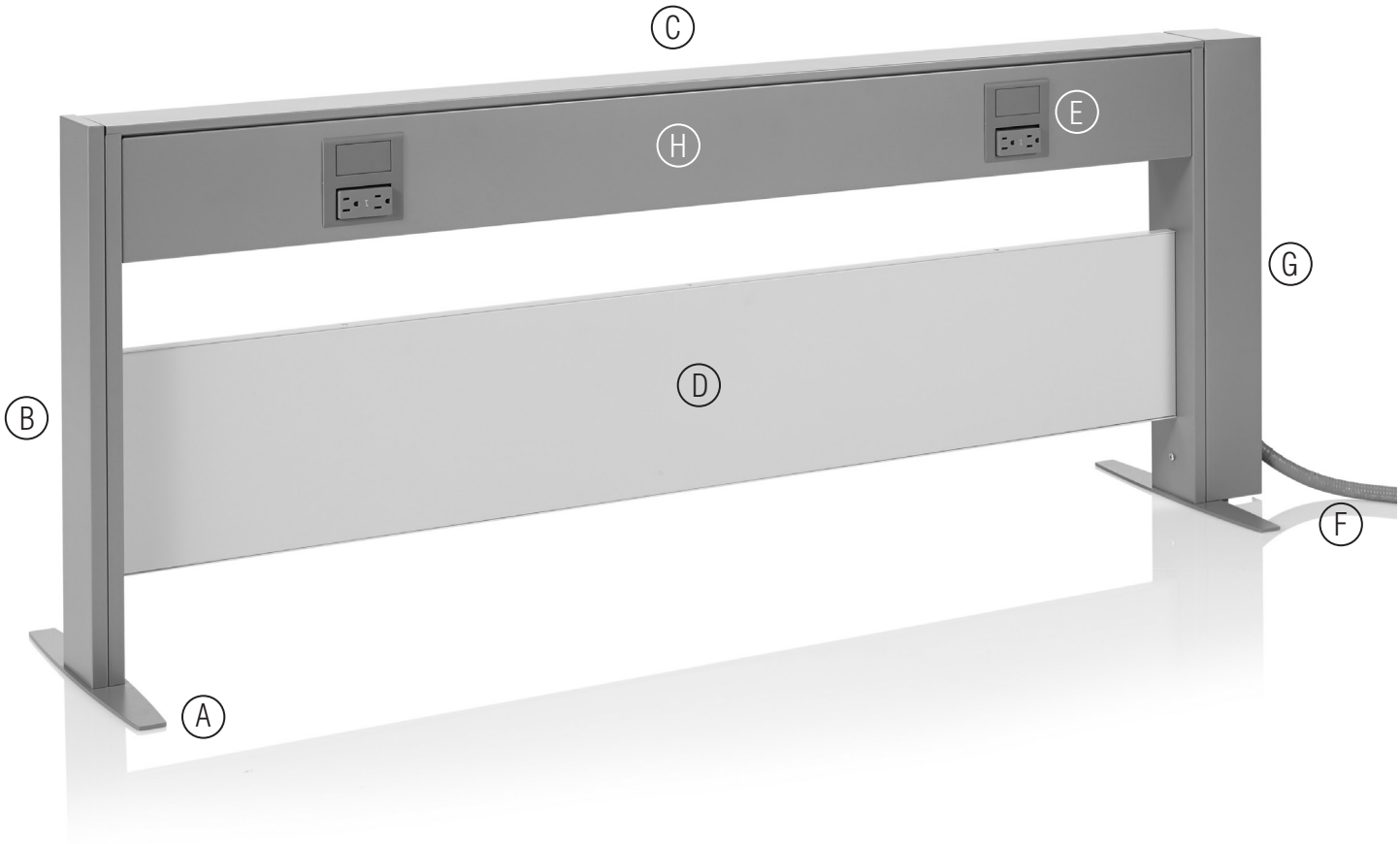
Planning Guide ■

Trellis™ System

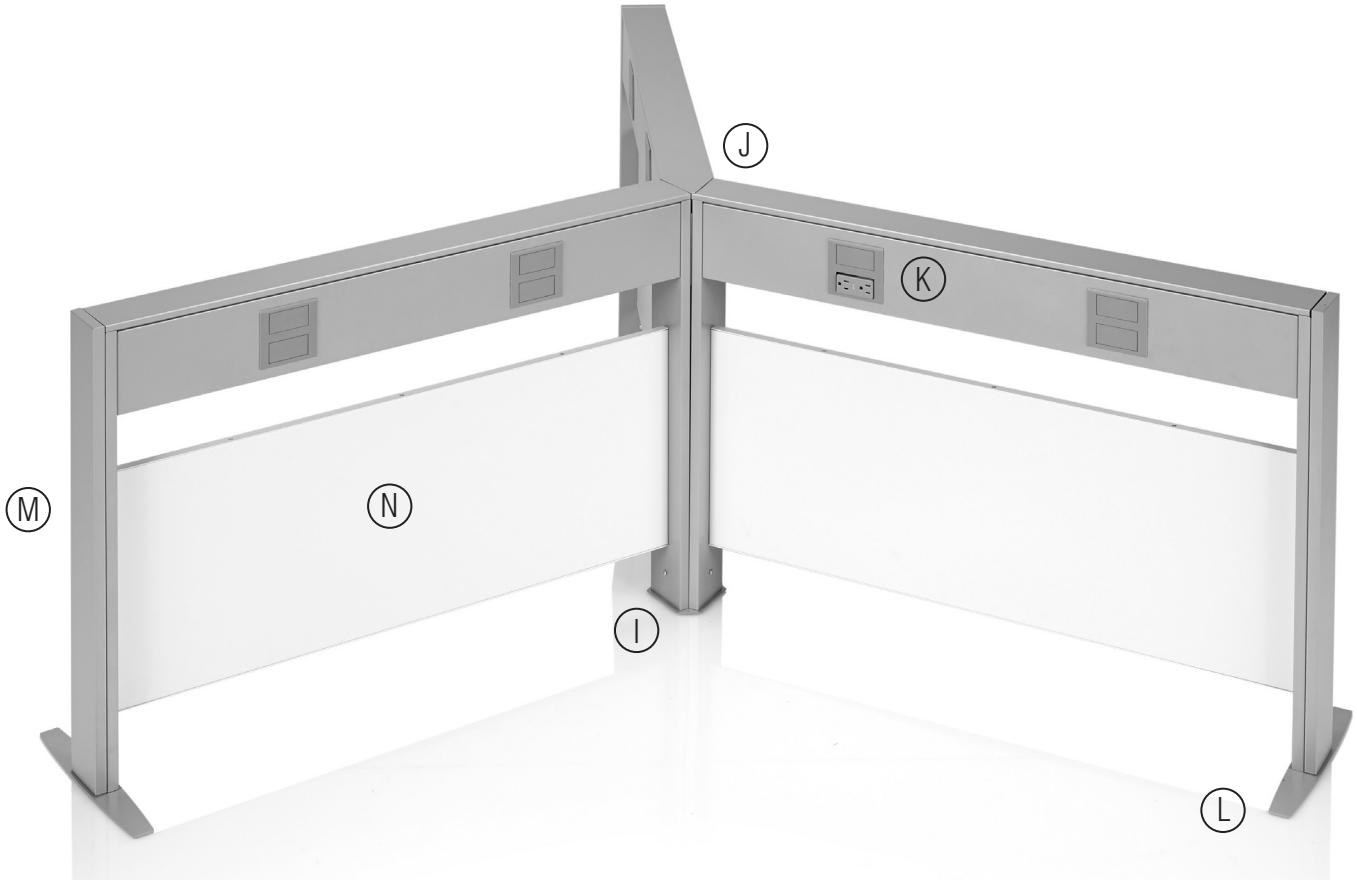
June 2019

Furnishing Knowledge®



A. In-Line Foot
B. End-of-Run Cover
C. Chase Cover
D. Laminate Insert
E. 10-Wire Power/Data
F. Base Infeed Conduit
G. Base Infeed End Cover
H. Trough

Trellis™ System responds quickly to the evolving power access, cable management and space delineation needs encountered within today's office and learning environments.



I. 120° Corner Foot
M. End-of-Run Cover

J. 120° Top Cap
N. Steel Insert

K. 10-Wire Power/Data

L. In-Line Foot

TRELLIS CHASE UNITS

Product Overview

Trellis Chase Units are designed to enable rapid distribution of power and data throughout the planned work environment. Power and data cables are easily accessed by lifting off the chase cover. All data cables can be laid in from the top with no fishing of cables required.

Trellis trough, legs, and insert panels ship knocked down and are designed for quick assembly. Chase units share feet, which are assembled without tools. Trellis units are non-progressive, and all may be used for either intersection or in-line conditions. Chase units include top caps, connection clips, data dividers (if specified), 10-wire rigid wireways, and bezels for power and data receptacles.

