMBER: 2023000333

SHEET NUMBER:

S502

WHOLE SHEET  
FOUNDATION  
REVISIONS



PRINTS ISSUED  
11/01/23 - CITY SUBMITTAL

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NO. E-2006023253  
EXPIRES: DECEMBER 31, 2024



09/20/2024

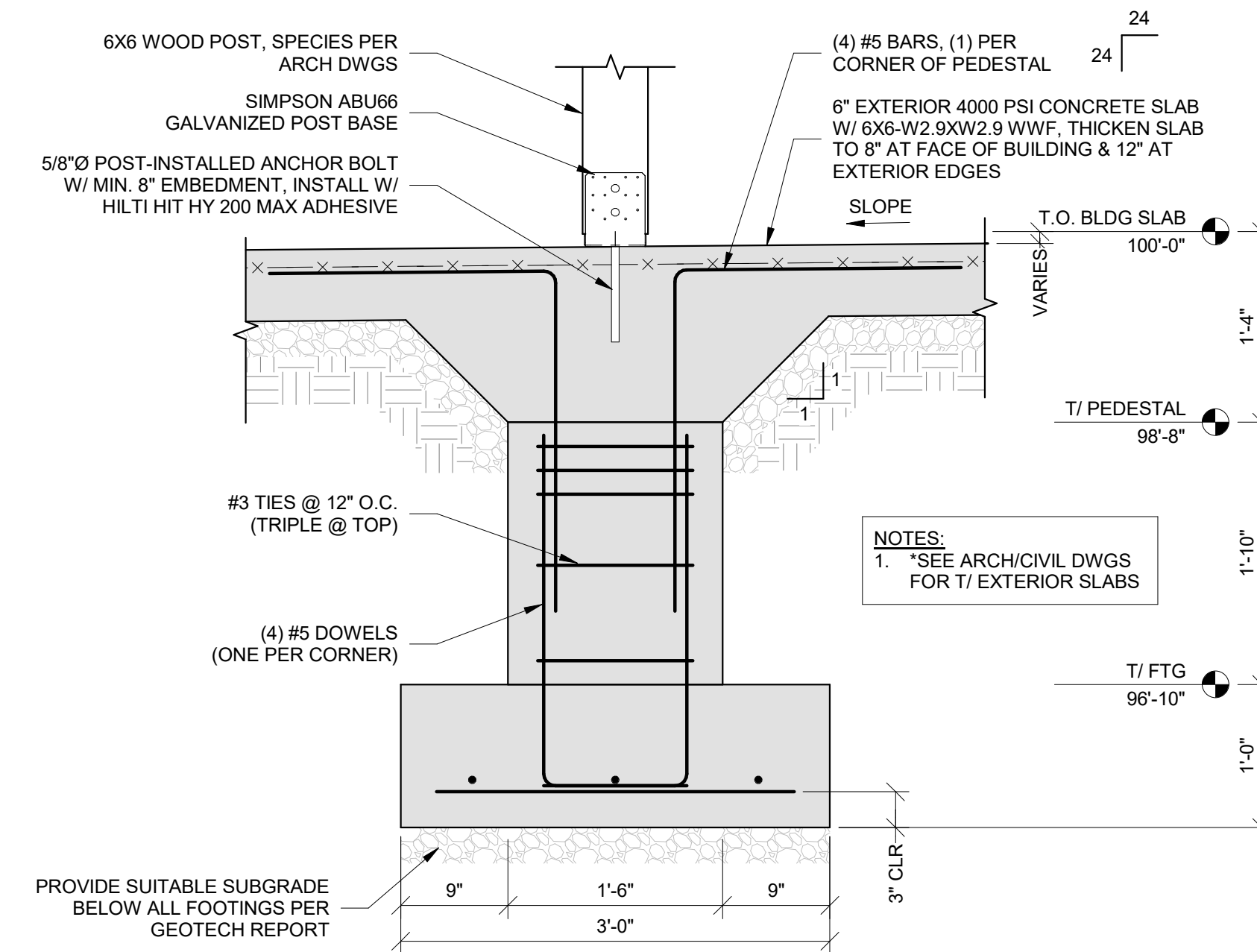
TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

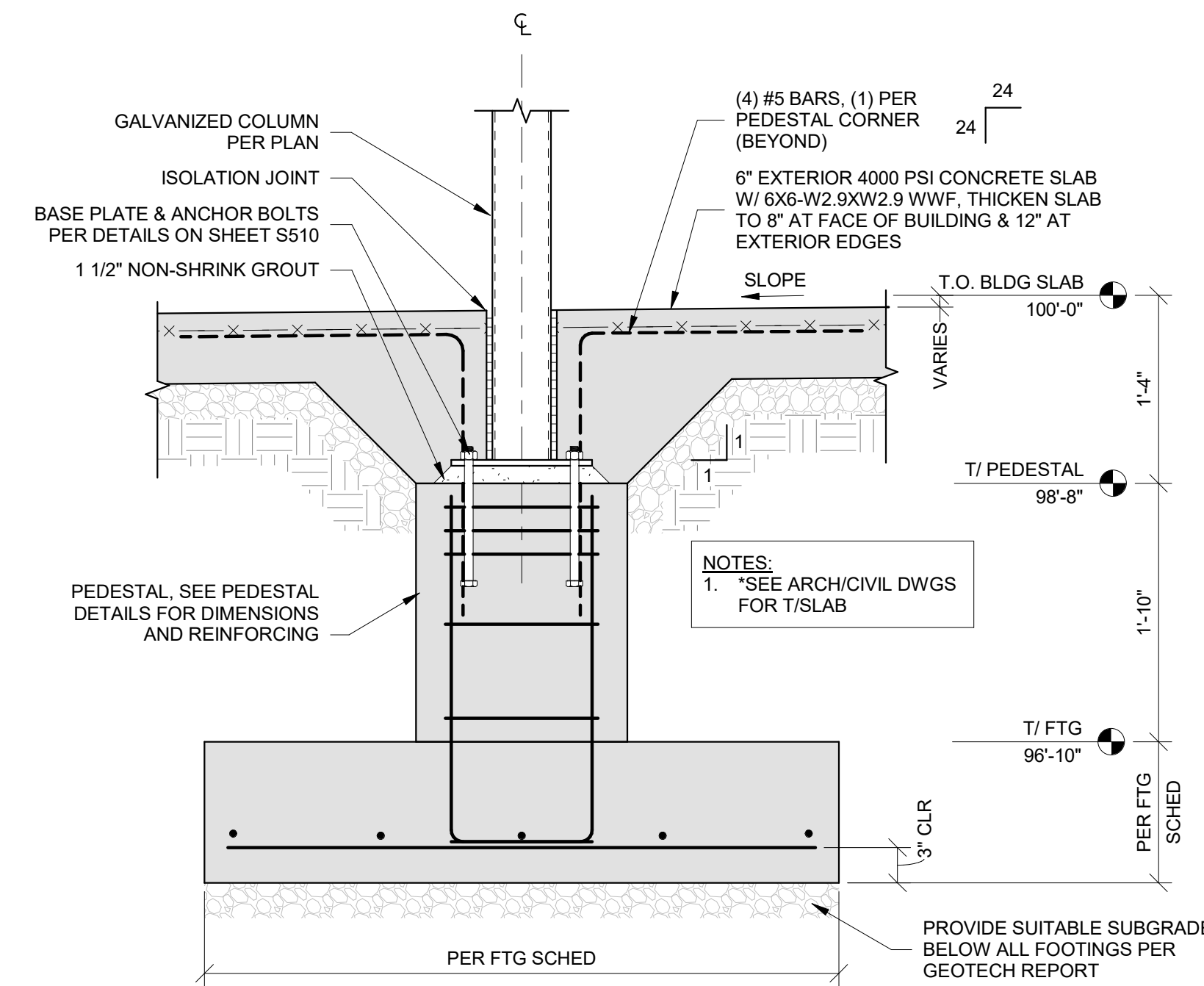
SHEET TITLE  
FOUNDATION DETAILS

PROJECT NUMBER: 2023000333  
SHEET NUMBER:

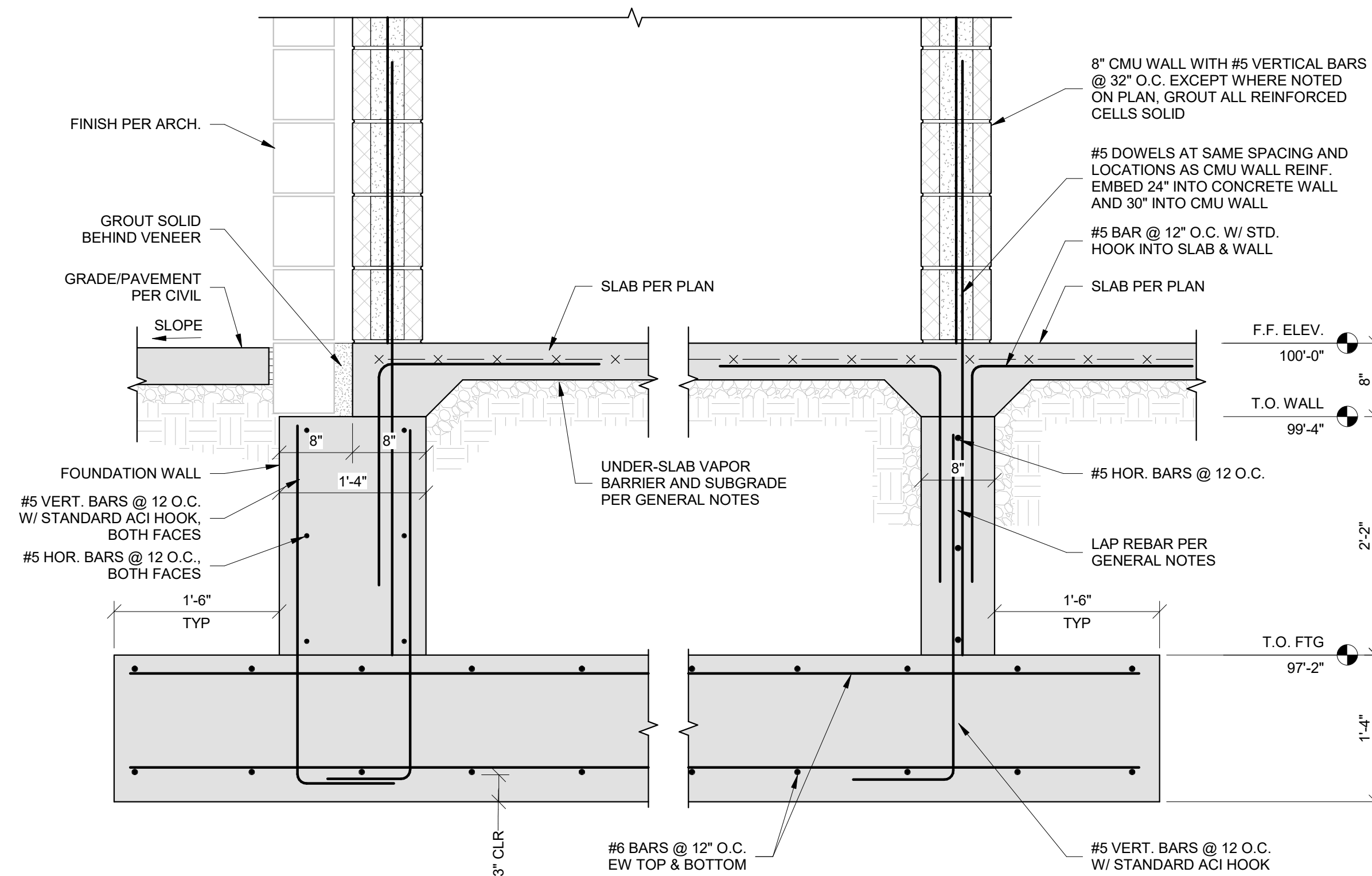
S503



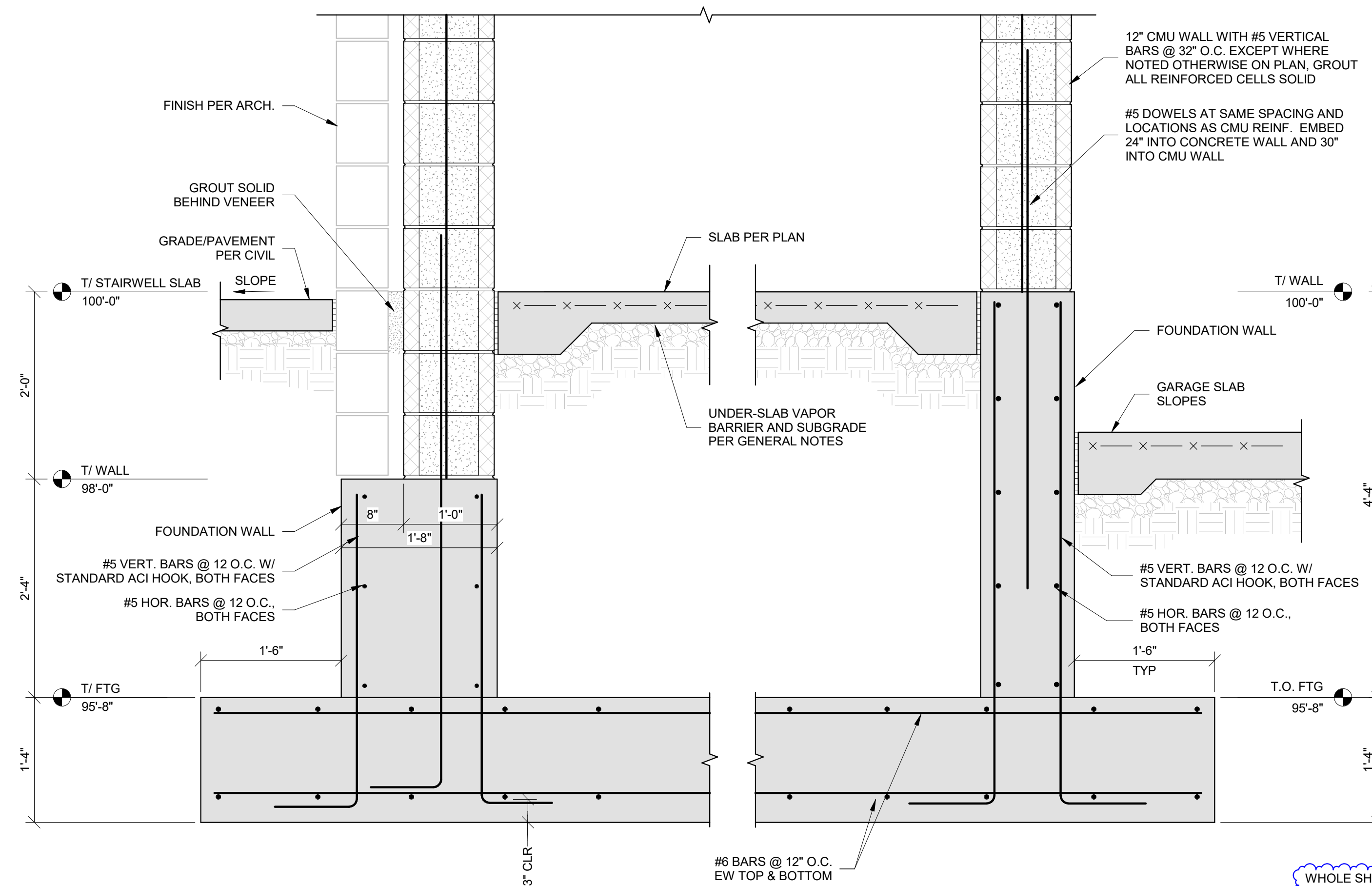
1 WOOD CANOPY COLUMN BASE CONNECTION  
S503 1" = 1'-0"



2 STEEL COLUMN AT PEDESTAL  
S503 1" = 1'-0"



3 SECTION AT WEST STAIR FOUNDATION  
S503 1" = 1'-0"

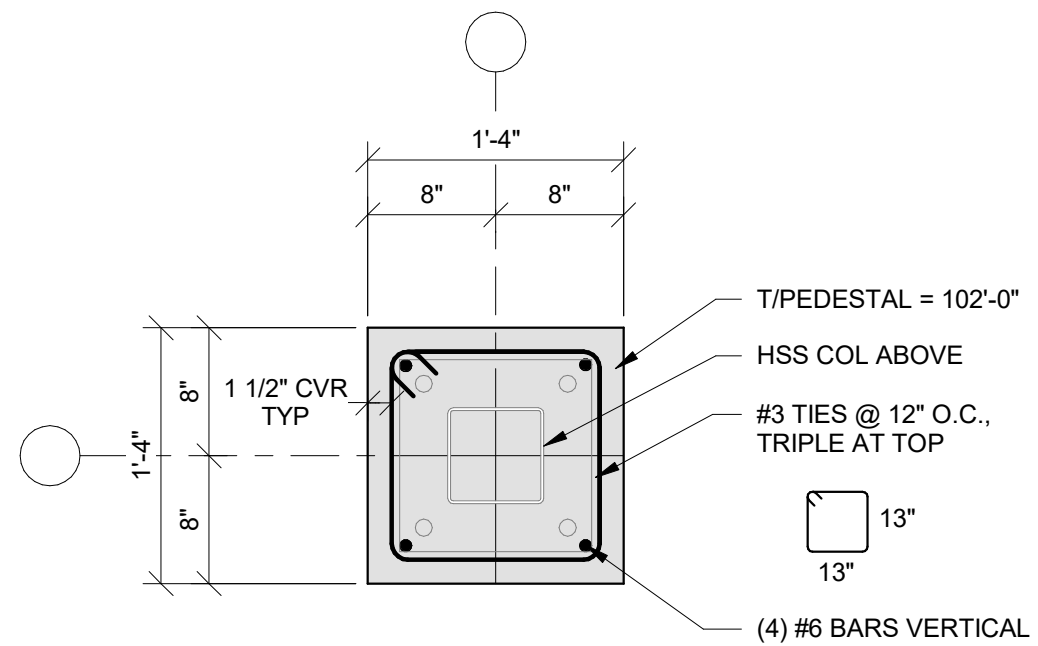


4 SECTION AT EAST STAIR FOUNDATION  
S503 1" = 1'-0"

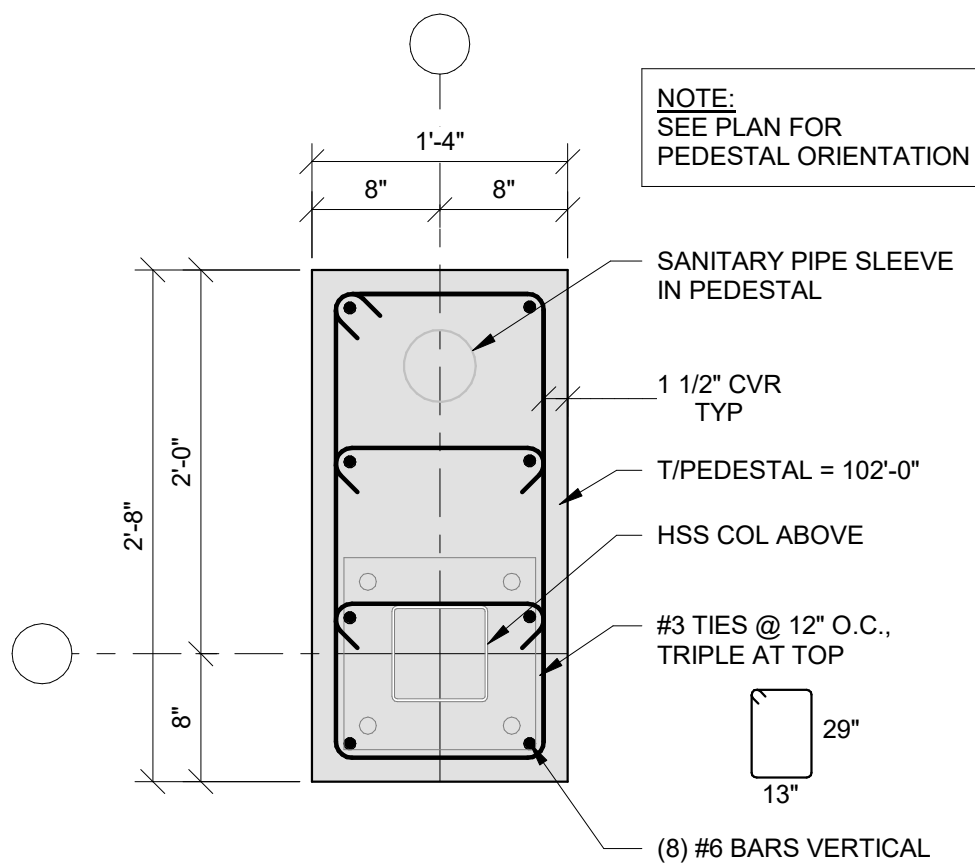
WHOLE SHEET  
FOUNDATION  
REVISIONS 4



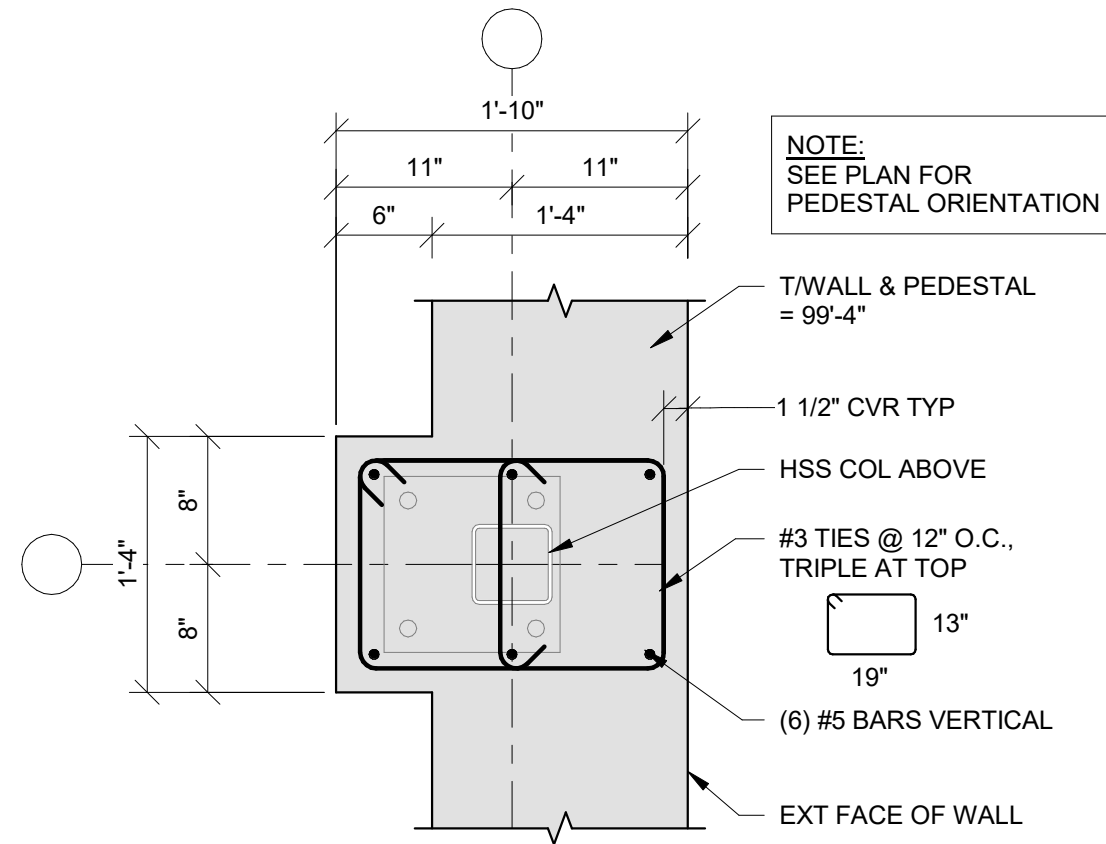
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Discovery Park Lee's Summit 2023000333  
Roumanian - Towneplace Suites, 02/24



