

3.09 FIELD QUALITY CONTROL

A. GENERAL:

- 1. EMPLOY A QUALITY CONTROL SERVICE TO PERFORM DURING CONSTRUCTION QUALITY ASSURANCE AND CONTROL EVALUATIONS OF WORK TO VERIFY COMPLIANCE OF WORK WITH REQUIREMENTS OF CONTRACT DOCUMENTS. QUALITY CONTROL SERVICE WILL PROVIDE TESTING FACILITIES AND EQUIPMENT.
2. WORK MAY REQUIRE RE-EVALUATION AS DIRECTED BY ARCHITECT ANYTIME DURING PROGRESS OF THE WORK. RE-EVALUATION OF REJECTED WORK AND EVALUATION OF REPLACEMENT WORK SHALL BE PERFORMED AT EXPENSE OF CONTRACTOR, AT NO ADDITION TO CONTRACT SUM.

B. INSPECTIONS:

- 1. STEEL REINFORCEMENT PLACEMENT
2. VERIFICATION OF USE OF REQUIRED DESIGN MIXTURE

C. CONCRETE TESTS: TESTING OF FRESH CONCRETE SAMPLES OBTAINED IN ACCORDANCE WITH ASTM C172

- 1. TESTING FREQUENCY: OBTAIN AT LEAST ONE COMPOSITE SAMPLE CONSISTING OF 6 CYLINDERS FOR EACH 50 CU. YD. OR FRACTION THEREOF PLACED EACH DAY.
2. SLUMP: IN ACCORDANCE WITH ASTM C143
3. AIR CONTENT: IN ACCORDANCE WITH ASTM C231
4. CONCRETE TEMPERATURE: IN ACCORDANCE WITH ASTM C1064

5. COMPRESSIVE STRENGTH TESTS: TEST SPECIMENS IN ACCORDANCE WITH ASTM C39. TEST 2 CYLINDERS AT 7 DAYS AND 2 CYLINDERS AT 28 DAYS. HOLD THE REMAINING 2 CYLINDERS IN RESERVE AND TEST IF DIRECTED BY THE ENGINEER. RESERVE CYLINDERS CAN BE DISCARDED AFTER 90 DAYS IF NOT TESTED.

3.10 ADJUSTING AND CLEANING

A. REPAIRING FORMED SURFACES:

- 1. REMOVAL: AFTER FORMS HAVE BEEN STRIPPED, REMOVE CONCRETE WHICH IS NOT FORMED AS REQUIRED, WHICH IS OUT OF ALIGNMENT OR LEVEL BEYOND SPECIFIED TOLERANCES, OR WHICH SHOWS DEFECTIVE SURFACE THAT CANNOT BE PROPERLY REPAIRED OR PATCHED. SUBMIT TO ARCHITECT, IN WRITING, REMEDIAL PROCEDURES FOR REVIEW PRIOR TO BEGINNING WORK.
2. IN AREAS OF HONEYCOMBED, SPALLED OR OTHERWISE DAMAGED CONCRETE, REPAIR AND PATCH AS SPECIFIED IN THIS ARTICLE. IF DEPTH OF DEFECTIVE CONCRETE DOES NOT EXTEND PAST CENTERLINE OF ANY EXPOSED REINFORCEMENT, IF DEPTH OF DEFECTIVE CONCRETE EXTENDS PAST CENTERLINE OF ANY EXPOSED REINFORCEMENT, NOTIFY ARCHITECT AND SUBMIT, IN WRITING, REMEDIAL PROCEDURES FOR REVIEW PRIOR TO BEGINNING WORK.

