

R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications

SECTION 05310
STEEL DECK

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 this section.

1.02 SUMMARY:

- A. This Section includes steel deck units for floor and roof applications.

1.03 SUBMITTALS:

- A. General: Submit the following in accordance with Conditions of Contract and Division 1 Specification Sections.
 - 1. Product data including manufacturer's specifications and installation instructions for each type of decking and accessories.
 - a. Provide test data for mechanical fasteners used in lieu of welding for fastening deck to supporting structures.
 - 2. Shop drawings showing layout and types of deck units, anchorage details, and conditions requiring closure strips, supplementary framing, sump pans, cant strips, cut openings, special jointing, and other accessories.

1.04 QUALITY ASSURANCE:

- A. Codes and Standards: Comply with provisions of the following codes and standards, except as otherwise indicated:
 - 1. American Iron and Steel Institute (AISI), "Specification for the Design of Cold-Formed Steel Structural Members."
 - 2. American Welding Society (AWS), D1.3 "Structural Welding Code - Sheet Steel."
 - 3. Steel Deck Institute (SDI), "Design Manual for Composite Decks, Form Decks and Roof Decks."
- B. Qualification of Field Welding: Use qualified welding processes and welding operators in accordance with "Welder Qualification" procedures of AWS.
 - 1. Welded decking in place is subject to inspection and testing. Contractor will bear expense of removing and replacing portions of decking for testing purposes if welds are found to be satisfactory. Remove work found to be defective and replace with new acceptable work.

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications**

- C. FM Listing: Provide steel roof deck units that have been evaluated by Factory Mutual System and are listed in "Factory Mutual Approval Guide" for "Class I" fire-rated construction.

PART 2 - PRODUCTS

2.01 MANUFACTURERS:

- A. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated in the work include but are not limited to the following:
- B. Manufacturers: Subject to compliance with requirements, provide products of one of the following:
 - 1. Bowman Metal Deck Div., Cyclops Corp.
 - 2. Consolidated Systems, Inc.
 - 3. Epic Metals Corp.
 - 4. Marlyn Steel Products, Inc.
 - 5. H. H. Robertson Co.
 - 6. Roll Form Products, Inc.
 - 7. Roof Deck, Inc.
 - 8. United Steel Deck, Inc.
 - 9. Vulcraft Div., Nucor Corp.
 - 10. Wheeling Corrugating Co.

2.02 MATERIALS

- A. Steel for Painted Metal Deck Units: ASTM A 611, grade as required to comply with SDI specifications.
- B. Steel for Galvanized Metal Deck Units: ASTM A 446, grade as required to comply with SDI specifications.
- C. Miscellaneous Steel Shapes: ASTM A 36.
- D. Sheet Metal Accessories: ASTM A 526, commercial quality, galvanized.
- E. Galvanizing: ASTM A 525, G60.
- F. Galvanizing Repair: Where galvanized surfaces are damaged, prepare surfaces and repair in accordance with procedures specified in ASTM A 780.
- G. Paint: Manufacturer's baked-on, rust-inhibitive paint, for application to metal surfaces that have been chemically cleaned and phosphate chemical treated.
- H. Flexible Closure Strips: Manufacturer's standard vulcanized, closed-cell, synthetic rubber.

2.03 FABRICATION

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204**

Specifications

- A. General: Form deck units in lengths to span three or more supports, with flush, telescoped, or nested 2-inch laps at ends and interlocking or nested side laps, of metal thickness, depth, and width as indicated.
- B. Roof Deck Units: Provide deck configurations that comply with SDI "Specifications and Commentary for Steel Roof Deck."
- C. Non-Composite Steel Form Deck: Provide fluted sections of metal deck as permanent forms for reinforced concrete slabs.
- D. Roof Sump Pans: Fabricate from single piece of 0.071-inch min. (14 gage) galvanized sheet steel with level bottoms and sloping sides to direct water flow to drain. Provide sump pans of adequate size to receive roof drains and with bearing flanges not less than 3 inches wide. Recess pans not less than 1-1/2 inches below roof deck surface unless otherwise shown or required by deck configuration. Holes for drains will be cut in the field by others.

