GENERAL STRUCTURAL NOTES

GENERAL

1. THESE DRAWINGS ARE TO BE USED IN CONJUNCTION WITH ALL ARCHITECTURAL, LANDSCAPE, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS THAT COMPRISE THE CONTRACT DOCUMENTS FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING THE COORDINATION OF THE STRUCTURAL WORK WITH THAT OF ALL OTHER TRADES ON THIS PROJECT.
2. THE GENERAL STRUCTURAL NOTES ON THIS SHEET SHALL SERVE AS A SUPPLEMENT TO THE PROJECT SPECIFICATIONS. NOTES AND DETAILS ON THE DRAWINGS SHALL TAKE PRECEDENCE OVER THE GENERAL STRUCTURAL NOTES AND TYPICAL DETAILS.
3. IF NO DETAILS ARE PROVIDED FOR A PARTICULAR CONDITION, CONTRACTOR SHALL ASSUME THAT THE CONSTRUCTION SHALL BE AS SHOWN FOR SIMILAR WORK. IN ALL SUCH CASES, THE CONTRACTOR SHALL CONTACT THE ENGINEER FOR VERIFICATION.
4. WHEN A DETAIL IS SPECIFIED, THE CONTRACTOR SHALL APPLY THIS DETAIL IN ESTIMATING AND CONSTRUCTION TO EVERY LIKE CONDITION WHETHER OR NOT REFERENCE IS MADE IN EVERY LOCATION UNLESS SPECIFICALLY DIRECTED OTHERWISE ON THE DRAWINGS.
5. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS INDICATED ON THESE DRAWINGS WITH THOSE SHOWN ON THE ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION. THE ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
6. ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS SHALL BE FIELD VERIFIED. THE CONTRACTOR SHALL NOTIFY THE ARCHITECT OF ANY SIGNIFICANT DISCREPANCIES FROM CONDITIONS SHOWN ON THE CONTRACT DOCUMENTS.
7. THE DRAWINGS SHALL NOT BE SCALED TO DETERMINE DIMENSIONS.
8. ALL SEQUENCES, METHODS AND PROCEDURES OF CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE AND MAINTAIN THE STABILITY AND INTEGRITY OF THE STRUCTURE THROUGH ALL STAGES OF CONSTRUCTION. THIS INCLUDES, BUT IS NOT LIMITED TO, TEMPORARY BRACING, SHORING FOR CONSTRUCTION LOADS, AND FORM WORK STABILITY.
9. THE CONTRACTOR'S METHODS AND SEQUENCES SHALL TAKE INTO CONSIDERATION THE EFFECTS OF THERMAL MOVEMENT OF THE STRUCTURAL ELEMENTS DURING CONSTRUCTION.

DESIGN CRITERIA

1. DESIGN IS BASED ON THE REQUIREMENTS OF THE 2018 INTERNATIONAL BUILDING CODE AND 2019 OREGON STRUCTURAL SPECIALTY CODE.
2. GRAVITY DEAD LOAD CRITERIA
   - ROOF: 20 PSF
   - FLOORS: 28 PSF
3. GRAVITY LIVE LOAD CRITERIA
   - ROOF: 25 PSF SNOW (DRIFT INDICATED ON PLANS) INCLUDES 5.0 PSF RAIN ON SNOW SURCHARGE
   - FLOOR (MEZZANINE): 100 PSF UNREDUCIBLE
   - STAIRS & CORRIDORS: 100 PSF UNREDUCIBLE
4. SEISMIC LOADS: ANALYSIS PROCEDURE PER EQUIVALENT LATERAL FORCE PROCEDURE PER ASCE 7-16 SECTION 12.8.
   - OCCUPANCY CATEGORY II
   - SITE CLASS D
   - SEISMIC DESIGN CATEGORY D
   - SS= 0.872g SDS = 0.698g
   - S1 = 0.392g SD1 = 0.499g
   - R = 6.5 (LIGHT-FRAME WALLS SHEATHED WITH STEEL SHEETS)
   - IMPORTANCE FACTOR = 1.0
5. WIND LOADS:
   - BASIC WIND SPEED (3 SEC. GUST): VULT = 120 MPH
   - EXPOSURE: B
6. SNOW LOAD CRITERIA:
   - Pf = 25 PSF
   - Ce = 1.0
   - Is = 1.0
   - Ct = 1.0

SUBMITTALS

1. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR THE FOLLOWING STRUCTURAL ITEMS:
   - A. CONCRETE MIX DESIGNS (SUBMIT TEST REPORTS SUBSTANTIATING STRENGTH OR PROVIDE INCREASED REQUIRED STRENGTH COMPLIANT W/ ACI 318-11 CHAPTER 5, IBC SECTION 1905 TWO WEEKS PRIOR TO POUR).
   - B. CONCRETE REINFORCEMENT
   - C. STRUCTURAL STEEL
   - D. EMBEDDED STEEL ITEMS
2. SHOP DRAWINGS, DESIGN DRAWINGS AND STRUCTURAL CALCULATIONS FOR THE DESIGN AND FABRICATION OF CONTRACTOR-PROVIDED STRUCTURAL ELEMENTS THAT ARE DESIGNED BY OTHERS SHALL BE SUBMITTED TO THE ARCHITECT IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS. THE SUBMITTALS SHALL BEAR THE SEAL AND SIGNATURE OF A REGISTERED STRUCTURAL ENGINEER IN THE STATE WHERE THE PROJECT OCCURS. CALCULATIONS SHALL BE INCLUDED FOR ALL MEMBERS AND CONNECTIONS, UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS AND SHALL BE BASED ON THE INFORMATION CONTAINED IN THE "DESIGN CRITERIA" NOTES INCLUDING SEISMIC AND WIND FORCES. CONNECTIONS TO THE STRUCTURAL MEMBERS WHICH INDUCE TORSION ONTO THE STRUCTURAL FRAME SHALL RESOLVE THE TORSIONAL FORCES AND ARE TO BE PROVIDED BY THE CONTRACTOR AS PART OF THE BIDDER-DESIGNED WORK.

   FOR THIS PROJECT DEFERRED SUBMITTALS ARE REQUIRED FOR:
   - A. ALL WINDOW WALL AND GLAZING SYSTEMS
   - B. SUSPENDED CEILING BRACING
   - C. METAL PANELS
   - D. SKYLIGHTS
   - E. MECHANICAL, ELECTRICAL & PLUMBING EQUIPMENT SEISMIC BRACING.
   - F. STAIRS
3. ANY ALTERNATE DETAILS OR MATERIAL SUBSTITUTIONS PROPOSED BY THE CONTRACTOR SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AND SHALL BEAR THE SEAL AND SIGNATURE OF A REGISTERED STRUCTURAL ENGINEER IN THE STATE WHERE THE PROJECT OCCURS.
4. DURING THE SHOP DRAWING REVIEW PROCESS, THE CONTRACTOR SHALL COORDINATE ALL ROUTING, SEISMIC BRACING AND ANCHORAGES OF MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT, DUCTWORK AND PIPING WITH THE STRUCTURAL ELEMENTS SPECIFIED ON THE DRAWINGS. CONFLICTS OF THIS WORK WITH STRUCTURAL ELEMENTS, INCLUDING WALLS, BRACES AND BRIDGING, SHALL BE IDENTIFIED AND REVIEWED WITH THE ARCHITECT PRIOR TO RELEASING SHOP DRAWINGS FOR FABRICATION. ANY CONNECTIONS TO STRUCTURE SHALL CONFORM TO ASCE 7-10 CHAPTER 13 AND SHALL BE DESIGNED BY AN ENGINEER REGISTERED IN THE STATE WHERE THE PROJECT OCCURS, AND SHALL BE SUBMITTED TO THE ARCHITECT PRIOR TO FABRICATION.

CONCRETE

1. CONCRETE CONSTRUCTION SHALL CONFORM TO THE 2019 OSSC, CHAPTER 19.
2. AGGREGATE FOR NORMAL WEIGHT CONCRETE SHALL CONFORM TO ASTM C33 PORTLAND CEMENT SHALL BE TYPE I OR TYPE II AND SHALL CONFORM TO ASTM C150.
3. ADMIXTURES MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER. ADMIXTURES USED TO INCREASE THE WORKABILITY OF THE CONCRETE SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT. ADMIXTURES SHALL BE USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. CALCIUM CHLORIDE SHALL NOT BE USED.
4. COMPRESSIVE STRENGTHS OF CONCRETE AT 28 DAYS SHALL BE VERIFIED BY STANDARD 28-DAY CYLINDER TESTS PER ASTM C39 AND SHALL BE AS FOLLOWS:
   - FOOTINGS: 3000 PSI
   - SLAB ON GRADE: 4000 PSI
5. MAXIMUM ABSOLUTE WATER/CEMENT RATIOS FOR THE MIXES ON THIS PROJECT SHALL BE:
   - f'c = 3000 PSI: 0.54 TYP; 0.46 (AIR-ENTRAINED)
   - f'c = 4000 PSI: 0.50 TYP; 0.45 OR 0.40 (AIR-ENTRAINED)

   VERIFY WATER/CEMENT RATIO WITH FLOOR COVERING MANUFACTURER FOR CONCRETE FLOORS WITH MOISTURE SENSITIVE FLOOR COVERINGS. SUPPLIER IS TO ADJUST WATER/CEMENT RATIO AS REQUIRED TO ACCOMMODATE FLOOR COVERING SUPPLIER'S REQUIREMENTS.
6. FLYASH CONFORMING TO ASTM C618 (INCLUDING TABLE 2A) TYPE F OR C, MAY BE USED TO REPLACE UP TO 20% OF THE CEMENT CONTENT, BUT THE MIX DESIGN MUST BE SUBSTANTIATED BY TEST DATA.
7. AIR ENTRAINING ADMIXTURE CONFORMING TO ASTM C260 SHALL BE USED ON EXTERIOR HORIZONTAL SURFACES EXPOSED TO WEATHER OR HORIZONTAL SURFACES AT INTERIOR AND EXTERIOR SLABS THAT ARE EXPOSED TO MOISTURE. THE AMOUNT OF ENTRAINED AIR SHALL BE 5% ± 1% BY VOLUME (6% ± 1% FOR PARKING GARAGES).
8. MIXING, TRANSPORTING, AND PLACING OF CONCRETE SHALL CONFORM TO ACI 304R-00 AND PROJECT SPECIFICATIONS. ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED SHALL BE THOROUGHLY CLEANED. LAITANCE AND STANDING WATER SHALL BE REMOVED. NO WATER MAY BE ADDED TO CONCRETE IN THE FIELD UNLESS APPROVED IN WRITING BY THE CONCRETE SUPPLIER IN CONJUNCTION WITH THE CONCRETE MIX DESIGN.
9. ALL REINFORCING BARS, EMBEDS, AND OTHER CONCRETE INSERTS SHALL BE WELL SECURED IN POSITION PRIOR TO PLACING CONCRETE. PROVIDE STANDARD BAR CHAIRS AND SPACERS AS REQUIRED TO MAINTAIN CONCRETE PROTECTIONS SPECIFIED.
10. CONCRETE OVER PROTECTION FOR REINFORCING STEEL SHALL BE AS FOLLOWS: (SEE A.C.I. 318-11 SECTION 7.7 FOR CONDITIONS NOT NOTED.)
    - A. CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH: 3"
    - B. CONCRETE EXPOSED TO EARTH OR WEATHER:
      - BARS #6 AND LARGER: 2"
      - BARS #5 AND SMALLER: 1-1/2"
    - C. CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH GROUND:
      - SLABS, WALLS , JOISTS - #11 BAR AND SMALLER: 3/4"
      - BEAMS, COLUMNS - TIES, STIRRUPS, SPIRALS: 1-1/2"
11. REINFORCING STEEL FOR CONCRETE SHALL BE ASTM A615 GRADE 60 FOR DEFORMED BARS AND ASTM A1064 FOR SMOOTH WELDED WIRE FABRIC (WWF). WELD TYPE REINFORCING STEEL SHALL CONFORM TO ASTM A706 GRADE 60. REINFORCING BARS SHALL NOT BE TACK WELDED, WELDED, HEATED OR CUT UNLESS INDICATED ON THE CONTRACT DOCUMENTS OR APPROVED BY THE STRUCTURAL ENGINEER.
12. WELDING REINFORCEMENT BARS, WHEN APPROVED BY THE STRUCTURAL ENGINEER, SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD D1.4, LATEST EDITION. E70XX ELECTRODES SHALL BE USED IN WELDING A706 REINFORCING BARS TO A36 STRUCTURAL STEEL.
13. DETAILING OF CONCRETE REINFORCEMENT BARS AND ACCESSORIES SHALL CONFORM TO THE RECOMMENDATIONS OF THE CURRENT A.C.I. DETAILING MANUAL ACI COMMITTEE 315.
14. GROUT SHALL BE NON-METALLIC, NON-SHRINK GROUT CONFORMING TO THE PERFORMANCE REQUIREMENTS OF ASTM C1107, GRADES B AND C, THE ARMY CORP OF ENGINEERS CRD C621, GRADES B AND C, AT A FLUID CONSISTENCY OVER A 30-MINUTE WORKING TIME AND ANSI/NSF 61 APPROVED. GROUT SHALL BE MASTERFLOW 928 OR APPROVED EQUIVALENT. GROUT SHALL HAVE A SPECIFIED COMPRESSIVE STRENGTH AT 28 DAYS OF 5000 PSI AS VERIFIED PER ASTM C827 TEST METHODS. PREGROUTING OF BASE PLATES WILL NOT BE PERMITTED.
15. FORMS FOR CONCRETE SHALL BE LAID OUT AND CONSTRUCTED TO PROVIDE FOR THE REQUIRED CAMBERS/SLOPES.
16. CONDUIT OR PIPE SIZE (OD) SHALL NOT EXCEED 30 PERCENT OF SLAB THICKNESS AND SHALL BE PLACED BETWEEN TOP AND BOTTOM REINFORCING. UNLESS SPECIFICALLY DETAILED OTHERWISE, CONCENTRATION OF CONDUITS OR PIPES SHALL BE AVOIDED EXCEPT WHERE DETAILED OPENINGS ARE PROVIDED.
17. PROVIDE SLEEVES FOR PLUMBING AND ELECTRICAL OPENINGS IN CONCRETE PRIOR TO PLACING CONCRETE. CORING THROUGH CONCRETE IS NOT PERMITTED. NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF CONDITIONS NOT SHOWN ON THE DRAWINGS.
18. CURING COMPOUNDS USED ON CONCRETE THAT IS TO RECEIVE A RESILIENT TILE FINISH SHALL BE APPROVED BY THE TILE MANUFACTURER BEFORE USE.
19. WHERE NEW CONCRETE IS PLACED AGAINST EXISTING CONCRETE, THE EXISTING CONCRETE SURFACE SHALL BE CLEANED AND ROUGHENED TO A MINIMUM 1/4" AMPLITUDE. PROVIDE 3/4" CHAMFERS ON ALL EXPOSED CONCRETE EDGES, UNLESS NOTED OTHERWISE.
20. VERIFY ALL BLOCKOUTS WITH ARCHITECTURAL, MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS.
21. LAP ALL REINFORCING BARS IN ACCORDANCE WITH THE LAP SPLICE SCHEDULE ON THIS SHEET UNLESS NOTED OTHERWISE.

