

STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL MEET THE LATEST "CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGE," AND HAS BEEN DESIGNED IN ACCORDANCE WITH THE BUILDING CODE AND THE LATEST EDITION OF AISC "MANUAL OF STEEL CONSTRUCTION".
- STRUCTURAL STEEL SHALL BE NEW AND MEET THE FOLLOWING REQUIREMENTS UNLESS NOTED OTHERWISE ON THE DRAWINGS:
 

TYPE	ASTM	GRADE
PLATE & ANGLES	A36	-----
RECTANGULAR HSS SECTIONS	A500	B (F <sub>y</sub> =46 KSI)
STRUCTURAL BOLTS	A325	----- (ASTM F1852)
ERECTION BOLTS	A307	-----
- ALL WELDING SHALL BE IN ACCORDANCE WITH LATEST AWS CODE, SECTION D1.1. ALL WELD MATERIAL SHALL BE 70 KSI TENSILE STRENGTH.
- STEEL FRAMING MEMBERS SHALL NOT BE SPLICED.
- OPENINGS SHALL NOT BE FIELD-CUT IN THE FLANGE OR WEBS OF STEEL MEMBERS.
- GALVANIZED STRUCTURAL STEEL SHALL CONFORM TO ASTM A123 FOR MEMBERS AND ASTM A153 FOR CONNECTION ELEMENTS. REPAIR ANY DAMAGED GALVANIZING COATING IN ACCORDANCE WITH ASTM A780.

STRUCTURAL WOOD

- ALL WOOD STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE BUILDING CODE AND THE LATEST EDITION OF THE NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS).
- THIS STRUCTURE IS DESIGNED AS CONVENTIONAL FIELD FRAMED CONSTRUCTION. SHOULD PANELIZED CONSTRUCTION BE USED, THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL ENGINEERING, COORDINATION WITH ALL OTHER BUILDING SYSTEMS AND REVIEW OF SHOP DRAWINGS. COORDINATION AND REVIEW OF PANELIZED CONSTRUCTION SHOP DRAWINGS ARE NOT INCLUDED IN THE ENGINEER OF RECORD'S SCOPE OF SERVICES FOR THIS PROJECT. REQUESTS FOR INFORMATION PERTAINING TO, OR DIRECTLY ASSOCIATED WITH, PANELIZED CONSTRUCTION WILL NOT BE REVIEWED.
- MANUFACTURED WOOD PRODUCTS SHALL BE BY I-LEVEL UNLESS NOTED OTHERWISE.
- THE DESIGN OF THE STRUCTURE IS BASED UPON THE USE OF THE FOLLOWING WOOD PRODUCTS:

USE	WOOD TYPE	GRADE	F <sub>b</sub> (PSI)	F <sub>cp</sub> (PSI)	E (PSI)
JOISTS (2 X 8) (2 X 10) (2 X 12)	SOUTHERN PINE	#2	925	1,350	1,400,000
	SOUTHERN PINE	#2	800	1,300	1,400,000
	SOUTHERN PINE	#2	750	1,250	1,400,000
STUDS (2 X 4) (2 X 6)	SPRUCE-PINE-FIR	#1/#2	875	1,150	1,400,000
	SPRUCE-PINE-FIR	#1/#2	875	1,150	1,400,000
COLUMNS (4 X 4) (6 X 6)	SOUTHERN PINE	#1	1,500	1,650	1,600,000
	SOUTHERN PINE	#1	1,350	1,550	1,500,000
ANTHONY POWER BEAM	-----	----	3,000	740	2,100,000
LSL (TIMBERSTRAND)	-----	----	2,325	2,050	1,550,000
LVL (MICROLLAM)	-----	----	2,600	2,510	1,900,000
PSL (PARALLAM)	BEAM	----	2,900	2,900	2,000,000
	COLUMN	----	2,400	2,500	1,800,000
PILE	SOUTHERN PINE	----	1,950	1,250	1,500,000

ALL MEMBERS SHALL BE SURFACED DRY AND HAVE A MAXIMUM MOISTURE CONTENT OF 19%. STRESS INCREASE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NDS.