PART 3 - EXECUTION

3.01 INSTALLATION:

- A. General: Install deck units and accessories in accordance with manufacturer's recommendations, shop drawings, and as specified herein.
- B. Place deck units on supporting steel framework and adjust to final position with ends accurately aligned and bearing on supporting members before being permanently fastened. Do not stretch or contract side lap interlocks.
- C. Align deck units for entire length of run of cells and with close alignment between cells at ends of abutting units.
- D. Place deck units flat and square, secured to adjacent framing without warp or deflection.
- E. Do not place deck units on concrete supporting structure until concrete has cured and is dry.
- F. Coordinate and cooperate with structural steel erector in locating decking bundles to prevent overloading of structural members.
- G. Do not use floor deck units for storage or working platforms until permanently secured.
- H. Fastening Deck Units:
 - 1. Fasten floor deck units to steel supporting members by nominal 5/8- inch puddle welds or elongated welds of equal strength, spaced not more than 12 inches o.c. with a minimum of two welds per unit at each support.
 - 2. Tack weld or use self-tapping No. 8 or larger machine screws at 4 feet o.c. for fastening end closures.
 - 3. Fasten roof deck units to steel supporting members by not less than 5/8-inch-diameter puddle welds or elongated welds of equal strength, spaced not more than 12 inches at every support, and at closer spacing where indicated. In addition,

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications**

secure deck to each supporting member in ribs where side laps occur.

4. Comply with AWS requirements and procedures for manual shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work.
 - a. Use welding washers where recommended by deck manufacturer.
 5. Mechanically fasten side laps of adjacent deck units between supports, at intervals not exceeding 36 inches o.c., using self-tapping No. 8 or larger machine screws.
 6. Uplift Loading: Install and anchor roof deck units to resist gross uplift loading of 80 lbs. psf at eave overhang and 30 lbs. psf for other roof areas, unless otherwise stated on drawings.
- I. Cutting and Fitting: Cut and neatly fit deck units and accessories around other work projecting through or adjacent to the decking, as shown.
 - J. Reinforcement at Openings: Provide additional metal reinforcement and closure pieces as required for strength, continuity of decking, and support of other work shown.
 - K. Joint Covers: Provide metal joint covers at abutting ends and changes in direction of floor deck units, except where taped joints are required.
 - L. Roof Sump Pans: Place over openings provided in roof decking and weld to top decking surface. Space welds not more than 12 inches o.c. with at least one weld at each corner.
 - M. Closure Strips: Provide metal closure strips at open uncovered ends and edges of roof decking and in voids between decking and other construction. Weld into position to provide a complete decking installation.
 1. Provide flexible closure strips instead of metal closures, at Contractor's option, wherever their use will ensure complete closure. Install with adhesive in accordance with manufacturer's instructions.
 - N. Touch-Up Painting: After decking installation, wire brush, clean, and paint scarred areas, welds, and rust spots on top and bottom surfaces of decking units and supporting steel members.
 1. Touch-up galvanized surfaces with galvanizing repair paint applied in accordance with manufacturer's instructions.
 2. Touch-up painted surfaces with same type of shop paint used on adjacent surfaces.
 - O. In areas where shop-painted surfaces are to be exposed, apply touch-up paint to blend into adjacent surfaces.
 - P. Touch-Up Painting: Cleaning and touch-up painting of field welds, abraded areas, and rust spots, as required after erection and before proceeding with field painting, is included in Division 9 under "Painting."

END OF SECTION 05310

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications**

**SECTION 05411
LIGHT GAUGE STEEL FRAMING AND PREFABRICATED STEEL ROOF TRUSSES**

PART 1 - GENERAL

1.01 RELATED DOCUMENTS:

- A. The bidding requirements, contract forms and conditions of the contract and applicable parts of Division 1 - General Requirements, as listed in the Table of Contents, shall be included in and made a part of this Section.

1.02 WORK INCLUDED:

- A. Furnish and install light gauge steel framing, as indicated on the drawings and as specified herein. Light gauge steel framing includes but is not limited to: Light gauge steel stud curtain wall framing, including cross-bridging, bracing and anchoring to the building structure, complete in all respects and prefabricated metal roof trusses.

1.03 RELATED WORK:

- A. Examine Contract Documents for requirements that affect work of this Section. Other specification sections that directly relate to work of this section include but are not limited to:
 - 1. Section 01410 - Testing Laboratory Services; inspection and testing
 - 2. Section 03300 - Cast-in-Place Concrete, concrete floor and roof slab and fills.
 - 3. Section 04340 - Reinforced Unit Masonry

1.04 REFERENCES:

- A. Comply with applicable requirements of the following standards. Where these standards conflict with other specified requirements, the most restrictive requirements shall govern.
 - 1. American Institute of Steel Construction (AISC): Code of Standard Practice for Steel Buildings and Bridges, Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.
 - 2. American Iron and Steel Institute (AISI): Specifications for the Design of Light Gauge Cold-Formed Steel Structural Members.
 - 3. American Society for Testing and Materials (ASTM): A446 - Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process, Structural (Physical) Quality.
 - 4. A525 - General Requirements for Steel Sheet, Zinc Coated (Galvanized) by the Hot-Dip Process.
 - 5. A570 - Hot-Rolled Carbon Steel Sheet and Strip, Structural Quality.
 - 6. A780 - Repair Damaged Hot-Dip Galvanized Coatings.

