

PATHWAYS FOR COMMUNICATIONS SYSTEMS

PART 1 – GENERAL

1.1 WORK INCLUDED

- A. Provide all labor, materials, and equipment for the complete installation of work called for in the Contract Documents.

1.2 SCOPE OF WORK

- A. This section includes the minimum requirements for communications cable pathway installations in common areas (outside of the Telecommunications Closets).
- B. Included in this section are the minimum composition requirements and installation methods for the following:
 - 1. Wire Mesh Cable Tray.

1.3 QUALITY ASSURANCE

- A. All cable and equipment shall be installed in a neat and workmanlike 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 Representative. Equipment and materials shall be of the quality and manufacture indicated. The equipment specified is based upon the acceptable manufacturers listed. Where “approved equal” is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval.
- B. Strictly adhere to all Building Industry Consulting Service International (BICSI), Electronic Industries Alliance (EIA) and Telecommunications Industry Association (TIA) recommended installation practices when installing UTP data cabling.
- C. Material and work specified herein shall comply with the applicable requirements of:
 - 1. ANSI/TIA/EIA – 568-B *Commercial Building Telecommunications Cabling Standard, 2000-2004*
 - 2. ANSI/TIA/EIA – 569-A *Commercial Building Standard for Telecommunications Pathways and Spaces, 1998-2004*
 - 3. ANSI/TIA/EIA-606-A *Administration Standard for the Telecommunications Infrastructure of Commercial Buildings, 2002*
 - 4. ANSI-J-STD-607-A *Joint Standard for Commercial Building Grounding (Earthing) and Bonding Requirements for Telecommunications, 2002*
 - 5. NFPA 70 – *National Electric Code, 2005*
 - 6. BICSI – *Telecommunications Distribution Methods Manual, 10th Edition, 2003*
 - 7. NEMA – VE-1 – *Metal Cable Tray Systems, 2002*
 - 8. NEMA – VE-2 – *Metal Cable Tray Installation Guidelines, 2001*

1.4 SUBMITTALS

- A. Provide product data for the following:
1. Manufacturer's cut sheets, specifications and installation instructions for all products (submit with bid).

PART 2 – PRODUCTS

2.1 WIRE MESH CABLE TRAY, SUPPORTS, AND ACCESSORIES

- A. Wire Mesh Cable Tray
1. Wire mesh cable tray shall be manufactured from round steel wire that is a minimum of .196" (5mm) in diameter. Wires shall be welded at intersections to form a 2" x 4" (50.8mm x 101.6mm) grid pattern. The tray shall be U-shaped with equal height sidewalls.
 2. Individual tray sections will be 10' (3048mm) or 5' (1524mm) long and 4" (101.6mm), 6" (152.4mm), 8" (203.2mm), 12" (304.8mm), 16" (406.4mm), 18" (457.2mm), 20" (508mm), or 24" (609.6mm) wide. Sidewalls will be 2" (50.8mm), 4" (101.6mm) or 6" (152.4mm) high.
 3. Tray ends will be formed downward at 90° to allow easy drop-in installation with approved supports.
 4. Wire mesh cable tray will be zinc electroplated after fabrication.
 5. Wire mesh cable tray will be UL Classified for grounding purposes.
 6. Design Make:
Chatsworth Products, Inc. (CPI),
FastTrac™ Cable Tray:

Part Number 13340-004, FastTrac Cable Tray, 4" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13340-006, FastTrac Cable Tray, 6" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13340-008, FastTrac Cable Tray, 8" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13340-012, FastTrac Cable Tray, 12" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13340-016, FastTrac Cable Tray, 16" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13340-018, FastTrac Cable Tray, 18" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13340-020, FastTrac Cable Tray, 20" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13340-024, FastTrac Cable Tray, 24" Wide x 2" High x 5' Long, Zinc Electroplate.