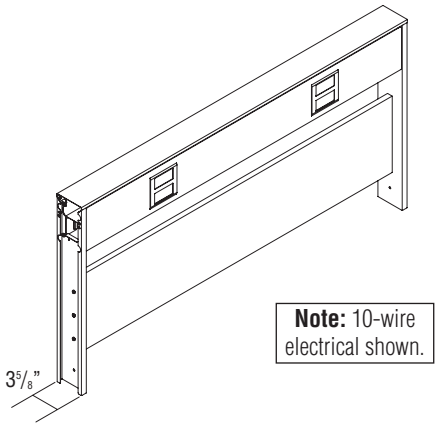
Chase Unit Models

Chase unit models are offered with either laminate or steel insert panels which are mounted between vertical legs. Steel inserts feature a 2-piece formed steel box and laminate inserts feature 2 mm edge banded particle board.

Widths: 24", 30", 36", 42", 48", 54", 60", 66" and 72"
Heights: 24" and 30"

Two insert panel styles allow for aesthetic planning flexibility:
- Laminate (Standard KI colors and patterns)
- Painted Metal (Standard KI colors)

Receptacles for all Trellis chases are specified and ordered separately. Bezels and blank faceplates are included with the chase unit.

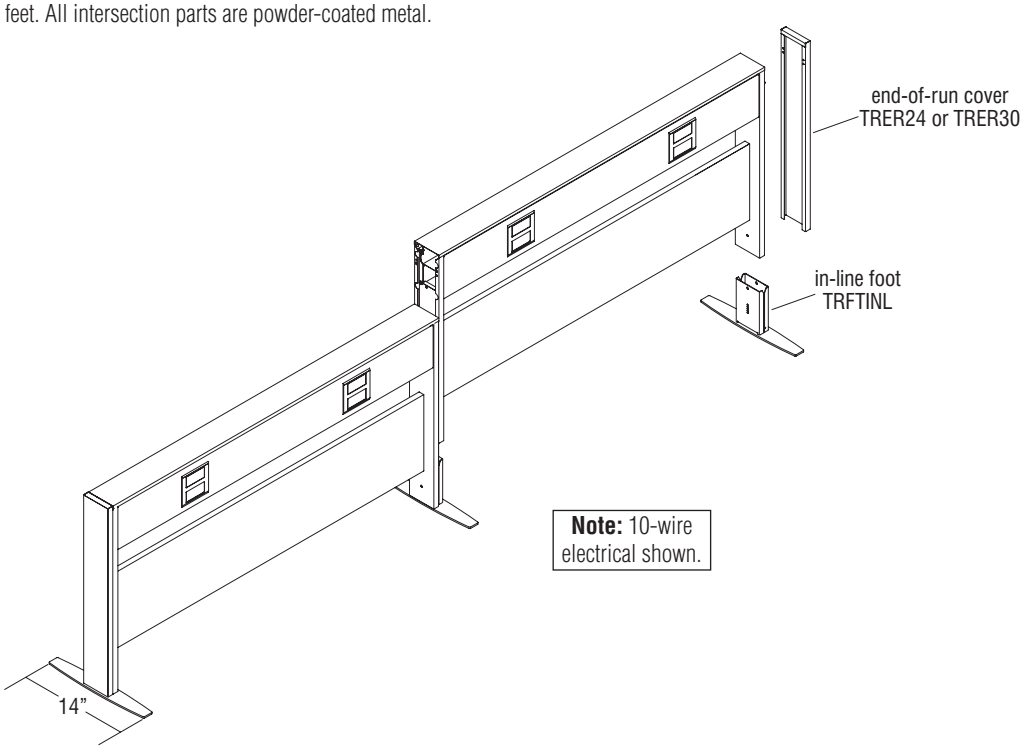


Trellis Chase Unit

INTERSECTIONS & TRIM

Product Overview

Trellis chase units are easy to specify and assemble. They rely on various intersection conditions to provide stability. The most common condition is the in-line intersection. At each in-line intersection, and at each end-of-run, an in-line foot must be specified.
End-of-run conditions that do not have an infeed must also have an end-of-run cover specified. No fasteners are required to attach the feet. All intersection parts are powder-coated metal.

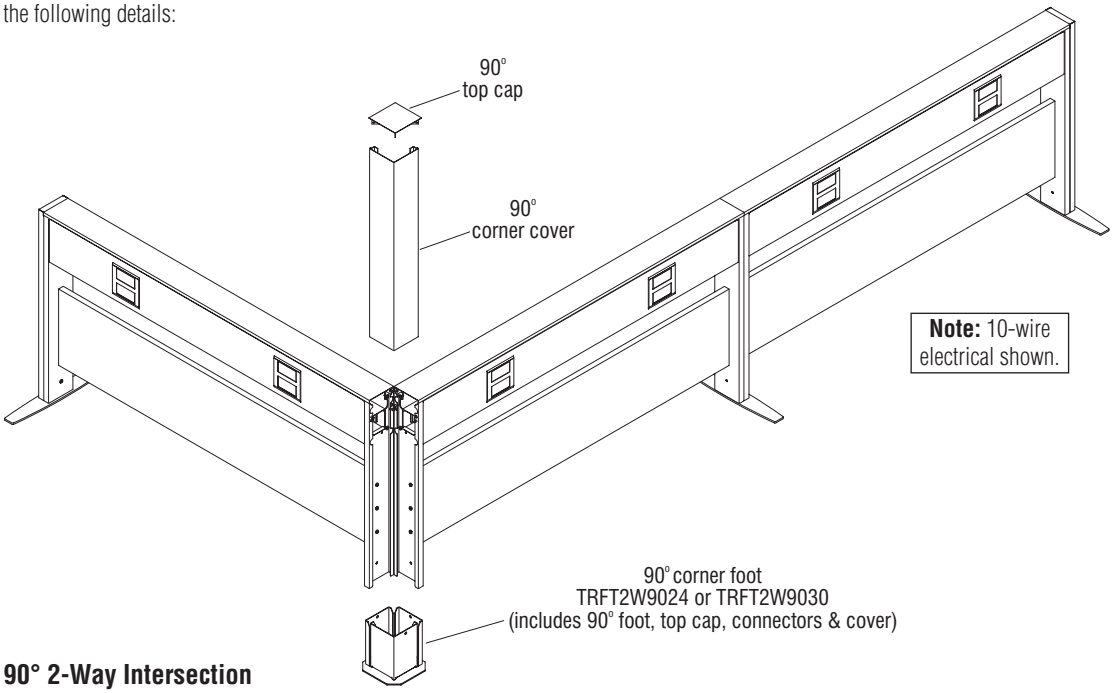


In-Line Intersection

Intersections

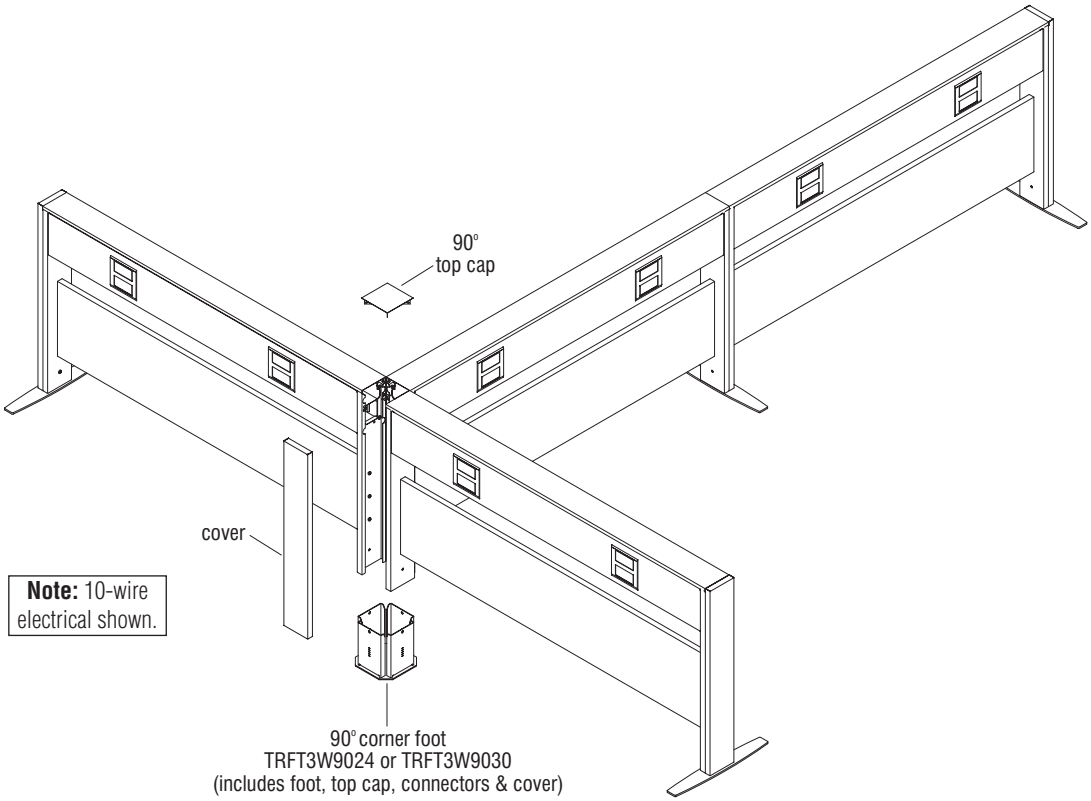
Planning Guidelines - Multi-Way Intersection Conditions

