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MASONRY REINFORCING STEEL:

1. METAL REINFORCEMENT AND ACCESSORIES SHALL CONFORM TO IBC SECTION 2103.14.
2. DEFORMED REINFORCING BARS SHALL BE ASTM A615 GRADE 60 AND SHALL BE SECURELY PLACED IN ACCORDANCE WITH ACI 530.1-11 SECTION 3.4. WELDED REINFORCEMENT SHALL CONFORM TO ASTM A706 GRADE 60.
3. UNLESS OTHERWISE NOTED ON PLANS, THE MINIMUM WALL REINFORCEMENT SHALL BE AS FOLLOWS:

MINIMUM WALL REINFORCEMENT--RUNNING BOND		
NOMINAL WALL THICKNESS	VERTICAL REINFORCEMENT	HORIZONTAL REINFORCEMENT
8"	#6 @ 48" OC	(2) #4 @ 48" OC
12"	#6 @ 32" OC	(2) #5 @ 48" OC

4. BOND BEAMS WITH TWO #5 BARS SHALL BE PROVIDED AT ALL FLOOR LINES, ROOF LINES, AND AT THE TOP OF ALL WALLS. STEP BOND BEAMS AS REQUIRED TO MATCH ROOF SLOPES.
5. PROVIDE A BOND BEAM WITH TWO HORIZONTAL #5 BARS ABOVE AND BELOW ALL OPENINGS AND EXTEND THESE BARS A MINIMUM OF 2'-0" PAST THE EDGE OF THE OPENING ON EACH SIDE.
6. PROVIDE ONE BAR MATCHING THE VERTICAL REINFORCING SIZE FOR THE FULL HEIGHT OF WALL AT EACH SIDE OF ALL OPENINGS, AT WALL ENDS, AND AT WALL INTERSECTIONS.
7. FOUNDATION DOWELS SHALL BE OF THE SAME SIZE AND SPACING AS THE VERTICAL REINFORCEMENT. THESE DOWELS SHALL BE LAPPED TO THE VERTICAL WALL REINFORCEMENT AND BE EMBEDDED A MINIMUM OF 9" INTO THE FOUNDATION WITH A STANDARD 90 DEGREE HOOK.
8. PROVIDE CORNER BARS TO MATCH THE HORIZONTAL WALL REINFORCING AT ALL WALL INTERSECTIONS.
9. USE REBAR POSITIONERS TO ENSURE PROPER REBAR PLACEMENT WITHIN CELLS DURING GROUTING.
10. LAP ALL REINFORCING BARS AS FOLLOWS UNLESS OTHERWISE NOTED WITHIN THE DRAWINGS:

MASONRY REINFORCEMENT LAP SPLICE SCHEDULE (IN)		
BAR SIZE	f'm = 1,500 PSI	f'm = 2,000 PSI
#4	24	24
#5	36	30
#6	54	54

NOTES:
- A. FOR CENTER-TO-CENTER SPACING LESS THAN 5db, MULTIPLY LAP LENGTHS BY 5db AND DIVIDE BY THE SPACING BETWEEN BARS.
- B. FOR MASONRY CLEAR COVER LESS THAN 5db, MULTIPLY LAP LENGTHS BY 5db AND DIVIDE BY THE CLEAR COVER.
- C. NOTES A AND B SHALL NOT BE APPLIED CONCURRENT, USE THE LARGER RESULTING LAP LENGTH OF THE TWO WHEN BOTH CONDITIONS OCCUR.
- D. FOR EPOXY COATED BARS, MULTIPLY LAP LENGTHS BY A FACTOR OF 1.5.

11. THE FOLLOWING MINIMUM MASONRY COVER SHALL BE PROVIDED FOR ALL REINFORCING STEEL:

MASONRY REINFORCEMENT COVER	
USE	COVER
MASONRY FACE NOT EXPOSED TO EARTH OR WEATHER	1-1/2"
MASONRY FACE EXPOSED TO EARTH AND WEATHER	1-1/2" (#5 AND SMALLER) 2" (#6 AND LARGER)

MASONRY ACCESSORIES:

1. ALL PROPRIETARY ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
2. REINFORCING IN NEW OR EXISTING MASONRY SHALL NOT BE CUT DURING INSTALLATION.
3. ALL ANCHORS EXPOSED TO EARTH OR WEATHER SHALL BE PROTECTED FROM CORROSION BY HOT DIPPED GALVANIZING OR USE OF STAINLESS STEEL.
4. APPROVED MASONRY ANCHOR ARE AS FOLLOWS:

APPROVED POST-INSTALLED MASONRY ANCHORS		
TYPE	ANCHOR	ICC REPORT
CONCRETE SCREW	SIMPSON TITEN HD	ICC ESR-1056
	DEWALT SCREW-BOLT+	ICC ESR-4042
	HILTI KWIK HUS-EZ	ICC ESR-3056
ACRYLIC ADHESIVE	SIMPSON AT-XP	IAMPO ER-281
	DEWALT AC100+ GOLD	ICC ESR-3200
	HILTI HIT-HY 70	ICC ESR-2682
EXPANSION	SIMPSON WEDGE-ALL	ICC ESR-1396
	DEWALT POWER STUD+ SD1	ICC ESR-2966
	HILTI KWIK BOLT-TZ	ICC ESR-3785

NOTES:
- A. ANCHOR LOCATIONS AND REQUIREMENTS SHALL CONFORM TO THOSE NOTED SPECIFICALLY ON THE STRUCTURAL DRAWINGS. ALL OTHER LOCATIONS REQUIRE PRIOR APPROVAL.
- B. ALL ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE TO THE APPLICABLE ICC REPORT.
- C. REINFORCEMENT SHALL NOT BE CUT IN NEW, OR EXISTING CMU DURING INSTALLATION OF POST-INSTALLED ANCHORS.
- D. ANCHORS THAT ARE LEFT EXPOSED TO WEATHER SHALL BE STAINLESS STEEL, OR HOT-DIPPED GALVANIZED.

6. EPOXY ANCHORS SHALL BE INSTALLED ONLY IN DRY, HAMMER-DRILLED HOLES.
7. INSTALLATION OF ADHESIVE ANCHORS SHALL BE PERFORMED ONLY BY ACI/CRSI CERTIFIED ADHESIVE ANCHOR INSTALLERS.
8. ADHESIVE ANCHOR INSTALLATIONS IN HORIZONTAL, UPWARDLY INCLINED, AND OVERHEAD ORIENTATIONS SHALL UTILIZE ADHESIVE MANUFACTURER'S PISTON PLUG AND TUBING DELIVERY SYSTEM. PLACE ADHESIVE RETAINING CAP IN THE HOLE AFTER ADHESIVE INJECTION.
9. ADHESIVE ANCHOR INSTALLATIONS EXCEEDING 10" EMBEDMENT IN DOWNWARD INCLINED, AND DOWNWARD ORIENTATIONS SHALL UTILIZE ADHESIVE MANUFACTURER'S PISTON PLUG AND TUBING DELIVERY SYSTEM.

