MATERIALS:

Reinforcing Bars	ASTM A615, Grade 60, deformed bars.
Weldable Reinforcing Bars	ASTM A706, Grade 60, deformed bars.
Smooth Welded Wire Fabric	ASTM A185
Deformed Welded Wire Fabric	ASTM A497
Bar Supports	CRSI MSP-09, Chapter 3 "Bar Supports."
Tie Wire	16 gage or heavier, black annealed.
Stud Rails	ASTM A1044, DECON or Approved Equivalent.
Headed Deformed Bars	ASTM A970

FABRICATION: Conform to ACI 301, Section 3.2.2. "Fabrication", and ACI SP-66 "ACI Detailing Manual."

WELDING: Bars shall not be welded unless authorized. When authorized, conform to ACI 301, Section 3.2.2.2. "Welding" and provide ASTM A706, grade 60 reinforcement.

PLACING: Conform to ACI 301, Section 3.3.2 "Placement." Placing tolerances shall conform to ACI 117.

CONCRETE COVER: Conform to the following cover requirements unless noted otherwise in the drawings.

Concrete cast against earth	3"
Concrete exposed to earth or weather	2"
Ties in columns and beams	1-½"
Bars in slabs	¾"
Bars in walls	¾"
Exterior bars in Tilt-up Panels	1"

SPLICES: Conform to ACI 301, Section 3.3.2.7, "Splices". Refer to "Typical Lap Splice and Development Length Schedule" for typical reinforcement splices. Splices indicated on individual sheets shall control over the schedule. Mechanical connections may be used when approved by the SER.
FIELD BENDING: Conform to ACI 301 Section 3.3.2.8. "Field Bending or Straightening." Bar sizes #3 through #5 may be field bent cold the first time. Other bars require preheating. Do not twist bars. Bars shall not be bent past 45 degrees.

REINFORCED UNIT MASONRY

REFERENCE STANDARDS: Conform to:

1) IBC Chapter 21 "Masonry."
2) ACI 530-08/ASCE 5-08/TMS 402-08 "Building Code Requirements for Masonry Structures." Herein referenced as MSJC.
3) ACI 530.1-08/ASCE 6-08/TMS 602-08 "Specification for Masonry Structures." Herein referenced as MSJC.1.
4) ACI SP-66 "ACI Detailing Manual" including ACI 315 "Details and Detailing of Concrete Reinforcement."
5) ANSI/AWS D1.4 "Structural Welding Code - Reinforcing Steel."

SUBMITTALS: Conform to MSJC.1 Section 1.2. Submit shop drawings for review including:

1) Masonry reinforcement, size, layout, and grade in accordance with plans.
2) Material certificates for all Steel Reinforcing, Anchors, Ties and Metal Accessories certifying compliance with required strength, grade and ASTM standards.
3) Mix Designs for each Grout Mix indicating type and proportions of ingredients in compliance of Proportion Specification.
4) Location of expansion and control joints.
5) Product Information, ICC ESR Reports and Material Certifications certifying compliance for all non-pre-approved Post-Installed Anchors.

STRENGTH: The assumed compressive strength of the masonry assemblage, f'm, is 1500 psi based on IBC Section 2105.2.2.1.2 for concrete masonry and 2000 psi based on IBC Section 2105.2.2.1.1 for clay masonry

MATERIALS:

1) Concrete Masonry Units: Conform to ASTM C 90, Type-I (moisture controlled), medium weight (approx. 115 PCF) units. Provide 1900 psi compressive strength to achieve masonry assembly strength indicated above under STRENGTH.
2) Mortar: Conform to ASTM C270, Type S, and IBC Section 2103.8 "Mortar."
3) Grout: Conform to ASTM C476 and IBC Section 2103.12 Proportion Specifications. Conform to ASTM C476 property specification with 28-day compressive strength equal to f'm as tested per ASTM C1019. Use fine grout except coarse grout may be used where permitted by MSJC Table 1.16.1.
4) Reinforcing Bars: Conform to ASTM A615, Grade 60 deformed bars and IBC Section 2103.13unless noted otherwise. Lap Splices shall be as noted on plans. Fabrication shall be in accordance with MSJC.1 Section 2.7.
5) Joint Reinforcement: Conform to ASTM A951 and IBC Section 2103.13.
6) Anchors, Ties and Accessories: Conform to IBC Section 2103.13and MSJC.1 Section 2.4D.
7) Water: Shall be clean and potable.
8) Admixtures: Admixtures shall not be used unless approved by SER.
9) Post-Installed Anchors in MASONRY: Reference the POST- INSTALLED ANCHORS section for applicable Post-Installed Anchors to Masonry.
10) Second-Hand Units: Shall not be used unless approved by SER.