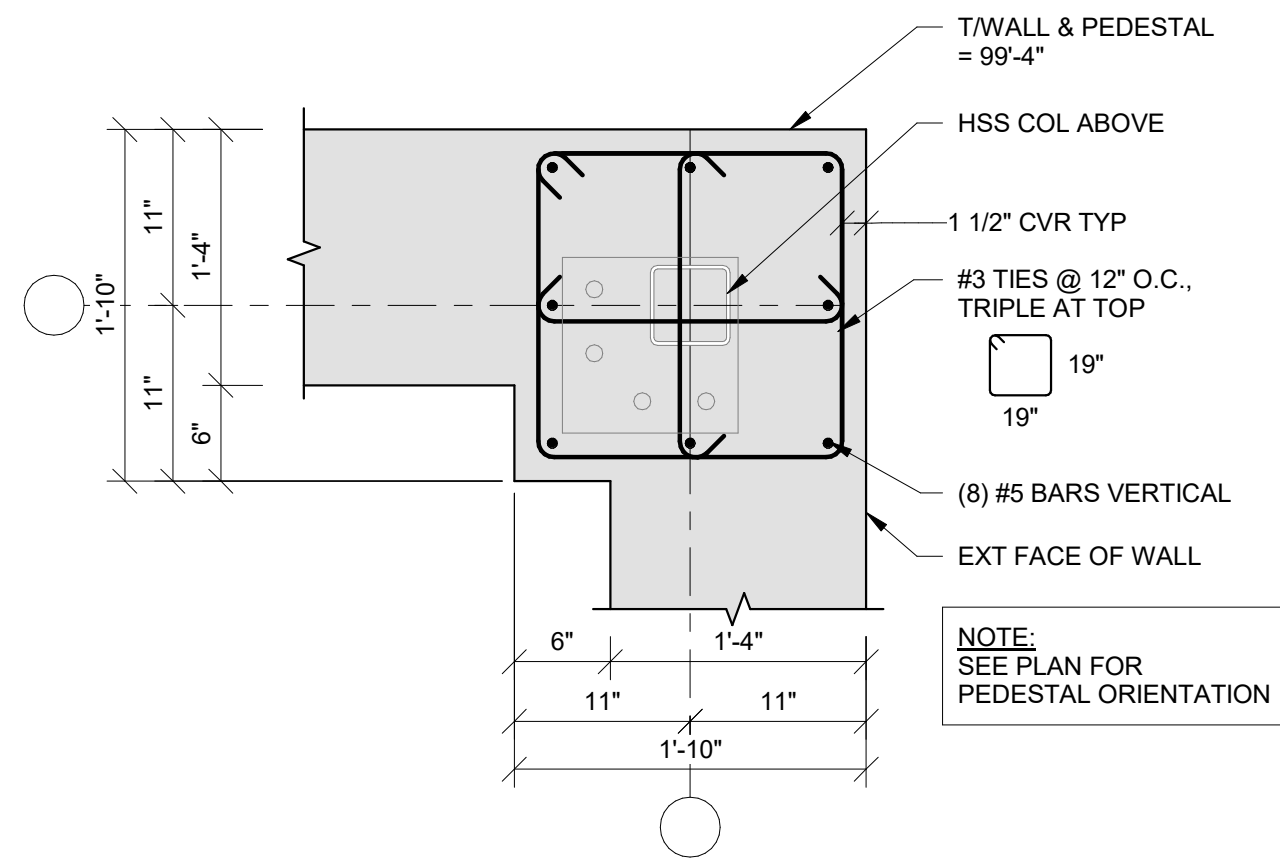
1 PEDESTAL P1  
S504 1" = 1'-0"



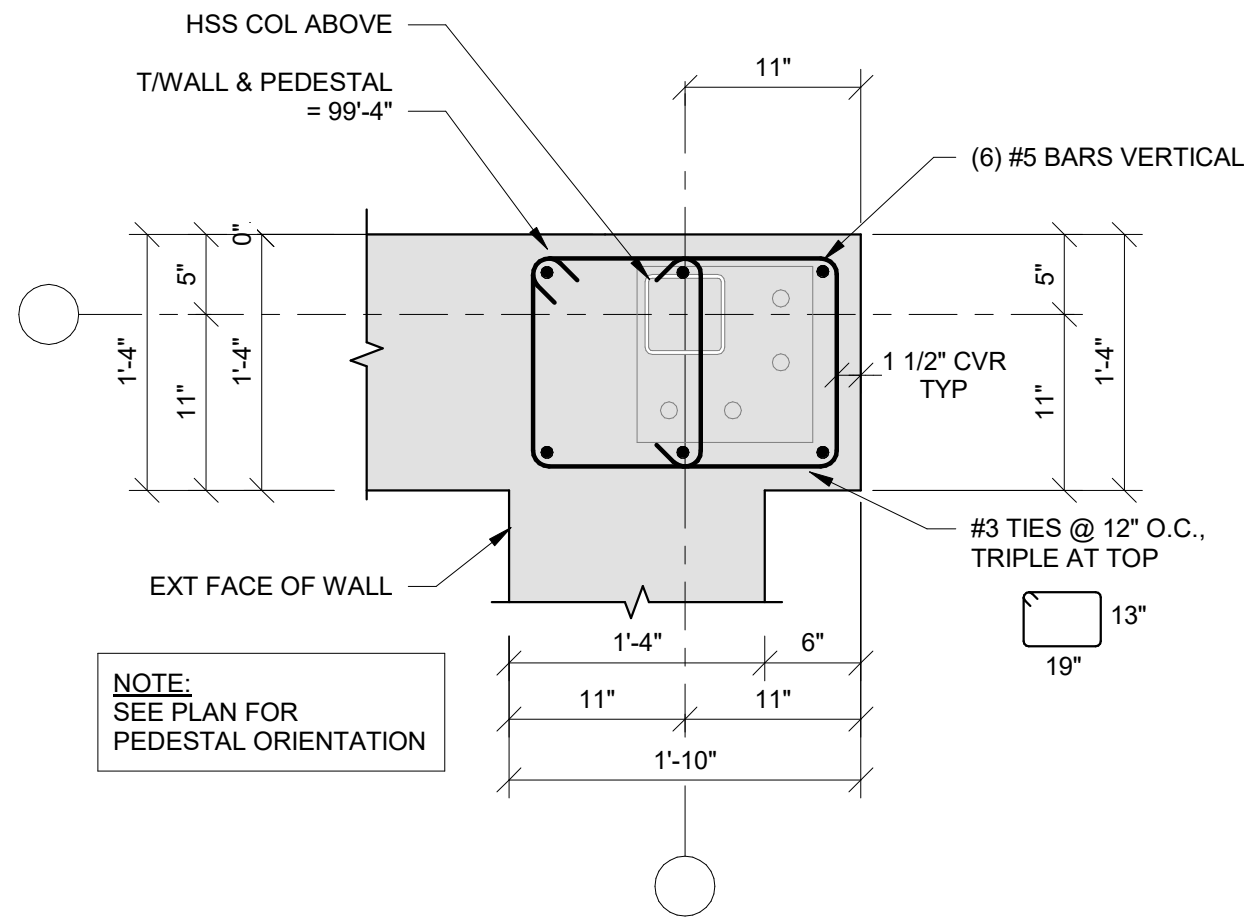
2 PEDESTAL P2  
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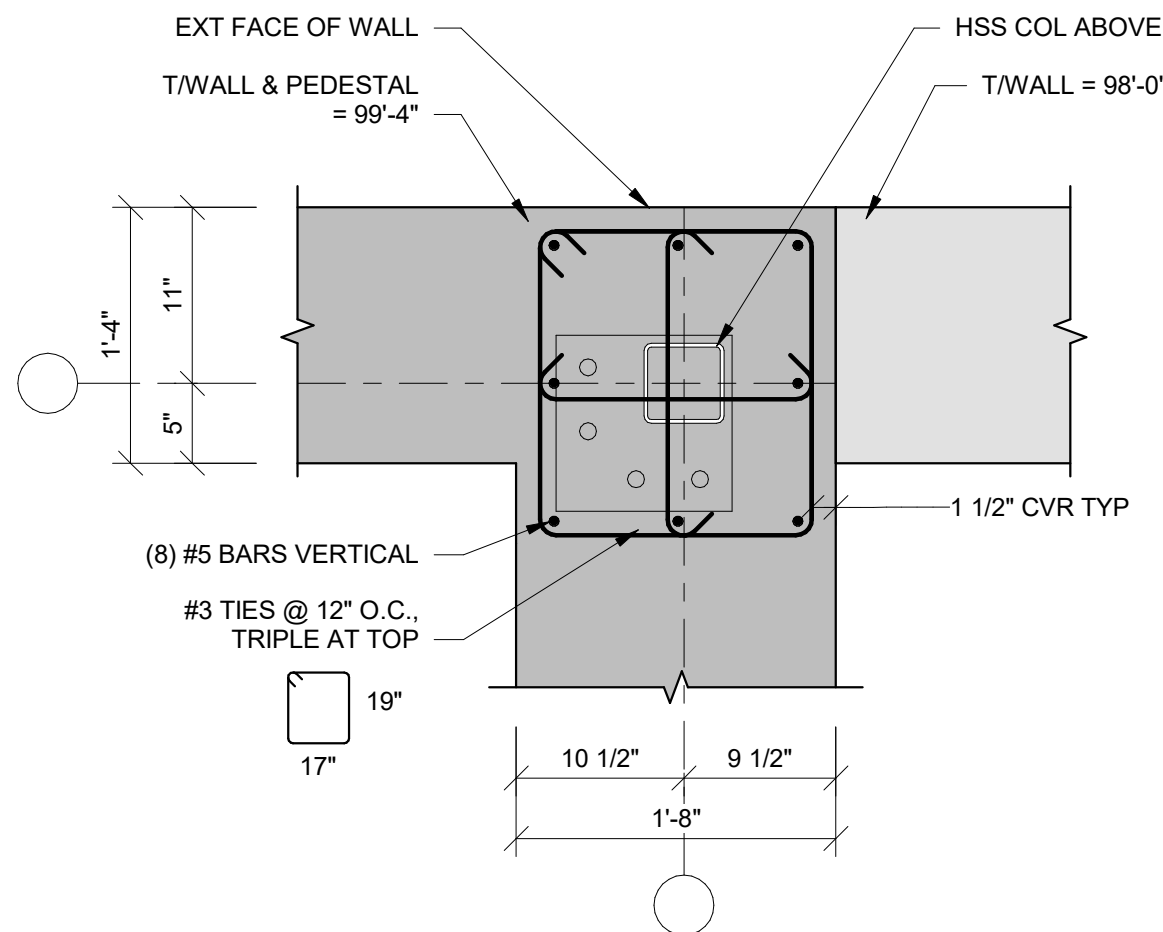
3 PEDESTAL P3  
S504 1" = 1'-0"



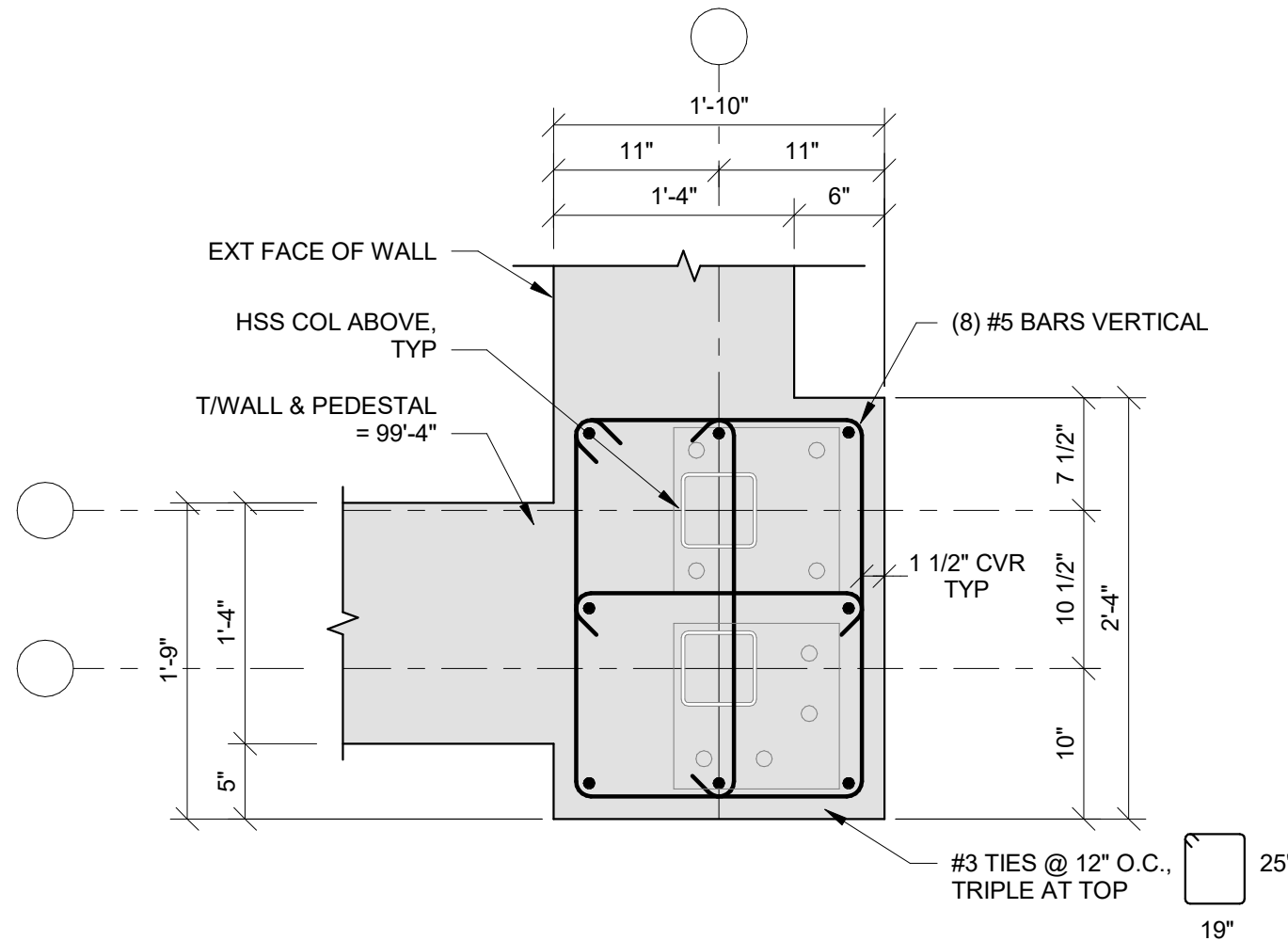
4 PEDESTAL P4  
S504 1" = 1'-0"



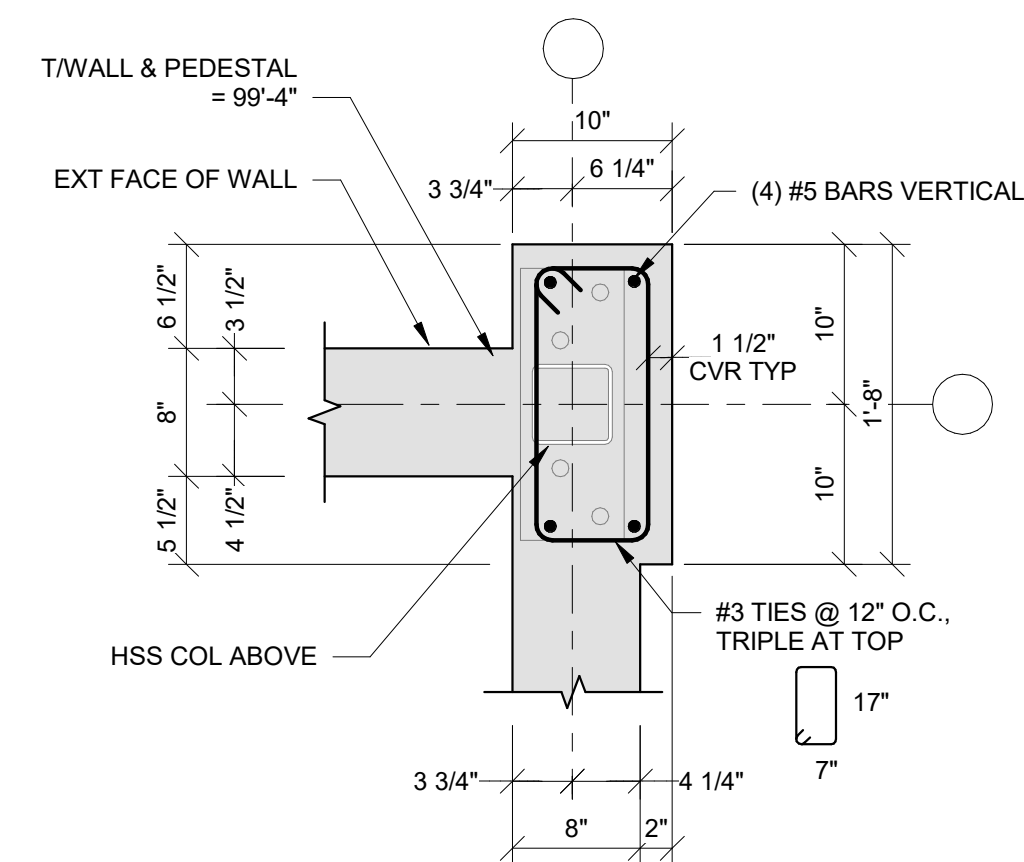
5 PEDESTAL P5  
S504 1" = 1'-0"



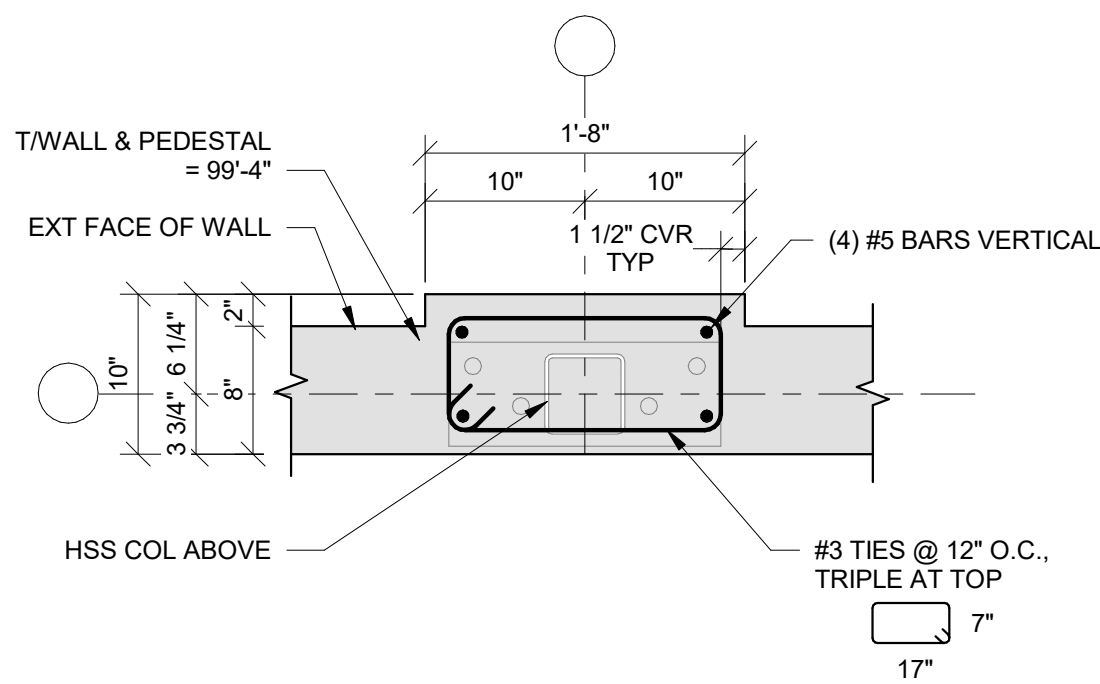
6 PEDESTAL P6  
S504 1" = 1'-0"



