

**STRUCTURAL GENERAL NOTES**

**GOVERNING CODE:** 2018 INTERNATIONAL RESIDENTIAL CODE (IRC) AND ALL LOCAL AMENDMENTS, EXCEPT AS NOTED

**DESIGN LOADS:**

RISK CATEGORY:	II, STANDARD	
SNOW LOAD:		100 PSF
FLOOR LIVE LOAD:		40 PSF
RESIDENTIAL EXTERIOR DECKS:		100 PSF
ROOF AND FLOOR DEAD LOADS:		20 PSF
FLOOR:		60 PSF
BEAC:		60 PSF
WIND LOADS:		
BASIC WIND SPEED (3-SECOND GUST):		90 MPH
BUILDING ENCLOSURE CLASSIFICATION:		ENCLOSED
WIND EXPOSURE:		B

**FOUNDATION DESIGN:** IS IN ACCORDANCE WITH RECOMMENDATIONS CONTAINED IN SOILS INVESTIGATION REPORT NUMBER SUG2413.000-120 PREPARED BY CTL THOMPSON DATED OCTOBER 10, 2023. SOIL CONDITIONS SHALL BE VERIFIED BY THE GEOTECHNICAL ENGINEER PRIOR TO PLACEMENT OF FORMWORK OR CONCRETE. IF DIFFERENT SOIL CONDITIONS EXIST THE STRUCTURAL ENGINEER SHALL BE NOTIFIED TO RE-EVALUATE THE FOUNDATION DESIGN AT ADDITIONAL EXPENSE TO THE OWNER. SLOPE FINAL GRADES DOWN AND AWAY FROM FOUNDATION WALLS A MINIMUM OF 12 INCHES IN FIRST 10 FEET.

**FOOTINGS:** SELECTED BY THE OWNER, SHALL BEAR ON THE NATURAL UNDISTURBED SOILS OR APPROVED COMPACTED STRUCTURAL FILL. EXTERIOR FOOTINGS SHALL BEAR BELOW FROST DEPTH. MINIMUM FROST DEPTH SHALL BE 4" BELOW ADJACENT EXTERIOR FINISHED GRADE. DESIGN OF FOOTINGS IS BASED ON: MAXIMUM ALLOWABLE BEARING PRESSURE: 3,000 PSF

**EARTH RETAINING STRUCTURES:** EARTH EQUIVALENT FLUID LATERAL PRESSURE: WALLS RESTRAINED AT TOP (AT REST): 40 PCF CANTILEVERED WALLS (ACTIVE): 40 PCF PASSIVE RESISTING: 340 PCF COEFFICIENT OF SLIDING FRICTION: 0.35

**REINFORCED CONCRETE:** CONCRETE DESIGN IS BASED ON THE AMERICAN CONCRETE INSTITUTE BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE (ACI 318) AND SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE (ACI 301). STRUCTURAL CONCRETE SHALL HAVE THE FOLLOWING PROPERTIES (NORMAL WEIGHT CONCRETE UNLESS NOTED OTHERWISE): MINIMUM 28 DAY COMPRESSIVE STRENGTH (F<sub>c</sub>) AS FOLLOWS:

CEMENT TYPE:	III
MAXIMUM AGGREGATE SIZE:	3/4"
FOOTINGS:	3,500 PSI (MAX W/C RATIO 0.52); ENTRAINED AIR 1.5% (± 1.5%); SLUMP 5 INCHES (± 1")
WALLS:	4,000 PSI (MAX W/C RATIO 0.50); ENTRAINED AIR 5.0% (± 1.5%); SLUMP 4 INCHES (± 1")
INTERIOR SLABS ON GRADE:	3,500 PSI (MAX W/C RATIO 0.50); ENTRAINED AIR 3.0% (± 1.5%); SLUMP 4 INCHES (± 1")

REINFORCING STEEL SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH ACI 318 DETAILS AND DETAILING OF CONCRETE REINFORCEMENT. WHEN COLD WEATHER CONDITIONS EXIST, PLACE AND CURE CONCRETE IN ACCORDANCE WITH ACI 308. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185. DEFORMED REINFORCEMENT SHALL BE DOMESTIC NEW BILLET STEEL CONFORMING TO ASTM A615, GRADE 60 INCLUDING STRIPPERS AND TIES, EXCEPT THAT REINFORCING WHICH IS REQUIRED TO BE WELDED SHALL CONFORM TO ASTM A706. UNLESS OTHERWISE NOTED ON THE STRUCTURAL DRAWINGS, LAP BARS 50 DIAMETERS (50 BAR DIAMETER MINIMUM) REINFORCING AT ALL ABUTTING CONCRETE (INCLUDING FOOTINGS) SHALL BE CONTINUOUS THROUGH OR AROUND ALL CORNERS AND INTERSECTIONS OR USE MATCHING CORNER BARS OF EQUAL SIZE AND SPACING TO REINFORCING IN THE ABUTTING MEMBERS. INSTALL 2#5 BARS (MINIMUM) AROUND ALL SIDES OF ALL OPENINGS IN CONCRETE AND EXTEND 2'-0" PAST EDGES OF OPENINGS, UNLESS OTHERWISE NOTED. IN CONTINUOUS MEMBERS, SPLICE TOP BARS AT MID-SPAN BETWEEN SUPPORTS AND SPLICE BOTTOM BARS OVER SUPPORTS. UNLESS OTHERWISE NOTED ON THE DRAWINGS, MINIMUM CONCRETE COVER OVER REINFORCEMENT SHALL BE AS FOLLOWS: UNFORMED SURFACE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 1-1/2" FORMED SURFACE EXPOSED TO EARTH OR WEATHER: 1-1/2" FORMED SURFACE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND: 3/4" INSTALL OWNERS BOLSTERS, ADDITIONAL REINFORCEMENT, AND ACCESSORIES NECESSARY TO SUPPORT REINFORCEMENT AT POSITION SHOWN ON DRAWINGS. SUPPORT OF REINFORCEMENT ON WOOD, BRICK, OR OTHER UNACCEPTABLE MATERIALS SHALL NOT BE PERMITTED. KEEP REINFORCEMENT CLEAN AND FREE OF DIRT AND OIL. FORMS PRIOR TO PLACING REINFORCEMENT. FIBER ADMIXTURE SHALL BE 100% VIRGIN POLYPROPYLENE, FIBRILLATED FIBERS, TYPE 111 4.1.3, PERFORMANCE LEVEL ONE, PER ASTM C1116. PROPERLY PLACE, ACCURATELY POSITION AND MAINTAIN SECURELY IN PLACE ALL EMBEDDED ITEMS PRIOR TO AND DURING CONCRETE PLACEMENT. ANCHOR BOLTS AND RODS FOR BEAM AND COLUMN BEARING PLATES SHALL BE PLACED WITH SETTING TEMPLATES. UNLESS OTHERWISE SHOWN IN THE ARCHITECTURAL DRAWINGS, PROVIDE 3/4" CHAMFERS AT ALL COLUMN, WALL, SLAB OR BEAM EDGES THAT ARE EXPOSED TO VIEW IN THE FINISHED STRUCTURE.

**STRUCTURAL STEEL:**

STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERRECTED IN ACCORDANCE WITH THE SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS (AISC 360) AND THE CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES (AISC 303) BY THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC). ALL STRUCTURAL STEEL SHALL CONFORM TO THE ASTM STANDARDS AND GRADES INDICATED BELOW, UNLESS NOTED OTHERWISE ON THE DRAWINGS OR DETAILS. STRUCTURAL STEEL WIDE FLANGE BEAMS AND WTS: ASTM A992, 50 KSI YIELD OTHER ROLLER SHAPES, INCLUDING PLATES, CHANNELS, AND ANGLES: ASTM A36, 36 KSI YIELD HOLLOW STRUCTURAL SECTION (HSS) RECTANGULAR SHAPES: ASTM A500, GRADE B, 48 KSI YIELD UNLESS OTHERWISE NOTED. FRAMED BEAM CONNECTIONS SHALL BE BEARING-TYPE WITH 3/4" DIAMETER, SMOOTH TIGHT, ASTM A325 BOLTS, DETAILED IN CONFORMANCE WITH THE STRUCTURAL DRAWINGS AND THE 'STEEL CONSTRUCTION MANUAL' BY THE AISC, 14TH EDITION. INSTALL BOLTS IN ACCORDANCE WITH AISC'S SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS. ALL BEAMS SHALL HAVE FULL DEPTH WEB STIFFENERS EACH SIDE OF WEBS ABOVE AND BELOW COLLARS (1/4" PLATE MIN). ANCHOR RODS SHALL CONFORM TO ASTM F1554, GRADE 55 AS NOTED ON THE STRUCTURAL DRAWINGS WITH WELDABILITY SUPPLEMENT S1. WELDED ANCHOR STUDS (HAS) SHALL CONFORM TO ASTM A108 AND SHALL BE CONNECTED TO STRUCTURAL STEEL WITH EQUIPMENT APPROVED BY THE STUD MANUFACTURER ACCORDING TO THE STUD MANUFACTURER'S RECOMMENDATIONS. WELDING SHALL BE DONE BY A CERTIFIED WELDER IN ACCORDANCE WITH THE AISC DOCUMENTS LISTED ABOVE, THE AMERICAN WELDING SOCIETY (AWS) D1.1, 2006 STRUCTURAL WELDING CODE, AND THE RECOMMENDATIONS FOR USE OF E70XX ELECTRODES. WHERE NOT SPECIFICALLY NOTED, MINIMUM WELD SHALL BE 3/16" FILLET BY LENGTH OF CONTACT EDGE. GROUT BENEATH COLUMN BASE AND BEAM BEARING PLATES SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 5,000 PSI AND SHALL BE NON-SHRINK, NON-METALLIC, AND TESTED IN ACCORDANCE WITH ASTM C1107.

**ANCHORS:** ALL POST-INSTALLED ANCHORS SHALL HAVE CURRENT INTERNATIONAL CODE COUNCIL EVALUATION SERVICE (ICC-ES) REPORTS AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. EXPANSION ANCHORS SHALL BE APPROVED WEDGE-TYPE UNLESS SPECIFICALLY NOTED TO BE 'SLEEVE' TYPE AS NOTED ON THE STRUCTURAL DRAWINGS. CHEMICAL ANCHORS SHALL BE APPROVED EPOXY OR SIMILAR ADHESIVE TYPE AS APPROPRIATE FOR INSTALLATION IN SOLID AND NON-SOLID BASE MATERIALS.

**STRUCTURAL WOOD & TIMBER:** DESIGN IS BASED ON ANSIA/FAPA NDS NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION WITH SUPPLEMENT: DESIGN VALUES FOR WOOD CONSTRUCTION AND ANSIA/FAPA SOWIS SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC.

2X FRAMING LUMBER SHALL BE S4S HEM-FIR NO. 2 AND BETTER UNLESS NOTED OTHERWISE. ALL LUMBER SHALL BE 15% OR LESS MAXIMUM MOISTURE CONTENT, UNLESS NOTED OTHERWISE. SOLID TIMBER BEAMS AND POSTS SHALL BE DOUGLAS FIR/LARCH NO. 1. 2X STUD BEARING WALLS SHALL BE 2X6 @ 16" (UNO) HEM-FIR STUD GRADE OR BETTER. 2X TOP AND BOTTOM PLATES SHALL BE HEM-FIR NO. 2 OR BETTER. FASTENERS FOR USE WITH TREATED WOOD SHALL COMPLY WITH IRC SECTION R317.3. WOOD IN CONTACT WITH CONCRETE SHALL BE PRESURE-TREATED DOUGLAS FIR-LARCH OR SOUTHERN YELLOW PINE. PRESERVATIVE TREATED WOOD SHALL BE TREATED IN ACCORDANCE WITH ANPA U1 AND ANPA M4. CONVENTIONAL LIGHT FRAMING SHALL COMPLY WITH IRC SECTIONS R502, R502, AND R502. MINIMUM NAILING SHALL BE PROVIDED AS SPECIFIED IN IRC TABLE R602.3(1) FASTENER SCHEDULE FOR STRUCTURAL MEMBERS. METAL FRAMING ANCHORS SHOWN OR REQUIRED, SHALL BE SIMPSON STRONG-TIE OR EQUAL, CODE APPROVED CONNECTORS AND INSTALLED WITH THE NUMBER AND TYPE OF NAILS RECOMMENDED BY THE MANUFACTURER TO DEVELOP THE MAXIMUM RATED CAPACITY. NOTE THAT HEAVY-DUTY HANGERS AND SKEWED HANGERS MAY NOT BE STOCKED LOCALLY AND REQUIRE SPECIAL ORDER FROM THE FACTORY. GLUE WOOD NAILER PLATES TO STEEL BEAMS AND ATTACH WITH EITHER 1/2" Ø BOLTS @ 32" O.C., STAGGERED OR 0.145" Ø POWDER ACTUATED DRIVE PINS @ 16" O.C. STAGGERED. WIDTH OF NAILER PLATE SHALL MATCH BEAM WIDTH + 1/8" MIN (1/4" MAX) OVERHANG EACH SIDE. LEAD HOLES FOR LAG SCREWS SHALL BE 40%-70% OF THE SHANK DIAMETER AT THE THREADED SECTION AND EQUAL TO THE SHANK DIAMETER AT THE UNTHREADED SECTION PER NDS SECTION 11.1.3. CONNECTOR BOLTS AND LAG SCREWS SHALL CONFORM TO ANSIA/MSE B18.2.1 AND ASTM SPEC. A329 GRADE 1. NAILS AND SPIKES SHALL CONFORM TO ASTM F1667. WOOD SCREWS SHALL CONFORM TO ANSIA/MSE B18.6.1.

**WOOD FRAMING NOTES:** INSTALL SOLID BLOCKING BETWEEN JOISTS UNDER JAMB STUDS OF OPENINGS. MINIMUM SHALL HAVE A CONTINUOUS LOAD PATH TO FOUNDATION. UNLESS NOTED OTHERWISE, INSTALL TWO LENGTHS OF SOLID BLOCKING X JOIST DEPTH X 12 INCHES LONG IN FLOOR FRAMING UNDER COLUMN LOADS. EACH LAP STUD COLUMN SHALL CONSIST OF 2X4, 2X6, OR 2X8 STUDS WITH NUMBER OF LAMINATIONS NOTED ON PLAN AND EACH LAMINATION SHALL BE NAILED TOGETHER WITH (2) ROWS OF 12D GUN NAILS (0.131" Ø X 3 1/4") @ 8" FULL HEIGHT OF COLUMN. DO NOT SPLICE LAMINATIONS. ALL BEAMS SHALL BE BRACED AGAINST ROTATION AT POINTS OF BEARING. PROVIDE CONTINUOUS WALL STUDS EACH SIDE OF OPENINGS EQUAL TO ONE-HALF OR GREATER THE NUMBER OF STUDS INTERRUPTED BY OPENING UNLESS NOTED OTHERWISE. ALL WALL STUDS SHALL BE CONTINUOUS FROM FLOOR TO FLOOR OR FROM FLOOR TO ROOF. PROVIDE SOLID BLOCKING OR RM JOISTS AT ALL JOIST SUPPORTS AND JOIST ENDS. SOLE PLATE AT ALL PERIMETER WALLS AND AT DESIGNATED SHEAR WALLS SHALL BE NAILED WITH (3) 0.131" Ø X 3" NAILS AT 16" ALL ROOF RAFTERS, JOISTS, TRUSSES, BEAMS SHALL BE ANCHORED TO SUPPORTS WITH METAL FRAMING ANCHORS.

**INSPECTIONS:** INSPECTIONS AND TESTING SHALL BE PERFORMED BY A QUALIFIED INSPECTOR IN ACCORDANCE WITH IRC SECTION R109. THE INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING INSPECTION. EXCEPT AS NOTED, THE INSPECTIONS OUTLINED IN THE IRC ARE IN ADDITION TO, AND BEYOND THE SCOPE OF, PERIODIC STRUCTURAL OBSERVATIONS. STRUCTURAL OBSERVATIONS ARE INCLUDED IN THE STRUCTURAL ENGINEERING DESIGN AND CONSTRUCTION ADMINISTRATION SERVICES PROVIDED BY THE STRUCTURAL ENGINEER.