All multi-way intersection conditions require a specific foot assembly. The foot assembly includes a top cap, connectors, and cover. See the following details:

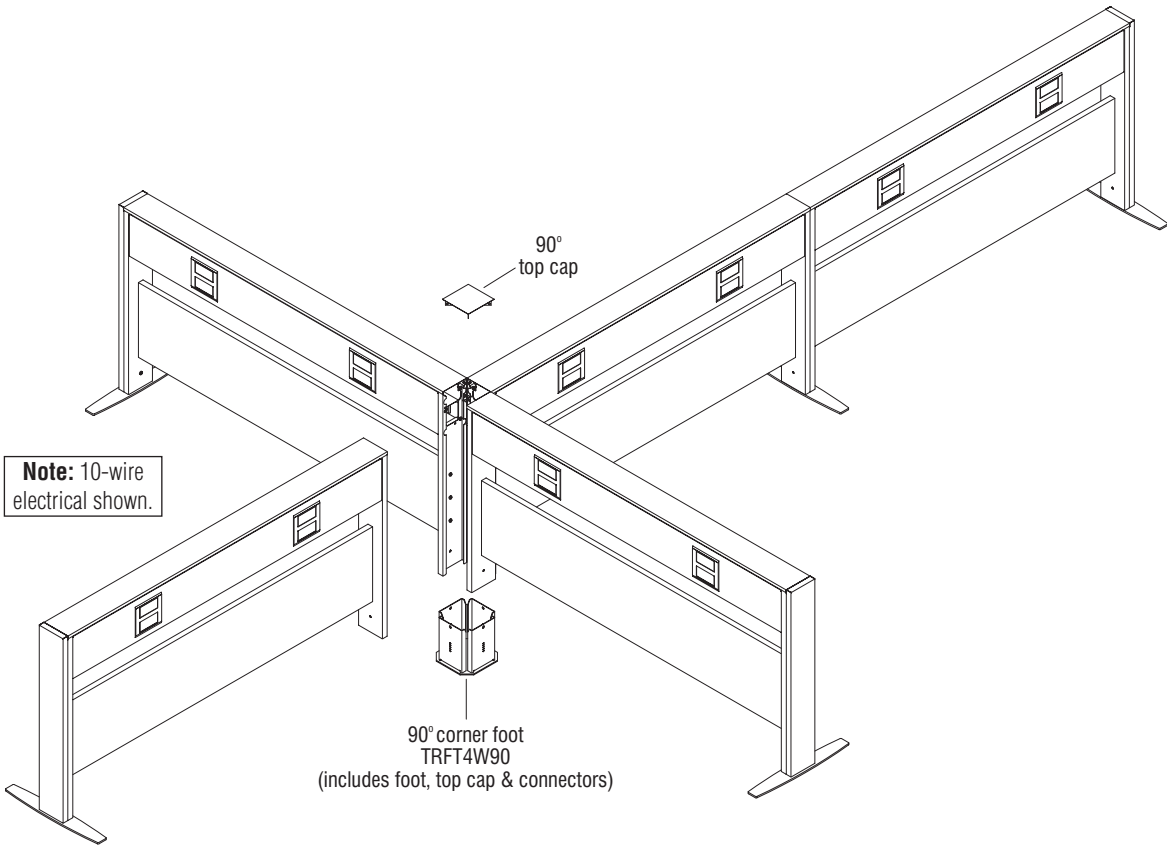


90° 2-Way Intersection

Intersections (cont.)