Part Number 13341-004, FastTrac Cable Tray, 4" Wide x 2" High x 10' Long, Zinc Electroplate.
Part Number 13341-006, FastTrac Cable Tray, 6" Wide x 2" High x 10' Long, Zinc Electroplate.
Part Number 13341-008, FastTrac Cable Tray, 8" Wide x 2" High x 10' Long, Zinc Electroplate.
Part Number 13341-012, FastTrac Cable Tray, 12" Wide x 2" High x 10' Long, Zinc Electroplate.
Part Number 13341-016, FastTrac Cable Tray, 16" Wide x 2" High x 10' Long, Zinc Electroplate.
Part Number 13341-018, FastTrac Cable Tray, 18" Wide x 2" High x 10' Long, Zinc Electroplate.
Part Number 13341-020, FastTrac Cable Tray, 20" Wide x 2" High x 10' Long, Zinc Electroplate.
Part Number 13341-024, FastTrac Cable Tray, 24" Wide x 2" High x 10' Long, Zinc Electroplate.

Part Number 13342-004, FastTrac Cable Tray, 4" Wide x 4" High x 5' Long, Zinc Electroplate.
Part Number 13342-006, FastTrac Cable Tray, 6" Wide x 4" High x 5' Long, Zinc Electroplate.
Part Number 13342-008, FastTrac Cable Tray, 8" Wide x 4" High x 5' Long, Zinc Electroplate.
Part Number 13342-012, FastTrac Cable Tray, 12" Wide x 4" High x 5' Long, Zinc Electroplate.
Part Number 13342-016, FastTrac Cable Tray, 16" Wide x 4" High x 5' Long, Zinc Electroplate.
Part Number 13342-018, FastTrac Cable Tray, 18" Wide x 4" High x 5' Long, Zinc Electroplate.
Part Number 13342-020, FastTrac Cable Tray, 20" Wide x 4" High x 5' Long, Zinc Electroplate.
Part Number 13342-024, FastTrac Cable Tray, 24" Wide x 4" High x 5' Long, Zinc Electroplate.

Part Number 13343-004, FastTrac Cable Tray, 4" Wide x 4" High x 10' Long, Zinc Electroplate.
Part Number 13343-006, FastTrac Cable Tray, 6" Wide x 4" High x 10' Long, Zinc Electroplate.
Part Number 13343-008, FastTrac Cable Tray, 8" Wide x 4" High x 10' Long, Zinc Electroplate.
Part Number 13343-012, FastTrac Cable Tray, 12" Wide x 4" High x 10' Long, Zinc Electroplate.
Part Number 13343-016, FastTrac Cable Tray, 16" Wide x 4" High x 10' Long, Zinc Electroplate.
Part Number 13343-018, FastTrac Cable Tray, 18" Wide x 4" High x 10' Long, Zinc Electroplate.
Part Number 13343-020, FastTrac Cable Tray, 20" Wide x 4" High x 10' Long, Zinc Electroplate.
Part Number 13343-024, FastTrac Cable Tray, 24" Wide x 4" High x 10' Long, Zinc Electroplate.

High x 10' Long, Zinc Electroplate.

Part Number 13344-008, FastTrac Cable Tray, 8" Wide x 6" High x 5' Long, Zinc Electroplate.

Part Number 13344-012, FastTrac Cable Tray, 12" Wide x 6" High x 5' Long, Zinc Electroplate.

Part Number 13344-016, FastTrac Cable Tray, 16" Wide x 6" High x 5' Long, Zinc Electroplate.

Part Number 13344-018, FastTrac Cable Tray, 18" Wide x 6" High x 5' Long, Zinc Electroplate.

Part Number 13344-020, FastTrac Cable Tray, 20" Wide x 6" High x 5' Long, Zinc Electroplate.

Part Number 13344-024, FastTrac Cable Tray, 24" Wide x 6" High x 5' Long, Zinc Electroplate.

Part Number 13345-008, FastTrac Cable Tray, 8" Wide x 6" High x 10' Long, Zinc Electroplate.

Part Number 13345-012, FastTrac Cable Tray, 12" Wide x 6" High x 10' Long, Zinc Electroplate.

Part Number 13345-016, FastTrac Cable Tray, 16" Wide x 6" High x 10' Long, Zinc Electroplate.

Part Number 13345-018, FastTrac Cable Tray, 18" Wide x 6" High x 10' Long, Zinc Electroplate.