MASONRY/STONE VENEER:

1. MASONRY VENEER SHALL NOT EXCEED 5" IN THICKNESS.
2. PROVIDE 1-INCH MINIMUM (2-1/2" MAXIMUM) AIR SPACE BETWEEN VENEER AND STUD WALL SHEATHING. WALL SHEATHING SHALL BE COVERED WITH AN APPROVED WEATHER RESISTANT BARRIER.
3. VENEER ANCHORS SHALL MEET THE REQUIREMENTS OF ACI 530-11 SECTION 6.2.
4. ANCHORS SHALL MEET THE REQUIREMENTS OF THE SEISMIC DESIGN CATEGORY LISTED IN "DESIGN CRITERIA."
5. PROVIDE CONTINUOUS SINGLE WIRE JOINT REINFORCEMENT OF WIRE SIZE W1.7 AT A MAXIMUM SPACING OF 18" OC VERTICALLY. MECHANICALLY ATTACH ANCHORS TO THE JOINT REINFORCEMENT WITH CLIPS OR HOOKS.
6. VENEER SHALL BE ANCHORED DIRECTLY TO WALL STUDS, COLUMNS, CONCRETE WALLS, CMU WALLS, OR OTHER STRUCTURAL ELEMENTS. ANCHORS SHALL BE SPACED NO MORE THAN 16-INCHES ON CENTER HORIZONTALLY AND 18-INCHES ON CENTER VERTICALLY. IN NO CASE SHALL THE AREA OF VENEER SUPPORTED BY A SINGLE ANCHOR EXCEED 2.0 SQUARE-FEET.
7. PROVIDE ADDITIONAL ANCHORS AROUND OPENINGS LARGER THAN 16" IN EITHER DIMENSION. SPACE ANCHORS AROUND PERIMETER OF OPENING AT A MAXIMUM OF 18" OC. PLACE ANCHORS WITHIN 12" OF OPENINGS.
8. ISOLATE THE SIDES AND TOP OF ANCHORED VENEER FROM THE STRUCTURE SO THAT THE VERTICAL AND LATERAL FORCES RESISTED BY THE STRUCTURE ARE NOT IMPARTED TO THE VENEER.
9. EMBED ANCHORS INTO THE MORTAR JOINT A MINIMUM DISTANCE OF 1-1/2" WITH AT LEAST 5/8" MORTAR COVER TO THE OUTSIDE FACE.
10. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40 DEGREES F (4.4 DEGREES C)) OR HOT WEATHER (TEMPERATURE ABOVE 90 DEGREES F (32.2 DEGREES C)) SHALL CONFORM TO ACI 530.1 ARTICLE 1.8 C AND 1.8 D.

STRUCTURAL STEEL:

1. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING MINIMUM ASTM SPECIFICATIONS AND GRADES:

STRUCTURAL STEEL	
WIDE FLANGE SECTIONS	ASTM A-992, GRADE 50 (Fy=50 KSI)
PLATES WHERE NOTED	ASTM A572, GRADE 50 (Fy=50 KSI)
CHANNELS, ANGLES, PLATES--EXCEPT AS NOTED	ASTM A-36 (Fy=36 KSI)
HOLLOW STRUCTURAL SECTIONS (TUBES)	A-500, GRADE B (Fy=46KSI)
PIPE	ASTM A53, TYPE E OR S (Fy=35 KSI)

2. DESIGN, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE "AISC SPECIFICATION FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL BUILDINGS" WITH "COMMENTARY" AND THE "CODE OF STANDARD PRACTICE," WITH EXCEPTIONS AS NOTED IN THE PROJECT SPECIFICATIONS.
4. BOLTS SHALL CONFORM TO THE ASTM AND RCSC SPECIFICATIONS FOR JOINTS USING A325 HIGH STRENGTH BOLTS. BOLTS SHALL BE SNUG TIGHT UNLESS NOTED OTHERWISE.
5. WELDING SHALL CONFORM TO THE AWS CODES FOR ARC AND GAS WELDING IN BUILDING CONSTRUCTION. WELDING SHALL BE PERFORMED IN ACCORDANCE WITH A WELDED PROCEDURE SPECIFICATION (WPS) AS REQUIRED IN AWS D1.1 AND APPROVED BY THE STRUCTURAL ENGINEER OF RECORD. THE WPS VARIABLES SHALL BE WITHIN THE PARAMETERS ESTABLISHED BY THE FILLER-METAL MANUFACTURER.
6. WELDS SHALL BE MADE USING E70XX ELECTRODES AND SHALL BE 3/16" MINIMUM, UNLESS NOTED OTHERWISE ON THE DRAWINGS.
7. WELDING SHALL BE MADE BY AWS CERTIFIED WELDERS MEETING CITY OF PORTLAND STANDARDS.
8. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE BETWEEN THE ARCHITECTURAL AND STRUCTURAL DRAWINGS TO PRODUCE THE SHOP DRAWINGS.
9. ALL STEEL EXPOSED TO WEATHER, MOISTURE, SOIL, OR AS NOTED ON PLANS SHALL BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A-123, OR HAVE AN APPROVED PROTECTIVE COATING.
10. PROVIDE NON-SHRINK GROUT UNDER ALL BASE PLATES. GROUT SHALL BE FACTORY-PACKAGED, 6000 PSI MINIMUM AT 28 DAYS AND SHALL COMPLY WITH ASTM C 1107.
11. PROVIDE WEEP HOLES AT ALL EXTERIOR CLOSED SECTIONS WHERE MOISTURE MAY ACCUMULATE.

STEEL DECKING:

1. STEEL DECK SHALL CONFORM TO ASTM A653 DESIGNATION SS, GRADE 33 MINIMUM WITH 38KSI MINIMUM YIELD STRENGTH.
2. STEEL ROOF DECK SHALL BE 1-1/2" TYPE B, OF THE GAUGE SHOWN ON THE STRUCTURAL DRAWINGS.
3. THE GALVANIZED COATING SHALL CONFORM TO ASTM A653, G60 (G90 WHERE LEFT PERMANENTLY EXPOSED TO WEATHER.
4. MINIMUM DECK PROPERTIES SHALL BE AS FOLLOWS:

FLOOR DECK		
DECK SIZE	I, (IN^4/FT)	S, (IN^3/FT)
1-1/2" "B" DECK 18 GAUGE	0.302	0.314

5. STEEL DECK SHALL BE ATTACHED AS SPECIFIED WITHIN THE STRUCTURAL DRAWINGS.
6. DO NOT HANG OR SUSPEND STRUCTURAL ITEMS DIRECTLY FROM THE ROOF DECK. NON-STRUCTURAL ITEMS SUSPENDED FROM THE DECK SHALL BE REVIEWED AND APPROVED BY THE ARCHITECT AND STRUCTURAL ENGINEER PRIOR TO INSTALLATION.
7. AT END BEARING SUPPORTS, DECK TO FULLY BEAR ON SUPPORTING MEMBERS 2" MINIMUM - TYPICAL AT ROOF AND FLOOR DECK.
8. AT FLOOR DECK END SPLICES, BUTT DECK ENDS TIGHTLY TOGETHER OVER FRAMING MEMBER AND ATTACH DECK TO FRAMING MEMBERS, REF PLAN.
9. MONITOR AND ADJUST DECK WIDTH MODULES (+/- 1/2") TO MAINTAIN PARALLEL LINES AND LAYOUT AND TO ENSURE DECK VALLEYS ALIGN WITH ALL PARALLEL SUPPORTS AND COLLECTORS. DO NOT RIP DECK SHEETS LENGTHWISE AND BEND DOWN TO FASTEN THE HIGH FLUTE TO PARALLEL SUPPORTS.

