

## GENERAL STRUCTURAL NOTES

### EMBEDDED ITEMS IN CONCRETE

1. INSTALL ANCHOR RODS, ACCURATELY LOCATED, TO ELEVATIONS REQUIRED AND COMPLYING WITH TOLERANCES IN SECTION 7.5 OF AISI'S "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES."

2. EMBEDMENTS (CONDUITS, PIPES, SLEEVES, ETC.) OF ANY MATERIAL NOT HARMFUL TO CONCRETE, AND WITHIN LIMITATIONS NOTED BELOW, SHALL BE PERMITTED IN CONCRETE WITH APPROVAL OF THE STRUCTURAL ENGINEER, PROVIDED THEY ARE NOT CONSIDERED TO STRUCTURALLY REPLACE THE DISPLACED CONCRETE.

3. ANY ALUMINUM EMBEDMENTS IN STRUCTURAL CONCRETE SHALL BE COATED OR COVERED TO PREVENT ALUMINUM-CONCRETE REACTION OR ELECTROLYTIC ACTION BETWEEN ALUMINUM AND STEEL.

4. CONDUITS, PIPES, AND SLEEVES PASSING THROUGH A SLAB, WALL OR BEAM SHALL NOT IMPAIR SIGNIFICANTLY THE STRENGTH OF THE CONSTRUCTION.

5. CONDUITS AND PIPES, WITH THEIR FITTINGS, EMBEDDED WITHIN A COLUMN SHALL NOT DISPLACE MORE THAN 4 PERCENT OF THE CROSS SECTIONAL AREA ON WHICH STRENGTH IS CALCULATED OR WHICH IS REQUIRED FOR FIRE PROTECTION.

6. CONDUITS AND PIPES EMBEDDED WITHIN A SLAB, WALL, OR BEAM, OTHER THAN THOSE MERELY PASSING THROUGH, SHALL SATISFY THE FOLLOWING:

THEY SHALL NOT BE LARGER IN OUTSIDE DIMENSION THAN 1/3 THE OVERALL THICKNESS OF SLAB, WALL, OR BEAM IN WHICH THEY ARE EMBEDDED; THEY SHALL NOT BE SPACED CLOSER THAN THREE (3) DIAMETERS OR WIDTHS ON CENTER; THEY SHALL NOT IMPAIR SIGNIFICANTLY THE STRENGTH OF THE CONSTRUCTION.

7. NO ELECTRICAL CONDUIT SHALL BE PLACED ABOVE THE WELDED WIRE REINFORCEMENT IN SLABS ON GRADE.

8. NO LIQUID, GAS, OR VAPOR, EXCEPT WATER NOT EXCEEDING 90 DEGREES FAHRENHEIT NOR 50 PSI PRESSURE, SHALL BE PLACED IN THE PIPES UNTIL THE CONCRETE HAS ATTAINED ITS DESIGN STRENGTH.

9. IN SOLID SLABS, PIPING, EXCEPT FOR RADIANT HEATING OR SNOW MELTING, SHALL BE PLACED BETWEEN TOP AND BOTTOM REINFORCEMENT.

10. SPECIFIED CONCRETE COVER FOR PIPES, CONDUITS, AND FITTINGS SHALL NOT BE LESS THE 1-1/2 INCH FOR CONCRETE EXPOSED TO EARTH OR WEATHER, NOR LESS THAN 3/4 INCH FOR CONCRETE NOT EXPOSED TO WEATHER OR IN CONTACT WITH THE GROUND.

11. REINFORCEMENT WITH AN AREA NOT LESS THAN 0.002 TIMES THE GROSS AREA OF THE CONCRETE SECTION SHALL BE PROVIDED AND PLACED PERPENDICULAR TO THE PIPING.

12. PIPING AND CONDUIT SHALL BE SO FABRICATED AND INSTALLED THAT CUTTING, BENDING, OR DISPLACEMENT OF REINFORCEMENT FROM ITS PROPER LOCATION WILL NOT BE REQUIRED.

### MASONRY

1. ALL MASONRY CONSTRUCTION SHALL BE IN ACCORDANCE WITH TMS 402/ACI 530 "BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES" AND TMS 602/ACI 530.1 "SPECIFICATION FOR MASONRY STRUCTURES".