- ROOF SHEATHING SHALL BE 1/2" APA RATED PLYWOOD OR ORIENTED STRAND BOARD, 40/20 SPAN RATING, EXPOSURE 1, LAID IN A CONTROLLED RANDOM STAGGERED PATTERN, WITH EDGE CLIPS BETWEEN SUPPORTS, LONG PANEL DIMENSION PERPENDICULAR TO THE FRAMING MEMBERS, AND CONTINUOUS OVER A MINIMUM OF THREE SUPPORTS. ALLOW FOR 1/8" GAP AT ALL PANEL EDGE AND END JOINTS UNLESS OTHERWISE RECOMMENDED BY MANUFACTURER.
- SHEAR WALL SHEATHING SHALL BE 1/2" APA RATED PLYWOOD OR ORIENTED STRAND BOARD, EXPOSURE 1. PROVIDE SOLID BLOCKING AT ALL PANEL EDGES IN SHEAR WALLS. ALLOW FOR 1/8" GAP AT ALL PANEL EDGE AND END JOINTS UNLESS OTHERWISE RECOMMENDED BY MANUFACTURER.
- ALL WOOD PRODUCTS IN DIRECT CONTACT WITH CONCRETE OR MASONRY SHALL BE PRESSURE TREATED WITH CCA-C, ACQ, CBA-A, CA-B OR SBX AND SHALL NOT BE IN CONTACT WITH SOIL.
- CONNECTIONS SHALL MEET THE FOLLOWING REQUIREMENTS:
  - PROVIDE ANCHOR RODS AND HOLD-DOWNS FOR ANCHORAGE OF SHEAR WALL TO FOUNDATION AS INDICATED ON PLANS, DETAILS, AND SCHEDULES. ALL SHEAR WALL SILL PLATE ANCHOR RODS REQUIRE 0.229"x3"x3" SLOTTED PLATE WASHERS BE INSTALLED BETWEEN THE HEAD OR NUT AND THE WOOD MEMBER. THE PLATE WASHER SHALL EXTEND TO WITHIN 1/2" OF THE EDGE OF THE BOTTOM PLATE ON THE SIDES WITH SHEATHING.
  - ALL SILL PLATE ANCHOR RODS REQUIRE 2"x2" SQUARE PLATE WASHERS BE INSTALLED BETWEEN THE HEAD AND THE WOOD MEMBER. ANCHORS TO FOUNDATION SHALL BE 3/8" DIAMETER, WITHIN 12" OF EACH END, AND 48" O.C., MAXIMUM.
  - ALL BOLTS SHALL BE ASTM A307. WASHERS WITH AN OUTSIDE DIAMETER EQUAL TO AT LEAST TWICE THE BOLT DIAMETER ARE REQUIRED BETWEEN THE BOLT HEAD OR NUT AND THE WOOD SURFACE.

- WOOD MEMBERS SHALL BE CONNECTED TOGETHER USING THE BUILDING CODE NAILING SCHEDULE, UNLESS NOTED OTHERWISE. ALL CONNECTIONS ARE BASED ON USING COMMON NAILS. ANY SUBSTITUTION OF BOX, SINKER, RING SHANK OR COOLER NAILS SHALL BE SUBMITTED WITH SEALED CALCULATIONS TO THE ENGINEER OF RECORD FOR APPROVAL. ALL OTHER FASTENERS, INCLUDING STAPLES, ARE PROHIBITED. ALL NAILS SHALL CONFORM TO THE FOLLOWING MINIMUM STANDARDS:
 

SIZE	LENGTH	DIAMETER	HEAD
6d	2"	0.113"	FULL ROUND HEAD
8d	2 1/2"	0.131"	FULL ROUND HEAD
10d	3"	0.148"	FULL ROUND HEAD
12d	3 1/2"	0.148"	FULL ROUND HEAD
16d	3 1/2"	0.162"	FULL ROUND HEAD
20d	4"	0.192"	FULL ROUND HEAD
30d	4 1/2"	0.207"	FULL ROUND HEAD

