

SECTION 052100 - STEEL JOISTS AND JOIST GIRDERS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

- A. DRAWINGS AND GENERAL PROVISIONS OF CONTRACT INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION-1 SPECIFICATION SECTIONS, APPLY TO WORK OF THIS SECTION.

1.02 SUMMARY

- A. EXTENT OF STEEL JOISTS AND JOIST GIRDERS IS SHOWN ON DRAWINGS, INCLUDING BASIC LAYOUT AND TYPE OF JOISTS REQUIRED.

1.03 SUBMITTALS

- A. PRODUCT DATA: SUBMIT MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS FOR EACH TYPE OF JOIST AND ACCESSORIES. INCLUDE MANUFACTURER'S CERTIFICATION THAT JOISTS COMPLY WITH SJI "SPECIFICATIONS".
- B. SHOP DRAWINGS: SUBMIT DETAILED DRAWINGS SHOWING LAYOUT OF JOIST UNITS, SPECIAL CONNECTIONS, JOINING AND ACCESSORIES. INCLUDE MARK, NUMBER, TYPE, LOCATION, SPACING OF JOISTS AND BRIDGING.
 - 1. PROVIDE TEMPLATES OR LOCATION DRAWINGS FOR INSTALLATION OF ANCHOR BOLTS AND METAL BEARING PLATES.
 - 2. INDICATE SPECIAL JOISTS WHERE REQUIRED TO SUPPORT CONCENTRATED LOADS.

1.04 QUALITY ASSURANCE

- A. PROVIDE JOISTS FABRICATED IN COMPLIANCE WITH THE FOLLOWING, AND AS HEREIN SPECIFIED.
 - 1. STEEL JOIST INSTITUTE (SJI) "STANDARD SPECIFICATIONS, LOAD TABLES AND WEIGHT TABLES" FOR:
 - A. **K-SERIES OPEN WEB STEEL JOISTS**
 - B. CAMBER OF ALL BAR JOISTS TO EQUAL DEAD LOAD DEFLECTION WHEN CALCULATED USING WEIGHT OF MATERIALS FOR THIS PROJECT.
- B. QUALIFICATION OF FIELD WELDING: QUALIFY WELDING PROCESSES AND WELDING OPERATORS IN ACCORDANCE WITH AMERICAN WELDING SOCIETY "STRUCTURAL WELDING CODE, "AWS D1.1.
- C. INSPECTION: INSPECT JOISTS AND GIRDERS IN ACCORDANCE WITH SJI SPECIFICATIONS.

1.05 DELIVERY, STORAGE AND HANDLING

WEST NAVARRE INTERMEDIATE SCHOOL
5 CLASSROOM ADDITION

- A. DELIVER, STORE AND HANDLE STEEL JOISTS AS RECOMMENDED IN SJI "SPECIFICATIONS". HANDLE AND STORE JOISTS IN A MANNER TO AVOID DEFORMING MEMBERS AND TO AVOID EXCESSIVE STRESSES.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. STEEL: COMPLY WITH SJI "SPECIFICATIONS".
- B. STEEL PRIME PAINT: COMPLY WITH SJI "SPECIFICATIONS".

2.2 FABRICATION

- A. GENERAL: FABRICATE STEEL JOISTS IN ACCORDANCE WITH SJI "SPECIFICATION" EXCEPT THE JOISTS SHALL BE FABRICATED WITH CAMBER EQUAL TO DEAD LOAD DEFLECTION DETERMINED BY JOIST MANUFACTURER USING ACTUAL WT. OF BUILDING MATERIALS SUPPORTED FOR EACH JOIST DESIGNATION AND SPAN.
- B. HOLES IN CHORD MEMBERS: PROVIDE HOLES IN CHORD MEMBERS WHERE SHOWN FOR SECURING OTHER WORK TO STEEL JOISTS; HOWEVER, DEDUCT AREA OF HOLES FROM THE AREA OF CHORD WHEN CALCULATING STRENGTH OF MEMBER.
- C. EXTENDED ENDS: PROVIDE EXTENDED ENDS ON JOISTS WHERE SHOWN, COMPLYING WITH MANUFACTURER'S STANDARDS AND REQUIREMENTS OF APPLICABLE SJI "SPECIFICATIONS" AND LOAD TABLES. PROVIDE "R" TYPE TOP CHORD EXTENSION TO SUIT SPAN UNLESS OTHERWISE STIPULATED BY DETAILS.
- D. JOIST SEATS: UNLESS OTHERWISE NOTED JOIST SEATS ARE TO BE 2-1/2".
- E. CEILING EXTENSIONS: PROVIDE CEILING EXTENSIONS IN AREAS HAVING CEILINGS ATTACHED DIRECTLY TO JOIST BOTTOM CHORD. PROVIDE EITHER AN EXTENDED BOTTOM CHORD ELEMENT OR A SEPARATE UNIT, TO SUIT MANUFACTURER'S STANDARDS, OF SUFFICIENT STRENGTH TO SUPPORT CEILING CONSTRUCTION. EXTEND ENDS TO WITHIN 1/2" OF FINISHED WALL SURFACE UNLESS OTHERWISE INDICATED.
- F. BRIDGING: PROVIDE HORIZONTAL TYPE BRIDGING FOR JOISTS AND JOIST GIRDERS, COMPLYING WITH SJI "SPECIFICATIONS" AND LOAD TABLES.