TYPICAL WALL AND SLAB LAP SPLICE LENGTH SCHEDULE (IN.)

BAR SIZE	3000 PSI		4000 PSI		5000 PSI		6000 PSI	
	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2	CASE 1	CASE 2
#3	22	32	19	28	17	25	16	23
#4	29	44	25	37	22	33	21	31
#5	36	54	31	48	28	42	26	38
#6	42	62	37	56	34	50	31	46
#7	62	93	54	81	49	73	44	66
#8	72	108	62	93	56	83	51	76
#9	81	122	70	105	63	94	57	88
#10	91	137	79	118	70	105	64	96
#11	101	152	87	131	78	117	71	107

NOTES:
1. -CASE 1 APPLIES TO BAR WITH CLEAR COVER ≥ ONE BAR DIAMETER AND MINIMUM SPACING OF TWO BAR DIAMETERS ON CENTER.
   -CASE 2 APPLIES TO BAR WITH CLEAR COVER ≥ ONE BAR DIAMETER AND MINIMUM SPACING OF ONE BAR DIAMETER ON CENTER.
2. LENGTHS SHOWN ARE FOR CLASS B TENSION LAP SPLICES.
3. FOR TOP BARS, CAST ABOVE 12" ON CONCRETE, MULTIPLY LAP LENGTHS ABOVE BY 1.3.
4. WHERE 2 OR MORE BARS ARE BUNDLED TOGETHER, MULTIPLY LAP LENGTHS ABOVE BY 1.33.

22. CONTINUE HORIZONTAL WALL BARS THROUGH PILASTERS, COLUMNS AND INTERSECTING WALLS. AT SLAB AND WALL OPENINGS PROVIDE A MINIMUM OF TWO #5 BARS OVER, UNDER AND AT THE SIDES OF THE OPENINGS. EXTEND THESE BARS LAP DISTANCE OR A MINIMUM OF 24" PAST THE OPENING. PROVIDE ONE #5 FOR SINGLE-LAYER REINFORCING AND TWO #5 FOR DOUBLE-LAYER REINFORCING, 4'-0" LONG, DIAGONALLY AT EACH CORNER OF ALL OPENINGS. REFER TO TYPICAL DETAILS FOR LOCATION OF CORNER BARS AND BARS IN SMALL WALL SECTIONS. SLAB BARS SHALL BE HOOKED INTO WALLS, OR HOOKED DOWELS SHALL BE PROVIDED TO MATCH SLAB REINFORCING. PROVIDE TWO #4, 4'-0" LONG DIAGONALLY AT EACH RE-ENTRANT CORNER IN SLABS. PROVIDE HOOKED DOWELS FROM FOOTINGS TO MATCH VERTICAL WALL REINFORCING.
23. EXPANSION BOLTS SHALL BE SIMPSON STRONG-BOLT 2 (ICC ESR-3037) OR APPROVED SUBSTITUTE UNLESS NOTED OTHERWISE IN DETAILS. EXPANSION BOLTS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION. EXPANSION BOLTS SHALL BE APPROVED BY ICC FOR USE IN CRACKED CONCRETE. ALL EMBEDMENT DEPTH CALLOUTS SHALL BE CONSIDERED NOMINAL EMBEDMENT DEPTH PER MANUFACTURER UNLESS NOTED OTHERWISE.
24. EPOXY ADHESIVE SHALL BE SIMPSON SET-XP (ICC ESR-2508) EPOXY OR APPROVED SUBSTITUTE UNLESS NOTED OTHERWISE IN DETAILS. EPOXY ADHESIVE SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION. EPOXY ADHESIVE SHALL BE APPROVED BY ICC FOR USE IN CRACKED CONCRETE. ALL EMBEDMENTS SHOWN ARE PER EFFECTIVE Hef VALUES PER MANUFACTURER UNLESS NOTED OTHERWISE.
25. CONCRETE SCREW ANCHORS SHALL BE SIMPSON TITEN HD (ICC ESR-2713) OR APPROVED SUBSTITUTE UNLESS NOTED OTHERWISE IN DETAILS. SCREW ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH MANUFACTURER'S RECOMMENDATIONS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION. SCREW ANCHORS SHALL BE APPROVED BY ICC FOR USE IN CRACKED CONCRETE. ALL EMBEDMENT DEPTH CALLOUTS SHALL BE CONSIDERED NOMINAL EMBEDMENT DEPTH PER MANUFACTURER UNLESS NOTED OTHERWISE.
26. PERMANENTLY EXPOSED STRUCTURAL STEEL SHAPES, EMBEDDED PLATES, ANGLES (INCLUDING LEDGER ANGLES) AND ANCHOR BOLTS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION, UNLESS OTHERWISE NOTED. NO LOADS OR WELDS SHALL BE PLACED ON EMBEDDED PLATES OR ANGLES FOR A MINIMUM OF 7 DAYS AFTER CASTING.
27. EPOXY REPAIR ADHESIVE:

    EPOXY REPAIR ADHESIVE SHALL CONFORM TO ASTM C881 AND SHALL BE A TWO-COMPONENT, LIQUID EPOXY WITH NON-SAG CONSISTENCY AND A LONG POT LIFE. THE EPOXY ADHESIVE SHALL BE SUITABLE FOR USE ON DRY OR DAMP SURFACES. MINIMUM SLANT SHEAR STRENGTH SHALL BE 5,000 PSI, AND MINIMUM TENSILE STRENGTH SHALL BE 4,000 PSI. HOLE SIZES AND INSTALLATION SHALL BE IN STRICT ACCORDANCE WITH THE APPROVED ICC REQUIREMENTS. DO NOT CUT REINFORCING IN NEW OR EXISTING CONCRETE DURING INSTALLATION.
28. ALL CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL BE PERFORMED WITHIN THE TOLERANCES SET FORTH IN ACI 117.

FOUNDATIONS

1. THE SUBSURFACE INFORMATION AND FOUNDATION DESIGN ARE BASED ON REPORT NO. 74070.00 PREPARED BY PBS DATED MARCH 20, 2020. ALL EXCAVATIONS, FOOTING CONSTRUCTION, AND PREPARATION OF THE SUBGRADE UNDER THE SLAB ON GRADE SHALL BE IN ACCORDANCE WITH THE RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT AND THE PROJECT SPECIFICATIONS.
2. THE FOUNDATION FOR THE STRUCTURE HAS BEEN DESIGNED FOR AN ALLOWABLE SOIL-BEARING PRESSURE OF 2000 PSF .
3. FOUNDATION CONDITIONS DURING CONSTRUCTION THAT DIFFER FROM THOSE DESCRIBED IN THE GEOTECHNICAL REPORT SHALL BE REPORTED TO THE STRUCTURAL ENGINEER AND/OR THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
4. ALL ABANDONED FOOTINGS, UTILITIES, TANKS; ETC., THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.

STRUCTURAL STEEL

1. ALL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992, GRADE 50 OR ASTM A572 GRADE 50. OTHER STRUCTURAL STEEL ROLLED SHAPES AND PLATES SHALL CONFORM TO ASTM A36.
2. STRUCTURAL STEEL PIPE SHALL CONFORM TO ASTM A53 GRADE B (Fy = 35 KSI).
3. STRUCTURAL STEEL TUBING SHALL CONFORM TO ASTM A500, GRADE B (Fy = 46 KSI).
4. ANCHOR BOLTS SHALL CONFORM TO ASTM A307, UNLESS NOTED OTHERWISE.
5. ALL BOLTS SHALL CONFORM TO ASTM A325 AND RCSC SPECIFICATIONS AND SHALL BE SNUG TIGHT UNLESS NOTED OTHERWISE. HIGH STRENGTH BOLTS USED AS PART OF THE SEISMIC LOAD RESISTING SYSTEM (SLRS) NOTED ON THE DRAWINGS AND DETAILS SHALL BE FULLY TENSIONED AND ALL FAYING SURFACES SHALL BE PREPARED AS REQUIRED FOR CLASS A OR BETTER SLIP-CRITICAL JOINTS.
6. STRUCTURAL STEEL DETAILING, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" WITH "COMMENTARY AND AMENDMENTS", AND THE AISC "CODE OF STANDARD PRACTICE," WITH EXCEPTIONS NOTED IN SPECIFICATIONS. REFERENCE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS FOR MEMBERS PART OF THE SEISMIC LOAD RESISTING SYSTEMS (SLRS).
7. WELDING SHALL CONFORM TO THE AMERICAN WELDING SOCIETY STANDARD D1.1 LATEST EDITION. ELECTRODES FOR SHOP AND FIELD WELD SHALL CONFORM TO AWS A5.1 OR AWS A5.5, CLASS E70XX. THE WPS VARIABLES SHALL BE WITHIN THE BOUNDARIES SET BY THE FILLER METAL MANUFACTURER. SUBMIT SPECIFICATIONS OR PROPOSED SUBSTITUTE FILL METAL FOR APPROVAL. ALL SURFACES THAT ARE TO BE WELDED SHALL BE FREE OF MATERIALS THAT WOULD PREVENT PROPER WELDING (INCLUDING PRIMER AND GALVANIZING) UNLESS APPROVED BY THE ENGINEER OF RECORD. UNLESS NOTED OTHERWISE, ALL WELDS SHALL BE 1/4" FILLET AND SHALL BE BY AWS CERTIFIED WELDERS.
8. SPLICING OF STRUCTURAL STEEL MEMBERS WHERE NOT DETAILED ON THE CONTRACT DOCUMENTS IS PROHIBITED WITHOUT THE PRIOR APPROVAL OF THE STRUCTURAL ENGINEER AS TO LOCATION, TYPE OF SPLICE AND CONNECTION TO BE MADE.
9. ALL PERMANENTLY EXPOSED STEEL SHAPES, PLATES, ANCHOR BOLTS AND BOLTS SHALL BE HOT-DIPPED GALVANIZED, UNLESS NOTED OTHERWISE. SURFACES OF GALVANIZED SHAPES, PLATES OR ANCHOR BOLTS TO RECEIVE A PAINTED FINISH SHALL BE PREPARED IN ACCORDANCE WITH ASTM D-6386-10.
10. ANY HOLES OR CUTS MADE FOR CONTRACTOR'S PURPOSE FOR TRANSPORTATION, ERECTION OR GALVANIZING SHALL BE REPAIRED TO MEET ORIGINAL DETAILING DESIGN INTENT.

SHEET INDEX

STEEL STUDS

1. STEEL STUDS SHALL BE C-STUDS WITH A MINIMUM YIELD OF 33,000 PSI FOR 18 AND 20 GAGE, AND 50,000 PSI FOR 12, 14, AND 16 GAGE. STUDS SHALL BE OF THE SIZE, GAGE, AND SPACING SHOWN ON THE DRAWINGS AND SHALL CONFORM TO SSMA STANDARD. MINIMUM EFFECTIVE SECTION PROPERTIES SHALL BE AS FOLLOWS. PROVIDE BRIDGING IN CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS ADEQUATE FOR DEVELOPMENT OF THE FULL MOMENT CAPACITY OF THE STUDS. FOR LOAD-BEARING STUDS, TRACK SHALL BE OVERSIZED TO PROVIDE FULL STUD BEARING. SCREWS SHALL BE ELCO CASE-HARDENED SELF-DRILLING TAPPING SCREWS (IHWH), HILTI SELF-DRILLING AND SELF-PIERCING SCREWS (HWH), ITW BUILDEX TEKS SELECT SELF-DRILLING SCREWS (HWH),OR APPROVED. WELDING SHALL CONFORM WITH AWS D1.3.

