

STRUCTURAL STEEL (05120)

- All workmanship and materials shall conform to the latest edition of the AISC Specifications for the Design, Fabrication, and Erection of Structural Steel for Buildings.
- Structural steel shall conform to ASTM A 992, unless otherwise noted.
- Steel pipes shall conform to ASTM A 53, Grade "B".
- Structural steel tubing shall conform to ASTM A 500, Grade "B", Fy = 46 KSI.
- Machine bolts and anchor bolts shall be Grade "A" conforming to ASTM A 307, unless otherwise noted.
- Nuts for machine bolts shall conform to ASTM A 563, Hex Grade A.
- High strength bolts shall conform to ASTM A 325.
- Nuts for high-strength bolts shall be heavy hex, Grade C, conforming to ASTM A 563.
- Shop drawings for structural and miscellaneous steel shall be submitted for review prior to fabrication.
- Non-shrink grout shall have a minimum compressive strength of 28 days of 2,000 PSI per ASTM C 109. Grouting of base plates prior to alignment of columns shall not be permitted.
- All welding shall be done by the shielded arc process using approved electrodes per AWS specification E70XX (low hydrogen electrodes). Welding shall conform to the latest edition of AWS D1.1 and shall be performed by certified welders qualified under the procedures contained therein.
- Welds identified as requiring continuous or periodic special inspection need not have special inspection when the welding is done in an approved fabricator's shop. However, the approved fabricator must submit a certificate of compliance in accordance with CBC Section 1701.7.
- Fabrication of structural steel shall be by an approved fabricator or fabrication shall be continuously inspected by a registered special inspector.
- Bolt holes in steel shall be drilled 1/16" larger diameter than nominal size of bolt used, except as noted otherwise.
- All steel exposed to weather or moisture conditions shall be hot dip galvanized after fabrication. Areas that have been field welded shall be coated with "ReGalv", "Galvalloy", or an approved equal.
- High-Strength Bolts where required.
 - High-strength bolts shall be installed, tightened, and inspected in strict accordance with ASTM A325. Threads shall be excluded from all shear planes. Contact surfaces or members to be bolted shall not be painted.
 - All high-strength bolts shall be installed in accordance with Paragraph 5E, "Tightening by Use of Direct Tension Indicators" of the Specifications for Structural Joints using ASTM A 325 or A 490 bolts, as approved by the Research Council on Riveted and Bolted Structural Joints, and endorsed by the American Institute of Steel Construction. Load indicator washers shall be used as the approved direct tension indicators and shall be installed as follows:
 - The load indicator washer shall be placed on the bolt with the protrusions facing the bolt head.
 - The assembly shall be fitted into place and the nut installed. Hardened round washers shall be used under the nut to reduce frictional resistance.
 - Sufficient bolts in the joint shall be engaged to draw the connecting members into close contact, then all bolts shall be tightened until the average gap between the face of the load indicator washer and the underside of the bolt head is reduced to at least 0.015 inch.
 - Tightening shall progress systematically from the most rigid part of the joint to its free edges until the load indicator washers on all bolts are closed to at least the required gap. The gap may be checked with a feeler gauge. Complete closure of the gap should be avoided, but is not necessarily reason for rejection.
 - When it is required to use the load indicator under the nut, a hardened round washer shall be fitted between the load indicator washer and the nut. After the bolt is installed in the connection, the load indicator washer shall be placed on the bolt with the protrusions facing the nut; the hardened round washer shall be placed against the load indicator washer protrusions before the nut is installed. For this assembly, tightening shall be continued until the average gap between the load indicator washer and the hardened round washer is closed at least 0.015 inch if the bolt head is turned during installation, and to at least 0.010 inch if the nut is turned in accordance with the procedure given below.
 - If the load indicator washer must be placed under the head and the head must be turned, then a hardened round washer must be used between the load indicator washer protrusions and the bolt head. For this fastener assembly, the average gap between the load indicator washer and the hardened round washer shall be closed to 0.010 inch.

FC-N Full CORE

NELSON WELDED STUDS

- Material:

Anchor studs shall be Nelson granular Flux-filled headed anchor (CBO #2614) studs or an approved equal and shall be made from C-1015 cold rolled steel and shall conform to ASTM Specification A-108, grades 1015-1020 with minimum tensile strength of 60,000 PSI. Stud welding inspection and testing shall conform to AWS D1.1-75.
- Installation:

The studs shall be automatically end welded in accordance with the manufacturer's recommendations in such a manner to provide complete fusion between the end of the stud and the plate. There should be no porosity or evidence of lack of fusion between the welded end of the stud and the plate. The stud shall decrease in length during welding approximately 1/8" for 5/8" and under, and 3/16" for over 5/8" diameter. Welding shall be done only by qualified welders approved by the welding inspector.
- Inspection:

Inspection of all the shop and field welding operations for the automatic end welded studs shall be made by a qualified welding inspector (approved by the governing agency). The type and capacity of the welding equipment shall be in accordance with the manufacturer's recommendations and shall be checked and approved by a welding inspector. At the beginning of each day's work, a minimum of 2 test stud welds shall be made with the equipment to be used to metal which is the same as the actual work piece. The test studs shall be subjected to a 90° bend test by striking them with a heavy hammer. After the above test, the weld section shall not exhibit any tearing out or cracking.

WOOD TRUSSES (06190)

- Prefabricated wood joists, open web joists, and bridging shall be manufactured and erected in accordance with the Truss Joist Manufacturer's Corporation or approved equal manufacturer. The truss manufacturer shall submit truss layout drawings, details, and calculations to the structural engineer for approval prior to fabrication.
- Prefabricated wood joist shown on these plans have been calculated and detailed for the specific truss shown. In addition, the manufacturer shall furnish to the Structural Engineer a certificate of compliance indicating compliance with CBC and which also identifies the joists delivered for this specific project. Such certificate of compliance shall be furnished prior to installation.

If any substitution is proposed by the contractor, new calculations will have to be prepared, the details may have to be altered, and new plans have to be issued. The contractor shall provide an allowance to cover the engineers fees to alter the approved plans and reissued for construction.
- All hangers supporting suspended piping, etc., hung from the bottom chords of joists shall be located at the panel points of the joists.
- All lateral bracing shown in these drawings are schematic only. The truss manufacturer shall submit bracing layout and details to the engineer for approval prior to fabrication.
- All prefabricated wood joist supporting mechanical equipment shall be designed by the truss manufacturer and submitted to the structural engineer for approval.
- See the truss manufacturer's drawings for truss flange sizes and material specifications, and grade of lumber.
- See the truss manufacturer's drawings for truss tubular web specifications and sizes, and connection pin specifications and sizes.
- Provide bridging for open web trusses at 8'-0" o.c. max. for floors and 12'-0" o.c. max. for roofs.
- See the truss manufacturer's drawings for support of piping at open web trusses.
- The fabrication of trusses and other assemblies constructed using wood and metal members, or using light metal plate connections, shall be continuously inspected by a qualified inspector approved by the enforcement agency. The inspector shall furnish the Architect, Structural Engineer and the enforcement agency with a report that the lumber species, grades and moisture content; type of glue, temperature and gluing procedure; type of metal members and metal plate connectors; and the workmanship conform in every material respect with the duly approved plans and specifications. Each inspected truss shall be stamped by the inspector with an identifying mark.
- Wood joist top flanges must be capable of receiving two rows of diaphragm boundary nailing per the plans without splitting.
- Wood trusses are designed assuming that the roofing consists of concrete tiles (12 psf max.). Contractor and/or wood truss manufacturer shall confirm maximum concrete tile weights before wood trusses are manufactured.

CONCRETE MASONRY UNITS (04300)

- Concrete masonry units shall be normal weight open end units conforming to ASTM C 90, Grade N-1, with maximum linear shrinkage of 0.06% (F'm = 1,500 PSI). (Medium weight = 115 PCF). Minimum Compressive Strength at 28 Days for CMU shall be as follows:

	Allowed For Design	Actual Min. Strength Of Units
Typ. U.N.O. High Strength CMU	f'm = 1,500 PSI f'm = 3,000 PSI	f'm = 2,000 PSI f'm = 3,750 PSI
- Mortar shall be type "S" conforming to CBC Table 21-A. Admixture shall be 1 pint of Red Label Suxonem per sack of cement. Mortar shall have a minimum compressive strength at 28 days as follows:

Typ. U.N.O. High Strength CMU	1,800 PSI 3,600 PSI
-------------------------------	------------------------
- Grout shall be composed of the following ratio by volume: 1-part portland cement, 3-parts sand, 2-parts pea gravel, and sufficient water for pouring without segregation of grout constituents. Admixture shall be Sika Grout Aid Type II, weight shall be a maximum of 105 PCF. Grout shall have a minimum compressive strength of 28 days as follows:

Typ. U.N.O. High Strength CMU	2,000 PSI 3,750 PSI
-------------------------------	------------------------
- All horizontal reinforcement shall be placed in bond beam or lintel beam units. The openings these webs for horizontal reinforcement shall be a minimum of 3 inches by 3 inches.
- When grouting is stopped for one hour or longer, horizontal construction joints shall be formed by stopping the grout pour 1-1/2" below top of the uppermost unit.
- All bond beam block shall be "Deep Cut" units.
- All grout shall be consolidated with a mechanical vibrator.
- Cement shall be as specified for concrete.
- See notes under "Reinforcing Steel" for requirements of reinforcing bars.
- Provide one bar diameter (a minimum of 1") grout between main reinforcing and masonry units.
- For low lift grouted construction, maximum grout pour height shall be 4 feet. Units shall be laid a maximum of 4'-0" before grouting.
- High lift grouted construction may be used in conformance with project specifications and CBC Section 2104.6, and state of California Interpretive Regulation IR 24-4.
- Provide inspection and cleanout holes at base of vertical cells having grout lifts in excess of 4'-0" in height.
- All cells in concrete blocks shall be filled solid with grout.
- Cells shall be in vertical alignment. Dowels in footings shall be set to align with cores containing reinforcing steel.
- Refer to architectural drawings for surface and height of units, laying pattern, and joint type.
- Sand shall be clean, sharp, well graded, and free from injurious amounts of dust, lumps, shale, alkali or organic material.
- Brick shall conform to ASTM C 62 and shall be Grade NW (F'm = 1,800 PSI) or better.

RON YEO, FAIA ARCHITECT, INC.
 31501 PALO VERDES DRIVE, WEST
 RANCHO PALMS VERDES, CA 91351
 PATRICK MARR, AIA, PE, ASSOCIATE ARCHITECT



ABS Consulting
 EOE Structural Engineers Division
 300 Commerce Drive, Suite 300
 Irvine, Calif. 92602-3000 USA
 Phone (714) 734-4242
 Fax (714) 734-4272

POINT VICENTE INTERPRETIVE CENTER EXPANSION
 31501 Palms Verdes Drive West
 Rancho Palms Verdes, CA

GENERAL NOTES

DRAWN BY
 CHECKED BY
 DATE
 SCALE
 JOB NO. 265341
 SHEET
S0.3
 3 of 69 SHEETS

These drawings do not contain the necessary components for construction. SHEET
 plans are not to be changed or copied in any form or manner, nor are they to be assigned to a third party without the written consent of Ron Yeo, Architect, Inc.