LIGHT GAGE STEEL FRAMING:

1. METAL STUDS SHALL BE C-STUDS WITH A MINIMUM YIELD STRENGTH OF 33 KSI FOR 33 AND 43 MILS AND 50 KSI FOR 54, 68, AND 97 MILS.
2. STUDS SHALL BE OF SAME SIZE, GAUGE AND SPACING AS SHOWN ON THE STRUCTURAL DRAWINGS.
3. PROVIDE BRIDGING IN CONFORMANCE WITH THE STEEL STUD MANUFACTURERS ASSOCIATION'S (SSMA) RECOMMENDATIONS ADEQUATE FOR DEVELOPMENT OF THE FULL MOMENT CAPACITY.
4. ALL TRACKS SHALL BE OVERSIZED TO PROVIDE FULL STUD END BEARING.
5. SCREWS SHALL BE ELCO DRIL-FLEX, OR HILTI KWIK-FLEX (ICC ER-4780). SCREWS SHALL EXTEND THROUGH ALL MEMBERS WITH A MINIMUM OF 3 EXPOSED THREADS.
6. WELDING SHALL CONFORM WITH AWS D1.3 AND BE COMPLETED BY AWS WELDERS CERTIFIED FOR LIGHT GAGE STEEL.
7. LOW VELOCITY FASTENERS SHALL BE 0.157" DIAMETER HILTI X-U (ICC ESR-2269).
8. WHERE STUD CLIPS ARE ATTACHED SLAB EDGE ANGLES, SCREWS AND PAFS SHALL BE INSTALLED PRIOR TO CONCRETE SLAB PLACEMENT. AFTER SLAB IS PLACED, WELDS SHALL BE USED - CONTACT FROELICH ENGINEERS FOR WELD SIZES.
9. PROVIDE ALL ACCESSORIES INCLUDING, BUT NOT LIMITED TO BRIDGING, TRACKS, CLIPS, WEB STIFFENERS, ANCHORS, FASTENING DEVICES AND OTHER ACCESSORIES REQUIRED FOR A COMPLETE AND PROPER INSTALLATION.
10. SPLICES IN STUDS ARE NOT PERMITTED.
11. STUDS SHALL BE SCREWED TO THE FLANGES OF BOTH UPPER AND LOWER TRACKS.

PRE-ENGINEERED STEEL STAIRS:

1. STRUCTURAL PERFORMANCES: PROVIDE ASSEMBLIES WHICH, WHEN INSTALLED, COMPLY WITH THE FOLLOWING MINIMUM REQUIREMENTS FOR STRUCTURAL PERFORMANCE IN ACCORDANCE WITH THE IBC (UNLESS OTHERWISE NOTED ON THE DRAWINGS).
   - A. TREADS AND PLATFORMS OF STEEL STAIRS: CAPABLE OF WITHSTANDING A UNIFORM LOAD OF 100 PSF OR A CONCENTRATED LOAD OF 300 LBS SO LOCATED AS TO PRODUCE MAXIMUM STRESS AND DEFLECTION CONDITIONS.
   - B. POST, HANDRAILS, AND TOP RAILS: DESIGN POSTS, HANDRAILS, AND TOP RAILS TO WITHSTAND A MINIMUM FORCE OF 200 LBS APPLIED IN ANY DIRECTION AND AT ANY POINT. ALSO DESIGN HANDRAILS AND TOP RAILS TO WITHSTAND A HORIZONTAL LOAD OF 50 PLF APPLIED NORMAL TO THE RAIL.
   - C. GUARD ELEMENTS: INTERMEDIATE RAILS, BALUSTERS, AND PANEL FILLERS SHALL BE CAPABLE OF WITHSTANDING A UNIFORM LOAD OF 50 PSF OF GROSS AREA OF GUARD, INCLUDING ANY OPEN AREAS, OF WHICH THEY ARE A PART. THIS LOAD NEED NOT BE ASSUMED TO BE ACTING CONCURRENTLY WITH UNIFORM OR CONCENTRATED LOADS ON POSTS, HANDRAILS, AND TOP RAILS IN DETERMINING STRESSES AND DEFLECTION OF GUARD ELEMENTS.
   - D. DESIGN TO SUPPORTED ADDITIONAL LOADS FROM WOOD STAIRS AS NOTED ON DRAWINGS.
2. SHOP DRAWINGS SHALL INDICATE PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS, AND ALL ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS, AND DETAILS WHERE APPLICABLE.
3. SUBMIT SHOP DRAWINGS AND CALCULATIONS FOR METAL STAIRS SEALED AND SIGNED BY A QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED.
4. INDICATE WELDED CONNECTIONS USING STANDARD AWS A2.0 WELDING SYMBOLS. INDICATE NET WELD LENGTHS. INDICATE VENT HOLES.
5. STAIR TREADS SHALL BE AS INDICATED:
   - A. SHEET STEEL: ASTM A570, GRADE 36
   - B. CONCRETE IN METAL PAN: 2-1/2" DEEP, MINIMUM
   - C. CONCRETE FOR TREADS: 3000 PSI @ 28 DAYS
   - D. REINFORCEMENT FOR CONCRETE TREADS: WWF 4x4 W1.4xW1.4
6. STEEL PIPE HANDRAIL SHALL BE 1" DIAMETER STANDARD PIPE, NET OUTSIDE DIAMETER NOT LESS THAN 1-1/4" AND NOT MORE THAN 1-1/2" UNO PER ARCH. SHOP PRIME AND FIELD PAINT.
7. SHOP ASSEMBLY: PREASSEMBLE ITEMS IN SHOP TO GREATEST EXTENT POSSIBLE TO MINIMIZE FIELD SPLICING AND ASSEMBLY.
8. METAL STAIRS SHALL BE FABRICATED IN ACCORDANCE WITH NAAMM METAL STAIRS MANUAL.
9. RAILING AND HANDRAILS SHALL BE FABRICATED IN ACCORDANCE WITH NAAMM PIPE RAILING MANUAL.
10. FIT AND SHOP ASSEMBLE SECTIONS IN LARGEST PRACTICAL SIZES, ALLOWING FOR HANDLING THROUGH AVAILABLE BUILDING OPENINGS.
11. ACCURATELY FORM COMPONENTS REQUIRED FOR ANCHORAGE OF STAIRS.
12. FABRICATE STAIRS WITH CLOSED RISERS AND TREADS OF PAN CONSTRUCTION TO RECEIVE CONCRETE. FORM RISERS AND TREADS OF PAN CONSTRUCTION TO RECEIVE CONCRETE. FORM TREADS AND RISERS TO CONFORM TO CONFIGURATION SHOWN.
13. VERIFY ALL DIMENSIONS ON SITE PRIOR TO SHOP FABRICATION.

SAWN FRAMING LUMBER:

1. SAWN LUMBER SHALL CONFORM TO THE WEST COAST LUMBER INSPECTION BUREAU (WCLIB) OR THE WESTERN WOODS PRODUCTS ASSOCIATION (WWPA) GRADING RULES.
2. ALL LUMBER SHALL BE THE SPECIES AND GRADES AS FOLLOWS:

SAWN LUMBER		
USE	SPECIES/GRADE	Fb (PSI)--BASE VALUE
LUMBER 2" TO 4" THICK	DOUGLAS FIR-LARCH NO.2	900
BEAMS 5"x5" AND GREATER	DOUGLAS FIR-LARCH NO.1	1350
POSTS	DOUGLAS FIR-LARCH NO.1	1200
T&G DECKING	DOUGLAS FIR LARCH COMMERCIAL DEX	1450