**WOOD SHEATHING:**

PLYWOOD AND ORIENTED STRAND BOARD (OSB) FLOOR, ROOF, AND WALL SHEATHING SHALL BE APA RATED WITH STAMP INCLUDING APA TRADEMARK AND PANEL SPAN RATING. MINIMUM FLOOR SHEATHING: 23/32" APA STURD-I-FLOOR RATED 24 INCH O.C. TONGUE & GROOVE, GLUED AND NAILED. MINIMUM ROOF SHEATHING: 19/32" OSB OR CDX PLYWOOD, APA 4020, NAILED. MINIMUM WALL SHEATHING: 7/16" OSB OR CDX PLYWOOD, APA 2416, BLOCKED AND NAILED. NAIL WALL SHEATHING WITH MINIMUM 8D GUN OR SINKER NAIL @ 4" AT PANEL EDGES, AND @ 8" AT INTERMEDIATE FRAMING EXCEPT AS NOTED. BLOCK AND NAIL ALL EDGES BETWEEN STUDS. MINIMUM (3) 8D NAILS PER STUD. NAIL ALL PLATES USING PANEL EDGE NAIL SPACING INDICATED. SHEATH THE ALL EXTERIOR WALLS. SHEATH THE INTERIOR WALLS AS SHOWN ON THE DRAWINGS. SHEATHING SHALL BE CONTINUOUS FROM BOTTOM PLATE TO TOP PLATE. CUT IN 1" AND 1" SHAPES AROUND OPENINGS. LAP SHEATHING OVER RM JOISTS A MINIMUM 4" AT ALL FLOORS TO THE UPPER AND LOWER STUD WALLS TOGETHER. MINIMUM HEIGHT OF SHEATHING PANELS SHALL BE 16" TO ENSURE THAT PLATES ARE TIED TO STUDS. MACHINE APPLIED NAILING (I.E. GUN NAILING): THE USE OF MACHINE APPLIED NAILING IS SUBJECT TO SATISFACTORY JOINT DEMONSTRATION AND THE APPROVAL BY THE PROJECT STRUCTURAL ENGINEER. THE APPROVAL IS SUBJECT TO CONTINUED SATISFACTORY PERFORMANCE. IF NAIL HEADS PENETRATE THE OUTER PLY MORE THAN WOULD BE NORMAL FOR A HAND HAMMER OR IF MINIMUM ALLOWABLE EDGE DISTANCES ARE NOT MAINTAINED THE PERFORMANCE WILL BE DEEMED UNSATISFACTORY.

**PLANT FABRICATED / PRE-ENGINEERED WOOD FRAMING:** I-SERIES ROOF AND FLOOR JOISTS SHALL BE MANUFACTURED BY LEVEL TRUS JOIST WITH STRUCTURAL WOOD FLANGES AND WEBS DESIGNED FOR STRUCTURAL CAPACITIES AND DESIGN PROVISIONS ACCORDING TO ASTM D 5055. SUBSTITUTION OF EQUIVALENT SERIES BY OTHER MANUFACTURER IS ACCEPTABLE WITH ENGINEER APPROVAL. I-SERIES ROOF AND FLOOR JOISTS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT OR NOTCH CHORDS IN ANY MANNER. HOLES IN WEBS SHALL NOT EXCEED MANUFACTURER'S PUBLISHED LIMIT CRITERIA. MEMBERS NOTED AS LVL (LAMINATED VENEER LUMBER) ON PLAN SHALL BE 1/4" WIDE X DEPTH INDICATED, PLANT-FABRICATED, AND HAVE THE FOLLOWING MINIMUM ALLOWABLE DESIGN VALUES: F<sub>t</sub> = 2800 PSI, F<sub>v</sub> = 285 PSI, F<sub>c</sub> = 1700 PSI, E = 2000 KSI. MEMBERS NOTED AS LSL (LAMINATED STRAND LUMBER) ON PLAN SHALL BE PLANT-FABRICATED AND HAVE THE FOLLOWING MINIMUM ALLOWABLE DESIGN VALUES: F<sub>t</sub> = 1700 PSI, F<sub>v</sub> = 400 PSI, F<sub>c</sub> = 1400 PSI, E = 1900 KSI. BRIDGING AND BLOCKING SHALL BE INSTALLED ACCORDING TO THE FABRICATOR'S REQUIREMENTS.

**STRUCTURAL ERECTION AND BRACING REQUIREMENTS:** THE STRUCTURAL DRAWINGS ILLUSTRATE AND DESCRIBE THE COMPLETED STRUCTURE WITH ELEMENTS IN THEIR FINAL POSITIONS, PROPERLY SUPPORTED, CONNECTED AND/OR BRACED. THE STRUCTURAL DRAWINGS ILLUSTRATE TYPICAL AND REPRESENTATIVE DETAILS TO ASSIST THE GENERAL CONTRACTOR DETAILS SHOWN APPLY AT ALL SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED. ALTHOUGH DUE DILIGENCE HAS BEEN APPLIED TO MAKE THE DRAWINGS AS COMPLETE AS POSSIBLE, NOT EVERY DETAIL IS ILLUSTRATED AND NOT EVERY EXCEPTIONAL CONDITION IS ADDRESSED. ALL PROPRIETARY CONNECTIONS AND ELEMENTS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ALL WORK SHALL BE ACCOMPLISHED IN A WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE APPLICABLE CODES AND LOCAL ORDINANCES. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL WORK INCLUDING LAYOUT AND DIMENSION VERIFICATION, MATERIALS COORDINATION, SHOP DRAWING REVIEW, AND THE WORK OF SUBCONTRACTORS. ANY DISCREPANCIES OR OMISSIONS DISCOVERED IN THE COURSE OF THE WORK SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT AND STRUCTURAL ENGINEER FOR RESOLUTION. CONTINUATION OF WORK WITHOUT NOTIFICATION OF DISCREPANCIES RELIEVES THE ARCHITECT AND STRUCTURAL ENGINEER FROM ALL CONSEQUENCES. UNLESS OTHERWISE SPECIFICALLY INDICATED, THE STRUCTURAL DRAWINGS DO NOT DESCRIBE METHODS OF CONSTRUCTION.

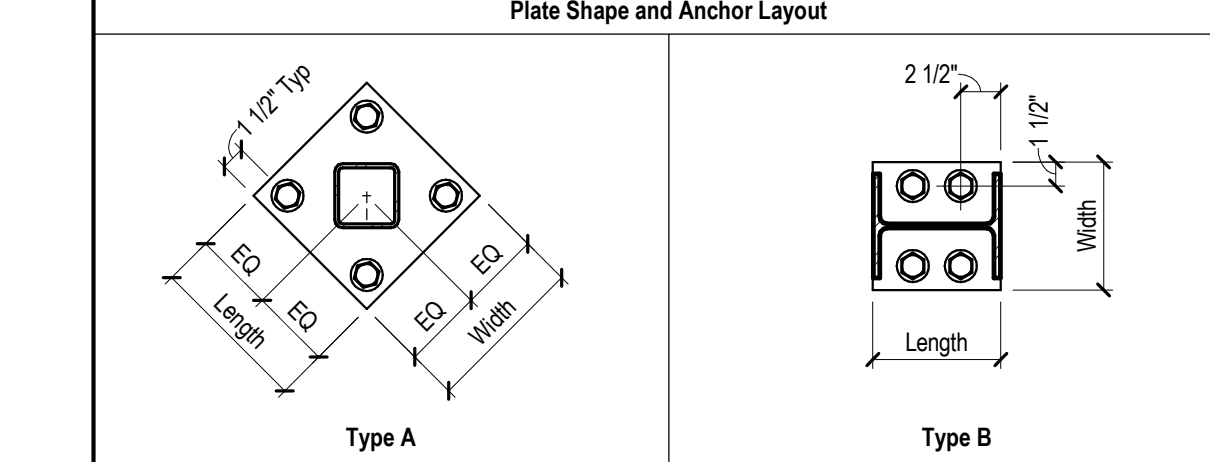
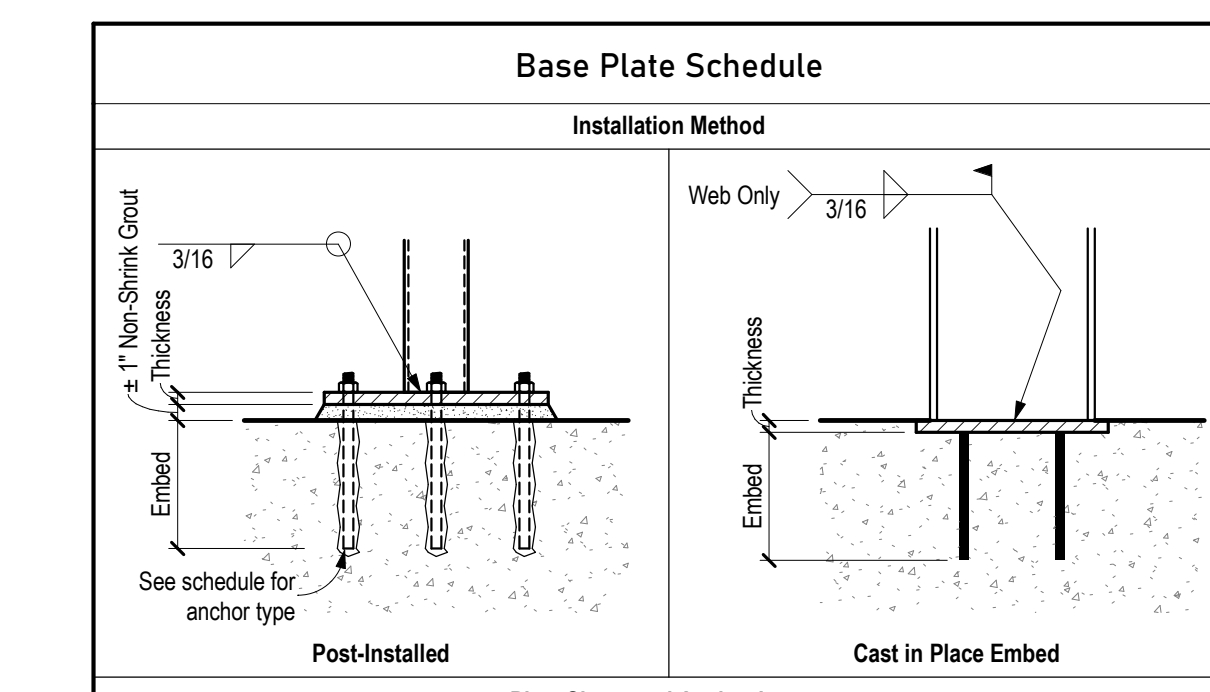
THE GENERAL CONTRACTOR, IN THE PROPER SEQUENCE, SHALL PERFORM OR SUPERVISE ALL WORK NECESSARY TO ACHIEVE THE FINAL COMPLETED STRUCTURE, AND TO PROTECT THE STRUCTURE, WORKMEN, AND OTHERS DURING CONSTRUCTION. SUCH WORK SHALL INCLUDE, BUT NOT BE LIMITED TO TEMPORARY BRACING, SHORING FOR CONSTRUCTION EQUIPMENT, SHORING FOR EXCAVATION, FORMWORK, SCAFFOLDING, SAFETY DEVICES AND PROGRAMS OF ALL KINDS, SUPPORT AND BRACING FOR CRANES AND OTHER ERECTION EQUIPMENT. TEMPORARY BRACING SHALL REMAIN IN PLACE UNTIL ALL FLOORS, WALLS, ROOFS AND ANY OTHER SUPPORTING ELEMENTS ARE IN PLACE. THE ARCHITECT AND STRUCTURAL ENGINEER BEAR NO RESPONSIBILITY FOR THE ABOVE ITEMS, AND OBSERVATION VISITS TO THE SITE DO NOT IN ANY WAY INCLUDE INSPECTIONS OF THESE ITEMS. THESE PLANS HAVE BEEN ENGINEERED FOR CONSTRUCTION AT ONE SPECIFIC BUILDING SITE. BUILDER ASSUMES ALL RESPONSIBILITY FOR USE OF THESE PLANS AT ANY OTHER BUILDING SITE. PLANS SHALL NOT BE USED FOR CONSTRUCTION AT ANY OTHER BUILDING SITE WITHOUT SPECIFIC REVIEW BY THE ENGINEER.

**PRECAUTIONARY NOTES ON STRUCTURAL BEHAVIOR:** INTERIOR ARCHITECTURAL FINISH DETAILING MUST ACCOMMODATE THE RELATIVE DIFFERENTIAL MOVEMENTS OF SUPPORTING STRUCTURAL ELEMENTS. WHERE THE ROOF FRAMING ELEMENT SPANS ARE LONG, APPLIED LOADING WILL NATURALLY CAUSE SUBSTANTIAL DEFLECTION. INTERIOR ELEMENTS HUNG FROM THE ROOF STRUCTURE WILL DEFLECT WITH THE ROOF. THE FLOOR IS A FLOATING CONCRETE SLAB ON GRADE AND MAY EXPERIENCE MOVEMENTS INDEPENDENT OF THE STRUCTURAL FOUNDATIONS. INTERIOR ELEMENTS SUPPORTED ON THE SLAB ON GRADE FLOOR WILL MOVE WITH THE FLOOR. INTERIOR ELEMENTS SUPPORTED ON FOUNDATIONS AND COLUMNS WILL NOT EXPERIENCE SIMILAR OR MEASURABLE MOVEMENTS. USE OF THESE PLANS IS INDICATION THAT THE OWNER/BUILDER ACCEPTS THE RISKS ASSOCIATED WITH BUILDING ON THIS SITE, ESPECIALLY THOSE RELATED TO SLAB ON GRADE CONSTRUCTION IN FINISHED AREAS. A10 STRUCTURAL LLC WILL NOT BE HELD LIABLE FOR DAMAGES CAUSED BY SLAB MOVEMENT.

**LETTERS OF CONSTRUCTION COMPLIANCE:** THE GENERAL CONTRACTOR SHALL DETERMINE FROM THE LOCAL BUILDING AUTHORITY, AT THE TIME THE BUILDING PERMIT IS OBTAINED, WHETHER ANY LETTERS OF CONSTRUCTION COMPLIANCE WILL BE REQUESTED FROM THE STRUCTURAL ENGINEER. TWO DAY ADVANCE NOTICE SHALL BE GIVEN WHEN REQUESTING SITE VISITS NECESSARY AS THE BASIS FOR THE COMPLIANCE LETTER.

**LEGEND**

	"X" King studs, "Y" Trimmer studs, studs to match wall thickness		CMU
	Indicates column continuous through level shown		Concrete
	Indicates column above level shown, see next level framing plan for size, install squash blocking in floor cavity of equal size and equal column size below to foundation - unless noted otherwise		Earth fill
	Indicates column type below level shown. Post indicates shorter column that extends vertically between beams		Porous fill (e.g. gravel)
	Indicates top of concrete slab or wood subfloor elevation		Interior wood bearing wall
	Indicates step in floor elevation		Wood shear wall
	Indicates direction of slope		Indicates shear wall. See schedule for sheathing type and nailing
	Indicates floor drain		Indicates hollow core. See schedule for description
	Indicates top of footing elevation		Beam, Joist, or Truss connected to support with metal hanger
	Continuous spread footing. See schedule for size and reinforcing		Beam, Joist, or Truss connected to support with concealed hanger
	Isolated pad footing. See schedule for size and reinforcing		Indicates top of steel beam elevation
	Indicates top of concrete elevation		Indicates rigid frame
	Indicates top of concrete ledge elevation		Moment connection
	Indicates beam pocket in concrete wall (X=width, Y=height, Z=ledge depth in inches) with bottom of pocket elevation		Indicates Baseplate
	Indicates step in top of concrete wall or ledge elevation. Arrow points toward lower elevation		Indicates Embed Plate Top of Embed Elevation