Part Number 13345-020, FastTrac Cable Tray, 20" Wide x 6" High x 10' Long, Zinc Electroplate.

Part Number 13345-024, FastTrac Cable Tray, 24" Wide x 6" High x 10' Long, Zinc Electroplate.

Also available in black (-7XX) and pre-galvanized (-5XX) finish.

B. Wire Mesh Cable Tray Supports

1. Supports will be sized at minimum to match the width of the wire mesh cable tray that is supported. The support may be wider than wire mesh cable tray.
2. Support design will allow the support to be placed under a wire mesh cable tray at any point mid-span or directly under a pathway splice or intersection.
3. Each support will be punched with an alternating obround and round hole-pattern that accepts wire mesh cable tray ends which are formed downward at 90° and self-threading splice plate attachment hardware.
4. When placed directly under a splice or intersection, the support will allow drop-in attachment of cable tray. Splice hardware will simultaneously splice cable trays and secure wire mesh cable trays to the support.
5. Supports will be manufactured from steel extrusion and/or sheet.
6. Wire Mesh Cable Tray Supports will be zinc electroplated after fabrication.
7. Design Make:
Chatsworth Products, Inc. (CPI),
FastTrac™ Cable Tray Supports:

Part Number 13354-004, FastTrac Ceiling Center Support Bracket, 4" Wide, Zinc Electroplate.

Part Number 13354-008, FastTrac Ceiling Center Support Bracket, 8" Wide, Zinc Electroplate.

Part Number 13354-012, FastTrac Ceiling Center Support

Bracket, 12" Wide, Zinc Electroplate.
Part Number 13354-016, FastTrac Ceiling Center Support
Bracket, 16" Wide, Zinc Electroplate.
Part Number 13354-020, FastTrac Ceiling Center Support
Bracket, 20" Wide, Zinc Electroplate.
Part Number 13354-024, FastTrac Ceiling Center Support
Bracket, 24" Wide, Zinc Electroplate.

*Each center support requires (1) 3/8" threaded rod,
(1) beam clamp, (3) hex nuts, & (2) flat washers to install.*

Part Number 13357-008, FastTrac Ceiling Intersect Support
Plate, 8" x 8" Wide, Zinc Electroplate.
Part Number 13357-016, FastTrac Ceiling Intersect Support
Plate, 16" x 16" Wide, Zinc Electroplate.
Part Number 13357-024, FastTrac Ceiling Intersect Support
Plate, 24" x 24" Wide, Zinc Electroplate.

Support each ceiling intersect support plate with a center support bracket.

Part Number 13353-004, FastTrac Ceiling Trapeze Support
Bracket, 4" Wide, Zinc Electroplate.
Part Number 13353-008, FastTrac Ceiling Trapeze Support
Bracket, 8" Wide, Zinc Electroplate.
Part Number 13353-012, FastTrac Ceiling Trapeze Support
Bracket, 12" Wide, Zinc Electroplate.
Part Number 13353-016, FastTrac Ceiling Trapeze Support
Bracket, 16" Wide, Zinc Electroplate.
Part Number 13353-020, FastTrac Ceiling Trapeze Support
Bracket, 20" Wide, Zinc Electroplate.
Part Number 13353-024, FastTrac Ceiling Trapeze Support
Bracket, 24" Wide, Zinc Electroplate.

*Each trapeze support requires (2) 3/8" threaded rod,
(2) beam clamp, (6) hex nuts, & (4) flat washers to install.*

Part Number 13355-004, FastTrac Wall L-Support Bracket, 4"
Wide, Zinc Electroplate.
Part Number 13355-008, FastTrac Wall L-Support Bracket, 8"
Wide, Zinc Electroplate.
Part Number 13355-012, FastTrac Wall L-Support Bracket,
12" Wide, Zinc Electroplate.
Part Number 13355-016, FastTrac Wall L-Support Bracket,
16" Wide, Zinc Electroplate.
Part Number 13355-020, FastTrac Wall L-Support Bracket,
20" Wide, Zinc Electroplate.
Part Number 13355-024, FastTrac Wall L-Support Bracket,
24" Wide, Zinc Electroplate.

