**Atkore – Fiberglass Cable Tray**

This product specification is written according to the Construction Specifications Institute *MasterFormat*, 2018 Update.

**SECTION 26 05 36**

**CABLE TRAYS FOR ELECTRICAL SYSTEMS (Ladder Tray)**

1. GENERAL
	1. SUMMARY
		1. The work covered under this Section 26 05 36 consists of furnishing of necessary labor, supervision, materials, equipment, tests and services to install complete cable tray systems as shown on the drawings.
		2. Cable tray systems are defined to include but are not limited to straight sections of [ladder type] [trough type] [solid bottom type] [ventilated bottom type] [channel type] cable trays, bends, tees, elbows, drop-outs, supports, and accessories.
		3. Related Sections:
			1. Section 26 05 26 - Grounding and Bonding for Electrical Systems.
			2. Section 26 05 29 - Hangers and Supports for Electrical Systems
	2. REFERENCES

* + 1. ASTM International:
			1. ASTM D-149 - Dielectric Strength of Insulating Materials
			2. ASTM D-150 - Dielectric Constant
			3. ASTM D3917 - ASTM Standard Specification for Dimensional Tolerance of Thermosetting Glass-Reinforced Plastic Pultruded Shapes
			4. ASTM D4385 - Standard Practice for Classifying Visual Defects in Thermosetting Reinforced Plastic Pultruded Products

# ASTM D495 - High-Voltage, Low-Current, Dry Arc Resistance of Solid Electrical Insulation

* + - 1. ASTM D696 - Coefficient of Linear Thermal Expansion of Plastics Between −30°C and 30°C with a Vitreous Silica Dilatometer
			2. ASTM D570 – Water Absorption of Plastics
			3. ASTM D792 – Specific Gravity
			4. ASTM E84 – Surface Burning Characteristics of Building Materials
			5. ASTM D635- Standard Test Method for Rate of Burning and/or Extent and Time of burning of Plastics in a Horizontal Position
		1. Underwriter Laboratories:
			1. UL 568 – Nonmetallic Cable Tray Systems
			2. UL 94 – Flammability of Plastic Materials for Parts in Devices and Appliances
		2. National Electrical Manufacturers Association:
			1. NEMA VE 2- - Cable Tray Installation Guidelines.
		3. NFPA 70: National Electrical Code
	1. DRAWINGS
		1. The drawings, which constitute a part of these specifications, indicate the general route of the cable tray systems. Data presented on these drawings is as only accurate as preliminary surveys and planning can determine until final equipment selection is made. Accuracy is not guaranteed and field verification of all dimensions, routing, structural loading, regional and national compliances are required.
		2. Specifications and drawings are for assistance and guidance, but exact routing, locations, distances, and levels will be governed by actual field conditions. Contractor is directed to make field surveys as part of his work prior to submitting system layout drawings.
	2. QUALITY ASSURANCE
		1. All cable and equipment shall be installed in a neat and professional manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the owner or owner’s representative. Atkore does not warrant and shall not be liable for any claims or damages related to the installation of the products.
		2. Distributors to supply all equipment and accessories new and free from defects.
		3. Distributors to supply all equipment and accessories in compliance with the applicable standards listed in Part 1.2 of this section and with all applicable national, state and local codes.
		4. Distributors to supply all items of a given type shall be the products of the same manufacturer.
		5. Manufacturers: Firms regularly engaged in manufacture of cable trays and fittings of types and capacities required, whose products have been in satisfactory use in similar service for not less than 5 years.
		6. NEC Compliance: Contractor to comply with NEC, as applicable to construction and installation of cable tray and cable channel systems (Article 392 NEC).
		7. UL Compliance: Manufacturer to provide products that are UL-classified and labeled.
		8. NFPA Compliance: Contractor to comply with NFPA 70B, "Recommended Practice for Electrical Equipment Maintenance" pertaining to installation of cable tray systems.
	3. DELIVERY, STORAGE AND HANDLING
		1. Onsite delivery of cable tray systems and components carefully to avoid breakage, denting and scoring finishes. Do not install damaged equipment.
		2. Onsite storage of cable trays and accessories to be in in original cartons and in clean dry space; protect from weather and construction traffic. Wet materials should be unpacked and dried before storage.
	4. SUBMITTALS

* + 1. Section 01 33 00 - Submittal Procedures: Submittal procedures.
		2. Shop Drawings: Indicate tray type, dimensions, support points, and finishes.
		3. Product Data: Submit fittings and accessories.
		4. Manufacturer's Installation Instructions: Submit application conditions and limitations of use stipulated by Product testing agency specified under Regulatory Requirements. Include instructions for storage, handling, protection, examination, preparation, and installation of product.
	1. CLOSEOUT SUBMITTALS
		1. Section 01 70 00 - Execution and Closeout Requirements: Closeout procedures.
		2. Project Record Documents: Contractor to record actual routing of cable tray and locations of supports.
	2. QUALIFICATIONS
		1. Manufacturer: Company specializing in manufacturing products specified in this section with minimum [\_\_\_\_\_] years of documented experience, and with service facilities within [\_\_\_\_\_] miles of project.
	3. PRE-INSTALLATION MEETINGS
		1. Section 01 30 00 - Administrative Requirements: Pre-installation meeting.
		2. Convene a minimum of [\_\_\_\_\_] week(s) prior to commencing work of this section
1. PRODUCTS
	1. UL 568 Class designation, indicated in the following specifications for fiberglass cable tray, is support span in feet (meters) plus working load designation.
		1. Available Support Spans: 8, 10, 12, 16, and 20 feet (2440, 3048, 3660, 4870, and 6090 mm).
		2. Working Load Designation:

 A - 50 pounds per foot (74.4 kg/m).