QUALITY ASSURANCE: Conform to IBC Section 2105 "Quality Assurance".

1) Masonry Units: A letter of certification from the manufacturer of the units shall be provided to the SER at the time of, or prior to, the delivery of the units to the jobsite to ensure the units have been tested according to ASTM C 140 and comply with the compressive strength specified above and ASTM C 90.
2) Mortar: No mortar testing is required.
3) Grout: A letter of certification from the supplier of the grout shall be provided to the SER at the time of, or prior to, delivery of the grout to the jobsite to ensure that the grout complies with ASTM C 476.

DELIVERY, STORAGE AND HANDLING: Delivery, storage and handling of materials used for masonry construction shall be per MSJC.1, Section 1.7.

SPECIAL INSPECTION: Special Inspections shall be performed per the "TESTS AND INSPECTIONS" section of the STRUCTURAL GENERAL NOTES.

ANCHORS, TIES AND CONNECTORS: Masonry anchors, ties and connectors shall be as specified on structural drawings. Consult architectural drawings for masonry anchor ties not included on the structural drawings.

EMBEDDED ITEMS: Embedded Items and Accessories shall be in accordance with MSJC Section 1.15 and installed in accordance with MSJC.1 Section 3.3D. Position and Secure in place expansion joint material, anchors and other structural and non-structural embedded items before placing grout. Contractor shall refer to structural, architectural, mechanical, electrical, plumbing, etc. and coordinate all embedded items.

POST-INSTALLED ANCHORS to CONCRETE: Anchor location, type, diameter and embedment shall be as indicated on drawings. Reference the POST INSTALLED ANCHORS section for applicable Post-Installed Anchor Adhesives. Anchors shall be installed and inspected in strict accordance with the applicable ICC-Evaluation Service Report (ESR). Special inspection shall be per the TESTS and INSPECTIONS section.

MASONRY REINFORCING STEEL: Masonry reinforcing shall be as noted on plans and shall be securely placed in accordance with IBC Sections 2104.1.1, 2106, and 2107 and MSJC Section 1.13

Bond beams with horizontal bar or bars shall be provided at 48 inches on center and at all floor and roof lines and at the top of the wall. Provide a bond beam with horizontal bar or bars over all openings, and extend these bars 2'-0" past the opening at each side. Provide a bar or bars vertically for the full height of the wall at each side of openings, wall ends and intersections. Dowels to masonry walls shall be embedded a minimum of 1'-6" or hooked into the supporting structure and be of the same size and spacing as wall reinforcing. Reinforcing steel shall be as specified under "MATERIALS" Section. Provide corner bars to match the horizontal wall reinforcing at wall intersections. All bars shall be lapped a minimum 48 diameters or 1'-6" minimum unless noted on the plans.

LINTELS: Reinforced masonry lintels to be installed over all openings unless otherwise indicated on drawings. Do not splice reinforcing bars within lintels and maintain 8 inch bearing minimum on each side. Unless otherwise noted on the plans, the minimum reinforcement for lintels in 8" masonry shall be as follows:

(1) Openings up to 42 inches wide: (2) #4 at bottom web of 8 inch deep lintel.
(2) Openings 42 to 78 inches wide: (2) #4 at bottom web of 16 inch deep lintel.
(3) Openings over 78 inches wide: Reinforce per drawings

CONSTRUCTION: Masonry shall be constructed in accordance with IBC Section 2104 "Construction", and MSJC.1 Part 3 "Execution."