3. ALL DIMENSIONAL LUMBER AND TIMBERS SHALL BE KILN DRIED AND CERTIFIED IN WRITING BY THE SUPPLIER TO BE LESS THAN 19% MOISTURE CONTENT.
4. ALL LUMBER IN CONTACT WITH CONCRETE OR CMU SHALL BE PRESERVATIVE TREATED (PT) IN ACCORDANCE WITH THE AMERICAN WOOD PRESERVERS BUREAU (AWPB) UNLESS AN APPROVED MOISTURE BARRIER IS PROVIDED. ALL PT LUMBER SHALL BEAR THE AWPB QUALITY MARK.
5. CUTTING AND NOTCHING OF JOISTS AND STUDS SHALL CONFORM TO IBC SECTIONS 2308.4.2.4, 2308.5.9, 2308.5.10 AND THE LIMITATIONS AS NOTED ON THE STRUCTURAL DRAWINGS.
6. PROVIDE DOUBLE JOISTS UNDER ALL PARALLEL PARTITION WALLS.
7. PROVIDE SOLID LINES OF BLOCKING, SAME DEPTH OF FRAMING MEMBER, AT ALL BEARING POINTS.
8. JOIST BRIDGING SHALL BE REQUIRED WHERE JOISTS HAVE A DEPTH-TO-THICKNESS RATIO GREATER THAN 5-TO-1 AND WHERE ONE EDGE IS UNSUPPORTED. JOIST BRIDGING SHALL BE SPACED AT 8'-0" ON CENTER MAXIMUM.
9. WHERE NOTED ON THE PROJECT, LUMBER SHALL BE FIRE-RETARDANT TREATED (FRT). FRT LUMBER HAS BEEN DESIGNED CONSIDERING REDUCED VALUES NOTED BELOW. FRT LUMBER REDUCED DESIGN VALUES OF THE SELECTED PRODUCT SHALL NOT EXCEED THE MAXIMUM REDUCTIONS LISTED.

LUMBER STRESS	REDUCTION
BENDING	0.85
TENSION	0.80
COMPRESSION (PARALLEL-TO-GRAIN)	0.90
HORIZONTAL SHEAR	0.90
FASTENER	0.90

12. THE FRT TREATMENT SHALL HAVE A CURRENT INTERNATIONAL INSPECTION COUNCIL ICC-ES EVALUATION REPORT COMPLIANT WITH THE CURRENT BUILDING CODE AND ICC-ES ACCEPTANCE CRITERIA AC316.

WOOD STRUCTURAL PANEL SHEATHING:

1. WOOD STRUCTURAL ROOF AND FLOOR PANELS SHALL CONFORM TO THE REQUIREMENTS OF THE "U.S. PRODUCT STANDARD PS 1 FOR CONSTRUCTION AND INDUSTRIAL PLYWOOD," THE "U.S. PRODUCT STANDARD PS 2 PERFORMANCE STANDARD FOR WOOD-BASED STRUCTURAL USE PANELS," OR THE "APA PRP-108 PERFORMANCE STANDARDS."
2. WOOD STRUCTURAL WALL PANELS SHALL CONFORM TO THE REQUIREMENTS OF THE "U.S. PRODUCT STANDARD PS 2 PERFORMANCE STANDARD FOR WOOD-BASED STRUCTURAL USE PANELS," OR THE "APA PRP-108 PERFORMANCE STANDARDS."
3. UNLESS NOTED OTHERWISE ON THE DRAWINGS, ALL PANELS SHALL BE APA RATED SHEATHING, EXPOSURE 1, OF THE THICKNESS AND SPAN RATING AS FOLLOWS:

WOOD STRUCTURAL PANEL SHEATHING	
USE	THICKNESS/RATING
ROOF SHEATHING	19/32"-INDEX 40/20
FLOOR SHEATHING	23/32"-INDEX 48/24
WALL SHEATHING	15/32"-INDEX 32/16 OSB

4. ALL FLOOR AND ROOF SHEATHING SHALL BE INSTALLED WITH FACE GRAIN PERPENDICULAR TO SUPPORTS AND END JOINTS SHALL BE STAGGERED.
5. ROOF SHEATHING SHALL BE BLOCKED, OR HAVE EDGES SUPPORTED BY PLYCLIPS.
6. FLOOR SHEATHING PANELS SHALL BE FIELD GLUED TO THE FRAMING USING ADHESIVES MEETING THE APA SPECIFICATION AFG-01 OR ASTM D3498. TONGUE AND GROOVE PANELS SHALL ALSO BE GLUED AT THE T&G JOINT.
7. SHEAR WALL SHEATHING SHALL BE OSB PANELS CONFORMING TO THE REQUIREMENTS FOR ITS TYPE SPECIFIED IN DOC PS1 OR PS2.
8. SHEAR WALL SHEATHING SHALL BE INSTALLED EITHER HORIZONTALLY OR VERTICALLY AND BE BLOCKED AT ALL PANEL EDGES. SHEET SIZES SHALL BE 4'X8' UNLESS AT BOUNDARIES OR FRAMING CHANGES. REFERENCE PLANS FOR ADDITIONAL REQUIREMENTS.

FLOOR AND ROOF DECKING:

1. ALL DECKING SHALL BE KILN-DRIED DOUGLAS FIR LARCH COMMERCIAL GRADE, CONFORMING TO 1975 GRADING RULE #16 FOR WEST COAST LUMBER.
2. DECKING SHALL BE NOMINAL THICKNESS PER DRAWINGS AND SHALL BE SIDE MATCHED.
3. DECKING SHALL BE INSTALLED IN A CONTROLLED RANDOM LAY UP PATTERN.
4. LAMINATED FLOOR DECKING SHALL BE LOCK-DECK AS MANUFACTURED BY DISDERO LUMBER CO., SERVICE GRADE WITH A MINIMUM 2-7/8" NET THICKNESS, END AND EDGE MATCHED, GLUE LAMINATED USING WATERPROOF ADHESIVE, MINIMUM E=1,800,000 PSI.
5. FOR 3" AND 4" NOMINAL DECKING: AT EACH SUPPORT DECKING SHALL BE TOENAILED WITH ONE 0.225" DIAMETER x 5" NAIL AND FACE NAILED WITH ONE 0.263" DIAMETER x 6" NAIL. COURSES SHALL BE SPIKED TO EACH OTHER WITH 8" SPIKES AT INTERVALS NOT TO EXCEED 30" THROUGH PREDRILLED EDGE HOLES WITH ONE SPIKE AT A DISTANCE NOT EXCEEDING 10" FROM THE END OF EACH PIECE.
6. FOR 3" AND 4" LAMINATED DECKING: AT EACH SUPPORT DECKING SHALL BE FACE NAILED WITH TWO 0.207" DIAMETER x 4 1/2" NAILS. COURSES SHALL BE TOENAILED WITH 0.131" DIAMETER x 2 1/2" NAILS AT 30" OC (0.162 x 3 1/2" NAILS AT 4" DECKING).