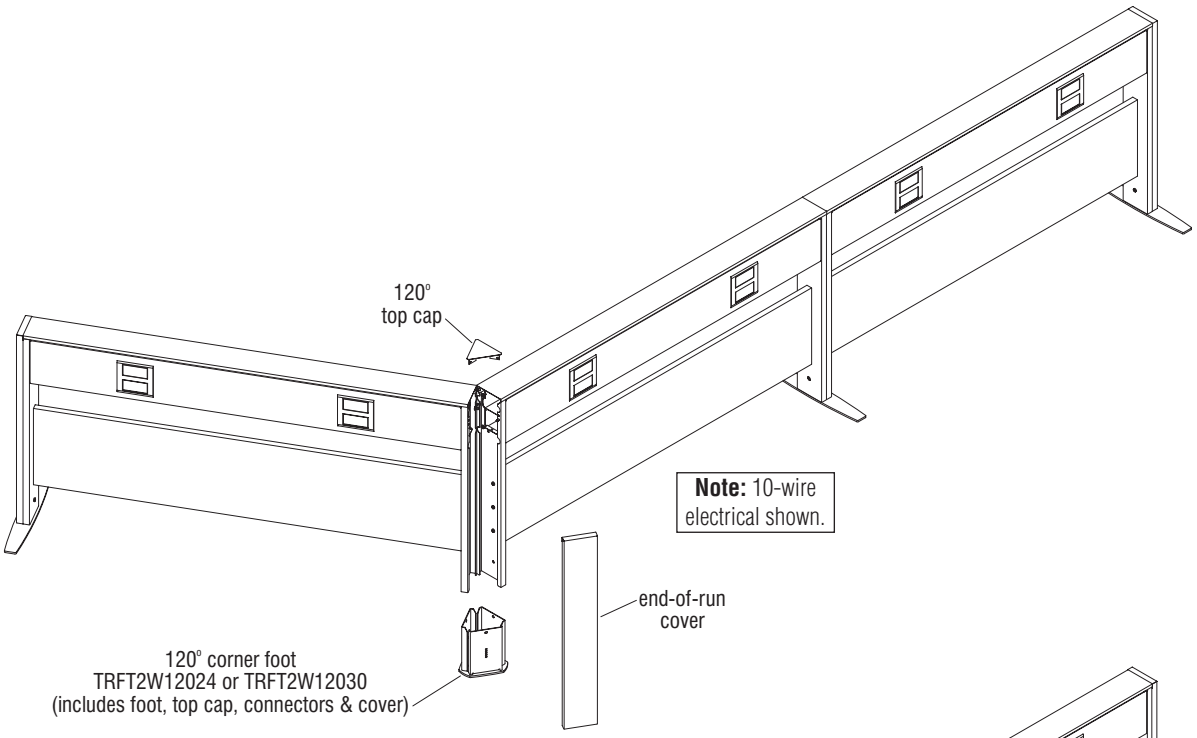
90° 3-Way Intersection



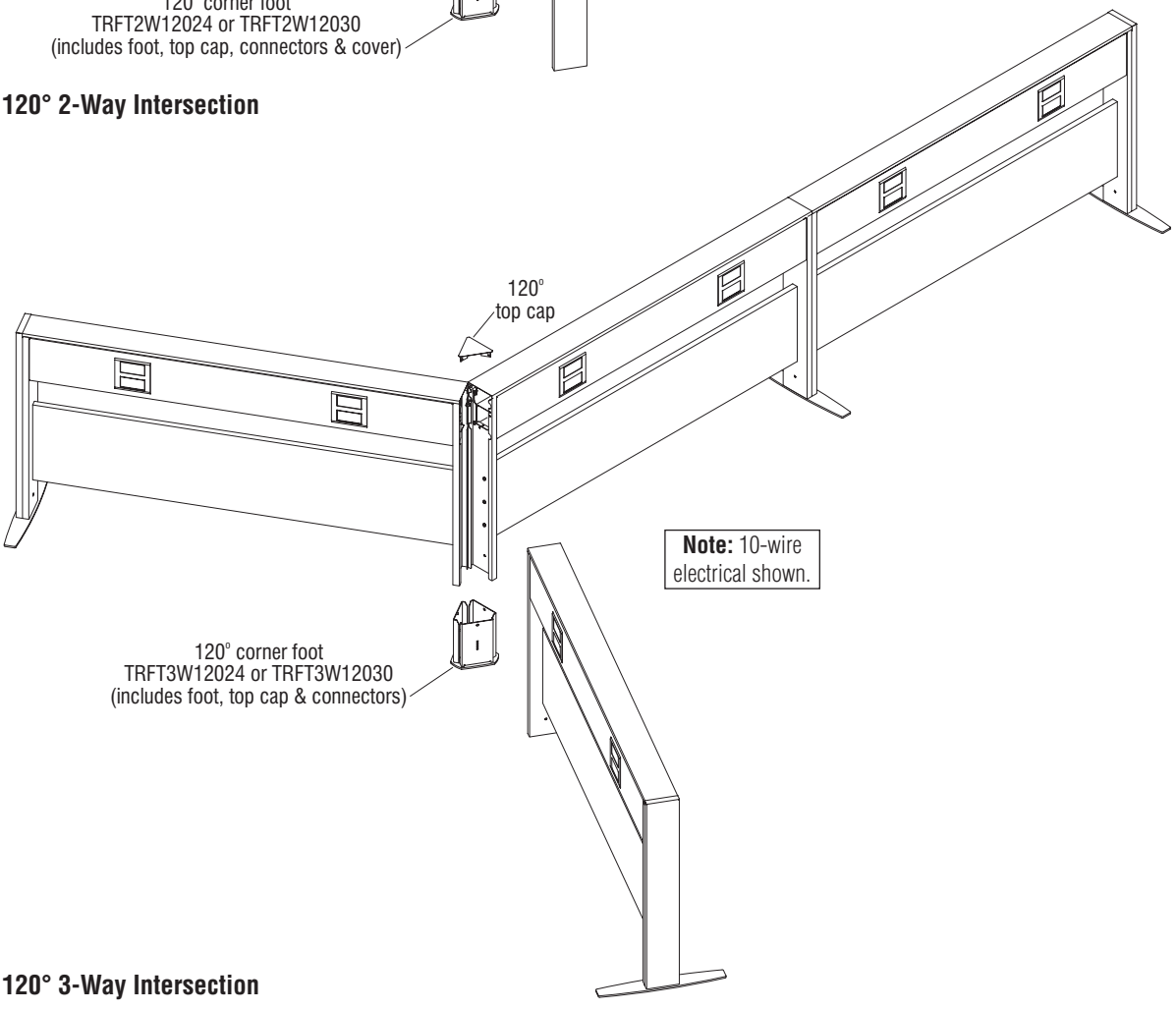
90° 4-Way Intersection

Intersections (cont.)

All 120° intersection conditions require a 120° foot assembly. The foot assembly includes a 120° corner foot, top cap and connectors. 2-Way model number includes an additional cover.



120° 2-Way Intersection



120° 3-Way Intersection

Covers

Planning Guidelines

Covers

All covers and top caps are powder-coated metal. All covers are available in 24" and 30" heights to match the Trellis unit heights.

End-Of-Run Cover

90° Corner Cover

90° Top Cap

120° Top Cap

Base Infeed End Cover

Top Infeed End Cover

Base Infeed Middle Cover

Top Infeed Middle Cover

ELECTRICAL

Product Overview

10-Wire: Trellis System utilizes the 810 10-wire system in 6-2-2 configuration UL 183 (not recognized by New York City):

The 6-2-2 system provides 6-circuits (20 amps each); 3-convenience and 3-isolated ground circuits (sometimes referred to as a 3 + 3 configuration). The six circuits share two oversized neutral wires.

Number of Workstations

To determine a workstation's electrical needs, the draw of each powered device being used must be identified and accounted for.

A tag is attached to every UL listed electrical appliance which specifies how many amps that particular appliance will draw (ex: 1.5A = 1½ amps). The total number of amps specified per circuit will determine how many appliances each infeed circuit can accommodate (recall: 6-2-2 has 6 circuits). One infeed supplies six, 20-amp circuits.

The National Electrical Code recommends to load a circuit with 80% of the 20-amp rating, or 16 amps.

Layouts with heavy electrical needs can be specified with more than one power infeed per run of chase units.

- **Example #1:** Trellis with height adjustable tables create an effective open plan environment. Electronic tables such as KI Toggle and WorkUp must be plugged in, and draw an average of 4 amps. Each table paired with a laptop computer drawing approximately 1.5 amps each require 5.5 amps per workstations. Each circuit could accommodate three workstations (5.5 total amps x 3 = 16.5 amps on 20 amp circuit).

- **Example #2:** A typical desktop computer may draw 3.2 amps. Using a 10-wire 6-2-2 system and limiting all computers to one isolated ground circuit (4I, 5I or 6I) would allow only five workstations per infeed (16 amps divided by 3.2 amps per computer = 5 computers).

Activ8®: A single circuit stand-alone electrical system used for workstation power distribution. Cannot be used with 10-Wire electrical components.

Hardwire: Components are available to be specified on Chase unit trough assemblies. All electrical hardwire follows NEC requirements and must be hardwired by a licensed electrician. The electrician is responsible for all receptacles, flexible conduit, wiring and fittings.

Data Cable Management: The Trellis System allows data cables to be routed through the beam with simple installation. Data cables are easily routed into an assembled Trellis System with the electrical system connected. Optional data divider trays separate data wires from 10-wire electrical. Data cables are laid into place from above, with no cable fishing required (except in one direction from a Middle Top Infeed). Cables are concealed once the top caps are snapped into place.

10-Wire Electrical

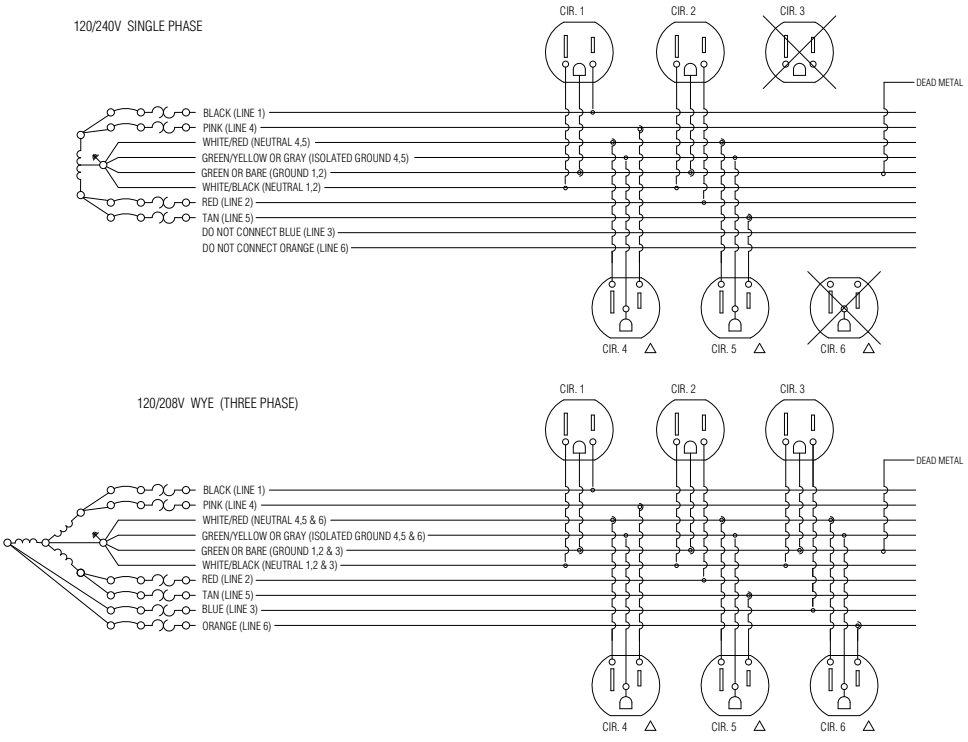
Planning Guidelines

Electrical Requirements and Compliance

Plan circuits based on the actual amperage draw of known equipment.

- Be aware of the NEC requirement that limits circuit capacity to 80 percent (16 amps) for circuits with continuous operating loads (more than 3 hours, e.g.; lighting, computers, etc).
- Never exceed maximum capacities or local code limitations.
- KNOW YOUR LOCAL CODES! They always take precedence.
- Determine the equipment needs for any dedicated or isolated ground circuits and plan circuit loading and power feeds accordingly.
- Circuit loading should be balanced. Plan a circuit load that is within 50 percent of the loads on the other circuits. (Balance does not apply to dedicated circuit).
- Place receptacles for known equipment only, never exceeding maximums allowed per code (13 duplexes per circuit, or local code restrictions, whichever is smaller).
- If any single piece of equipment draws more than 60 percent of the available amperage of a circuit, it must be the only device connected to that circuit. Example: A device draws 15 amps on a 20-amp circuit (75%); therefore, nothing else can be connected to the circuit the device is on.
- Always have your electrical space plans reviewed by a licensed electrician or electrical inspector to ensure that they meet all code requirements.