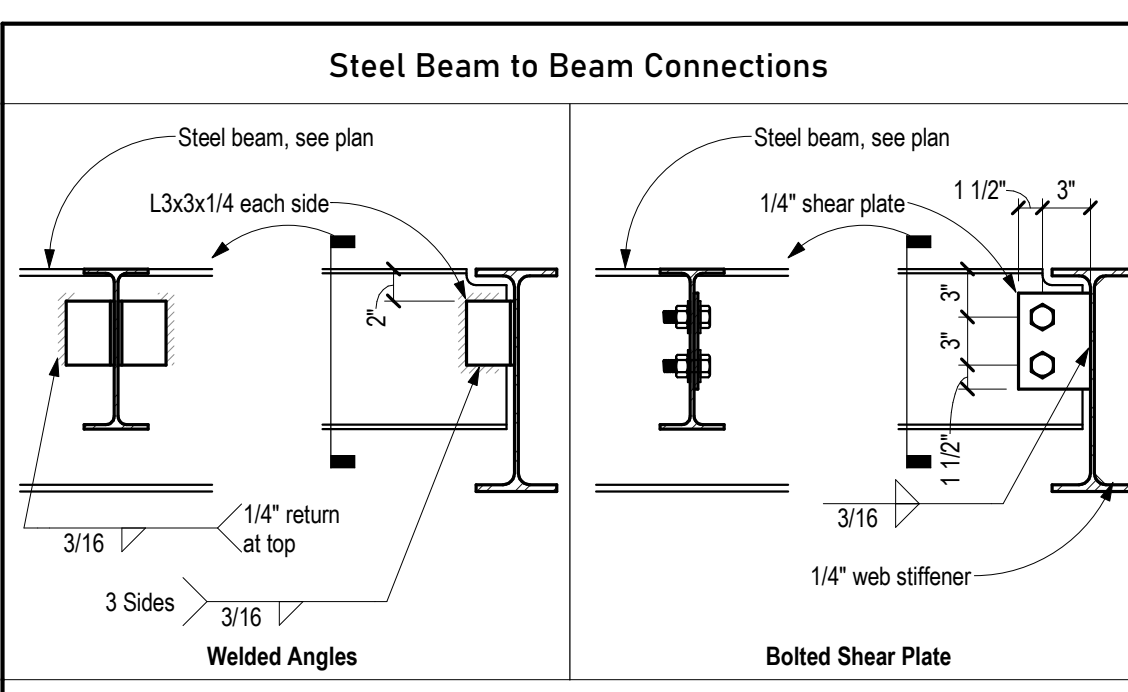


**BEAM SPLICE CONNECTION**

SUPPORTED BEAM SIZE	# OF 3/4" Ø BOLTS
W8, W10	2
W12, W14	3
W16	4
W18	5
W21	6
W24	7

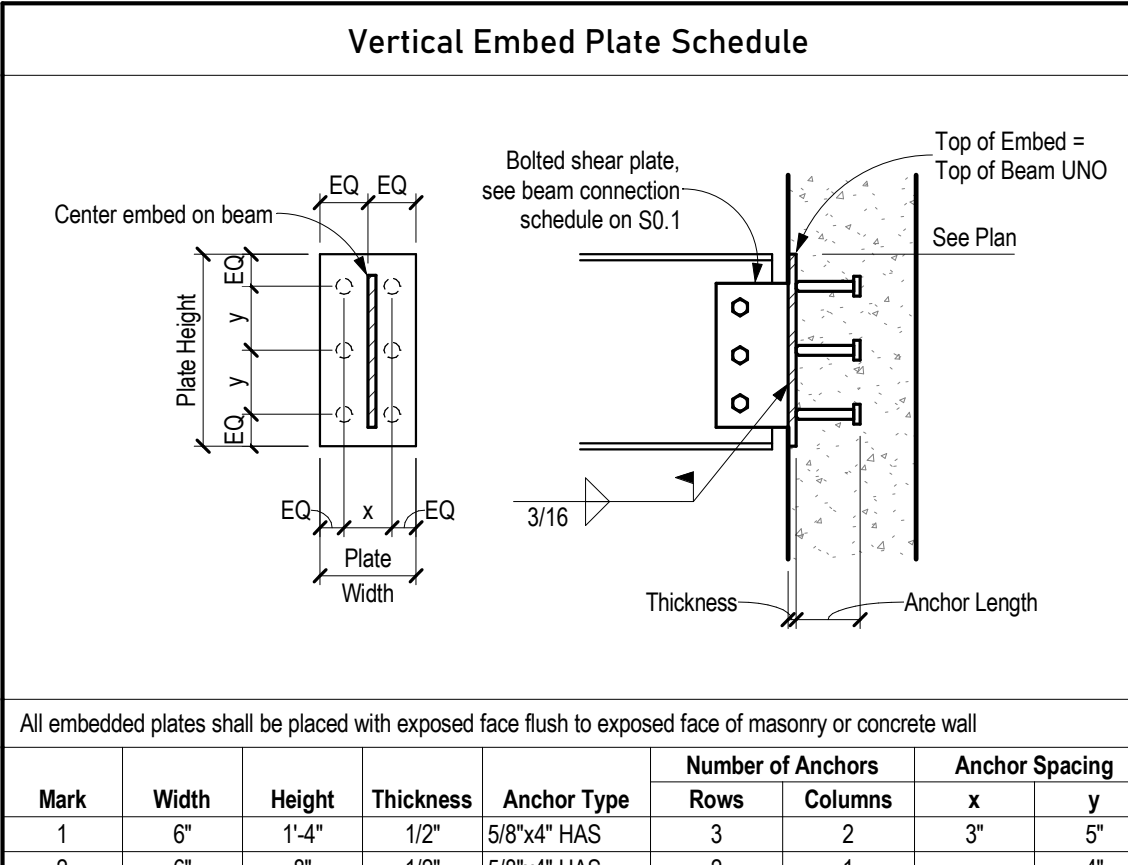
Hole size to be 1/16" larger than anchor bolt diameter. See details for additional installation requirements. Option: Substitute A308 threaded rod with heavy hex nuts at equal size and embed for epoxy anchors.

Mark	Length	Width	Thickness	A	B	Installation	Anchorage	Embed	Quantity
A1	10"	10"	1/2"	0"	0"	Post-Installed	(4) 5/8" Wedge Anchors	4"	2
B1	8"	8"	1/2"	0"	0"	Post-Installed	(4) 5/8" Epoxy Anchors	8"	3
C1	9"	9"	1/2"	0"	0"	Post-Installed	(2) 5/8" Wedge Anchors	4"	1
D1	8"	8"	3/4"	0"	0"	Cast-in-Place	(4) #5 A706 Rebar	18"	1



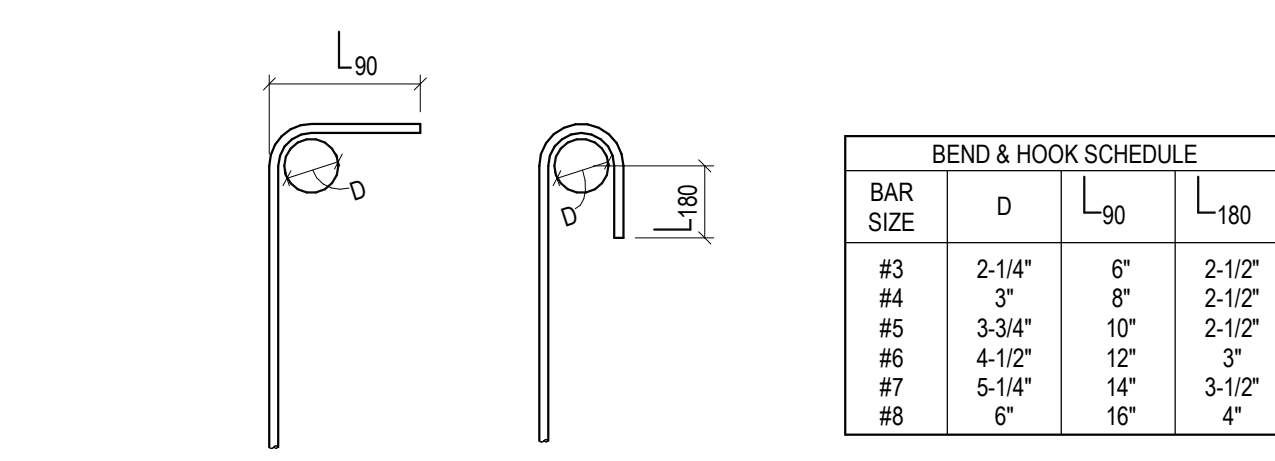
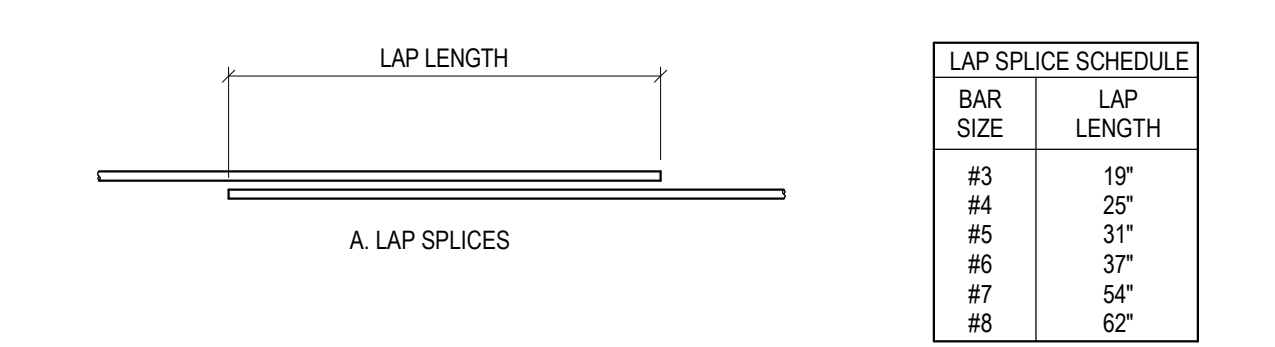
1.3/4" Ø A325-N bolts in horizontal short slotted holes, snug tight  
2.E70XX electrodes  
3.Angle and Shear plate F<sub>y</sub> = 36 ksi  
4.Minimum web thickness, tw, for wide flange beams is 3/16"

Beam Size	# of 3/4" Ø Bolts	Length of Angle/Plate	Allowable Capacity	Number of Beams
W8, W10	2	4"	-	3
W12, W14	3	8"	-	3
W16	4	12"	-	4



All embedded plates shall be placed with exposed face flush to exposed face of masonry or concrete wall.

Mark	Width	Height	Thickness	Anchor Type	Number of Anchors	Rows	Columns	x	y
1	6"	1'-4"	1/2"	5/8"x4" HAS	3	2	3"	5"	
2	6"	6"	1/2"	5/8"x4" HAS	2	1	-	4"	
3	4"	6"	1/2"	5/8"x4" HAS	2	1	-	3"	
4	6"	1'-4"	1/2"	#5 x 18" A706	3	2	3"	5"	
5	6"	6"	1/2"	#5 x 18" A706	2	2	4"	4"	
6	3"	6"	1/2"	5/8"x4" HAS	2	1	-	3"	



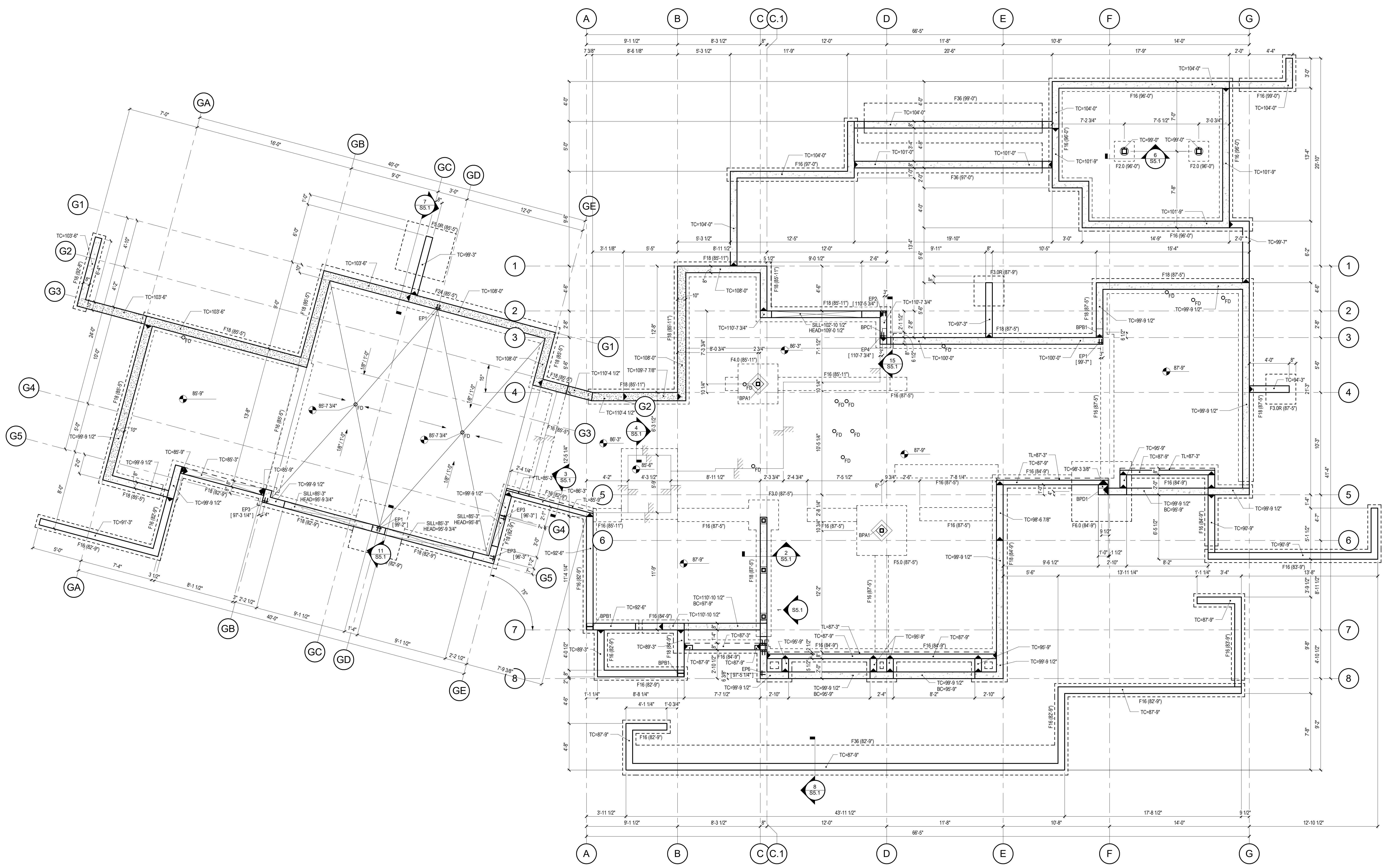
Concrete Footing Schedule				
All reinforcement to be installed 3" clear from bottom of footing unless noted otherwise				
Mark	Width	Length	Thickness	Reinforcement
F2.0	2'-0"	2'-0"	9"	(2) #5 each way
F3.0	3'-0"	3'-0"	9"	(3) #5 each way
F3.0R	3'-0"	3'-0"	9"	(3) #5 each way, top
F4.0	4'-0"	4'-0"	1'-0"	(4) #5 each way
F5.0	5'-0"	5'-0"	1'-0"	(4) #5 each way
F5.0R	5'-0"	5'-0"	1'-0"	(4) #5 each way, top
F6.0	6'-0"	6'-0"	1'-2"	(5) #5 each way
F16	1'-4"	<varies>	9"	(2) #5 continuous
F18	1'-6"	<varies>	9"	(2) #5 continuous
F24	2'-0"	<varies>	9"	(2) #5 continuous
F36	3'-0"	<varies>	9"	(3) #5 continuous, #5 @ 16" transverse

Base Plate Schedule									
Hole size to be 1/16" larger than anchor bolt diameter									
Mark	Length	Width	Thickness	A	B	Installation	Anchorage	Embed	Quantity
A1	10"	10"	1/2"	0"	0"	Post-Installed	(4) 5/8" Wedge Anchors	4"	2
B1	8"	8"	1/2"	0"	0"	Post-Installed	(4) 5/8" Epoxy Anchors	8"	3
C1	5"	5"	1/2"	0"	0"	Post-Installed	(2) 5/8" Wedge Anchors	4"	1
D1	8"	8"	3/4"	0"	0"	Cast-in-Place	(4) #5 A706 Rebar	18"	1

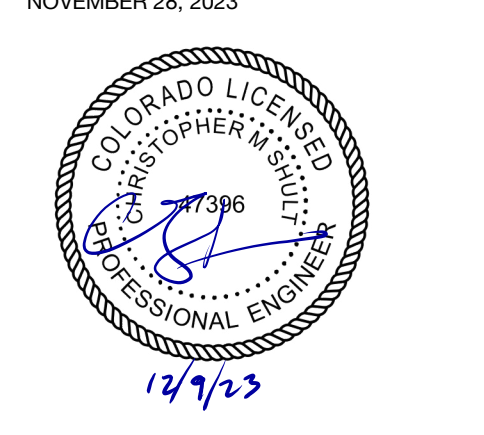
  

Embed Plate Schedule										
All embedded plates shall be placed with exposed face flush to exposed face of masonry or concrete wall										
Mark	Width	Height	Thickness	Anchor Type	Number of Anchors	Anchor Spacing	Rows	Columns	x	y
1	6"	1'-4"	1/2"	5/8"x4" HAS	3	2	3"	3"	5"	5"
2	6"	8"	1/2"	5/8"x4" HAS	2	1	-	4"	4"	4"
3	4"	6"	1/2"	5/8"x4" HAS	2	1	-	3"	3"	3"
4	6"	1'-4"	1/2"	#5 x 18" A706	3	2	3"	3"	5"	5"
5	8"	8"	1/2"	#5 x 18" A706	2	2	4"	4"	4"	4"
6	3"	6"	1/2"	5/8"x4" HAS	2	1	-	3"	3"	3"

- PLAN NOTES:**
- See S0.1 for general structural notes, complete schedules, and legends
  - See Architectural drawings for size and location of all floor, wall, and roof openings
  - Typical Concrete Wall (UNO): 6" thick concrete wall reinforced with #5 @ 12" horizontal (centered), #5 @ 16" vertical, (2) #5 top
  - 10" Concrete Wall: Reinforce with #5 @ 10" horizontal each face, #5 vertical @ 16" each face
  - FX & FX X indicate concrete footings, see schedule. All continuous footings are F16 UNO
  - Concrete Slab on Grade: 4" thick concrete slab on prepared sub-grade per soils report. Reinforce with #4 @ 18" each way centered. Sawcut or took 18" control joints @ 12'-0" max each way. Install (3) #3 x 6'-0" diagonal bars at mid-depth of slab at all re-entrant corners.