COLD AND HOT WEATHER CONSTRUCTION: Cold and hot weather construction shall be in accordance with IBC Section 2104.3 and 2104.4.

BLOCK PATTERN: Use running bond unless noted. For stack bond, follow criteria in MSJC Section 1.11.

GROUTED CELLS: Fill all cells with grout unless noted otherwise on plans. Minimum grouting spaces and construction shall be in accordance with MSJC Section 1.16 and MSJC.1 Section3.5.

GROUT POUR HEIGHT: Grout Pour Height shall not exceed height specified in MSJC.1 Section 3.5C. For Grout Pour Heights exceeding 5ft the following shall be met:

- Cleanouts shall be provided in accordance with MSJC.1 Section 3.5F at the bottom of each cell containing reinforcing and at a spacing not to exceed 32 in. o.c. for each Grout Lift.
- Grout Lifts shall not exceed spacing of intermediate reinforced bond beams.
- Masonry blocks shall be adequately braced to withstand fluid pressures of Grout Pour

GROUT LIFTS: Unless otherwise noted, Grout Lifts and pour height shall not exceed 5ft. Grout Lifts exceeding 5ft shall be approved by SER.

REINFORCING COVER AND CLEARANCE REQUIREMENTS: Unless otherwise noted:

Clear distance between parallel bars (and between adjacent pairs of lap spliced bars) shall be equal to the bar adjacent bar diameter (for bars greater than #8), and not less than:
1) 1" at 8" and smaller block,
2) 2" at 10" block
3) 3" at 12" block.

Clearance (clear space) between the block and the reinforcing shall be:
1) ¼" at fine grout
2) ½" at course grout.

Masonry Cover (including grout and block wall) at masonry face exposed to earth or weather shall be:
1) 1 1/2" minimum
2) 2" for bars #6 and larger.

CONTROL AND EXPANSION JOINTS: Reference Drawings for typical details of Masonry Control and Expansion Joints. Location of control and expansion joints shall be approved by SER. Unless otherwise indicated on drawings, install control and expansion joints at the following:

(1) Continuous Walls: Vertical joints at the lesser of 2.5 times the wall height or 25 feet on center maximum.
(2) Corners and Intersecting Walls: First vertical joint from the corner at lesser of 1.25 times the wall height or 16 feet.
(3) Abrupt changes in wall height and wall thickness, such as adjacent to columns or pilasters.

TEMPORARY BRACING: Contractor is responsible for all temporary bracing of masonry during construction. Reference "CONTRACTOR RESPONSIBILITIES" section for further information and requirements.

POST-INSTALLED ANCHORS (INTO CONCRETE AND MASONRY)

DESIGN STANDARDS:
Post-Installed Anchors into concrete for this project are designed in accordance with American Concrete Institute, ACI 318-08, Appendix D Specifications.

POST-INSTALLED ANCHORS: Install only where specifically shown in the details or allowed by SER. All post-installed anchors types and locations shall be approved by the SER and shall have a current ICC-Evaluation Service Report that provides relevant design values necessary to validate the available strength exceeds the required strength. Submit current manufacturer's data and ICC ESR report to SER for approval regardless of whether or not it is a pre-approved anchor. Anchors shall be installed in strict accordance to ICC-ESR and manufacturer's instructions. No reinforcing bars shall be damaged during installation of post-installed anchors. Special inspection shall be per the TESTS and INSPECTIONS section. Anchor type, diameter and embedment shall be as indicated on drawings.