PREVIOUS DESIGNATION	STUD SIZE	I (MIN) IN4	S (MIN) IN3
4" x 16 GAGE	400S162-54	1.10	0.50
6" x 16 GAGE	600S162-54	2.86	0.96
8" x 14 GAGE	800S162-68	7.09	1.77
12" x 16 GAGE	1200S200-54	17.7	2.94
12" x 14 GAGE	1200S162-68	21.9	3.66
12" x 12 GAGE	1200S200-97	30.4	5.07

PREVIOUS DESIGNATION	TRACK SIZE	I (MIN) IN4	S (MIN) IN3
4" x 16 GAGE	400T150-54	1.03	0.49
6" x 16 GAGE	600T150-54	2.61	0.85
6" x 12 GAGE	600T160-97	4.78	1.50
8" x 14 GAGE	800T150-68	7.79	1.89
12" x 14 GAGE	1200T150-68	18.1	2.96
12" x 12 GAGE	1200T150-97	26.0	4.21

2. SURE-BOARD SERIES 200 STRUCTURAL SHEAR PANELS USED IN LIGHT GAGE STEEL STUD SHEARWALLS SHALL CONFORM TO ICC ER-5762, DATED JULY 1, 2003. INSTALLATION SHALL CONFORM TO THE REQUIREMENTS OF ICC ER-5762. PANELS SHALL BE 1/2" OR 5/8" THICK TYPE X GYPSUM BOARD COMPLYING WITH ASTM C36-97 FOR INTERIOR WALLS OR EXTERIOR GYPSUM SHEATHING HAVING AN EXTERIOR WATER-REPELLANT PAPER AND WATER-RESISTING TREATED CORE GYPSUM SHEATHING COMPLYING WITH ASTM C79-97 FOR EXTERIOR WALLS. SHEET STEEL IS NO. 22 GA. BASE METAL THICKNESS COMPLYING WITH ASTM A653 SS, GRADE 33, AND G40 HOT-DIPPED GALVANIZED COATING CONFORMING TO ASTM A924. FASTENERS USED FOR ATTACHING PANELS TO STUDS SHALL BE SELF DRILLING/ SELF TAPPING #8 BUGLE HEAD SCREWS AND SHALL CONFORM TO ICC ER-5762.

STRUCTURAL WOOD PANELS

1. STRUCTURAL WOOD PANELS SHALL CONFORM TO US PRODUCTS STANDARDS PS-1 FOR CONSTRUCTION AND INDUSTRIAL PLYWOOD, US PRODUCTS STANDARD PS-2 PERFORMANCE STANDARD FOR WOOD-BASED STRUCTURAL-USE PANELS, OR APA PRP-108 PERFORMANCE STANDARDS.
2. PANELS SHALL BE APA RATED SHEATHING, EXPOSURE 1. REFER TO DRAWINGS FOR THICKNESS AND SPAN RATING.
3. WHERE PANELS ARE SPECIFIED AS "PLYWOOD" ON DRAWINGS, ONLY PLYWOOD PANELS WILL BE ACCEPTED.
4. ALL ROOF AND FLOOR SHEATHING SHALL BE APPLIED WITH FACE GRAIN PERPENDICULAR TO SUPPORTS UNLESS NOTED OTHERWISE ON DRAWINGS. A 1/8" GAP SHALL BE MAINTAINED BETWEEN PANELS AT PANEL ENDS AND EDGES.
5. WALL SHEATHING SHALL HAVE BLOCKING AT ALL JOINTS TYPICAL.
6. NAILING NOT INDICATED ON DRAWINGS SHALL BE AS INDICATED IN 2018 IBC TABLE 2304.9.1. ALL NAILS SHALL BE COMMON NAILS EXCEPT USE RING SHANK FOR ROOF SHEATHING.
7. ROOF SHEATHING SHALL EITHER BE BLOCKED, TONGUE AND GROOVE, OR HAVE EDGES SUPPORTED BY PLYCLIPS. TONGUE AND GROOVE PANELS SHALL BE GLUED AT THE T&G JOINT USING ADHESIVES MEETING APA SPECIFICATION AFG-01 OR ASTM D3498.
8. ROOF SHEATHING PANELS SHALL BE FIRE-RETARDANT-TREATED WOOD MEETING THE REQUIREMENTS OF 2018 IBC 2303.2.

EQUILIBRIUM ENGINEERS LLC
16325 Boones Ferry Road, Suite 202
Lake Oswego, Oregon 97035
Phone: 503.636.8388
www.equilibriumllc.com

POLYMATH

Polymath Studio Architecture, LLC
1555 SE Holly Street
Portland, Oregon 97214
503.593.0954 © 2019

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STRUCTURAL REGISTERED PROFESSIONAL ENGINEER 19402 OREGON JULY 22, 1997 EDWARD P. QUESENBERRY

EXPIRES 12/31/2022

LAKE OSWEGO INDOOR TENNIS CENTER

Project # EE19066r20

2900 SW Diane Dr
Lake Oswego, OR 97035

Client: Lake Oswego Parks & Recreation

Revisions

Revision #	Revision Date

12 April 2021

This Drawing Formatted for 22" x 34" Paper

GENERAL STRUCTURAL NOTES & DWG INDEX

12" = 1'-0"

S0.1

BID SET

SPECIAL INSPECTIONS

NOTES

1. *For items requiring continuous inspection, a special inspector must be present onsite during the performance of that task. In most cases "periodic" inspections/tests shall be performed prior to commencing the task, intermittently during the task, and at the completion of the task. the "Detailed Instructions & Frequency" provides a description of the presumed requirements for tasks requiring "periodic" inspections*

2. *Special Inspections will be provided by the owner based on the requirements of the 2012 IBC and 2014 OSSC.*

3. *Special Inspections for work completed at an approved fabricator's facility are not required for those items that the fabricator is approved for per IBC 1704.2.5.*

STRUCTURAL STEEL (IBC 1705.2.1, 1705.11.1 & 1705.12.2)

Item	Continuous	Periodic	Detailed Instructions and Frequencies
PRIOR TO WELDING (TABLE N5.4-1, AISC 360-10):			
Verify welding procedures (WPS) and consumable certificates	x		
Material identification		x	Verify type and grade of material.
Welder identification		x	A system shall be maintained by which a welder who has welded a joint or member can be identified.
Fit-up groove welds		x	Verify joint preparation, dimensions, cleanliness, tacking, and backing.
Access holes		x	Verify configuration and finish.
Fit-up of fillet welds		x	Verify alignment, gaps at root, cleanliness of steel surfaces, and tack weld quality and location.
DURING WELDING (TABLE N5.4-2, AISC 360-10):			
Use of qualified welders		x	Verify that welders are appropriately qualified.
Control and handling of welding consumables		x	Verify packaging and exposure control.
Cracked tack welds		x	Verify that welding does not occur over cracked tack welds.
Environmental conditions		x	Verify win speed is within limits as well as precipitation and temperature.
WPS followed		x	Verify items such as settings on welding equipment, travel speed, welding materials, shielding gas type/flow rate, preheat applied, interpass temperature maintained, and proper position.
Welding techniques		x	Verify interpass and final cleaning, each pass is within profile limitations, and quality of each pass.
AFTER WELDING (TABLE N5.4-3, AISC 360-10):			
Welds cleaned		x	Verify that welds have been propyl cleaned.
Size, length, and location of welds	x		
Welds meet visual acceptance criteria	x		
Arc strikes	x		
k-area	x		
Backing & weld tabs removed	x		
Repair activities	x		
Document acceptance or rejection of welded joint/member	x		
NONDESTRUCTIVE TESTING (SECTION N5.5, AISC 360-10):			
CJP welds (Risk Cat. II)		x	Ultrasonic testing shall be performed on 10% of CJP groove welds in butt, T- and corner joints subject to transversely applied tension loading in materials 5/16-inch thick or greater. Testing rate must be increased if > 5% of welds tested have unacceptable defects.
CJP welds (Risk Cat. III or IV)	x		***A reduction in the rate of ultrasonic testing is allowed per Section N5.5e.***
Access holes (flange > 2")	x		
PRIOR TO BOLTING (TABLE N5.6-1, AISC 360-10):			
> Not required if only snug-tight joints are specified [per Section N5.6(1) of AISC 360-10].			
Certifications of fasteners	x		
Fasteners marked		x	Verify that fasteners have been marked in accordance with ASTM requirements.
Proper fasteners for joint		x	Verify grade, type, and bolt length if threads are excluded from the shear plane.
Proper bolting procedure		x	Verify proper procedure is used for the joint detail.
Connecting elements		x	Verify appropriate faying surface condition and hole preparation, if specified, meet requirements.
Pre-installation verification testing		x	Observe and document verification testing by installation personnel for fastener assemblies and methods used.
Proper storage		x	Verify proper storage of bolts, nuts, washers, and other fastener components.
DURING BOLTING (TABLE N5.6-2, AISC 360-10):			
> Not required if only snug-tight joints are specified [per Section N5.6(1) of AISC 360-10].			
> Not required for pretensioned joints using turn-of-the-nut method with match-marking, direct-tension-indicators, or twist-off type tension control method [per Section N5.6(2) of AISC 360-10].			
Fastener assemblies		x	Verify that fastener assemblies are of suitable condition, paced in all holes, and washers are positioned as required.
Snug-tight prior to pretensioning		x	Verify that joints are brought to snug-tight condition prior to pretensioning operation.
Fastener component		x	Verify that fastener component is not turned by wrench prevented from rotating.
Pretensioned fasteners		x	Verify that fasteners are Pretensioned in accordance with RCSC Specification, progressing systematically from the most rigid point toward the free edges.
AFTER BOLTING (TABLE N5.6-3, AISC 360-10):			
Document acceptance or rejection of bolted connections	x		
OTHER STEEL INSPECTIONS (SECTION N5.7, AISC 360-10; Tables J8-1 & J10-1, AISC 341-10):			
Anchor rods and other embedments supporting structural steel		x	Shall be on the premises during the placement of anchor rods and other embedments supporting structural steel for compliance with construction documents. Verify the diameter, grade, type, and length of the anchor rod or embedded item, and the extent or depth of embedment prior to placement of concrete.

STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL (IBC 1705.2.2)

Item	Continuous	Periodic	Detailed Instructions and Frequencies
WELDING OF REINFORCING STEEL (IBC TABLE 1705.2.2):			
Verification of weldability		x	Verify weldability of reinforcing steel based upon carbon equivalent and in accordance with AWS D1.4.
COLD-FORMED STEEL CONSTRUCTION (IBC 1705.2.2.1.1, 1705.10.3, and 1705.11.3):			
Wind-force-resisting systems or seismic-force-resisting systems		x	Periodic inspections of welding operations. If fastener spacing is < 4'oc: Verify that proper screw attachment, bolting, anchoring and other fastening of shear walls, diaphragms, drag struts, braces, shear panels and holdowns has occurred. Performed by code inspection firm.

CONCRETE CONSTRUCTION (IBC 1705.3 & 1705.12.1)

Item	Continuous	Periodic	Detailed Instructions and Frequencies
Reinforcing steel		x	Verify prior to placing concrete that reinforcing is of specified type, grade and size; that it is free of oil, dirt and rust; that it is located and spaced properly; that hooks, bends, ties, stirrups and supplemental reinforcement are placed correctly; that lap lengths, stagger and offsets are provided; and that all mechanical connections are installed per the manufacturer's instructions and/or evaluation report.
Cast-in bolts & embeds		x	Inspection of anchors or embeds cast in concrete is required when allowable loads have been increased or where strength design is used.
Post-installed anchors or dowels		x	All post-installed anchors/dowels shall be specially inspected as required by the approved ICC-ES report.
Use of required mix design		x	Verify that all mixes used comply with the approved construction documents; ACI 318: Ch. 4, 5.2-5.4; and IBC 1904.3, 1913.2, 1913.3.
Concrete sampling for strength tests, slump, air content, and temperature	x		
Concrete & shotcrete placement	x		
Curing temperature and techniques		x	Verify that the ambient temperature for concrete is kept at > 50° F for at least 7 days after placement. High-early-strength concrete shall be kept at > 50°F for at least 3 days. Accelerated curing methods may be used (see ACI 318: 5.11.3). The ambient temperature for shotcrete shall be > 40°F for the same period of time as noted for concrete. Shotcrete shall be kept continuously moist for at least 24 hours after shotcreting. All concrete materials, reinforcement, forms, fillers, and ground shall be free from frost. In hot weather conditions ensure that appropriate measures are taken to avoid plastic shrinkage cracking and that the specified water/cement ratio is not exceeded.
Strength verification		x	Verify that adequate strength has been achieved prior to the removal of shores and forms or the stressing of post-tensioned tendons.
Formwork		x	Verify that the forms are placed plumb and conform to the shapes, lines, and dimensions of the members as required by the approved construction documents.

SOILS CONSTRUCTION (IBC 1705.6)

Item	Continuous	Periodic	Detailed Instructions and Frequencies
Verify subgrade is adequate to achieve design bearing capacity		x	Prior to placement of concrete. By Geotechnical Engineer.
Verify excavations extend to proper depth and material		x	Prior to placement of compacted fill or concrete.
Verify that subgrade has been appropriately prepared prior to placing compacted fill		x	Prior to placement of compacted fill. By Geotechnical Engineer.
Perform classification and testing of compacted fill materials		x	All materials shall be checked at each lift for proper classifications and gradations not less than once for each 10,000ft² of surface area.
Verify proper materials, densities and lift thicknesses during placement and compaction.	x		By Geotechnical Engineer.

FIRE-RESISTANT PENETRATIONS AND JOINTS (IBC 1705.16)

Item	Continuous	Periodic	Detailed Instructions and Frequencies
Penetration firestops		x	Listed systems shall be inspected in accordance with ASTM E 2393.
Fire-resistant joint systems		x	Listed systems shall be inspected in accordance with ASTM E 2393.

