

**SECTION 05 45 19 - COMMUNICATIONS METAL SUPPORTS**

**SECTION 07 72 46 - ROOF WALKWAYS**

**SECTION 27 11 16 - COMMUNICATION CABINETS, RACKS, FRAMES & ENCLOSURES**

**(ROOF WALKWAYS, CROSSOVER RAMPS & EQUIPMENT PLATFORMS)**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES:**

- A.** Metal fabrications, including walkway, equipment platforms and crossover ramps.
- B.** The work of this contract consists of the furnishing of all labor, equipment, materials and devices required in conjunction with the installation of roof walkways, crossover ramps and equipment platforms.
- C.** Manufacturer must supply a 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight disbursement.
- D.** Manufacturer must supply Vibration Isolation and Cushion system with a minimum of shock transmission to the roofing surface to allow free movement with no tension or binding.

**1.02 RELATED SECTIONS:**

**A. Division 05 - Metals**

05 45 00	Metal Support Assemblies
05 45 13	Mechanical Metal Supports
05 45 16	Electrical Metal Supports
05 45 19	Communications Metal Supports
05 50 00	Metal Fabrication
05 51 00	Metal Stairs
05 52 00	Metal Railings

**B. Division 07 - Thermal and Moisture Protection**

07 01 70	Operation & Maintenance of Roof Specialties and Accessories
07 06 70	Schedules for Roof Specialties and Accessories
07 72 00	Roof Accessories
07 72 13	Manufactured Curbs
07 72 46	Roof Walkways

**C. Division 22 - Plumbing**

22 05 29	Hangers & Supports for Plumbing Piping & Equipment
22 05 48	Vibration & Seismic Controls for Plumbing Piping & Equipment
22 11 19	Domestic Water Piping Specialties
22 63 13	Gas Piping for Laboratory and Health Care Facilities

**D. Division 23 - HVAC**

23 05 29	Hangers & Supports for HVAC Piping & Equipment
23 05 48	Vibration & Seismic Controls for HVAC Piping & Equipment
23 11 23	Facility Natural Gas Piping
23 21 13 23	Aboveground Hydronic Piping
23 22 13	Steam & Condensate Heating Piping
23 23 16	Refrigerant Piping Specialties
23 33 00	Air Duct Specialties
23 56 16	Packaged Solar Heating Equipment
23 83 16	Radiant Heating Hydronic Piping

**E. Division 26 - Electrical**

26 05 29	Hangers & Supports for Electrical Systems
26 05 36	Cable Trays for Electrical Systems
26 05 48	Vibration & Seismic Controls for Electrical Systems
26 33 16	Battery Racks

**F. Division 27 - Communications**

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|-----------|---|--|
|           | 27 05 28 29   | Hangers & Supports for Communication Systems           |
|           | 27 05 28 36   | Cable Trays for Communication Systems                  |
|           | 27 05 48  | Vibration & Seismic Controls for Communication Systems |
|           | 27 11 16  | Communication Cabinets, Racks, Frames & Enclosures     |
|           | 27 11 23  | Communication Cable Management and Ladder Racks        |
|           | 27 53 19  | Internal Cellular, Paging & Antenna Systems            |
| <b>G.</b> | <b>Division 28 - Electronic Safety and Security</b> |  |
|           | 28 05 28 29   | Hangers & Supports for Electronic Safety & Security    |
|           | 28 05 28 36   | Cable Trays for Electronic Safety & Security           |
| <b>H.</b> | <b>Division 33 - Utilities</b>                      |  |
|           | 33 81 16  | Antenna Towers   |

**1.03 REFERENCES:**

- A.** American Society for Testing and Materials (ASTM):
1. A 123-89a Zinc (Hot-Dip Galvanized) Coating on Iron and Steel Products.
  2. A 153-82 Zinc Coating (Hot-Dip) Steel and Iron Hardware.
  3. A 167-92b Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet and Plate.
  4. A 570-92 Steel, Sheet and Strip, Carbon, Hot-Rolled, Structural Quality.
  5. A 572 - Steel Beams
  6. A 36 - Steel Plates
  7. D 256 - Test method for determining the pendulum impact resistance of notched specimens of plastics.
  8. D 638 - Test method for tensile properties of plastics.
  9. D 695-91 Test method or compressive properties of rigid plastics.
  10. D 785 - Test method for Rockwell hardness of plastics and electrical insulating materials.
  11. D 790 - Test method for flexural properties of un-reinforced and reinforced plastics and electrical insulating materials.
- B.** American Institute for Steel Construction (AISC), current edition.
- C.** American Welding Society (AWS):
1. D1.1 Welders qualification procedure
- D.** National Roofing Contractor's Association (NRCA): NRCA Roofing and Waterproofing Manual, current edition.

**1.04 SYSTEM DESCRIPTION:**

Walkway System, Equipment Platforms and Crossover Ramps: Elevated walkway systems, equipment platforms and crossover ramps located on or routed across roof shall be supported by an engineered prefabricated system specifically designed to be installed on roof without adhesives, roof penetrations, flashings or damage to roofing system.

- A. System shall consist of 17" circular bases, designed for weight disbursement, supporting a structural steel frame.
- B. System shall be custom designed to fit equipment weight and load requirements.

**Optional Steel Base System:** Where situations require systems to be mechanically fastened in order to comply with either high wind or seismic codes.

- A. System shall consist of a 12" square galvanized steel plate, 1/4" thick, with four holes for approved anchoring per engineered data with galvanized square tubing welded to plate as receiver with the opening covered.
- B. System shall be custom designed to fit the slope of existing roofs, if any.

**Design Requirements**

- A. Design Criteria/Concept: [Specify design criteria/concept, including loads.].
- B. Fabricate Engineering/Responsibility: [Specify fabrication engineering/responsibility.].
- C. Performance Requirements: Provide elevated walkway system, equipment platform, crossover ramps which have been manufactured, fabricated and installed to withstand loads, and to maintain performance criteria stated by engineer without defects, damage or failure.

**1.05 SUBMITTALS:**

- A. Submit under provision of Section [01 33 00] [\_\_\_\_\_].
- B. Product Data: Submit manufacturer's product data sheets, including installation instructions for each fabricated unit. Base design must be 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight displacement.
- C. Shop Drawings: Indicate layout, support components and methods of installation.
- D. Samples: If requested, submit sample of 17" circular base, 12 inch long framing members, each support and fastener.

**1.06 QUALITY CONTROL:**

The Manufacturer or his representative on request will inspect the completed installation and report in writing that the design requirements meet with the Manufacture's approval.

**1.07 DELIVERY, STORAGE AND HANDLING:**

Deliver, store and handle products under provisions of Section [01 60 00] [\_\_\_\_\_].

**1.08 WARRANTY:**

The Product Manufacturer shall provide a one-year full system material warranty necessary to cover replacement of all components of the system against defects in manufacturing. The warranty will not include Acts of God, vandalism, neglect, metal finish or improper spacing of equipment which would be a result of improper application.

**PART 2 - PRODUCTS**

**2.01 MANUFACTURER:**

The support system shall be manufactured by:  
Advanced Support Products, Inc.  
P.O. Box 1284  
Tomball, Texas 77377  
Phone: 281-357-1277  
Fax: 281-357-0577  
Toll Free: 800-941-5737

**2.02 MATERIALS:**

- A. Base: 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight displacement.
- B. Base Dimensions: 3"H X 17" in diameter, designed for weight displacement, with molded insert for square tubing and two threaded rod couplings molded in.
- C. Frame: All steel beams shall conform to ASTM 572, grade 50. All steel plates and angles shall conform to ASTM A36.
- D. Grating: 1" X 3/16" bar grating, 19-W-4 carbon steel, ends capped with 1" X 1/4" steel flat bar, welded, hot-dipped uniform zinc coating after fabrication.
- E. Handrail Framing for Walkway Systems, Equipment Platforms and Crossover Ramps: If handrail is required, all handrail shall be fabricated with 1-1/2" schedule 40 pipe, welded, hot-dipped uniform zinc coating after fabrication. Handrail shall be attached to frame using a receiver welded to frame.
- F. Hardware and accessories: All hardware necessary for assembly will be provided by manufacturer and shall consist of 1/2" bolts, nuts and washers, unless other size mentioned. Grating clips and 1-1/2" self-tapping screws will be used to attach grating to frame.

**2:03 RELATED PRODUCTS:**

- A. Isolation Pads are not required.
- B. If required by roofing manufacturer, a separation sheet or pad conforming to the existing roof manufacturers system.

**2.04 FINISHES**

Factory Finishes: Cadmium plated threaded rods, nuts, bolts and washers.

Galvanized Metal Surfaces: Hot dipped, galvanized metal framing, grating and handrails, after fabrication is completed and produce coating free of roughness, whiskers, unsightly spangles, icicles, runs, barbs, sags, droplets and other surface blemishes.

**2:05 PRODUCTS:**

**Roof Walkways:** To provide a safe walkway for rooftop traffic while protecting the roof from foot traffic, use walkway designed by Advanced Support Products utilizing 17" circular base, frame made of channel or angle, grating and handrails, if required.

**Crossover Ramps:** To provide a safe method for crossing cable, conduit, piping or other structures on rooftop, use crossover ramps designed by Advanced Support Products. Crossover ramp shall be designed to include a ramp angled from the roof surface to a predetermined height to adequately clear any obstacles. Crossover Ramp to include a level mid-section with adjoining ramp descending back down to roof surface. Crossover ramp shall utilize 17" circular base, frame made of channel, angle or square tubing. Deck made from steel grating attached with hardware, provided. Handrails made from 1-1/2" pipe, if required.

**Equipment Platform:** To support telecommunications equipment, generators, HVAC equipment or miscellaneous equipment use equipment platform designed by Advanced Support Products for either rooftop or land site applications. Equipment platforms shall be constructed as follows:

A. To support frame, utilize 17" circular base with no roof penetrations. Frame made from angle or channel and square tubing or strut. Deck made from steel grating attached with hardware, provided. Handrails made from 1-1/2" pipe, if required. Equipment platform shall be designed to include the number and spacing of 17" circular bases required to support the weight of the equipment and load requirements.

**OR**

B. To support frame, utilize 12" square galvanized steel plate, 1/4" thick, with four holes for anchoring to roof system. Frame made of I-beam or channel, connections shall conform to the AISC Manual of Steel Construction, and shall be shown on shop drawings supplied by manufacturer. Deck made from steel grating, attached with hardware, provided. Handrails made from 1-1/2" pipe, if required. Equipment platform shall be designed to support weight of the of the equipment based on load requirements.

**PART 3 -EXECUTION Section 01 70 00**

Refer to manufacturer's "Installation Instructions" included with product.

**3.01 PREPARATION:**

- A. Verify that roof surface is smooth and clean to extent needed to receive materials.
- B. Review approved final drawings to determine the locations of supports.
- C. Clean surfaces to receive supports removing any loose gravel and any foreign matter.
- D. Supports can be placed on completed gravel roof systems. Sweep any loose gravel before setting support 17" circular bases.

**3.02 INSTALLATION:**

- A. Install roof walkways, equipment platforms and crossover ramps in accordance with manufacturer's instructions and approved shop drawings.
- B. Accurately locate and align 17" circular bases and support framing in locations specified as per approved shop drawings. No Isolation pads are required under the 17" circular bases.
- C. Should the roofing manufacturer require a separation sheet between the roof and the support system, place a separation sheet or protective pad conforming to the existing roof manufacturer's system under 17" circular bases. Do not adhere to the roof system or 17" circular bases.
- D. Set framing post into 17" circular bases (or, if using optional steel base, set framing post into square tubing receiver). Assemble framing structure as indicated by "Installation Instructions" provided by manufacturer.

- E.** Use hardware provided to connect steel beams, channel, angle, grating and handrails according to “Installation Instructions” provided by manufacturer.
- F.** Use care in installation of roof walkway systems, equipment platforms and crossover ramps not to damage roofing, flashings, equipment or related materials.
- G.** Remove any unused materials and packaging from job site.

**END OF SECTION**