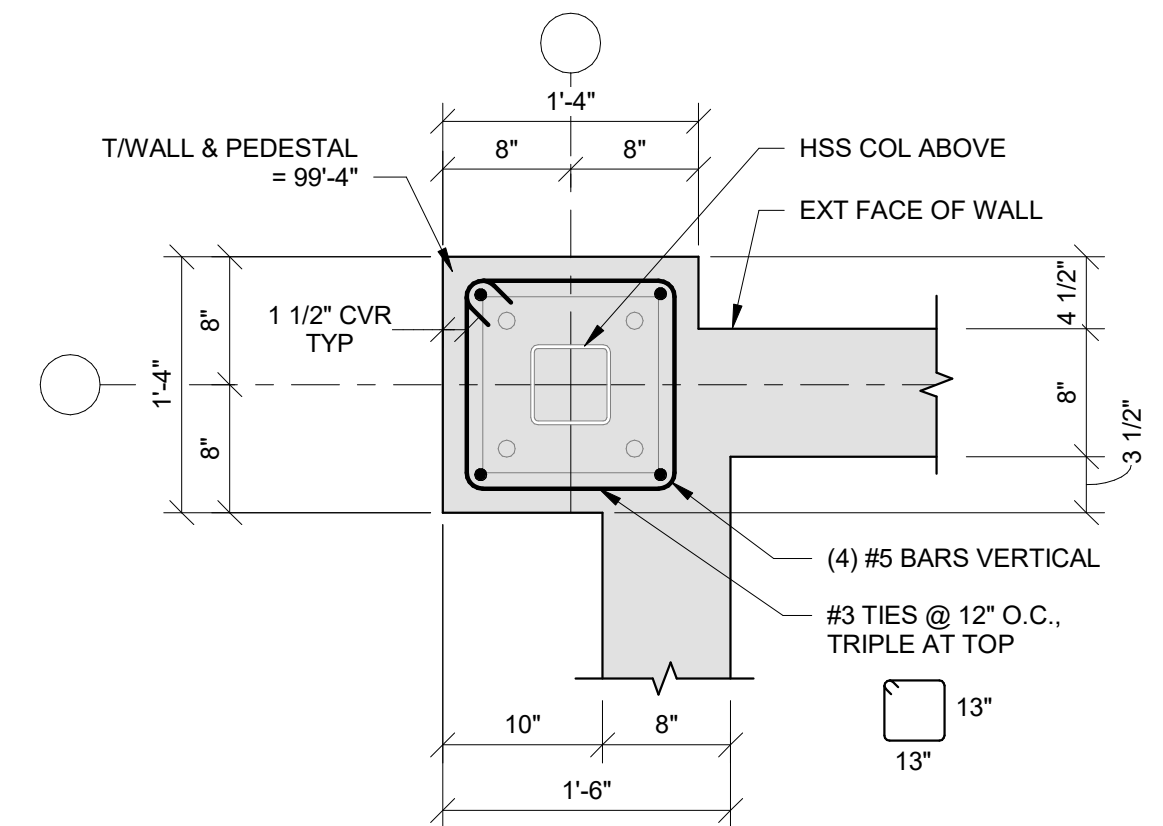
7 PEDESTAL P7  
S504 1" = 1'-0"



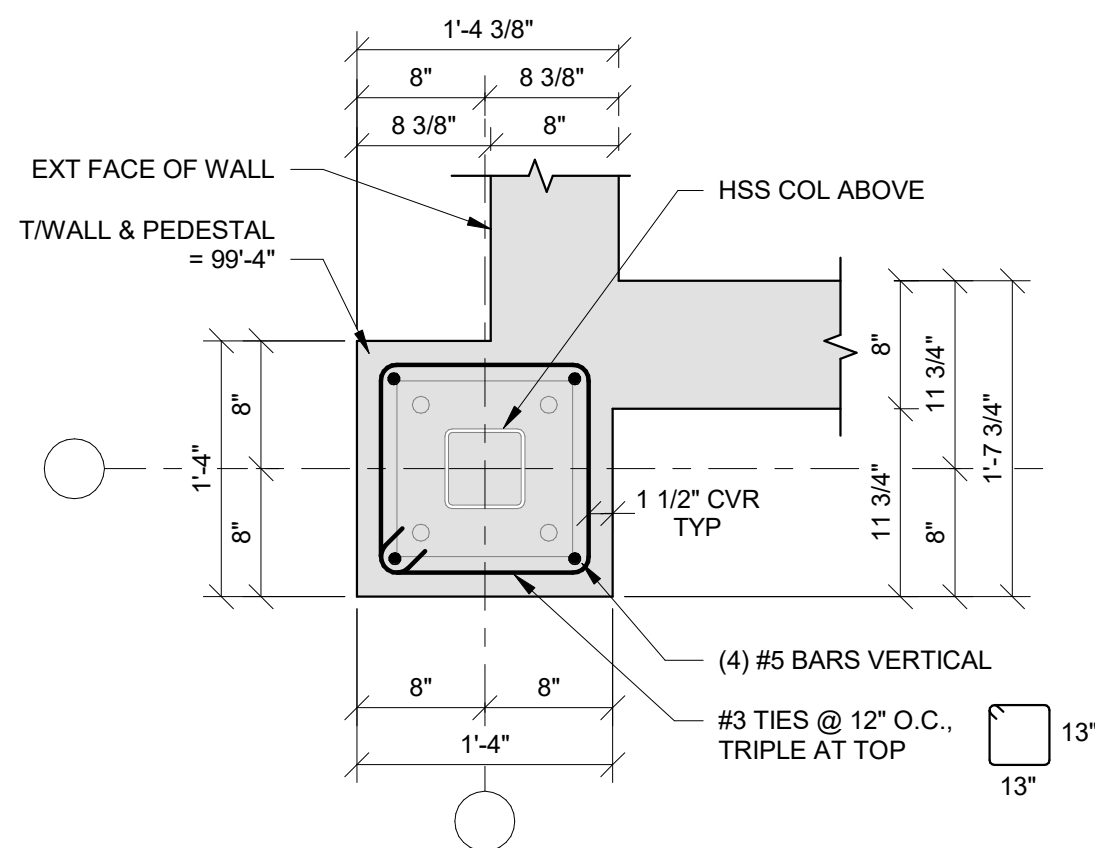
8 PEDESTAL P8  
S504 1" = 1'-0"



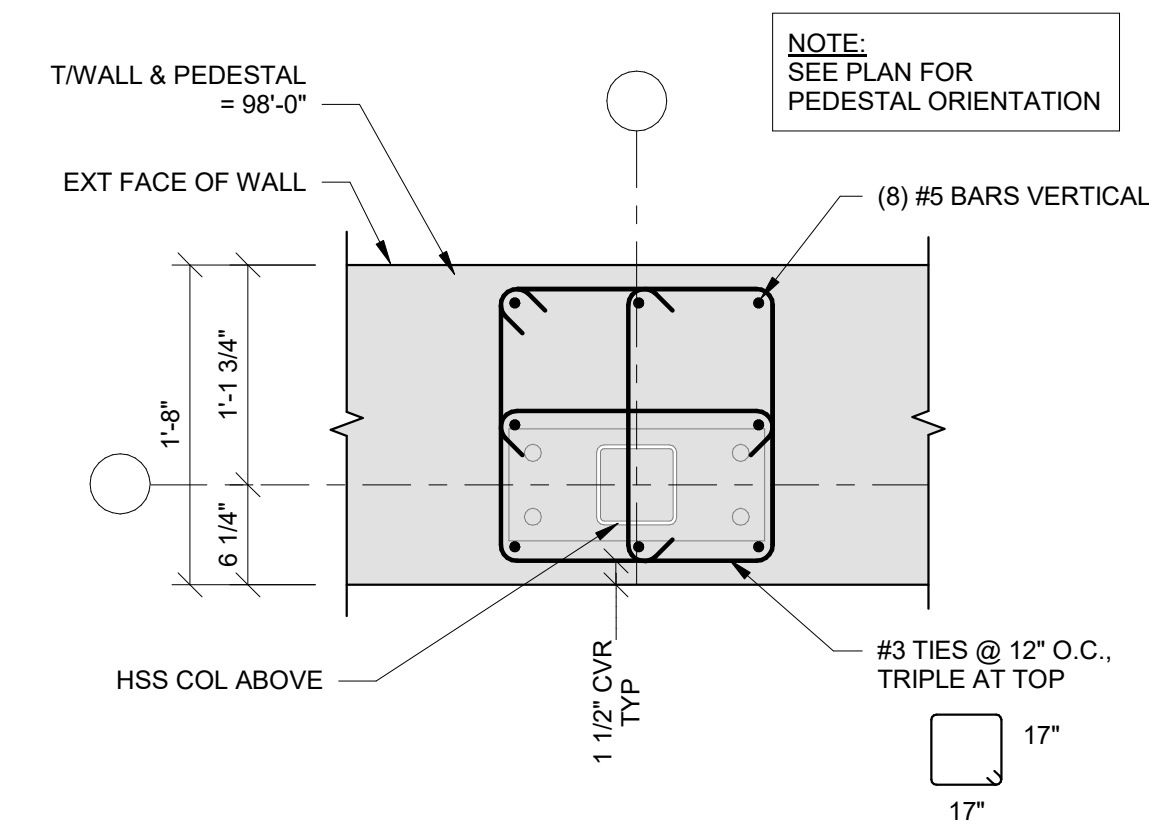
9 PEDESTAL P9  
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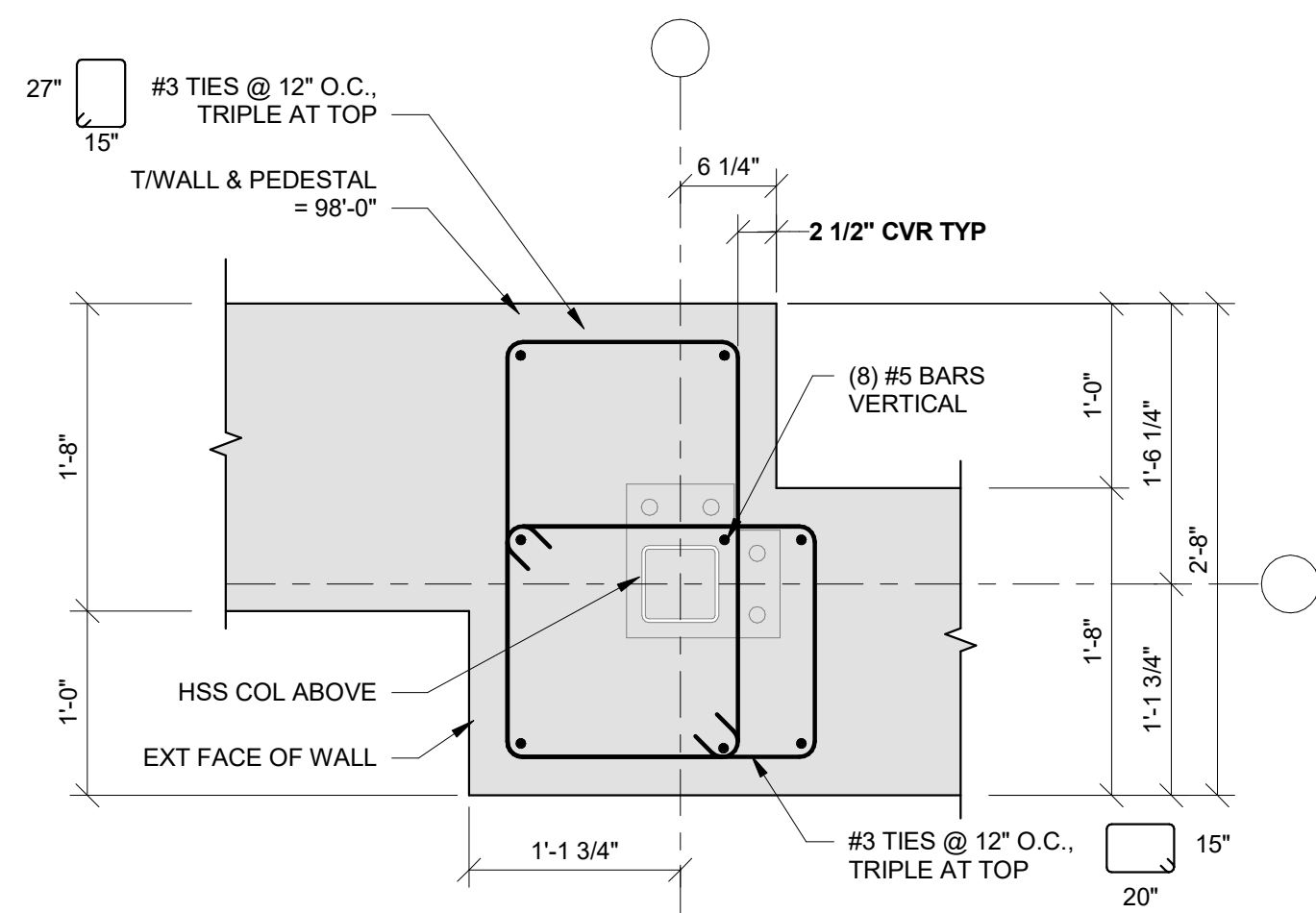
10 PEDESTAL P10  
S504 1" = 1'-0"



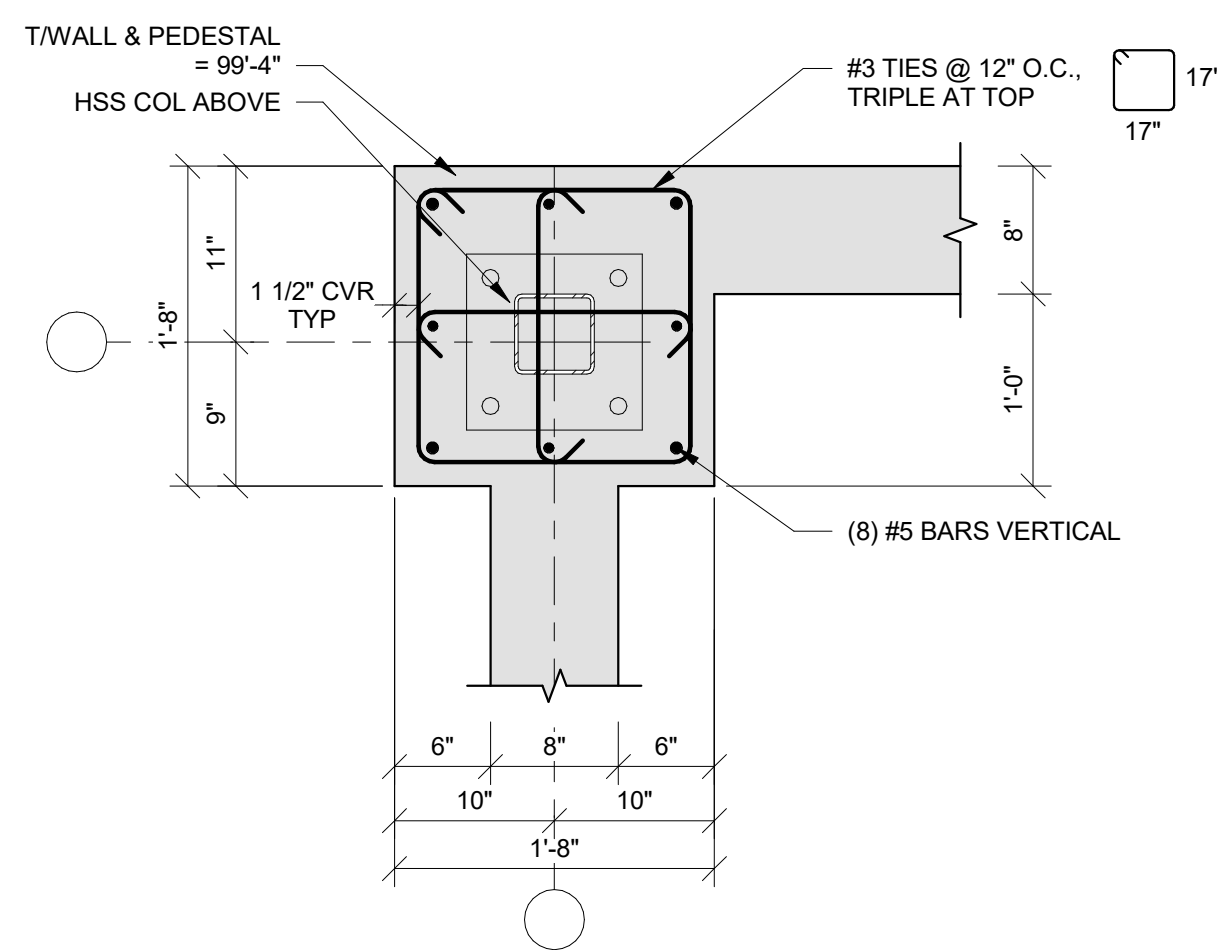
11 PEDESTAL P11  
S504 1" = 1'-0"



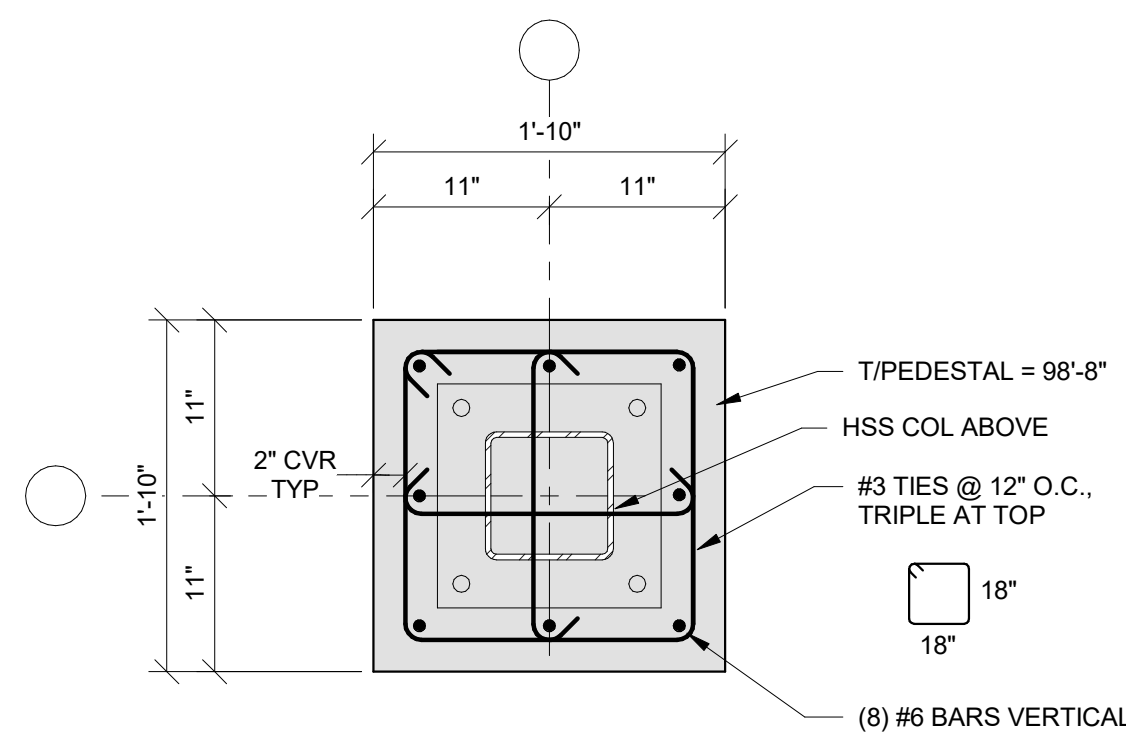
12 PEDESTAL P12  
S504 1" = 1'-0"