 B - 75 pounds per foot (111.6 kg/m).

 C - 100 pounds per foot (148.8 kg/m).

* + 1. For example, Class 20C applies to cable tray required to span 20 feet (6090 mm) between supports while supporting cable static weight between 75 and 100 pounds per foot (111.6 and 148.8 kg/m).
		2. Consult UL 568 for additional information and safety factors.
	1. ACCEPTABLE MANUFACTURERS
		1. Subject to compliance with these specifications, fiberglass cable tray systems to be installed shall be as manufactured by the following:
			1. Atkore – Cope – US Tray

 22539 North Houston Rosslyn Road

 Houston TX 77088

 TOLL-FREE / 800-882-5543

* + - 1. Engineer approved equivalent.
	1. CABLE TRAY SECTIONS AND COMPONENTS
		1. General: Except as otherwise indicated, provide fiberglass cable trays, of types, classes and sizes indicated; with splice plates, bolts, nuts, and washers for connecting units. Construct units with rounded edges and smooth surfaces; in compliance with applicable standards.
		2. The non-metallic cable tray systems shall be pultruded from one of the following:
			1. Glass fiber reinforced polyester and meet ASTM E-84, Class 1 flame rating and self-extinguishing requirements of ASTM D-635
			2. Or vinyl ester resin and meet ASTM E-84
		3. Sealant shall be acrylic
	2. TYPE OF TRAY SYSTEM
		1. Ladder type trays shall consist of two longitudinal members (side rails) with transverse members (rungs) connected to the side rails. Rungs shall be spaced [6] [9] [12] [18] inches on center. Spacing in radiused fittings shall be 9 inches and measured at the center of the tray's width. No portion of the rungs shall protrude below the bottom plane of the side rails.
		2. All straight sections shall be supplied in standard [10] [20] foot lengths, except where shorter lengths are permitted to facilitate tray assembly lengths as shown on drawings.
		3. Tray Sizes shall have [3] [4] [5] [6] inch minimum usable load depth, or as noted on the drawing.
		4. Tray widths shall be [6] [9] [12] [18] [24] [30] [36] inches or as shown on drawings.

2.5 CABLE TRAY ACCESSORIES

* + 1. All fittings must have a minimum radius of [12] [24] [36] [48] inches.
		2. Cable Tray Supports - Shall be placed so that the support spans do not exceed maximum span indicated on drawings. Supports shall be constructed fiberglass formed shape channel members 1-5/8 inch by 1-5/8 inch or 1-5/8 inch by 1-1/8 inch with necessary hardware [or engineer approved equal]. Cable trays installed adjacent to walls shall be supported on wall mounted brackets such as Atkore Cope / US Tray CTB series brackets [or engineer approved equal].
		3. Trapeze hangers and center-hung supports shall be supported by [3/8] [1/2] inch (minimum) diameter rods.
		4. Barrier Strips - Shall be placed as specified on drawings and be fastened into the tray with self-drilling screws or U-bolts with acorn nuts.
		5. Cable Tray Hold Downs – Cable tray supported on standard 1-5/8” strut shall be held down with Atkore Cope / US Tray style hold-down brackets. Such as the HDBLTNT series for ladder type cable trays hold downs to be used when supporting the cable tray vertically on standard 1-5/8” strut.
		6. Accessories - special accessories shall be furnished as required to protect, support, and install a cable tray system. Accessories shall consist of, but are not limited to section splice plates, expansion plates, blind-end plates, specially designed ladder dropouts, barriers, and hold down clips.
	1. LOADING CAPACITIES
		1. Cable tray shall be capable of carrying a uniformly distributed load of [ ] lbs. /ft. on a [\_\_\_] foot support span with a safety factor of 1.5 when supported as a simple. \*\*In addition to the uniformly distributed load the cable tray shall support a 200 lb. concentrated load at mid-point of span and centerline of tray. \*\*Load and safety factors specified are applicable to both side rails and rung capacities. \*\*Omit as needed.
1. EXECUTION
	1. INSTALLATION
		1. Install cable trays as indicated: Installation shall be in accordance with equipment manufacturer's instructions, and with recognized industry practices to ensure that cable tray equipment comply with requirements of NEC and applicable portions of NFPA 70B. Reference NEMA-VE2 for general cable tray installation guidelines.
		2. Coordinate cable tray with other electrical work as necessary to properly integrate installation of cable tray work with other work.
		3. Provide sufficient space encompassing cable trays to permit access for installing and maintaining cables.
		4. Cable tray fitting supports shall be located such that they meet the strength requirements of straight sections. Install fitting supports per NEMA VE-2 guidelines, or in accordance with manufacturer's instructions.
		5. Support trays and fasten to structure. Install supports at each connection point, at end of each run, and at other points to maintain spacing between supports of [\_\_\_\_\_] feet ([\_\_\_\_\_] cm) maximum. Use manufacturer recommended size for cantilever brackets. Installation of oversized or undersized cantilever brackets may lead to system failure.
		6. Divided cable runs shall be kept separate with a solid barrier.
	2. TESTING
		1. Manufacturer shall provide test reports witnessed by an independent testing laboratory of the "worst case" loading conditions outlined in this specification and performed in accordance with the latest revision of UL 568, including test reports verifying rung load capacity in accordance with UL 568.