NAILING AND FASTENERS:

1. ALL FRAMING NAILS SHALL BE OF THE SIZE AND NUMBER INDICATED ON THE DRAWINGS AND CONFORM TO THE "STANDARD SPECIFICATION OF DRIVEN FASTENERS: NAILS, SPIKES, AND STAPLES" (ASTM F1667) AND "POWER-DRIVEN STAPLES AND NAILS FOR USE IN ALL TYPES OF BUILDING CONSTRUCTION" (NER 272).
2. NAILING NOT SHOWN SHALL BE AS INDICATED ON IBC TABLE 2304.9.1, OR NER-272.
3. NAILS SHALL BE IDENTIFIED BY LABELS ATTACHED TO THEIR CONTAINERS, THAT SHOW THE MANUFACTURER'S NAME, NAIL SHANK DIAMETER, AND LENGTH.
4. NAIL SIZES SHALL BE AS FOLLOWS:

FRAMING NAILS		
NAIL TYPE	SHANK DIAMETER (IN)	MINIMUM PENETRATION INTO FRAMING MEMBER (IN)
6d	0.113	1.250
8d	0.131	1.375
10d	0.148	1.500
16d	0.162	1.625

5. UNLESS OTHERWISE NOTED ON PLANS, PLYWOOD SHEATHING SHALL BE ATTACHED TO THE FRAMING SUPPORTS AS FOLLOWS:

SHEATHING NAILING		
USE	PANEL EDGES	INTERMEDIATE FRAMING MEMBERS
ROOF SHEATHING	0.148" DIA AT 6" OC	0.148" DIA AT 12" OC
FLOOR SHEATHING	0.148" DIA AT 6" OC	0.148" DIA AT 12" OC
WALL SHEATHING	0.148" DIA AT 6" OC	0.148" DIA AT 12" OC

NOTES:
- A. ALL NAILS SHALL BE COMMON NAILS EXCEPT RING SHANKS SHALL BE USED FOR FASTENING ROOF SHEATHING.

6. BOLTS AND LAG SCREWS SHALL CONFORM TO ANSI/ASME STANDARD B18.2.1-1981. ALL BOLTS AND LAG SCREWS SHALL BE INSTALLED WITH STANDARD CUT WASHERS. ALL A307 BOLTS SHALL HAVE CUT THREADS.
7. PRE-DRILL HOLES FOR LAG BOLTS. SOAP THREADS OF LAGS IMMEDIATELY PRIOR TO INSTALLATION.
8. JOIST HANGERS, HOLDOWNS, AND OTHER FRAMING ACCESSORIES SHALL BE MANUFACTURED BY SIMPSON STRONG TIE (OR AN APPROVED EQUAL) AND BE OF THE SIZE AND TYPE SHOWN ON THE DRAWINGS. HARDWARE FASTENERS SHALL BE INSTALLED IN STRICT CONFORMANCE TO THE MANUFACTURER'S REQUIREMENTS. ANY PRODUCT SUBSTITUTIONS TO SIMPSON SHALL MEET OR EXCEED SIMPSON'S PUBLISHED DESIGN CAPACITIES AND MUST HAVE A CURRENT ICC EVALUATION REPORT FOR THE APPLICABLE CODES.
9. HANGERS NOT SHOWN SHALL BE SIMPSON U-TYPE, OR B-TYPE OF THE SIZE RECOMMENDED FOR THE SPECIFIC FRAMING MEMBER SHOWN ON PLAN.
10. FASTENERS (NAILS, BOLTS, SCREWS, LAG SCREWS, ETC) IN CONTACT WITH PT LUMBER AND SHEATHING SHALL BE HOT DIPPED ZINC-COATED GALVANIZED STEEL. OTHER FASTENERS AND HARDWARE IN CONTACT WITH PT LUMBER AND SHEATHING SHALL BE OF MECHANICALLY DEPOSITED ZINC-COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B695, CLASS 55 MINIMUM. CONNECTORS IN CONTACT WITH EXTERIOR APPLICATIONS OF PT LUMBER AND SHEATHING SHALL HAVE BE ZINC-COATED GALVANIZED STEEL IN ACCORDANCE WITH ASTMA653, TYPE G185. ADDITIONALLY, FASTENER TYPE AND COATINGS SHALL COMPLY WITH THE WRITTEN REQUIREMENTS OF THE MANUFACTURER. NO SUBSTITUTIONS PERMITTED.
11. FASTENERS (NAILS, BOLTS, SCREWS, LAG SCREWS, ETC) IN CONTACT WITH FRT LUMBER AND SHEATHING SHALL BE HOT DIPPED ZINC-COATED GALVANIZED STEEL. OTHER FASTENERS AND HARDWARE IN CONTACT WITH FRT LUMBER AND SHEATHING SHALL BE OF MECHANICALLY DEPOSITED ZINC-COATED STEEL WITH COATING WEIGHTS IN ACCORDANCE WITH ASTM B695, CLASS 55 MINIMUM. ADDITIONALLY, FASTENER TYPE AND COATINGS SHALL COMPLY WITH THE WRITTEN REQUIREMENTS OF THE MANUFACTURER.
12. SILLS AT WALLS SHALL BE BOLTED TO CONCRETE WITH 5/8" DIAMETER x 7" EMBED ANCHOR BOLTS AT 4'-0" OC MAXIMUM AND WITHIN 1'-0" OF SILL PLATE ENDS, CORNERS OR SPLICES, UNLESS DETAILED OTHERWISE. WASHERS TO BE MINIMUM 1/4"x3"x3", IN ACCORDANCE WITH IBC 2305.3.11.
13. ALL SILL PLATES AND LEDGERS SHALL BE ANCHORED WITH A MINIMUM OF THREE FASTENERS PER PIECE.

GLUED LAMINATED MEMBERS:

1. GLUED LAMINATED MEMBERS SHALL BE FABRICATED IN CONFORMANCE WITH THE "AMERICAN NATIONAL STANDARD FOR STRUCTURAL GLUED LAMINATED TIMBER" (ANSI/AITC A190.1), OR OTHER CODE-APPROVED DESIGN, MANUFACTURING AND QUALITY ASSURANCE PROCEDURES.
2. ADHESIVE SHALL BE WET-USE EXTERIOR WATERPROOF GLUE.
3. EACH MEMBER SHALL BEAR AN AITC OR APA-EWS IDENTIFICATION MARK OR BE ACCOMPANIED BY A CERTIFICATE OF CONFORMANCE.
4. ONE COAT OF END SEALER SHALL BE APPLIED IMMEDIATELY AFTER TRIMMING IN EITHER THE SHOP OR FIELD.
5. NOTCHING AND/OR BORING OF GLUED LAMINATED MEMBERS (EITHER IN THE SHOP, OR FIELD) IS STRICTLY PROHIBITED UNLESS AS SPECIFICALLY DETAILED IN THE STRUCTURAL DRAWINGS OR APPROVED BY THE STRUCTURAL ENGINEER OF RECORD.
6. GLUED LAMINATED TIMBER BEAMS SHALL BE WESTERN SPECIES WITH THE FOLLOWING STRENGTH PROPERTIES, UNLESS OTHERWISE NOTED ON PLANS:

GLUED LAMINATED MEMBERS				
COMBINATION SYMBOL (SPECIES)	USE	MODULUS OF ELASTICITY (PSI)	FLEXURAL STRESS (PSI)	HORIZONTAL SHEAR STRESS (PSI)
24F-V4 (DF/DF)	SIMPLE SPAN	1,800,000	2,400	265
24F-V8 (DF/DF)	CANTILEVERED OR CONTINUOUS	1,800,000	2,400	265

7. GLULAM MEMBERS SHALL BE OF THE FOLLOWING APPEARANCE GRADE(S), UNLESS OTHERWISE NOTED ON PLANS: FRAMING
8. GLULAM MEMBERS NOTED AS "FRR" (FIRE RESISTANCE RATED) SHALL BE LAYED UP WITH ADDITIONAL TENSION LAMINATION(S) AS REQUIRED TO MEET 1 HOUR FIRE RESISTANCE RATING IN ACCORDANCE WITH IBC 722.6.3.4. THE QUALITY STAMP ON "FRR" BEAMS SHALL INDICATE THAT THE MANUFACTURER HAS MADE THE REQUIRED LAYUP MODIFICATIONS.