2. SUBMIT SHOP DRAWINGS FOR REVIEW PRIOR TO INSTALLATION INCLUDING REINFORCING BAR PLACEMENT, LENGTHS, QUANTITIES, SIZES AND TEST REPORT DOCUMENTATION RELATED TO THE APPROPRIATE ASTM STANDARDS.

3. DESIGN MASONRY ASSEMBLAGE STRENGTH  $f_m = 2000$  PSI. NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS SHALL BE A MINIMUM OF 2000 PSI.

4. CONCRETE MASONRY UNITS SHALL BE MEDIUM-WEIGHT OR LIGHTWEIGHT UNITS CONFORMING TO ASTM C90. UNITS SHALL BE LAID IN RUNNING BOND, TYPICAL UNLESS NOTED OTHERWISE. VERTICAL ALIGNMENT OF CELLS SHALL MAINTAIN A CONTINUOUS CLEAR UNOBSTRUCTED CELL NOT LESS THAN 3 INCHES SQUARE. MINIMUM DEPTH OF HORIZONTAL BOND BEAM CHANNEL BELOW TOP OF UNIT SHALL BE 1-1/2 INCHES, AND CHANNEL SHALL BE 3 INCHES WIDE MINIMUM. ALL UNITS SHALL BE FREE OF DUST AND DIRT AT THE TIME OF LAYING.

5. GROUT SHALL CONFORM TO ASTM C476. THE ADDITIONS OF ADMIXTURES IN THE FIELD IS NOT PERMITTED. GROUT SHALL ATTAIN A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2000 PSI. MORTAR SHALL BE TYPE S CONFORMING TO ASTM C270 AND WITH PROPORTIONS PER TABLE SC-1 OF TMS 602/ACI 530.1.

6. ALL GROUT SHALL BE MECHANICALLY VIBRATED. GROUT POURS SHALL BE STOPPED 1-1/2 INCHES BELOW THE TOP OF A COURSE TO FORM A KEY AT POURED JOINTS.

7. PROVIDE CLEANOUTS IF GROUT POUR EXCEEDS 5'-0" IN HEIGHT. IF CLEANOUTS ARE PROVIDED, GROUT POUR MAXIMUM HEIGHT EQUALS 10'-0", IN LIFTS NOT TO EXCEED 6'-0".

8. REINFORCEMENT SHALL BE DEFORMED BARS CONFORMING TO ASTM A615, GRADE 60 AND SHALL HAVE FABRICATION TOLERANCES IN ACCORDANCE WITH ACI 315. REINFORCING STEEL THAT IS TO BE WELDED SHALL CONFORM TO ASTM A706, GRADE 60. SHOP FABRICATE REINFORCING BARS WHICH ARE INDICATED TO BE BENT OR HOOKED.

9. VERTICAL REINFORCEMENT SIZE AND SPACING AS SHOWN ON PLAN AND IN MASONRY WALL SCHEDULE WITH ONE BAR MINIMUM AT ALL CORNERS, INTERSECTIONS, WALL ENDS, BEAM BEARING, JAMBS, AND EACH SIDE OF CONTROL JOINTS. TIE AT 8'-0" VERTICALLY WITH SINGLE WIRE LOOP TIE BY A.A. PRODUCTS COMPANY. UNLESS NOTED OTHERWISE, LAP SPLICES SHALL BE PER LAP SPLICE SCHEDULE.

10. HORIZONTAL REINFORCEMENT (UNLESS NOTED OTHERWISE) SHALL BE #5 IN BOND BEAMS AT 48" O.C. AND 2#5 (8 INCH TO 12 INCH WALLS) BARS IN MINIMUM 8 INCH DEEP GROUTED CONTINUOUS BOND BEAM AT ROOF AND ELEVATED FLOOR LINES. #5 (8 INCH TO 12 INCH WALLS) BAR IN MINIMUM 8 INCH DEEP GROUTED CONTINUOUS BOND BEAM AT TOP OF PARAPET OR TOP OF FREE-STANDING WALL. PLACE #4 (6 INCH AND 8 INCH WALLS) AND #5 (10 INCH AND 12 INCH WALLS) BAR IN MINIMUM 8 INCH DEEP GROUTED CONTINUOUS BOND BEAM AT GRADE LEVEL FLOOR LINE. PLACE ROOF AND FLOOR BOND BEAM BARS CONTINUOUS THROUGH CONTROL JOINT. WRAP MASTIC TAPE FOR 1'-6" EACH SIDE OF CONTROL JOINT. PROVIDE BENT BARS TO MATCH HORIZONTAL BOND BEAM REINFORCING AT CORNERS AND WALL INTERSECTIONS TO MAINTAIN BOND BEAM CONTINUITY. UNLESS NOTED OTHERWISE, LAP SPLICES SHALL BE PER LAP SPLICE SCHEDULE. STAGGER ALTERNATE SPLICES A MINIMUM OF 4'-0".

