1 2 3 4 5 6 7 8

STRUCTURAL STEEL

ALL DESIGN, FABRICATION AND ERECTION SHALL CONFORM TO THE AISC STEEL CONSTRUCTION MANUAL, 13TH EDITION, AND AMERICAN IRON AND STEEL SPECIFICATION MANUAL (LATEST EDITION). THE DESIGN AND ERECTION OF LIGHT GAGE STEEL STRUCTURAL MEMBERS SHALL CONFORM TO AISI (LATEST EDITION). WELDING SHALL CONFORM TO THE LATEST AWS AND AISC SPECIFICATIONS.

WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE BEST PRACTICE AND WITHIN THE TOLERANCES SPECIFIED IN THE AISC SPECIFICATIONS FOR STRUCTURAL STEEL.

IT IS SPECIFICALLY NOTED THAT BURNED HOLES ARE NOT ACCEPTABLE UNLESS SPECIAL PERMISSION IS GIVEN BY ENGINEER.

ALL SHOP FABRICATED WORK SHALL BE DONE IN A SHOP APPROVED BY THE GOVERNING AGENCY. FABRICATOR SHALL SUBMIT PROGRAM OF WELDING INSPECTION TO ENGINEER FOR APPROVAL.

ALL STRUCTURAL STEEL SHALL BE AS FOLLOWS UNO:

ALL WF, WT SHAPES	A992 GRADE 50
CONNECTION PL & MISC STEEL (UNO)	ASTM. A36
GUSSET & COLLECTOR PLATES..........	ASTM. A572 GRADE 50
PIPE COLUMNS (TYPE S, SEAMLESS).	ASTM. A53 GRADE B
STRUCTURAL TUBING..........................	ASTM. A500 GRADE B
ANGLE, CHANNELS..............................	ASTM. A36
THREADED ROD...................................	ASTM. A36
HEADED SHEAR STUDS.......................	ASTM. A108 , GRADES 1015 TO 1020 TYPE 316, 50 ksi
ELECTRODES..	a) E70XX FOR A36 STEEL AND SMAW PROCESS OR EQUIVALENT. b) FOR OTHER STEEL GRADES USE MATCHING WELD METAL AND PROCESSES.

ALL HIGH STRENGTH BOLTS SHALL BE ASTM A325-N TYPE UNLESS OTHERWISE NOTED.

ALL BOLTS USED FOR ERECTION SHALL BE ASTM A325 TYPE WITH THREADS EXCLUDED FROM SHEAR PLANES.

ALL PLAIN ANCHORS SHALL BE A36; ALL ANCHOR BOLTS SHALL COMPLY WITH ASTM F1554. 3" MINIMUM CONCRETE COVER WILL BE PLACED AROUND ALL ANCHOR BOLTS EXPOSED TO THE WEATHER, U.N.O.

WELDING MATERIALS: PROVIDE TYPE REQUIRED FOR MATERIALS BEING WELDED, PER AWS D1.1.

PROVIDE CONTINUOUS INSPECTION FOR ALL FABRICATION AND WELDING OF STRUCTURAL STEEL IN ACCORDANCE WITH CODE REQUIREMENTS. ALL COMPLETE PENETRATION GROOVE WELDS IN JOINTS AND SPLICES SHALL BE TESTED 100 PERCENT IN ACCORDANCE WITH IBC . USE ONE OF THE APPROVED METHODS OF TIGHTENING HIGH STRENGTH BOLTS.

A WELDING SEQUENCE SHALL BE PLANNED TO MINIMIZE RESIDUAL STRESSES AND DISTORTIONS OF INDIVIDUAL MEMBERS AND THE BUILDING FRAME. ALL DETAILING, FABRICATION, AND ERECTION SHALL COMPLY WITH AISC, LATEST EDITION.

UNLESS OTHERWISE NOTED, ALL STIFFENER PLATES ARE 3/8" THICK MINIMUM AND ALL BUTT WELDS ARE FULL PENETRATION WELDS. ERECTION CLIPS, TEMPORARY BRACING, ETC., REQUIRED BY THE CONTRACTOR ARE NOT SHOWN.

SUBMIT SHOP DRAWINGS FOR THE FABRICATION AND ERECTION OF ALL ASSEMBLIES OF STRUCTURAL STEEL WORK. INCLUDE PLANS AND ELEVATIONS AT NOT LESS THAN ¼" TO 1'-0" SCALE, AND INCLUDE DETAILS OF SECTIONS AT NOT LESS THAN 1" TO 1'-0" SCALE.