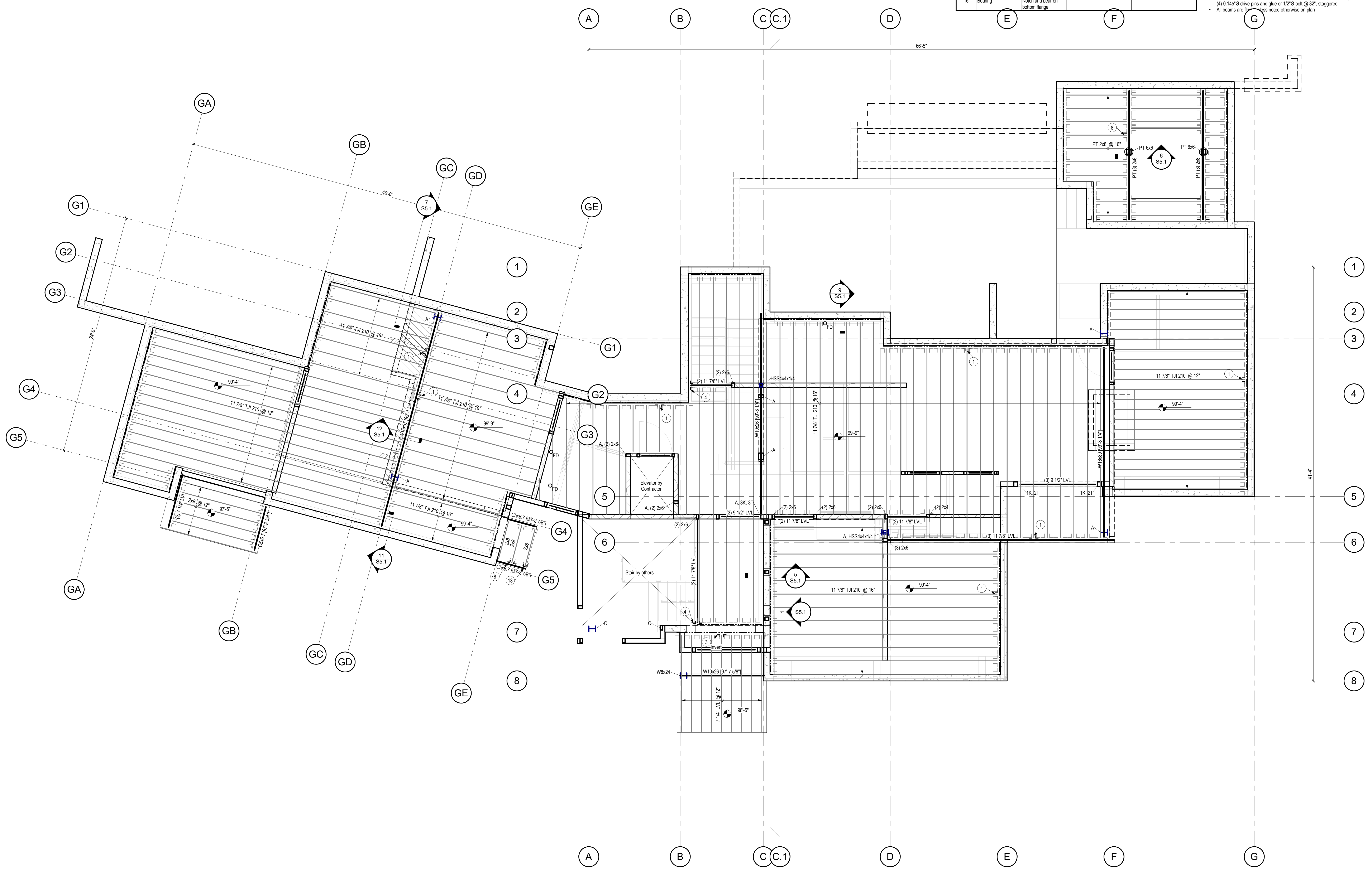


Foundation Plan  
1/4" = 1'-0"  
North



Hanger Schedule				
Mark	Model	Type	Header Fasteners	Joint Fasteners
1	ITS2.06/11.98	Top Flange	(6) 0.148" x 1 1/2" Nails	Strong-Grip steel
2	ITS2.06/9.5	Top Flange	(8) 0.148" x 1 1/2" Nails	(4) 0.148" x 1 1/2" Nails
3	HU7	Face Mount	(12) 0.148" x 3" Nails	(4) 0.148" x 1 1/2" Nails
4	HU412 - Concrete	Face Mount	(16) 1/4" x 3/4" Titen Screws	(6) 0.148" x 3" Nails
5	HU410	Concoated Hanger	(4) 0.148" x 3" Nails	(5) 0.148" x 3" Nails
6	HGUSS 50/12	Face Mount	(5) 0.148" x 3" Nails	(20) 0.148" x 3" Nails
7	HRUS412	Face Mount	(30) 0.162" x 3" Nails	(10) 0.162" x 3" Nails
8	LUS282	Face Mount	(6) 0.148" x 3" Nails	(3) 0.148" x 3" Nails
9	LUS210	Face Mount	(8) 0.148" x 3" Nails	(4) 0.148" x 3" Nails
10	SS210/LZ	Face Mount	(6) 0.148" x 3" Nails	(5) 0.148" x 3" Nails
11	MIT11.98	Top Flange	(4) 0.148" x 3" Nails	(2) 0.148" x 3" Nails
12	MIT411.68	Top Flange	(4) 0.148" x 3" Nails	(4) 0.148" x 3" Nails
13	L70	Concoated Hanger	(4) 0.148" x 1 1/2" Nails	(4) 0.148" x 1 1/2" Nails
14	L90	Concoated Hanger	(5) 0.148" x 1 1/2" Nails	(5) 0.148" x 1 1/2" Nails
15	Toenails	Nailed Connection	(8) 0.148" x 3" Toenails	
16	Bearing	Nail and bear on bottom flange		

- PLAN NOTES:**
- See S0.1 for general structural notes, complete schedules, and legends.
  - See Architectural drawings for size and location of all floor, wall, and roof openings.
  - Exterior Framed Walls (UNQ):** 2x6 studs @ 16" sheathed with 7/16" CDX plywood or OSB, APA 2415 on exterior face. Nail wall sheathing with 8d gun nails (0.1125" x 2.315") @ 4" at panel edges and boundaries and @ 12" in field of panel. Block and nail all edges between studs.
  - Wall Opening Construction (UNQ):** 2x6 @ 16" sheathed with minimum (1) 2x6 trimmer and (1) 2x6 king stud each end.
  - All headers are dropped unless noted otherwise on plan.
  - Interior Bearing Wall Construction (UNQ):** 2x6 @ 16" sheathed with 1/2" gypsum wallboard on each face. Attach with #6x1 1/4" drywall screws @ 8" along panel edges and @ 12" in field of panel.
  - Floor Construction (UNQ):** 3" concrete topping over 3/4" Sturd-Floor APA rated 24 oc tongue & groove sheathing, over wood joists with 1 1/4" LSL, rim, see plan. Glue and fasten sheathing to joists, rims, flush beams, and ledgers with 8d gun nails (0.1125" x 2.315") @ 4" along panel edges and @ 8" along intermediate framing members. Lay panels perpendicular to framing members and stagger panel joints.
  - Deck Construction (UNQ):** Concrete pavers or decking over waterproof membrane per Arch on tapered insulation over 3/4" Sturd-Floor APA rated 24 oc tongue & groove sheathing, over wood joists with 1 1/4" LSL, rim, see plan. Glue and fasten sheathing to joists, rims, flush beams, and ledgers with 8d gun nails (0.1125" x 2.315") @ 4" along panel edges and @ 8" along intermediate framing members. Lay panels perpendicular to framing members and stagger panel joints.
  - Face Mount Hangers at Flush Steel Beams (UNQ):** Pack out web with 2x and plywood/OSB light to top and bottom flanges as required (min 2'-0") for face mount hangers, secure with minimum (4) 0.148" drive pins and glue or 1/2" @ 32", staggered.
  - All beams are 9'-0" unless noted otherwise on plan.

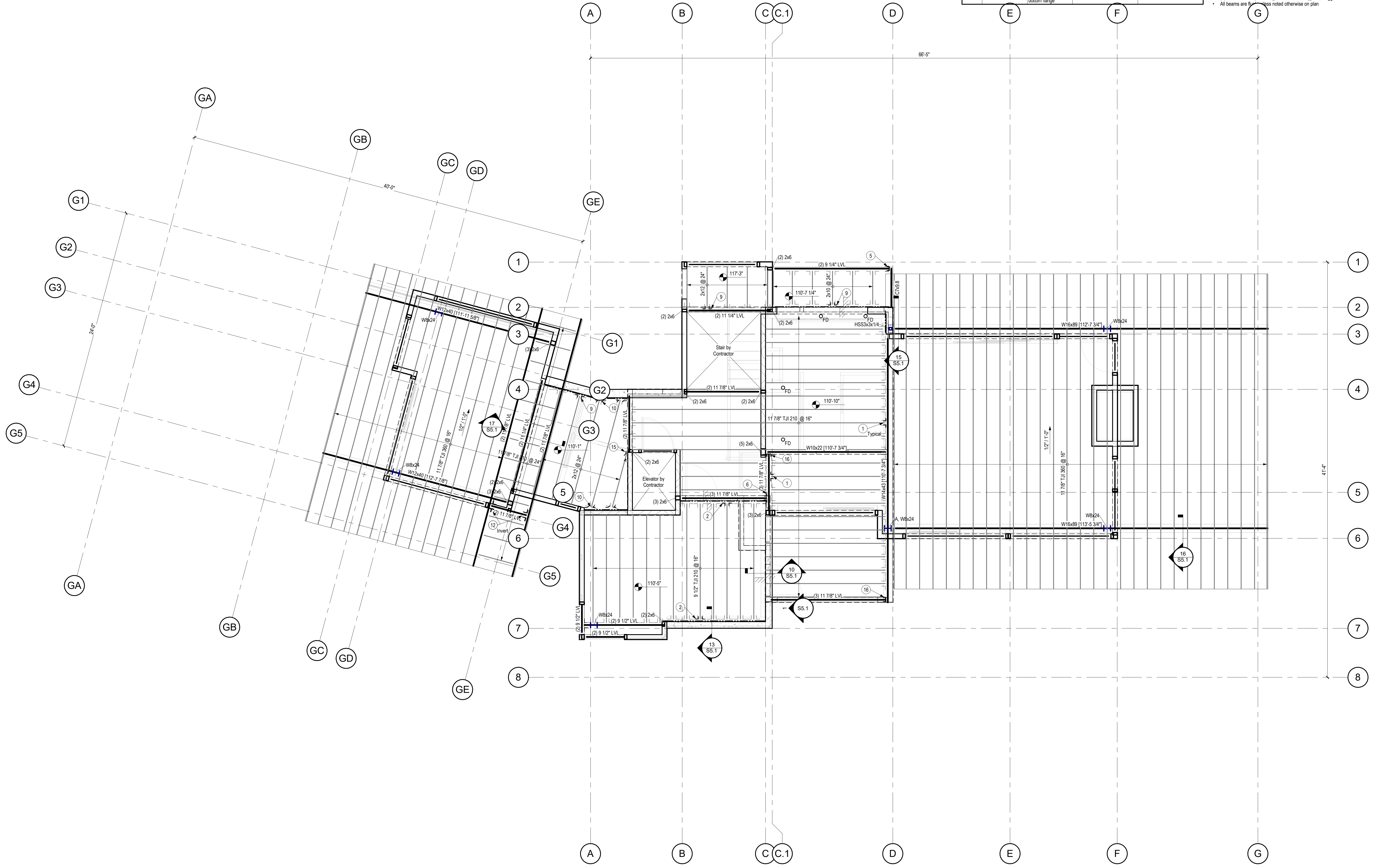


North  
Main Floor Framing Plan  
1/4" = 1'-0"



Hanger Schedule				
Mark	Model	Type	Header Fasteners	Joist Fasteners
1	ITS2.06/11.88	Top Flange	(6) 0.148" x 1 1/2" Nails	Strong-Grip seal
2	ITS2.06/9.5	Top Flange	(8) 0.148" x 1 1/2" Nails	(4) 0.148" x 1 1/2" Nails
3	HU7	Face Mount	(12) 0.148" x 3" Nails	(4) 0.148" x 1 1/2" Nails
4	HU412 - Concrete	Face Mount	(15) 1/4" x 3/4" Titen Screws	(6) 0.148" x 3" Nails
5	HUC410	Concealed Hanger	(14) 0.148" x 3" Nails	(6) 0.148" x 3" Nails
6	HGUS5.50/12	Face Mount	(50) 0.148" x 3" Nails	(20) 0.148" x 3" Nails
7	HHUS412	Face Mount	(30) 0.148" x 3" Nails	(10) 0.148" x 3" Nails
8	LUUS282	Face Mount	(6) 0.148" x 3" Nails	(3) 0.148" x 3" Nails
9	LUS210	Face Mount	(8) 0.148" x 3" Nails	(4) 0.148" x 3" Nails
10	LSS3210/2	Face Mount	(6) 0.148" x 3" Nails	(6) 0.148" x 3" Nails
11	MT11.88	Top Flange	(4) 0.148" x 3" Nails	(2) 0.148" x 3" Nails
12	MT411.88	Top Flange	(4) 0.148" x 3" Nails	(4) 0.148" x 3" Nails
13	L70	Concealed Hanger	(4) 0.148" x 1 1/2" Nails	(4) 0.148" x 1 1/2" Nails
14	L90	Concealed Hanger	(5) 0.148" x 1 1/2" Nails	(5) 0.148" x 1 1/2" Nails
15	Toenails	Nailed Connection	(8) 0.148" x 3" Toenails	
16	Bearing	Notch and bear on bottom flange		

- PLAN NOTES:**
- See S0.1 for general structural notes, complete schedules, and legends.
  - See Architectural drawings for size and location of all floor, wall, and roof openings.
  - Exterior Framed Walls (UNO):** 2x6 studs @ 16" sheathed with 7/16" CDX plywood or OSB. APA 2415 on exterior face. Nail wall sheathing with 6d gal nails @ 11" x 2 3/8" @ 4" at panel edges and boundaries and @ 12" in field of panel. Block and nail all edges between studs.
  - Wall Opening Construction (UNO):** (2) 2x6 header with minimum (1) 2x6 trimmer and (1) 2x6 king stud each end.
  - All headers are dropped unless noted otherwise on plan.
  - Interior Bearing Wall Construction (UNO):** 2x6 @ 16" sheathed with 1/2" gypsum wallboard on each face. Attach with #6x1 1/4" drywall screws @ 8" along panel edges and @ 12" in field of panel.
  - Floor Construction (UNO):** 3" concrete topping over 3/4" Sturd-Floor APA rated 24 cc tongue & groove sheathing, over wood joists with 1 1/4" LSJ, cm, see plan. Glue and fasten sheathing to joists, rims, flush beams, and ledgers with 6d gal nails @ 11" x 2 3/8" @ 4" along panel edges and @ 8" along intermediate framing members. Lay panels perpendicular to framing members and stagger panel joints.
  - Deck Construction (UNO):** Concrete pavers or decking over waterproof membrane per Arch on tapered insulation over 3/4" Sturd-Floor APA rated 24 cc tongue & groove sheathing, over wood joists with 1 1/4" LSJ, cm, see plan. Glue and fasten sheathing to joists, rims, flush beams, and ledgers with 6d gal nails @ 11" x 2 3/8" @ 4" along panel edges and @ 8" along intermediate framing members. Lay panels perpendicular to framing members and stagger panel joints.
  - Face Mount Hangers at Flush Steel Beams (UNO):** Pack out web with 2x and plywood/OSB light to top and bottom flanges as required (min 2'-0") for face mount hangers, secure with minimum (4) 0.148" drive pins and glue or 1/2" @ 32", staggered.
  - All beams are 9" unless noted otherwise on plan.