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications**

7. American Welding Society (AWS): D1.3 Structural Welding Code - Sheet Steel.
8. Steel Structures Painting Council (SSPC): Painting Manual - Volumes 1.

1.05 SUBMITTALS:

- A. Shop drawings and design computations: Engage the services of a Professional Engineer registered in the State of Florida to prepare complete shop drawings and structural design computations for work of this Section. Drawings shall bear the engineers professional seal. Note: Manufacturers shop drawings stamped by the engineer are acceptable instead of those actually prepared by the engineer.
- B. The shop drawings shall show all pertinent details of construction, installation and anchorage of the light gauge steel framing work.
- C. The structural design computations shall provide a complete structural analysis of all typical and special conditions of construction, and shall certify conformance to the governing laws and building code.
- D. Samples: Submit representative samples of all light gauge steel framing components to architect for approval.
- E. Product data: Submit manufacturers product data for all computations to be used in the construction and anchoring of the light gauge steel framing. Include specifications, installation instructions and data substantiating that the materials comply with specified requirements. Do not order materials or begin fabrication or installation until architect approves submittals.

1.06 QUALITY ASSURANCE:

- A. All work shall comply with the governing laws and building code and applicable provisions of the following standards: AISC Specifications, AISC Code, AWS D1.3, AISI Specifications and SSPC Manual.
- B. Materials and workmanship shall be subject to inspection and testing in mill shop and/or field by architect or a designated independent testing laboratory, selected and paid for by the owner in accordance with the requirements of Section 01410, Testing Laboratory Services.

1.07 QUALIFICATIONS OF WELDERS:

- A. Welders shall be qualified for the work by tests as prescribed in AWS D1.3 and shall submit certification of such qualifications to the architect.

1.08 QUALIFICATIONS OF SUBCONTRACTOR:

- A. The light gauge steel framing subcontractor shall have at least three years experience in fabrication and erection of light gauge steel framing systems of scope and design similar to the required work.

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications**

1.09 DESIGN:

- A. The information shown on the drawings is intended to establish the sizes of framing members, their points of attachment, the materials to which they are to be attached, and materials, which are to be attached to them. Within these limitations it is the responsibility of the subcontractor to design the framing to withstand the applied loading required by the State of Florida and the Florida Building Code 2010 Edition, except where more strict requirements are specified herein. Structural properties of members shall be computed in accordance with AISI Specifications.

1.10 INSPECTION, TESTING AND QUALITY CONTROL:

- A. Inspection and testing of welded connections will be performed by an independent testing laboratory, under a separate contract with owner. Welded connections shall be subject to inspection and testing in shop and field by the architect and/or testing laboratory. Such inspection and testing shall not relieve contractor of his responsibility to provide his own inspection, testing and quality control as necessary to furnish workmanship in accordance with requirements of Contract Documents.
- B. Notify the architect and testing laboratory prior to start of any fabrication, erection, or other phase of work requiring welded connections so as to afford them reasonable opportunity to inspect work.
- C. Facilitate inspection and testing by testing laboratory. Contractor shall, upon request and at his own expense, furnish testing laboratory with: Complete sets of approved shop drawings and corrective work procedures at shop and in field and representative sample pieces of materials requested for testing. Testing laboratory will inspect welded connections for burned welds, adequate size and length of welds, and general appearance and integrity of welds as required by the architect.
- D. Do not remove any marks or tags applied by testing laboratory identifying rejected work. Welded connections which have been rejected by the architect and/or testing laboratory in shop or field shall be corrected without delay and at no expense to owner. Acceptance of work in shop shall not prevent final rejection of work at job site, even after erection, if work is found to be defective in any way.

1.11 STORAGE AND HANDLING:

- A. Protect metal framing units from weather and damage. Deliver to the fabrication site in manufacturers unopened containers or bundles, fully identified with name, brand, type, and grade. Store off the ground in a dry ventilated space or protect with suitable waterproof coverings.

