

CODE: THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ANSI/AISC 360."

2. STEEL SHALL CONFORM TO THE FOLLOWING GRADES:

|                                               |                            |
|-----------------------------------------------|----------------------------|
| WIDE FLANGE SHAPES.....                       | ASTM A992 (Fy=50ksi)       |
| ALL CHANNELS, ANGLES, PLATES, ETC. (UNO)..... | A36 (Fy=36ksi)             |
| STRUCTURAL TUBES.....                         | A500, GRADE B (Fy=46ksi)   |
| ANCHOR BOLTS.....                             | F1554, GRADE 36 (Fy=36ksi) |
| STEEL PIPE.....                               | A53 (Fy=35ksi)             |
| BOLTS.....                                    | A325                       |
| WELDING ELECTRODES.....                       | E70xx                      |
| HARDENED STEEL WASHERS.....                   | F436                       |

3. STRUCTURAL STEEL DETAILING, FABRICATION, AND ERECTION SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "MANUAL OF STEEL CONSTRUCTION" OF THE AMERICAN INSTITUTE STEEL CONSTRUCTION. SHOP DRAWINGS SHALL SHOW COMPLETE WELDING INFORMATION, BOTH SHOP AND FIELD, USING AMERICAN WELDING SOCIETY SYMBOLS UNLESS OTHERWISE INDICATED OR SHOWN. BOLTED CONNECTION SHALL BE MADE USING 3/4" DIAMETER BOLTS CONFORMING TO ASTM A325 UNLESS OTHERWISE NOTED. THEY SHALL BE INSTALLED AND INSPECTED IN STRICT CONFORMANCE WITH LATEST EDITION R5CS "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS."

4. THE STEEL STRUCTURE IS A NON-SELF-SUPPORTING STEEL FRAME AND IS DEPENDENT UPON DIAPHRAGM ACTION OF THE METAL ROOF DECK AND ATTACHMENT TO THE SHEAR WALLS & BRACEMENT FRAMES FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES. PROVIDE ALL TEMPORARY SUPPORTS REQUIRED FOR STABILITY AND FOR RESISTANCE TO WIND AND SEISMIC FORCES UNTIL THESE ELEMENTS ARE COMPLETE AND ARE CAPABLE OF PROVIDING THIS SUPPORT. THE CONTRACTOR SHALL PROVIDE, AT NO ADDITIONAL COST, ALL ADDITIONAL STEEL CONNECTIONS, GUYING, ETC. REQUIRED FOR ERECTION.

5. OBTAIN ALL FIELD MEASUREMENTS REQUIRED FOR PROPER FABRICATION AND INSTALLATION OF WORK PRIOR TO DETAILING. PRECISE MEASUREMENTS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

6. THE FABRICATOR IS RESPONSIBLE FOR THE DESIGN OF ALL CONNECTIONS SHOWN ON THE STRUCTURAL DRAWINGS. DRAWINGS SHOWN ARE SCHEMATIC AND ARE ONLY INTENDED TO SHOW THE RELATIONSHIP OF MEMBERS CONNECTED. CONNECTION DETAILS INDICATED ON THE DRAWINGS SHALL BE INCORPORATED INTO FABRICATOR'S CONNECTION DESIGN.

7. DESIGN CONNECTIONS AND FINAL CONFIGURATION OF MEMBER REINFORCEMENT AT CONNECTIONS IN ACCORDANCE WITH ANSI/AISC CODE OF STANDARD PRACTICE BY FABRICATOR'S QUALIFIED PROFESSIONAL ENGINEER LICENSED IN THE PROJECT STATE. THIS INCLUDES BUT IS NOT LIMITED TO: BRACE END CONNECTIONS; MOMENT-RESISTING CONNECTIONS, MODIFIED BEAM SEAT CONNECTIONS; AND MEMBER SPIECE CONNECTIONS. WHERE A PROJECT HAS BEEN COMPLETELY DETAILED BY THE ENGINEER-OF-RECORD, THIS REQUIREMENT MAY BE WAIVED.

8. THE FABRICATOR SHALL BE RESPONSIBLE FOR ALL ERRORS OF DETAILING ON THE SHOP DRAWINGS, ERRORS IN FABRICATION, AND FOR THE CORRECT FITTING OF STRUCTURAL STEEL MEMBERS.

9. SPLICING OF STEEL MEMBERS UNLESS SHOWN ON THE DRAWINGS IS PROHIBITED WITHOUT WRITTEN APPROVAL OF THE ARCHITECT.

10. NO HOLES SHALL BE CUT IN ANY STEEL ELEMENT UNLESS THEY ARE DETAILED ON THE DRAWINGS.

11. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, THE SIZE OF WELDS SHALL NOT BE SMALLER THAN 1/4".

12. ALL BOLTED JOINTS SHALL BE SNUG TIGHT UNLESS NOTED OTHERWISE IN CONTRACT DOCUMENTS. FOR PRETENSIONED OR SLIP-CRITICAL JOINTS, THE METHOD OF INSTALLATION SHALL BE TURN-OF-NUT WITH MATCH MARKING, TWIST-OFF-TYPE TENSION CONTROL BOLT ASSEMBLIES (ASTM F3125, GRADE F1852), OR DIRECT TENSION INDICATORS (ASTM F959).

13. CONTRACTOR TO PROVIDE DECK SUPPORT ANGLES AS REQUIRED (L4x4x1/4, UNLESS NOTED OTHERWISE), CONTINUOUS ANGLES AT THE ROOF PERIMETER SHALL BE SPLICED SUCH THAT THE FULL TENSION FORCE THAT CAN BE DEVELOPED BY THE ANGLE WILL BE TRANSFERRED THROUGHOUT THE SPLICE.

14. PROVIDE STIFFENERS TO BEAR UNDER ALL LOAD CONCENTRATIONS ON SUPPORTING MEMBERS, ON ALL MEMBERS FRAMING OVER COLUMNS, AT BEAM COLUMN JOINTS (AS REQUIRED BY THE AISC SPECIFICATIONS) AND WHERE SHOWN ON THE DRAWINGS.

15. COLUMN BASEPLATES SHALL BE PACKED SOLID WITH READY TO USE NON-SHRINK, NON-METALLIC GROUT THAT DEVELOPS 28-DAY COMPRESSIVE STRENGTH OF 2,000 PSI, 7-DAY OF 5000 PSI, AND A 28 DAY OF 7,000 PSI. TROWEL GROUTED SURFACES SMOOTH, SPLAYING NEATLY TO 45 DEGREES.

16. ALL EXPOSED STEEL AT PROJECT COMPLETION SHALL AT MINIMUM HAVE ALL BACKER RODS REMOVED, WELDS GRINDED SMOOTH, AND ALL BLEMISHES CORRECTED WITH PAINT OR OTHER MEANS.

17. ALL TUBES REQUIRE AN END PLATE AT EACH END WITH A THICKNESS EQUAL TO OR GREATER THAN THE TUBE'S WALL THICKNESS UNLESS NOTED OTHERWISE.

18. ALL EXPOSED STEEL SHALL RECEIVE TWO COATS OF SHOPS EPOXY PRIMER. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATION FOR FINISHED PAINT REQUIREMENTS.

STEEL DECK:

1. STEEL DECK SHALL COMPLY WITH THE REQUIREMENTS OF THE STEEL DECK INSTITUTE SPECIFICATIONS AND COMMENTARY, CURRENT EDITION.

2. THE STEEL DECK WORK SHALL CONSIST OF FURNISHING EVERYTHING (LABOR, MATERIALS, ACCESSORIES, EQUIPMENT, ETC.) NECESSARY AND INCIDENTAL TO THE EXECUTION AND COMPLETION OF ALL STEEL DECK WORK AS INDICATED AND SPECIFIED ON THE DRAWINGS.

3. SUBMIT PLACEMENT AND DETAILED ("SHOP") DRAWINGS FOR REVIEW. NO STEEL DECK SHALL BE INSTALLED UNTIL THE SHOP DRAWINGS HAVE BEEN REVIEWED AND RETURNED.

4. STEEL DECK UNITS SHALL BE OF SUFFICIENT LENGTH TO ACCOMMODATE THREE SPAN INSTALLATION. DECK SPLICES SHALL BE OVER SUPPORTS, WHERE TWO SPAN UNITS OF STEEL DECK ARE USED, THE SHALL BE SHORED AT THEIR MIDPOINTS. ONE-SPAN UNITS ARE NOT ALLOWED UNLESS NOTED OTHERWISE.

5. STEEL DECK SHALL BE OF THE CONFIGURATION, DEPTH AND MINIMUM GAUGE SHOWN ON THE DRAWINGS. ATTACHMENT TO THE SUPPORTING STRUCTURE SHALL BE AS SHOWN ON THE DRAWING AS A MINIMUM.

1. CONTRACTOR SHALL SUBMIT THE FOLLOWING AS A COMPLETE PACKAGE, DELAYED SUBMITTAL:
  - A. SHOP DRAWINGS SEALED BY AN ENGINEER LICENSED IN THE PROJECT STATE INCLUDING PLACEMENT PLANS, ELEVATIONS, AND SECTIONS
    - a. INCLUDE LAYOUT, SPACINGS, SIZES, THICKNESSES, AND TYPES OF COLD-FORMED STEEL FRAMING; FABRICATION; AND FASTENING AND ANCHORAGE DETAILS, INCLUDING MECHANICAL FASTENERS.
    - b. INDICATE REINFORCING CHANNELS, OPENING FRAMING, SUPPLEMENTAL FRAMING, STRAPPING, BRACING, BRIDGING, SPLICES, ACCESSORIES; CONNECTION DETAILS, AND ATTACHMENT TO ADJOINING WORK.
  - B. PRODUCT CATALOGS WITH PROPERTIES OF ALL FRAMING AND ACCESSORIES.
2. DESIGN, FABRICATION, AND ERECTION SHALL CONFORM TO LATEST ADDITION OF THE AISI "NORTH AMERICAN SPECIFICATIONS FOR THE DESIGN OF COLD FORMED STEEL STRUCTURAL MEMBERS" INCLUDING SUBSEQUENT SUPPLEMENTS. ALL METAL STUDS SHALL BE GALVANIZED.
3. ALL STUDS, JOISTS, TRACK, BRIDGING, END CLOSURES AND ACCESSORIES SHALL BE FORMED FROM STEEL THAT CORRESPONDS TO THE REQUIREMENTS OF AISI "SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS" UNLESS NOTED OTHERWISE.
4. ALL PRODUCTS TO BE MANUFACTURED BY A CURRENT MEMBER OF THE STEEL MANUFACTURERS ASSOCIATION.

5. CONTRACTOR SHALL FURNISH COMPLETE FABRICATION AND ERECTION DRAWINGS PREPARED BY AN ENGINEER LICENSED IN THE PROJECT STATE FOR APPROVAL BY THE STRUCTURAL ENGINEER PRIOR TO THE COMMENCEMENT OF FABRICATION. INCLUDE PLACING DRAWINGS FOR FRAMING MEMBERS SHOWING SIZE AND GAGE DESIGNATIONS, NUMBER, TYPE, LOCATION AND SPACING. INDICATE SUPPLEMENTAL TRAPPING, BRACES, SPLICES, BRIDGING, ACCESSORIES AND DETAILS REQUIRED FOR PROPER INSTALLATION.

6. MEMBER SIZE, GAGE AND SPACING OF EXTERIOR WALL STUDS AND ALL MEMBERS CONNECTIONS SHALL BE DESIGNED BY A SPECIALTY ENGINEER. SHOP DRAWINGS SHALL SHOW WALL SECTIONS COORDINATED WITH DRAWINGS SHOWING FRAMING, ACCESSORIES, ANCHORAGE AND CONNECTION DETAILS. REVIEW OF SHOP DRAWINGS SHALL BE FOR CONFORMANCE WITH THE CONTRACT DOCUMENTS REGARDING ARRANGEMENT AND SIZES OF MEMBERS AND THE CONTRACTOR'S INTERPRETATION OF THE DESIGN LOADS AND CONTRACT DOCUMENT

7. DELEGATED DESIGN: ENGAGE A QUALIFIED PROFESSIONAL ENGINEER TO DESIGN COLD-FORMED STEEL FRAMING CAPABLE OF WITHSTANDING DESIGN LOADS WITHIN LIMITS AND CONDITIONS INDICATED BELOW.

A. DESIGN LOADS: AS INDICATED ON DRAWINGS OR COMPLETED USING DESIGN CRITERIA PROVIDED

B. DESIGN FRAMING SYSTEMS TO WITHSTAND DESIGN LOADS WITHOUT DEFLECTIONS GREATER THAN THE FOLLOWING:

- a. EXTERIOR WALL FRAMING: HORIZONTAL DEFLECTION OF  $1/240$  OF THE WALL HEIGHT,  $1/360$  OF THE WALL HEIGHT FOR SIMULATED STONE WALLS OR STUCCO FINISHES.
- b. ROOF Rafter FRAMING: VERTICAL DEFLECTION OF  $1/360$  OF THE HORIZONTALLY PROJECTED SPAN FOR LIVE LOADS AND  $1/240$  FOR TOTAL LOADS OF THE SPAN

8. DESIGN WALL FRAMING TO ACCOMMODATE HORIZONTAL DEFLECTION WITHOUT REGARD FOR CONTRIBUTION OF SHEATHING MATERIALS. FOR STRENGTH CALCULATIONS, WALLS SHALL BE DESIGNED AS BRACED AT THE STRAP SPACING (OR UNBRACED IF NO STRAPS ARE DESIGNATED) IF FULL-HEIGHT STRUCTURAL SHEATHING IS NOT INSTALLED ON BOTH SIDES OF STUDS. STRUCTURAL SHEATHING IS LIMITED TO PLYWOOD AND OSB. SHEATHING, BRACING, AND REINFORCING SHALL BE INSTALLED PRIOR TO VERTICAL LOADING OF LOAD BEARING WALLS.

9. DESIGN FRAMING SYSTEMS TO PROVIDE FOR MOVEMENT OF FRAMING MEMBERS LOCATED OUTSIDE THE INSULATED BUILDING ENVELOPE WITHOUT DAMAGE OR OVERSTRESSING, SHEATHING FAILURE, CONNECTION FAILURE, UNDUE STRAIN ON FASTENERS AND ANCHORS, OR OTHER DETRIMENTAL EFFECTS WHEN SUBJECT TO A MAXIMUM AMBIENT TEMPERATURE CHANGE OF 120 DEG F (67 DEG C).

10. PROVIDE TEMPORARY SHORES, GUYS, BRACES, AND OTHER SUPPORTS DURING ERECTION TO KEEP STRUCTURAL FRAMING SECURE, PLUMB, AND IN ALIGNMENT AGAINST TEMPORARY CONSTRUCTION LOADS EQUAL IN INTENSITY TO DESIGN LOADS. REMOVE TEMPORARY SUPPORTS WHEN PERMANENT STRUCTURAL FRAMING CONNECTIONS AND BRACING ARE IN PLACE, UNLESS OTHERWISE INDICATED.

11. DESIGN FRAMING SYSTEM TO MAINTAIN CLEARANCES AT OPENINGS, TO ALLOW FOR CONSTRUCTION TOLERANCES, AND TO ACCOMMODATE LIVE LOAD DEFLECTION OF PRIMARY BUILDING STRUCTURE AS FOLLOWS (INCLUDES SLIP TRACKS, SLIP CLIPS, & BYPASS CLIPS):

A. UPWARD AND DOWNWARD MOVEMENT EQUALS 1/240 TIMES THE SPAN OF THE UPPER BOUND PRIMARY STRUCTURAL ELEMENT (BEAM).

12. MINIMUM MEMBER SIZES ARE AS FOLLOWS:

| MEMBER    | FLANGE | THICKNESS (MILS) |
|-----------|--------|------------------|
| S (STUD)  | 162    | 33               |
| T (TRACK) | 200    | 33               |

13. MINIMUM YIELD STRENGTH (F<sub>y</sub>) OF ALL SECTIONS 20 TO 18 GAUGE (33 TO 43 MILS) SHALL BE 33 KSI. MINIMUM YIELD

14. ALL STUDS BACKING MASONRY OR STONE VENEER SHALL BE 43 MILS MIN.

15. THE QUANTITY OF STUDS OR JOISTS PLACED ON EACH SIDE OF OPENINGS SHALL BE DESIGNATED BY THE SPECIALTY ENGINEER. (2) STUDS MIN. EACH SIDE OF OPENING.

16. SELF-DRILLING TAPPING SCREW FASTENERS SHALL BE IN COMPLIANCE WITH ASTM C1513 OR AN APPROVED DESIGN OR RECOGNIZED DESIGN STANDARD. ALL SCREWS SHALL BE NON-CORROSIVE NO. 12-14 STANDARD SELF-DRILLING SCREWS UNLESS NOTED OTHERWISE ON DRAWINGS (DO NOT USE STAINLESS STEEL OR COPPER COATED FASTENERS).

17. ALL POWDER ACTUATED FASTENERS (PAF) SHALL BE 0.157" MIN. DIAMETER POWDER ACTUATED FASTENERS. LIMIT EMBED IN POST-TENSIONED SLABS TO BE 3/4" MAX.

18. ALL SCREWS SHALL BE SPACED NO CLOSER THAN 1" ON CENTER UNLESS NOTED OTHERWISE ON DRAWINGS. MIN. EDGE DISTANCE FOR SCREWS SHALL BE 1".

19. TRACKS SHALL BE CONNECTED TO SUPPORTS WITH TWO SCREWS OR PINS AT 16" O.C. MAX. STUDS OR JOISTS SHALL BE CONNECTED TO TRACKS AT EACH SIDE.
20. ALL BRIDGING MUST BE CONTINUOUS FOR FULL LENGTH OF WALL OR PROPERLY SPLICED WITH AN APPROVED SPLICE ELEMENT.

21. NO WELDING OF MEMBERS ALLOWED.

| <u>CONCRETE REINFORCEMENT LAP LENGTH SCHEDULE</u> |                   |                   |                   |
|---------------------------------------------------|-------------------|-------------------|-------------------|
| BAR                                               | $f_c = 3,000$ PSI | $f_c = 4,000$ PSI | $f_c = 4,500$ PSI |

| SIZE | TOP BARS | OTHER | TOP BARS | OTHER | TOP BARS | OTHER |
|------|----------|-------|----------|-------|----------|-------|
| #3   | 28"      | 22"   | 25"      | 19"   | 23"      | 18"   |
| #4   | 38"      | 29"   | 33"      | 25"   | 31"      | 24"   |

|    |     |     |     |     |     |     |
|----|-----|-----|-----|-----|-----|-----|
| #5 | 47" | 36" | 41" | 31" | 38" | 30" |
| #6 | 56" | 43" | 49" | 37" | 46" | 35" |
| #7 | 81" | 63" | 71" | 54" | 67" | 51" |

|    |     |     |     |     |     |     |
|----|-----|-----|-----|-----|-----|-----|
| #8 | 93" | 72" | 81" | 62" | 76" | 59" |
|----|-----|-----|-----|-----|-----|-----|

NOTES:

1. WHERE THE CLEAR SPACING BETWEEN BARS BEING SPICED IS LESS

2. THAN (2) BAR DIAMETERS, INCREASE THE LAP LENGTH BY 50%.
3. WHERE THE BAR COVER IS LESS THAN OR EQUAL TO THE BAR DIAMETER, INCREASE THE LAP LENGTH BY 50%.
4. TOP BARS ARE HORIZONTAL BARS WITH MORE THAN 12" OF CONCRETE CAST BELOW THE BARS.
5. WHERE THE LAP LENGTH IS PROVIDED FOR NORMAL WEIGHT CONCRETE

4. LAP SPlice LENGTHS ARE PROVIDED FOR NORMAL WEIGHT CONCRETE. WHERE LIGHTWEIGHT CONCRETE IS USED, INCREASE LAP SPlice LENGTHS BY 30%.
5. SPlices OF HORIZONTAL REINFORCEMENT IN WALLS SHALL BE STAGGERED.
6. SPlices OF HORIZONTAL REINFORCEMENT IN WALLS CONTAINED TWO

| MATERIAL / ACTIVITY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | SERVICE                                                     | Y/N | EXTENT                                                                      | AGENT | DATE COMPLETED |
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| 1704.6 Structural Observations                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                             |     |                                                                             |       |                |
| 1. For Risk Category III or IV, a registered design professional shall perform the following structural observations:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             |     |                                                                             |       |                |
| a. Visually observe representative locations of structural systems, details and load paths for general conformance to the approved construction documents.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Field inspection                                            | N   | Periodic                                                                    |       |                |
| 1705.1.1 Special Cases                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |     |                                                                             |       |                |
| 1. Inspection of anchors post-installed in solid grouted masonry: Per research reports including verification of anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, masonry unit, grout, masonry compressive strength, anchor embedment and tightening torque                                                                                                                                                                                                                                                                                                                                                          | Field inspection                                            | Y   | Periodic or as required by the research report issued by an approved source |       |                |
| 2. Aggregate Pier Inspection: The special inspector's responsibilities include, but are not limited to, review of the aggregate pier designer's use of soil parameters as presented in the project soils report, and during construction, verification of aggregate properties, type and number of lifts of aggregate, hole size and depths and top elevations of pier elements, and applied energy. Additionally, results of qualitative tests on production aggregate pier elements such as modulus load testing, uplift pull-out testing, bottom stabilization tests and dynamic cone penetration tests, shall be reviewed to verify compliance with design specifications. | Field inspection                                            | N   | Periodic or as required by the research report issued by an approved source |       |                |
| 1705.2.1 Structural Steel Construction                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             |     |                                                                             |       |                |
| 1. Fabricator and erector documents (Verify reports and certificates as listed in AISC 360, Section N 3.2 for compliance with construction documents)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | Submittal Review                                            | Y   | Each submittal                                                              |       |                |
| 2. Material verification of structural steel                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Shop (3) and field inspection                               | Y   | Periodic                                                                    |       |                |
| 3. Structural steel welding:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                             |     |                                                                             |       |                |
| a. Inspection tasks Prior to Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Shop (3) and field inspection                               | Y   | Observe or Perform as noted (4)                                             |       |                |
| b. Inspection tasks During Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Shop (3) and field inspection                               | Y   | Observe or Perform as noted (4)                                             |       |                |
| c. Inspection tasks After Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Shop (3) and field inspection                               | Y   | Observe or Perform as noted (4)                                             |       |                |
| d. Nondestructive testing (NDT) of welded joints: see Commentary                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             |     |                                                                             |       |                |
| 1) Complete penetration groove welds 5/16" or greater in risk category III or IV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | Shop (3) or field ultrasonic testing - 100%                 | N   | Periodic                                                                    |       |                |
| 2) Complete penetration groove welds 5/16" or greater in risk category II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Shop (3) or field ultrasonic testing - 10% of welds minimum | N   | Periodic                                                                    |       |                |
| 3) Welded joints subject to fatigue when required by AISC 360, Appendix 3, Table A-3.1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Shop (3) or field radiographic or Ultrasonic testing        | N   | Periodic                                                                    |       |                |
| 4) Fabricator's NDT reports when fabricator performs NDT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Verify reports                                              | N   | Each submittal (5)                                                          |       |                |
| 4. Structural steel bolting:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Shop (3) and field inspection                               |     | Each submittal (5)                                                          |       |                |
| a. Inspection tasks Prior to Bolting (Observe, or perform tasks for each bolted connection, in accordance with QA tasks listed in AISC 360, Table N5.6-1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             | Y   | Observe or Perform as noted (4)                                             |       |                |
| b. Inspection tasks During Bolting (Observe the QA tasks listed in AISC 360, Table N5.6-2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                             | Y   | Observe (4)                                                                 |       |                |
| 1) Pre-tensioned and slip-critical joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             |     |                                                                             |       |                |
| a) Turn-of-nut with matching markings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             | N   | Periodic                                                                    |       |                |
| b) Direct tension indicator                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                             | N   | Periodic                                                                    |       |                |
| c) Twist-off type tension control bolt                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             | N   | Periodic                                                                    |       |                |
| d) Turn-of-nut without matching markings                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                             | N   | Continuous                                                                  |       |                |
| e) Calibrated wrench                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | N   | Continuous                                                                  |       |                |
| 2) Snug-tight joints                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                             | Y   | Periodic                                                                    |       |                |
| c. Inspection tasks After Welding (Observe, or perform for each welded joint or member, the QA tasks listed in AISC 360, Table N5.4-3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                             | Y   | Perform (4)                                                                 |       |                |
| 5. Visual inspection of exposed cut surfaces of galvanized structural steel main members and exposed corners of the rectangular HSS for cracks subsequent to galvanizing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Shop (3) or field inspection                                | Y   | Periodic                                                                    |       |                |
| 6. Embedments (Verify diameter, grade, type, length, embedment. See 1705.3 for anchors)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Field inspection                                            | Y   | Periodic                                                                    |       |                |
| 7. Verify member locations, braces, stiffeners, and application of joint details at each connection comply with construction documents                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Field inspection                                            | Y   | Periodic                                                                    |       |                |
| 1705.2.3 Cold-Formed Steel Deck                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             |     |                                                                             |       |                |
| 1. Manufacturer documents (Verify reports and certificates as listed in SDI QA/QC, Section B, Paragraphs B1 and B2 for compliance with construction documents)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Submittal Review                                            | Y   | Each submittal                                                              |       |                |
| 2. Material verification of steel deck, mechanical fasteners and welding materials                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Shop (3) and field inspection                               | Y   | Periodic                                                                    |       |                |
| 3. Cold-formed steel deck placement:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Shop (3) and field inspection                               |     |                                                                             |       |                |
| a. Inspection tasks Prior to Deck Placement (Perform the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.1)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                             | Y   | Perform (4)                                                                 |       |                |
| b. Inspection tasks After Deck Placement (Perform the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                             | Y   | Perform (4)                                                                 |       |                |
| 4. Cold-formed steel deck welding:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Shop (3) and field inspection                               |     |                                                                             |       |                |
| a. Inspection tasks Prior to Welding (Observe the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.3)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                             | Y   | Observe (4)                                                                 |       |                |
| b. Inspection tasks During Welding (Observe the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.4)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                             | Y   | Observe (4)                                                                 |       |                |
| c. Inspection tasks After Welding (Perform the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.5)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             | Y   | Perform (4)                                                                 |       |                |
| 5. Cold-formed steel deck mechanical fastening:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | Shop (3) and field inspection                               |     |                                                                             |       |                |
| a. Inspection tasks Prior to Mechanical Fastening (Observe the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.6)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                             | Y   | Observe (4)                                                                 |       |                |
| b. Inspection tasks During Mechanical Fastening (Observe the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.7)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                             | Y   | Observe (4)                                                                 |       |                |
| c. Inspection tasks After Mechanical Fastening (Perform the QA tasks listed in SDI QA/QC, Appendix 1 Table 1.8)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                             | Y   | Perform (4)                                                                 |       |                |