ARCHITECTURAL COMPONENTS (IBC 1705.11.5 & 1705.11.7)

Item	Continuous	Periodic	Detailed Instructions and Frequencies
Erection and fastening of exterior cladding or interior and exterior veneers		x	Verify appropriate materials, fasteners and attachment at commencement of work and at completion. Performed by code inspection firm. (Not required if < 30 feet or less than 5psf).
Erection and fastening of interior and exterior nonbearing walls		x	Verify appropriate materials, fasteners and attachment at commencement of work and at completion. Performed by code inspection firm. (Not required if < 30 feet or for interior walls < 15psf).

MECHANICAL & ELECTRICAL COMPONENTS (IBC 1705.11.4 & 1705.11.6)

Item	Continuous	Periodic	Detailed Instructions and Frequencies
Anchorage of emergency or standby power systems		x	Verify that anchorage complies with approved construction documents. Performed by code inspection firm.

EQUILIBRIUM ENGINEERS LLC
16325 Boones Ferry Road, Suite 202
Lake Oswego, Oregon 97035
Phone: 503.636.8388
www.equilibriumllc.com

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EXPIRES 12/31/2022

LAKE OSWEGO INDOOR TENNIS CENTER

Project # EE19066:20

2900 SW Diane Dr
Lake Oswego, OR 97035

Client: Lake Oswego Parks & Recreation

Revisions

Revision #	Revision Date

12 April 2021

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SPECIAL INSPECTIONS AND TESTING

12" = 1'-0"

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S0.2

SPECIAL INSPECTIONS

MISCELLANEOUS AREAS

> These inspections may be recommended by the Architect/Engineer.

Item	Continuous	Periodic	Detailed Instructions and Frequencies
Suspended Acoustical Ceilings		x	
Soil backfill		x	By Geotech Engineer
Soils for curb and gutter		x	By Geotech Engineer
Soils for parking lots		x	By Geotech Engineer
Soils for utility trench backfill		x	By Geotech Engineer
Reinforcement for interior slab on grade		x	
Concrete testing for interior slab on grade		x	
Seismic supports for duct work and sealing of joints for duct work		x	
Seismic supports for electrical raceways, cable trays and lights		x	
Seismic supports for plumbing lines including gas, water and steam and condensation		x	
Seismic bracing for mechanical units both on slab and suspended		x	

Special Inspection Notes:

- Special Inspectors shall be approved by the Building Official prior to performing any duties;
- Special Inspectors shall provide proof of licensure as a special inspector by the State of Oregon for each type of inspection;
- Inspection reports are to meet the requirements of IBC 1704.2.4;
- Inspection reports are to be submitted to the code consultant, architect, construction project manager, structural Engineer of Record, and the Building Official within 48 hours of performing inspections;
- A final inspection report shall be submitted following completion of the project documenting the types of special inspections performed and a statement indicating that the structure is in compliance with the approved construction documents and applicable codes (see IBC 1704.2.4).

STRUCTURAL OBSERVATIONS (IBC 1704.5)

Item	Required	Proposed Frequency	Detailed Instructions and Frequencies
Footings	x	Prior to first foundation pour / after reinforcing steel has been installed.	
Wood Diaphragms	x	Prior to cover	
Light Gage Walls	x	Prior to closing	
Other:		As required to address structural issues in the field.	

Structural Observation Notes:

- If structural observations are performed by individuals other than the design professional in responsible charge, they should first be approved by the Building Official.
- The structural engineer of record (EOR) will perform structural observation based on the requirements of the 2018 IBC.
- Contractor shall provide sufficient notice and access to the EOR to perform the observations.
- Structural observation is to verify the general conformance of construction with the structural construction documents to ensure construction meets design intent. Structural observation does not replace special inspections required by a certified special inspector or those required by the Building Official.
- At the conclusion of work a final structural observation report must be submitted to the Building Official noting any deficiencies which, to the best of the structural observer's knowledge, have not been resolved (see IBC 1704.5).

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
ACI	AMERICAN CONCRETE INSTITUTE
ADDL	ADDITIONAL
AESS	ARCHITECTURAL EXPOSED STRUCTURAL STEEL
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION INCORPORATED
ALT	ALTERNATE
ALUM	ALUMINUM
AOR	ARCHITECT OF RECORD
APA	AMERICAN PLYWOOD ASSOCIATION
ARCH	ARCHITECT, ARCHITECTURAL DRAWINGS
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWS	AMERICAN WELDING SOCIETY
BN	BOUNDARY NAILING
BOF	BOTTOM OF FOOTING
BLDG	BUILDING
BLKG	BLOCKING
BLW	BELOW
BOTT	BOTTOM
BRBF	BUCKLING RESTRAINED BRACED FRAME
BTWN	BETWEEN
CG	CENTER OF GRAVITY
CIP	CAST IN PLACE
CJ	CONTROL JOINT
CJP	COMPLETE JOINT PENETRATION
CL	CENTERLINE
CLR	CLEAR
CLT	CROSS-LAMINATED TIMBER
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
COR	CONTRACTING OWNER REPRESENTATIVE
DC	DEMAND CRITICAL
DIM	DIMENSION
DL	DEAD LOAD
db	BAR DIAMETER
DBA	DEFORMED BAR ANCHOR
DTL	DETAIL
DIA, Ø	DIAMETER
DIAG	DIAGONAL
DWG	DRAWING
EN	EDGE NAIL
EL	ELEVATION
ELEC	ELECTRICAL
EMBED	EMBEDMENT
EOR	ENGINEER OF RECORD
EQ	EQUAL
(E)	EXISTING
EXP	EXPANSION
EXT	EXTERIOR
FDN	FOUNDATION
FIN	FINISH
FLR	FLOOR
FN	FIELD NAILING
FT	FOOT
FTG	FOOTING
(FV)	FIELD VERIFY
GA	GAUGE
GALV	GALVANIZED
GL	GLULAM
HORIZ	HORIZONTAL
HSS	HOLLOW STRUCTURAL SECTION
ID	INSIDE DIAMETER
IBC	INTERNATIONAL BUILDING CODE
ICBO	INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS
ICC	INTERNATIONAL CODE COUNCIL
IN	INCH
INSP	INSPECTION
INT	INTERIOR
K	KIPS
KLF	KIPS PER LINEAR FOOT
KSF	KIPS PER SQUARE FOOT
KSI	KIPS PER SQUARE INCH
LL	LIVE LOAD
LBS	POUNDS
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LOCN	LOCATION
LONG	LONGITUDINAL
LVF	LOW VELOCITY FASTENER
LWT	LIGHTWEIGHT CONCRETE
MAX	MAXIMUM
MBMA	METAL BUILDING MANUFACTURER'S ASSOCIATION
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MISC	MISCELLANEOUS
MPH	MILES PER HOUR
MPT	MAGNETIC PARTICLE TESTING
MTL	METAL
(N)	NEW
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
NO	NUMBER
NOM	NOMINAL
NWT	NORMAL WEIGHT CONCRETE
oc	ON CENTER
OD	OUTSIDE DIAMETER
OPP	OPPOSITE
OWJ	OPEN WEB JOIST
OWT	OPEN WEB TRUSS
PT	PRESSURE TREATED
P/C	PRECAST
P/T	POST-TENSIONED
PAF	POWDER ACTUATED FASTENER
PART	PARTITION
PCF	POUNDS PER CUBIC FOOT
PEMB	PRE-ENGINEERED METAL BUILDING
PERIM	PERIMETER
PL	PLATE
PLCS	PLACES
PP	PARTIAL PENETRATION WELD
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
R, RAD	RADIUS
RCSC	RESEARCH COUNCIL ON STRUCTURAL CONNECTIONS
REF	REFERENCE
REINF	REINFORCING
REQD	REQUIRED
REQMTS	REQUIREMENTS
RET	RETURN
SC	SLIP CRITICAL
SCBF	SPECIAL CONCENTRIC BRACED FRAME
SN	SILL NAILING
SOG	SLAB ON GRADE
SCHED	SCHEDULE
SIM	SIMILAR
SLRS	SEISMIC LOAD RESISTING SYSTEM
SP	SPECIAL
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
SSMA	STEEL STUD MANUFACTURER'S ASSOCIATION
STD	STANDARD
STRUCT	STRUCTURAL
SYM	SYMMETRICAL
T & B	TOP AND BOTTOM
T & G	TONGUE AND GROOVE
T.O.	TOP OF
TOS	TOP OF SLAB
TOW	TOP OF WALL
THRU	THROUGH
TRANS	TRANSVERSE
TS	LIGHT GAGE TUBE STEEL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
UBC	UNIFORM BUILDING CODE
UT	ULTRASONIC TESTING
VERT	VERTICAL
WP	WORK POINT
w/	WITH
w/o	WITHOUT
WF	WIDE FLANGE
WPS	WEDLING PROCEDURE SPECIFICATION
WWF	WELDED WIRE FABRIC

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SPECIAL INSPECTIONS AND TESTING (CONT.) & ABBREVIATIONS

12" = 1'-0"

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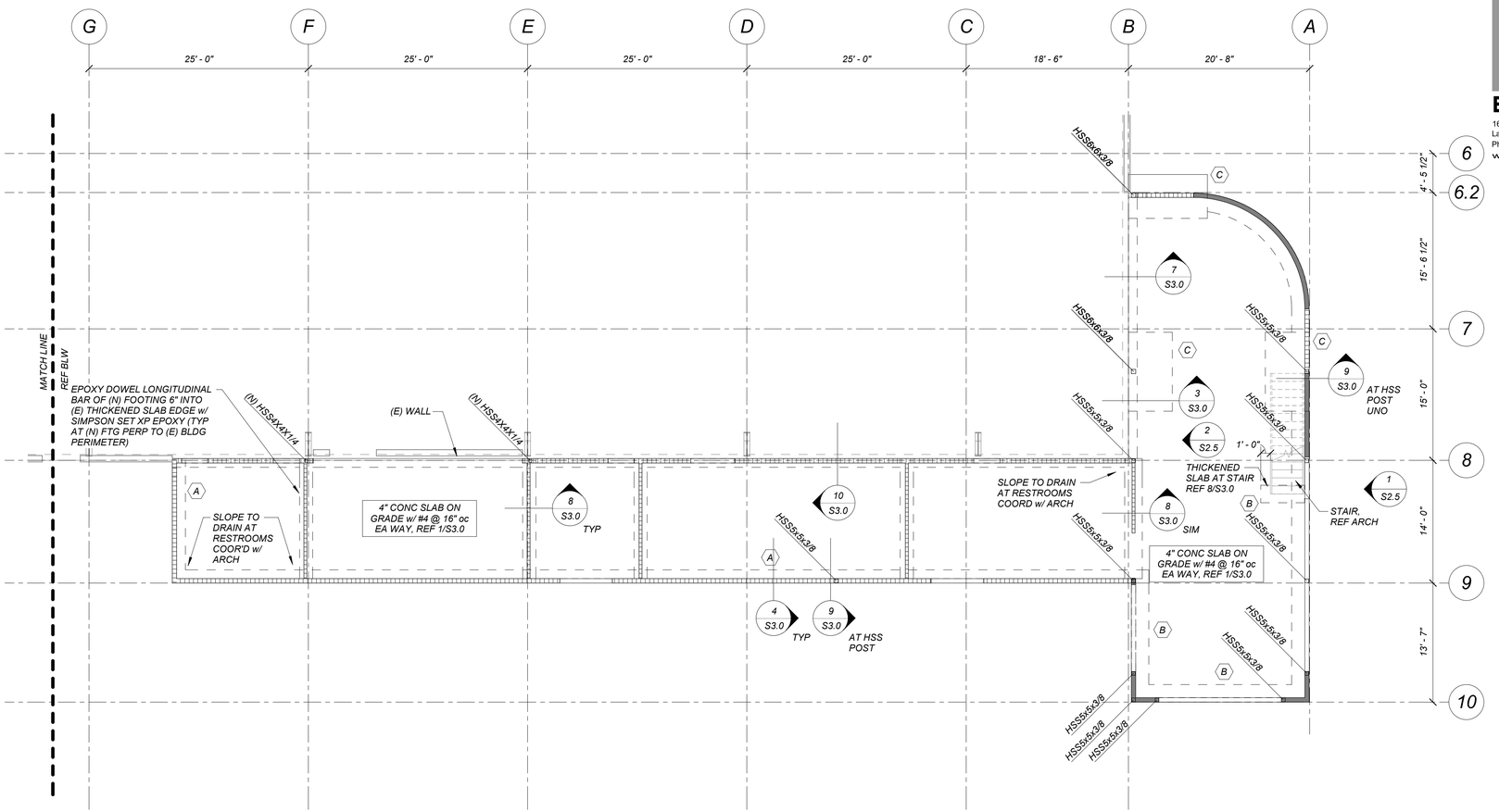
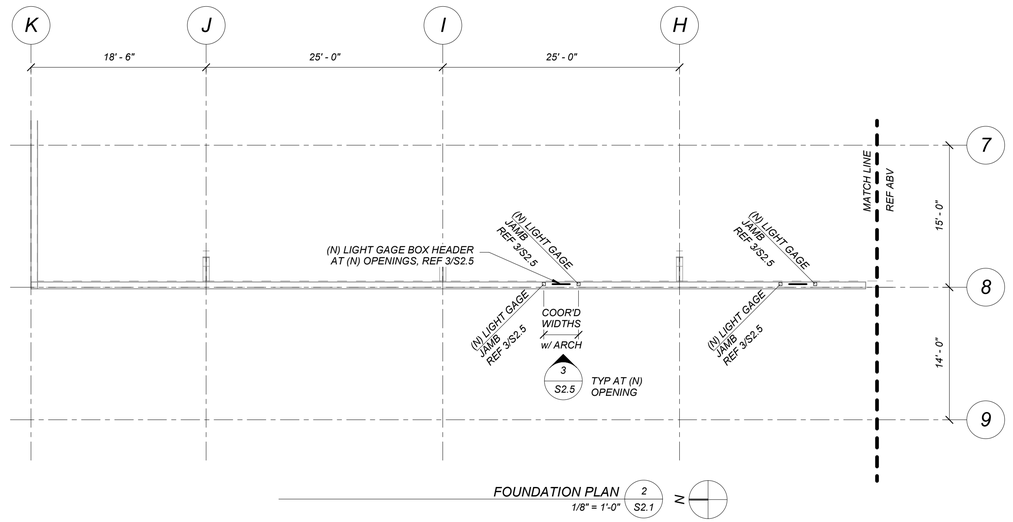