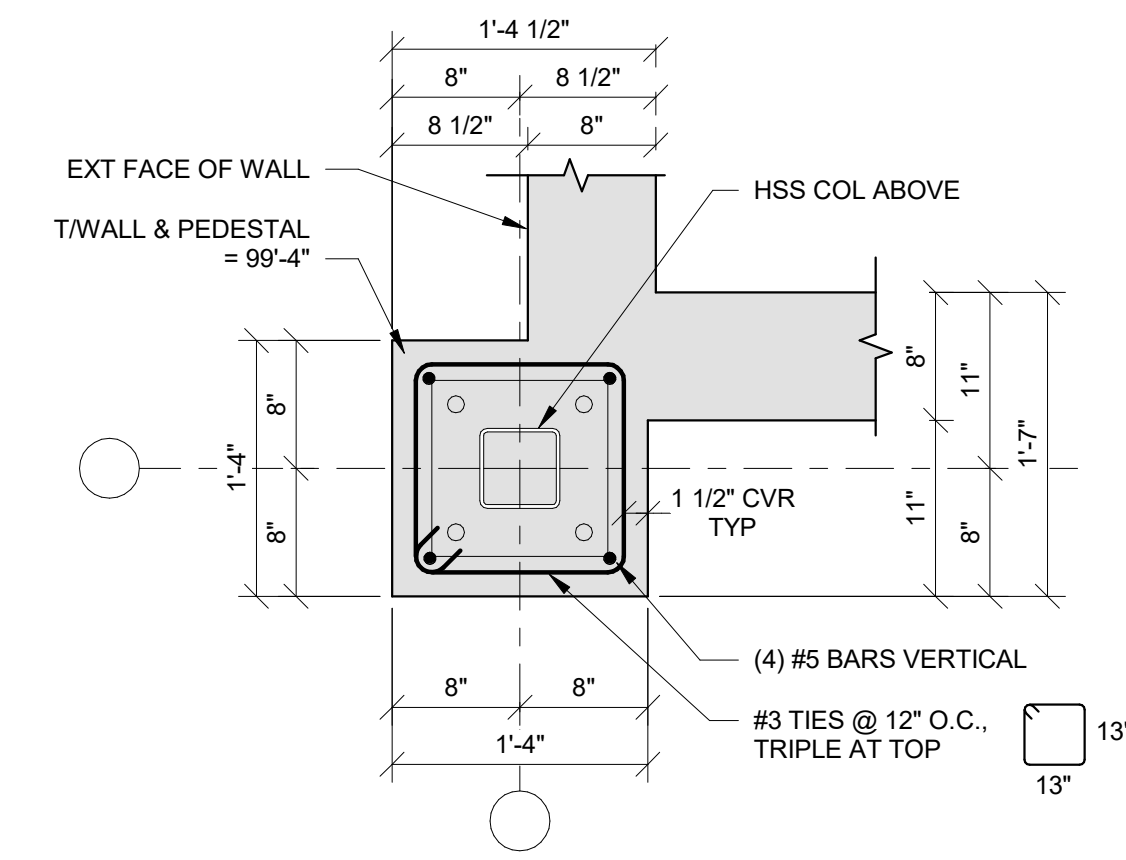
13 PEDESTAL P13  
S504 1" = 1'-0"



14 PEDESTAL P14  
S504 1" = 1'-0"



15 PEDESTAL P15  
S504 1" = 1'-0"



16 PEDESTAL P16  
S504 1" = 1'-0"

PRINTS ISSUED

11/01/23 - CITY SUBMITTAL

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4	9/20/2024	FOUNDATION

**McCLURE**<sup>TM</sup>

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09/20/2024

TOWNEPLACE SUITES

1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

SHEET TITLE  
PEDESTAL DETAILS

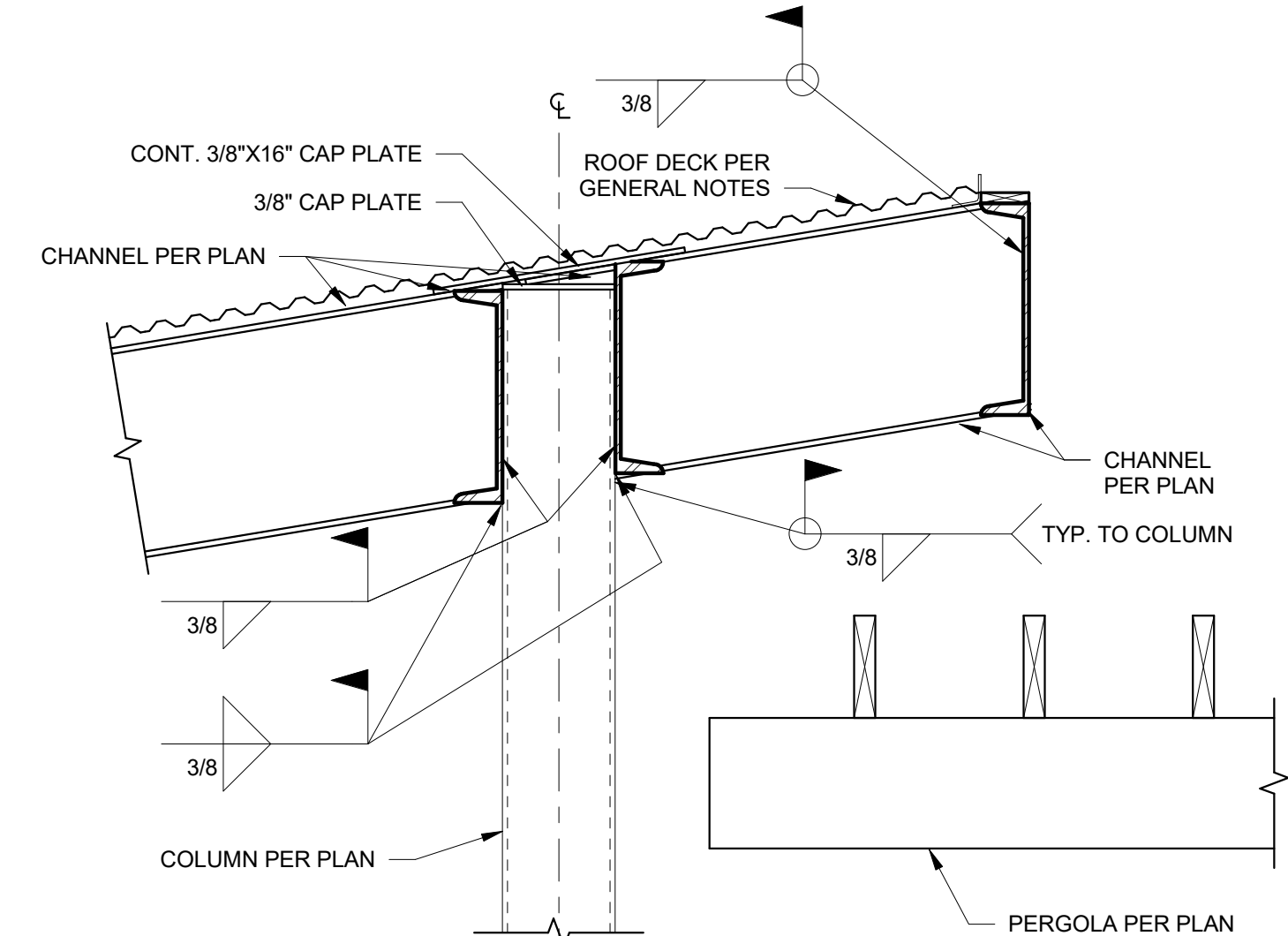
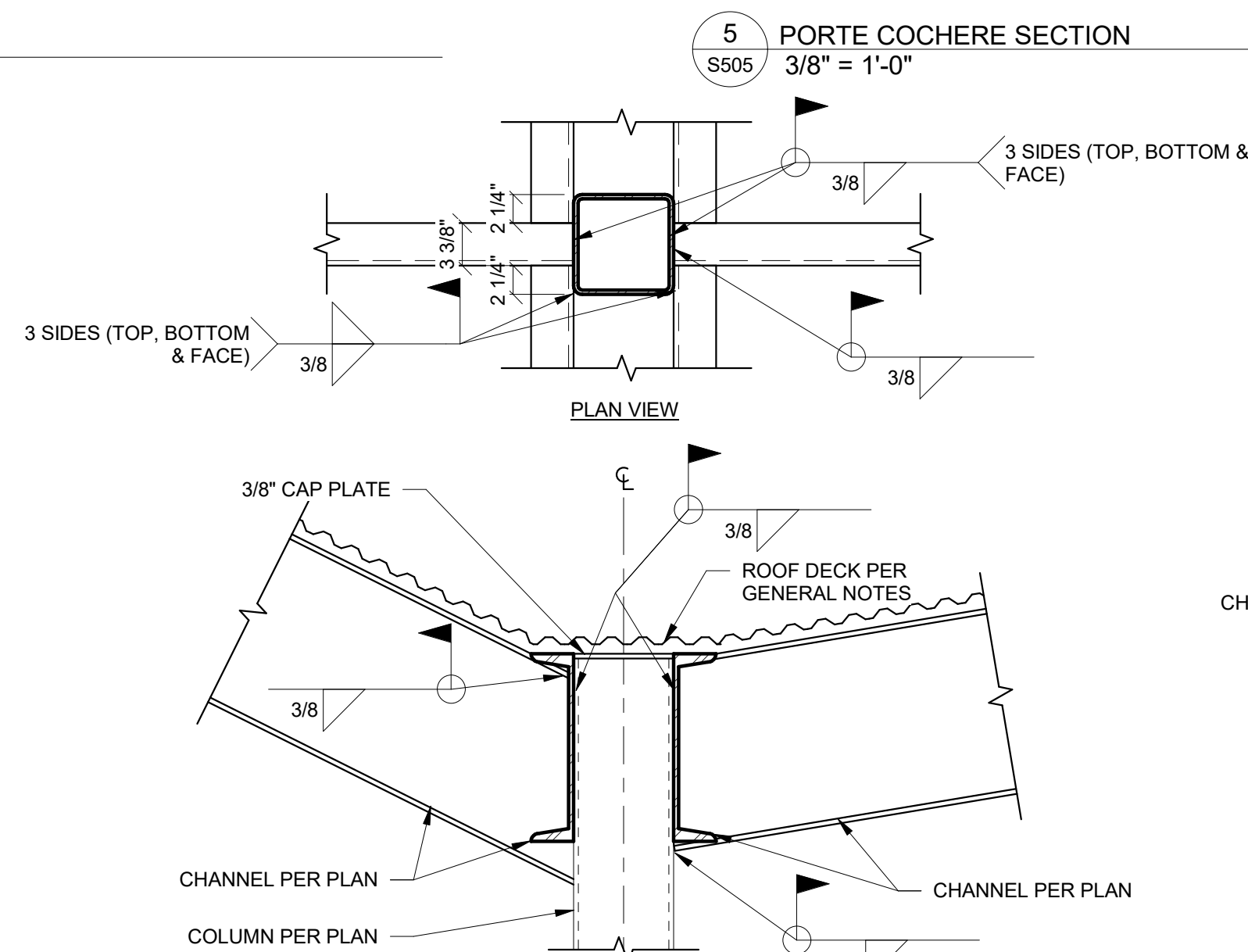
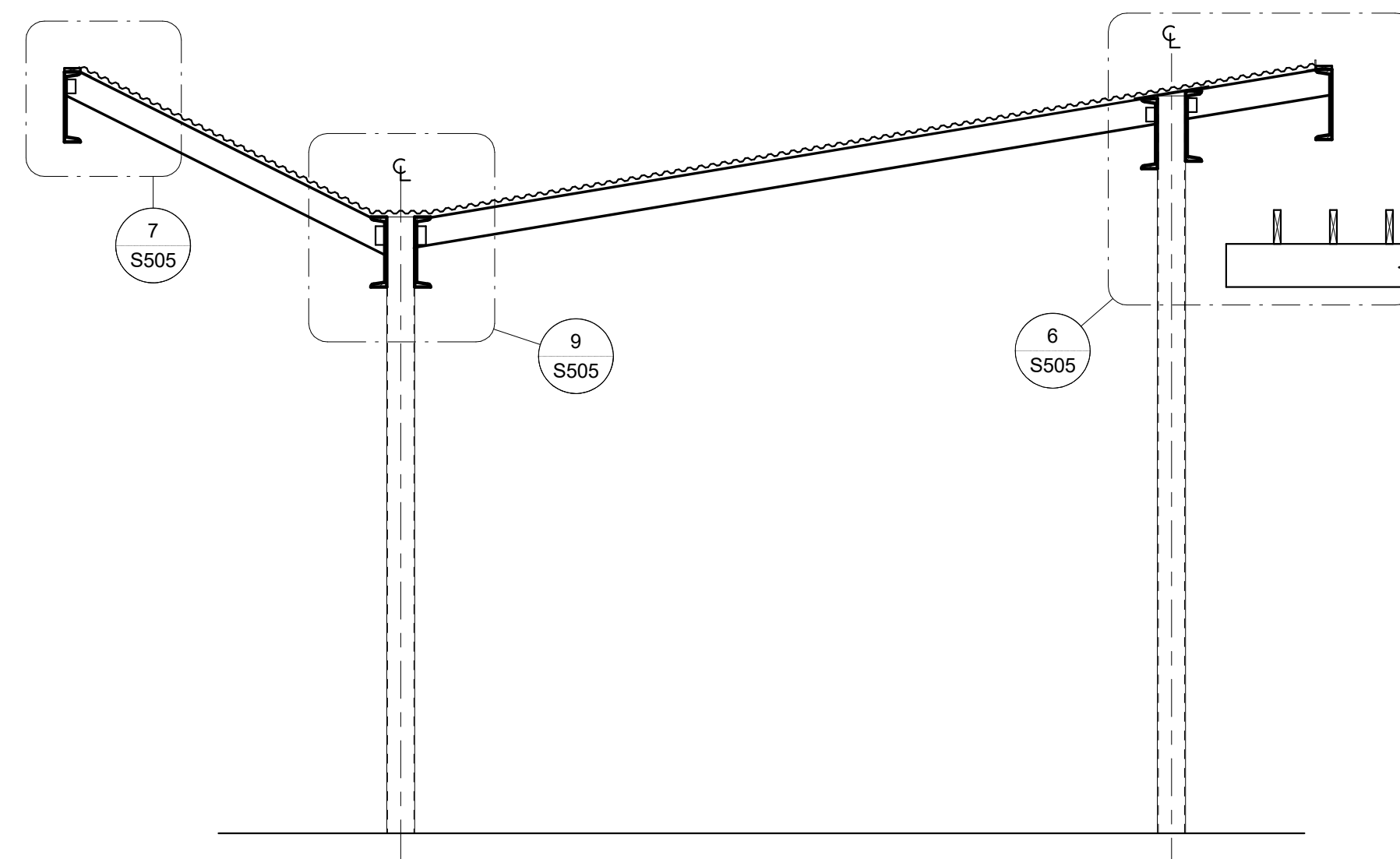
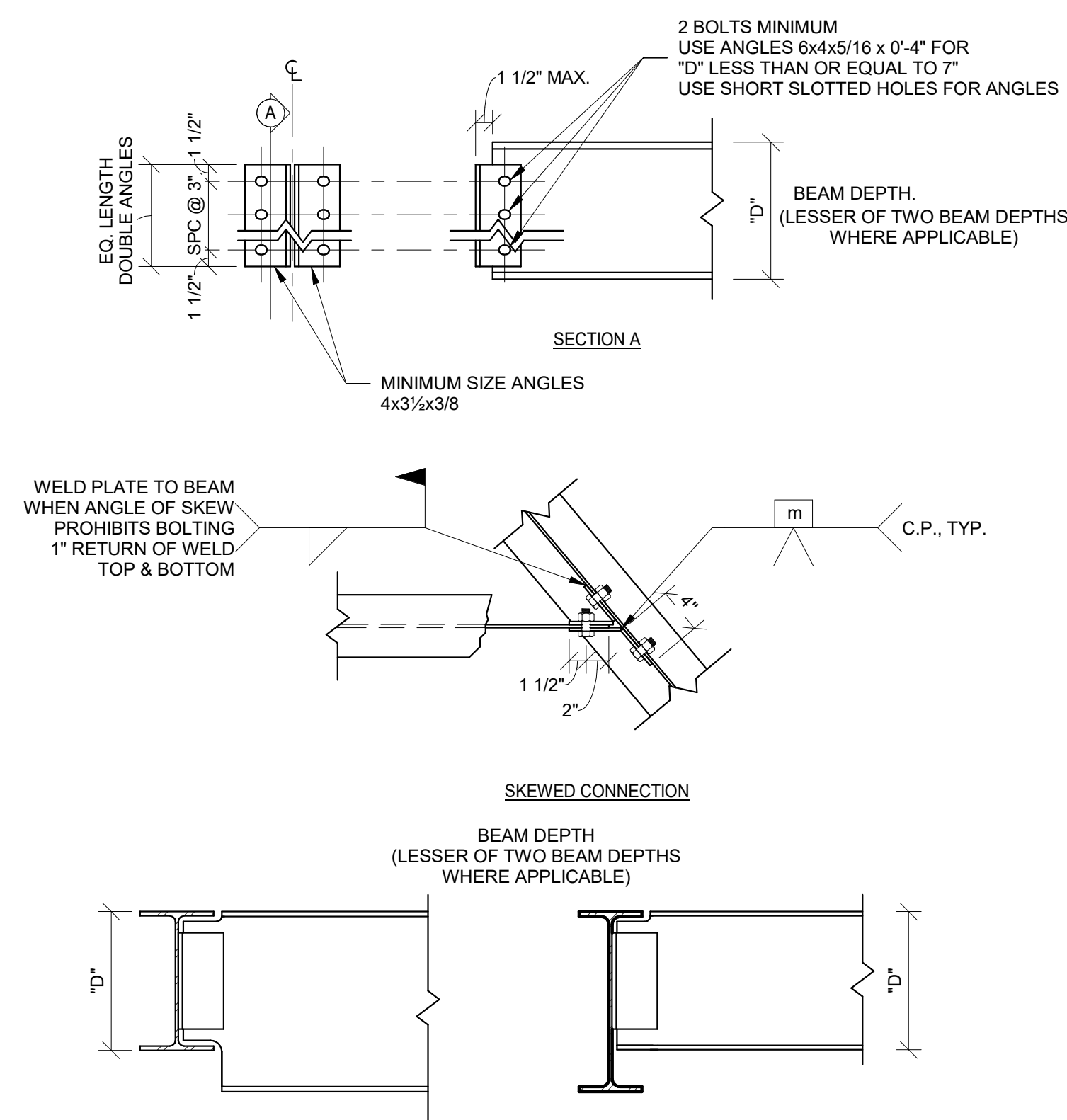
PROJECT NUMBER: 2023000333

SHEET NUMBER:

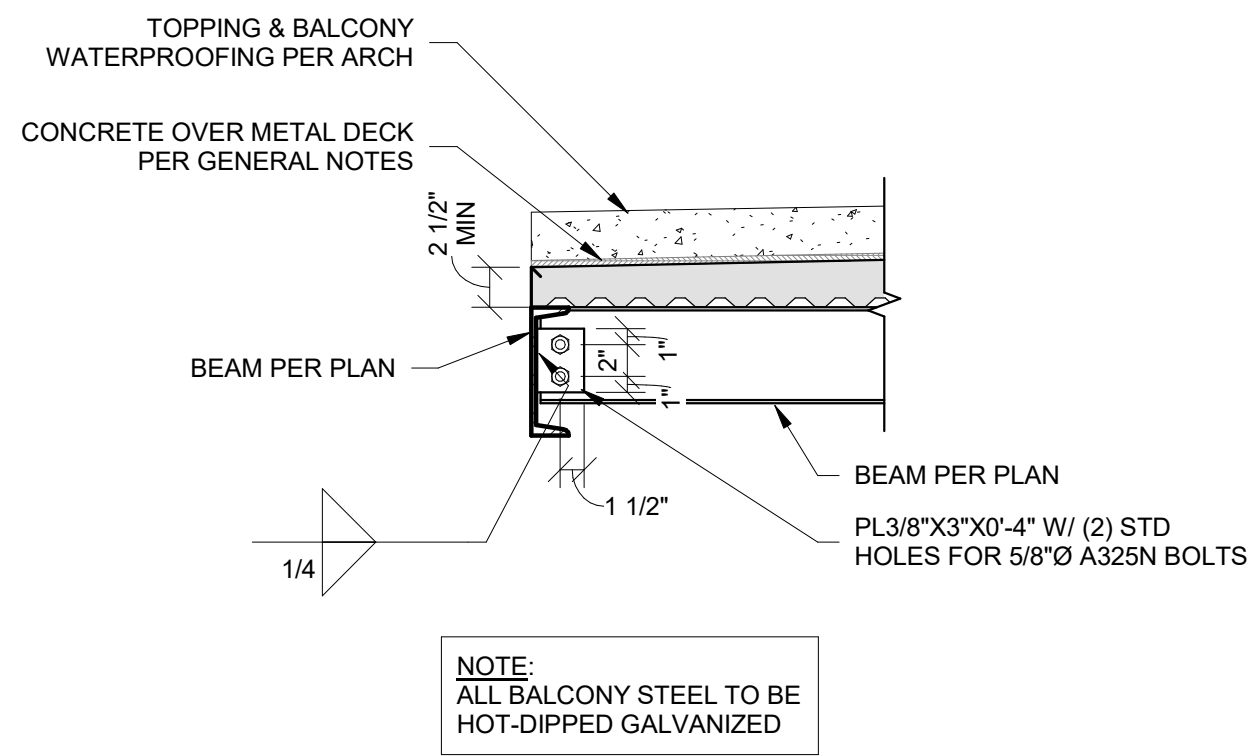
WHOLE SHEET  
FOUNDATION  
REVISIONS

4 **S504**

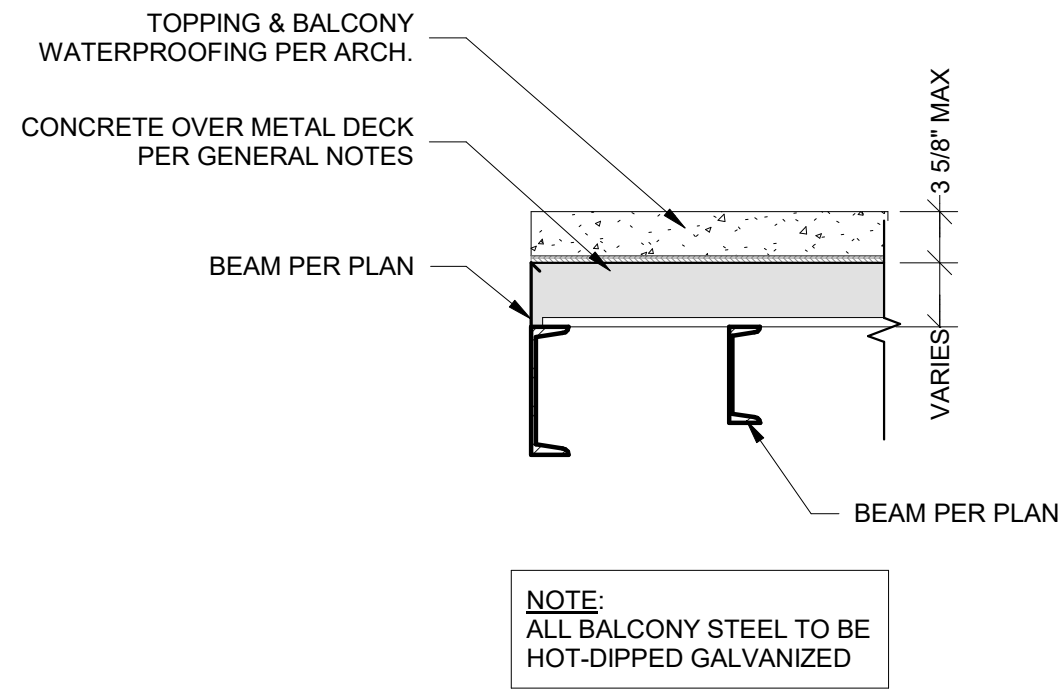




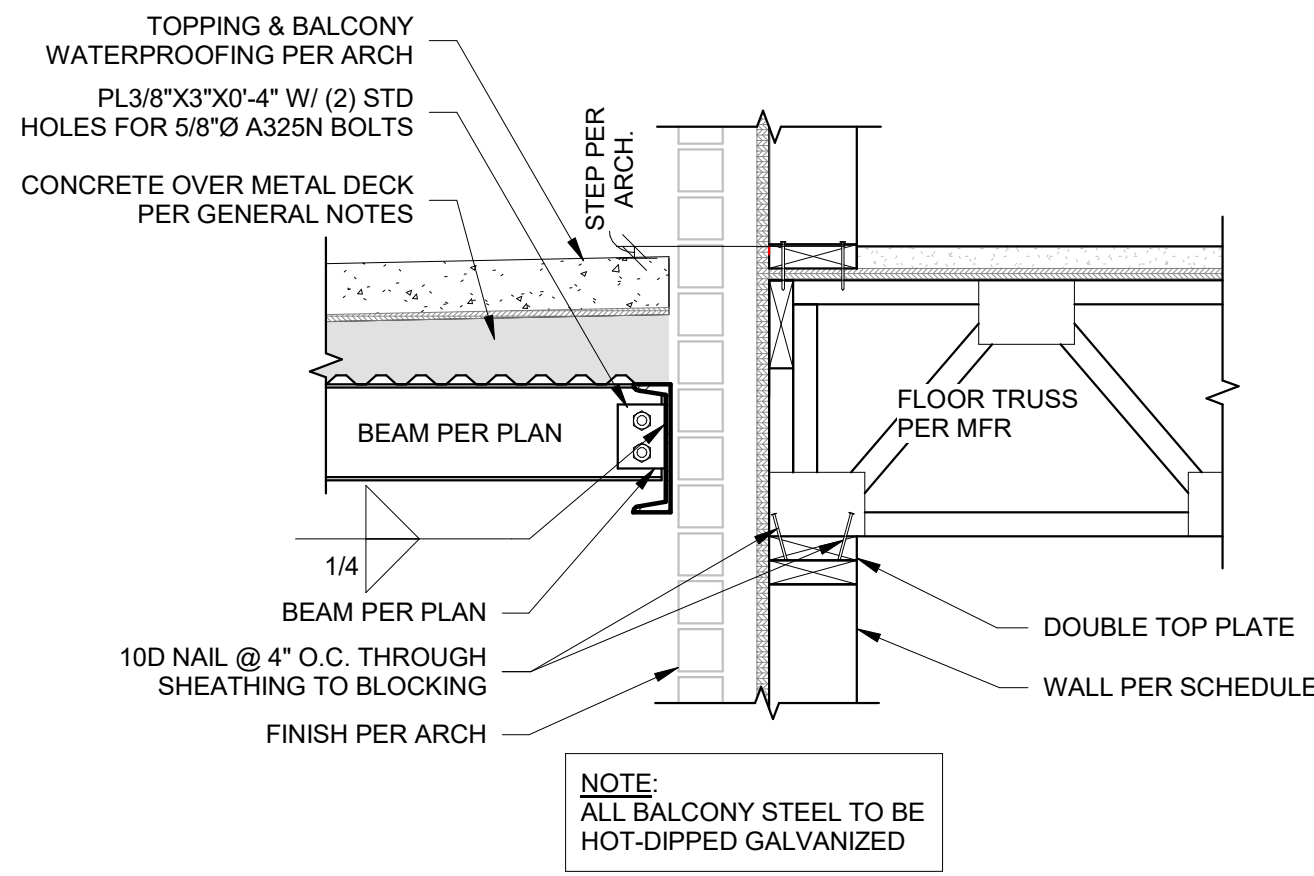




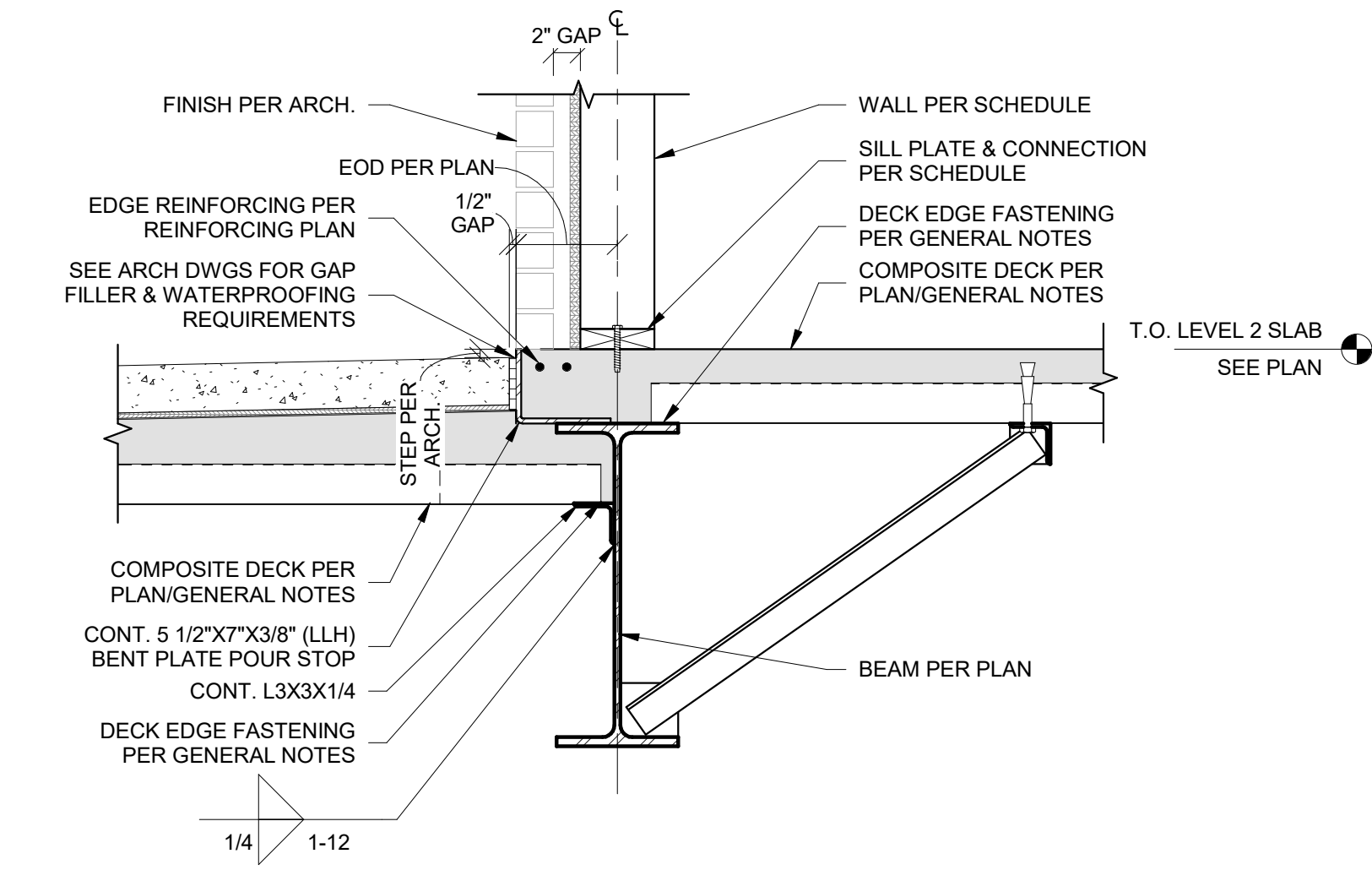
1 BALCONY EDGE FRAMING - PERPENDICULAR  
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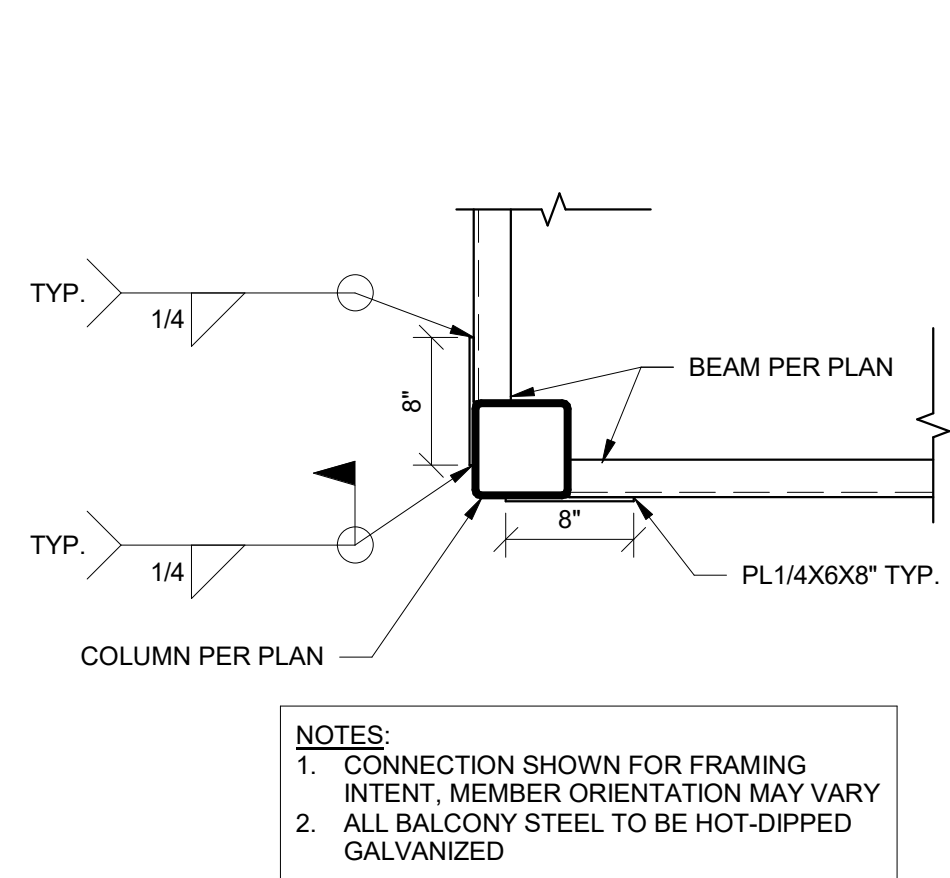
2 BALCONY EDGE FRAMING - PARALLEL  
1" = 1'-0"



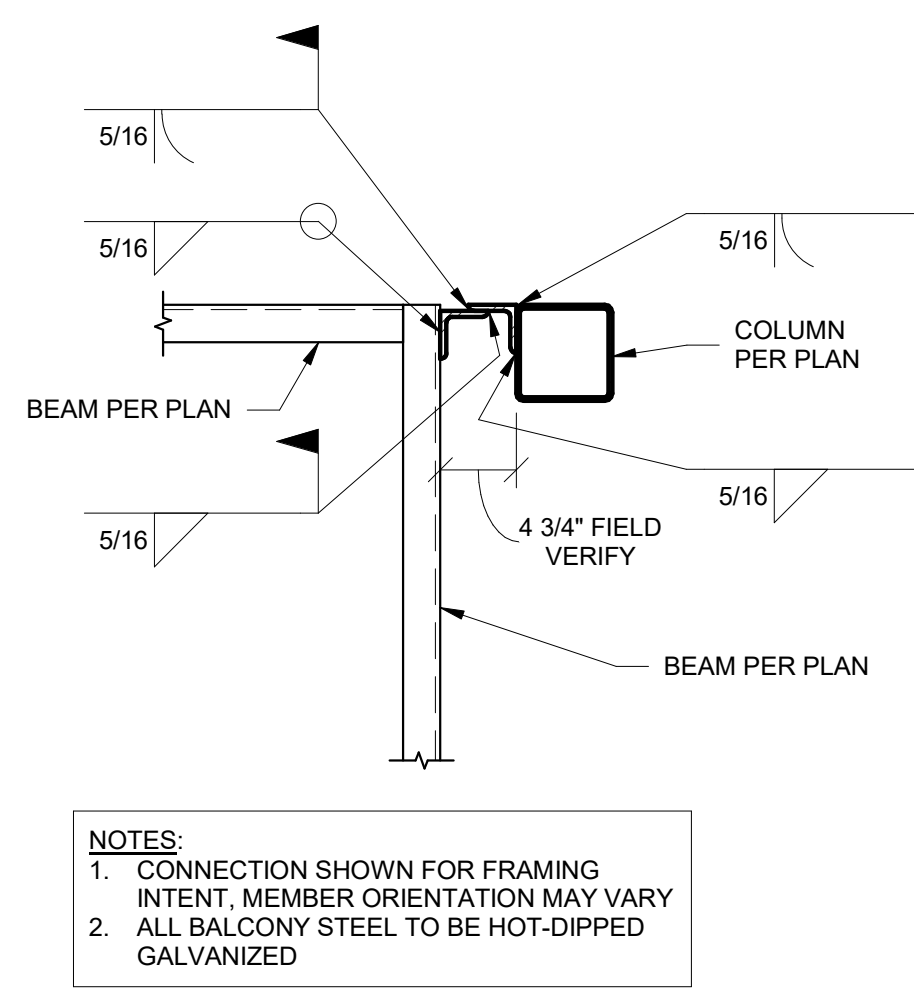
3 BALCONY FRAMING - PERPENDICULAR TO WALL  
1" = 1'-0"



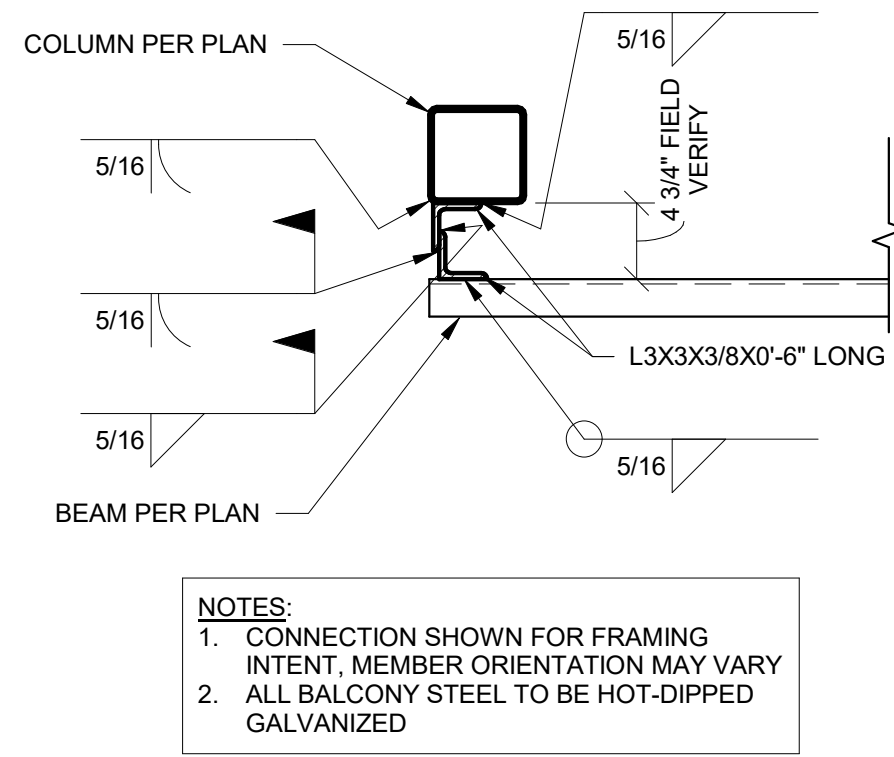
4 BALCONY FRAMING - PERPENDICULAR TO BEAM  
1" = 1'-0"



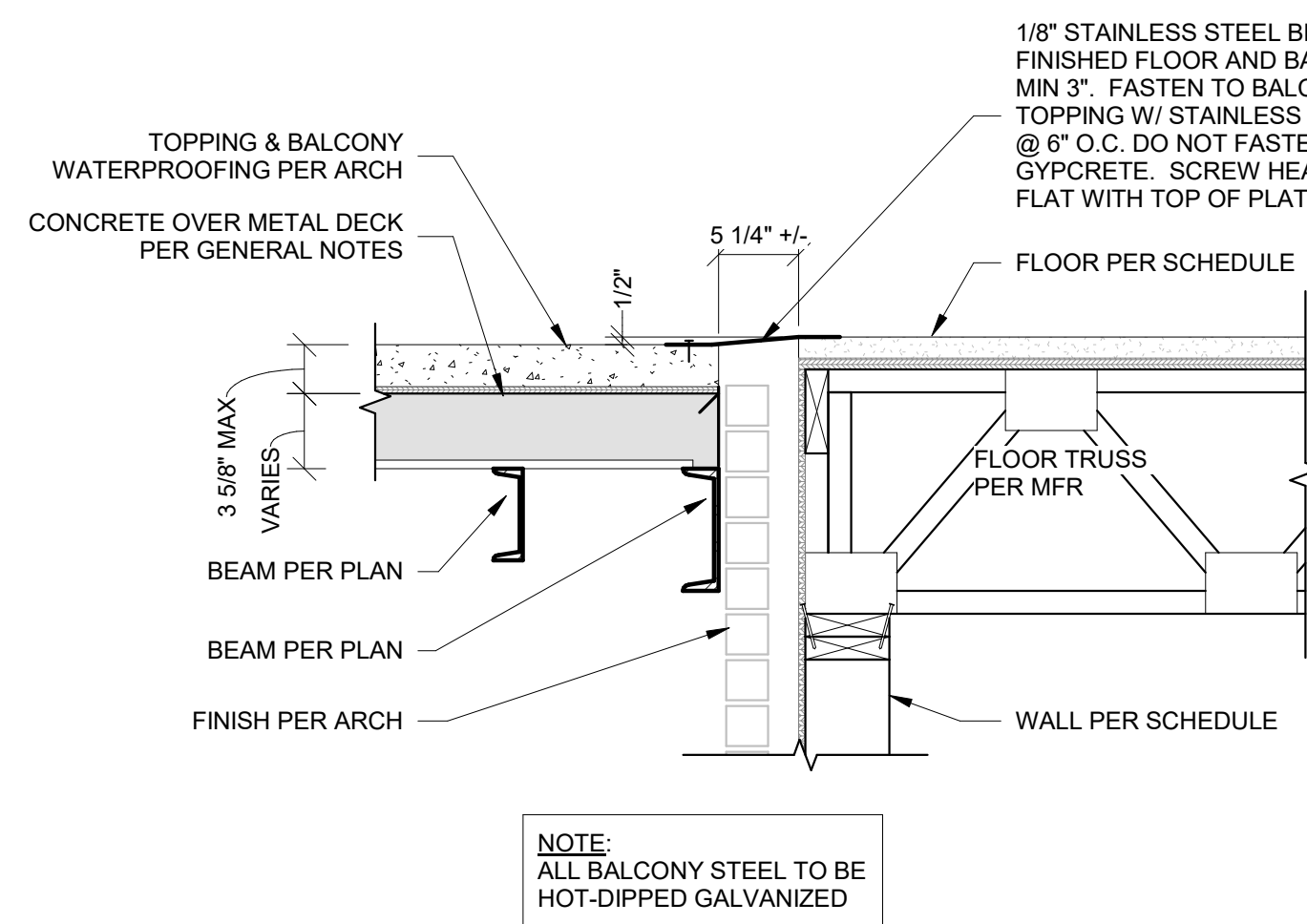
5 BALCONY BEAM TO COLUMN  
1" = 1'-0"