*Each L-support bracket requires (2) 3/8" lag bolts and
(2) flat washers or concrete wall hardware to install.*

Part Number 13356-004, FastTrac Wall Triangle Support
Bracket, 4" Wide, Zinc Electroplate.
Part Number 13356-008, FastTrac Wall Triangle Support
Bracket, 8" Wide, Zinc Electroplate.
Part Number 13356-012, FastTrac Wall Triangle Support

Bracket, 12" Wide, Zinc Electroplate.
Part Number 13356-016, FastTrac Wall Triangle Support
Bracket, 16" Wide, Zinc Electroplate.
Part Number 13356-020, FastTrac Wall Triangle Support
Bracket, 20" Wide, Zinc Electroplate.
Part Number 13356-024, FastTrac Wall Triangle Support
Bracket, 24" Wide, Zinc Electroplate.

Each triangle support bracket requires (2) 3/8" lag bolts and (2) flat washers or concrete wall hardware to install.

Part Number 13387-008, FastTrac Wall Termination Support, 8" Wide, Zinc Electroplate.
Part Number 13387-016, FastTrac Wall Termination Support, 16" Wide, Zinc Electroplate.
Part Number 13387-024, FastTrac Wall Termination Support, 24" Wide, Zinc Electroplate.

Each wall termination support requires (2) 3/8" lag bolts and (2) flat washers or concrete wall hardware to install.

Part Number 13350-012, FastTrac Under Floor Support Bracket, 3" High x 12" Wide, Zinc Electroplate.
Part Number 13350-020, FastTrac Under Floor Support Bracket, 3" High x 20" Wide, Zinc Electroplate.
Part Number 13351-012, FastTrac Under Floor Support Bracket, 6" High x 12" Wide, Zinc Electroplate.
Part Number 13351-020, FastTrac Under Floor Support Bracket, 6" High x 20" Wide, Zinc Electroplate.
Part Number 13352-012, FastTrac Under Floor Support Bracket, 9" High x 12" Wide, Zinc Electroplate.
Part Number 13352-020, FastTrac Under Floor Support Bracket, 9" High x 20" Wide, Zinc Electroplate.

Each under floor support bracket requires (1) rack installation hardware kit (4 concrete anchors & 3/8" hardware).

C. Wire Mesh Cable Tray Splices and Fasteners:

1. Provide a method of simultaneously splicing, bonding and securing intersecting wire mesh cable tray sections to supports when supports are placed directly under a wire mesh cable tray pathway at a splice point, intersection point, or at the beginning or end of a change in elevation.
2. Provide a method of splicing and bonding wire mesh cable tray sections together at a splice point or an intersection point that is not located directly over a support.
3. Provide a method for bonding and securing wire mesh cable tray to supports when supports are placed mid-span (in between a splice or intersection point) along a wire mesh cable tray pathway.
4. Provide a method for attaching wire mesh cable tray directly to the top of racks and cabinets.
5. Provide a method for attaching wire mesh cable tray supports to raised floor pedestals.
6. Provide a method for attaching a bonding conductor to the wire mesh cable tray.
7. Design Make:
Chatsworth Products, Inc. (CPI),
FastTrac™ Cable Tray Splices and Fasteners:

Part Number 13361-001, FastTrac Ground Washer Splice Kit, 50 Pack, Zinc Electroplate.
 Part Number 13364-001, FastTrac Washer Splice Kit, 50 Pack, Zinc Electroplate.
 Part Number 13365-001, FastTrac Splice Bar Kit, 50 Pack, Zinc Electroplate.
 Part Number 13375-012, FastTrac Ground Bolt, 1 Each, Copper.
 Part Number 13374-001, FastTrac Under Floor Pedestal Clamp, 1 Each, Zinc Electroplate.
 Part Number 13366-701, FastTrac Rack Clamp for 2-Post Rack Systems, 4 Pack, Black.
 Part Number 11308-005, J-Bolt Kit for Cabinet Systems, 4 Pack, Gold.