FOUNDATION PLAN 1 S2.1 — 1/8" = 1'-0"



FOUNDATION PLAN 2 S2.1 — 1/8" = 1'-0"

FOUNDATION NOTES:

1. (X'-X") INDICATES FINISHED FLOOR ELEVATION. COORDINATE WITH ARCH DWGS.
2. INDICATES METAL STUD STRUCTURAL WALLS, UNO.
3. REF S2.4 FOR SHEAR WALL LAYOUT.
4. REF S3.0 FOR TYP FOUNDATION DETAILS.
5. REF S4.0 FOR TYP STEEL DETAILS.
6. REF S5.0-S5.1 FOR TYP LIGHT GAGE METAL FRAMING DETAILS.
7. (X) INDICATES FOOTING TYPE, REF 2/S3.0.
8. SAWCUT AND REMOVE (E) SLAB ON GRADE AS REQUIRED FOR (N) FOOTINGS. POUR BACK AND DOWEL (N) SLAB TO (E) SLAB PER 10/S3.0.
9. PER GEOTECH REQUIREMENTS, FOOTINGS SHALL NOT BE SUPPORTED ON UNDOCUMENTED FILL. WHERE SOFT SOIL CONDITIONS OCCUR, FOOTINGS SHOULD BE OVER EXCAVATED 2-FEET BELOW SUBGRADE ELEVATION AND BACKFILLED WITH COMPACTED CRUSHED ROCK. THE CRUSHED ROCK PADS SHOULD EXTEND 1-FOOT LATERALLY BEYOND THE EDGE OF FOOTINGS.

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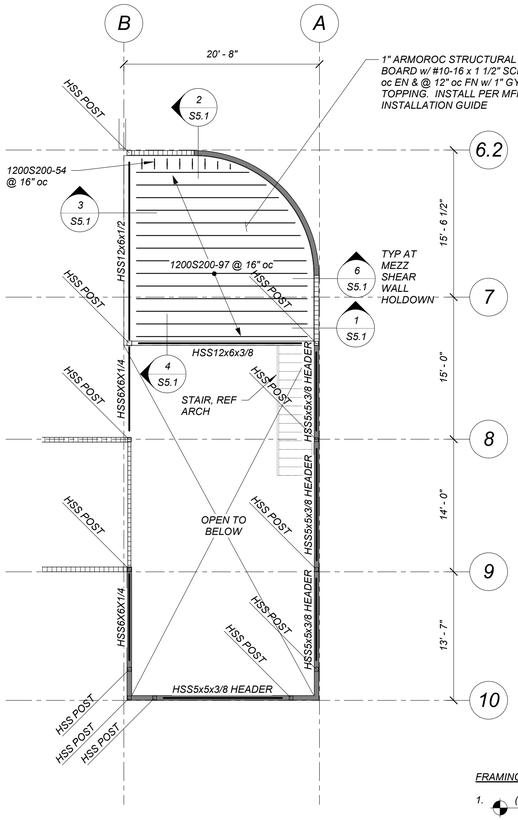
FOUNDATION PLAN

1/8" = 1'-0"

S2.1



MEZZANINE FLOOR FRAMING PLAN (1 / S2.2) 1/8" = 1'-0"

FRAMING NOTES:

1. (X'-X") INDICATES FINISHED FLOOR ELEVATION. COORDINATE WITH ARCH DWGS.
2. INDICATES METAL STUD STRUCTURAL WALLS, UNO.
3. REF S2.4 FOR SHEAR WALL LAYOUT.
4. REF S4.0 FOR TYP STEEL DETAILS.
5. REF S5.0-S5.1 FOR TYP LIGHT GAGE METAL FRAMING DETAILS.
6. MEZZANINE JOIST PENETRATIONS SHALL BE LIMITED TO THE OUTER 1/3 OF THE JOIST SPAN.
7. LIMIT JOIST PENETRATIONS TO 3" Ø AND CENTER HOLE AT MID-JOIST DEPTH.

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MEZZANINE FLOOR FRAMING PLAN

1/8" = 1'-0"

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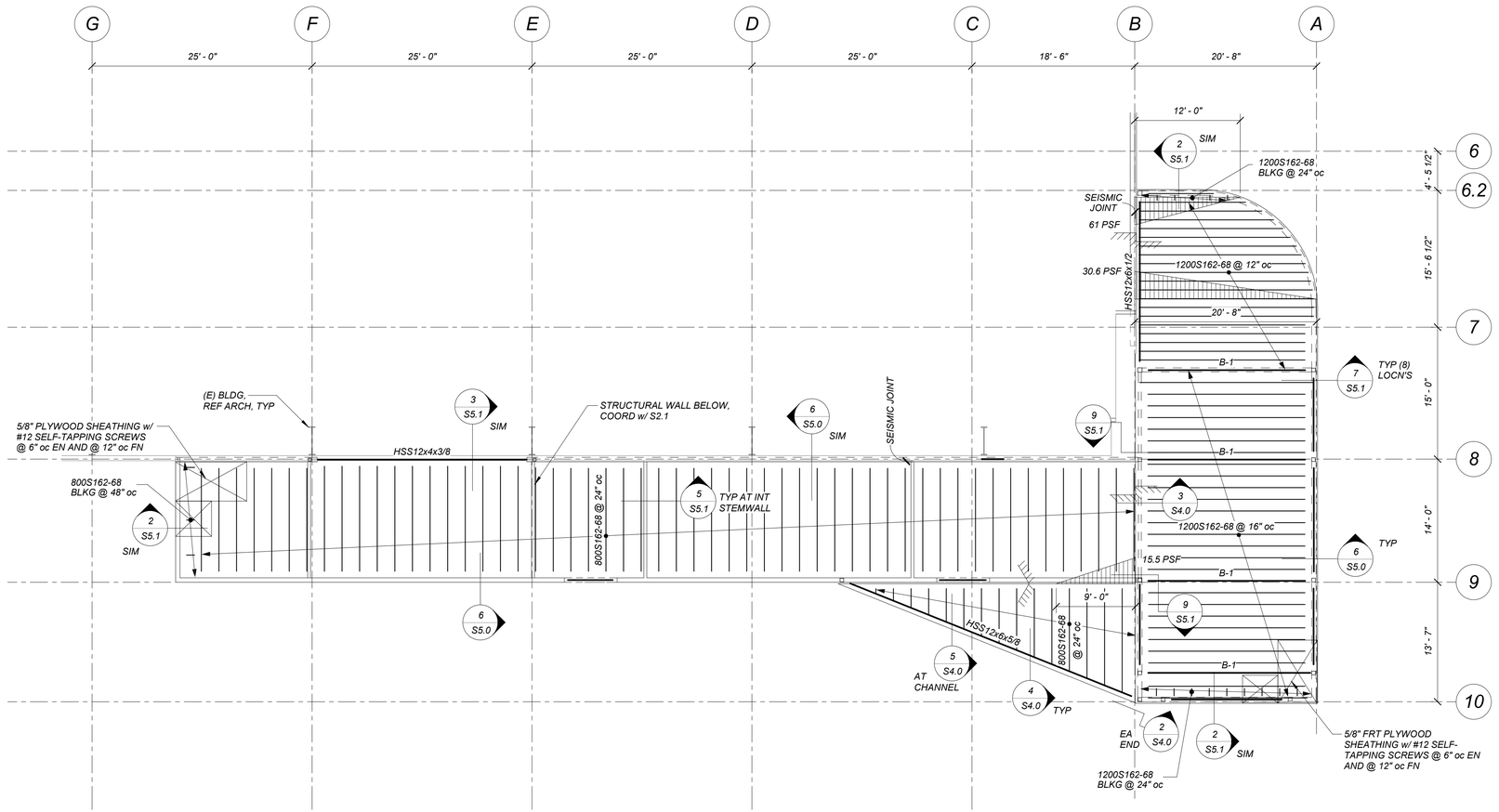

ROOF FRAMING PLAN 1 S2.3
1/8" = 1'-0"

N

ROOF FRAMING NOTES:

1. REF ARCH FOR TOP OF ROOF SHEATHING ELEVATIONS, TYP
2. REF S2.4 FOR SHEAR WALL LOCATIONS BELOW ROOF.
3. INDICATES STEP IN ROOF SHEATHING ELEVATION, REF ARCH FOR ELVEVATION.
4. REF S4.0 FOR TYP STEEL DETAILS.
5. REF S5.0-S5.1 FOR TYP LIGHT GAGE METAL FRAMING DETAILS.
6. B-1 X PSF — INDICATES BUILT UP LIGHT GAGE BOX BEAM. REF 7/S5.1.
7. X' - X" — INDICATES SNOW DRIFT LOAD AND EXTENT IN ADDITION TO BASE SNOW LOAD OF 25 PSF.

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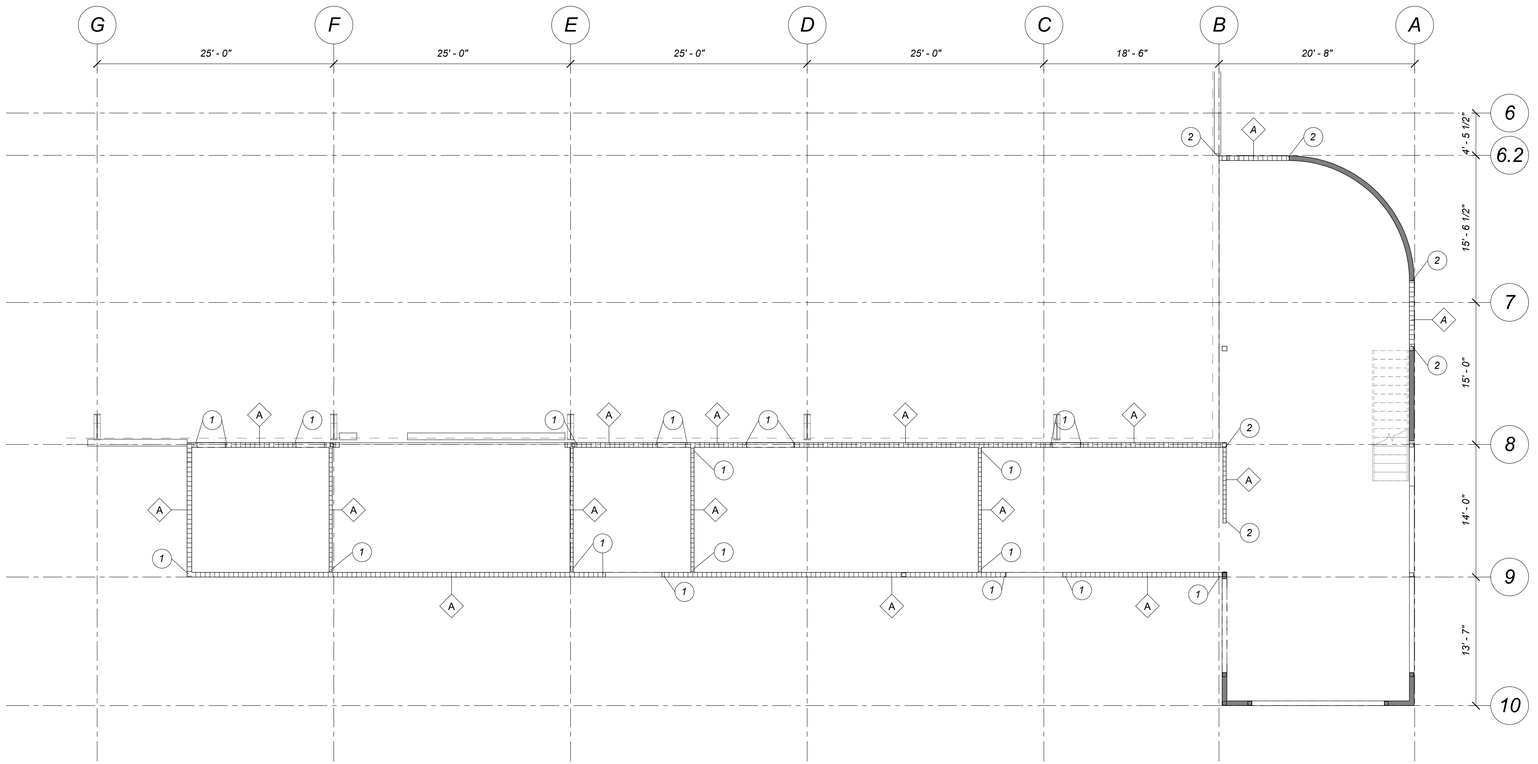
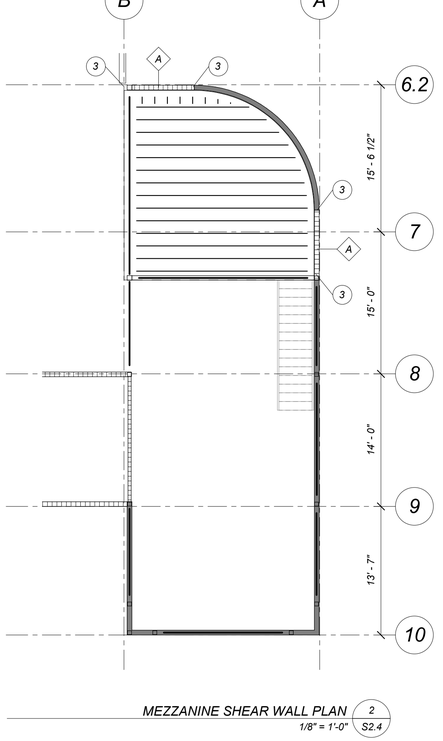
ROOF FRAMING PLAN

1/8" = 1'-0"

S2.3



LEVEL 1 SHEAR WALL PLAN (1 / S2.4)
1/8" = 1'-0"



MEZZANINE SHEAR WALL PLAN (2 / S2.4)
1/8" = 1'-0"

FRAMING NOTES:

1. INDICATES SHEAR WALL LOCATION.
2. INDICATES SHEAR WALL TYPE w/ 5/8" SUREBOARD SHEATHING ONE SIDE OF WALL, REF 7/S5.0.
3. INDICATES HOLDOWN TYPE AND LOCATION, REF 8/S5.0. REF 6/S5.1 FOR ADDITIONAL HOLDOWN INFORMATION AT MEZZANINE.
4. REF ARCH FOR EXTERIOR WALL SHEATHING AT SHADED WALL.