PREMANUFACTURED WOOD JOISTS:

1. DESIGN OF THE PREMANUFACTURED JOIST SYSTEM SHALL BE THE CONTRACTORS RESPONSIBILITY.
2. PREMANUFACTURED WOOD JOISTS SHALL BE OF THE SIZE AND TYPE AS SHOWN ON THE STRUCTURAL DRAWINGS. JOISTS SHALL BE MANUFACTURED BY TRUS-JOIST, OR AN APPROVED EQUAL, AND SHALL CONFORM TO "THE "PERFORMANCE STANDARD FOR APA EWS I-JOISTS" (APA EWS STANDARD PRI-400).
3. ALTERNATE JOIST PRODUCTS WILL BE CONSIDERED PROVIDED THEY ARE ICC APPROVED, ARE COMPATIBLE WITH THE LOAD CAPACITY, ARE OF THE SAME DEPTH AND ON-CENTER SPACING AS JOIST NOTED ON PLANS, DIMENSIONAL, AND FIRE RATING REQUIREMENTS OF THE PROJECT, AND HAVE LVL FLANGES.
4. IF ANOTHER I-JOIST PRODUCT IS TO BE SUBSTITUTED, THE SUBSTITUTED PRODUCT MUST BE EQUAL OR GREATER IN MOMENT, SHEAR, REACTION, EI, AND PERFORMANCE AS THE PRODUCT SPECIFIED FOR THIS PROJECT. THE SUPPLIER SHALL BE RESPONSIBLE FOR THE COST OF ANY RE-ENGINEERING AND MODIFICATIONS TO THE STRUCTURAL PLANS OR DETAILS DUE TO THE SUBSTITUTION OF THEIR PRODUCT.
5. ALTERNATIVE PRODUCTS AND DESIGNS MUST BE APPROVED BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO BID.
6. CALCULATIONS OF THE PROPOSED ALTERNATE PRODUCTS MUST BE SEALED BY THE PRODUCT ENGINEER AND SUBMITTED FOR REVIEW BY THE ARCHITECT AND ENGINEER OF RECORD.
7. JOIST SUPPLIER SHALL PROVIDE JOISTS, BRIDGING, HANGERS, BLOCKING, AND OTHER ACCESSORIES NECESSARY FOR THE PROPER ERECTION AND PERFORMANCE OF THEIR PRODUCT. THESE SHALL BE CLEARLY CALLED OUT AND DETAILED ON THE SHOP DRAWINGS.
8. JOIST SUPPLIER SHALL INSPECT ALL JOISTS, BEAMS, BRIDGING, HANGERS, BLOCKING, AND OTHER ACCESSORIES AFTER INSTALLATION AND PROVIDE WRITTEN VERIFICATION OF PROPER INSTALLATION OF THEIR PRODUCT TO THE ARCHITECT AND STRUCTURAL ENGINEER OF RECORD.
9. LAMINATE MULTIPLE JOISTS WHERE INDICATED ON DRAWINGS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
10. CAMBER ALL JOISTS AS PER MANUFACTURER'S RECOMMENDATIONS.
11. DO NOT NOTCH OR DRILL PRODUCTS, EXCEPT AS ALLOWED BY THE MANUFACTURER'S SPECIFICATIONS. ANY PROPOSED NOTCHING OR DRILLING OF PRODUCTS REQUIRES PRIOR APPROVAL BY THE MANUFACTURER.
12. THE CONTRACTOR SHALL COORDINATE WITH THE JOIST MANUFACTURER TO PROVIDE ADDITIONAL JOISTS AND/OR ADJUST JOIST LAYOUT TO AVOID CONFLICTS WITH COLUMNS, COLUMN CONNECTIONS, CONNECTION HARDWARE, ETC.
13. THE PREMANUFACTURED WOOD JOIST SYSTEM SHALL BE DESIGNED TO RESIST THE FOLLOWING MINIMUM LOADS.

PREMANUFACTURED WOOD JOIST LOADING	
LOADING TYPE	UNIFORMLY DISTRIBUTED LOAD (PSF)
ROOF LIVE LOAD	20 PSF
ROOF SNOW LOAD	25 PSF + DRIFT
ROOF DEAD LOAD	18 PSF
FLOOR LIVE LOAD	AS NOTED ON LIVE LOAD PLANS
FLOOR DEAD LOAD	29 PSF

14. CONTRACTOR TO VERIFY ALL WEIGHTS AND LOCATIONS OF CONCENTRATED LOADS DUE TO ROOF TOP MECHANICAL UNITS, MECHANICAL PIPING, ELECTRICAL UNITS, FOLDING PARTITIONS AND OTHER CONCENTRATED LOADS PRIOR TO JOIST FABRICATION.
15. THE JOIST MANUFACTURER SHALL SUBMIT DESIGNS, SHOP DRAWINGS AND CALCULATIONS BEARING THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED FOR REVIEW.
16. DESIGNS, SHOP DRAWINGS AND CALCULATIONS SHALL INCLUDE THE FOLLOWING INFORMATION:
   - A. DEFLECTION DESIGN CRITERIA
   - B. LIVE, SNOW, DEAD, WIND, SEISMIC AND MECHANICAL DESIGN LOADS
   - C. ERECTION AND PLACEMENT CRITERIA
   - D. DETAILS OF ALL BRIDGING, BRACING, STIFFENERS, BLOCKING, CONNECTIONS & HANGERS
   - E. LOCATION AND FRAMING FOR ALL EQUIPMENT LOADS OVER 500 LBS
   - F. LOCATION AND FRAMING FOR ALL SUSPENDED WALLS AND EQUIPMENT

ENGINEERED COMPOSITE LUMBER:

1. ENGINEERED COMPOSITE WOOD PRODUCTS SUCH AS LAMINATED VENEER LUMBER (MICROLAM), PARALLEL STRAND LUMBER (PARALAM), AND LAMINATED STRAND LUMBER (TIMBERSTRAND) SHALL BE OF THE SIZE AND TYPE SHOWN ON THE DRAWINGS, MANUFACTURED BY TRUS-JOIST OR AN APPROVED EQUAL.
2. MEMBERS SHALL HAVE THE FOLLOWING MINIMUM DESIGN PROPERTIES:

ENGINEERED COMPOSITE LUMBER		
COMPOSITE LUMBER TYPE	MODULUS OF ELASTICITY (PSI)	ALLOWABLE FLEXURAL STRESS (PSI)
LSL	1,500,000	2,350
LVL	1,900,000	2,600
PSL	2,200,000	2,900

NOTE: FLEXURAL STRESSES NOTED ABOVE ARE FOR 12" DEEP MEMBERS. DEEPER MEMBERS SHALL BE DESIGNED FOR REDUCED STRESSES IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.