NO FINISH FABRICATION SHALL BE COMMENCED OR MATERIAL DELIVERED TO THE JOB UNTIL THE ENGINEER HAS REVIEWED AND APPROVED THE SHOP DRAWINGS.

ALL STRUCTURAL STEEL SHALL BE PAINTED WITH ONE SHOP COAT OF ZINC CHROMATE PRIMER OR EQUAL. AFTER ERECTION, FIELD CONNECTIONS SHALL BE TOUCHED UP. DO NOT PAINT PORTION OF STEEL TO BE EMBEDDED IN CONCRETE, HEADED ANCHOR STUDS, FAYING SURFACES OR AREAS TO RECEIVE FIRE PROOFING. EXTERIOR, EXPOSED STEEL MEMBERS ARE SPECIFIED TO BE HOT-DIPPED GALVANIZED OR STAINLESS AS NOTED.

WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WHERE FILLET WELD SYMBOL IS GIVEN WITHOUT INDICATION OF SIZE, USE MINIMUM SIZE WELDS AS SPECIFIED IN AISC MANUAL OF STEEL CONSTRUCTION LATEST EDITION. THIS INCLUDES OPEN WEB JOIST CONNECTIONS.

THE USE OF E70T-4 WELDING WIRE IS NOT ALLOWED FOR ANY APPLICATION.

WRITTEN WELDING PROCEDURE SPECIFICATIONS (WPS) PER THE RECOMMENDATIONS OF THE AMERICAN WELDING SOCIETY (AWS) SHALL BE DEVELOPED BY THE FABRICATOR/ERECTOR AND SUBMITTED FOR REVIEW BY THE ENGINEER PRIOR TO ANY WELDING OF THE STRUCTURAL STEEL. THE WELDING PROCEDURES SHALL INCLUDE ALL THE WELDED JOINTS AND CONFIGURATIONS TO BE USED ON THIS PROJECT-ONLY WPS WHICH ARE RELEVANT TO THIS PROJECT SHALL BE SUBMITTED. ALL WELDED JOINTS SHALL BE PRE-QUALIFIED PER AWS OR BE QUALIFIED BY TEST PER AWS. A PROCEDURE QUALIFICATION RECORD (PQR) SHALL BE INCLUDED WITH THE WPS IF THE WELDING PROCEDURE OR JOINT IS QUALIFIED BY TESTING. THE ELECTRODE MANUFACTURER AND PRODUCT/TRADE NAME SHALL BE IDENTIFIED IN THE WPS IN ADDITION TO THE AWS ELECTRODE CLASSIFICATION NAME. A COPY OF THE ELECTRODE MANUFACTURER'S TECHNICAL DATA SHEETS WITH THE RECOMMENDED WELDING PARAMETERS SHALL BE SUBMITTED WITH THE WPS.

STRUCTURAL STEEL, CONT'D

DO NOT WELD ANY STRUCTURAL STEEL MEMBER OR CONNECTION UNLESS EXPLICITLY CALLED OUT IN THE CONTRACT DOCUMENTS.

WELD SYMBOLS SHOW FINAL WELD REQUIRED. THE CHOICE TO WELD IN THE FIELD OR IN THE SHOP SHALL BE UP TO THE CONTRACTOR AND SHALL BE INDICATED IN THE FABRICATOR'S SHOP DRAWINGS.

ALL STRUCTURAL STEEL SHALL BE PROPERLY GUYED AND BRACED UNTIL FLOOR AND ROOF FRAMING SYSTEM AND LATERAL LOAD RESISTING SYSTEM IS IN PLACE.

THIS STRUCTURE IS CONSIDERED A NON-SELF-SUPPORTING STEEL FRAME. THE CONTRACTOR SHALL PROVIDE ADEQUATE TEMPORARY SUPPORTS UNTIL ALL PERMANENT SHEAR WALLS, MOMENT FRAMES, BRACED FRAMES, AND FLOOR SLABS ARE IN PLACE.

MAXIMUM LIVE LOAD DEFLECTIONS ARE LIMITED TO THE BEAM SPAN (IN INCHES) DIVIDED BY 420. TOTAL BEAM DEFLECTION IS LIMITED TO THE BEAM SPAN (IN INCHES) DIVIDED BY 360.