D. Wire Mesh Cable Tray Accessories:

1. Provide a divider to separate cable tray into multiple pathways. The divider should be the same height as the sidewalls of the cable tray.
2. Provide a cover for wire mesh cable tray. The cover should be sized to match the width of the cable tray.
3. Provide a solid bottom for wire mesh cable tray. The bottom should be sized to match the width of the cable tray.
4. Provide a bend radius to connect the sidewalls of adjoining wire mesh cable tray wherever a splice or an intersection in the cable tray pathway results in a 4" or wider gap between the sidewalls. The bend radius should be the same height as the sidewalls of the wire mesh cable tray.
5. Provide a radius drop to form cable over a smooth curve wherever cable exits or enters the side, bottom or end of wire mesh cable tray.
6. Wire mesh cable tray accessories will be manufactured from steel extrusion and/or sheet.
7. Wire mesh cable tray accessories will be pre-galvanized before fabrication.
8. Design Make:
 Chatsworth Products, Inc. (CPI),
 FastTrac™ Cable Tray Accessories:

Part Number 13358-502, FastTrac Divider, 2" High x 10' Long, Pre-Galvanized.
 Part Number 13358-504, FastTrac Divider, 4" High x 10' Long, Pre-Galvanized.
 Part Number 13358-506, FastTrac Divider, 6" High x 10' Long, Pre-Galvanized.

Part Number 13359-504, FastTrac Cover, 4" Wide x 10' Long, Pre-Galvanized.
 Part Number 13359-506, FastTrac Cover, 6" Wide x 10' Long, Pre-Galvanized.
 Part Number 13359-508, FastTrac Cover, 8" Wide x 10' Long, Pre-Galvanized.
 Part Number 13359-512, FastTrac Cover, 12" Wide x 10' Long, Pre-Galvanized.
 Part Number 13359-516, FastTrac Cover, 16" Wide x 10'

Long, Pre-Galvanized.
Part Number 13359-518, FastTrac Cover, 18" Wide x 10'
Long, Pre-Galvanized.
Part Number 13359-520, FastTrac Cover, 20" Wide x 10'
Long, Pre-Galvanized.
Part Number 13359-524, FastTrac Cover, 24" Wide x 10'
Long, Pre-Galvanized.

Part Number 13360-504, FastTrac Bottom Insert, 4" Wide x
10' Long, Pre-Galvanized.
Part Number 13360-506, FastTrac Bottom Insert, 6" Wide x
10' Long, Pre-Galvanized.
Part Number 13360-508, FastTrac Bottom Insert, 8" Wide x
10' Long, Pre-Galvanized.
Part Number 13360-512, FastTrac Bottom Insert, 12" Wide x
10' Long, Pre-Galvanized.
Part Number 13360-516, FastTrac Bottom Insert, 16" Wide x
10' Long, Pre-Galvanized.
Part Number 13360-518, FastTrac Bottom Insert, 18" Wide x
10' Long, Pre-Galvanized.
Part Number 13360-520, FastTrac Bottom Insert, 20" Wide x
10' Long, Pre-Galvanized.
Part Number 13360-524, FastTrac Bottom Insert, 24" Wide x
10' Long, Pre-Galvanized.

Part Number 13386-502, FastTrac Bend Radius, 2" High x 18"
Long, Pre-Galvanized.
Part Number 13386-504, FastTrac Bend Radius, 4" High x 18"
Long, Pre-Galvanized.
Part Number 13386-506, FastTrac Bend Radius, 6" High x 18"
Long, Pre-Galvanized.

Part Number 13363-001, FastTrac Radius Drop, 6" Wide, Zinc
Electroplate.