3. REPAIRING AND PATCHING:

- a. PATCH TIE-HOLES AND REPAIR DEFECTIVE AREAS IMMEDIATELY AFTER FORM REMOVAL.
b. DEFECTIVE AREAS:
1) REMOVE HONEYCOMBED AND OTHER DEFECTIVE CONCRETE TO SOUND CONCRETE, BUT IN NO CASE TO DEPTH OF 3/4 INCH MINIMUM.
2) IF CHIPPING IS NECESSARY, EDGES SHALL BE PERPENDICULAR TO FACE OR SLIGHTLY UNDERCUT. NO FEATHER EDGES ARE PERMITTED.
3) DAMPEN AREA TO BE PATCHED AND AREA OF 6 INCHES MINIMUM WIDTH SURROUNDING TO PREVENT ABSORPTION OF WATER FROM PATCHING MORTAR.
4) MIX BOND COAT OF APPROXIMATELY 1 PART NEAT PORTLAND CEMENT TO 1 PART FINE SAND PASSING NUMBER 30 MESH SIEVE. AND BONDING ADMIXTURE AND WATER TO CONSISTENCY OF THICK CREAM. RATIO OF BONDING ADMIXTURE AND WATER SHALL MEET INSTRUCTIONS OF BONDING ADMIXTURE MANUFACTURER.
5) MAKE PATCHING MIXTURE OF SAME MATERIAL AND OF APPROXIMATELY SAME PROPORTIONS AS USED FOR CONCRETE. EXCEPT OMIT COARSE AGGREGATE AND USE MORTAR THAT CONSISTS OF NOT MORE THAN 1 PART CEMENT TO 1/2 PARTS SAND BY DAMP LOOSE VOLUME.
6) SUBSTITUTE WHITE PORTLAND CEMENT FOR PART OF GRAY PORTLAND CEMENT ON EXPOSED CONCRETE IN ORDER TO PRODUCE COLOR MATCHING COLOR OF SURROUNDING CONCRETE, AS DETERMINED BY TRIAL PATCH.
7) ADD ONLY QUANTITY OF MIXING WATER NECESSARY FOR HANDLING AND PLACING.
8) MIX PATCHING MORTAR IN ADVANCE AND ALLOW TO STAND WITH FREQUENT MANIPULATION WITH TROWEL, WITHOUT ADDITION OF WATER, UNTIL MORTAR HAS REACHED STIFFEST CONSISTENCY TO PERMIT PLACING.
9) AFTER SURFACE WATER HAS EVAPORATED FROM AREA TO BE PATCHED, BRUSH BOND COAT INTO SURFACE.
10) WHEN BOND COAT BEGINS TO LOSE WATER SHEEN, APPLY PREMIXED PATCHING MORTAR.
11) THOROUGHLY CONSOLIDATE MORTAR INTO PLACE AND STRIKE OFF TO PATCH SLIGHTLY HIGHER THAN SURROUNDING SURFACE.
12) TO PERMIT INITIAL SHRINKAGE, LEAVE MORTAR UNDISTURBED FOR ONE HOUR MINIMUM BEFORE BEING FINALLY FINISHED.
13) KEEP PATCHED AREA DAMP FOR SEVEN DAYS.
14) DO NOT USE METAL TOOLS IN FINISHING PATCH IN FORMED SURFACE WHICH WILL BE EXPOSED.

c. TIE-HOLES: AFTER CLEANING AND THOROUGHLY DAMPENING, FILL TIE-HOLES SOLID WITH PATCHING MORTAR, EXCEPT AS OTHERWISE REQUIRED FOR EXPOSED CONCRETE.

B. METAL SURFACE CLEANING: REMOVE ALL TRACES OF CONCRETE FROM METAL SURFACES, INCLUDING EXPOSED SURFACES OF EMBEDMENTS, GRATINGS, DRAINS AND LIKE ITEMS. DRAINS AND LIKE ITEMS SHALL BE OPERATIVE.

END OF SECTION

SECTION 05400 COLD-FORMED STRUCTURAL FRAMING

PART 1 - GENERAL

1.01 SUMMARY

- A. INCLUDED: COLD-FORMED STRUCTURAL FRAMING INCLUDES, BUT IS NOT LIMITED TO, FOLLOWING:
1. DETAILING, FABRICATION AND INSTALLATION OF WORK.
2. WALL FRAMING.
3. ASSOCIATED RUNNER TRACKS, PLATES, GUSSETS, BRACING, FURRING AND CLIPS.

B. RELATED WORK:

- 1. STRUCTURAL STEEL.
2. METAL NON-STRUCTURAL FRAMING TO WHICH BOARD PRODUCTS ARE ATTACHED, EXCEPT WHERE COLD-FORMED STEEL STRUCTURAL FRAMING IS OBTAINED.
3. ROUGH CARPENTRY, INCLUDING WOOD THERMAL BREAKS ATTACHED TO INSIDE OF OUTDOOR STEEL STUDS.
4. WEATHER BARRIER.
5. FIREPROOFING (WHERE SHOWN ON CONTRACT DOCUMENTS).

1.02 SYSTEM DESCRIPTION

A. CODES AND STANDARDS: MEET REQUIREMENTS OF THE LATEST EDITIONS OF APPLICABLE CODES AND SPECIFICATIONS, EXCEPT TO EXTENT OF MOST STRINGENT REQUIREMENTS OF CONTRACT DOCUMENTS AND OF CODES AND REGULATIONS OF PUBLIC AUTHORITIES HAVING JURISDICTION OVER THE WORK.

B. PERFORMANCE BASIS:

1. GENERAL: DESCRIPTIONS AND REQUIREMENTS INDICATED BY CONTRACT DOCUMENTS ESTABLISH BASIC ARRANGEMENTS, DIMENSIONS, PERFORMANCE, AND LIKE REQUIREMENTS. WITHIN THESE LIMITATIONS WORK SHALL MEET ARRANGEMENTS AND PERFORMANCE REQUIREMENTS INDICATED BY CONTRACT DOCUMENTS, AND INCLUDE COMPONENTS NOT INDICATED BUT NECESSARY FOR PERFORMANCE AND TO BE A COMPLETE SYSTEM. PERFORM MODIFICATIONS ONLY AS NECESSARY TO MEET REQUIREMENTS OF CONTRACT DOCUMENTS AND TO COORDINATE WORK SUBJECT TO ACCEPTANCE BY ARCHITECT. MAINTAIN PERFORMANCE REQUIREMENTS. PROVIDE COMPLETE DRAWINGS AND DATA OF PROPOSED MODIFICATIONS.

C. PERFORMANCE REQUIREMENTS:

- 1. GENERAL: WORK SHALL MEET PERFORMANCE AND LOAD REQUIREMENTS INDICATED BY CONTRACT DOCUMENTS.
2. PERFORMANCE CONDITIONS: PERFORMANCE OF WORK SHALL INCLUDE ALL STRENGTH AND SERVICEABILITY REQUIREMENTS MEETING MOST STRINGENT REQUIREMENTS OF CONTRACT DOCUMENTS AND OF CODES AND REGULATIONS OF PUBLIC AUTHORITIES HAVING JURISDICTION OVER THE WORK.
3. TOLERANCES: WORK SHALL NOT EXCEED FOLLOWING TOLERANCES:
a. ALIGNMENT: PROVIDE ASSEMBLIES TO MAXIMUM ALLOWABLE TOLERANCE VARIATION FROM PLUMB, LEVEL AND TRUE-TO-LINE OF 1/8 INCH IN 10 FEET, BUT NOT MORE THAN 1/860 OF SPAN.
b. SPACING: INDIVIDUAL FRAMING MEMBERS SHALL BE SPACED PLUS OR MINUS 1/8 INCH FROM REQUIRED LOCATION. CUMULATIVE ERROR SHALL NOT EXCEED MINIMUM FASTENING REQUIREMENTS OF MATERIALS TO BE ATTACHED TO FRAMING.

c. FABRICATED ASSEMBLIES:

1) PLANE, IN PLANE AND POSITION BETWEEN FABRICATED ASSEMBLIES SHALL BE 1/16 INCH MAXIMUM.

A. SINGLE RESPONSIBILITY FABRICATION

A. MANUFACTURER QUALIFICATIONS: MANUFACTURER SHALL SPECIALIZE IN PRODUCTION OF PRODUCTS AND PERFORMANCE OF WORK SPECIFIED IN THIS SECTION AND SHALL HAVE DOCUMENTED EXPERIENCE IN DESIGN, ENGINEERING, DETAILING, FABRICATION, INSTALLATION AND MAINTENANCE OF EXTENT, TYPE AND QUALITY REQUIRED FOR WORK. UPON REQUEST PROVIDE PROOF OF QUALIFICATIONS.

C. FABRICATOR QUALIFICATIONS: FABRICATOR SHALL SPECIALIZE IN PERFORMING WORK OF THIS SECTION AND HAVE DOCUMENTED EXPERIENCE IN DESIGN, ENGINEERING, DETAILING, FABRICATION, INSTALLATION AND MAINTENANCE OF TYPE AND QUALITY REQUIRED FOR WORK. FABRICATOR SHALL BE ACCEPTABLE TO MANUFACTURER AND TRAINED IN USE OF MATERIALS AND EQUIPMENT TO BE EMPLOYED IN WORK. UPON REQUEST, PROVIDE PROOF OF QUALIFICATIONS.

D. INSTALLER QUALIFICATIONS: INSTALLER SHALL SPECIALIZE IN PERFORMING WORK OF THIS SECTION AND HAVE DOCUMENTED EXPERIENCE IN DESIGN, ENGINEERING, DETAILING, FABRICATION, INSTALLATION AND MAINTENANCE OF TYPE AND QUALITY REQUIRED FOR WORK. INSTALLER SHALL BE ACCEPTABLE TO MANUFACTURER AND TRAINED IN USE OF MATERIALS AND EQUIPMENT TO BE EMPLOYED IN WORK. UPON REQUEST, PROVIDE PROOF OF QUALIFICATIONS.

E. WELDING QUALIFICATIONS: PRIOR TO COMMENCEMENT OF WELDING OPERATIONS, QUALIFY WELDING PROCEDURES AND PERSONNEL TO BE EMPLOYED ON FABRICATION AND INSTALLATION OF WORK MEETING REQUIREMENTS OF AWS D1.1; QUALIFICATIONS TO REMAIN IN EFFECT FOR DURATION OF WORK.

A. DELIVERY: DELIVER METAL FRAMING UNITS AND ACCESSORIES TO PROJECT SITE IN CONTAINERS OR BUNDLES, FULLY IDENTIFIED WITH NAME, BRAND, TYPE, GRADE AND GAGE.
B. HANDLING AND STORAGE: PROTECT STEEL FRAMING UNITS FROM CORROSION AND DAMAGE. STORE OFF GROUND IN A DRY AND VENTILATED SPACE AND IN ACCORDANCE WITH AISI - CODE OF STANDARD PRACTICE.

C. WELDING ELECTRODES: STORE AND MAINTAIN WELDING ELECTRODES MEETING REQUIREMENTS OF AWS D1.1.

1.05 PROJECT CONDITIONS

A. SEQUENCE: ERECTED ASSEMBLY SHALL BE INSPECTED PRIOR TO APPLYING LOAD TO FRAMING.

PART 2 - PRODUCTS

2.01 ACCEPTABLE MANUFACTURERS

- A. CLARK WESTERN BUILDING SYSTEMS
B. DIETRICH INDUSTRIES, INC.
C. THE STEEL NETWORK, INC.

2.02 FRAMING MEMBERS

A. STEEL:

- 1. OUTDOOR LOCATIONS: ASTM A1003 (50 KSI YIELD), GRADE ST50H, 18 GAGE MINIMUM BASE STEEL THICKNESS MEMBERS.
2. INDOOR LOCATIONS: ASTM A1003 (33 KSI YIELD), GRADE ST33H, 20 GAGE MINIMUM BASE STEEL THICKNESS MEMBERS.
3. FINISH - OUTDOOR LOCATIONS: ASTM A653, COATING DESIGNATION G90 MINIMUM.
4. FINISH - INDOOR LOCATIONS: ASTM A653, COATING DESIGNATION G60 MINIMUM.

B. MEMBERS:

- 1. STUDS, C-SHAPED LOAD BEARING STEEL STUDS, UNPUNCHED AND PUNCHED AS REQUIRED FOR OTHER WORK, BASE STEEL THICKNESS AND WEB DEPTH AS INDICATED, AND 1.625 INCH MINIMUM FLANGE WIDTH WITH FLANGE RETURN LP.
2. BRIDGING: U-SHAPED CHANNEL, 0.0338 INCH MINIMUM BASE STEEL THICKNESS AND WEB DEPTH AS INDICATED, AND 0.5 INCH MINIMUM FLANGE WIDTH WITH FLANGE RETURN LP.
3. HEADER BEAMS: BOX HEADER BEAMS OF FRAMING SHAPE MEMBERS REQUIRED TO FORM HEADER BEAMS. FRAMING SHAPE MEMBERS SHALL MEET REQUIREMENTS SPECIFIED IN THIS PARAGRAPH FOR RESPECTIVE SHAPE.
4. BUILT-UP MEMBERS: FRAMING SHAPE MEMBERS REQUIRED TO FORM REQUIRED BUILT-UP MEMBER. FRAMING SHAPE MEMBERS SHALL MEET REQUIREMENTS SPECIFIED IN THIS PARAGRAPH FOR RESPECTIVE SHAPE.
5. NARROW LEG TRACK: U-SHAPED STEEL TRACKS, UNPUNCHED, BASE STEEL THICKNESS AND WEB DEPTH AS INDICATED, AND 1.25 INCH MINIMUM WIDTH WITH STRAIGHT FLANGE.
6. DEFLECTION TRACK: U-SHAPED STEEL TRACK WITH UNSTIFFENED FLANGES, OF WEB DEPTH TO CONTAIN STUDS WHILE ALLOWING FREE VERTICAL MOVEMENT, WITH FLANGES DESIGNED TO SUPPORT HORIZONTAL AND LATERAL LOADS AND CAPABLE OF TRANSFERRING LOADS TO SUPPORTING STRUCTURE; BASE STEEL THICKNESS AS REQUIRED FOR APPLICATION AND 1 INCH MINIMUM FLANGE WIDTH.

2.03 ACCESSORIES

A. FRAMING ACCESSORIES: BRACING, BRIDGING, PLATES, GUSSETS AND CLIPS SHALL BE FORMED SHEET STEEL OF SAME MATERIAL, YIELD STRENGTH AND FINISH AS FRAMING MEMBERS, THICKNESS DETERMINED BY PERFORMANCE REQUIREMENTS SPECIFIED.
B. VERTICAL DEFLECTION CLIPS: DEFLECTION CLIPS FOR POSITIVE ATTACHMENT TO STRUCTURE AND STUD WEB USING STEP-BUSHING TECHNOLOGY TO PROVIDE FRICTIONLESS VERTICAL MOVEMENT. PROVIDE CLIPS WITH ATTACHED BUSHING AND SCREW OF SERIES, SIZE AND CONFIGURATION AS INDICATED. CLIPS SHALL BE FABRICATED FROM ZINC COATED STEEL SHEET MEETING REQUIREMENTS OF ASTM A653, DESIGNATION SS, GRADE 50 (340), CLASS 1, 50 KSI YIELD STRENGTH, 65 KSI TENSILE STRENGTH, COATING DESIGNATION G90, MINIMUM.

C. THREADED FASTENERS: SELF-DRILLING, SELF-TAPPING STEEL DRILL SCREWS OF STRENGTHS REQUIRED FOR APPLICATION MEETING REQUIREMENTS OF ASTM C1513, AND SPECIFICATIONS AND INSTRUCTIONS OF STEEL FRAMING MANUFACTURER. FASTENERS SHALL BE NUMBER 12 INDIAN SIZE AND ALUMINUM RESISTANT COAT HOT DIP ZINC COATED MEETING REQUIREMENTS OF ASTM A124. PROVIDE LOW PROFILE HEAD FASTENERS BENEATH SHEATHING.

D. WELDING ELECTRODES: MEET REQUIREMENTS OF AWS D1.3 AND AS RECOMMENDED BY STEEL FRAMING MANUFACTURER.
E. POWER ACTUATED FASTENERS: FASTENER SYSTEM OF TYPE SUITABLE FOR APPLICATION, FABRICATED FROM CORROSION RESISTANT MATERIAL, WITH CAPABILITY TO SUSTAIN, WITHOUT FAILURE, A LOAD EQUAL TO 10 TIMES DESIGN LOAD WHEN EVALUATED MEETING REQUIREMENTS OF ASTM E1190 BY AN INDEPENDENT TESTING AGENCY.

F. TOUCH-UP REPAIR PAINT: ZINC-RICH PAINT FOR REPAIR OR TOUCH-UP OF DAMAGED HOT-DIP ZINC COATING MEETING REQUIREMENTS OF ASTM A780 AND MIL-P-21035, WITH VOC CONTENT AS SPECIFIED IN THE PRODUCT MANUFACTURER'S TECHNICAL DATA SHEET. THE REPAIR COATING SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE FRAMING MEMBERS TO BE REPAIRED. REPAIR COATING SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE FRAMING MEMBERS TO BE REPAIRED. REPAIR COATING SHALL BE APPLIED TO ALL EXPOSED SURFACES OF THE FRAMING MEMBERS TO BE REPAIRED.

G. BEARING SURFACES: BEARING SURFACES SHALL BE UNIFORM AND LEVEL TO ENSURE FULL CONTACT OF BEARING FLANGES OR TRACK WEBS ON SUPPORTING CONSTRUCTION.
H. OPENINGS: FRAME SIDES OF OPENINGS EACH WITH 2 MEMBERS.
I. CUTTING: CUTTING OF STEEL FRAMING MEMBERS SHALL BE ACCOMPLISHED BY SAW OR SHEAR. TORCH OR WELDING ELECTRODE CUTTING IS NOT ACCEPTABLE.

J. FASTENINGS: FASTEN FRAMING COMPONENTS BY WELDING OR SCREW FASTENING, EXCEPT AS OTHERWISE REQUIRED.
1. ATTACH SIMILAR AND DISSIMILAR METAL FRAMING COMPONENTS BY WELDING, BOLTING OR SCREW FASTENERS AS STANDARD WITH MANUFACTURER.
2. WELDING OF FRAMING COMPONENTS IS NOT ACCEPTABLE, EXCEPT FOR AXIAL LOAD BEARING CONDITIONS WHERE COMPONENTS ARE 0.0428 INCH BASE STEEL THICKNESS MINIMUM.
3. WIRE TYING OF FRAMING COMPONENTS IS NOT ACCEPTABLE.
4. LOCATE MECHANICAL FASTENERS AND INSTALL MEETING INSTRUCTIONS OF FRAMING MANUFACTURER WITH SCREW PENETRATING JOINED MEMBERS 3 EXPOSED SCREW THREADS MINIMUM.

K. OVERSIZED PUNCHED OPENINGS: FASTEN HOLE REINFORCING PLATE OVER PENETRATIONS THAT EXCEED SIZE OF PUNCHED OPENINGS AS INSTRUCTED BY STEEL FRAMING MANUFACTURER.
L. TOUCH-UP PAINTING: AFTER FABRICATION, REPAIR AND TOUCH-UP PAINT AREAS OF PROTECTIVE COATINGS DAMAGED DURING FABRICATION. FOR ZINC COATED SURFACES, USE ZINC COATING REPAIR PAINT AND MEET REQUIREMENTS OF ASTM A780.

PART 3 - EXECUTION

3.01 EXAMINATION

A. GENERAL: EXAMINE AREAS AND CONDITIONS UNDER WHICH WORK IS TO BE INSTALLED FOR COMPLIANCE WITH REQUIREMENTS OF CONTRACT DOCUMENTS AND TO DETERMINE IF CONDITIONS AFFECTING PERFORMANCE OF WORK ARE SATISFACTORY. DO NOT PROCEED WITH INSTALLATION UNTIL ALL UNSATISFACTORY CONDITIONS HAVE BEEN RESOLVED. COMMENCEMENT OF INSTALLATION SHALL CONSTITUTE ACCEPTANCE OF CONDITIONS.

3.02 INSTALLATION - GENERAL

A. GENERAL: INSTALL WORK MEETING REQUIREMENTS OF CONTRACT DOCUMENTS, AS INDICATED BY FINAL REVIEWED SUBMITTALS FOR WORK, AND INSTRUCTIONS AND RECOMMENDATIONS OF PRODUCT MANUFACTURERS.
B. ONE-PIECE MEMBERS: PROVIDE FRAMING MEMBERS IN ONE-PIECE LENGTHS, UNLESS SPLICE CONNECTIONS ARE ACCEPTABLE FOR TRACK OR TENSION MEMBERS.
C. SPACING: FRAMING COMPONENTS SHALL BE SPACED TO SUIT DESIGN REQUIREMENTS AND LIMITATIONS OF COLLATERAL SHEATHING AND FACING MATERIALS.

D. AXIALLY LOADED MEMBERS: AXIALLY LOADED MEMBERS SHALL BE ALIGNED VERTICALLY TO ALLOW FOR FULL TRANSFER OF LOADS. SPLICING OF AXIALLY LOADED MEMBERS IN COMPRESSION IS NOT PERMITTED.
E. HEADERS: INSTALL HEADERS AT OPENINGS OR TERMINATIONS IN RESPECTIVE MAIN FRAMING SYSTEM. FABRICATE HEADERS OF COMPOUND SHAPES AS REQUIRED TO TRANSFER LOAD TO SUPPORTING MEMBERS, COMPLETE WITH CLIP ANGLE CONNECTORS, WEB STIFFENERS OR GUSSET PLATES.

F. SUPPLEMENTAL FRAMING: INSTALL SUPPLEMENTARY FRAMING, BLOCKING AND BRACING IN STEEL FRAMING SYSTEM WHEREVER COMPONENTS ARE REQUIRED TO SUPPORT FIXTURES, EQUIPMENT, SERVICES, CASEWORK, FURNISHINGS OR SIMILAR WORK REQUIRING ATTACHMENT TO OR SUPPORT BY STEEL FRAMING SYSTEM, WHERE TYPE OF SUPPLEMENTARY SUPPORT IS NOT OTHERWISE INDICATED, MEET INSTRUCTIONS OF STEEL FRAMING MANUFACTURER AND INDUSTRY STANDARDS IN EACH CASE, CONSIDERING WEIGHT OR LOADING RESULTING FROM ITEM SUPPORTED.

G. BEARING SURFACES: BEARING SURFACES SHALL BE UNIFORM AND LEVEL TO ENSURE FULL CONTACT OF BEARING FLANGES OR TRACK WEBS ON SUPPORTING CONSTRUCTION.
H. OPENINGS: FRAME SIDES OF OPENINGS EACH WITH 2 MEMBERS.
I. CUTTING: CUTTING OF STEEL FRAMING MEMBERS SHALL BE ACCOMPLISHED BY SAW OR SHEAR. TORCH OR WELDING ELECTRODE CUTTING IS NOT ACCEPTABLE.

J. FASTENINGS: FASTEN FRAMING COMPONENTS BY WELDING OR SCREW FASTENING, EXCEPT AS OTHERWISE REQUIRED.
1. ATTACH SIMILAR AND DISSIMILAR METAL FRAMING COMPONENTS BY WELDING, BOLTING OR SCREW FASTENERS AS STANDARD WITH MANUFACTURER.
2. WELDING OF FRAMING COMPONENTS IS NOT ACCEPTABLE, EXCEPT FOR AXIAL LOAD BEARING CONDITIONS WHERE COMPONENTS ARE 0.0428 INCH BASE STEEL THICKNESS MINIMUM.
3. WIRE TYING OF FRAMING COMPONENTS IS NOT ACCEPTABLE.
4. LOCATE MECHANICAL FASTENERS AND INSTALL MEETING INSTRUCTIONS OF FRAMING MANUFACTURER WITH SCREW PENETRATING JOINED MEMBERS 3 EXPOSED SCREW THREADS MINIMUM.

K. OVERSIZED PUNCHED OPENINGS: FASTEN HOLE REINFORCING PLATE OVER PENETRATIONS THAT EXCEED SIZE OF PUNCHED OPENINGS AS INSTRUCTED BY STEEL FRAMING MANUFACTURER.
L. TOUCH-UP PAINTING: AFTER FABRICATION, REPAIR AND TOUCH-UP PAINT AREAS OF PROTECTIVE COATINGS DAMAGED DURING FABRICATION. FOR ZINC COATED SURFACES, USE ZINC COATING REPAIR PAINT AND MEET REQUIREMENTS OF ASTM A780.

3.03 INSTALLATION - WALL SYSTEMS

A. GENERAL: INSTALL PLUMB, EXCEPT AS REQUIRED FOR SLOPED SURFACES AND SIMILAR REQUIREMENTS, TRUE-TO-LINE, COMPLETE WITH BRACING AND REINFORCING. REINFORCE TRACK OR BEARING SURFACE AS REQUIRED TO TRANSFER LOADS.
B. RUNNER TRACKS: INSTALL CONTINUOUS TRACKS SIZED TO MATCH STUDS. SECURE TRACKS AS INSTRUCTED AND RECOMMENDED BY STUD MANUFACTURER FOR TYPE OF CONSTRUCTION INVOLVED. EXCEPT DO NOT EXCEED SPACING OF 24 INCHES ON CENTER FOR NAIL OR POWER ACTUATED FASTENERS OR 16 INCHES ON CENTER FOR OTHER TYPES OF ATTACHMENT. PROVIDE FASTENERS AT CORNERS AND AT ENDS OF TRACKS.

C. STUD ATTACHMENT - LOAD BEARING: SECURE STUDS TO TOP AND BOTTOM RUNNER TRACKS BY TIGHTENING FASTENERS AT BOTH INSIDE AND OUTSIDE FLANGES.
D. STUD ATTACHMENT - NON-LOAD BEARING:
1. ISOLATE STEEL FRAMING FROM SUPPORTING STRUCTURE AT LOCATIONS INDICATED TO PREVENT TRANSFER OF VERTICAL LOADS WHILE PROVIDING LATERAL SUPPORT.
2. INSTALL DEFLECTION TRACK AND ANCHOR TO SUPPORTING STRUCTURE OR CONNECT STUDS WITH VERTICAL DEFLECTION CLIPS TO CONTINUOUS ANGLES OR SUPPLEMENTARY FRAMING. ANCHORED TO SUPPORTING STRUCTURE. PROVIDE CONNECTIONS MEETING INSTRUCTIONS OF STUD MANUFACTURER.

E. SYSTEM ATTACHMENT: WHERE STUD SYSTEM ABUTS STRUCTURAL COLUMNS OR WALLS, INCLUDING MASONRY WALLS, ANCHOR ENDS OF FRAMING SYSTEM TO SUPPORTING STRUCTURE.
F. OPENING FRAMING: FRAME OPENINGS LARGER THAN 2 FEET SQUARE WITH DOUBLE STUD AT EACH JAMB OF OPENING EXCEPT WHERE MORE THAN 2 ARE INDICATED IN INSTRUCTIONS OF STUD MANUFACTURER. INSTALL RUNNER TRACKS AND JACK STUDS ABOVE AND BELOW OPENINGS. ANCHOR TRACKS TO JAMB STUDS WITH STUD SHOES OR BY WELDING, AND SPACE JACK STUDS SAME AS FULL HEIGHT STUDS OF WALL. SECURE STUD SYSTEM TO WALL OPENING FRAME.

G. BRIDGING: INSTALL HORIZONTAL BRIDGING IN STUD SYSTEM AS FOLLOWS AND FASTEN TO EACH INTERSECTING STUD:
1. FOR AXIAL LOADS: ROWS EQUALLY SPACED AT 4'-6" MAXIMUM ON CENTER.
2. FOR TRANSVERSE LOADS: ROWS EQUALLY SPACED AT 4'-6" FEET MAXIMUM ON CENTER.

H. ASSEMBLIES: BOLT OR WELD PANEL ASSEMBLIES, AT BOTH HORIZONTAL AND VERTICAL JUNCTURES, TO PRODUCE FLUSH, EVEN AND TRUE-TO-LINE JOISTS.
3.04 INSTALLATION - JOIST SYSTEMS

A. GENERAL: INSTALL LEVEL, EXCEPT AS REQUIRED FOR SLOPED SURFACES AND SIMILAR REQUIREMENTS, TRUE-TO-LINE AND PLUMB, COMPLETE WITH BRACING AND REINFORCING. PROVIDE 1-1/2 INCHES (38 MM) MINIMUM END BEARING. REINFORCE TRACK OR BEARING SURFACE AS REQUIRED TO TRANSFER LOADS.
B. ALIGNMENT: ALIGN JOISTS OVER STUDS, WHERE JOIST CANNOT BE ALIGNED OVER STUDS, CONTINUOUSLY REINFORCE TRACK TO TRANSFER LOADS.
C. SPACING AT ABUTTING CONSTRUCTION: SPACE JOISTS 2 INCHES (50 MM) MAXIMUM FROM ABUTTING CONSTRUCTION.
D. END REINFORCEMENT: REINFORCE ENDS WITH END CLIPS, STEEL HANGERS, STEEL ANGLE CLIPS, STEEL STUD SECTION, END GRAIN WOOD BLOCK, OR AS OTHERWISE RECOMMENDED BY JOIST MANUFACTURER.