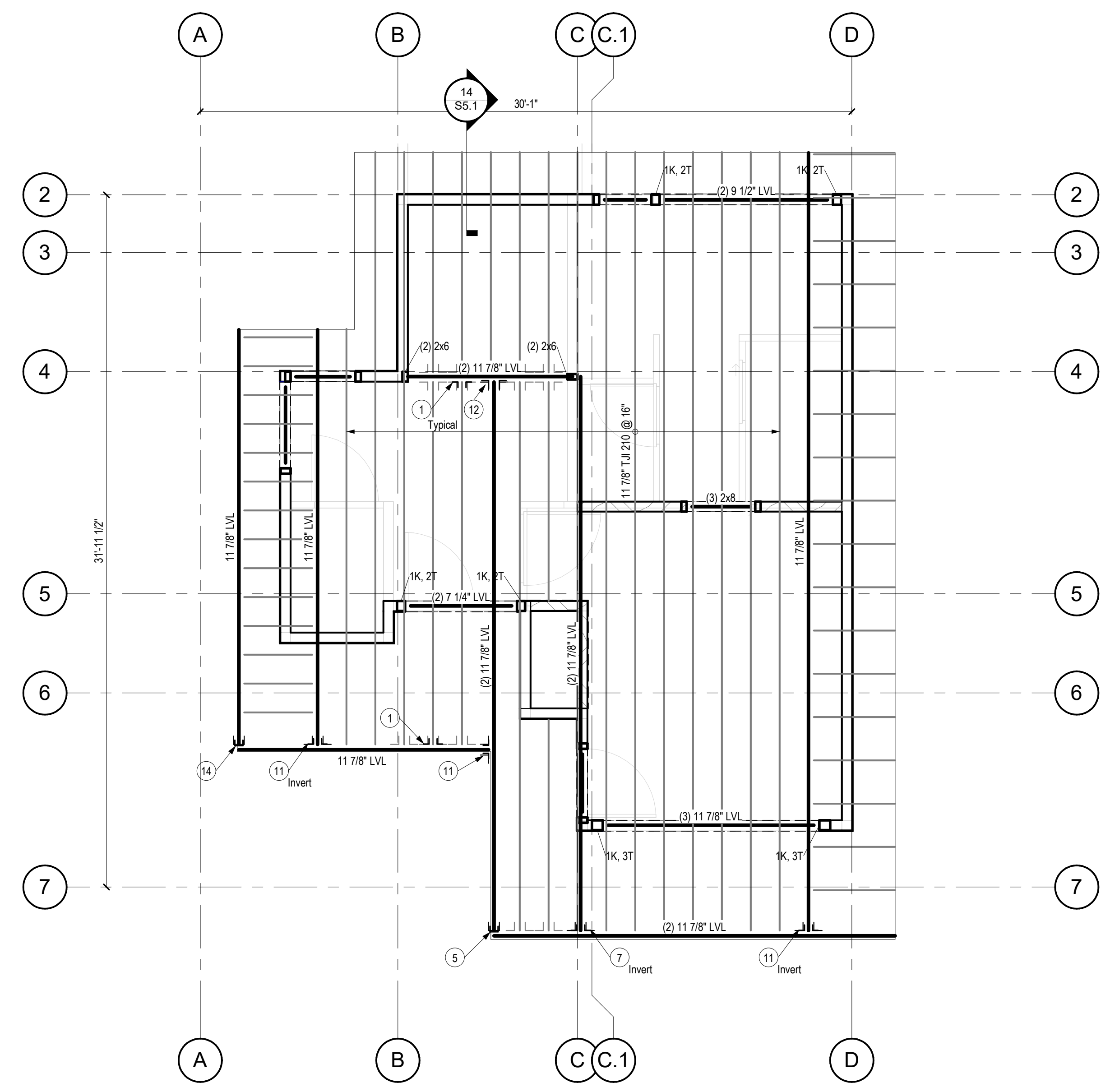
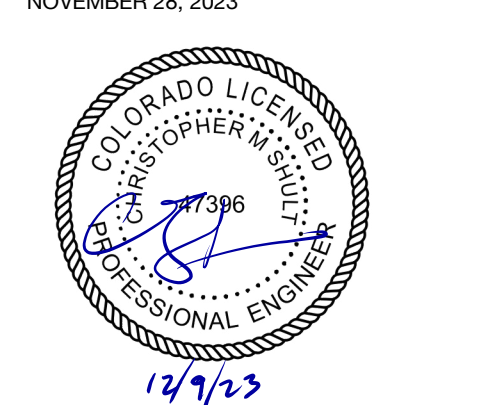


Upper Floor Framing Plan  
1/4" = 1'-0"  
North

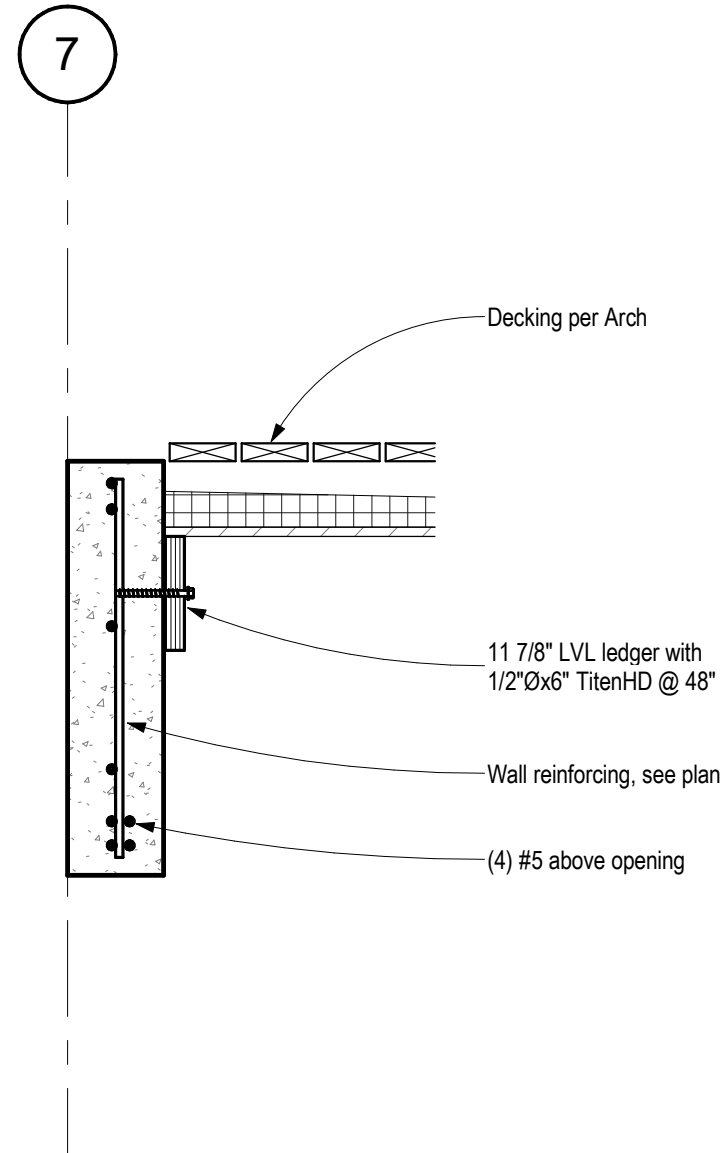
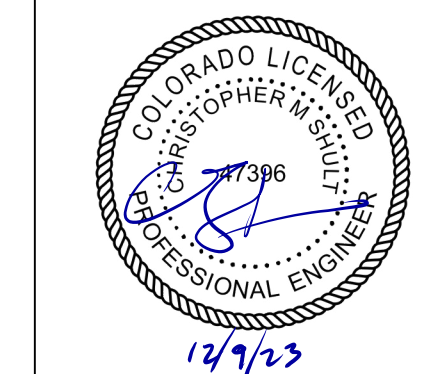


Hanger Schedule				
Mark	Model	Type	Header Fasteners	Joist Fasteners
1	ITS2.0611.88	Top Flange	(6) 0.148" x 1 1/2" Nails	Strong-Grip seal
2	ITS2.069.5	Top Flange	(8) 0.148" x 1 1/2" Nails	(4) 0.148" x 1 1/2" Nails
3	HU7	Face Mount	(12) 0.148" x 3" Nails	(4) 0.148" x 1 1/2" Nails
4	HU412 - Concrete	Face Mount	(16) 1/4"x3/16" 3/4" Titen Screws	(6) 0.148" x 3" Nails
5	HUC410	Concealed Hanger	(14) 0.148" x 3" Nails	(6) 0.148" x 3" Nails
6	HGUS5.5012	Face Mount	(56) 0.148" x 3" Nails	(20) 0.148" x 3" Nails
7	HRUS412	Face Mount	(30) 0.148" x 3" Nails	(10) 0.148" x 3" Nails
8	LUS282	Face Mount	(6) 0.148" x 3" Nails	(3) 0.148" x 3" Nails
9	LUS210	Face Mount	(8) 0.148" x 3" Nails	(4) 0.148" x 3" Nails
10	LSS3218LZ	Face Mount	(6) 0.148" x 3" Nails	(6) 0.148" x 3" Nails
11	MIT11.88	Top Flange	(4) 0.148" x 3" Nails	(2) 0.148" x 3" Nails
12	MIT411.88	Top Flange	(4) 0.148" x 3" Nails	(4) 0.148" x 3" Nails
13	L70	Concealed Hanger	(4) 0.148" x 1 1/2" Nails	(4) 0.148" x 1 1/2" Nails
14	L90	Concealed Hanger	(5) 0.148" x 1 1/2" Nails	(5) 0.148" x 1 1/2" Nails
15	Toenails	Nailed Connection	(8) 0.148" x 3" Toenails	
16	Bearing	Notch and bear on bottom flange		

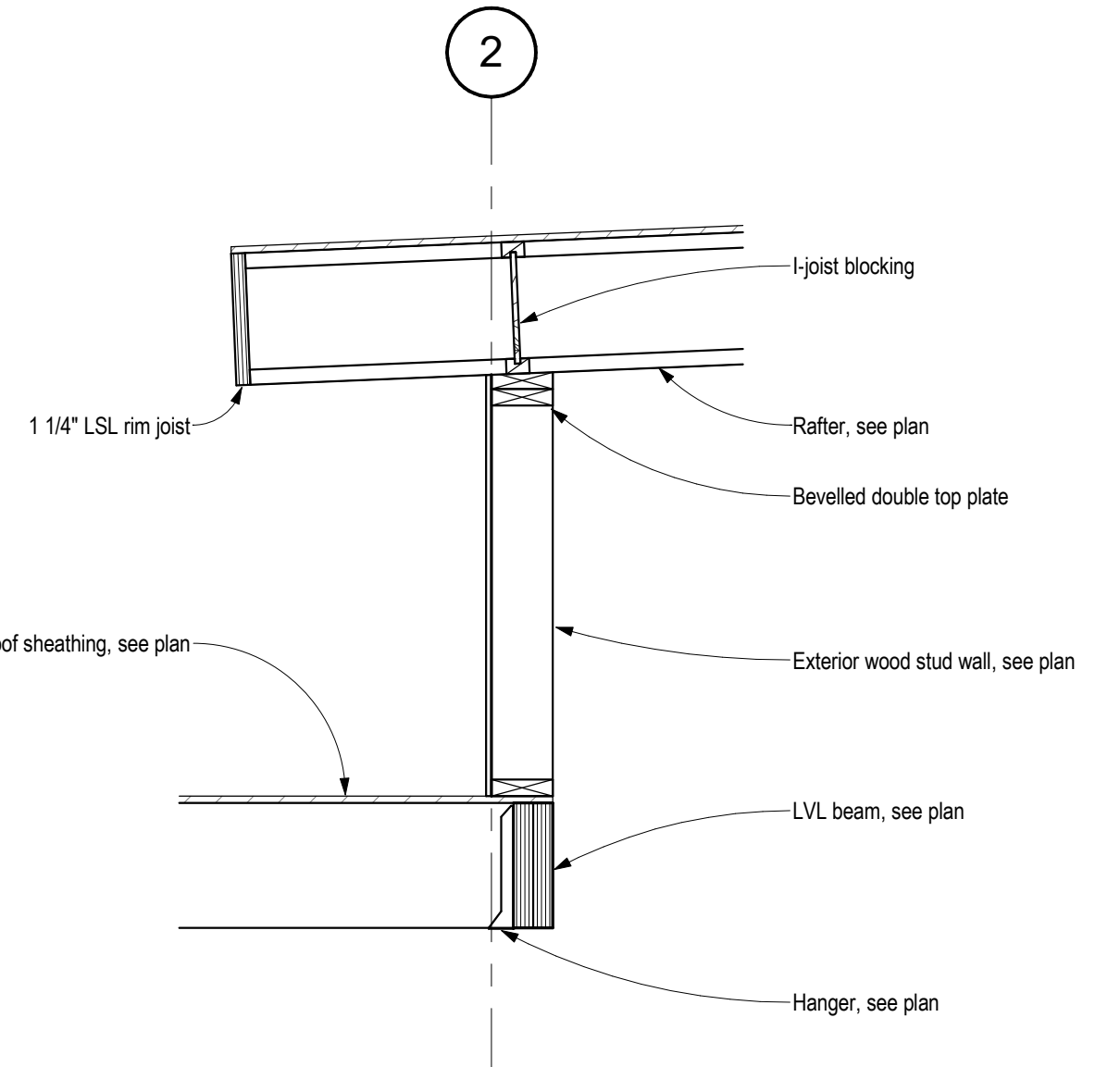
- PLAN NOTES:**
- See S0.1 for general structural notes, complete schedules, and legends
  - See Architectural drawings for size and location of all floor, wall, and roof openings
  - Exterior Framed Walls (UNQ):** 2x6 studs @ 16" sheathed with 7/16" CDX plywood or OSB, APA 2415 on exterior face. Nail wall sheathing with 6d pan nails (0.113" x 2.318") @ 4" at panel edges and boundaries and @ 12" in field of panel. Block and nail all edges between studs.
  - Wall Opening Construction (UNQ):** 2x6 header with minimum (1) 2x6 trimmer and (1) 2x6 king stud each end.
  - All headers are dropped unless noted otherwise on plan.
  - Interior Bearing Wall Construction (UNQ):** 2x6 @ 16" sheathed with 1/2" gypsum wallboard on each face. Attach with #6x1 1/4" drywall screws @ 8" along panel edges and @ 12" in field of panel.
  - Roof Construction (UNQ):** 2x12 @ 24" rafters with 5/8" nominal APA 4020 rated sheathing, see plan. Fasten sheathing to rafters, sills, flush beams, and ledgers with 0.113" x 2.318" nails @ 4" along panel edges and @ 8" along intermediate framing members. Lay panels perpendicular to framing members and stagger panel joints.
  - Butter Tie Down (UNQ):** H2.5e clip at bearing at each rafter. Install (2) clips within 6'-0" of corners.



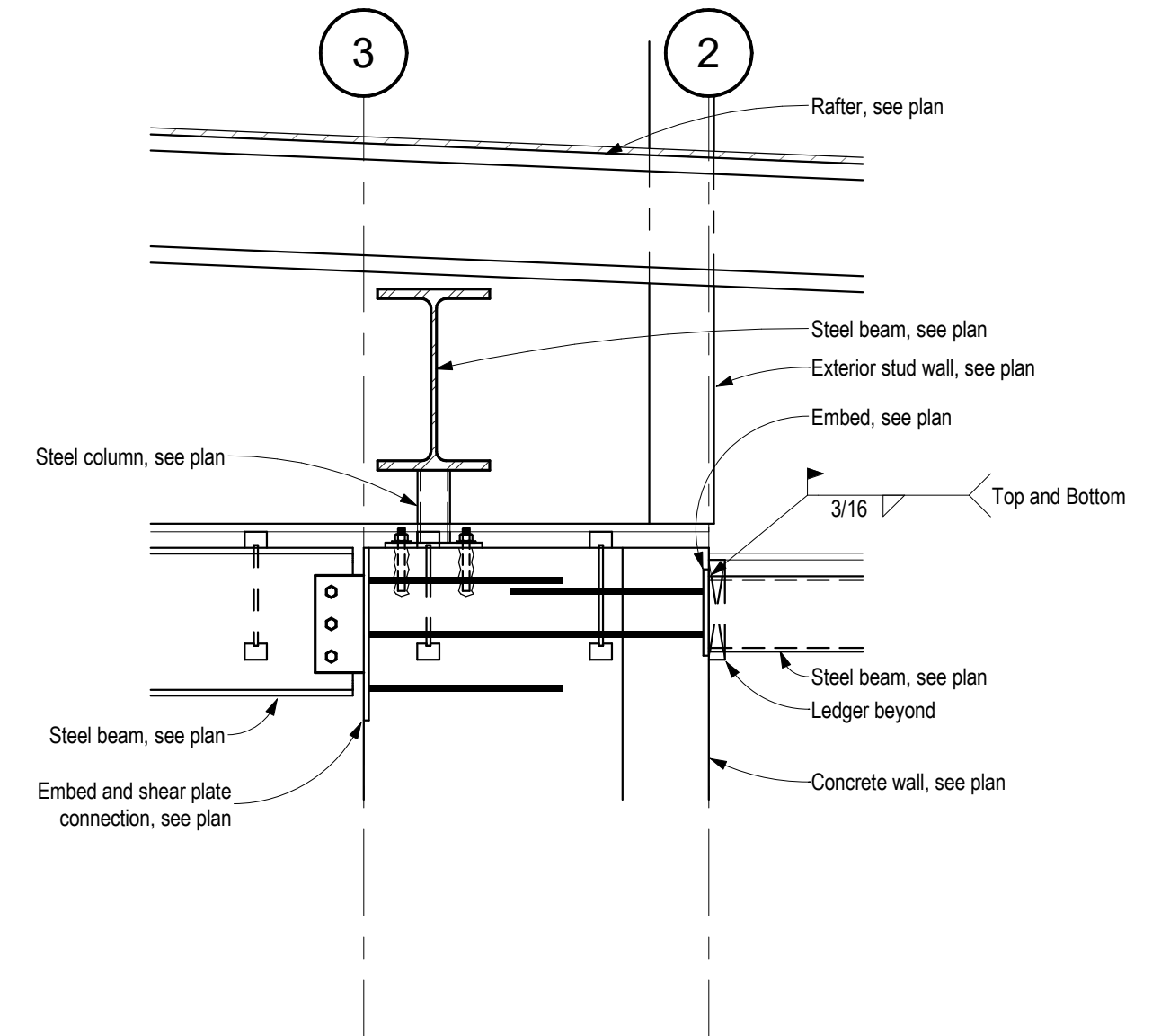
Roof Framing Plan  
1/4" = 1'-0"  
North