DETAIL STEEL BEAM CONNECTIONS AS SIMPLE SPAN BEAMS, UNLESS OTHERWISE NOTED.

ALL BEAM CONNECTIONS SHALL BE DETAILED TO PROVIDE A SHEAR CONNECTION WITH A MINIMUM DESIGN CAPACITY AS THAT SHOWN IN THE DRAWINGS BEAM SHEAR TAB CONNECTION TABLE FOR THE CORRESPONDING BEAM SIZE.

ALL CONNECTIONS NOT DETAILED OR OTHERWISE NOTED SHALL BE DESIGNED AS AISC TYPE 2 BOLTED CONNECTIONS DESIGNED FOR FULL LOAD CAPACITY OF THE CONNECTING MEMBERS.

ALL BOLTS IN MOMENT CONNECTIONS SHALL BE BEARING TYPE CONNECTIONS.

ALL WELDS SHALL BE MADE BY WELDERS CERTIFIED ACCORDING TO AWS PROCEDURES.

LUMBER & FRAMING REQUIREMENTS

ALL STRUCTURAL LUMBER DESIGN SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL DESIGNS SPECIFICATION FOR WOOD CONSTRUCTION (NDS-2001)

CARE SHALL BE TAKEN TO SLOWLY DRY THE AGED LUMBER SO THAT CRACKING IS MINIMIZED.

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ADEQUATE TEMPORARY LATERAL BRACING.

ALL WOOD FRAMING MATERIAL SHALL BE SURFACED DRY AND USED AT 19% MAXIMUM MOISTURE CONTENT. ALLOWABLE STRESS REQUIREMENTS OF ALL MATERIALS SHALL BE IN ACCORDANCE WITH THE "SCHEDULE OF REQUIRED STRESS VALUES".

ALL STUD AND WALL FRAMING SHALL BE NO. 2 GRADE SOUTHERN YELLOW PINE (SYP). "STUD" GRADE MATERIAL IS STRICTLY PROHIBITED FROM USE.

ALL JOIST RAFTER & MISC FRAMING SHALL BE NO 2 GRADE. SOUTHERN YELLOW PINE, PROVIDE FULL-DEPTH BLOCKING AT ENDS. PROVIDE FULL-DEPTH (OR METAL) BRIDGING AT MID SPAN AND AT A MAXIMUM SPACING OF 8'-0" O/C IN BETWEEN.

ALL LUMBER EXPOSED TO EXTERIOR ENVIRONMENT OR IN CONTACT WITH MASONRY OR CONCRETE SHALL BE PRESSURE TREATED TO A MINIMUM RETENTION OF 0.25 LBS OF ACQ PER CUBIC FOOT OF WOOD AND EACH PIECE SHALL BEAR THE THIRD PARTY QUALITY MARK "ABOVE GRADE USE". ALL LUMBER IN CONTACT WITH THE GROUND SHALL BE PRESSURE TREATED TO A MINIMUM RETENTION OF 0.47 IBS OF ACQ PER CUBIC FOOT OF WOOD AND EACH PIECE SHALL BEAR THE THIRD PARTY QUALITY MARK "GROUND CONTACT USE". REFERENCE STANDARD AWPA C2 AND ASTM D176D FOR PRESSURE TREATMENT OF TIMBER PRODUCTS.

WHERE POSSIBLE ALL CUTS AND HOLES SHOULD BE COMPLETED BEFORE TREATMENT. CUTS AND HOLES DUE TO ON-SITE FABRICATION SHALL BE BRUSHED WITH 2 COATS OF COPPER NAPHTHENATE SOLUTION CONTAINING A MINIMUM OF2% METALLIC COPPER IN SOLUTION (PER AWPS STD. M4)

THE CONTRACTOR SHALL CAREFULLY SELECT LUMBER TO BE USED IN LOAD BEARING APPLICATIONS. THE LENGTH OF SPLIT ON THE WIDE FACE OF 3" AND THICKER LUMBER SHALL BE LIMITED TO 1/2 OF THE NARROW FACE DIMENSIONS.

PROVIDE DOUBLE JOISTS UNDER ALL PARTITIONS WHICH RUN PARALLEL WITH JOISTS AND UNDER ALL CONCENTRATED LOADS FROM FRAMING ABOVE,

PROVIDE DOUBLE HEADER BEAMS OF THE SAME SIZE AS JOISTS OR RAFTERS TO FRAME AROUND OPENINGS IN PLYWOOD DECK UNLESS OTHERWISE INDICATED.

STRUCTURAL STEEL PLATE CONNECTORS SHALL CONFORM TO ASTM A 36 SPECIFICATIONS AND BE 1/4" THICK UNLESS OTHERWISE INDICATED. BOLTS CONNECTING WOOD MEMBERS SHALL BE PER ASTM A307 AND BE 3/4" DIAMETER UNLESS OTHERWISE INDICATED. PROVIDE WASHERS FOR ALL BOLT HEADS AND NUTS IN CONTACT WITH WOOD SURFACES.

BOLT HOLES SHALL BE CAREFULLY CENTERED AND DRILLED NOT MORE THAN 1/16" LARGER THAN THE BOLT DIAMETER. BOLTED CONNECTIONS SHALL BE SNUGGED TIGHT BUT NOT TO THE EXTENT OF CRUSHING WOOD UNDER WASHERS.

HOLES AND NOTCHES DRILLED OR CUT INTO WOOD FRAMING SHALL NOT EXCEED THE REQUIREMENTS OF IBC. SECTION 23.

ALL PLATES ANCHORS, NAILS BOLTS. NUTS WASHERS AND OTHER MISCELLANEOUS HARDWARE SHALL BE HOT DIP GALVANIZED.

ADEQUATE BRACING SHALL BE PROVIDED UNTIL PERMANENT BRACING AND/OR DIAPHRAGMS ARE INSTALLED. OVERLAP ALL TOP PLATES AT CORNERS.

JOINTS IN THE DOUBLE TOP PLATES OF THE WALL SHALL BE OFFSET A MINIMUM LAP LENGTH OF 4'-0" & NAILED WITH NOT LESS THAN (15) 16D FACE NAILS ON EACH SIDE OF THE JOINT.

ALL BEAMS SHALL HAVE LATERAL SUPPORT AT THE COMPRESSION EDGE AT A MAXIMUM OF 24" O.C. AND AT BEARING POINTS, WITH A MINIMUM BEARING LENGTH OF 3 1/2".

ALL NAILING NOT OTHERWISE INDICATED SHALL BE IN ACCORDANCE WITH THE "NAILING SCHEDULE" PER THE IBC TABLE 2308.1. ALL NAILS SHALL BE COMMON NAILS UNLESS NOTED OTHERWISE. NAILS SHALL NOT BE OVERDRIVEN,

EDGE DISTANCES, END DISTANCES AND SPACING FOR NAILS SHALL BE SUFFICIENT TO PREVENT SPLITTING OF THE WOOD.

WOOD CONNECTOR NOTES:

CONNECTORS FOR WOOD CONSTRUCTION SHALL BE SIMPSON STRONG-TIE CONNECTORS OR ENGINEER APPROVED SUBSTITUTE, SECURED IN ACCORDANCE WITH THE MANUFACTURERS LITERATURE AND SPECIFICATIONS FOR THE INTENDED USE.

CONNECTORS EXPOSED TO WEATHER, HIGH HUMIDITY OR IN CONTACT WITH THE GROUND SHALL BE HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 153.

CONNECTORS USED IN PRESSURE-TREATED WOOD SHALL BE TRIPLE-DIPPED GALVANIZED (ASTM G 185) OR TYPE 318 STAINLESS STEEL TO MINIMIZE CORROSION POTENTIAL.

ALL NAILS IN CONTACT WITH PRESSURE TREATED WOOD SHALL BE HOT-DIPPED GALVANIZED OR STAINLESS STEEL.

THE USE OF DISSIMILAR METALS IN CONNECTIONS IS NOT PERMITTED FOR EXAMPLE WHERE A GALVANIZED CONNECTOR IS USED, ALSO USE A GALVANIZED NAIL.

FLOOR SHEATHING

THE FLOORS SHALL BE SHEATHED WITH 3/4" THICK (MINIMUM) APA-RATED PLYWOOD FOR 24" SPANS, WITH #7x4" LONG STAINLESS STEEL SCREWS FASTENED TO THE JOISTS BELOW AT 6" ON CENTER AT ALL PANEL EDGES AND BOUNDARIES, AND 12" ON CENTER IN THE FIELD.

FINAL

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