- ALL FASTENERS (SCREWS, NAILS, BOLTS, ETC.) AND CONNECTORS INSTALLED IN CONTACT WITH PRESSURE TREATED LUMBER SHALL MEET THE REQUIREMENTS OF THE "COMPATIBILITY OF FASTENERS AND CONNECTORS WITH PRESSURE TREATED LUMBER" TABLE.
- NAIL ROOF SHEATHING WITH 10d COMMON NAILS AT 6" O.C. ALONG PANEL EDGES AND AT 12" O.C. AT INTERMEDIATE SUPPORTS.
- NAIL WALL SHEATHING WITH 10d COMMON NAILS AT 6" O.C. ALONG PANEL EDGES AND AT 12" O.C. AT INTERMEDIATE SUPPORTS, UNLESS NOTED OTHERWISE AS A SHEAR WALL. NAIL SHEAR WALL SHEATHING PER SHEAR WALL SCHEDULE. REF. PLAN FOR SHEAR WALL LOCATIONS.
- ALL MANUFACTURED CONNECTORS SHALL BE BY SIMPSON STRONG-TIE COMPANY, INC., OR U.S.P., AND CONNECTED WITH THE FASTENERS SPECIFIED BY THE MANUFACTURER.
- FASTEN MULTIPLE LAYER MANUFACTURED WOOD MEMBERS TOGETHER IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- PROVIDE BRIDGING AT 8'-0" O.C. MAXIMUM FOR JOISTS AND RAFTERS USING SOLID BLOCKING UNLESS RIGID CEILING IS FASTENED DIRECTLY TO THE JOIST OR RAFTER.
- STAGGER SPLICES OF DOUBLE TOP PLATES 4'-0" MINIMUM.
- WOOD HEADERS AND LINTELS SHALL BEAR ON TOP OF A SINGLE STUD AT EACH END FOR OPENINGS LESS THAN 3'-8", BEAR ON TOP OF DOUBLE STUDS FOR OPENINGS GREATER THAN 3'-8" AND LESS THAN 8'-0", AND TRIPLE STUDS FOR OPENINGS GREATER THAN 8'-0", UNLESS NOTED OTHERWISE. SUPPORT STUDS SHALL BE CONNECTED TO AN ADJACENT FULL LENGTH STUD.
- MAINTAIN 1/4" GAP BETWEEN TRUSS BOTTOM CHORD AND DOUBLE TOP PLATE OF INTERIOR NON-LOAD BEARING PARTITION WALLS. PROVIDE SIMPSON STC CONNECTORS.
- HOLES SHALL BE PREDRILLED FOR ALL WOOD SCREW CONNECTIONS. PREDRILLED HOLE DIAMETERS SHALL BE:
 

SCREW DIAMETER	HOLE DIAMETER
NO. 8	3/32"
NO. 10	7/64"
NO. 12	1/8"

13. STRUCTURAL INSULATED PANELS SHALL BE R-CONTROL (OR APPROVED EQUAL). THE TOP SKIN SHALL BE A MINIMUM OF 7/16" THICKNESS. THE BOTTOM SKIN SHALL BE A MINIMUM OF 19/32" THICKNESS.

POST INSTALLED ANCHORING SYSTEMS

- SUBSTITUTION OF POST INSTALLED ANCHORS FOR EMBEDDED ANCHORS SHOWN ON THE DRAWINGS WILL NOT BE PERMITTED UNLESS APPROVED BY THE ENGINEER IN ADVANCE.
- ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII) AND THE EVALUATION REPORT (ER/ESR) SPECIFIED INCLUDING HOLE PREPARATION, TEMPERATURE AND MOISTURE CONDITIONS.
- ADHESIVE ANCHORS:
  - THE CONTRACTOR SHALL ARRANGE AN ANCHOR MANUFACTURER'S REPRESENTATIVE TO PROVIDE ONSITE INSTALLATION TRAINING FOR ALL ANCHOR PRODUCTS SPECIFIED. THE CONTRACTOR MUST MAINTAIN TRAINING RECORDS OF ALL CONTRACTOR PERSONNEL INSTALLING ANCHORS AND SUBMIT TO THE ENGINEER OF RECORD PRIOR TO INSTALLING ANCHORS UPON REQUEST.
  - ADHESIVE ANCHORS SHALL BE USED IN CONJUNCTION WITH THE APPROPRIATE ADHESIVE SYSTEM. STANDARD REINFORCING STEEL ANCHORED IN CONCRETE SHALL BE IN ACCORDANCE WITH ASTM A615 GRADE 60 UNLESS NOTED OTHERWISE.
  - APPROVED ADHESIVE ANCHORS FOR PREVIOUSLY CAST CONCRETE:
 