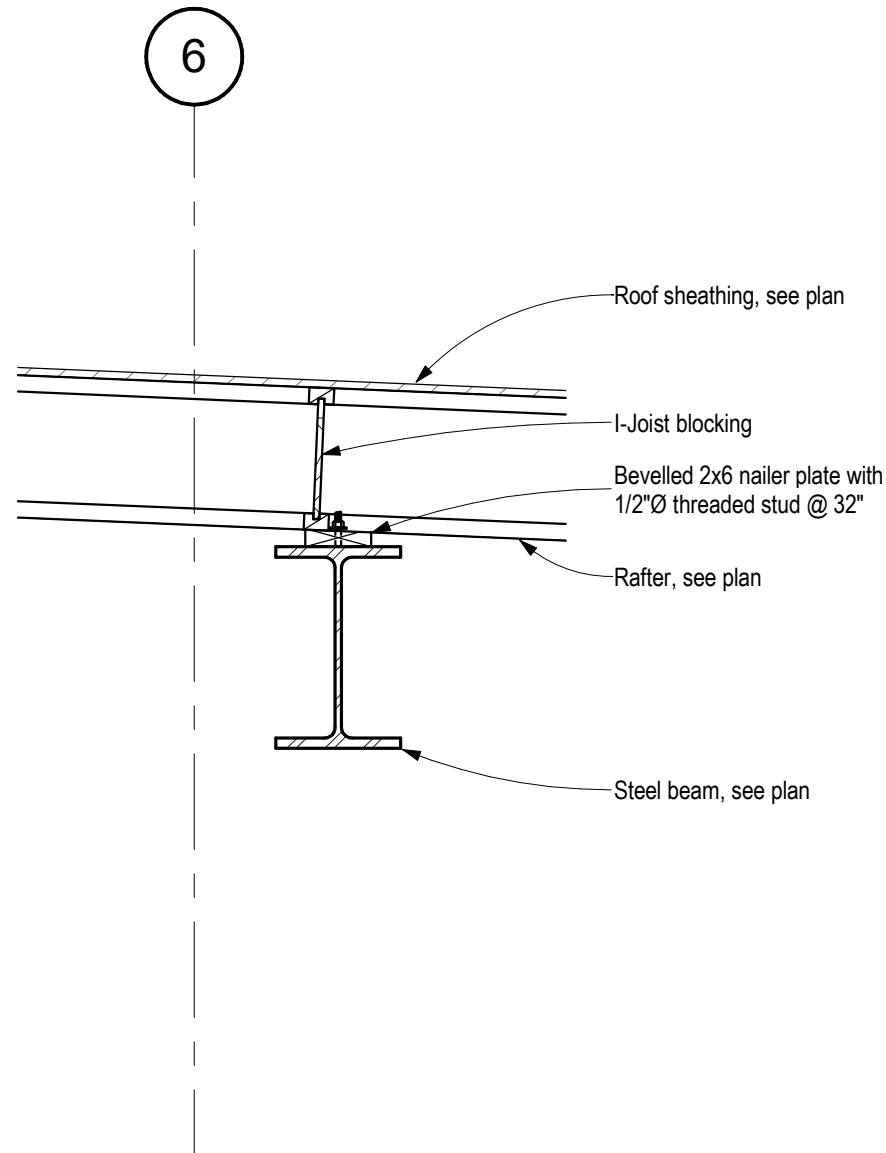
13 Detail  
3/4" = 1'-0"



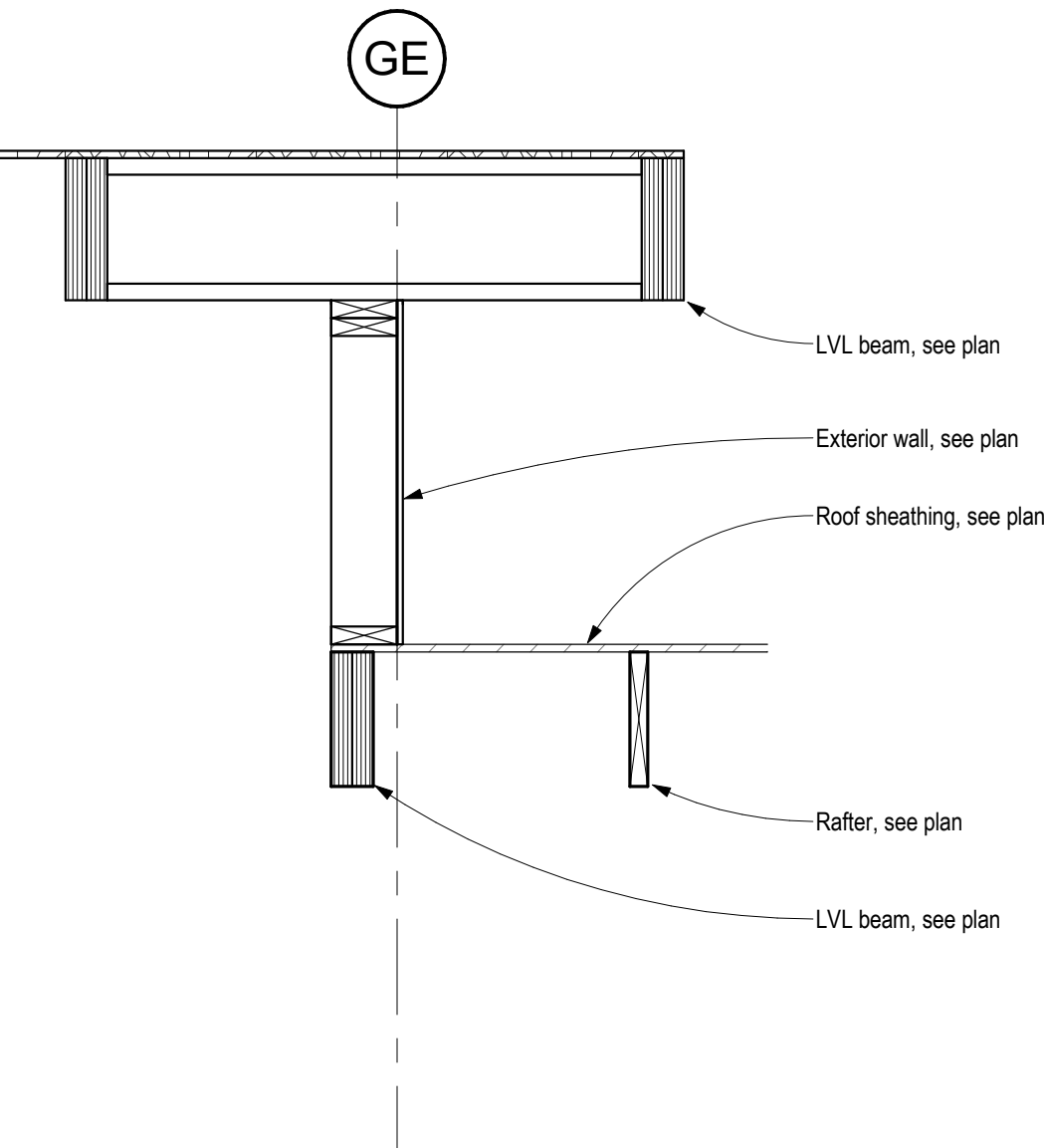
14 Detail  
3/4" = 1'-0"



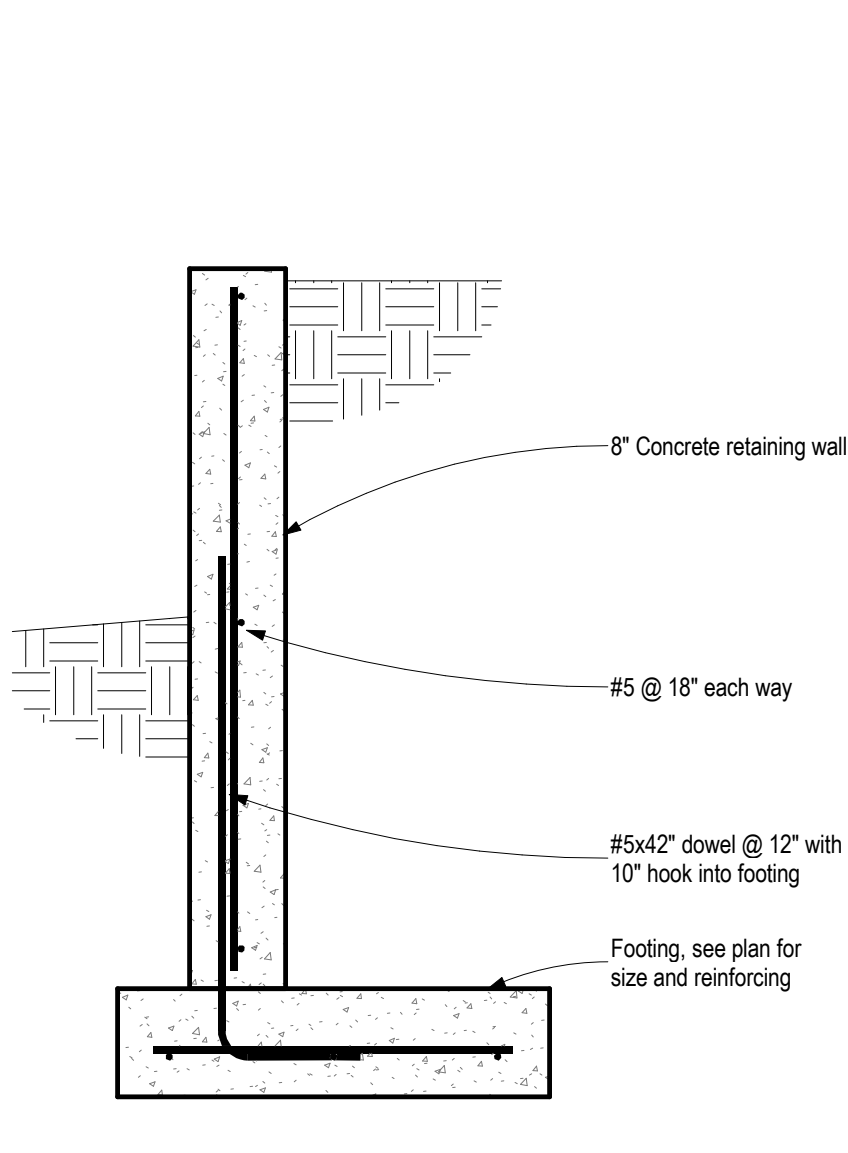
15 Detail  
3/4" = 1'-0"



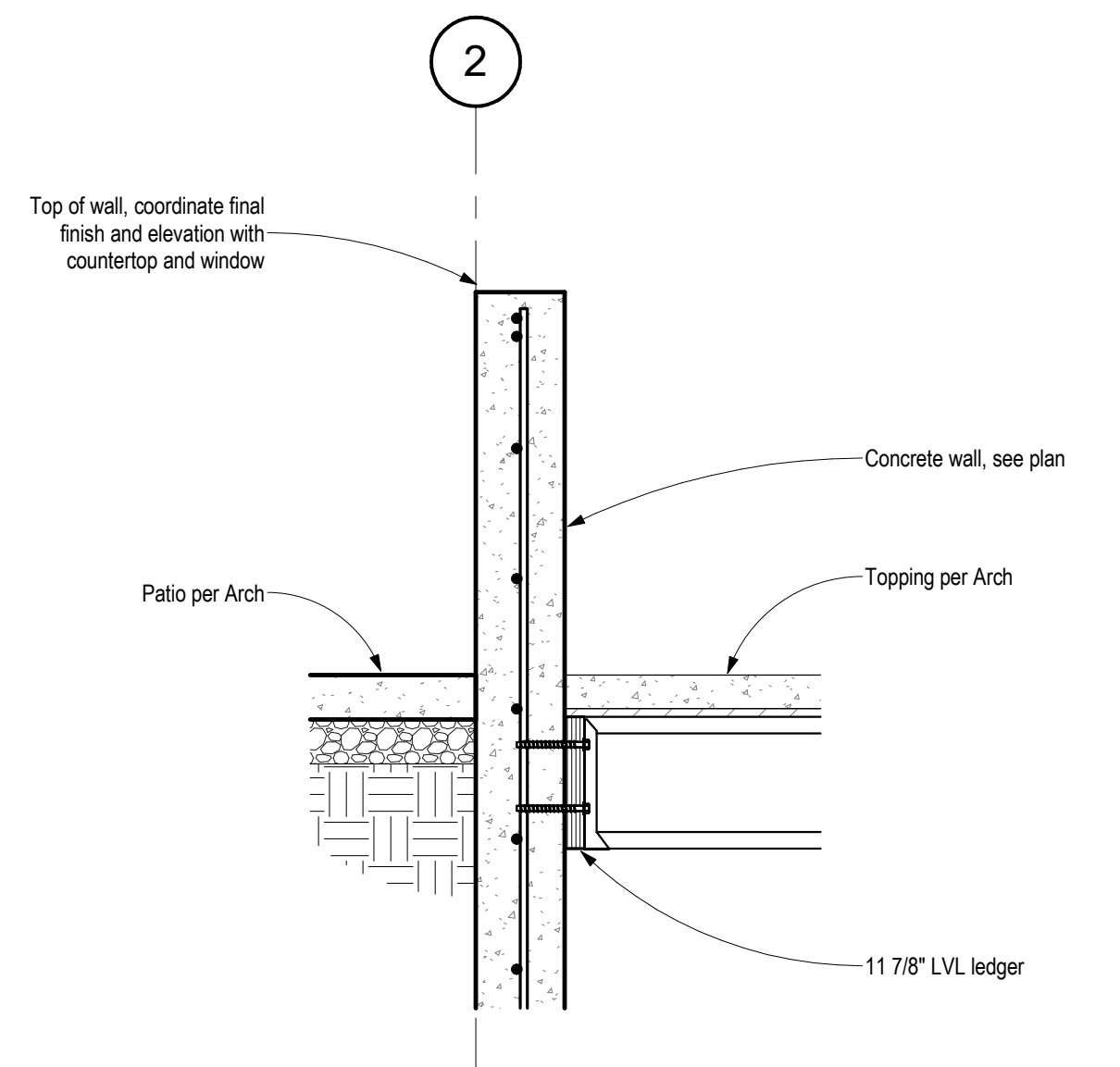
16 Detail  
3/4" = 1'-0"



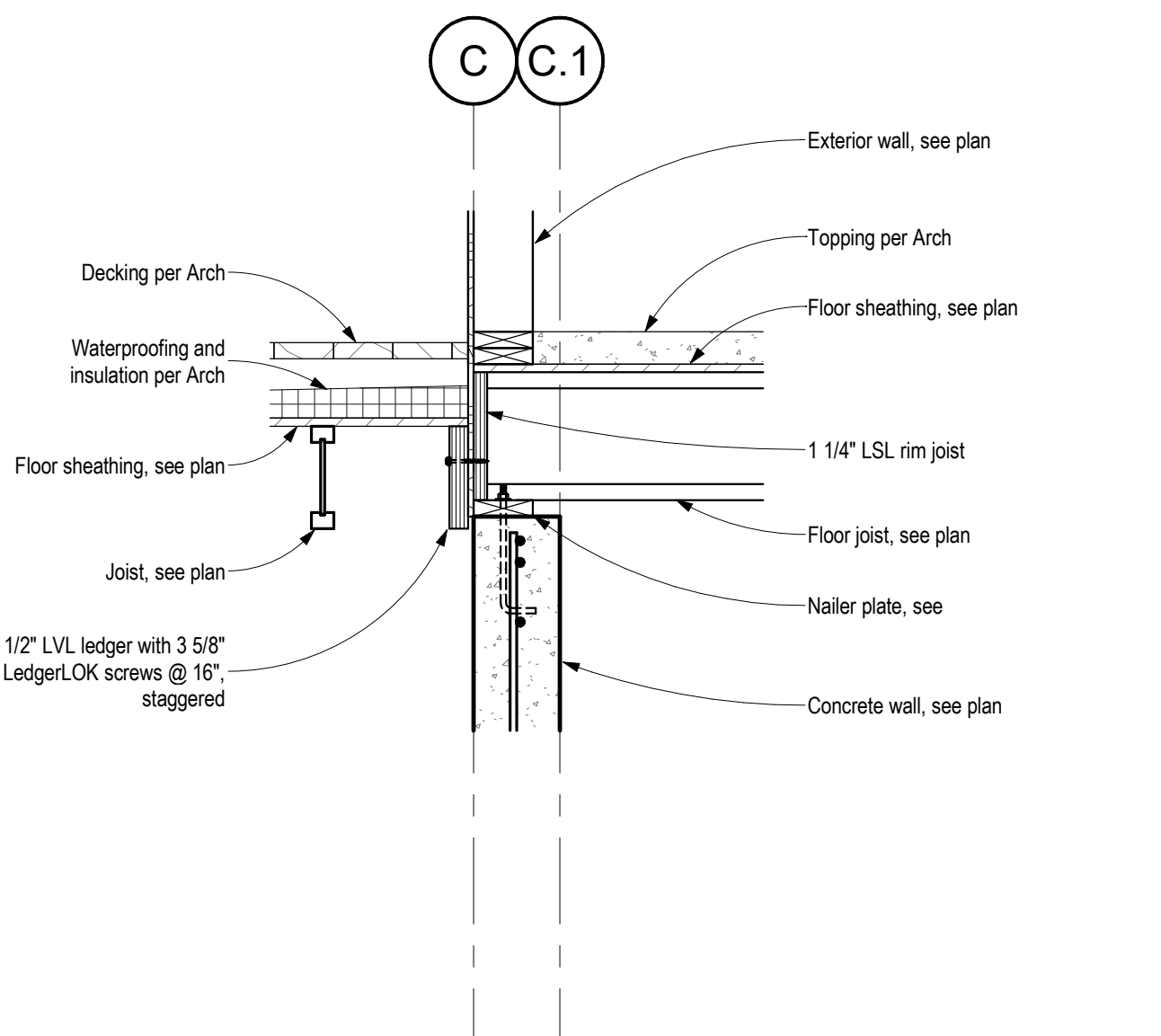
17 Detail  
3/4" = 1'-0"