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16325 Boones Ferry Road, Suite 202
Lake Oswego, Oregon 97035
Phone: 503.636.8388
www.equilibriumllc.com

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REGISTERED PROFESSIONAL ENGINEER
19402
OREGON
JULY 22, 1997
EDWARD P. QUESENBERRY
EXPIRES 12/31/2022

LAKE OSWEGO INDOOR TENNIS CENTER

Project # EE19066.20

2900 SW Diane Dr
Lake Oswego, OR 97035

Client: Lake Oswego Parks & Recreation

Revisions

Revision #	Revision Date

12 April 2021

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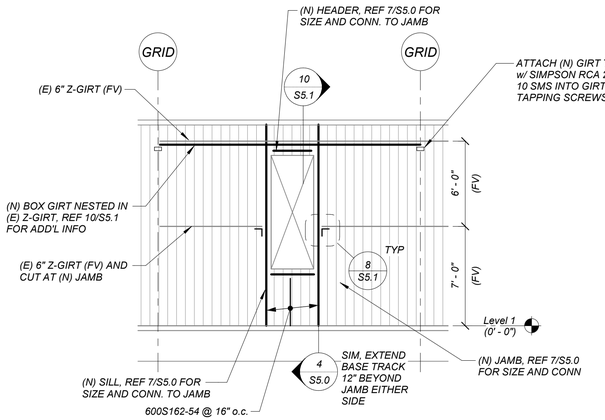
SHEAR WALL PLANS

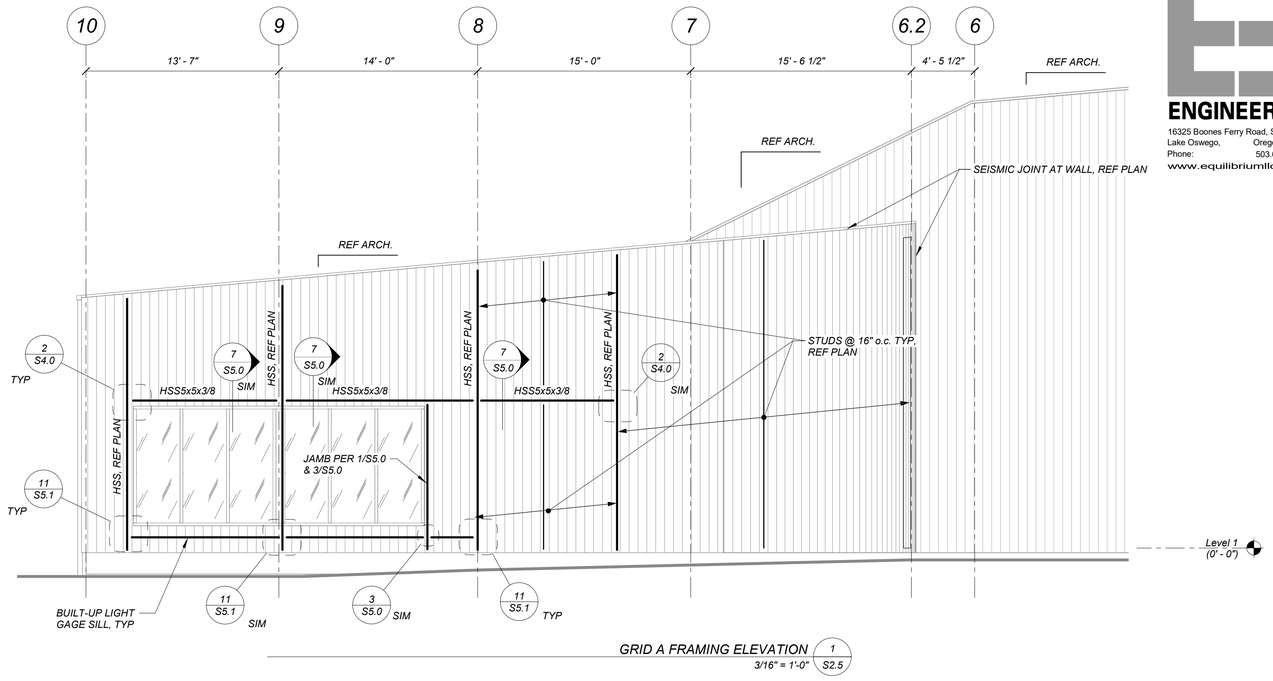
1/8" = 1'-0"

S2.4

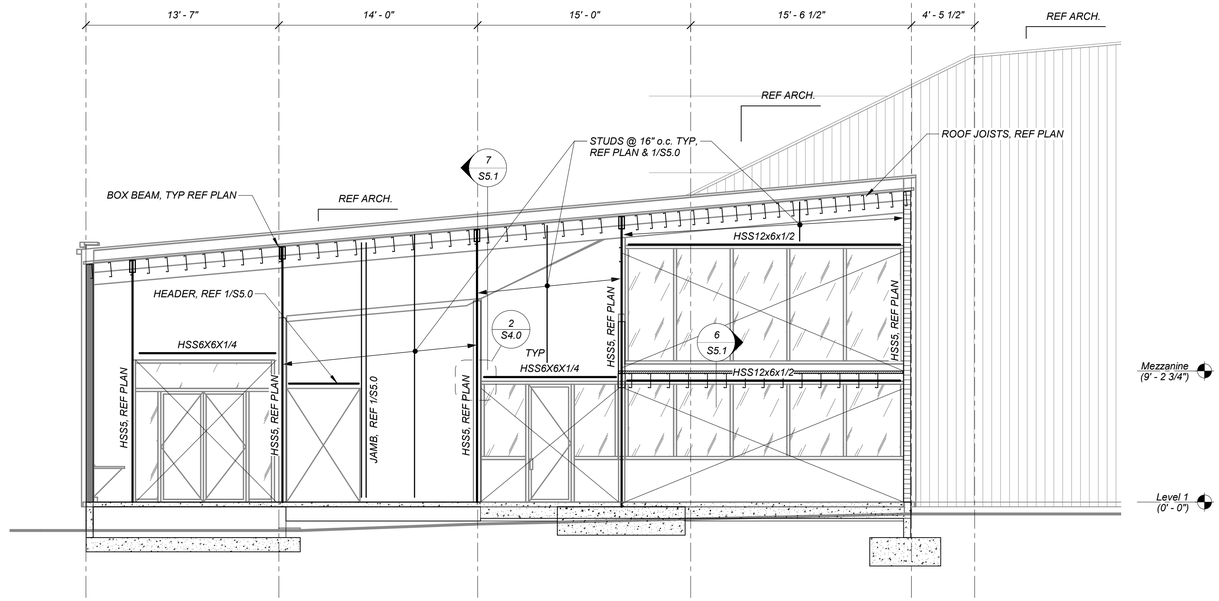
BID SET



(N) OPENING AT (E) WALL GRID 8 — 3 / S2.5
3/16" = 1'-0"



GRID A FRAMING ELEVATION — 1 / S2.5
3/16" = 1'-0"



GRID A FRAMING ELEVATION — 2 / S2.5
3/16" = 1'-0"

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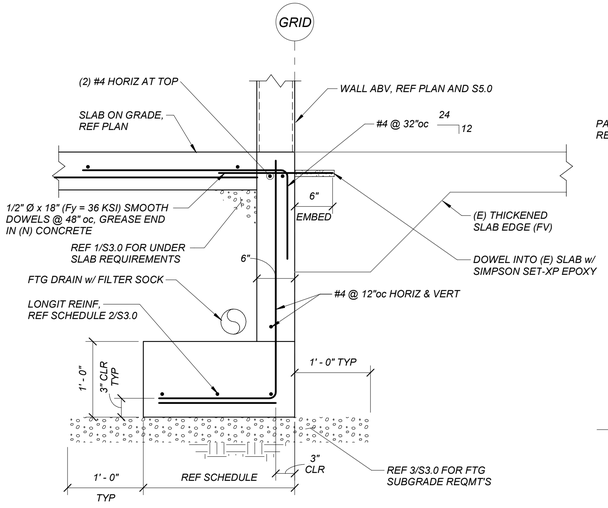
ELEVATIONS

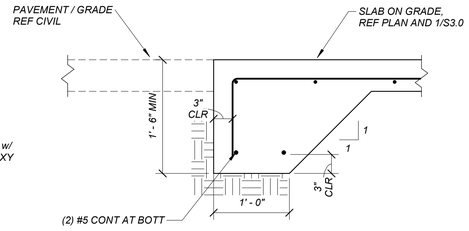
3/16" = 1'-0"

S2.5

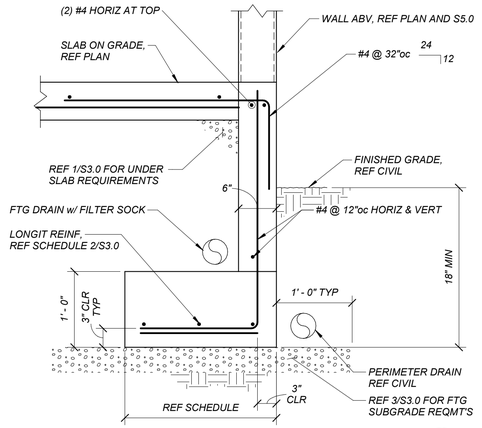
BID SET



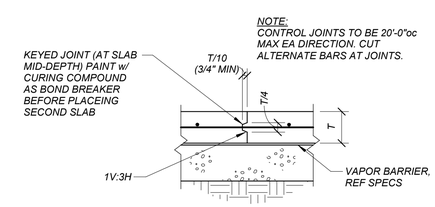
STEM WALL DETAIL AT (E) BUILDING 10 / S3.0
1" = 1'-0"



TYP THICKENED SLAB EDGE 7 / S3.0
1" = 1'-0"

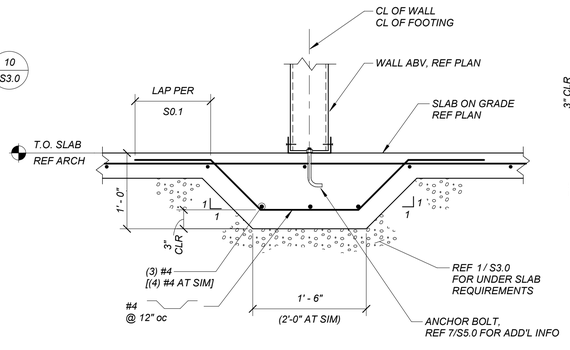


STEM WALL DETAIL 4 / S3.0
1" = 1'-0"

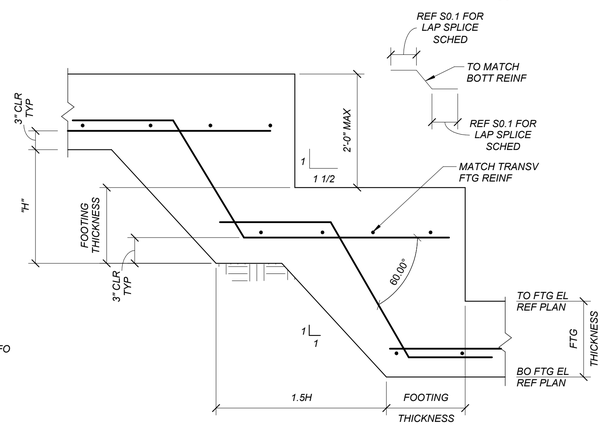


SLAB ON GRADE JOINTS 1 / S3.0
NO SCALE

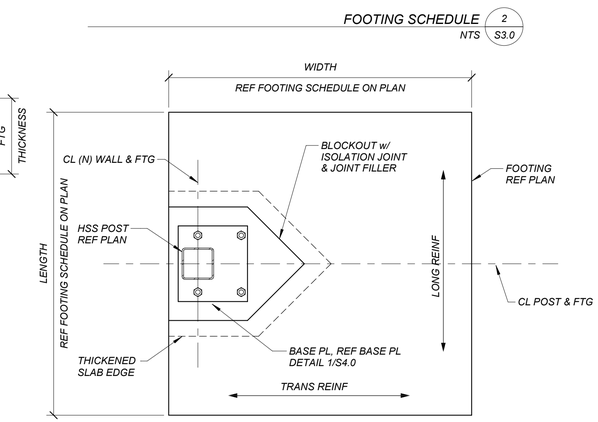
FOOTING SCHEDULE			
MARK	WIDTH x LENGTH	THICKNESS	REINFORCING
A	1'-6" x CONT	1'-0"	(3) #4 LONGITUDINAL AT BOTT #5 x 1'-0" @ 12" oc AT BOTT
B	2'-0" x CONT	1'-0"	(4) #4 LONGITUDINAL AT BOTT #5 x 1'-6" @ 12" oc AT BOTT
C	9'-0" x 5'-0"	2'-0"	(7) #6 LONGITUDINAL AT BOTT (11) #6 TRANSVERSE AT BOTT