11. STEEL ANCHORS INTO MASONRY SHALL CONFORM TO THE DETAILS SHOWN IN THE DRAWINGS. J-BOLTS ARE NOT ACCEPTABLE.

12. PLACE PIPES AND CONDUITS PASSING HORIZONTALLY THROUGH MASONRY IN STEEL SLEEVES.

13. ALUMINUM CONDUITS, PIPES, AND ACCESSORIES SHALL NOT BE EMBEDDED IN MASONRY GROUT OR MORTAR, UNLESS EFFECTIVELY COATED OR COVERED TO PREVENT ALUMINUM-CEMENT CHEMICAL REACTION OR ELECTROLYTIC REACTION BETWEEN ALUMINUM AND STEEL.

14. UNLESS OTHERWISE NOTED OR DETAILED, CENTER WALL REINFORCEMENT IN BLOCK CELLS. USE NONMETALLIC BAR POSITIONERS. GROUT ALL CELLS CONTAINING REINFORCING. SOLID GROUT ALL WALLS BELOW GRADE AND WHERE INDICATED ON DRAWINGS.

15. PROVIDE DOWEL REINFORCEMENT FROM FOUNDATION OF SAME SIZE AND SPACING AS VERTICAL WALL REINFORCEMENT. LAP WALL REINFORCEMENT AS INDICATED IN THE TYPICAL DETAILS.

16. BRACE THE TOP OF INTERIOR NON-LOAD BEARING MASONRY WALLS TERMINATING AT THE UNDERSIDE OF FLOOR OR ROOF STRUCTURE AGAINST OUT-OF-PLANE MOVEMENT IN ACCORDANCE WITH TYPICAL DETAILS.

17. UNLESS NOTED OTHERWISE ON THE PLANS, PLACE CONTROL JOINTS IN MASONRY WALLS SUCH THAT NO STRAIGHT RUN OF WALL EXCEEDS 24'-0". CONTROL JOINTS SHALL NOT OCCUR AT WALL CORNERS, INTERSECTIONS, ENDS, WITHIN 24 INCHES OF CONCENTRATED POINTS OF BEARING OR JAMBS, OR OVER OPENINGS.

18. HORIZONTAL JOINT AND HORIZONTAL BOND BEAM REINFORCING SHALL BE DISCONTINUOUS THROUGH ALL CONTROL JOINTS EXCEPT THOSE AT STEEL BEARING ELEVATIONS AND FLOOR AND ROOF CONNECTIONS. TERMINATE DISCONTINUOUS HORIZONTAL REINFORCING WITH 180 DEGREE HOOK.

### STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL SHALL BE FABRICATED BY A FABRICATOR WITH ONE OF THE FOLLOWING MINIMUM QUALIFICATIONS AND BE APPROVED BY AUTHORITY HAVING JURISDICTION (AHJ). QUALIFICATIONS SHALL BE IN EFFECT AT TIME OF BID.

INTERNATIONAL ACCREDITATION SERVICE, INC. (IAS) APPROVED FABRICATOR  
AISC CERTIFIED BUILDING FABRICATOR (BU)  
AHJ CERTIFIED FABRICATOR

2. ALL STEEL SHALL BE ERECTED BY AN AISC CERTIFIED ERECTOR (CSE).

3. FABRICATOR SHALL SUBMIT DOCUMENTATION OF THEIR CERTIFICATION WITH THE FIRST SHOP DRAWING SUBMITTAL.

4. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC 360 "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND AISC 303 "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES" USING LOAD AND RESISTANCE FACTOR DESIGN (LRFD).

5. STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING DESIGNATED ASTM STANDARDS:

WIDE FLANGES: ASTM A992  
HOLLOW STRUCTURAL SECTIONS (HSS): ASTM A500, GRADE C  
CHANNELS AND ANGLES: ASTM A36  
PLATES: ASTM A36, TYPICAL U.N.O.  
CONTINUITY PLATES AND CAP PLATES AT MOMENT CONNECTIONS: ASTM A572, GRADE 50  
ANCHOR RODS: ASTM F1554, GRADE 36 (J-BOLTS ARE NOT ACCEPTABLE)

6. BOLTED CONNECTIONS SHALL BE DESIGNED AND INSTALLED USING HIGH-STRENGTH BOLTS IN ACCORDANCE WITH THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS". USE ASTM A325 BOLTS IN BEARING-TYPE CONNECTIONS WITH THREADS PERMITTED IN THE SHEAR PLANE (TYPE N), UNLESS OTHERWISE NOTED. WASHERS SHALL CONFORM TO ASTM F436. CONNECTIONS MAY BE SNUG-TIGHTENED, UNLESS NOTED OTHERWISE.

7. CONNECTIONS FOR THE FOLLOWING STRUCTURAL ELEMENTS SHALL BE PRE-TENSIONED CONNECTIONS:

CHORDS AND COLLECTORS

8. PRE-TENSIONED CONNECTIONS SHALL BE INSTALLED USING DIRECT TENSION INDICATORS CONFORMING TO ASTM F989 OR TWIST-OFF-TYPE TENSION-CONTROL BOLTS CONFORMING TO ASTM F1852 OR ASTM F2280.

9. UNLESS NOTED OTHERWISE, THE STEEL FABRICATOR SHALL DETAIL ALL CONNECTIONS PER THE CONSTRUCTION DOCUMENT CONNECTION DESIGN DETAILS. SUBSTITUTION OR MODIFICATION TO THE CONSTRUCTION DOCUMENT CONNECTION DETAILS IS ACCEPTABLE AS LONG AS THEY ARE SUBMITTED WITH SEALED CALCULATIONS PROVIDED BY A LICENSED STRUCTURAL ENGINEER IN THE STATE IN WHICH THE PROJECT IS LOCATED. CONNECTION DETAILS MAY BE SELECTED OR COMPLETED USING DETAILS INDICATED ON THE DRAWINGS AND THE SECTIONS REGARDING CONNECTIONS IN THE AISC "MANUAL OF STEEL CONSTRUCTION" AND DESIGNED USING THE LRFD METHOD TO WITHSTAND THE REACTION FORCES INDICATED. JOINTS THAT ARE NOT SHOWN IN THE CONSTRUCTION DOCUMENTS SHALL BE DETAILED BY THE FABRICATOR AND SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW THROUGH A REQUEST FOR INFORMATION OR CLOUDED AND DETAILED IN THE SHOP DRAWINGS.

10. BOLTED CONNECTIONS DETAILED IN THE FINAL CONDITION TO PERMIT SLIP BETWEEN CONNECTED ELEMENTS SHALL BE TIGHTENED FINGER TIGHT. NOTCH FIRST BOLT THREAD PROJECTING FROM THE NUT OR INSTALL A JAM NUT.

11. INSTALL ANCHOR RODS AT COLUMN BASE PLATES WITH ASTM A36 STEEL PLATE WASHERS AND ASTM A563 STEEL HEAVY HEX NUTS. INSTALL ANCHOR RODS AT OTHER LOCATIONS AS INDICATED WITH ASTM F436, TYPE 1, STEEL HARDENED WASHERS AND ASTM A563 STEEL HEAVY HEX NUTS.

12. WELDING SHALL CONFORM TO STANDARDS OF AWS D1.1 "STRUCTURAL WELDING CODE—STEEL: TYPICAL AND AWS D1.8 "STRUCTURAL WELDING CODE—SEISMIC SUPPLEMENT" WHERE SPECIFIED. ELECTRODES FOR FIELD AND SHOP WELDING SHALL CONFORM TO AWS RECOMMENDATIONS. WELDS NOT INDICATED ON THE DRAWINGS SHALL BE AWS MINIMUM OR AS REQUIRED TO SATISFY STRENGTH CRITERIA, WHICHEVER IS GREATER. FOLLOW PREHEAT REQUIREMENTS OF AWS.