10-wire electrical
6-2-2 connection diagram

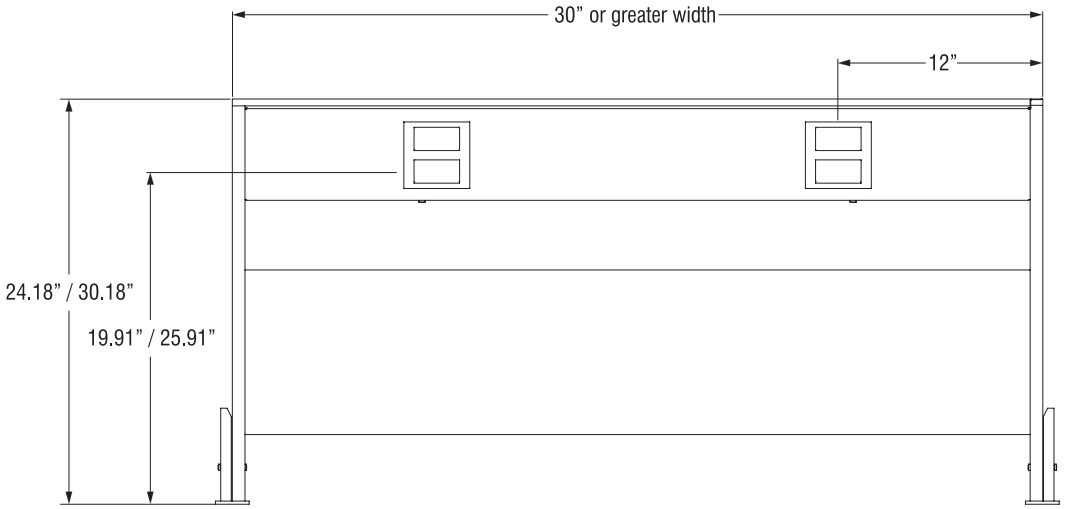


10-Wire Electrical (cont.)

Receptacle Locations

Pre-wired electrical 10-wire rigid wireways are used to distribute power, with four receptacle locations per Trellis chase unit.

- All Trellis chase units 30" or greater in width, feature two access points per side (four total) allowing up to four 10-wire duplex receptacles per chase unit.
- Receptacles are located 19.91" or 25.91" above the floor for 24" and 30" high units, respectively.
- Receptacles snap into 10-wire rigid wireways, are visible through the outer bezel openings and are spaced as shown below.
- 24" length chase units are pass through only (no receptacles).



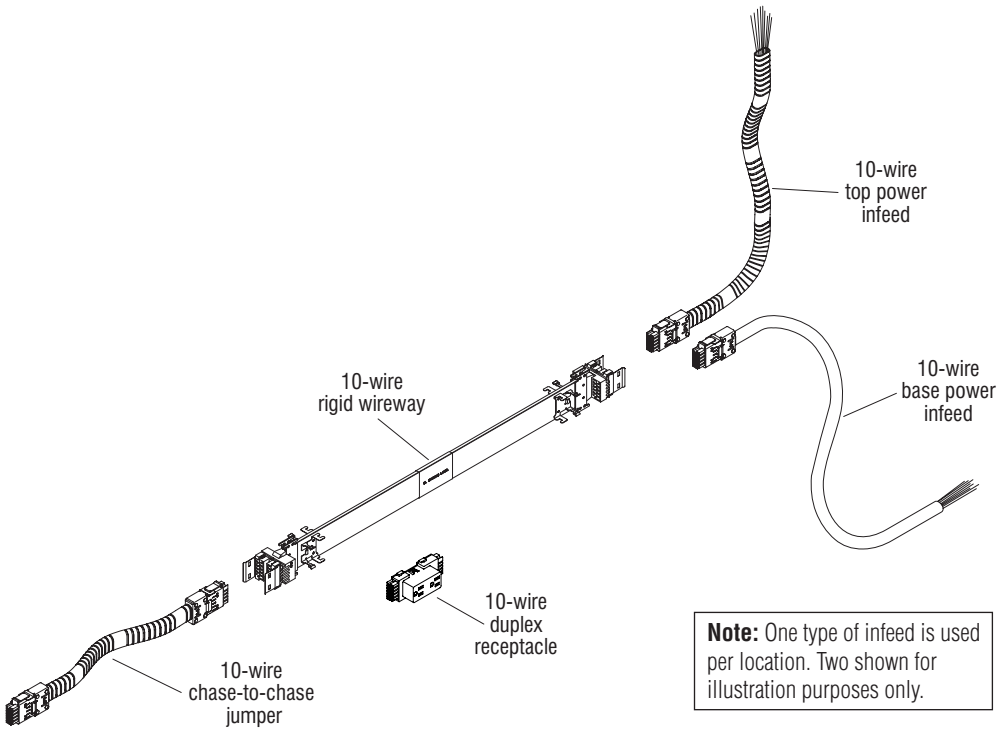
Receptacle Layout

10-Wire Electrical (cont.)

10-Wire Electrical Component Layout

10-Wire Rigid Wireways are the primary electrical component for distributing power through chase units. Rigid Wireways are factory installed in "powered" Trellis chase units. Non-powered chase units are available as data only enclosures, or to be used with 10-wire power pass-through jumpers.

- Rigid Wireways accept 10-wire infeeds, jumpers and duplex receptacles with simple plug in connections (no additional connection hardware required).
- Rigid Wireways are non-directional and can accept power from either direction.

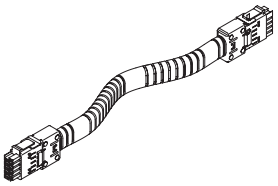


Component Layout

10-Wire Electrical (cont.)

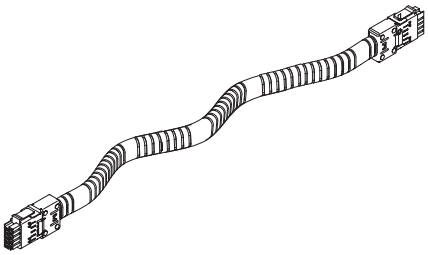
10-Wire Jumpers

A 10-wire jumper is used to pass power from powered chase unit to powered chase unit.



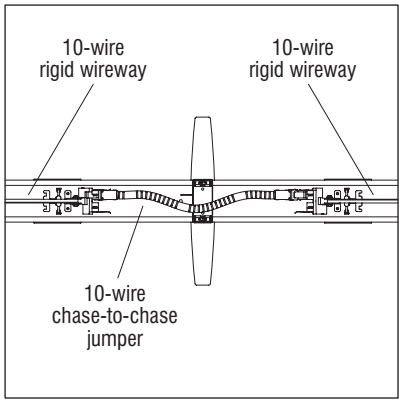
10-Wire Chase-to-Chase Jumper

- Used for all powered-to-powered unit connections.

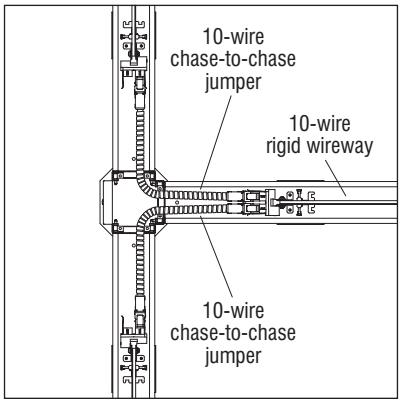


10-Wire Pass-Through Jumper

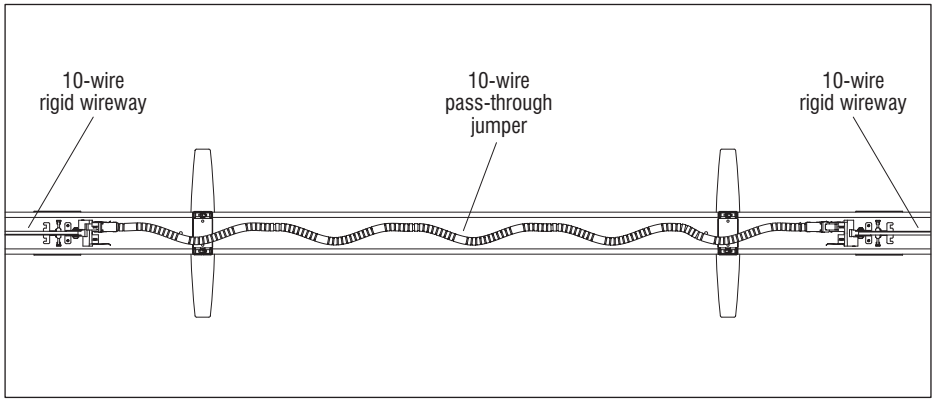
- A -30 10-wire pass-through jumper is included in powered 24" wide chase units, to allow a jumper to bridge a middle infeed if present.
- -30 through -72 10-wire pass-through jumpers continue power through a non-powered chase unit.
- A single 10-wire pass-through jumper is used to replace a 10-wire rigid wireway (specify size to match chase length) and two 10-wire chase-to-chase jumpers in the system.