PREMANUFACTURED WOOD TRUSSES:

1. DESIGN OF THE PREMANUFACTURED WOOD ROOF TRUSS SYSTEM SHALL BE THE CONTRACTORS RESPONSIBILITY.
2. DESIGN SHALL CONFORM TO THE PROFILES SHOWN ON THE DRAWINGS AND THE REQUIREMENTS OF IBC SECTION 2303.4 AND THE "DESIGN SPECIFICATIONS FOR LIGHT METAL PLATE CONNECTED WOOD TRUSSES", TPI-24 AS PUBLISHED BY THE TRUSS PLATE INSTITUTE.
3. PROVIDE SIMPSON H2.5A CLIPS AT EACH END OF ALL TRUSSES UNO. TRUSS MANUFACTURER TO HIGHLIGHT ALL TRUSS UPLIFT REACTIONS EXCEEDING THE RATED SPF/HF CAPACITY OF THE SIMPSON CLIP ON THE SHOP DRAWINGS FOR REVIEW.
4. PROVIDE SIMPSON LGT GIRDER TIEDOWN AT EACH END OF ALL GIRDER TRUSSES UNO. TRUSS MANUFACTURER TO HIGHLIGHT ALL GIRDER TRUSS UPLIFT REACTIONS EXCEEDING THE RATED SPF/HF CAPACITY OF THE APPROPRIATE SIMPSON TIEDOWN ON THE SHOP DRAWINGS FOR REVIEW.
5. THE MANUFACTURER SHALL PROVIDE SHOP DRAWINGS SHOWING LAYOUT AND ANY DETAILING NECESSARY FOR DETERMINING FIT AND PLACEMENT IN THE STRUCTURE.
6. METAL PLATE CONNECTED TRUSSES SHALL BE DESIGNED FOR THE FOLLOWING MINIMUM LOADS AND ANY SNOW DRIFTING/SLIDING SNOW INDICATED ON DRAWINGS:

TRUSS LOADING	
LOADING TYPE	UNIFORMLY DISTRIBUTED LOAD (PSF)
ROOF LIVE LOAD	20 PSF
ROOF SNOW LOAD	25 PSF + DRIFT AS NOTED ON ROOF LL PLAN
ROOF DEAD LOAD	TOP CHORD: 10
	BOTTOM CHORD: 8
ROOF DEAD LOAD AT ROOF PATIO	TOP CHORD: 56
	BOTTOM CHORD: 8
	REF ROOF LL PLAN FOR ADDITIONAL ROOF SOIL LOADS
NET WIND UPLIFT	17 PSF

3

IN ADDITION TO THE LOADS NOTED, ALL TRUSSES SHALL BE DESIGNED TO SUPPORT A CONCENTRATED LOAD OF 100# AT ANY LOCATION ALONG THE TOP OR BOTTOM CHORDS. TRUSSES AT ROOF TOP PATIO SHALL BE DESIGNED TO SUPPORT A CONCENTRATED LOAD OF 500# AT ANY LOCATION ALONG THE TOP CHORDS.

7. CONTRACTOR TO VERIFY ALL WEIGHTS AND LOCATIONS OF CONCENTRATED LOADS DUE TO ROOF TOP MECHANICAL UNITS, MECHANICAL PIPING, ELECTRICAL UNITS, FOLDING PARTITIONS AND OTHER CONCENTRATED LOADS PRIOR TO TRUSS FABRICATION.
8. TRUSS MANUFACTURER SHALL DESIGN ALL DRAG TRUSSES AND DRAG STRUTS FOR THE FOLLOWING:
   - A. SHEAR LOADS AS INDICATED ON THE PLANS AND NOTES
   - B. DRAG TRUSSES TO COLLECT LOAD ALONG THE TOP CHORD AND TRANSFER TO THE BOTTOM CHORD THROUGH WEB MEMBERS
   - C. ALL TOP AND BOTTOM CHORDS TO HAVE CAPACITY OF TRANSFERRING SHEAR LOADS THROUGH SPLICES.
9. THE TRUSS MANUFACTURER SHALL SUBMIT DESIGNS, SHOP DRAWINGS AND CALCULATIONS BEARING THE STAMP OF A REGISTERED PROFESSIONAL ENGINEER LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED FOR REVIEW AND APPROVAL.
10. DEFLECTION OF MEMBERS DUE TO DESIGN LOADS SHALL NOT EXCEED THE FOLLOWING (UNLESS NOTED OTHERWISE):
    ROOFS: LIVE LOAD - 1/240 OF SPAN, TOTAL LOAD - 1/240 OF SPAN
11. DESIGN, SHOP DRAWINGS AND CALCULATIONS SHALL INCLUDE THE FOLLOWING INFORMATION:
   - A. DEFLECTION DESIGN CRITERIA
   - B. LIVE, SNOW, DEAD, WIND, SEISMIC AND MECHANICAL DESIGN LOADS
   - C. ERECTION AND PLACEMENT CRITERIA
   - D. DETAILS OF ALL BRIDGING, BRACING, STIFFENERS, BLOCKING AND CONNECTIONS
   - E. LOCATION AND FRAMING FOR ALL EQUIPMENT LOADS OVER 500 LBS
   - F. LOCATION AND FRAMING FOR ALL SUSPENDED WALLS AND EQUIPMENT
12. LOWER CHORDS SHALL BE CAMBERED TO PROVIDE FOR DEAD LOAD DEFLECTION AT GYPSUM BOARD CEILINGS.
13. DO NOT NOTCH OR DRILL TRUSS MEMBERS WITH OUT APPROVAL OF THE TRUSS MANUFACTURER AND THEIR ENGINEER.
14. TRUSS SUPPLIER SHALL PROVIDE BRIDGING, HANGERS, BLOCKING, CUSTOM FABRICATED HANGERS AND OTHER ACCESSORIES NECESSARY FOR THE PROPER ERECTION AND PERFORMANCE OF THEIR PRODUCT. THESE SHALL BE CLEARLY CALLED OUT AND DETAILED ON THE SHOP DRAWINGS.

ANCHOR BOLTS:

1. ANCHOR BOLTS FROM SILL PLATES TO FOUNDATION SHALL BE GALVANIZED.
2. ALL ANCHOR BOLTS SHALL HAVE A GALVANIZED PLATE WASHER BETWEEN THE SILL PLATE AND NUT.
3. ANCHOR BOLTS SHALL BE PLACED SO THAT PLATE WASHER IS NO MORE THAN 1/2" FROM THE SHEATHED FACE OF THE SHEAR WALL. WHERE SHEATHING IS APPLIED TO BOTH SIDES OF SHEAR WALL, ALTERNATE ANCHOR BOLTS.
4. ANCHOR BOLTS SHALL BE LOCATED IN THE FORMS AND TIED SUFFICIENTLY TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT. DO NOT HAND SET OR WET SET.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER OF RECORD INCLUDING THE FOLLOWING INFORMATION (SIMILAR IF ALTERNATE ANCHORAGE IS SELECTED):
   - A. ANCHOR BOLT MATERIAL TYPE
   - B. ANCHOR BOLT SIZE
   - C. OVERALL ANCHOR BOLT LENGTH
   - D. ANCHOR BOLT EMBEDMENT
   - E. ANCHOR BOLT PROJECTION (INCLUDING SUFFICIENT PROJECTION AND THREADS TO ALLOW FOR FIELD TOLERANCES)
   - F. ANCHOR BOLT SPACING
   - G. DIMENSIONS ANCHOR BOLT LAYOUT DRAWINGS SHOWING LOCATION OF ALL ANCHOR BOLTS
   - H. PLATE WASHER TYPE AND LOCATIONS
   - I. SILL PLATE LENGTHS AND SPLICE LOCATIONS
6. SILLS AT WALL SHALL BE BOLTED TO CONCRETE WITH 5/8" DIAMETER x 7" EMBED ANCHOR BOLTS AT 4'-0" OC MAXIMUM AND WITHIN 1'-0" OF SILL PLATE ENDS, CORNERS OR SPLICES, UNLESS NOTED OTHERWISE ON SHEAR WALL SCHEDULE. HOLDOWN BOLTS DO NOT TAKE THE PLACE OF ANCHOR BOLT AT THE END OF THE SHEAR WALL.
7. ALL SILL PLATES SHALL BE ANCHORED WITH A MINIMUM OF THREE FASTENERS PER PIECE. HOLDOWN BOLTS DO NOT TAKE THE PLACE OF ANCHOR BOLT AT THE END OF THE SHEAR WALL.
8. ANCHOR BOLTS SHALL BE ASTM F1554 GRADE 36 STEEL.