13. ARC-WELDING ELECTRODES AND FILLER METALS TO BE LOW HYDROGEN TYPES E7XTX, E7XTXX OR E70XXX MINIMUM AS APPLICABLE. ELECTRODES WITH CHАРRY V-NOTCH (CVN) TESTS VALUES OF A MINIMUM 20 FOOT-POUNDS AT -20 DEGREES FAHRENHEIT AND 40 FOOT-POUNDS AT 70 DEGREE FAHRENHEIT SHALL BE USED AT THE FOLLOWING LOCATIONS:

COMPLETE JOINT PENETRATION WELDS  
BEAM TO COLUMN MOMENT CONNECTIONS INCLUDING FLANGE, WEB, AND CONTINUITY  
PLATE FILLET AND PARTIAL JOINT PENETRATION WELDS  
WELDS NOTED AS DEMAND-CRITICAL (DC) ON THE DRAWINGS

14. WELDERS SHALL BE CERTIFIED BY AWS AND THE APPLICABLE AUTHORITY HAVING JURISDICTION.

15. GENERALLY, DRAWINGS DO NOT DISTINGUISH BETWEEN SHOP-WELDING AND FIELD-WELDING. THE CONTRACTOR SHALL DETERMINE THE MOST ECONOMICAL, EFFICIENT AND PRACTICAL COMBINATIONS OF SHOP-WELDING AND FIELD-WELDING.

16. CAMBER BEAMS UPWARD THE DESIGNATED AMOUNT INDICATED ON THE STRUCTURAL DRAWINGS. BEAMS WITHOUT A SPECIFIED CAMBER SHALL BE ORIENTED SUCH THAT ANY NATURAL CAMBER IS UPWARD.

17. SPLICING STRUCTURAL MEMBERS WHERE NOT DETAILED ON STRUCTURAL DRAWINGS IS PROHIBITED WITHOUT PRIOR ACCEPTANCE BY THE STRUCTURAL ENGINEER.

18. OPENINGS AND SLEEVES IN STRUCTURAL STEEL MEMBERS SHALL BE SHOP CUT ONLY. FIELD BURNING, CUTTING, RE-DRILLING OR OTHER FIELD MODIFICATION IS NOT PERMITTED ON STRUCTURAL STEEL MEMBERS WITHOUT PRIOR ACCEPTANCE OF THE STRUCTURAL ENGINEER.

19. SEE ARCHITECTURAL DRAWINGS FOR FIREPROOFING REQUIREMENTS. FOR FIREPROOFING PURPOSES, FRAMING SHALL BE CONSIDERED EITHER "UNRESTRAINED" OR "RESTRAINED" DEPENDING ON STRUCTURAL SYSTEM AS DEFINED IN ASTM E119 AND UL 263.

20. ALL STRUCTURAL STEEL EXCEPT EMBEDDED STEEL WHICH IS IN CONTACT WITH CONCRETE, STEEL TO BE FIREPROOFED, AND STEEL TO BE GALVANIZED SHALL BE CLEANED AND SHOP-PRIMED AS INDICATED IN THE PROJECT SPECIFICATIONS. SEE THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR FINISH PAINTING REQUIREMENTS.

21. UNLESS SPECIFICALLY SHOWN TO BE PAINTED, GALVANIZE ALL EXTERIOR STRUCTURAL STEEL. PROVIDE GALVANIZING AS INDICATED IN THE PROJECT SPECIFICATIONS. TOUCH-UP GALVANIZING WITH GALVANIZING REPAIR PAINT AS INDICATED IN THE PROJECT SPECIFICATIONS.

### COLD FORMED METAL FRAMING

1. ALL COLD-FORMED STEEL FRAMING SHALL BE DESIGNED, FABRICATED AND ERECTED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH THE LATEST EDITION OF AISI S100 "NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS".

2. STEEL FOR 14 AND 16 GAGE STUDS AND JOISTS AND FOR ALL DIAGONAL TENSION STRAPS SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI. STEEL FOR ALL 18 AND 20 GAGE STUDS AND JOISTS AND FOR ALL GAGES OF TRACK, ACCESSORIES, AND BRIDGING SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI.

3. ALL STUDS SHALL BE SECURELY SEATED FOR FULL END BEARING ON TOP AND BOTTOM TRACK. UNLESS NOTED OTHERWISE, PROVIDE DOUBLE STUDS AT ALL JAMBS, CORNERS, INTERSECTIONS, BEAM BEARINGS, AND JOIST BEARINGS. DO NOT NOTCH FLANGES OF JOISTS OR STUDS.