MANUFACTURER/PRODUCT	REPORT NUMBER
HILTI HIT-HY200 SSS* WITH HIT-Z ROD	ICC-ES ESR-3187
HILTI HIT-HY200 SSS* WITH HOLLOW BIT & HAS-E ROD	ICC-ES ESR-3187
HILTI HIT-HY200 SSS* WITH HOLLOW BIT & STEEL REINFORCING *SAFE SET SYSTEM	ICC-ES ESR-3187
SIMPSON STRONG-TIE SET-XP WITH SPEED CLEAN DXS SYSTEM	ICC-ES ESR-2508
SIMPSON STRONG-TIE AT-XP WITH SPEED CLEAN DXS SYSTEM	IAPMO-UES ER-263
- POWDER ACTUATED FASTENERS
  - WHEN CALLED FOR ON THE PLANS, THE APPROVED ANCHORS ARE:
 

MANUFACTURER AND PRODUCT	USE	REPORT NUMBER
HILTI X-CP-72	TREATED WOOD 2X TO CONCRETE	ICC-ES ESR-2379
SIMPSON STRONG-TIE PDPAW	TREATED WOOD 2X TO CONCRETE	ICC-ES ESR-2138

CONTRACT/CONSTRUCTION DOCUMENTS

- THE CONTRACTOR SHALL BE RESPONSIBLE TO OBTAIN A FULL SET OF THE MOST RECENT REVISIONS OF EACH DOCUMENT INCLUDING ALL PLANS, SPECIFICATIONS, ADDENDA, AND SUPPLEMENTAL INSTRUCTIONS.
- THE CONTRACTOR SHALL REVIEW THE DOCUMENTS PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY MATERIALS FOR CONFLICTS. IF CONFLICTS OCCUR THE CONTRACTOR SHALL USE THE MOST STRINGENT REQUIREMENT OR REQUEST A CLARIFICATION THROUGH A REQUEST FOR INFORMATION (RFI).
- THE DOCUMENTS MAY NOT BE REPRODUCED IN WHOLE OR IN PART FOR USE ON PROJECTS OTHER THAN IDENTIFIED IN THE TITLE BLOCK. SHOULD THE CONTRACTOR USE THE DOCUMENTS AS A PORTION OF A SHOP DRAWING SUBMITTAL, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CONSEQUENCES RESULTING FROM ERRORS IN THE REPRODUCED DOCUMENTS.
- DETAILS LABELED TYPICAL ARE INTENDED TO REPRESENT A CONDITION THAT OCCURS AT SEVERAL LOCATIONS IN THE PLANS WHETHER OR NOT THE DETAIL IS REFERENCED.
- DO NOT SCALE THE PLANS AND DETAILS FOR THE PURPOSE OF ESTABLISHING DIMENSIONS.

CONTRACTOR'S RESPONSIBILITY

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR REVIEWING ALL SUB-CONTRACTOR SUBMITTALS AND NOTING ALL DEVIATIONS FROM THE CONSTRUCTION DOCUMENTS PRIOR TO SUBMITTING TO THE ENGINEER FOR REVIEW.
- SUBSTITUTION REQUESTS SHALL BE SUBMITTED IN WRITING WITH THE COST REDUCTION AMOUNT AND THE SCHEDULE IMPACT FOR THE OWNER (SUBMITTALS WITHOUT THE COST AND SCHEDULE IMPACT WILL NOT BE REVIEWED). A COMPARISON OF THE DATA WITH THE MATERIAL SPECIFIED INCLUDING CODE APPROVALS SHALL BE PROVIDED.
- REQUESTS FOR INFORMATION (RFI) SHALL BE SUBMITTED IN WRITING WITH COST, SCHEDULE IMPACT, AND SUGGESTED SOLUTION INCLUDED. AN RFI THAT DOES NOT INCLUDE THE COST AND SCHEDULE IMPACT WILL NOT BE REVIEWED.
- DEFECTIVE WORK REPORT (DWR) SHALL BE SUBMITTED TO THE ENGINEER WITHIN (2) WORKING DAYS OF THE OCCURRENCE. THE DWR SHALL REPORT THE DEFECT AND PROPOSE A REMEDIATION OF THE DEFECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE REMEDIATION OF THE DEFECT INCLUDING ENGINEERING COSTS, IF ANY.
- WHEN THE CONTRACTOR BECOMES AWARE OF WHAT MAY BE AN UNFORESEEN CONDITION THAT COULD AFFECT COST OR SCHEDULE, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING WITHIN (2) WORKING DAYS. AFTER REVIEW AND ENGINEER'S DETERMINATION THAT AN UNFORESEEN CONDITION EXISTS; THE CONTRACTOR SHALL SUBMIT A CHANGE ORDER REQUEST FOR APPROVAL WITH BOTH COST AND SCHEDULE IMPACT ATTACHED.
- THE CONTRACTOR'S SCHEDULE MUST PROVIDE A REASONABLE TIME ALLOWANCE FOR THE ENGINEERING REVIEW AND APPROVAL.
- THE CONTRACTOR WILL BE SOLELY RESPONSIBLE FOR SITE SAFETY. THE ENGINEER IS RESPONSIBLE FOR FOLLOWING THE CONTRACTOR'S CONSTRUCTION SITE SAFETY INSTRUCTIONS PROVIDED IN WRITING. ALTERNATELY, THE CONTRACTOR SHALL ASSIGN AN ESCORT TO ADVISE THE ENGINEER OF SITE SAFETY ISSUES DURING SITE VISITS. THE ENGINEER'S PURPOSE OF A SITE VISIT IS SOLELY TO BECOME FAMILIAR WITH THE GENERAL PROGRESS AND QUALITY OF THE PROJECT. THE ENGINEER'S SITE VISIT IS NOT A QUALITY CONTROL FUNCTION.