E. OPENING FRAMING: FRAME OPENINGS WITH BUTT-UP JOIST HEADERS CONSISTING OF JOIST AND JOIST TRACK, NESTING JOISTS OR OTHER COMBINATION OF CONNECTED JOISTS.
F. MISCELLANEOUS FRAMING AND CONNECTIONS: INSTALL MISCELLANEOUS JOIST FRAMING AND CONNECTIONS, INCLUDING WET STIFFENERS, CLOSURE PIECES, CLIP ANGLES, CONTINUOUS ANGLES, HOLD-DOWN ANGLES, ANCHORS AND FASTENERS, TO PROVIDE A COMPLETE AND STABLE JOIST FRAMING ASSEMBLY.

G. INTERIOR SUPPORT REINFORCEMENT: WHERE REQUIRED, REINFORCE JOISTS AT INTERIOR SUPPORTS WITH SINGLE SHORT LENGTH OF JOIST SECTION LOCATED DIRECTLY OVER INTERIOR SUPPORT. SNAP-ON SHOE, 30 PERCENT SIDE-PIECE LAPPED REINFORCEMENT, OR OTHER METHOD RECOMMENDED BY JOIST MANUFACTURER.
H. INTERIOR SUPPORT CONNECTIONS: SECURE JOISTS TO LOAD BEARING INTERIOR SUPPORT SYSTEMS TO PREVENT LATERAL MOVEMENT OF BOTTOM FLANGE.

I. BRIDGING:
1. GENERAL: INSTALL BRIDGING OF TYPE TO SUIT WORK AT EACH END OF JOISTS AND AT REQUIRED INTERVALS OF TYPE TO SUIT WORK. FASTEN BRIDGING AT EACH JOIST INTERSECTION. BRIDGING SHALL BE C-SHAPED OR FLAT STRIPS OF SHEET STEEL OF SIZE REQUIRED FASTENED TO BOTTOM FLANGE OF JOISTS.
2. CONNECTION: PROVIDE BRIDGING ATTACHMENT THROUGH PUNCH-OUT CLAMPING ONTO WEB AND WRAPPING AROUND BRIDGING CHANNEL. PROVIDE SCREW ATTACHMENT BETWEEN WEB AND CHANNEL.

3.05 INSTALLATION - RAFTERS

A. GENERAL: MEET APPLICABLE REQUIREMENTS OF ARTICLE - INSTALLATION - JOIST SYSTEMS, PER THIS SECTION CONTROL.
A. GENERAL: QUALITY CONTROL SERVICE TO PERFORM DURING CONSTRUCTION QUALITY ASSURANCE AND CONTROL EVALUATIONS OF WORK TO VERIFY COMPLIANCE OF WORK WITH REQUIREMENTS OF CONTRACT DOCUMENTS. EVALUATIONS WILL INCLUDE, BUT ARE NOT LIMITED TO, REQUIREMENTS SPECIFIED IN THIS ARTICLE.

B. WORK EVALUATIONS: PERFORM FOLLOWING EVALUATIONS:
1. WELDS WILL BE SUBJECT TO INSPECTION AND TESTING.
2. DETERMINE COMPLIANCE OF WORK WITH REQUIREMENTS OF CONTRACT DOCUMENTS.

3.07 ADJUSTING

A. TOUCH-UP PAINTING: REPAIR AND TOUCH-UP PAINT AREAS OF PROTECTIVE COATINGS DAMAGED DURING HANDLING AND INSTALLATION. FOR ZINC COATED SURFACES, USE ZINC COATING REPAIR PAINT AND MEET REQUIREMENTS OF ASTM A780.

END OF SECTION

ALL DIMENSIONS SHOWN TO BE FIELD VERIFIED U.O.

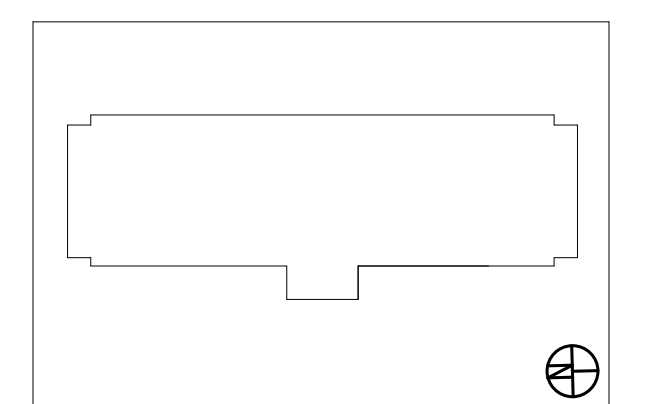


Table with 3 columns: NO., DATE, REVISIONS/ISSUANCES. Row 1: 1, 02/15/2017, ISSUED FOR PRICING. Row 2: 2, 03/15/2017, ISSUED FOR PERMIT.

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Table with 2 columns: PROJECT NUMBER, PROJECT MANAGER, ARCH/ENG, SCALE, DRAWN BY, CHECKED BY. Values: 16303, DS, JH, JP, JC.

OUTLINE SPECIFICATIONS

G-012

Structural Engineer Architect Owner Project Address

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