4. ALL COLD-FORMED METAL FRAMING SHALL BE G60 GALVANIZED, TYPICAL. COLD-FORMED METAL FRAMING SUPPORTING ANCHORED VENEER AT EXTERIOR WALLS SHALL BE G60 GALVANIZED. ALL CONNECTION SCREWS SHALL BE ZINC COATED.

5. ALL COLD-FORMED METAL FRAMING AND POWDER-DRIVEN FASTENERS SHALL BE ICC-ES APPROVED. ALL WELDING SHALL BE PERFORMED IN ACCORDANCE WITH AWS D1.3, "STRUCTURAL WELDING CODE-SHEET STEEL" BY WELDERS EXPERIENCED IN LIGHT GAGE STRUCTURAL STEEL FRAMING WORK.

6. ALL SELF-DRILLING SCREWS SHALL HAVE THE FIRST THREE THREADS (MINIMUM) PROTRUDE BEYOND THE BACK-SIDE OF THE BASE MATERIAL.

7. STUDS SHALL BE FASTENED TO TRACK WITH A MINIMUM OF (2) #10-16 SELF-DRILLING SCREWS WITH STUD SECURELY INTO TRACK.

8. TRACK SHALL BE FASTENED TO STRUCTURAL STEEL WITH A MINIMUM OF 1/8" WELD EACH SIDE, 2" LONG SPACED AT 32" OC OR (2) 0.157" DIA POWDER ACTUATED FASTENERS (HILTI X-U ICC-ES ESR-2269 OR EQUIVALENT) AT 16" O.C.

9. PROVIDE #10-16 SELF-DRILLING SCREWS FOR ALL COLD-FORMED STEEL TO COLD-FORMED STEEL CONNECTIONS U.N.O.

10. TRACK SHALL BE FASTENED TO CONCRETE WITH A MINIMUM OF (2) 0.157" DIA POWDER ACTUATED FASTENERS (HILTI X-U ICC-ES ESR-2269 OR EQUIVALENT) THROUGH TRACK AT EACH STUD. PROVIDE 1 1/2" MINIMUM EMBEDMENT, 4" MINIMUM SPACING, AND 3" MINIMUM CONCRETE EDGE DISTANCE.

11. MAINTAIN 3/4" MINIMUM DISTANCE BETWEEN CENTERS OF CONNECTION SCREWS AND 3/4" MINIMUM DISTANCE FROM THE CENTER OF SCREW TO EDGE OF CONNECTED PART. INSTALL FASTENERS FROM THINNER THROUGH THICKER MATERIAL.

12. PROVIDE MECHANICAL BRIDGING AT INTERVALS NOT EXCEEDING 4'-0" ON CENTER AT ALL COLD-FORMED STEEL WALLS. BRIDGING SHALL BE IN PLACE PRIOR TO PLACING ANY LOADS ON THE WALL.

13. FIELD MODIFICATIONS OF COLD-FORMED STEEL SYSTEMS SHALL NOT BE ALLOWED WITHOUT PRIOR WRITTEN APPROVAL OF THE ENGINEER OF RECORD.

### PREFABRICATED COLD-FORMED STEEL TRUSSES:

1. THE DESIGN AND CONNECTION DETAILING OF ALL COLD-FORMED STEEL TRUSSES INCLUDING, BUT NOT LIMITED TO BOTTOM CHORD, TOP CHORD, WEB MEMBERS AND ANCHORAGE SHALL BE BY THE COLD-FORMED TRUSS MANUFACTURER.

2. PREFABRICATED COLD-FORMED STEEL TRUSSES SHALL BE DESIGNED TO SUPPORT THEIR OWN WEIGHT PLUS SUPERIMPOSED DEAD LOADS STATED IN THE GENERAL STRUCTURAL NOTES. THE TRUSS CHORDS SHALL BE DESIGNED FOR THE FOLLOWING MINIMUM DEAD LOADS:

ROOF  
TOP CHORD 10 PSF  
BOTTOM CHORD 10 PSF

FLOOR  
TOP CHORD 15 PSF  
BOTTOM CHORD 10 PSF

3. EACH TRUSS SHALL BE DESIGNED TO CARRY AN ADDITIONAL 200 LBS POINT LOAD AT ANY LOCATION ALONG THE TRUSS IN ADDITION TO ALL OTHER DEAD AND LIVE LOADS.

4. THE CENTROID OF ALL INTERSECTING MEMBERS SHALL COINCIDE.

5. ROOF TRUSSES SHALL BE SPACED PER PLAN AND THE BEARING SHALL ALIGN WITH THE STEEL STUDS IN THE BEARING WALLS, WHERE APPLICABLE.

6. ROOF TRUSSES SHALL BE ATTACHED TO SUPPORTS AT EACH END BY MECHANICAL FASTENERS OR WELDING DESIGNED BY THE TRUSS MANUFACTURER TO ACCOMMODATE ALL DESIGN LOADS INCLUDING UPLIFT FORCES AND DIAPHRAGM SHEAR LOADS.

7. THE COLD-FORMED STEEL TRUSS MANUFACTURER SHALL PROVIDE ALL NECESSARY BRACING, BRIDGING, AND CONNECTION MATERIAL TO PROVIDE A COMPLETE INSTALLATION.

8. THE TOP AND BOTTOM CHORD SHALL BE A MINIMUM 16 GAUGE AND HAVE A MINIMUM 1 5/8" FLANGE AND MINIMUM 1/2" RETURN.

9. FASTEN COLD-FORMED FRAMING TO WOOD WITH MINIMUM #10 SCREWS. PROVIDE A MINIMUM OF TWO SCREWS PER CONNECTION UNLESS NOTED OTHERWISE.

10. DEFLECTION CRITERIA:

LIVE LOAD MAXIMUM DEFLECTION  
ROOF L/360  
FLOOR L/480

TOTAL LOAD MAXIMUM DEFLECTION  
ROOF L/240  
FLOOR L/360

11. THE COLD-FORMED STEEL TRUSS MANUFACTURER SHALL SUBMIT SHOP DRAWINGS AND DESIGN CALCULATIONS PREPARED BY A QUALIFIED PROFESSIONAL ENGINEER WHO IS LICENSED IN THE STATE WHERE THE PROJECT IS LOCATED. SEE PROJECT SPECIFICATION MANUAL FOR ADDITIONAL SUBMITTAL REQUIREMENTS.

12. COLD-FORMED STEEL TRUSSES ARE A DEFERRED SUBMITTAL ITEM.

### WOOD

1. PLYWOOD SHALL BE APA RATED STRUCTURAL I SHEATHING, WITH AN EXTERIOR OR EXPOSURE 1 DURABILITY CLASSIFICATION AND SHALL BEAR THE STAMP OF AN APPROVED TESTING AGENCY. LAY UP FLOOR AND ROOF WITH THE FACE GRAIN PERPENDICULAR TO SUPPORTS. STAGGER JOINTS. PROVIDE PLY CLIPS AT MIDSPAN OF ALL UNSUPPORTED PLYWOOD EDGES.

2. PLYWOOD PROPERTIES AND ATTACHMENT:

ROOF:  
THICKNESS: 15/32"  
SPAN/INDEX RATIO: 32/16  
ATTACHMENT TO COLD-FORMED FRAMING:  
EDGE ATTACHMENT: #10 SCREWS AT 6" O.C.  
FIELD ATTACHMENT: #10 SCREWS AT 12" O.C.  
MINIMUM SCREW PENETRATION: 1/2" BEYOND FLANGE OF FRAMING MEMBER  
ATTACHMENT TO WOOD FRAMING:  
EDGE NAILING (COMMON NAILS): 10D (148 DIA) OR #10 SCREWS AT 6" O.C.  
FIELD NAILING (COMMON NAILS): 10D (148 DIA) OR #10 SCREWS AT 12" O.C.  
MINIMUM NAIL AND SCREW PENETRATION (IN FRAMING): 1-5/8"

THE FIRST SHEET OF PLYWOOD SHEATHING ADJACENT AND PARALLEL TO WALLS, PERIMETER MEMBERS OR MEMBERS IDENTIFIED AS CHORD, COLLECTOR OR DRAG MEMBERS (ON ONE OR BOTH SIDES AS APPLICABLE) SHALL BE FULL WIDTH SHEETS. ELSEWHERE MINIMUM SHEET WIDTH 2'-0".

3. SAWN FRAMING LUMBER SHALL COMPLY WITH THE LATEST EDITION OF THE GRADING RULES OF THE WESTERN WOOD PRODUCT ASSOCIATION OR THE WEST COAST LUMBER INSPECTIONS BUREAU. MAXIMUM MOISTURE CONTENT AT TIME OF INSTALL AND IN SERVICE NOT TO EXCEED 19%. ALL MEMBERS SIZES SHOWN IN STRUCTURAL DRAWINGS ARE NOMINAL SIZES U.N.O. ALL SAWN LUMBER SHALL BE STAMPED WITH THE GRADE MARK OF AN APPROVED GRADING AGENCY.

4. SAWN LUMBER PROPERTIES:

TOP PLATES AND SILL PLATES WITH THICKNESS LESS THAN OR EQUAL TO 4"  
FB (PSI): 900  
FV (PSI): 190  
E (PSI): 1,600,000  
FC PARALLEL (PSI): 1350  
FC PERPENDICULAR (PSI): 625  
SPECIES AND GRADE: DOUGLAS FIR-LARCH #2

5. STEEL STRAPS AND TENSION TIES SHALL BE MANUFACTURED BY SIMPSON STRONGTIE COMPANY. FOR STEEL STRAPS INSTALLED OVER SHEATHING, USE 2 1/2" LONG NAILS MINIMUM.

### SHOP DRAWINGS

1. SHOP DRAWINGS ARE TO BE SUBMITTED FOR ALL STRUCTURAL ITEMS AND AS REQUIRED BY THE SPECIFICATIONS. CONTRACT DRAWINGS SHALL NOT BE REPRODUCED FOR USE AS SHOP DRAWINGS.

2. SHOP DRAWINGS SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER OF RECORD PRIOR TO FABRICATION.

3. CONTRACTOR SHALL REVIEW AND STAMP ALL SHOP DRAWINGS AND PRODUCT DATA FOR CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMITTAL. ALL ITEMS NOT IN ACCORDANCE WITH THE CONTRACT SHALL BE SO NOTED UPON THE CONTRACTOR'S REVIEW. ANY SHOP DRAWINGS OR PRODUCT DATA NOT REVIEWED AND STAMPED BY THE GENERAL CONTRACTOR WILL BE RETURNED WITHOUT REVIEW.

4. ANY SHOP DRAWING NOT CHECKED AND INITIALED BY THE SUPPLIER/DETAILER PRIOR TO SUBMITTING FOR ARCHITECTURAL AND ENGINEERING REVIEW WILL BE RETURNED WITHOUT REVIEW.

5. ANY CHANGE FROM THE ORIGINAL DRAWINGS SHALL BE NOTED BY THE SUBMITTING PARTY. ANY CHANGES NOT CALLED OUT SHALL BE CONSIDERED NOT APPROVED UNLESS SPECIFICALLY NOTED OTHERWISE. THE SHOP DRAWING STAMP SHALL NOT BE CONSIDERED IMPLIED APPROVAL OF ANY CHANGES.

6. SHOP DRAWINGS SHALL NOT REPLACE THE CONTRACT DRAWINGS. ITEMS OMITTED OR SHOWN INCORRECTLY AND NOT NOTED BY THE REVIEWER ARE NOT TO BE CONSIDERED CHANGES TO THE CONTRACT DRAWINGS. REVIEW IS INTENDED AS AN AID TO THE CONTRACTOR IN OBTAINING CORRECT SHOP DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ASSURE THAT ITEMS ARE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DRAWINGS.

7. ANY ENGINEERING DESIGN PERFORMED BY OTHERS AND SUBMITTED FOR REVIEW SHALL BEAR THE SEAL OF AN ENGINEER REGISTERED IN THE APPROPRIATE JURISDICTION AND DISCIPLINE. COMPLETE DESIGN CALCULATIONS FOR EACH MEMBER SHALL BE SUBMITTED TO THE ARCHITECT FOR REVIEW BY THE ENGINEER OF RECORD. THE ADEQUACY OF DESIGNS AND LAYOUTS PERFORMED BY OTHERS RESTS WITH THE DESIGNING OR SUBMITTING PARTY.



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BUILDING PERMIT REVIEW 29 AUG 2023

## GENERAL STRUCTURAL NOTES

SCALE 17-036

PROJECT NUMBER

DRAWING NUMBER

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# S-002