TYP THICKENED SLAB DETAIL AT INTERIOR WALL 8 / S3.0
1" = 1'-0"

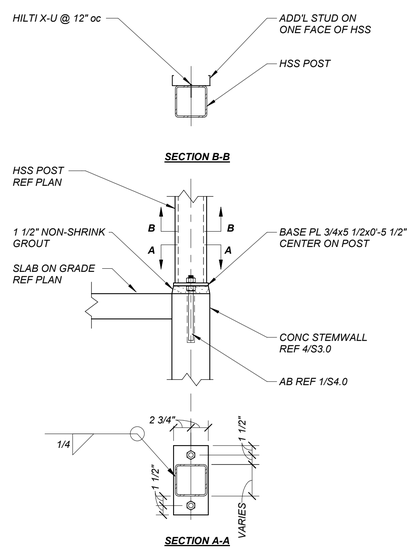


TYP. STEPPED WALL FOOTING DETAIL 5 / S3.0
1" = 1'-0"



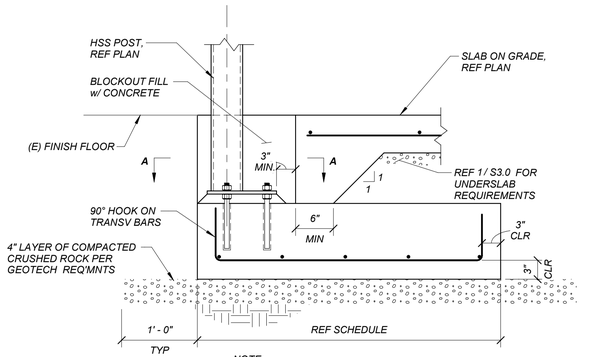
SECTION A - A

FOOTING SCHEDULE 2 / S3.0
NTS



HSS POST ON STEMWALL 9 / S3.0
1" = 1'-0"

NOT USED 6 / S3.0
1" = 1'-0"



NOTE:
WHERE SOFT SOIL CONDITIONS ARE ENCOUNTERED, FOOTINGS SHOULD BE EXCAVATED 2 FEET BELOW SUBGRADE ELEVATION AND BACKFILLED w/ COMPACTED CRUSHED ROCK PER GEOTECH REQMTS.

TYP STEEL COLUMN FOOTING DETAIL 3 / S3.0
1" = 1'-0"

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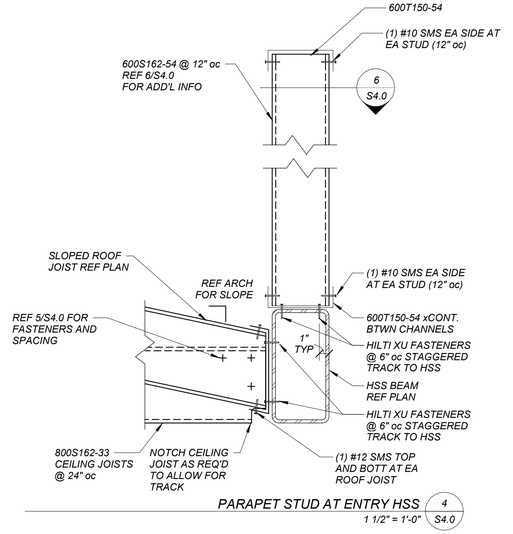
CONCRETE DETAILS

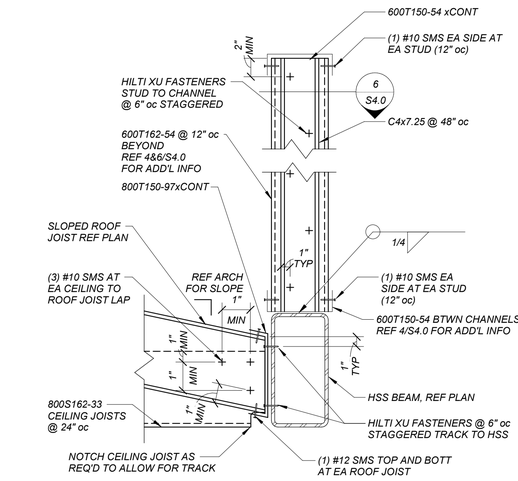
As indicated

BID SET

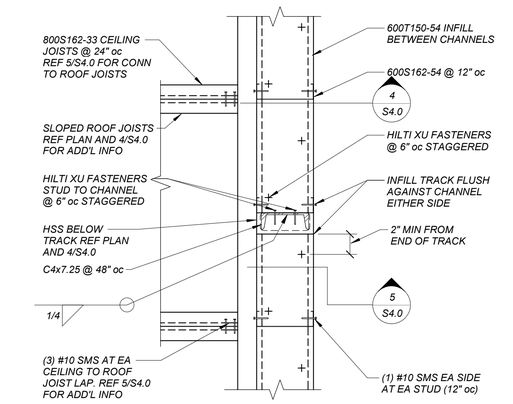
S3.0



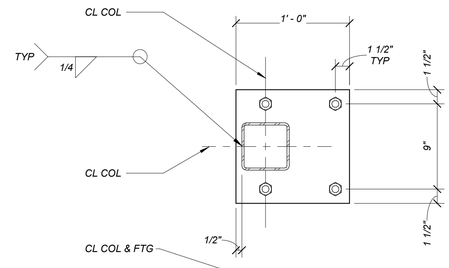
PARAPET STUD AT ENTRY HSS (4 / S4.0)
1 1/2" = 1'-0"



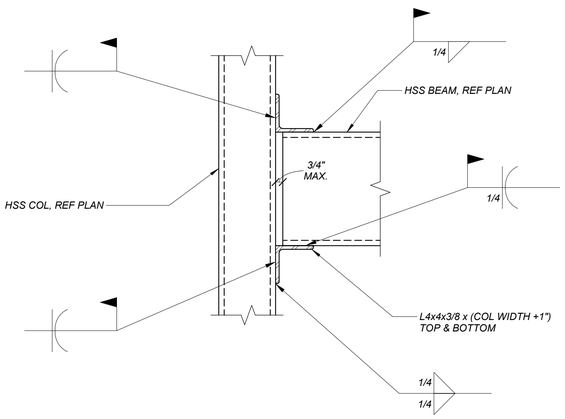
PARAPET CHANNEL AT ENTRY HSS (5 / S4.0)
1 1/2" = 1'-0"



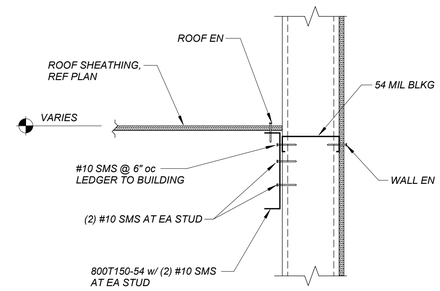
PARAPET PLAN DETAIL AT ENTRY HSS (6 / S4.0)
1 1/2" = 1'-0"



COLUMN BASE PL DETAIL (1 / S4.0)
1 1/2" = 1'-0"



TYP. HSS BEAM TO HSS COL (2 / S4.0)
1 1/2" = 1'-0"



WALL AT LOW ROOF (3 / S4.0)
1 1/2" = 1'-0"

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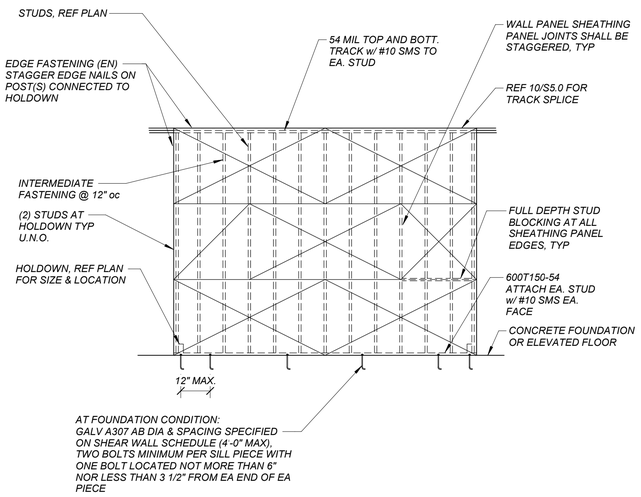
STEEL DETAILS & LIGHT GAGE FRAMING

1 1/2" = 1'-0"

S4.0

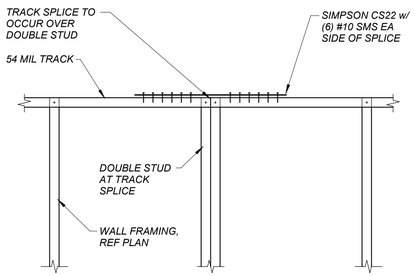


SYMBOL	MIN STUD FRAMING GAGE	SHEATHING CONNECTION		BASE TRACK ANCHORS AT FOUNDATION	SILL FASTENER AT 2nd FLOOR	CAPACITY (ASD)
		PANEL EDGES (EN)	INTERMEDIATE SUPPORTS			
A	16 GA	#8 SMS @ 6" oc	#8 SMS @ 12" oc	5/8" Ø x 12" AB @ 32" oc	#10 SMS @ 6" oc	678 PLF

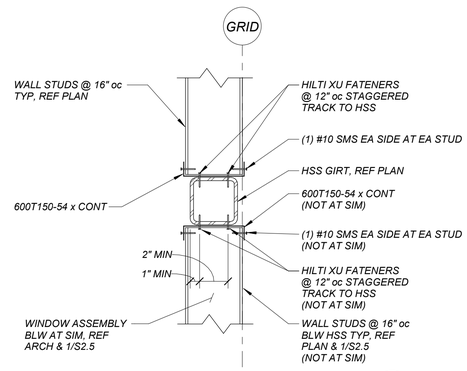
NOTES:

1. ALL WALL SHEATHING SHALL BE EXTERIOR GRADE 22GA SERIES 200 SUREBOARD.
2. ALL SHEATHING SCREWS SHALL BE #8 SELF-TAPPING SCREWS WITH A MINIMUM HEAD DIAMETER OF 0.3145"Ø PER MFR
3. AB SHALL BE HOT DIP GALVANIZED A307, AND SHALL HAVE 3x3x1/4 PLATE WASHERS.
4. AB SHALL HAVE 6" MIN EMBED, REF 4/S5.0

SHEAR WALL DIAGRAM AND SCHEDULE — 7/S5.0 — 1/4" = 1'-0"



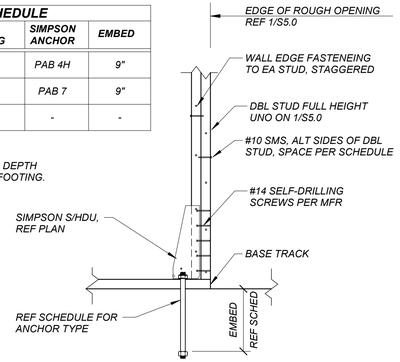
TYP. TOP TRACK SPLICE — 10/S5.0 — 1" = 1'-0"



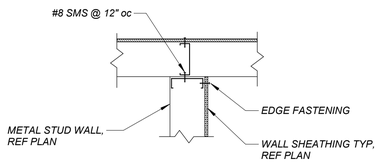
WALL STUD TO HSS GIRT — 11/S5.0 — 1 1/2" = 1'-0"

HOLDOWN SCHEDULE				
MARK	HOLDOWN	#10 SMS INTERFASTENING	SIMPSON ANCHOR	EMBED
1	S/HDU 4	12" oc	PAB 4H	9"
2	S/HDU 9	12" oc	PAB 7	9"
3	S/HDU 6	12" oc	-	-

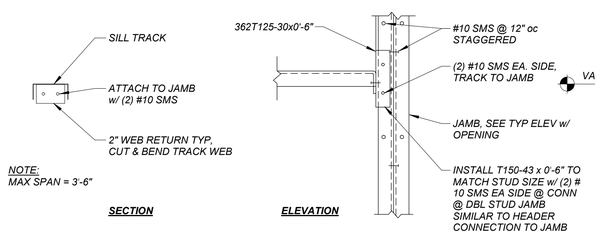
NOTE:
FOR PAB ANCHORS EMBED DEPTH MEASURED FROM TOP OF FOOTING.