PROVIDE BRIDGING ANCHORS FOR ENDS OF BRIDGING LINES TERMINATING AT WALLS OR BEAMS.
- G. END ANCHORAGE: PROVIDE END ANCHORAGES INCLUDING BEARING PLATES, TO SECURE JOISTS TO ADJACENT CONSTRUCTION, COMPLYING WITH SJI "SPECIFICATIONS", UNLESS OTHERWISE INDICATED.
- H. HEADER UNITS: PROVIDE HEADER UNITS TO SUPPORT TAIL JOISTS AT OPENINGS IN FLOOR OR ROOF SYSTEM NOT FRAMED WITH STEEL SHAPES.
- I. MISCELLANEOUS: PROVIDE BENT PLATES AND/OR ANGLES ALONG HIPs AND VALLEYS BETWEEN JOIST ENDS AS REQUIRED TO ALLOW ANCHORING OF METAL DECKING.

WEST NAVARRE INTERMEDIATE SCHOOL
5 CLASSROOM ADDITION

- J. SHOP PAINTING: REMOVE LOOSE SCALE, HEAVY RUST, AND OTHER FOREIGN MATERIALS FROM FABRICATED JOISTS AND ACCESSORIES BEFORE APPLICATION OF SHOP PAINT.

APPLY ONE SHOP COAT OF STEEL PRIME PAINT TO JOISTS AND ACCESSORIES, BY SPRAY, DIPPING, OR OTHER METHOD TO PROVIDE A CONTINUOUS DRY PAINT FILM THICKNESS OF NOT LESS THAN 0.5 MIL.

PART 3 - EXECUTION

3.01 ERECTION

- A. PLACE AND SECURE STEEL JOISTS IN ACCORDANCE WITH SJI "SPECIFICATIONS", FINAL SHOP DRAWINGS, AND AS HEREIN SPECIFIED.
- B. ANCHORS: FURNISH ANCHOR BOLTS, BEARING PLATES, AND OTHER DEVICES TO BE BUILT INTO CONCRETE AND MASONRY CONSTRUCTION.
- C. PLACING JOISTS: DO NOT START PLACEMENT OF STEEL JOISTS UNTIL SUPPORTING WORK IS IN PLACE AND SECURED. PLACE JOISTS ON SUPPORTING WORK, ADJUST AND ALIGN IN ACCURATE LOCATIONS AND SPACING BEFORE PERMANENTLY FASTENING.

PROVIDE TEMPORARY BRIDGING, CONNECTIONS, AND ANCHORS TO ENSURE LATERAL STABILITY DURING CONSTRUCTION.

1. WHERE "OPEN WEB" JOIST LENGTHS ARE 40 FEET AND LONGER, INSTALL A CENTER ROW OF BOLTED BRIDGING TO PROVIDE LATERAL STABILITY BEFORE SLACKENING OF HOISTING LINES.
- D. BRIDGING: INSTALL BRIDGING SIMULTANEOUSLY WITH JOIST ERECTION, BEFORE CONSTRUCTION LOADS ARE APPLIED. ANCHOR ENDS OF BRIDGING LINES AT TOP AND BOTTOM CHORDS WHERE TERMINATING AT WALLS OR BEAMS.
- E. FASTENING JOISTS:
1. FIELD WELD JOISTS TO SUPPORTING STEEL FRAME WORK IN ACCORDANCE WITH SJI "SPECIFICATIONS" FOR TYPE OF JOISTS USED. COORDINATE WELDING SEQUENCE AND PROCEDURE WITH PLACING OF JOISTS.
 2. FIELD BOLT JOISTS TO SUPPORTING STEEL FRAME AS INDICATED ON THE CONTRACT DRAWINGS.
 3. NOTIFY ARCHITECT/ENGINEER UPON COMPLETION OF JOIST INSTALLATION AND FASTENING TO SCHEDULE INSPECTION.

END OF SECTION