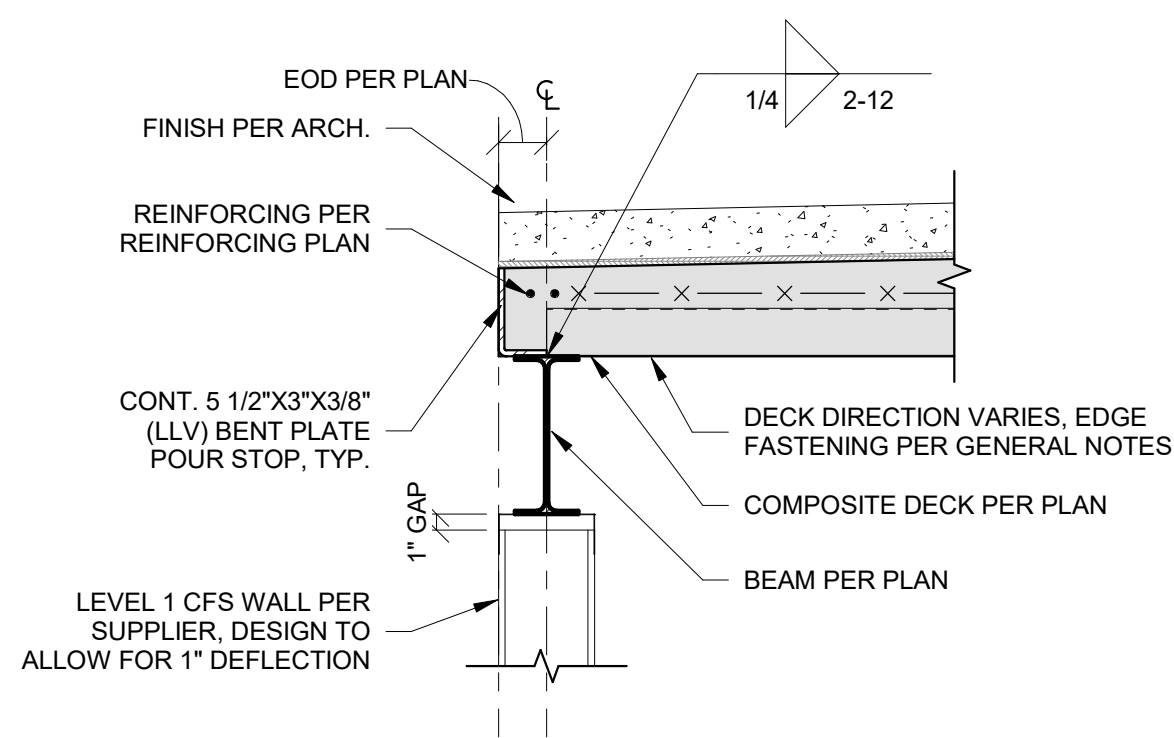
6 BALCONY BEAM TO COLUMN WITH PLATE  
1" = 1'-0"



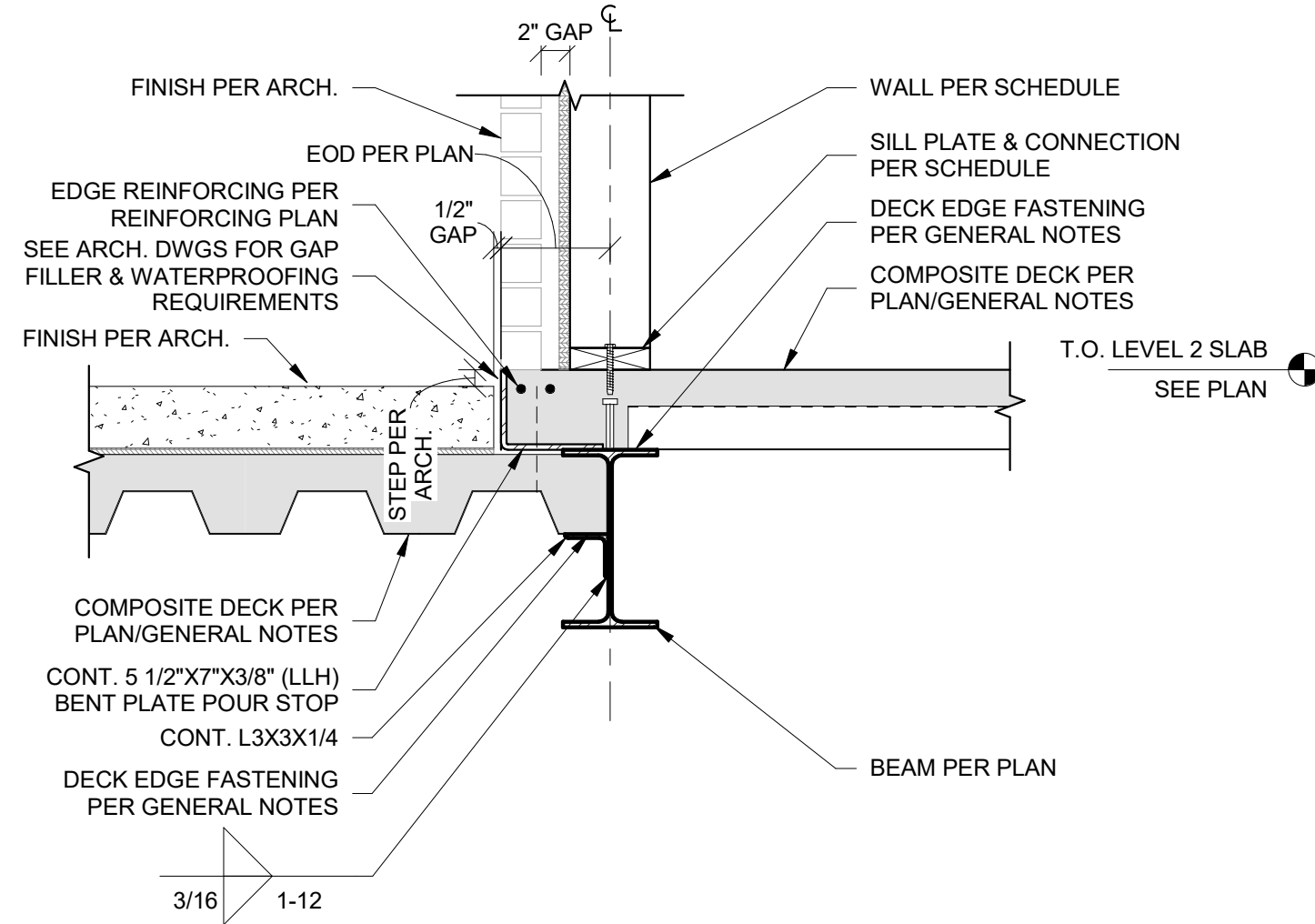
7 BALCONY BEAM TO COLUMN WITH ANGLES  
1" = 1'-0"



8 BALCONY EDGE FRAMING AT DOOR THRESHOLD  
1" = 1'-0"



9 BALCONY EDGE FRAMING ON LEVEL 2  
1" = 1'-0"



10 BALCONY FRAMING - PARALLEL TO BEAM  
1" = 1'-0"

PRINTS ISSUED  
11/01/23 - CITY SUBMITTAL

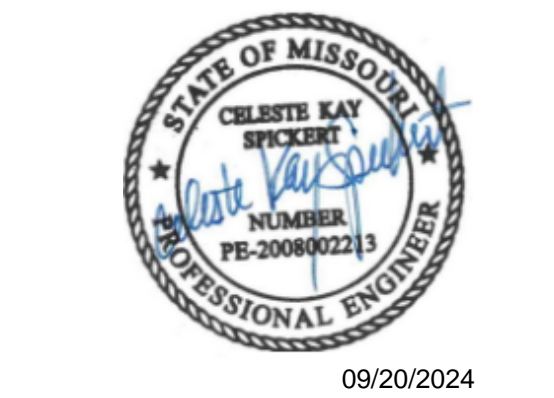
REVISIONS:  
1 12/21/2023 RESPONSE TO CITY COMMENTS  
2 1/19/2024 ADDENDUM #2  
3 3/06/2024 IN RESPONSE TO GC COMMENTS  
4 9/20/2024 FOUNDATION

**McCLURE**<sup>TM</sup>

2001 W Broadway  
Columbia, MO 65203  
P 573-814-1568

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MISSOURI CERTIFICATE OF AUTHORITY  
NO. E-2006023253  
EXPIRES: DECEMBER 31, 2024



**TOWNEPLACE SUITES**

**1901 NE DISCOVERY AVE**  
**LEE'S SUMMIT, MO 64064**

SHEET TITLE  
BALCONY DETAILS

PROJECT NUMBER: 2023000333

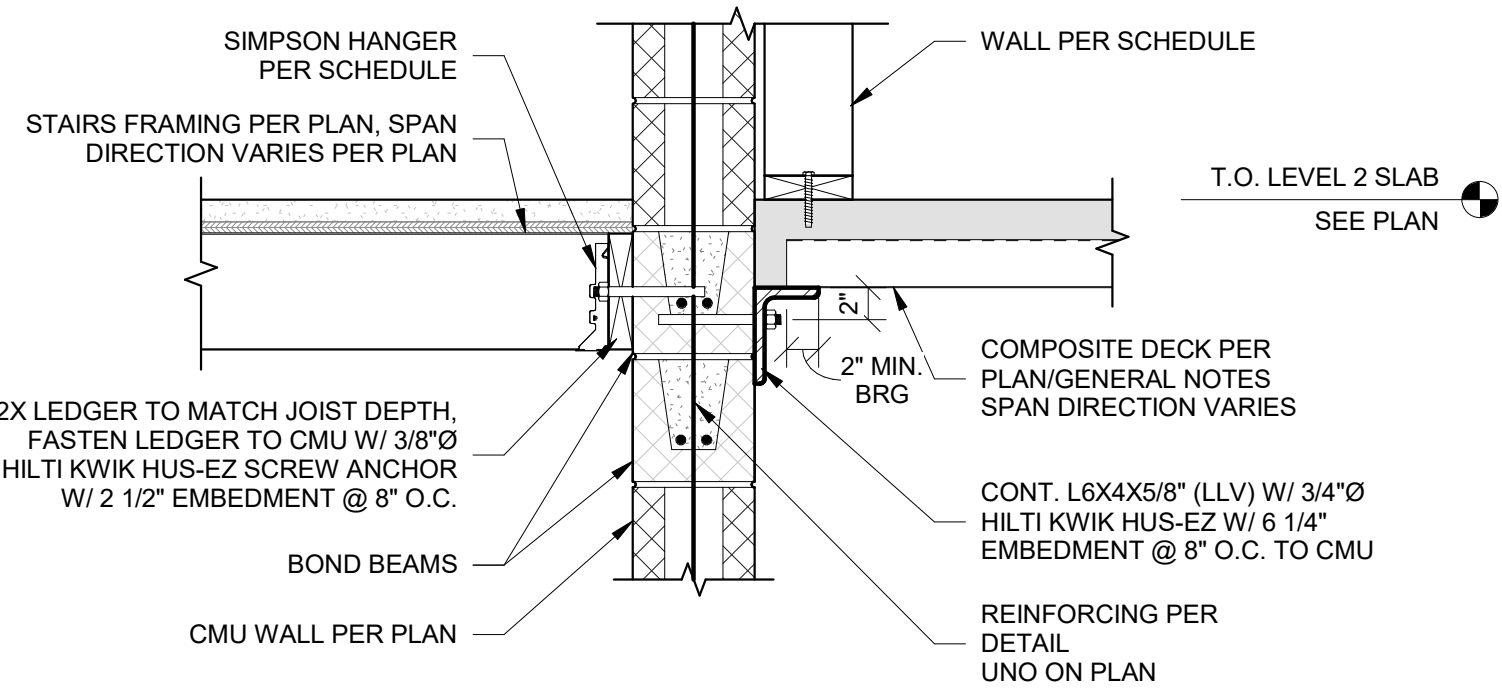
SHEET NUMBER:

**S512**

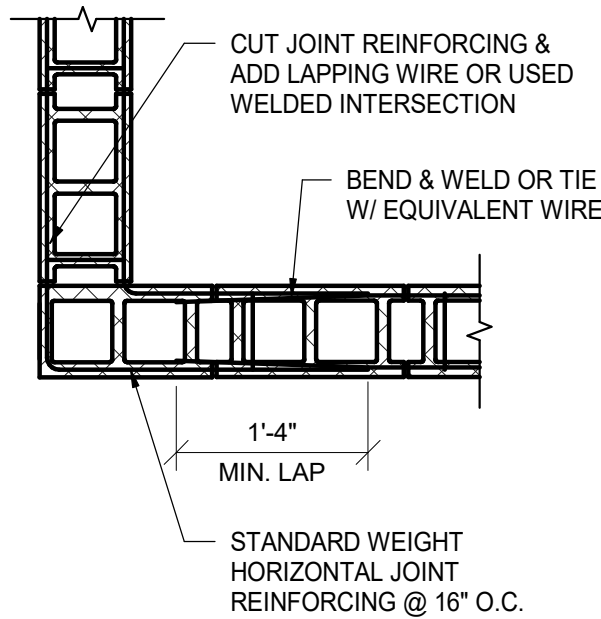


JOIST HANGER SCHEDULE	
Joist Size	Hanger
2x4	LUS24
2x6	LUS26
2x8	LUS26
2x10	LUS28

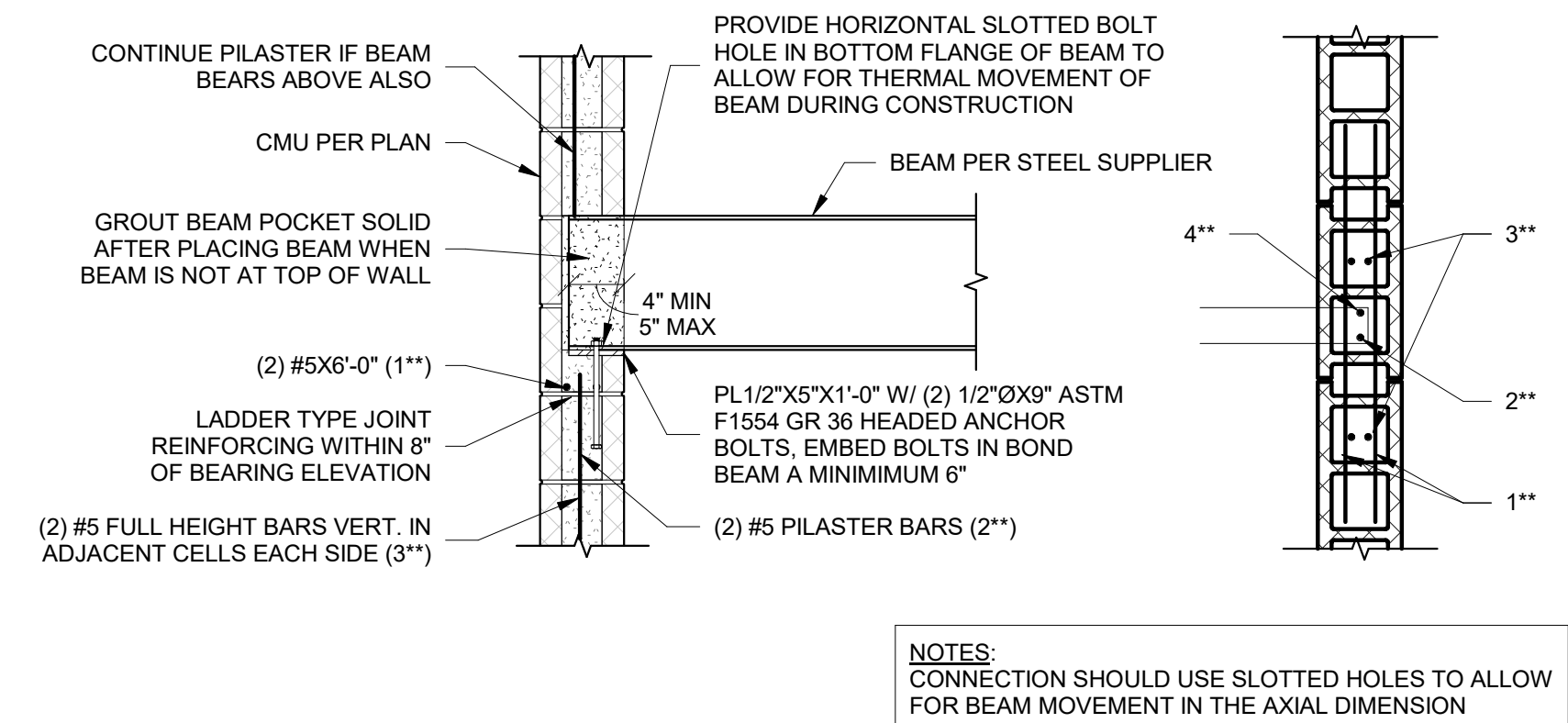
- Notes:
1. Hangers to be installed with typical fasteners per manufacturer product data
  2. All exterior members are to be pressure treated



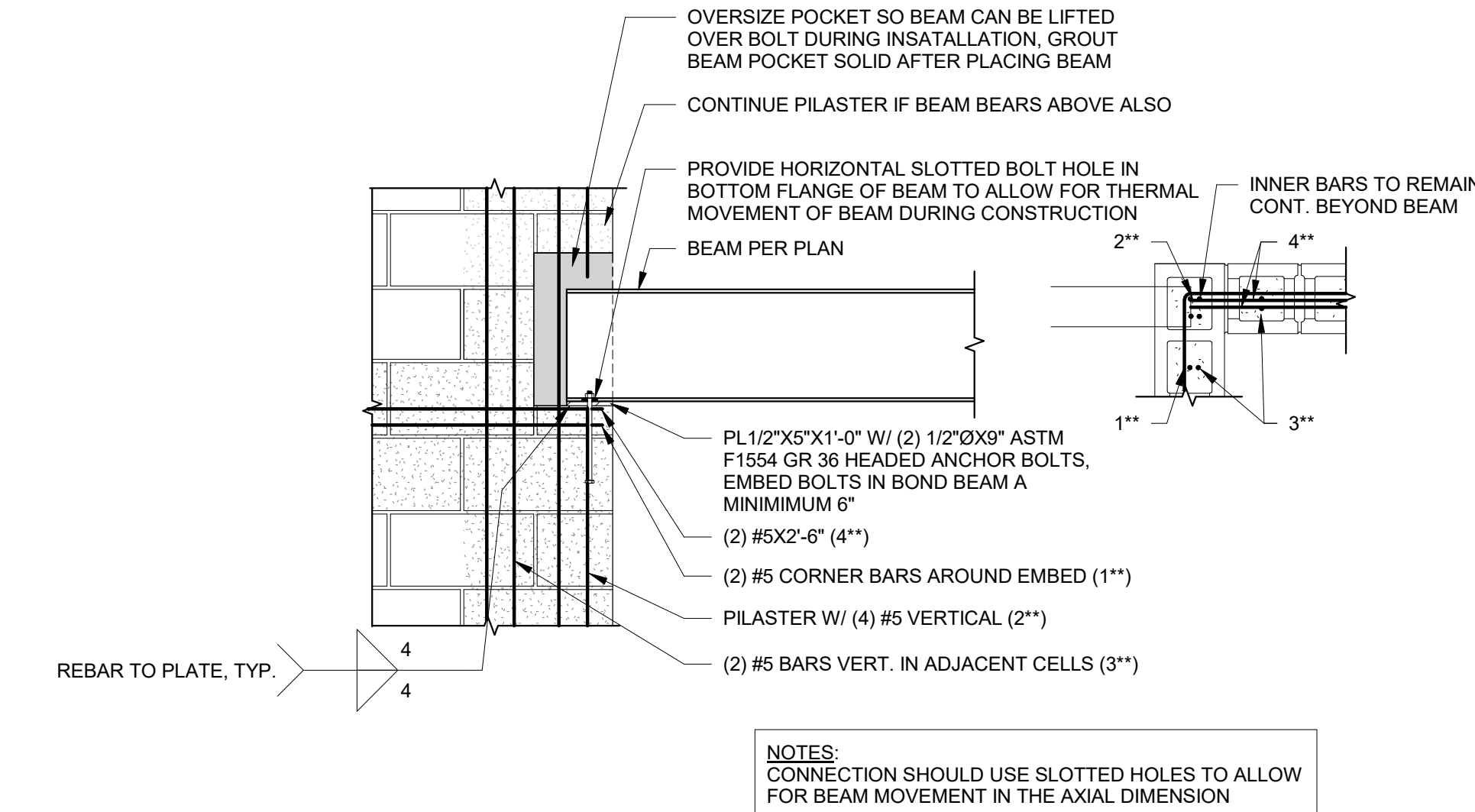
1 SECTION AT STAIRS AT LEVEL 2  
1" = 1'-0"



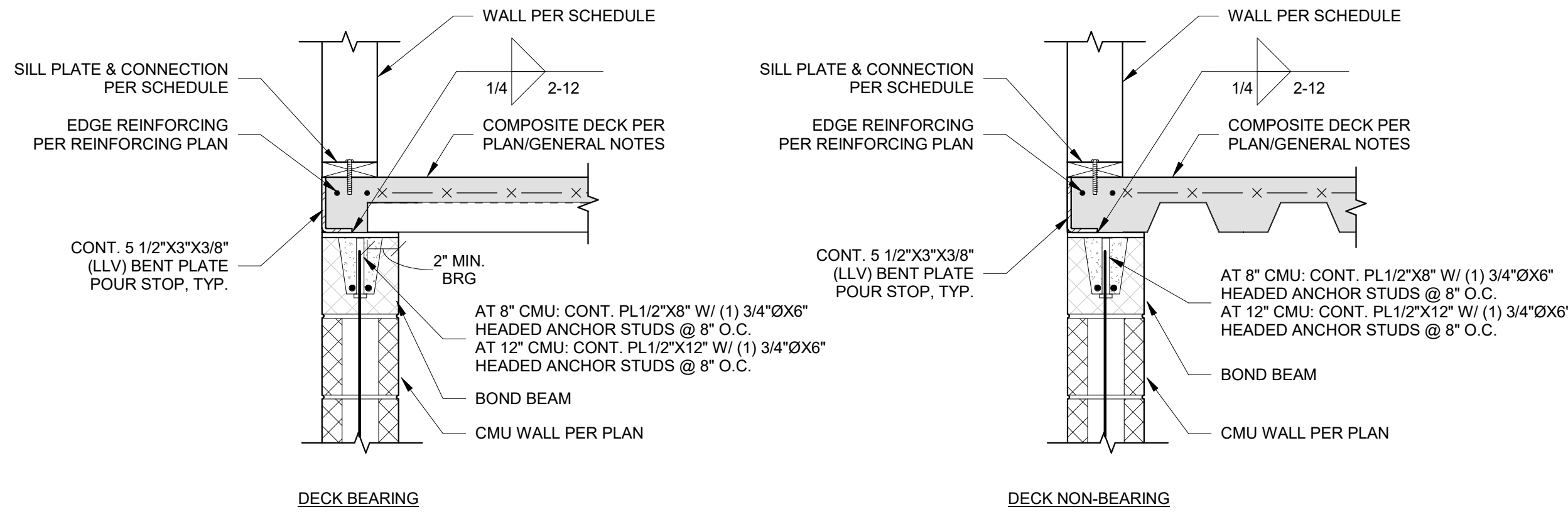
2 JOINT REINFORCING AT INTERSECTING CMU WALLS  
3/4" = 1'-0"



3 BEAM CONNECTION TO MASONRY WALL - MID WALL  
3/4" = 1'-0"

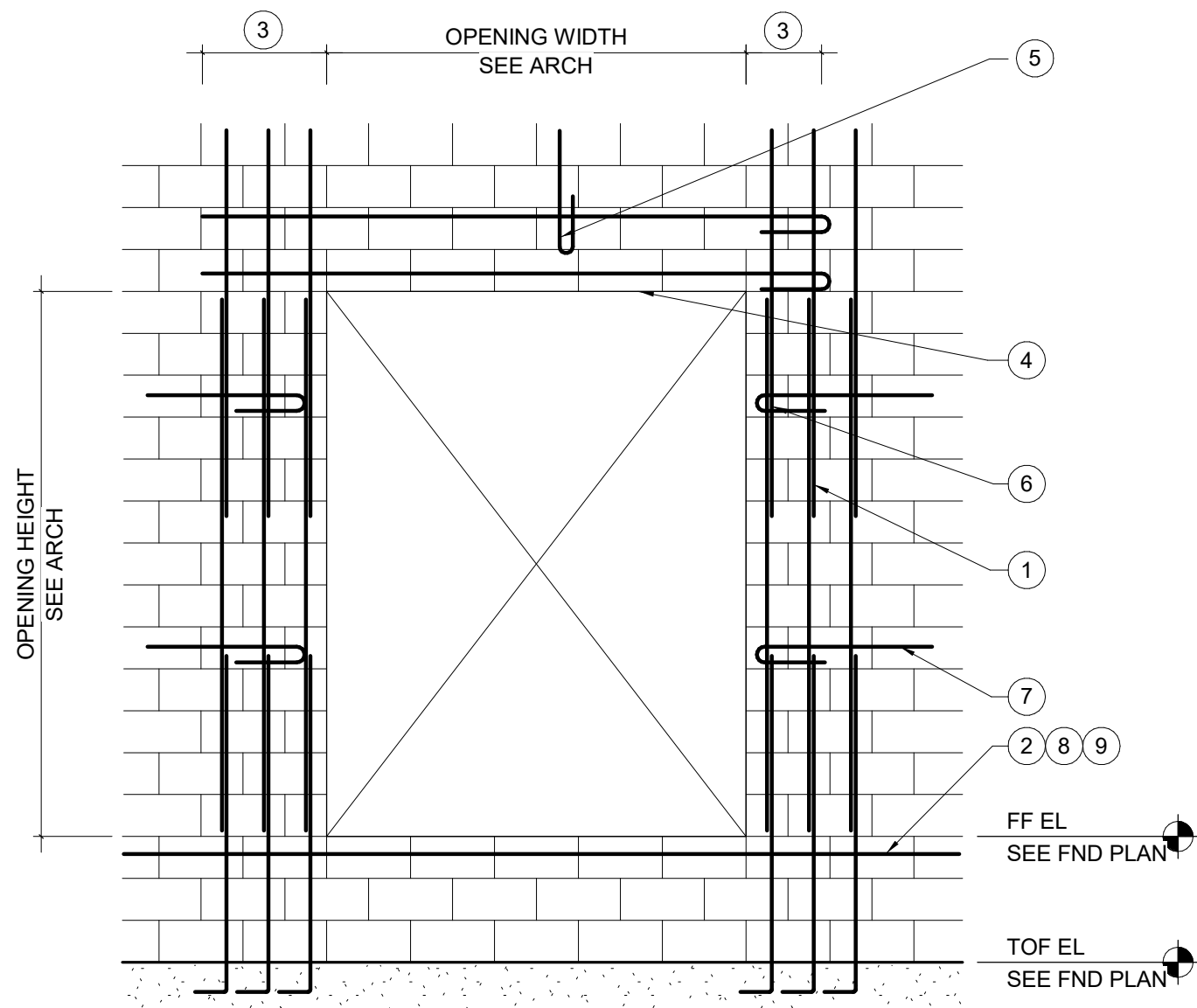


4 BEAM CONNECTION TO MASONRY AT CORNER  
3/4" = 1'-0"

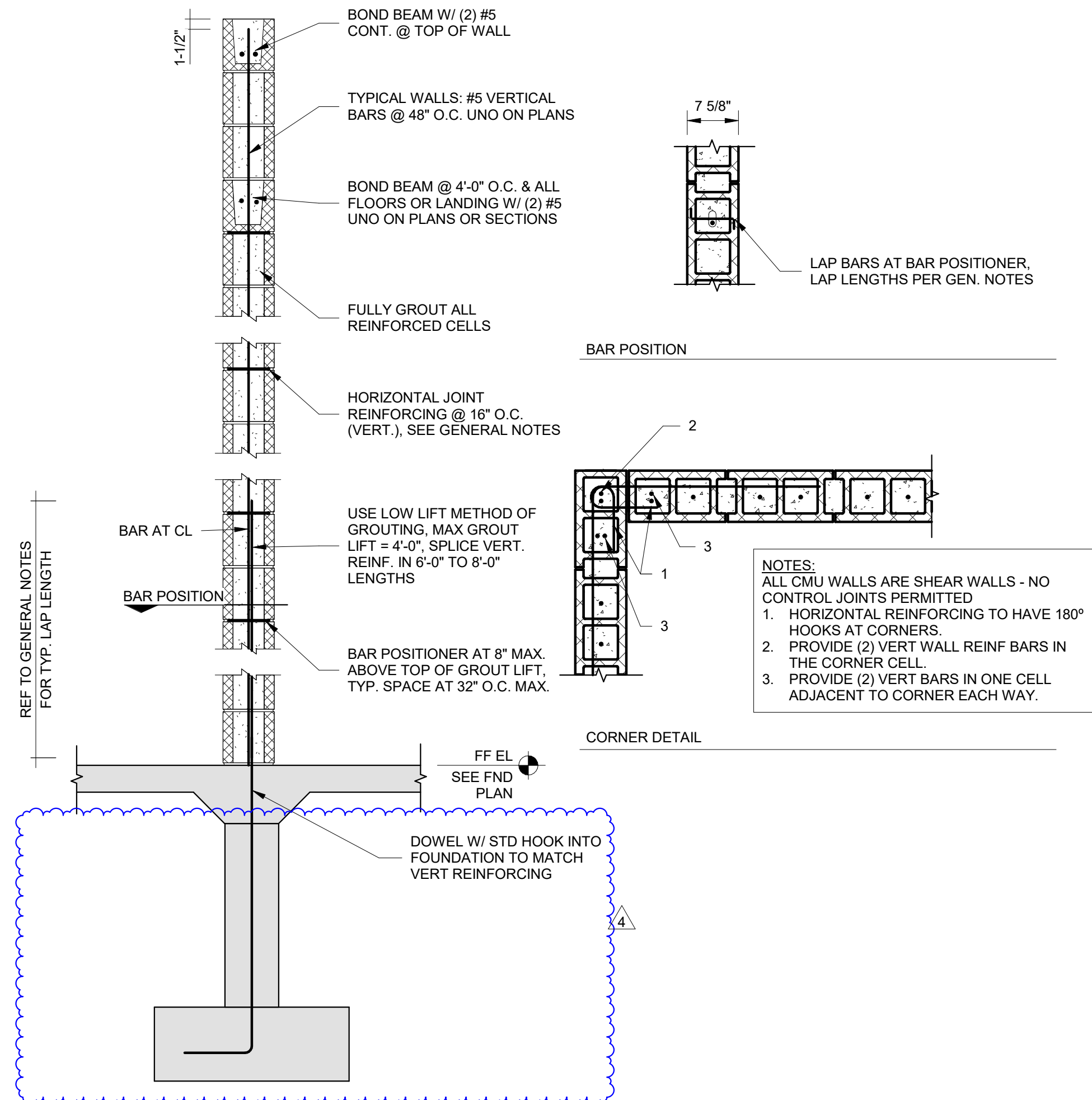


7 COMPOSITE DECK BEARING ON MASONRY WALL  
1" = 1'-0"

CMU LINTEL SCHEDULE				
MARK	WIDTH	DEPTH	REINFORCING	STIRRUPS
ALL	8"	16"	(2) #5	-
ALL	12"	16"	(2) #5	-



5 TYPICAL MASONRY OPENING DIAGRAM & SCHEDULE  
3/4" = 1'-0"



6 CMU WALL REINFORCING DIAGRAM  
3/4" = 1'-0"

PRINTS ISSUED  
11/01/23 - CITY SUBMITTAL

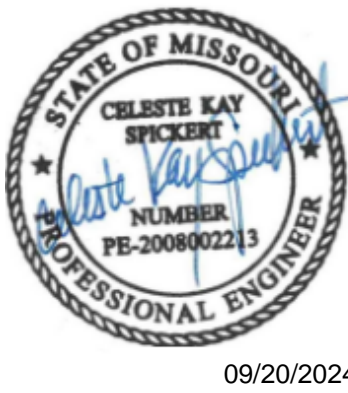
REVISIONS:

1	12/21/2023	RESPONSE TO CITY COMMENTS
2	1/19/2024	ADDENDUM #2
3	3/06/2024	IN RESPONSE TO GC COMMENTS
4	9/20/2024	FOUNDATION

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MISSOURI CERTIFICATE OF AUTHORITY  
NO. E-2006023253  
EXPIRES: DECEMBER 31, 2024



09/20/2024

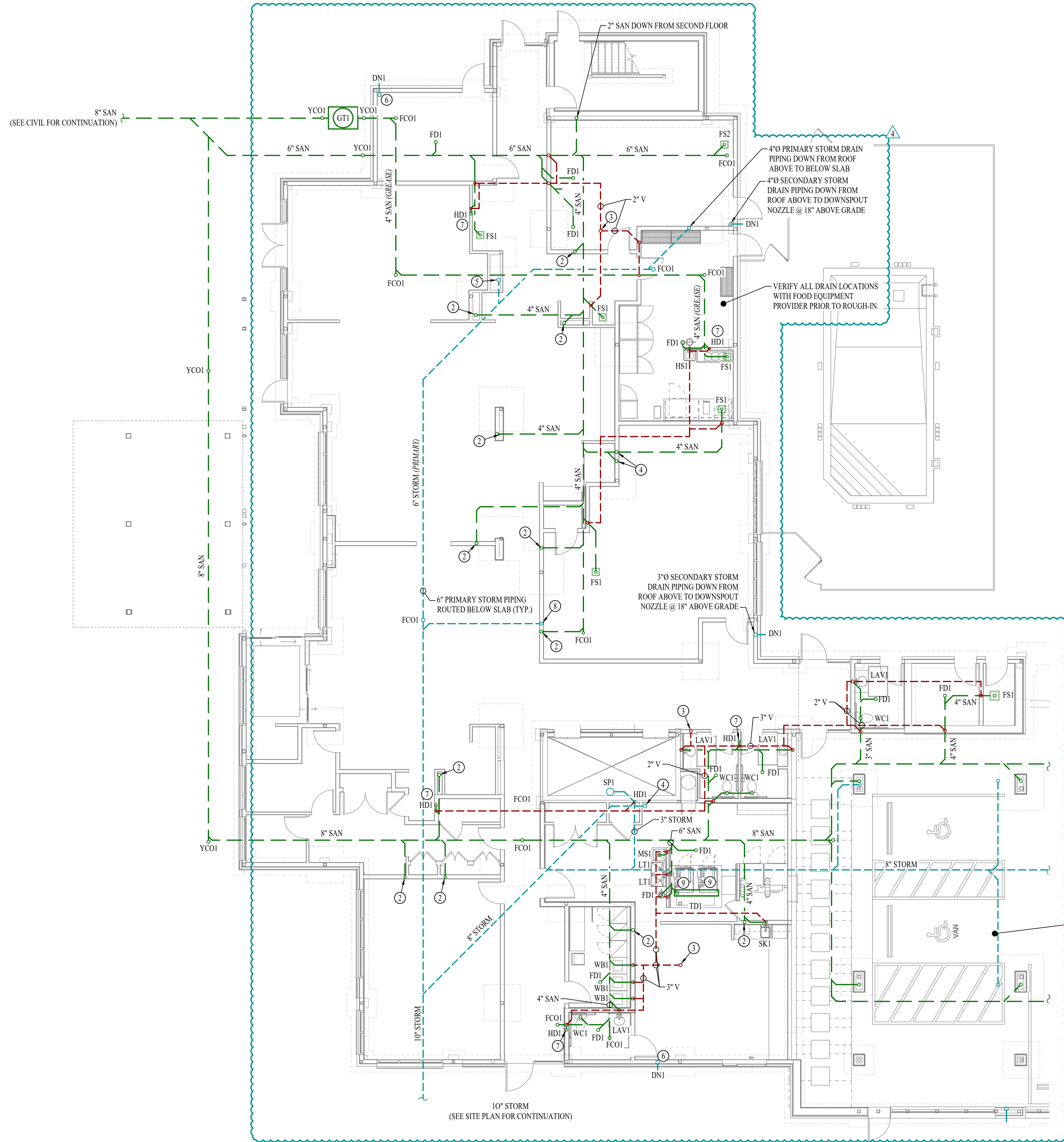
TOWNEPLACE SUITES  
1901 NE DISCOVERY AVE  
LEE'S SUMMIT, MO 64064

SHEET TITLE  
MASONRY DETAILS

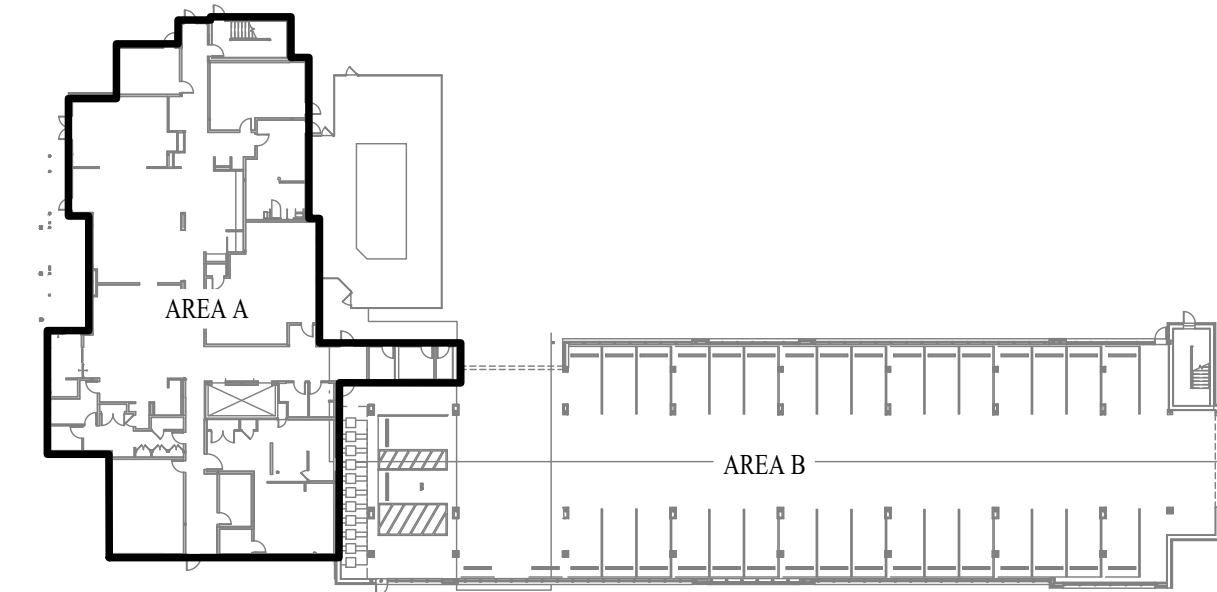
PROJECT NUMBER: 2023000333  
SHEET NUMBER:

S515





SANITARY SEWER PLAN - 1ST FLOOR - AREA A  
SCALE: 1/8" = 1'-0"



KEY PLAN  
SCALE: 1" = 50 ft

- SANITARY SEWER PLAN SYMBOL LEGEND**
- SANITARY SEWER PIPING
  - VENT PIPING
  - STORM PIPING
  - PIPING TURNED DOWN / TURNED UP
  - TIE INTO EXISTING

- SANITARY SEWER PLAN GENERAL NOTES:**
- SEE SHEET P501 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.
  - INCLUDE ACCESSIBLE CLEANOUT WITH ACCESS COVER AT BASE OF EACH SANITARY STACK.

- SANITARY SEWER PLAN KEY NOTES:**
- 3" SAN DOWN FROM SECOND FLOOR.
  - 4" SAN DOWN FROM SECOND FLOOR.
  - 3" VENT UP TO SECOND FLOOR.
  - 4" STORM DRAIN PIPING DOWN FROM SECOND FLOOR.
  - 6" STORM DRAIN PIPING DOWN FROM SECOND FLOOR.
  - STORM PIPING DOWN FROM SECOND FLOOR TO DOWNSPOUT NOZZLE AT 18" ABOVE GRADE.
  - HUB DRAIN IN WALL WITH ACCESS PANEL FOR CONDENSATE FROM GUEST ROOM PTACS.
  - 3" STORM DRAIN PIPING DOWN FROM SECOND FLOOR.
  - EXTEND FULL-SIZE DRAIN FROM COMMERCIAL CLOTHES WASHER TO OVER LAUNDRY TROUGH.

12 PROJECT No:	J21006
12 DESIGN:	ACW

ISSUE TITLE	DATE
CITY SUBMISSION	11 / 01 / 2023
REVISION 1	12 / 22 / 2023
REVISION 4	09 / 20 / 2024

Mechanical - Electrical - Plumbing Design Drawings for  
**Towneplace Suites By Marriott**

1810 Northeast Douglas St.  
Lee's Summit, Missouri 64064

AHJ APPROVAL STAMP

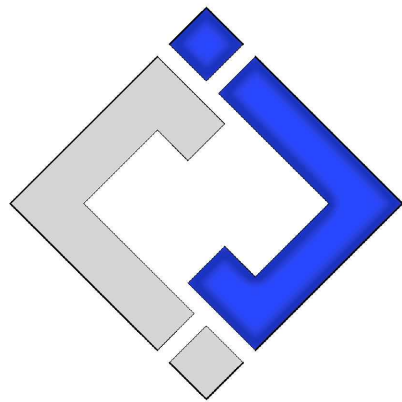
SHEET TITLE

SANITARY  
SEWER PLAN -  
1ST FLOOR -  
AREA A

SHEET NUMBER

PS101





J-SQUARED  
ENGINEERING

2400 Bluff Creek Drive, Suite 101  
Columbia, Missouri 65201  
573 - 234 - 4492 phone  
www.j-squaredeng.com

J2 PROJECT No: J21006

J2 DESIGN: ACW

ISSUE TITLE DATE

CITY SUBMISSION 11 / 01 / 2023

REVISION 1 12 / 22 / 2023

REVISION 4 09 / 20 / 2024

4

Mechanical - Electrical - Plumbing Design Drawings for  
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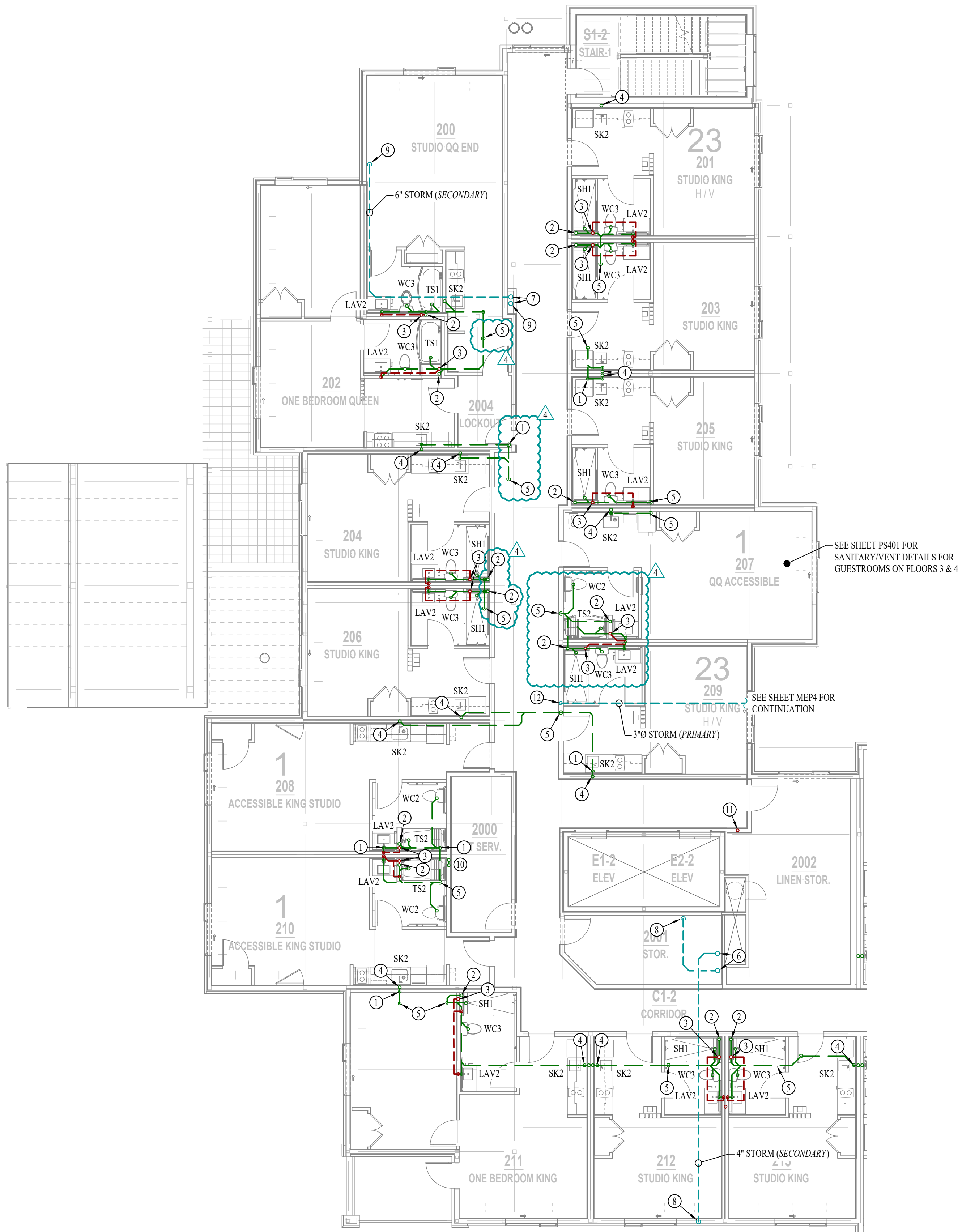
AHJ APPROVAL STAMP