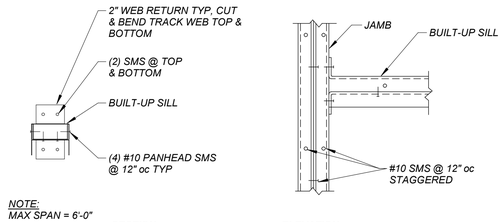


HOLDOWN CONNECTION — 8/S5.0 — 1" = 1'-0"

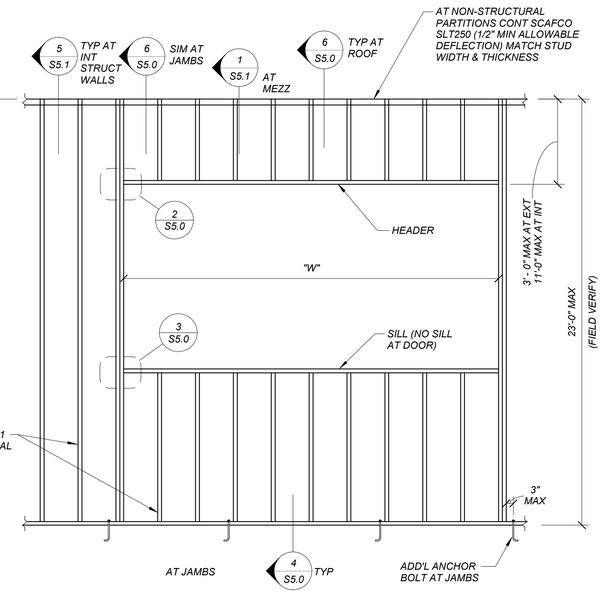


PLAN VIEW - WALL INTERSECTION DETAIL — 9/S5.0 — 1" = 1'-0"





SILL CONN TO JAMB — 3/S5.0 — 1 1/2" = 1'-0"

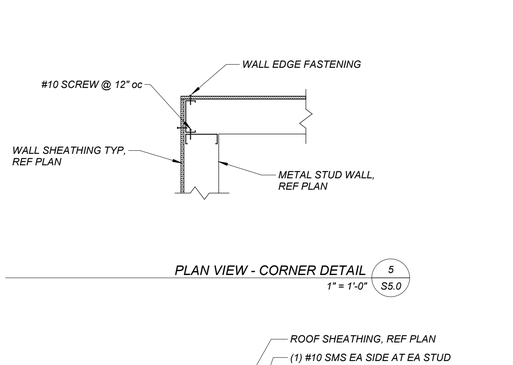


NOTES:

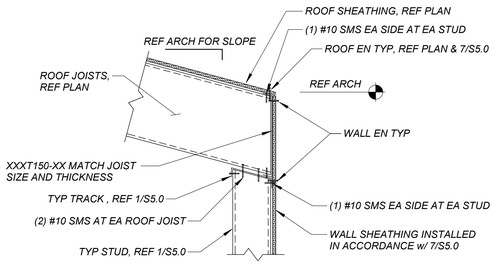
1. STUDS SHALL BE A MINIMUM OF 600S162-54 @ 16" oc MAX AT EXTERIOR WALLS & 400S162-54 AT INTERIOR WALLS.
2. TRACKS SHALL BE 600T150-54 AT EXTERIOR WALLS & 400T150-54 AT INTERIOR WALLS.
3. FASTENERS AT BUILT UP SECTIONS SHALL BE #10 SMS @ 12" oc MAX.

INTERIOR WALL OPENING FRAMING SCHEDULE			
"W" OPENING MAX	JAMBS	HEADER	SILL
3'-0"	DOUBLE STUD	ONE STUD & TWO TRACKS	TRACK
6'-0"	DOUBLE STUD + TWO TRACKS	TWO STUDS & THREE TRACKS	THREE TRACKS

TYP. BASE DETAIL AT STUD WALL — 4/S5.0 — 3" = 1'-0"

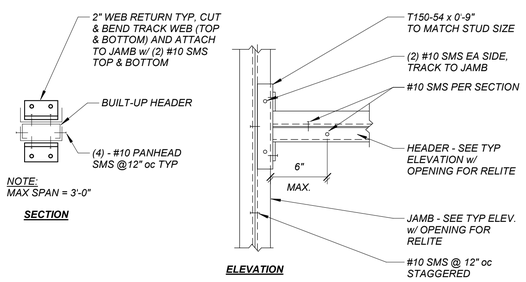


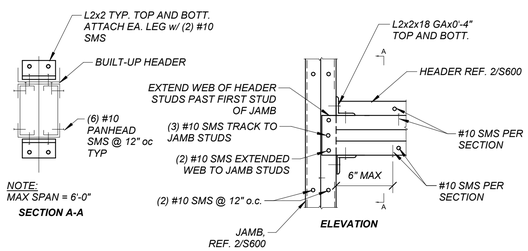
PLAN VIEW - CORNER DETAIL — 5/S5.0 — 1" = 1'-0"



ROOF EAVE DETAIL — 6/S5.0 — 1" = 1'-0"

TYP STRUCTURAL WALL FRAMING ELEVATION — 1/S5.0 — 3/8" = 1'-0"





HEADER CONN TO JAMB — 2/S5.0 — 1 1/2" = 1'-0"

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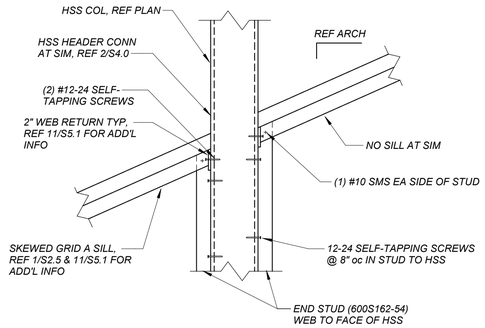
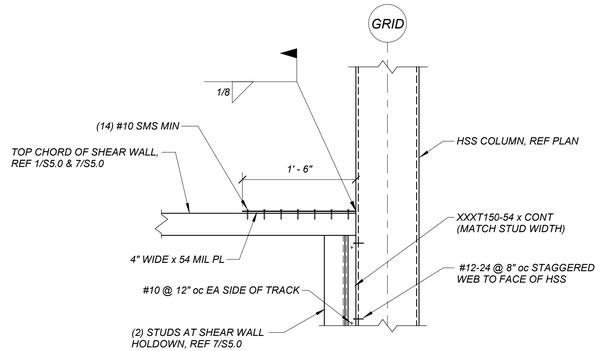
LIGHT GAGE FRAMING DETAILS

As indicated

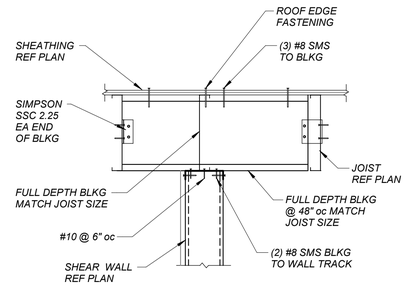
S5.0



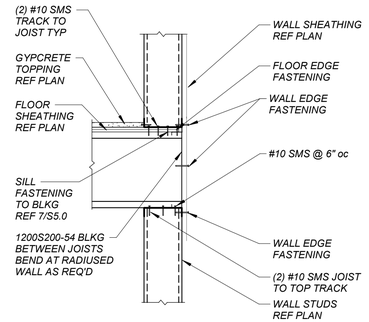
SKEWED GRID A SILL TO HSS CONN (12) — 1 1/2" = 1'-0" — S5.1



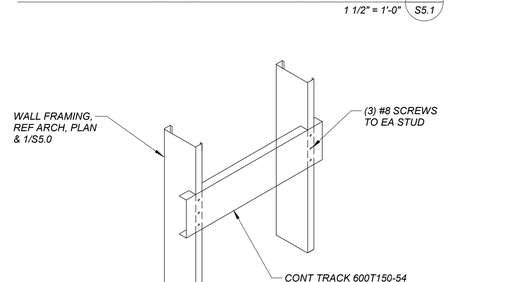
HSS TO SHEAR WALL CONN. (9) — 1" = 1'-0" — S5.1



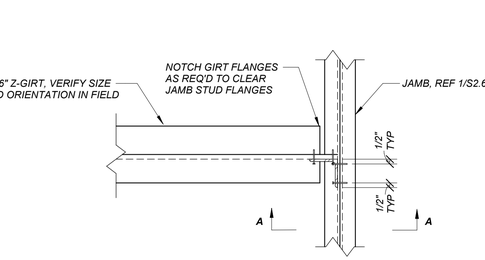
ROOF AT INTERIOR SHEAR WALL (5) — 1" = 1'-0" — S5.1



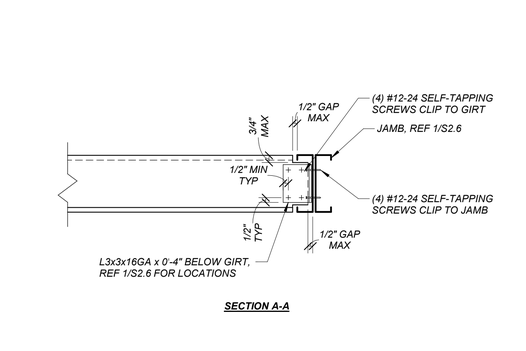
SHEAR TRANSFER AT FLOOR DETAIL (1) — 1" = 1'-0" — S5.1



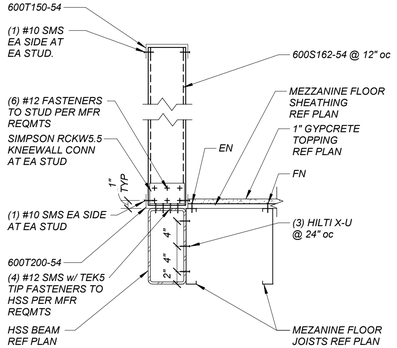
SILL TO SKEWED SILL CONN (13) — 1 1/2" = 1'-0" — S5.1



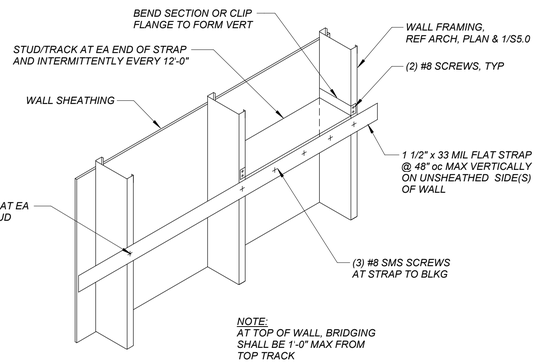
(N) JAMB AT (E) Z-GIRT (10) — 1 1/2" = 1'-0" — S5.1



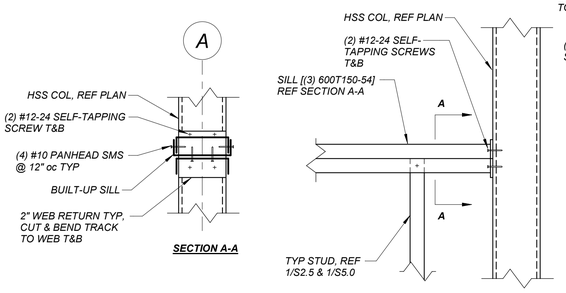
HOLDOWN CONNECTION AT MEZZANINE (6) — 1" = 1'-0" — S5.1



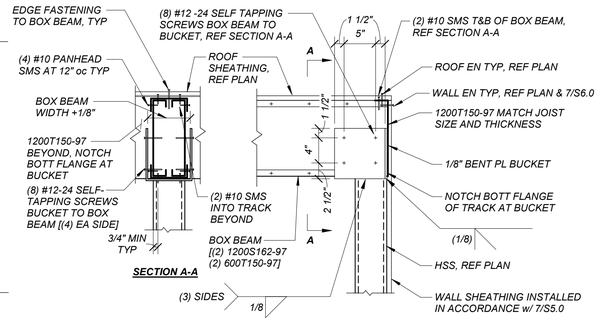
SHEAR TRANSFER AT FLOOR DETAIL (2) — 1" = 1'-0" — S5.1



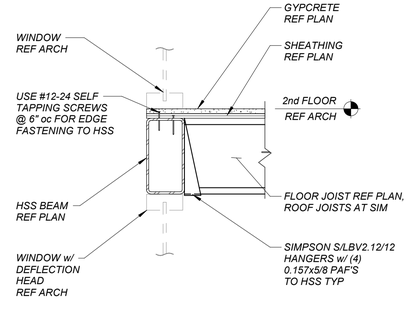
TYP BRIDGING AND BLOCKING WHERE WALL SHEATHING ON ONE SIDE OF WALL (14) — 1 1/2" = 1'-0" — S5.1



TYP GRID A SILL TO HSS CONN (11) — 1 1/2" = 1'-0" — S5.1



BOX COLLECTOR AT HSS COLUMN (7) — 1" = 1'-0" — S5.1



FLOOR JOIST AT HSS BEAM (3) — 1" = 1'-0" — S5.1

BACKING DETAIL FOR HANDRAILS AND WALL HUNG CABINETS (15) — 1 1/2" = 1'-0" — S5.1

(N) JAMB AT (E) Z-GIRT (8) — 1 1/2" = 1'-0" — S5.1

KNEEWALL DETAIL AT MEZZANINE (4) — 1" = 1'-0" — S5.1

EQUILIBRIUM ENGINEERS LLC
16325 Boones Ferry Road, Suite 202
Lake Oswego, Oregon 97035
Phone: 503.636.8388
www.equilibriumllc.com

POLYMATH

Polymath Studio Architecture, LLC
1535 SE Holly Street
Portland, Oregon 97214
503.593.0954 © 2019

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LAKE OSWEGO INDOOR TENNIS CENTER

Project # EE19066.20

2900 SW Diane Dr
Lake Oswego, OR 97035

Client: Lake Oswego Parks & Recreation

BID SET

Revisions	
Revision #	Revision Date

12 April 2021

This Drawing Formatted for 22" x 34" Paper

LIGHT GAGE FRAMING DETAILS

As indicated

S5.1