CONSTRUCTION MEANS AND METHODS ISSUES

- SLAB ON GRADE AND ELEVATED SLABS ARE NOT DESIGNED TO SUPPORT CRANES, FORKLIFTS, TRUCKS, MANLIFTS, OR OTHER CONSTRUCTION RELATED EQUIPMENT UNLESS NOTED AS SUCH. IT IS THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE IF CONSTRUCTION EQUIPMENT CAN BE SAFELY OPERATED ON THESE SLABS AND TO REPAIR ANY DAMAGE THE EQUIPMENT MAY CAUSE.
- THE CONSTRUCTION DOCUMENTS REPRESENT A STABLE STRUCTURE IN THE COMPLETED FORM. THE CONTRACTOR SHALL PROVIDE ANY TEMPORARY BRACING AND/OR SHORES TO SAFELY CONSTRUCT THE BUILDING AND PREVENT DAMAGE DURING CONSTRUCTION.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND ELEVATIONS OF EXISTING CONSTRUCTION THAT MAY AFFECT THE PROJECT AND REPORT DISCREPANCIES TO THE ENGINEER. ANY DIMENSIONS FOR ELEVATIONS THAT IMPACT NEW WORK SHALL BE VERIFIED PRIOR TO FABRICATION OF ANY MATERIAL. EXISTING BUILDING ELEMENTS THAT ARE TO BE ABANDONED THAT INTERFERE WITH NEW CONSTRUCTION SHALL BE REMOVED.
- WHEN A PIECE OF EQUIPMENT (HVAC, ELECTRICAL, KITCHEN, ETC.) IS PROVIDED THAT IS DIFFERENT THAN THE EQUIPMENT THAT THE STRUCTURE WAS DESIGNED FOR EITHER BY SIZE, WEIGHT OR CONFIGURATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH THE REMEDY OF THE SITUATION. THOSE COSTS SHALL INCLUDE THE ENGINEERING COSTS TO REDESIGN PORTIONS OF THE STRUCTURE TO ACCOMMODATE THE SUBSTITUTED EQUIPMENT.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STRUCTURAL DESIGN AND MATERIALS FOR ATTACHING NON-STRUCTURAL ELEMENTS TO ANY PORTION OF THE STRUCTURE TO RESIST ALL LOADS, INCLUDING SEISMIC, IN A WAY THAT DOES NOT OVERSTRESS STRUCTURAL MEMBERS. NON-STRUCTURAL ELEMENTS CAN BE FOUND IN EACH OF THE OTHER DISCIPLINES (ARCHITECTURAL, MECHANICAL, ELECTRICAL, ETC.).

STRUCTURAL TESTS, INSPECTIONS, AND QUALITY ASSURANCE

ALL STRUCTURAL TESTS AND INSPECTIONS SHALL BE PERFORMED PER CHAPTER 17 OF THE BUILDING CODE WITH LOCAL SUPPLEMENTS, UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED.