

**SECTION 26 05 36 - CABLE TRAYS FOR ELECTRICAL SYSTEMS**

**SECTION 27 05 28 36 - CABLE TRAYS FOR COMMUNICATION SYSTEMS**

**SECTION 28 05 28 36 - CABLE TRAYS FOR ELECTRICAL SAFETY AND SECURITY**

**(Includes cable tray supports)**

**PART 1 - GENERAL**

**1.01 SECTION INCLUDES:**

- A.** The work of this contract consists of the furnishing of all labor, equipment, materials and devices required in conjunction with the installation of cable trays.
- B.** Manufacturer must supply aluminum ladder type cable trays.
- C.** Manufacturer must supply supports for cable trays. Said support must utilize a 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight disbursement.
- D.** Manufacturer must supply necessary fittings and accessories.

**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**

	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. B 209 - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
  2. B 209M - Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric).
  3. B 221 - Standard Specification for Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes.
  4. A 240 - Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet and Strip for Pressure Vessels.
  5. D 256 - Test method for determining the pendulum impact resistance of notched specimens of plastics.
  6. D 638 - Test method for tensile properties of plastics.
  7. D 695-91 Test method or compressive properties of rigid plastics.
  8. D 785 - Test method for Rockwell hardness of plastics and electrical insulating materials.
  9. D 790 - Test method for flexural properties of un-reinforced and reinforced plastics and electrical insulating materials.
- B.** National Electrical Manufacturers Association (NEMA):
1. VE 1 - Metal Cable Tray Systems.
  2. VE 2 - Metal Cable Tray Installation Guidelines.
- C.** National Fire Protection Association (NFPA) 70 - National Electrical Code.
- D.** National Uniform Seismic Installation Guidelines (NUSIG).
- E.** National Roofing Contractor's Association (NRCA): NRCA Roofing and Waterproofing Manual, current edition.

**1.04 SYSTEM DESCRIPTION:**

Design Requirements: Prefabricated, engineered aluminum ladder type Cable Trays with a support system designed specifically for use on roofing without adhesive, roof penetrations, flashings or damage to roofing system.

**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. Support 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 cable trays & 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 Manufacturer'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 cable trays and 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.** Aluminum Cable Tray: Two side rails with ladder type rungs for bottom. Rung spacing on straight sections - 6", 9", 12" or 18".
- B.** Aluminum Cover: Cable Tray cover shall be a solid or ventilated sheet, flush mount directly to tray. **CABLE TRAY COVERS SHOULD CONTAIN WARNING LANGUAGE THAT THE CABLE TRAY IS TO BE USED TO SUPPORT CABLES AND TUBING ONLY. CABLE TRAY NOT TO BE USED AS A WALKWAY, LADDER OR SUPPORT FOR PEOPLE. HAZARDS MAY OCCUR.**
- C.** Support Base: 17" circular base, injected molded polypropylene, with 227 sq. in. of surface on bottom, designed for weight displacement.
- D.** Support 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.
- E.** Support Frame: Pre-Galvanized Zinc coated 12 ga. channel (ASTM. A653).
- F.** Accessories: Cadmium plated brackets, splice plates, clamps, nuts, bolts and washers.

### **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 manufacturer's system.

### **2:04 PRODUCTS:**

Ladder type cable tray in the following sizes:

- 1. Inside dimensions of 6", 12", 18", 24", 30" and 36" widths.
- 2. Inside dimensions of 3", 4", 5" and 6" depths.

- A.** **Straight Sections** in 12' and 24' lengths.
- B.** **Horizontal Tee** fittings are used for joining cable trays in three directions at 90° intervals in the same plane.
- C.** **Horizontal Cross** fittings are used for joining cable trays in four directions at 90° intervals in the same plane.
- D.** **Reducer** fittings in straight, right-hand and left-hand and are used for joining cable trays of different widths in the same plane. A straight reducer has two symmetrical offset sides, a right-hand reducer has a straight side on the right and a left-hand reducer has a straight side on the left.
- E.** **Horizontal and Vertical Elbows** in 12", 24" and 36" bends and in 30°, 45°, 60° and 90° arc for elbows. Horizontal Elbows are used to change directions in the same plane. Vertical Elbows are used to change direction to a different plane. An inside vertical elbow changes direction upward while the outside vertical elbow changes direction downward.
- F.** **Covers** used to protect the cables in the trays. Covers in a flat solid sheet or a ventilated sheet flush mounted directly to the cable trays. **CABLE TRAY COVERS SHOULD CONTAIN WARNING LANGUAGE THAT THE CABLE TRAY IS TO BE USED TO SUPPORT CABLES AND**

**TUBING ONLY. CABLE TRAY NOT TO BE USED AS AWALKWAY, LADDER OR SUPPORT FOR PEOPLE. HAZARDS MAY OCCUR.**

**G. Cable Tray Supports**

1. **PVC sleeper cable tray supports** 4" X 4" X 1/4" PVC in 18", 24" and 30" lengths.
2. **SS1000-18 or SS1000-20 Cable Tray Support** made of one ASP patented 17" circular base with 12 ga. framing channel, 18"L or 20"L, attached directly to base using 1/2" bolts. Use clamps to secure cable tray to channel.
3. **Cross Brace Bridge Model SS2000/36**, made of two ASP patented 17" circular bases and framing channel (36"L) attached directly to the bases using 1/2" bolts. Use clamps to secure cable tray to channel.

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

**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 cable tray supports.

**3.02 INSTALLATION:**

- A. Install support systems in accordance with manufacturer's instructions and approved shop drawings.
- B. Accurately locate and align pre-fabricated cable tray supports in locations specified as per approved shop drawings or as required herein and by site conditions to limit deflection to L/180, not to exceed 5' on center and 2' of each fitting. No Isolation pads are required under the cable tray supports.
- 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 cable tray support. Do not adhere to the roof system or cable tray support.
- D. Remove any unused materials and packaging from job site.

**END OF SECTION**