180° In-Line 10-Wire Chase-to-Chase Jumper



90° 3-Way 10-Wire Chase-to-Chase Jumper (120° is similar)



10-Wire Pass-Through Jumper

10-Wire Electrical (cont.)

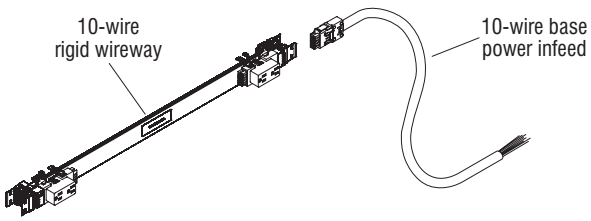
10-Wire Base Power Infeed

A 10-Wire Base Power Infeed is a liquid-tight power conduit that delivers electricity to the 10-wire rigid wireways. The base infeed runs up inside the Trellis System infeed cover, enters the end of the beam, or between chase units (Middle Base Infeed) and connects to the rigid wireway. Sometimes referred to as a "whip", a base infeed is specified when power is delivered from the floor or wall.

The base infeed cover may be used without a 10-wire base power infeed, if the cover is to exclusively route data cables (See data section).

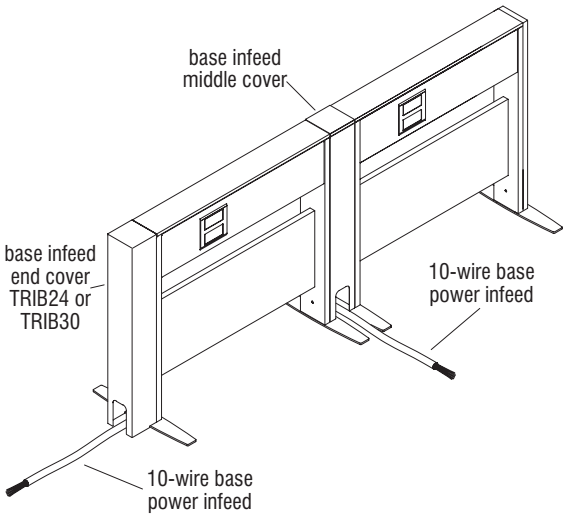
The base power infeed model number is ordered to match the height of the Trellis chase unit (24" or 30").

- All 10-wire base power infeeds plug into the end of a rigid wireway.
- Base infeeds are installed flush and in-line with chase units when installed at the end-of-run of a chase unit or when installed between two chase units (middle base infeed). Base infeeds installed at the end-of-run or between chase units require no additional parts (next page).
- Middle base infeeds require no additional parts (includes jumper and an additional foot).
- Only one pass-thru chase unit may be specified next to a middle base infeed.
- Base infeeds are installed offset at 90° 2-way, 90° 3-way and 120° 2-way intersections. No base infeed is available for a 90° 4-way or 120° 3-way intersection (next page).
- Base infeed at a 90° 2-way intersection requires the order of a corner connector 90° 2-way (TRFT4W90) and end-of-run cover (TRER24/30) in addition to the base infeed end cover with 10-wire conduit (TRIB24/30) (example shown on next page).
- Base infeed at a 90° 3-way intersection requires the order of a corner connector 90° 3-way (TRFT3W9024/30) in addition to the base infeed end cover with 10-wire conduit (TRIB24/30) (example shown on next page).
- Base infeed at a 120° 2-way intersection requires the order of a corner connector 120° 2-way (TRFT3W120) in addition to the base infeed end cover with 10-wire conduit (TRIB24/30) (example shown on next page).
- Infeed conduit is 96" long.
- Unit color must be specified.
- If the building electrical supply is from a wall source, a minimum gap of 1" is required for the power infeed whip.

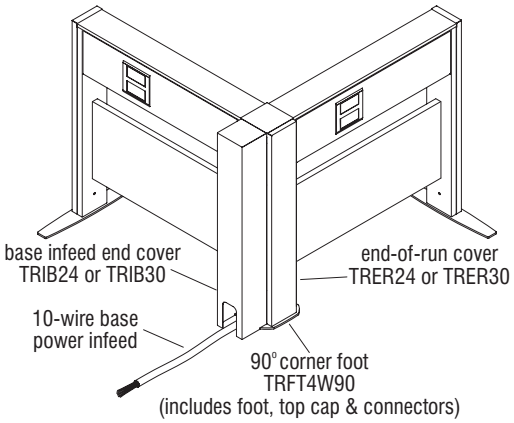


10-Wire Base Power Infeed Components

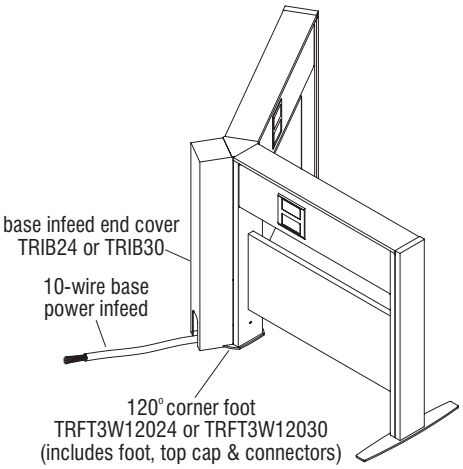
10-Wire Electrical (cont.)



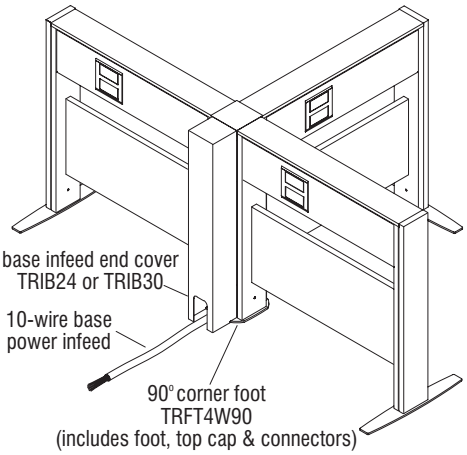
In-Line Intersection, 10-Wire Base Power Infeeds with Covers



90° 2-Way Intersection, 10-Wire Base Power Infeed with Cover



120° 2-Way Intersection, 10-Wire Base Power Infeed with Cover



90° 3-Way Intersection, 10-Wire Base Power Infeed with Cover

10-Wire Electrical (cont.)

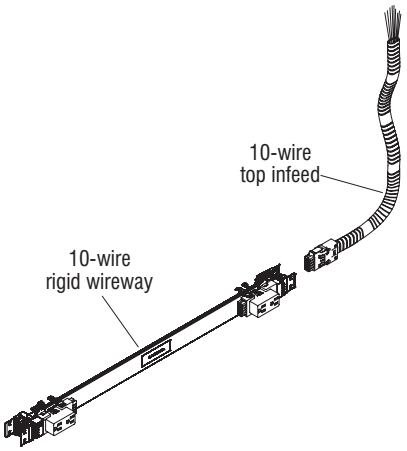
10-Wire Top Power Infeed

A 10-Wire Top Power Infeed is a flexible metal conduit that delivers electricity to the workstations. The top infeed drops from the ceiling down an aluminum pole, enters the end of the chase, or between chase units (Middle Top Infeed) and connects to the 10-wire rigid wireway. Sometimes referred to as a "whip", a top infeed is used to deliver power from the ceiling.

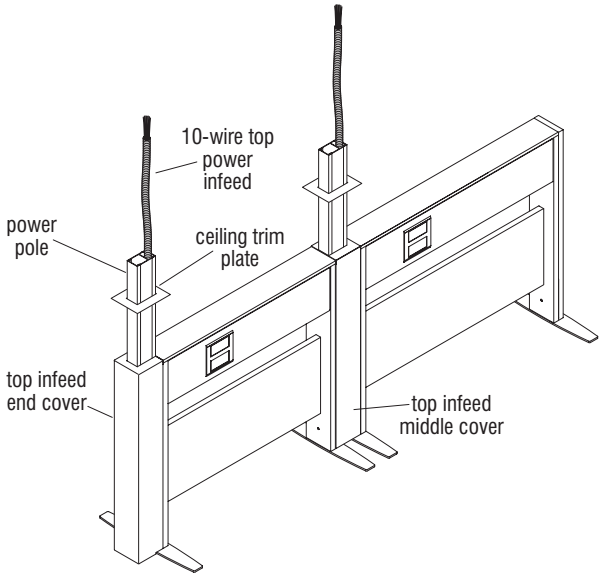
The top power infeed model number is ordered to match the height of the Trellis module (24" or 30"). It includes a 10-foot, two cavity aluminum pole. The pole provides separation of power and data cabling. Each cavity has a snap on cap which allows easy lay-in.