1. ADHESIVE ANCHORS: The following Adhesive-type anchoring systems have been used in the design and shall be used for anchorage to CONCRETE and MASONRY, as applicable and in accordance with corresponding current ICC ESR report. Drilled-in anchor embedment lengths shall be as shown on drawings, or not less than 7 times the anchor nominal diameter (7D).
   a. HILTI "HIT-RE 500 SD" – ICC ESR-2322 for anchorage to CONCRETE
   b. HILTI "HIT-HY 200" – ICC ESR-3187 for anchorage to CONCRETE
   c. SIMPSON "SET-XP" – ICC ESR 2508 for anchorage to CONCRETE
   d. HILTI "HY-70" – ICC ESR-2362 – for anchorage to MASONRY Only
   e. SIMPSON "SET" – ICC ESR-1772 - for anchorage to MASONRY Only
2. EXPANSION ANCHORS: The following Expansion type anchors are pre-approved for anchorage to CONCRETE or MASONRY in accordance with corresponding current ICC ESR report:
   a. HILTI "KWIK BOLT TZ" – ICC ESR-1917
   b. SIMPSON "STRONG-BOLT" – ICC ESR-1771
3. SCREW ANCHORS: The following Screw type anchor is pre-approved for anchorage to CONCRETE or MASONRY in accordance with corresponding current ICC ESR report:
   a. SIMPSON "TITEN HD" – ICC ESR-2713 for CONCRETE Only and ICC ESR-1056 for MASONRY Only
   b. POWERS "WEDGE-BOLT" – ICC ESR-2526 for CONCRETE Only and ICC ESR-1678 for MASONRY Only

STRUCTURAL STEEL

DESIGN STANDARDS:
Structural Steel for this project is designed in accordance with American Institute of Steel Construction (AISC) Specifications.

Structural Steel for this project is designed per:
- AISC – "Manual of Steel Construction, Thirteenth Edition (2005).

REFERENCE STANDARDS:
1) IBC 2009, Chapter 22 – Steel, hereafter referenced as IBC.
2) ANSI/AISC 303-05 – Code of Standard Practice for Steel Buildings & Bridges, hereafter referenced as AISC 303.
3) ANSI/AISC 360-05 – Specification for Structural Steel Buildings, hereafter referenced as AISC 360.
4) AISC348-04/RCSC – Specification for Structural Joints using ASTM A325 or A490 Bolts, prepared by "Research Council on Structural Connections (RCSC), hereafter referenced as RCSC.
5) AWS D1.1 -04 – Structural Welding Code - Steel, hereafter referenced as AWS D1.1.

SUBMITTALS:
(1) *Shop drawings* shall be prepared in accordance with AISC 360 Section M.1 and AISC 303 Section 4.
(2) Submit welder's certificates verifying qualification within past 12 months.
(3) *Affidavit* stating the steel provided meets the requirements of the grade(s) specified.
(4) QA Plan and Procedures of Fabrication Shop.

MATERIALS:

Wide Flange (W), Tee (WT) Shapes	ASTM A992	Fy = 50 ksi
Structural (S), (M) & (HP) Shapes	ASTM A36,	Fy = 36 ksi
Channel (C) & Angle (L) Shapes	ASTM A36,	Fy = 36 ksi
Structural Bars & Plates (PL)	ASTM A36,	Fy = 36 ksi
Hollow Structural Section – Square/Rect (HSS)	ASTM A500, Grade B	Fy = 46 ksi
Structural Pipe, (PIPE) 12" dia. and less	ASTM A53, Grade B	Fy = 35 ksi
Bolts	ASTM A307	
Nuts	ASTM A563	
Washers (flat or beveled)	ASTM F436–required @ slotted & oversize holes	
Mild Threaded Rods	ASTM A36,	Fy = 36 ksi
Threaded Rods (Anchor Bolts)	ASTM A307,	Fy = 35 ksi
Welding Electrodes	E70XX, E71TXX unless noted otherwise with a minimum toughness of 20 ft-lbs at 40 degrees Fahrenheit.	

WELDING:

1) Welding shall conform to AWS D1.1 and visually conform to AWS Section 6 and Table 6.1. Fabrication/erection inspections by the Contractor per AWS D1.1 Section 6, shall be by associate/ certified inspectors (AWI/AWI) per AWS QC1 or AWS B5.1. Special Inspections (verification inspections) shall be by a certified Welding Inspector (WI) or Senior Welding Inspector (SWI) per AWS B5.1.
2) Welders shall be qualified for the specific prequalified joints required by the design and certified in accordance with AWS requirements.
3) Welding shall be done in accordance with appropriate Weld Procedure Specifications (WPS's). Welders shall be familiar with the applicable WPS's.
4) Welding shall be done with AWS Prequalified Welding Processes unless otherwise approved.
5) Welder qualifications and WPS's shall be maintained at the site of the work and shall be readily available for inspection upon request, both in the shop and in the field.
6) Use E70 or E71T, 70 ksi strength electrodes appropriate for the process selected.
7) Prior to the start of work, Special Inspection or, if "AISC Certified" or otherwise "Approved" Shop, a shop Certified Weld Inspector (CWI) certified in accordance with provisions of AWS QC1, shall inspect and document compliance with the following:
   - Confirm welder qualifications prior to the start of work.
   - Review all WPS prior to the start of work.
   - Confirm materials in fabrications conform to the specifications.
   - Periodically observe joint preparation, fit-up and welder techniques.
   - Identify on plans all multi-pass fillet welds, single pass fillet welds greater than 5/16", and Complete- and Partial- Joint Penetration (CJP or PJP) groove welded butt joints that require Continuous (Special) Inspection.
   - Visually inspect all welds per Special Inspection Requirements for Steel and AWS Section 6.5 and Table 6.1.
8) Welding of SHEAR STUDS on STEEL BEAMS for COMPOSITE CONSTRUCTION: Headed Shear Studs welded to tops of Wide Flange Beams, shall be welded in accordance with AWS D1.1 Chapter 7 "Stud Welding".
9) Welding of Headed Studs on EMBEDDED STEEL PLATES for Anchorage to Concrete: Headed studs welded to steel embedment plates cast monolithic with concrete and shall be welded in accordance with AWS D1.1 Chapter 7 "Stud Welding", unless noted otherwise on plans.

ANCHORAGE to CONCRETE:

1) SHEAR STUDS on STEEL BEAMS for COMPOSITE CONSTRUCTION: Headed Shear Studs welded to tops of Wide Flange Beams, shall be 3/4" diameter WHS with nominal stud lengths as indicated. Unless noted otherwise, provide minimum shear stud height equal to the (metal deck depth + 1 ½") and a maximum shear stud height that allows for ½" of concrete cover over the stud.
2) EMBEDDED STEEL PLATES for Anchorage to Concrete: Plates (PL) embedded in concrete with studs (WHS) or dowel bar anchors (DBA) shall be of the sizes and lengths as indicated on the plans with minimum 1/2" dia. WHS x 6" long but provide not less than ¾" interior cover or 1 ½" exterior cover to the opposite face of concrete, unless noted otherwise.
3) COLUMN ANCHOR RODS and BASE PLATES:. All columns (vertical member assemblies weighing over 300 pounds) shall be provided with a **minimum of four □ ⅝diameter anchor rods**. Column base plates shall be at least ¾" thick, unless noted otherwise. Cast-in-place anchor rods shall be provided unless otherwise approved by the Engineer. Unless noted otherwise, embedment of cast-in-place anchor rods shall be 12 times the anchor diameter (12D).
4) POST-TENSION CONCRETE ANCHORAGE: Anchors installed in post-tensioned slabs after the concrete is cast shall not be installed without verification of tendon location and approval from the SER.

FABRICATION:

- Conform to AISC 303, Section 8 and AISC 360 Section M2 and M5.
- Structural Welding and qualifications shall conform to the AWS D1.1.
- The fabricator shall maintain detailed fabrication & erection quality control procedures per IBC Section 1704.2.1 that provides the basis for inspection control of the workmanship and ensures that the work is performed in accordance with Code of Standard Practice, the AISC Specification, and the Contract Documents. Fabricators certified by the AISC Quality Certification Program with the following level of certification: Sbd – Conventional Steel Building Structures are deemed to comply with this provision.

VERIFICATION INSPECTION:

- Structural Welding inspections and qualifications shall conform to the AWS D1.1. See WELDING notes and SPECIAL INSPECTIONS for Structural Steel.
- Special Inspector shall review the procedures for completeness and adequacy relative the Code and the Work. Further shop Special Inspections may be waived if the Fabricator is "AISC Certified" or otherwise "Approved" by the Authority Having Jurisdiction per IBC Section 1704.2.2. See SPECIAL INSPECTIONS for Structural Steel.

ERECTION:

1) Conform to AISC 303, Section 7 "Erection", Section 8 "Quality Assurance." and AISC 360, Section M4.
2) The Erector shall maintain detailed fabrication & erection quality control procedures that ensure that the work is performed in accordance with AISC 360 Section M, AISC 303, and the Contract Documents.
3) Steel work shall be carried up true and plumb within the limits defined in AISC 303 Section 7.13.
4) Structural Welding to conform to the AWS D1.1 and applicable WELDING notes above.
5) Special Inspector shall inspect the steel framing to verify compliance with the details shown on the Contract Documents including member size, location, bracing and the application of proper joint details at each connection.

BRACING and SAFETY PROTECTION: The contractor shall provide temporary bracing and safety protection required by AISC 360 Section M4.2 and AISC 303 Section 7.10 and 7.11.

PROTECTIVE COATING REQUIREMENTS:
1) SHOP PAINTING: Conform to AISC 360 Section M3 and AISC 303 Section 6.5 unless a multi-coat system is required per the project specifications.

2) INTERIOR STEEL:
   a. Unless noted otherwise, ***do not paint*** steel surfaces to be,
      - Concealed by the interior building finishes,
      - Fireproofed,
      - Embedded in concrete,
      - Specially prepared as a "faying surface" for Type-SC "slip-critical" bolted connections, unless the coating conforms to requirements of the RCSC Bolt Specification and is approved by the Engineer.
      - Welded; if area requires painting, do not paint until after weld inspections and Non-destructive testing requirement, if any, are satisfied.
   b. Interior steel, exposed to view, shall be painted with one coat of shop primer unless otherwise indicated in the project specifications. Field touch-ups to match the finish coat or as otherwise indicated in the project specifications

3) EXTERIOR STEEL: Exposed exterior steel shall be protected by either:
   a. Paint with an exterior multi-coat system as per the project specifications. Field touch-up painting shall be to match top coat as per the project specifications.
   b. Galvanizing: Unless protected with a paint systeme, exposed steel (outside the building envelope) shall be hot-dipped galvanized, where noted on the plans or otherwise indicated by the finishes specified by the Architect. Apply field touch-ups per project specifications.

ARCHITECTURALLY EXPOSED STRUCTURAL STEEL: Steel identified by the Architect on the architectural drawings as Architecturally Exposed Structural Steel, (AESS) shall conform to AISC 303 Section 10.

COLD-FORMED STEEL FRAMING

REFERENCE STANDARDS: Conform to:
(1) AISI "North American Specification for the Design of Cold-Formed Steel Structural Members - 2007 Edition."
(2) AISI "Standard for Cold Formed Steel Framing – General Provisions"
(3) AISI "Standard for Cold Formed Steel Framing – Header Design"
(4) AISI "Standard for Cold Formed Steel Framing – Wall Stud Design"
(5) AISI "Standard for Cold Formed Steel Framing – Lateral Design"
(6) AWS D1.3 "Structural Welding Code - Sheet Steel."

MATERIALS:

Structural Sections	54, 68 and 97-mil; ASTM A653 Grade D or ASTM A1011 Grade 50, Min Fy=50 KSI, 33 and 43-mil; ASTM A653 Grade A, or ASTM A1011 Grade 33, Min Fy=33 KSI
Sheet Metal Screws	Grabber Self-Drilling, #10 screws unless noted otherwise on drawings; ASTM C1513 or SER approved alternate
Fasteners to Steel	Hilti X-U Powder Actuated Fasteners
Fasteners to Concrete	Hilti X-U Powder Actuated Fasteners per the "Post-Installed Anchors" section above unless noted otherwise on drawings
Weld Material	E60XX electrodes conforming to AWS D1.3

Studs and Track shall be galvanized in accordance with ASTM A653, G60, unless in contact with pressure treated wood. If in contact with pressure treated wood, use G90 or greater coatings. Fastenings not shown on the drawings shall be as recommended by the manufacturer.

SIZE AND PROFILE: Cold-formed steel framing members shall be as specified in the Steel Stud Manufacturer's Association ICC Evaluation Report ER-4943P and of the size and profile as shown on the drawings. Alternate members equivalent in shape, size, and strength by manufacturers not members of the Steel Stud Manufacturer's Association shall be subject to review and approval by the Architect / Engineer.

JOISTS: Spans are assumed to be continuously sheathed at the top flange. All joists must be braced laterally at each end by rim track or blocking. Joist bridging shall be a maximum 8'-0" oc. A minimum 3-1/2" bearing shall be provided at each end of each joist. Add web stiffeners if bearing is less than 3-1/2", but no less than 1-1/2". Web punch-outs shall be located a minimum of 10" away from bearing points. If a punch-out falls within 10" of a bearing point, reinforcement is required.

CONNECTORS and FASTENERS: Connectors shall be installed per the manufacturer's instructions. All screws shall be snug with the steel surface and shall penetrate into steel studs by a minimum of three exposed threads. Connections shall not be stripped. Screws shall be installed a minimum of 3/8" from steel edges and with no less than ¾" o.c. spacing.

When fastening to steel, Powder Actuated Fasteners shall be installed a minimum of 1/2" from steel edges and with no less than 1" o.c. spacing. When fastening to concrete, Powder Actuated Fasteners shall be installed a minimum of 3" from concrete edges and with no less than 4" o.c. spacing. Powder Actuated Fasteners shall not be used for hanging applications.

BUNDLED STUDS and JOISTS: Stud or joist groups of two or more members shall be shop welded together with double flare bevel welds by 1" inch long at 12" o.c., both sides. Stud or joist groups of two do not require welding if their webs are back-to-back and screwed together with (2) #10 at 12" o.c. Bundled joists that are framed in a box beam header style with a top and bottom track do not require welding. Box beam framing shall have #10 screws at 24" on center along each of the four track flanges. Box beam joist and track members shall be continuous. Box beams or headers shall be framed with unpunched joists.

FULL-HEIGHT NON-LOAD-BEARING STUD WALLS: Full height stud walls shall be attached to concrete slabs above with deflection track to allow for differential vertical floor deflections under live loads. Maintain ¾" gap between top of studs and slab unless noted otherwise on plan.

MEMBER CONDITION: All structural cold-formed framing members must be in good condition. Damaged members, members with cracking in the steel at the bend radius locations, and members with significant red rusting or scaling of the protective coating are unacceptable and must be replaced, unless approved by the SER. Members not meeting tolerances listed below shall be replaced prior to loading.

ERECTION and TOLERANCES: Axial load bearing cold-formed steel framing shall be erected true and plumb per the requirements and within the specified tolerances listed below. For purposes of this section, camber is defined as the deviation from straightness of a member or any portion of a member with respect to its major axis, and sweep is defined as the deviation from straightness of a member or any portion of a member with respect to its minor axis.

- For joists, track, and axial load bearing studs, out of plumbness and out of straightness (camber and sweep) shall not exceed 1/1000th of the member length (1/8" over 10'-0").
- Erect framing in accordance with manufacturer's instructions.
- Studs shall seat into top and bottom tracks. The gap between the end of the stud and the web of the track shall not exceed 1/16" for axial load bearing studs.
- Joists and end stiffeners shall be located directly over axial load bearing studs. The use of track as a load distribution member is not permitted.

FIELD CUTS AND NOTCHES: Field cuts and notches of any kind are NOT allowed in any structural cold-formed steel member without prior approval from SER.

TEMPORARY BRACING: Reference "Temporary Shoring, Bracing" in the "General Requirements" section above.

OWNER:
WILLIAMS-SONOMA, INC.
3250 Van Ness Avenue
San Francisco, CA 94
T 415 616 8602
F 415 439 8164
www.williams-sonomainc

DCI ENGINEERS®
818 STEWART STREET • SUITE 1000
SEATTLE, WASHINGTON 98101
PHONE (206) 332-1800 • FAX (206) 332-1600
WEBSITE: www.dci-eng.com
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Portland, ME 04101
PROJECT #006-160335.00

ISSUED / REVISED	DATE
QA SET	11/11/16
LL/PERMIT SET	11/17/16

STRUCTURAL GENERAL NOTES

S-102