| MATERIAL / ACTIVITY                                                                                                                                                                                                                                                                                                                                                                                                                                          | SERVICE                                        | Y/N | EXTENT                                                                      | AGENT | DATE COMPLETED |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|-----|-----------------------------------------------------------------------------|-------|----------------|
| 1705.3 Concrete Construction                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                |     |                                                                             |       |                |
| 1. Inspect reinforcement, including prestressing tendons, and verify placement.                                                                                                                                                                                                                                                                                                                                                                              | Shop (3) and field inspection                  | Y   | Periodic                                                                    |       |                |
| 2. Reinforcing bar welding:                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                |     |                                                                             |       |                |
| a. Verification of weldability of bars other than ASTM A706.                                                                                                                                                                                                                                                                                                                                                                                                 | Shop (3) and field inspection                  | N   | Periodic                                                                    |       |                |
| b. Inspect welding of reinforcement for special moment frames, boundary elements of special structural walls and coupling beams.                                                                                                                                                                                                                                                                                                                             | Shop (3) and field inspection                  | N   | Continuous                                                                  |       |                |
| c. Inspect welded reinforcement splices.                                                                                                                                                                                                                                                                                                                                                                                                                     | Shop (3) and field inspection                  | N   | Continuous                                                                  |       |                |
| d. Inspect welding of primary tension reinforcement in corbels.                                                                                                                                                                                                                                                                                                                                                                                              | Shop (3) and field inspection                  | N   | Continuous                                                                  |       |                |
| e. Inspection of single-pass fillet welds 5/16 or less in size.                                                                                                                                                                                                                                                                                                                                                                                              | Shop (3) and field inspection                  | N   | Periodic                                                                    |       |                |
| f. Inspection of all other welds.                                                                                                                                                                                                                                                                                                                                                                                                                            | Shop (3) and field inspection                  | N   | Continuous                                                                  |       |                |
| 3. Inspection of anchors cast in concrete.                                                                                                                                                                                                                                                                                                                                                                                                                   | Shop (3) and field inspection                  | Y   | Periodic                                                                    |       |                |
| 4. Inspection of anchors post-installed in hardened concrete members per research reports, or, if no specific requirements are provided, requirements shall be provided by the registered design professional and approved by the building official, including verification of anchor type, anchor dimensions, hole dimensions, hole cleaning procedures, anchor spacing, edge distances, concrete minimum thickness, anchor embedment and tightening torque | Field inspection                               | Y   | Periodic or as required by the research report issued by an approved source |       |                |
| a. Adhesive anchors installed in horizontally or upwardly-inclined orientation that build sustained tension loads.                                                                                                                                                                                                                                                                                                                                           |                                                | N   | Continuous                                                                  |       |                |
| b. Mechanical and adhesive anchors note defined in 4a.                                                                                                                                                                                                                                                                                                                                                                                                       |                                                | N   | Periodic                                                                    |       |                |
| 5. Verify use of approved design mix                                                                                                                                                                                                                                                                                                                                                                                                                         | Shop (3) and field inspection                  | Y   | Periodic                                                                    |       |                |
| 6. Prior to placement, fresh concrete sampling, perform slump and air content tests and determine temperature of concrete and perform any other tests as specified in construction documents.                                                                                                                                                                                                                                                                | Shop (3) and field inspection                  | Y   | Continuous                                                                  |       |                |
| 7. Inspection of concrete and shotcrete placement for proper application techniques                                                                                                                                                                                                                                                                                                                                                                          | Shop (3) and field inspection                  | Y   | Continuous                                                                  |       |                |
| 8. Verify maintenance of specified curing temperature and techniques                                                                                                                                                                                                                                                                                                                                                                                         | Shop (3) and field inspection                  | Y   | Periodic                                                                    |       |                |
| 9. Inspection of prestressed concrete:                                                                                                                                                                                                                                                                                                                                                                                                                       | Shop (3) and field inspection                  |     |                                                                             |       |                |
| a. Application of prestressing force                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                | N   | Continuous                                                                  |       |                |
| b. Grouting of bonded prestressing tendons                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                | N   | Continuous                                                                  |       |                |
| 10. Inspect erection of precast concrete members                                                                                                                                                                                                                                                                                                                                                                                                             | Field inspection                               | N   | Periodic                                                                    |       |                |
| 11. For precast concrete diaphragm connections or reinforcement at joints classified as moderate or high deformability elements (MDE or HDE) in structures assigned to SDC C, D, E, or F, inspect such connections and reinforcement for:                                                                                                                                                                                                                    | Field inspection                               |     |                                                                             |       |                |
| a. Installation of the embedded parts                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                | N   | Continuous                                                                  |       |                |
| b. Completion of the continuity of reinforcement across joints                                                                                                                                                                                                                                                                                                                                                                                               |                                                | N   | Continuous                                                                  |       |                |
| c. Completion of the connections in the field.                                                                                                                                                                                                                                                                                                                                                                                                               |                                                | N   | Continuous                                                                  |       |                |
| 12. Inspection installation tolerances of precast concrete diaphragm connections for compliance with ACI 550.5.                                                                                                                                                                                                                                                                                                                                              | Field inspection                               | N   | Periodic                                                                    |       |                |
| 13. Verify in-situ concrete strength, prior to stressing of tendons in post tensioned concrete and prior to removal of shores and forms from beams and structural slabs                                                                                                                                                                                                                                                                                      | Review field testing and laboratory reports    | Y   | Periodic                                                                    |       |                |
| 14. Inspection of formwork for shape, lines, location and dimensions                                                                                                                                                                                                                                                                                                                                                                                         | Field inspection                               | Y   | Periodic                                                                    |       |                |
| 15. Concrete strength testing and verification of compliance with construction documents                                                                                                                                                                                                                                                                                                                                                                     | Field testing and review of laboratory reports | Y   | Periodic                                                                    |       |                |
| 1705.6 Soils                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                |     |                                                                             |       |                |
| 1. Verify materials below shallow foundations are adequate to achieve the design bearing capacity.                                                                                                                                                                                                                                                                                                                                                           | Field inspection                               | Y   | Periodic                                                                    |       |                |
| 2. Verify excavations are extended to proper depth and have reached proper material.                                                                                                                                                                                                                                                                                                                                                                         | Field inspection                               | Y   | Periodic                                                                    |       |                |
| 3. Perform classification and testing of compacted fill materials.                                                                                                                                                                                                                                                                                                                                                                                           | Field inspection                               | Y   | Periodic                                                                    |       |                |
| 4. During fill placement, verify use of proper materials and procedures in accordance with the provisions of the approved geotechnical report. Verify densities and lift thicknesses during placement and compaction of compacted fill.                                                                                                                                                                                                                      | Field inspection                               | Y   | Continuous                                                                  |       |                |
| 5. Prior to placement of controlled fill, inspect subgrade and verify that site has been prepared properly                                                                                                                                                                                                                                                                                                                                                   | Field inspection                               | Y   | Periodic                                                                    |       |                |