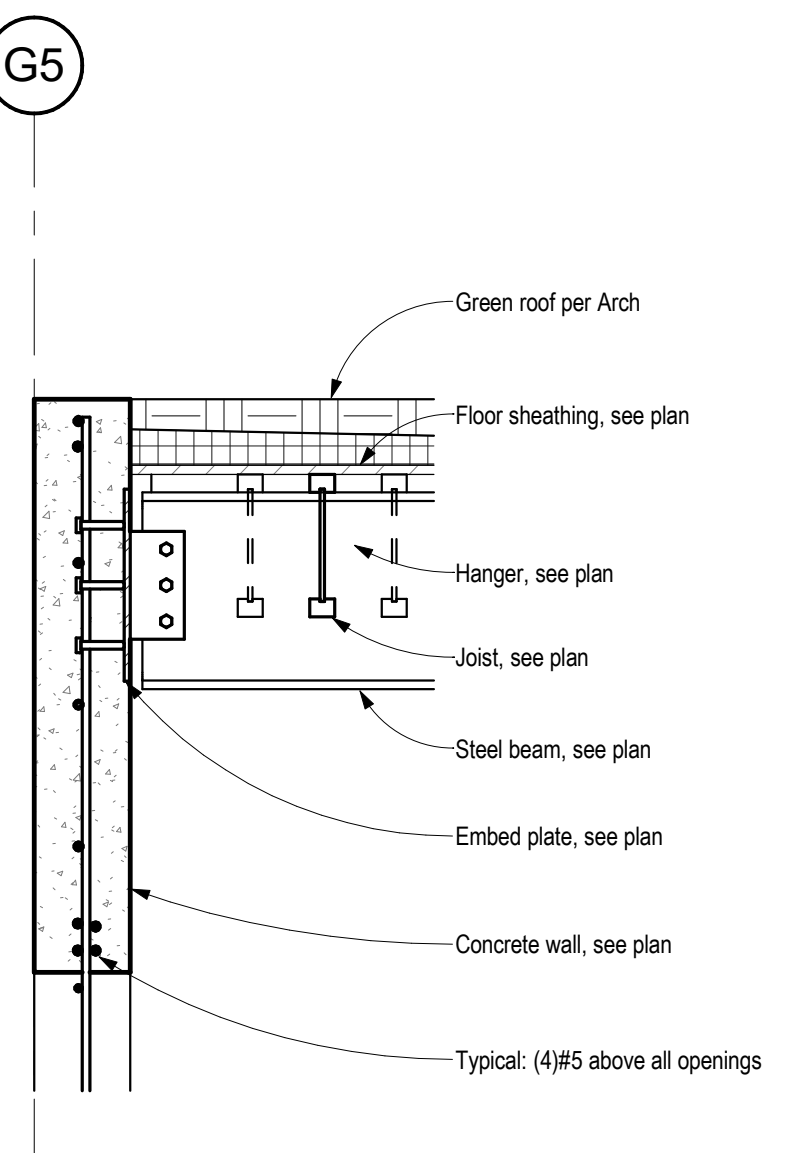
8 Detail  
3/4" = 1'-0"



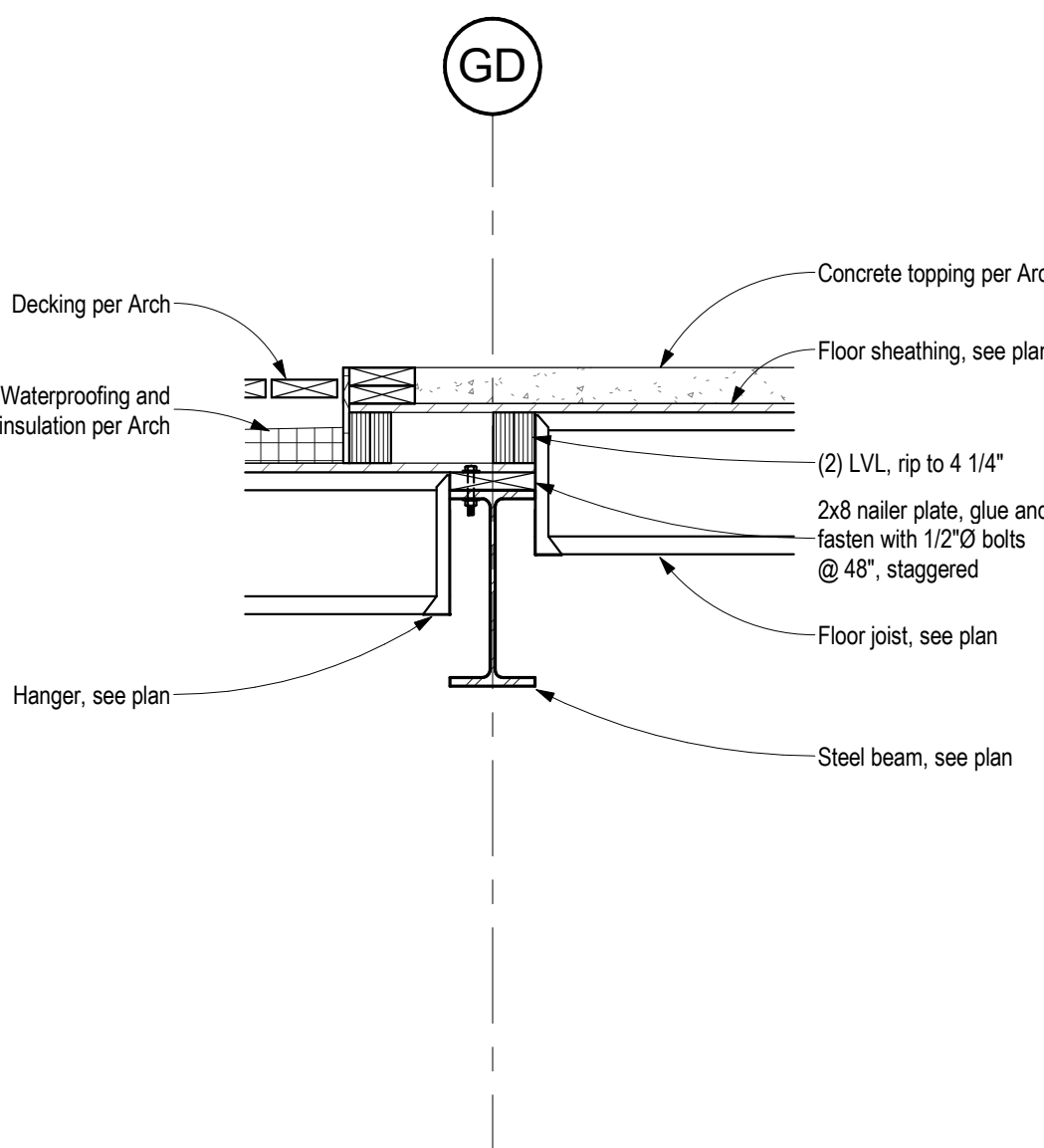
9 Detail  
3/4" = 1'-0"



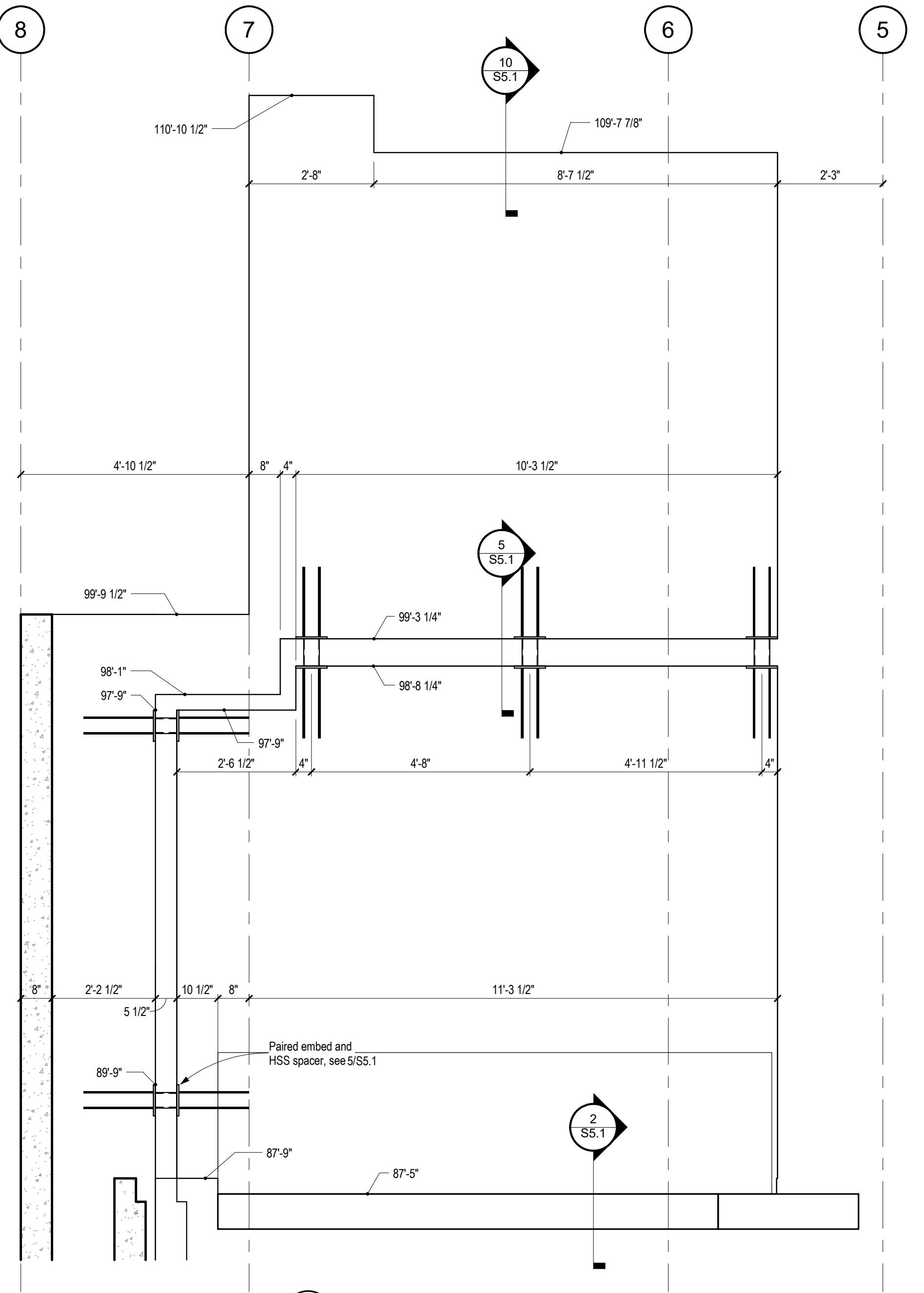
10 Detail  
3/4" = 1'-0"



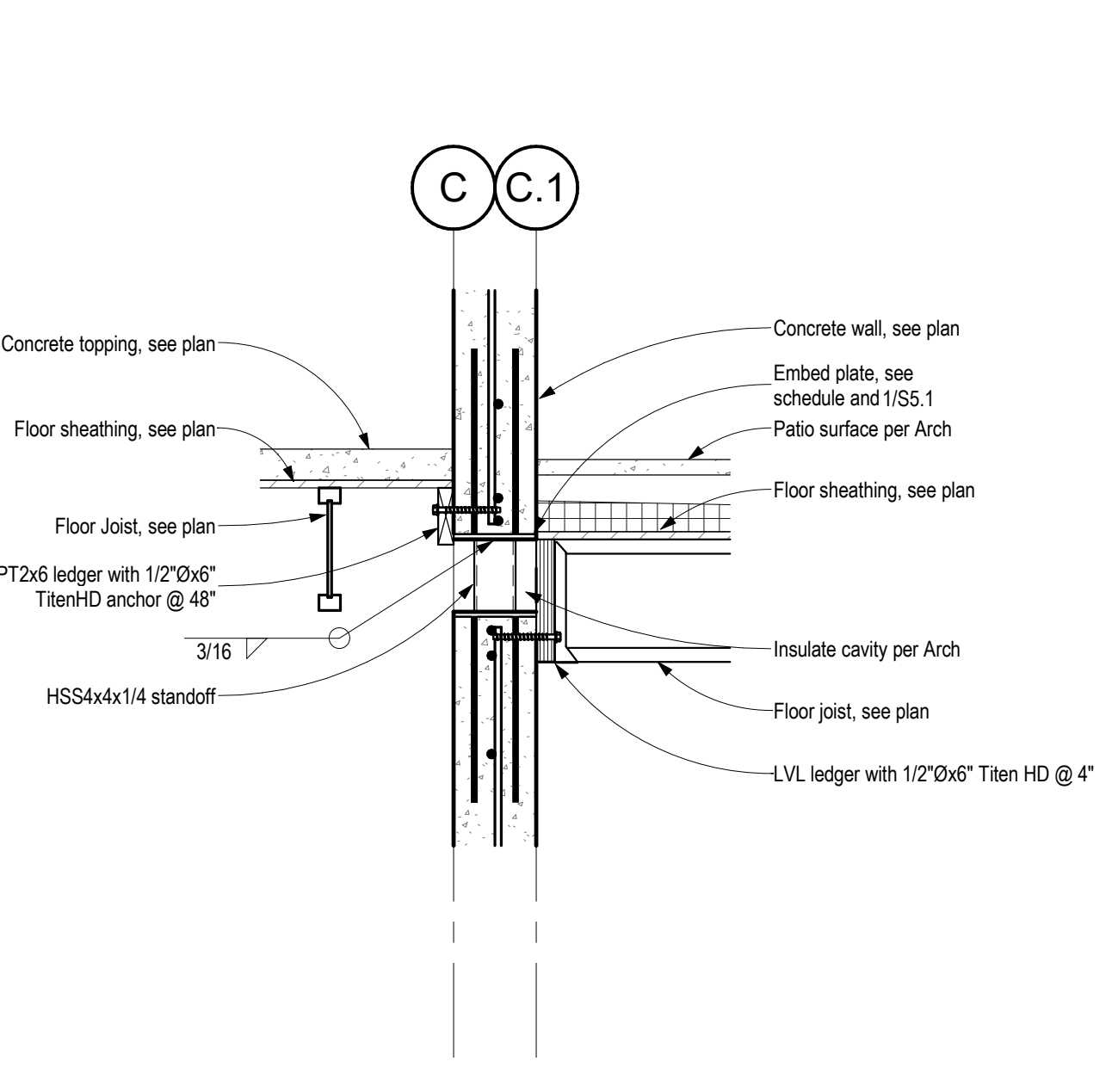
11 Detail  
3/4" = 1'-0"