SHEET TITLE

SANITARY SEWER  
PLAN - 2ND FLOOR -  
AREA A

SHEET NUMBER

PS102



SANITARY SEWER PLAN - 2ND FLOOR - AREA A

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

SANITARY SEWER PLAN SYMBOL LEGEND

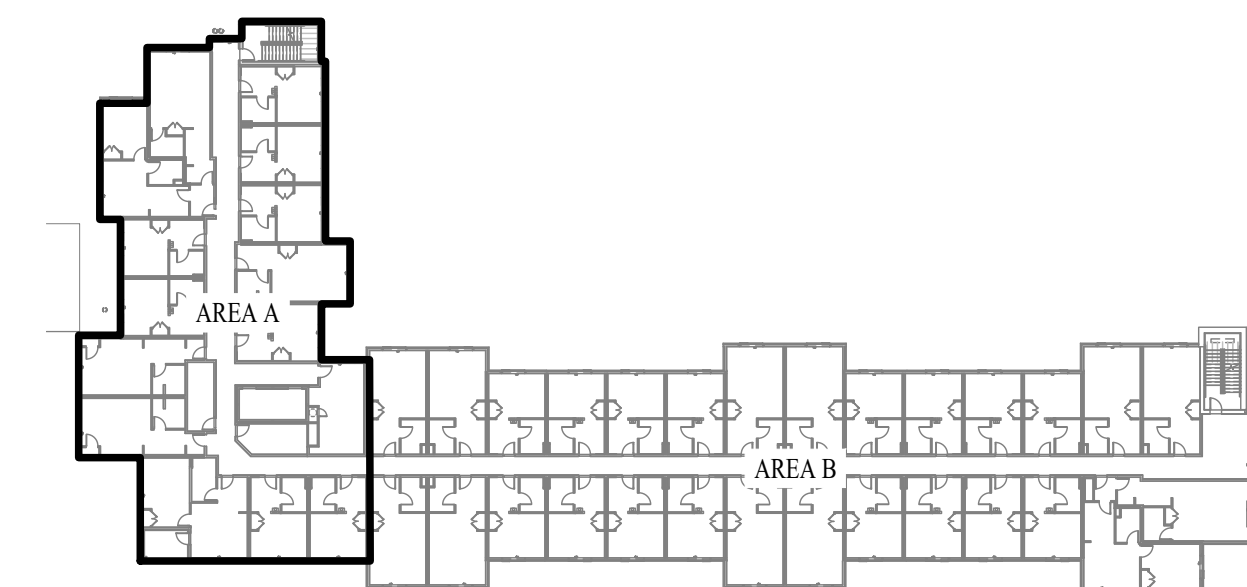
- SANITARY SEWER PIPING
- VENT PIPING
- STORM PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

- SEE SHEET PS01 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

SANITARY SEWER PLAN KEY NOTES:

- PLUMBING DROP TO OFFSET AROUND STRUCTURAL MEMBER.
- 3" SANITARY STACK DOWN FROM THIRD FLOOR; SEE SHEET PS401 FOR THIRD AND FOURTH FLOOR SANITARY PLANS.
- 3" VENT STACK UP TO THIRD FLOOR; SEE SHEET PS401 FOR THIRD AND FOURTH FLOOR VENT PIPING PLANS.
- 2" COMBINATION DRAIN / VENT STACK DOWN FROM THIRD FLOOR.
- 4" SANITARY DOWN TO FIRST FLOOR; SEE SHEET PS102 FOR CONTINUATION.
- 4" STORM DRAIN PIPING DOWN FROM ROOF.
- 6" STORM DRAIN PIPING DOWN FROM ROOF.
- 4" STORM DRAIN PIPING DOWN TO FIRST FLOOR.
- 6" STORM DRAIN PIPING DOWN TO FIRST FLOOR.
- 1" SANITARY STACK UP IN I.T. CLOSET WALL TO HUB DRAINS (WITH ACCESS PANELS) ON FLOORS 2,3,&4 FOR I.T. MINI SPLIT.
- 3" VENT UP FROM BELOW; CONTINUES UP TO 3" VTR.
- 3" STORM DRAIN PIPING DOWN TO FIRST FLOOR.



KEY PLAN

SCALE: 1" = 50 ft



SANITARY SEWER PLAN SYMBOL LEGEND

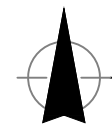
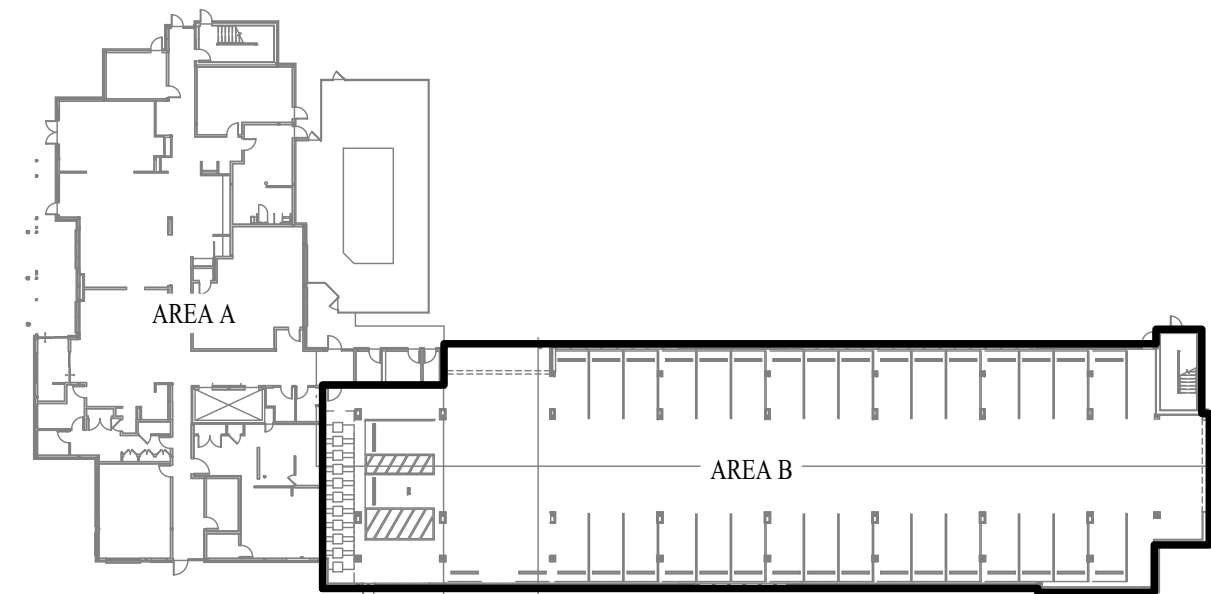
- SANITARY SEWER PIPING
- VENT PIPING
- STORM PIPING
- ○ PIPING TURNED DOWN / TURNED UP
- ✕ TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET PS01 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

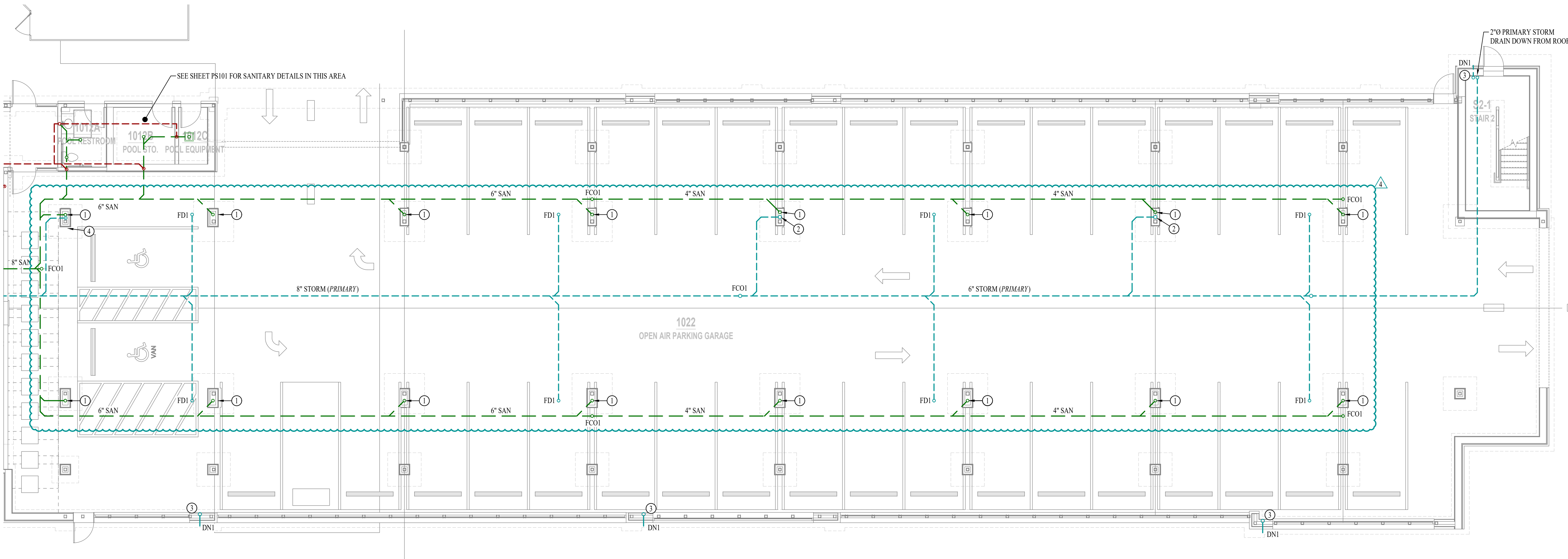
SANITARY SEWER PLAN KEY NOTES:

- ① 4" SANITARY DOWN FROM SECOND FLOOR NEXT TO COLUMN.
- ② 6" STORM DRAIN PIPING DOWN FROM ABOVE.
- ③ STORM DRAIN PIPING DOWN TO DOWNSPOUT NOZZLE AT 18" ABOVE GRADE.
- ④ 4" STORM DRAIN PIPING DOWN FROM ABOVE.



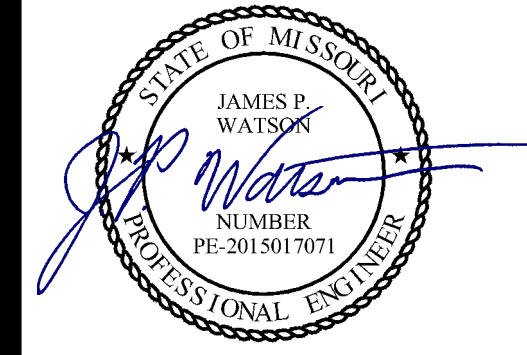
KEY PLAN

SCALE: 1" = 50 ft

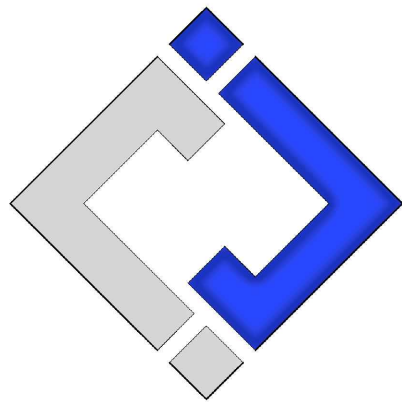


SANITARY SEWER PLAN - 1ST FLOOR - AREA B

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



James Watson, P.E. September 20, 2024  
PE-2015017071  
MO Certificate of Authority # 2018029680



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ENGINEERING

2400 Bluff Creek Drive, Suite 101  
Columbia, Missouri 65201  
573 - 234 - 4492 phone  
www.j-squaredeng.com

J2 PROJECT No: J21006

J2 DESIGN: ACW

ISSUE TITLE DATE

CITY SUBMISSION 11 / 01 / 2023

REVISION 1 12 / 22 / 2023

REVISION 4 09 / 20 / 2024

4

Mechanical - Electrical - Plumbing Design Drawings for  
**Towneplace Suites By Marriott**

1810 Northeast Douglas St.  
Lee's Summit, Missouri 64064

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SHEET TITLE

**SANITARY  
SEWER PLAN -  
1ST FLOOR -  
AREA B**

SHEET NUMBER

**PS111**



SANITARY SEWER PLAN SYMBOL LEGEND

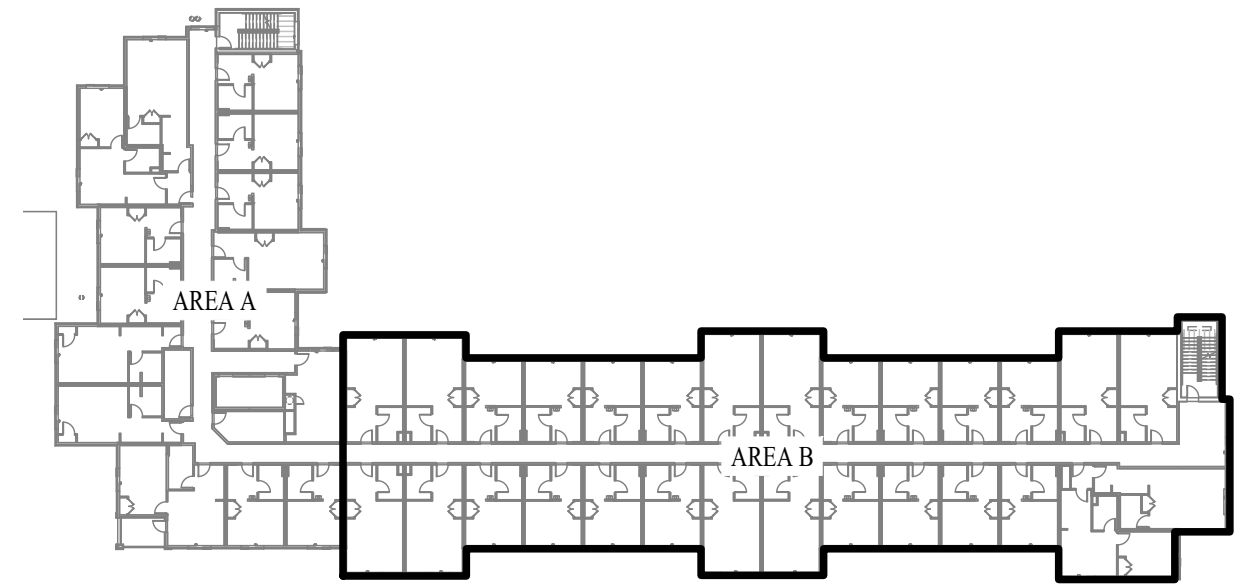
- SANITARY SEWER PIPING
- VENT PIPING
- STORM PIPING
- PIPING TURNED DOWN / TURNED UP
- TIE INTO EXISTING

SANITARY SEWER PLAN GENERAL NOTES:

1. SEE SHEET PS01 FOR ADDITIONAL PLUMBING NOTES, DETAILS, & SCHEDULES.

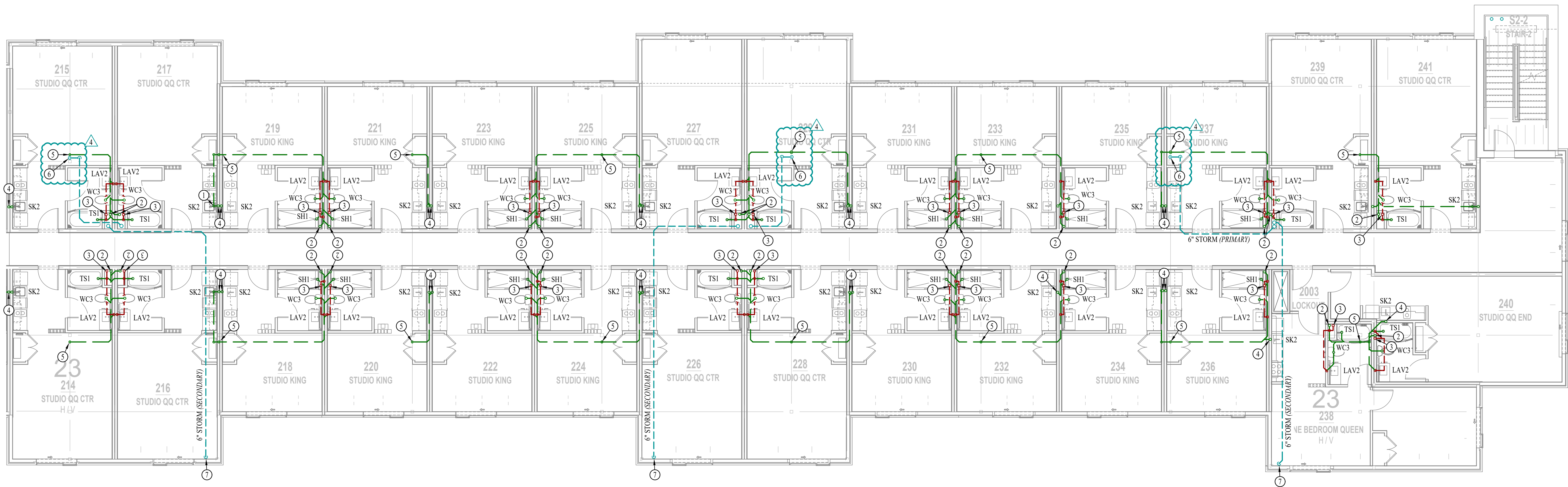
SANITARY SEWER PLAN KEY NOTES:

- ① NOT USED
- ② 3" SANITARY STACK DOWN FROM THIRD FLOOR; SEE SHEET PS401 FOR THIRD AND FOURTH FLOOR SANITARY PLANS.
- ③ 3" VENT STACK UP TO THIRD FLOOR; SEE SHEET PS401 FOR THIRD AND FOURTH FLOOR VENT PIPING PLANS.
- ④ 2" COMBINATION DRAIN / VENT STACK DOWN FROM THIRD FLOOR.
- ⑤ 4" SANITARY DOWN TO FIRST FLOOR; SEE SHEET PS102 FOR CONTINUATION.
- ⑥ 6" PRIMARY STORM DRAIN ROUTED DOWN NEXT TO COLUMN ON 1ST FLOOR.
- ⑦ 6" SECONDARY STORM DRAIN DOWN TO DOWNSPOUT NOZZLE 'DN1' ON 1ST FLOOR.



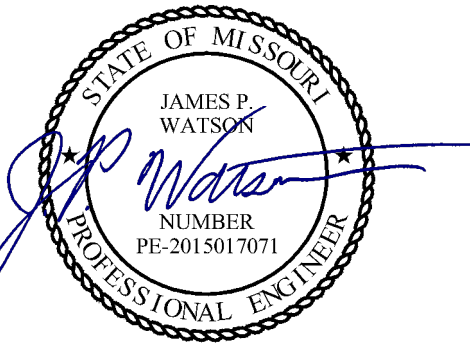
KEY PLAN

SCALE: 1" = 50 ft

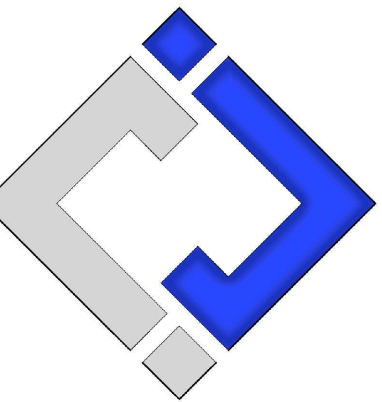


SANITARY SEWER PLAN - 2ND FLOOR - AREA B

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



James Watson, P.E. September 20, 2024  
PE-2015017071  
MO Certificate of Authority # 2018029680



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SHEET TITLE

**SANITARY SEWER**  
**PLAN - 2ND FLOOR -**  
**AREA B**

SHEET NUMBER

**PS112**