PART 2 - PRODUCTS

2.1 FRAMING COMPONENTS FOR METAL ROOF TRUSSES:

LIGHT GAUGE STEEL FRAMING AND PREFABRICATED STEEL ROOF TRUSSES

05411 - 3

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications**

- A. Studs shall be 16 gauge or heavier punched C-studs of sizes. Studs shall be manufactured from steel meeting the requirements of ASTM A446, Grade D with a minimum yield strength of 50,000 psi. Studs shall be hot dip galvanized in accordance with ASTM A 525, G 60 Coating Designation. Maximum spacing of trusses shall be 4'-0".
- B. Tracks shall be 19 gauge or heavier un-punched tracks manufactured of commercial quality steel sheet meeting the requirements of ASTM A 446 with a minimum yield strength of 50,000 psi. Tracks shall be hot dip galvanized in accordance with ASTM A 525, G 60 Coating Designation. Provide special shaped tracks with one, 4" high leg where indicated on drawings.
- C. Bridging shall be manufacturers recommended type as required to meet the design criteria set forth in previous notes in this section.
- D. Attachment angles, closure angles, and other miscellaneous components shall be manufactured of commercial quality steel sheet meeting the requirements of ASTM A 446 with a minimum yield strength of 50,000 psi and shall be formed to profiles as required. All components shall be hot dip galvanized in accordance with ASTM A 525, G 60 Coating Designation.

2.2 FASTENERS:

- A. Framing components shall be fastened to each other by welding only. Electrodes for welding shall conform to AWS requirements for welding low carbon steel. Manufacturer shall furnish instructions with each container of electrodes giving recommended voltage, amperage, polarity of direct current, for all uses and positions for which electrode is suitable.
- B. Fastening to structural steel shall be done with powder activated fasteners, self-drilling screws, or bolts of size and spacing as required to resist the shear and pullout forces generated by the loads listen in Paragraph 1.8 of this Section.

2.3 ZINC RICH PAINT:

- A. Zinc rich paint for touch up repair of galvanized coatings damaged during handling and erection and field welding shall conform to ASTM A780 for zinc-rich primer. Paint shall be equal to one of the following: ZRC Cold Galvanize Compound by ZRC or ZIRP by Duncan Industries.

PART 3 - EXECUTION

3.1 FABRICATION:

- A. Light gauge steel roof trusses framing shall be shop-assembled. Prior to commencement of fabrication, subcontractor shall submit fabrication and erection drawings for architects approval as specified previously in this section.
- B. Subcontractor shall coordinate truss locations with the mechanical trades. Metal framing shall be fabricated in accordance with manufacturers printed or written instructions, unless

**R.G. KREUSLER PARK RESTROOM BUILDING
AND ENTRY DRIVE MODIFICATIONS - #14204
Specifications**

otherwise indicated.

- C. Framing components shall be straight and true prior to fabrication. Flattening or straightening of components shall be done by a process not injurious to materials.
- D. Framing components shall be cut squarely (or on an angle as with bracing) to fit squarely against abutting members. No splices will be allowed in studs. Stud track shall be continuous, with splices butt welded.
- E. Provide lateral bracing and bridging to manufacturers specifications and recommendations as required by design loads specified in previous paragraphs of this section. Provide all angles, clips and other miscellaneous pieces necessary to attach light gauge steel roof truss framing to building or to attach other materials to light gauge steel roof truss framing.
- F. Components shall be set square and in line and shall be held firmly in position until properly fastened. Truss components shall be joined by welding. Welders shall be grade certified for the weight and type of materials and the type of equipment being used. Welding shall be done in accordance with AWS D1.3. Finished assemblies shall be free from twists, bends, or open joints with all members straight, square and true to line.

3.2 ERECTION:

- A. Light gauge steel roof truss framing shall be erected by approved methods using equipment of adequate capacity to safely perform the work. Any damage to other building materials caused by erected of light gauge steel roof truss framing shall be repaired or replaced as directed by architect at this subcontractors expense.
- B. Subcontractor shall be responsible for checking dimensions and assuring fit of all members and panels before erection beings. Work shall be erected plumb, level and to dimensions and elevations indicated. Do not install truss which is bent or racked. Such trusses shall be replaced.
- C. During erection, install steel cables with turnbuckles in sufficient number to prevent distortion and damage to framing due to wind or erection forces until erection is complete. These cables may be used to plumb and line the work.
- D. Where trusses are attached to steel concrete with a continuous attachment angle, the attachment angle shall be welded to each truss and shall be fastened to structural steel support as required by design loads.

3.3 FIELD TOUCH UP:

- A. Touch up all field welds and abrasions of galvanized materials with zinc rich paint in accordance with ASTM A 780, Annex A2. Touch up work shall be complete prior to attachment of the work of any other sections to the light gauge steel framing.

END OF SECTION 05411