HOLDOWN BOLTS:

1. ALL HOLDOWN BOLTS AT SHEAR WALLS TO FOUNDATION SHALL NOT BE IN CONTACT W/ PRESERVATIVE TREATED (PT) WOOD. PT WOOD PLATES SHALL HAVE OVERSIZED HOLES 1/4" MIN & 3/8" MAX LARGER THAN BOLT SIZE. AS AN ALTERNATIVE, THE ANCHOR MAY BE SLEEVED WITH AN INSULATOR BUSHING OR GALVANIZED IN ACCORDANCE W/ ASTM A653.
2. HOLDOWN BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS.
3. HOLDOWN BOLTS SHALL BE PLACED A MINIMUM OF 5" FROM THE END OF CONCRETE STEMWALLS. ADD ADDITIONAL 2x STUD AS REQUIRED.
4. REF HOLDOWN SCHEDULE AND DETAILS ON SHEET S801FOR TYPICAL HOLDOWN INSTALLATION REQUIREMENTS.
5. HOLDOWN BOLTS SHALL BE LOCATED IN THE FORMS AND TIED SUFFICIENTLY TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT. DO NOT HAND SET OR WET SET.
6. HOLDOWN BOLTS SHALL BE ASTM F1554 GRADE 36 STEEL, THREADED ON BOTH ENDS UNLESS NOTED OTHERWISE.
7. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER OF RECORD INCLUDING THE FOLLOWING INFORMATION:
   - A. HOLDOWN BOLT MATERIAL TYPE
   - B. HOLDOWN BOLT SIZE
   - C. OVERALL HOLDOWN BOLT LENGTH
   - D. HOLDOWN BOLT EMBEDMENT INTO FOOTING
   - E. HOLDOWN BOLT PROJECTION FOR HOLDOWN TYPE (INCLUDING SUFFICIENT PROJECTION AND THREADS TO ALLOW FOR A MINIMUM OF 2" FIELD TOLERANCE)
   - F. DIMENSIONED HOLDOWN BOLT LAYOUT DRAWINGS SHOWING LOCATION OF ALL HOLDOWN BOLTS
   - G. DIMENSIONED HOLDOWN BOLT LAYOUT DRAWINGS SHOWING LOCATION, SIZE, TYPE, AND QUANTITY OF HOLDOWN POST OR BUILT-UP MEMBER
   - H. HOLDOWN TYPE
   - I. ALL ACCESSORIES (INCLUDING PLATE WASHERS, DOUBLE NUTS, ETC.) AND LOCATIONS

CONTINUOUS THREADED ROD HOLDOWN SYSTEM:

1. CONTINUOUS THREADED ROD HOLDOWN SYSTEM SHALL BE A CONTINUOUS THREADED STEEL ROD SYSTEM WITH SCREW-TYPE TAKE-UP DEVICES, BEARING PLATES AND ISOLATOR NUTS AT EACH FLOOR.
2. CONTINUOUS THREADED ROD HOLDOWN SHALL OCCUR AT EACH END OF SHEAR WALL AS NOTED.
3. CONTINUOUS THREADED ROD HOLDOWN SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS.
4. REFERENCE CONTINUOUS THREADED ROD HOLDOWN SCHEDULE, DETAILS 6/S801, 7/S801,8/S801, AND 10/S801 FOR TYPICAL CONTINUOUS THREADED ROD HOLDOWN INSTALLATION REQUIREMENTS.
5. EMBEDDED BOLTS SHALL BE ASTM F1554 GRADE 36 STEEL, THREADED ON BOTH ENDS UNLESS NOTED OTHERWISE.
6. EMBEDDED BOLTS SHALL BE LOCATED IN THE FORMS AND TIED SUFFICIENTLY TO PREVENT DISPLACEMENT DURING CONCRETE PLACEMENT. DO NOT HAND SET OR WET SET.
7. EMBEDDED BOLTS SHALL NOT BE IN CONTACT W/ PRESERVATIVE TREATED (PT) WOOD. PT WOOD PLATES SHALL HAVE OVERSIZED HOLES 1/4" MIN & 3/8" MAX LARGER THAN BOLT SIZE. AS AN ALTERNATIVE, THE ANCHOR MAY BE SLEEVED WITH AN INSULATOR BUSHING OR GALVANIZED IN ACCORDANCE W/ ASTM A653.
8. THE HOLDOWN SYSTEM SHALL HAVE A CURRENT INTERNATIONAL INSPECTION COUNCIL ICC-ES EVALUATION REPORT COMPLIANT WITH THE CURRENT BUILDING CODE & ICC-ES ACCEPTANCE CRITERIA AC316.
9. THE DEFLECTION OF THE OVERTURNING ANCHORAGE (INCLUDING ROD ELONGATION, BEARING PL CRUSHING, BEARING PL BENDING, DEVICE ELONGATION, ETC) SHALL NOT EXCEED 0.20 INCHES PER FLOOR.
10. SHRINKAGE COMPENSATORS SHALL ACCOMMODATE CUMULATIVE BUILDING SHRINKAGE/SETTLING OF 0.250" PER FLOOR.
11. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO THE ARCHITECT AND ENGINEER OF RECORD INCLUDING THE FOLLOWING INFORMATION:
   - A. CONTINUOUS THREADED ROD MATERIAL TYPE
   - B. CONTINUOUS THREADED ROD SIZE
   - C. CONTINUOUS THREADED ROD LENGTH
   - D. CONTINUOUS THREADED ROD EMBEDMENT INTO FOOTING
   - E. CONTINUOUS THREADED ROD PROJECTION FOR HOLDOWN TYPE (INCLUDING SUFFICIENT PROJECTION AND THREADS TO ALLOW FOR A MINIMUM OF 2" FIELD TOLERANCE)
   - F. ELONGATION CALCULATIONS FOR THE CONTINUOUS THREADED ROD SYSTEM (INCLUDING ROD ELONGATION, BEARING PL CRUSHING, BEARING PL BENDING, DEVICE ELONGATION, ETC)
   - G. DIMENSIONED CONTINUOUS THREADED ROD LAYOUT DRAWINGS SHOWING LOCATION OF ALL HOLDOWN BOLTS
   - H. DIMENSIONED CONTINUOUS THREADED ROD LAYOUT DRAWINGS SHOWING LOCATION, SIZE, TYPE AND QUANTITY OF HOLDOWN POST OR BUILT-UP MEMBER
   - I. CONTINUOUS THREADED ROD HOLDOWN TYPE
   - J. ALL ACCESSORIES (INCLUDING PLATE WASHERS, DOUBLE NUTS, COUPLING TAKE-UP DEVICES, BEARING PLATES, ISOLATOR NUTS, ETC.) AND LOCATIONS OF SUCH

City Of Portland
REVIEWED FOR CODE COMPLIANCE
Date: 02/11/20
Project: 19-106743-REV-01-CO

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REVISIONS

2	ADDENDUM 2	5/9/2019
A	PERMIT RESPONSE 1	6/03/2019
B	PERMIT RESPONSE 2	7/26/2019
3	AB 01	9/27/2019

CHECKED BY: Checker
ISSUE DATE: 27 SEP 2019
PROJECT NO: 1803002

GENERAL STRUCTURAL NOTES

S00.02

Construction Set

10/31/2019 12:02:49 PM SERA Design and Architecture, Inc.