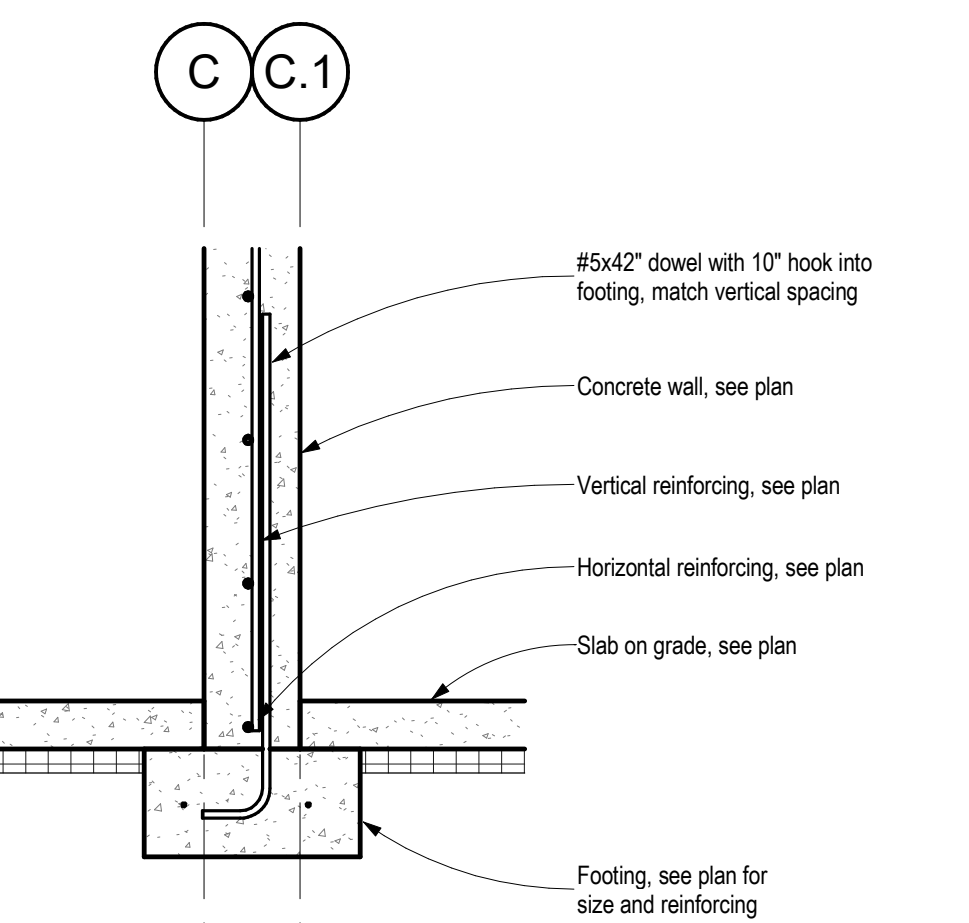
12 Detail  
3/4" = 1'-0"



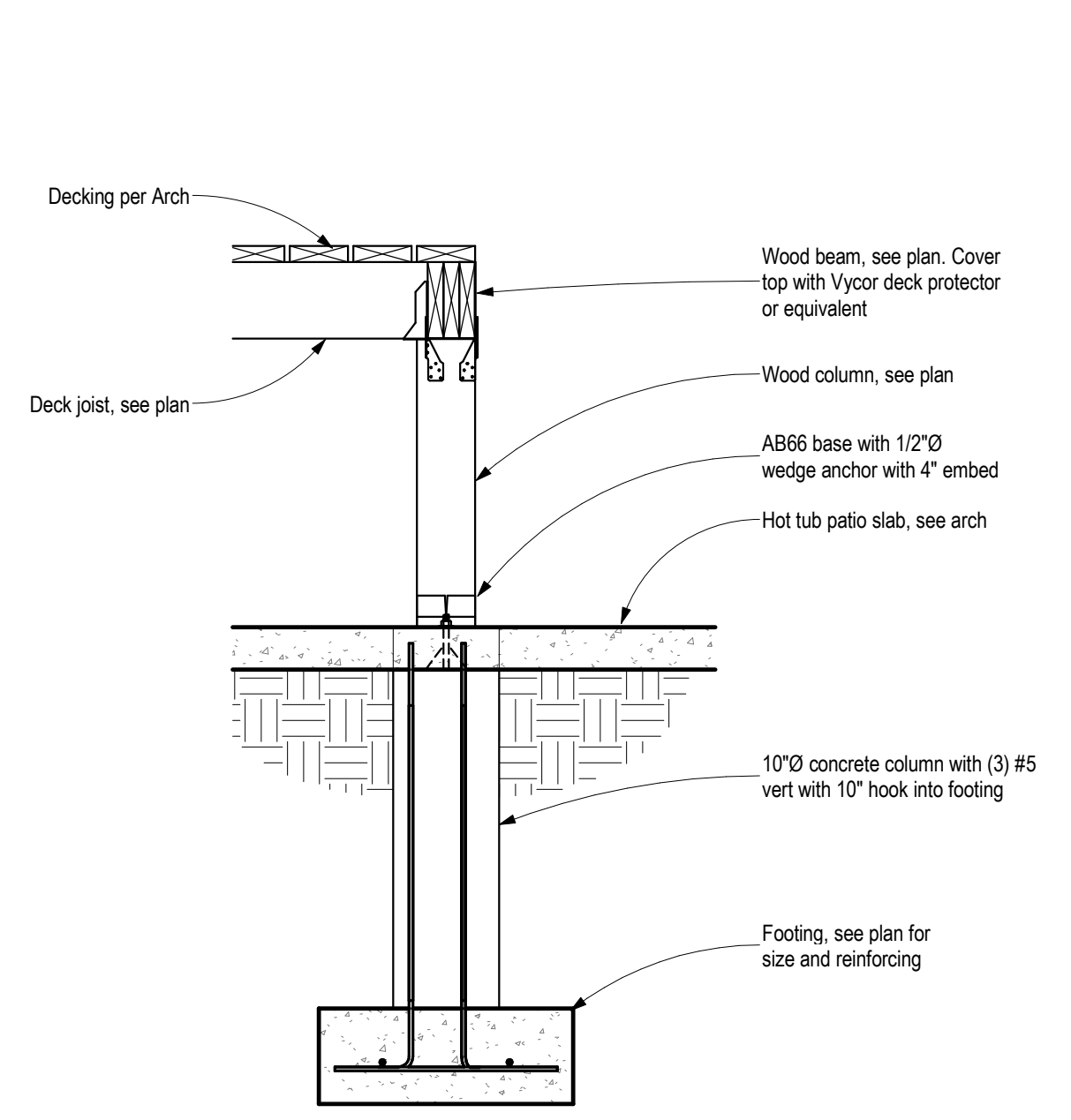
1 Grid C Wall Elevation  
1/2" = 1'-0"



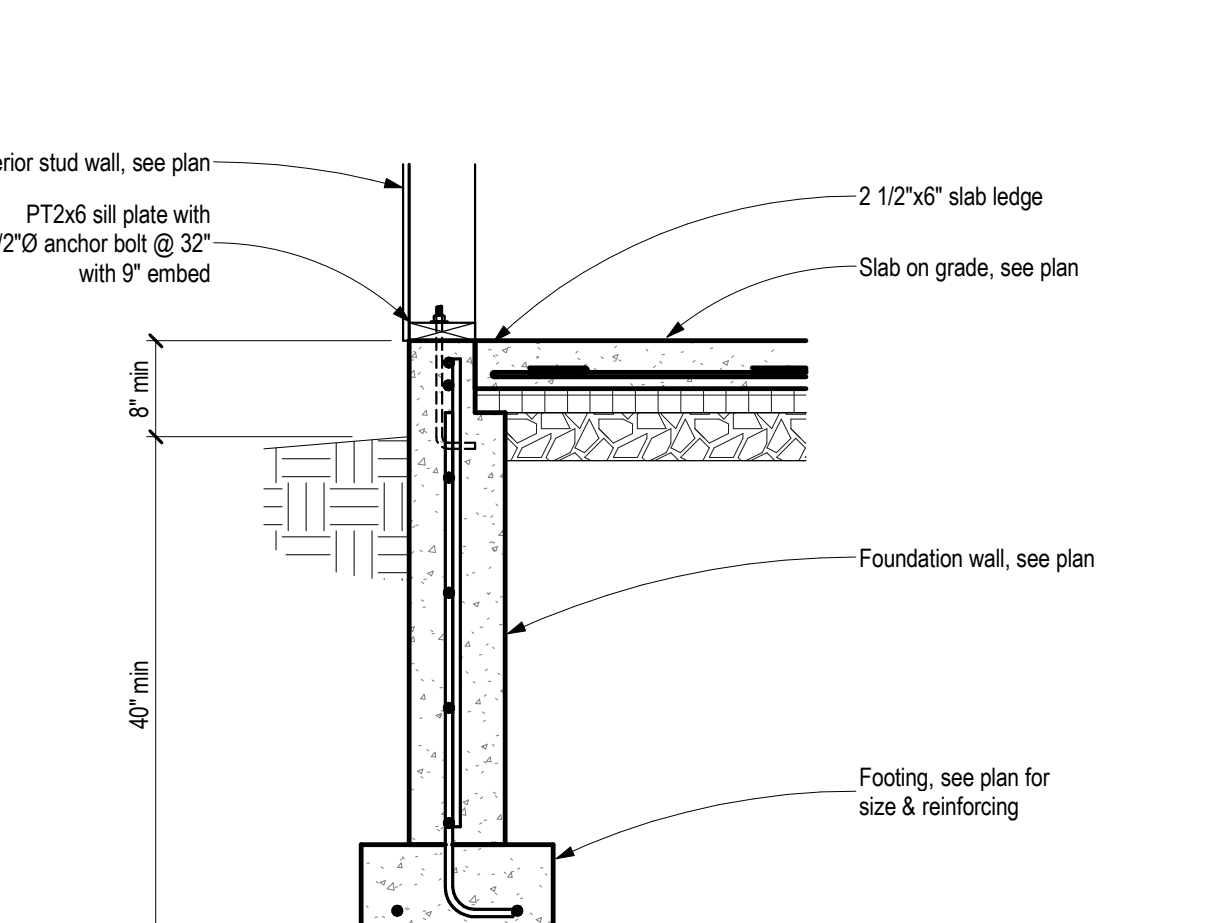
5 Detail  
3/4" = 1'-0"



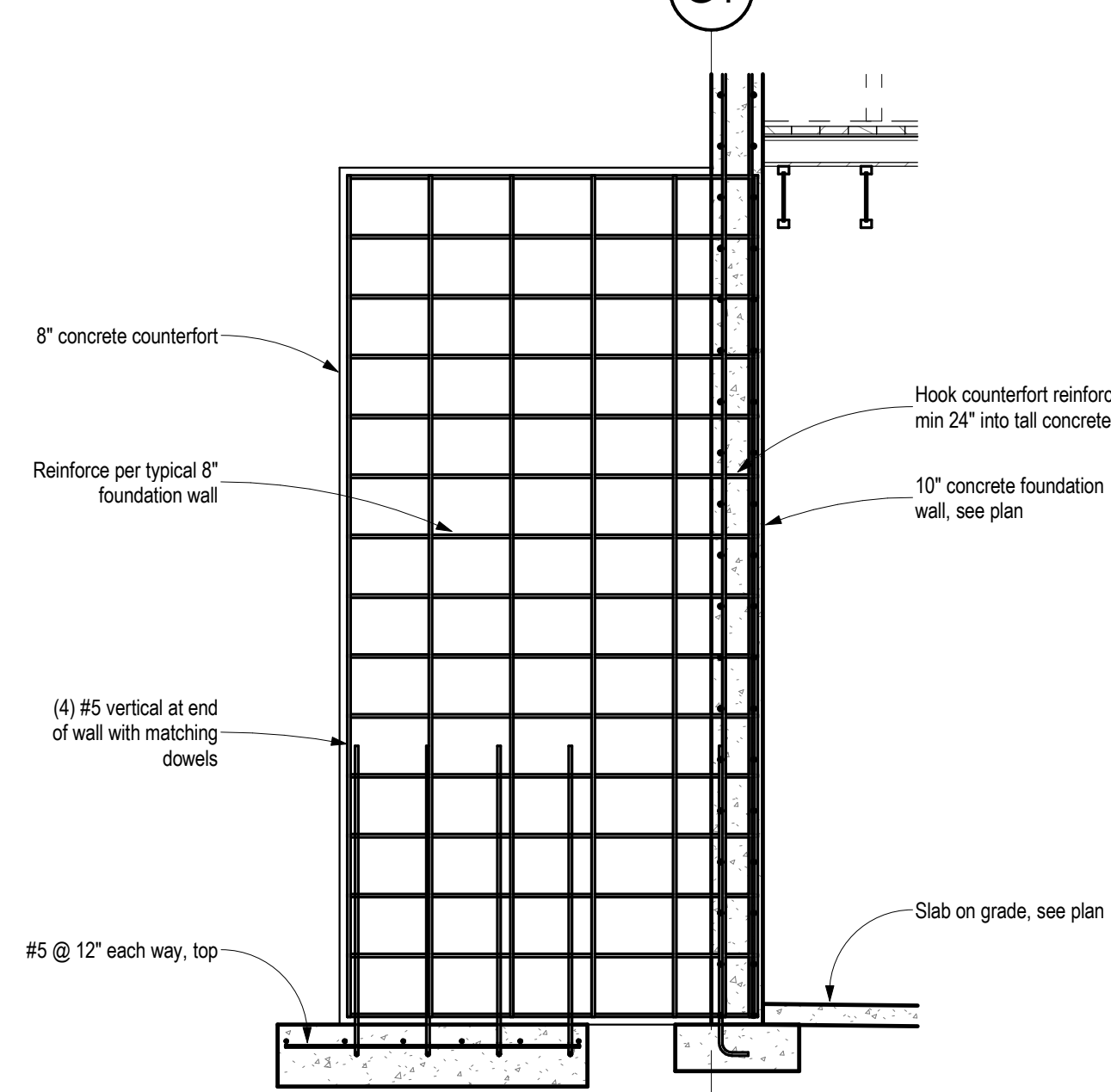
2 Detail  
3/4" = 1'-0"



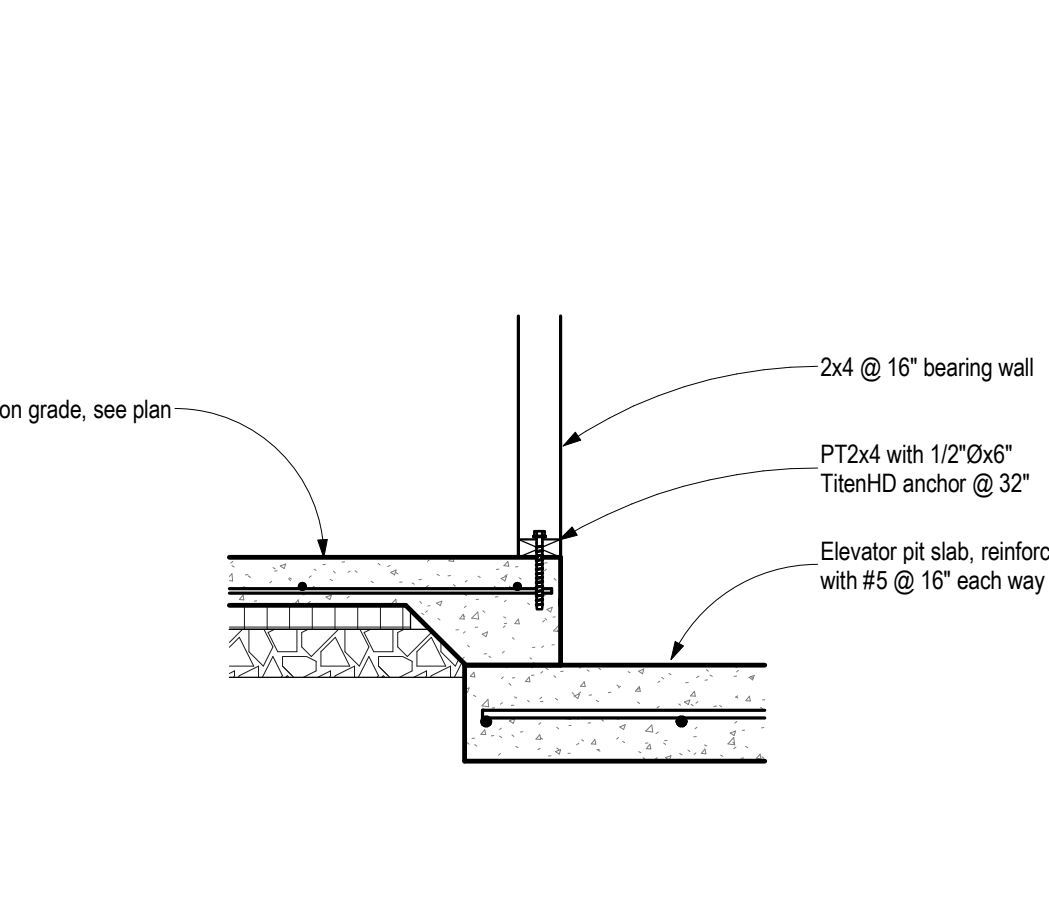
6 Detail  
3/4" = 1'-0"



3 Detail  
3/4" = 1'-0"



7 Detail  
3/8" = 1'-0"



4 Detail  
3/4" = 1'-0"