The top infeed end cover may be used without a 10-wire conduit, if the desire is to use it exclusively for data cables (See data section).

- All 10-wire top power infeeds plug into the end of a Rigid Wireway.
- A top infeed includes a 3-piece, painted aluminum power pole, support bracket, ceiling trim plate, electrical conduit and top infeed cover. Aluminum pole is 10' long. Use the table below to verify maximum ceiling height.
- Top infeeds at a end-of-run locations require no additional part.
- Middle top infeeds require no additional parts (includes jumper and foot).
- Top infeeds used between two powered chase units (Middle Top Infeed) generally require no additional parts specified. An exception is when a non-powered chase unit (30"-72") is specified adjacent to a Middle infeed, then the next longer size 10-wire pass-through jumper must be specified to compensate for the difference of having the middle infeed.
- Only one pass-thru chase unit may be specified next to a middle top infeed.
- No top infeed for 90° 2-way, 90° 3-way, 90° 4-way, 120° 2-way or 120° 3-way intersections.
- The data cavity of the power pole can manage up to 24 CAT 6 data cables.
- Unit color must be specified.



10-Wire Top Power Infeed Conduit



10-Wire Top Power Infeed with Cover

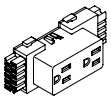
10' Infeed Pole	
Trellis Height	Maximum Ceiling Heights
24"	11'-8"
30"	12'-4"

10-Wire Electrical (cont.)

10-Wire Duplex Receptacles

15-amp 10-wire duplex receptacles plug into 10-wire rigid wireways and allow appliance use.

- Includes receptacle only. Bezels & filler plates are included with Trellis chase units and are not specified.
- Receptacles are molded plastic and available in standard colors. Receptacle unit color must be specified.
- Receptacles are labeled with circuit identification numbers 1 to 6.
- Isolated ground circuit receptacles are orange and have an open white triangle after the white lettered circuit number.



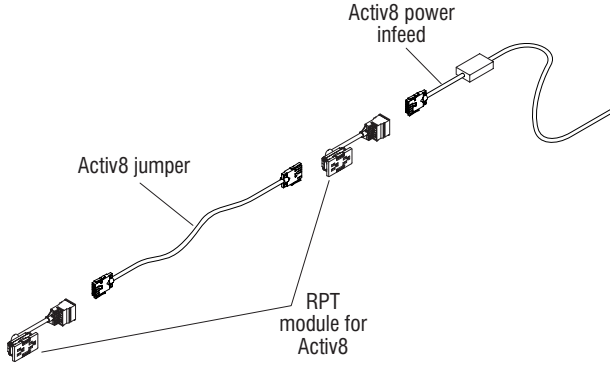
15-Amp 10-Wire Duplex Receptacle

- Rated 15 amps at 120 volts.
- 6-2-2 available in numbers 1, 2, 3, 4I, 5I, 6I.

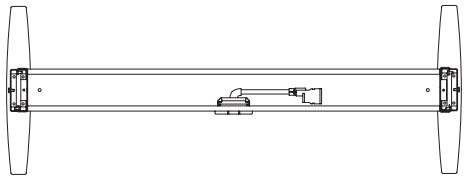
Activ8® Electrical

Planning Guidelines

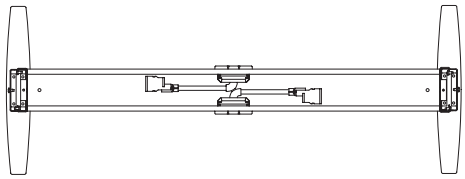
- The RPT (Relocatable Power Tap) Module for Activ8 has a 12" cord with a 3-port connector end which can be turned in either direction. In conditions when back-to-back RPT modules are specified, RPT cords must be oriented in opposite directions to fit properly in chase.
- A provided .03" thick spacer plate is used at each receptacle location.
- Blank (black only) outlet covers are included when Activ8 electrical is specified on chase.
- Maximum of 8 RPT modules are allowed per infeed with maximum length of 40' beyond infeed.
- Activ8 jumpers are available in lengths of 29", 53", 77" and 101" (see chart and details on next page to determine lengths).
- Activ8 power infeed is 10'-6" (126") in total length and needs to be routed up an infeed cover (ordered separately).
- Chases 24" through 54" have a single outlet opening on center of each side of beam.
- Chases 60", 66" & 72" have two outlet openings per side, 12" from each end of beam.



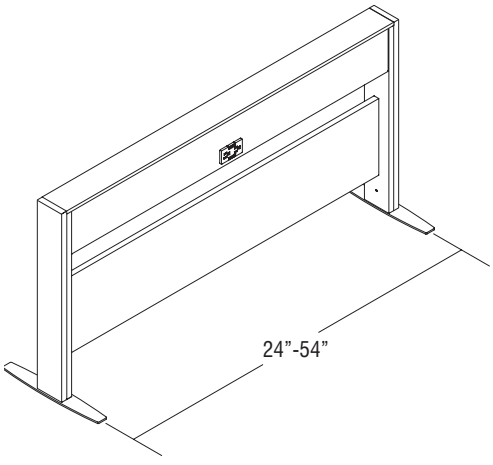
Activ8 Components



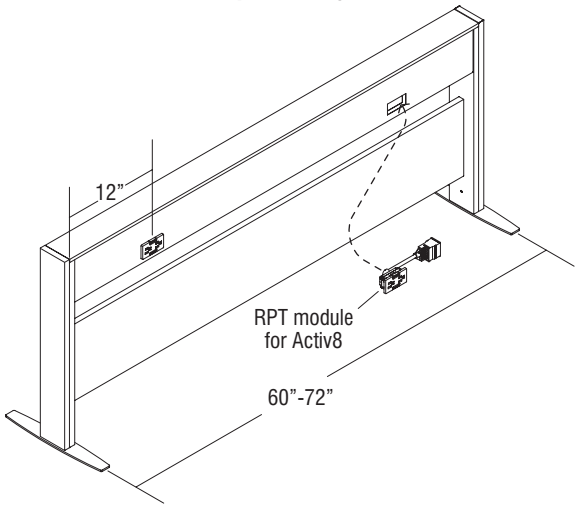
Activ8 Single Receptacle Layout



Activ8 Back-to-Back Receptacle Layout



24"-54" Chase Unit

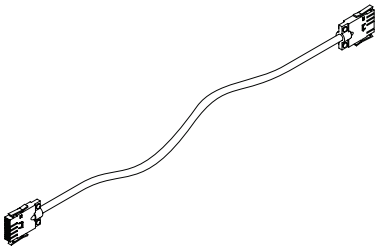


60"-72" Chase Unit

Activ8® Electrical (cont.)

Activ8 Jumpers

- Single Chases (24”-54” length) with Activ8 receptacles in all outlets utilize 29” jumpers (Figure 1).
- Single Chases (24”-54” length) with Activ8 receptacles in only half of the outlets utilize 53” jumpers.
- If using Dual Chases (60”, 66” or 72”) with a single receptacle on alternating sides the jumpers between receptacles would be 53” and across the seams between units would be 29” jumpers (Figure 2).
- If using Dual Chases (60”, 66” or 72”) with receptacles in all outlets on both sides, the jumpers will all be 29” (three per chase).
- Figure 3 shows an example of a Dual Chase unit with a random assortment of receptacles in outlets with jumpers.



Activ8 Jumper

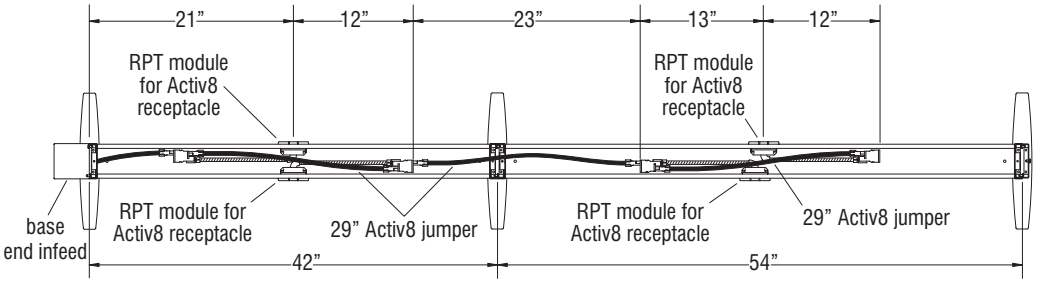


Figure 1 - 24”-54” Single Chase Unit with All Receptacle Locations

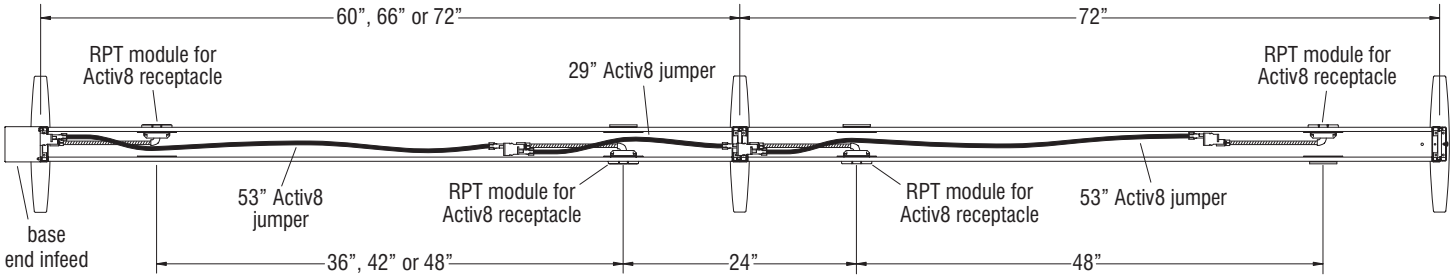


Figure 2 - 60”-72” Dual Chase Unit with Alternating Receptacle Locations

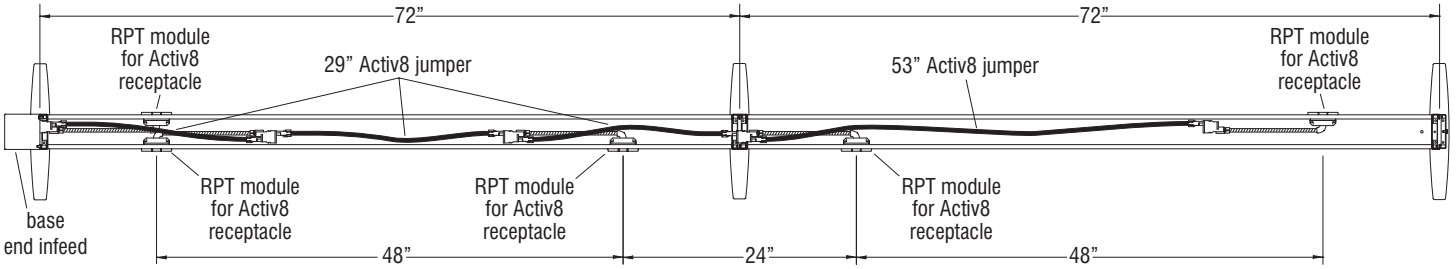
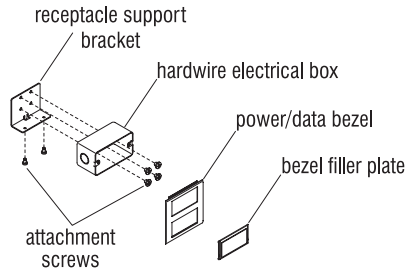


Figure 3 - 60”-72” Dual Chase Unit with Random Receptacle Locations

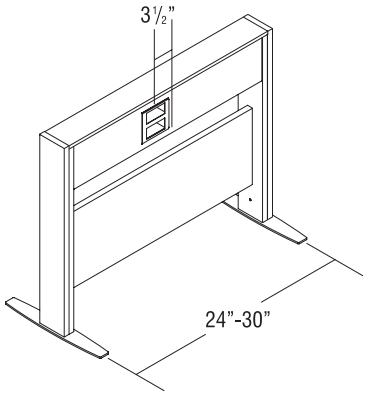
Chicago Hardwired Electrical

Planning Guidelines

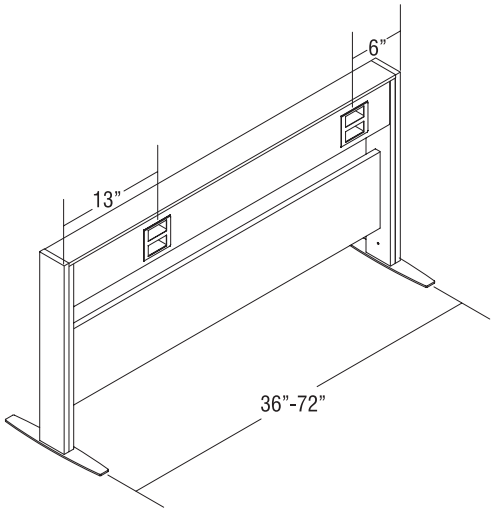
- KI provides the single gang hardwire electrical boxes, support brackets and screws.
- The same power/data bezel and filler plates (standard KI colors) that are standard on 10-wire troughs are standard for Chicago hardwired as well, with the top opening available for data.
- The electrician is responsible for decor-style receptacles, flexible conduit, wiring and fittings.
- 24" and 30" Chases have a single outlet opening 3½" off center on each side.
- 36" through 72" Chases have two outlet openings per side located 6" and 13" from their respected ends. With the other side being just the opposite.
- Infeeds - Must order required data infeeds separately.



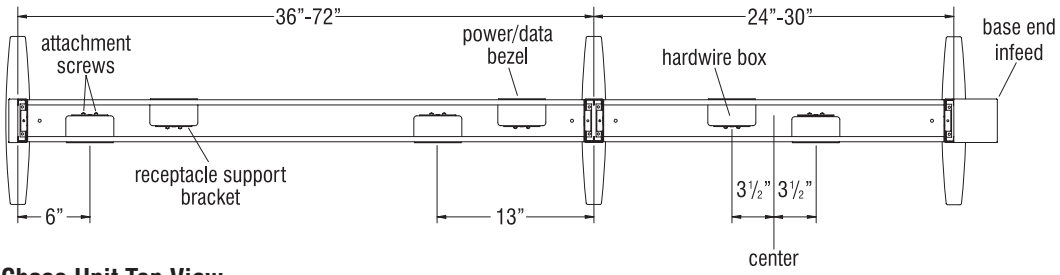
Hardwired Components



24"-30" Chase Unit



36"-72" Chase Unit



Chase Unit Top View

DATA MANAGEMENT

Planning Guidelines

Horizontal

- Capacity for data cable lay-in within the Trellis beam is approximately 100 CAT6 or 5/5E data cables (see detail below).
- Capacity for data cable grouping is one 2.5" diameter bundle of CAT6 or 5/5E data cables. **Caution:** Do not over fill. Over filling can exert pressure on the top cap and prevent it from closing properly.

Data Top Infeeds

The Top Infeed models are ordered to match the height of the Trellis chase unit (24" or 30").

- Top Infeeds at end-of-run (end) or between two chase units (middle) locations require no additional parts.
- Top Infeed includes a 3-piece, painted aluminum power pole, ceiling trim pole support, and infeed cover.
- Aluminum Pole is constructed with two cavities for separation of power and data cables.
- Aluminum Pole can manage up to 36 CAT6 data cables.
- Unit color must be specified.
- Aluminum pole is 10' long. Use the table below to verify maximum ceiling height.

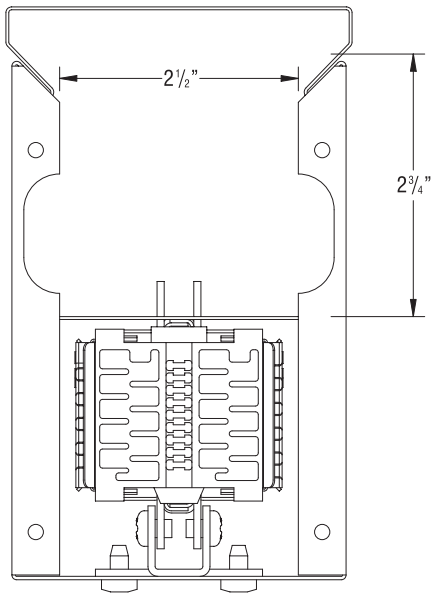
Data Base Infeeds

The Base Infeed models are ordered to match the height of the Trellis chase unit (24" or 30").

- Base Infeeds at end-of-run (end) or between two chase units (middle) locations require no additional parts.
- Base Infeed cover has the same capacity as the beam. Capacity is approximately 100 CAT6 or 5/5E data cables.
- Base Infeed at 2W120 locations requires the order of a 3W120 foot in addition to a base infeed.
- Base Infeed at 3W90 locations requires the order of a 4W90 foot in addition to the base feed.

Note: Calculations for data cable capacity assume the following size ranges:
- CAT6 = .21" to .25" diameter
- CAT5/5E = .19" to .22" diameter

CAT6 cables are manufactured with larger copper conductors (lower insertion loss = less noise + stronger signal) than CAT5 and may include an internal divider called a "cross-web" that serves to separate the pairs and reduce cross-talk noise.



Beam End View

10' Infeed Pole	
Trellis Height	Maximum Ceiling Heights
24"	11'-8"
30"	12'-4"

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