E. Wire Mesh Cable Tray Installation Tools:

1. Provide specialized cutting and forming tools required for field fabrication of wire mesh cable tray pathways.
2. Provide specialized tools required for pulling cable around turns, bends or intersections in wire mesh cable tray pathway.
3. Design Make:
Chatsworth Products, Inc. (CPI),
FastTrac™ Cable Tray Accessories:

Part Number 13367-001, FastTrac Wire Shear.
Part Number 13369-001, FastTrac Wire Bender.
Part Number 13368-001, FastTrac Cable Roller
Part Number 13368-002, Cable Runway Bracket for FastTrac
Cable Roller

- F. Wire Mesh Cable Tray Support – Installation Hardware:
1. Provide installation hardware to attach wire mesh cable tray supports to building structure.
 2. Design Make:
Chatsworth Products, Inc. (CPI),
Installation Hardware:
 - Part Number 11440-001, Threaded Rod, 3/8-16 UNC-2A, 6' Long, Gold
 - Part Number 10697-001, Threaded Rod Coupling Kit, 3/8-16, Gold
 - Part Number 10557-001, Threaded Rod I-Beam Clamp, 3/8-16, Gold
 - Part Number 20142-091, Hex Nut, 3/8-16, Gold
 - Part Number 20141-090, Split Lock Washer, 3/8", Gold
 - Part Number 04002-002, Washer, 3/8", Gold
 - Part Number 20098-832, Hex Lag Screw, 3/8-7 x 2" Long, Gold
 - Part Number 20067-001, Concrete Anchor, 3/8-16, Gold
 - Part Number 02004-001, Hex Cap Bolt, 3/8-16 x 1-1/4" Long, Gold
 - Part Number 02004-004, Hex Cap Bolt, 3/8-16 x 1-1/2" Long, Gold
 - Part Number 20068-304, Stud Bolt, 3/8-16 x 3-1/2" Long, Zinc
 - Part Number 40604-001, Rack Installation Kit, Gold (4 concrete anchors and hardware)

PART 3 – EXECUTION

3.1 INSTALLATION

- A. Wire Mesh Cable Tray
1. Provide all components of the tray system (tray, supports, splices, fasteners, and accessories) from a single manufacturer.
 2. Wire mesh cable tray shall be secured to the structural ceiling, building truss system, wall or floor using manufacturer's recommended supports and appropriate hardware as defined by local code or the authority having jurisdiction (AHJ).
 3. When the pathway is overhead, wire mesh cable tray shall be installed with a minimum clearance of 12" above the tray. Leave 12" in between the tray and ceiling/building truss structure. Multiple tiers of wire mesh cable tray shall be installed with a minimum clearance of 12" in between the trays. When located above an acoustical drop ceiling, wire mesh cable tray shall be installed a minimum of 3" above the drop ceiling tiles.
 4. When installed under a raised floor, wire mesh cable tray shall be installed with a minimum 3/4" clearance between the top of the tray and the bottom of the floor tiles or floor system stringers, whichever are lower in elevation. Maintain a 3" clearance between trays wherever trays cross over.

5. Wire mesh cable tray shall be supported every 5' or less in accordance with ANSI/EIA/TIA-569-A. Supports may be located directly under splices or intersections if recommended by the manufacturer's installation instructions. If supports are not located under splices or intersections, wire mesh cable tray shall be supported within 2' on both sides of every splice or intersection. Support wire mesh cable tray on both sides of every change in elevation.
6. Secure wire mesh cable tray to each support with a minimum of one fastener. Follow the manufacturers' recommended assembly, splice and intersection-forming practices.
7. Use installation tools recommended by the manufacturer to field fabricate wire mesh cable tray intersections and changes in elevation. Use side-action bolt cutters with an offset head to cut wire mesh cable tray. Use a bending tool to form the ends of cut sections downward at 90° to allow easy drop-in installation with approved supports.
8. Wire mesh cable tray shall be bonded to the Telecommunications Grounding Busbar (TGB) using an approved ground lug on the wire basket tray and a minimum #6 grounding wire or as recommended by the AHJ. Verify bonds at splices and intersections between individual cable tray sections and supports. Cable pathway should be electrically continuous through bonding and attached to the TGB.
9. The quantity of cables within the tray will not exceed a whole number value equal to 50% of the interior area of the tray divided by the cross-sectional area of the cable. Cable fill will not exceed the depth of the cable tray's side rail (2", 4" or 6").
10. The combined weight of cables within the tray will not exceed stated load capacity in manufacturer's specifications.
11. Separate different media type within the tray. Treat each type of media separately when determining cable fill limits.
12. When pathways for other utilities or building services are within 2' of the wire mesh cable tray, cover the tray after cables are installed.