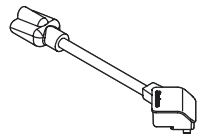
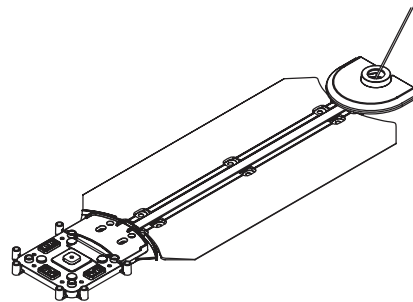


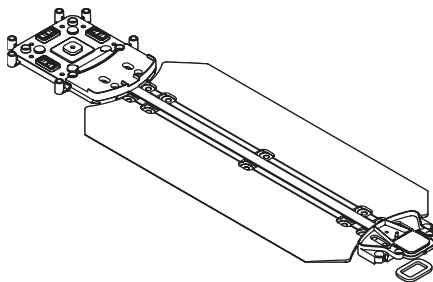
STATEMENT OF LINE



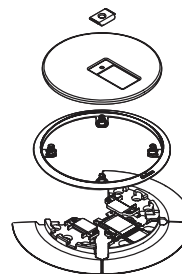
Three-Prong Plug Adapter



Power Track Wall Infeed with Ramps

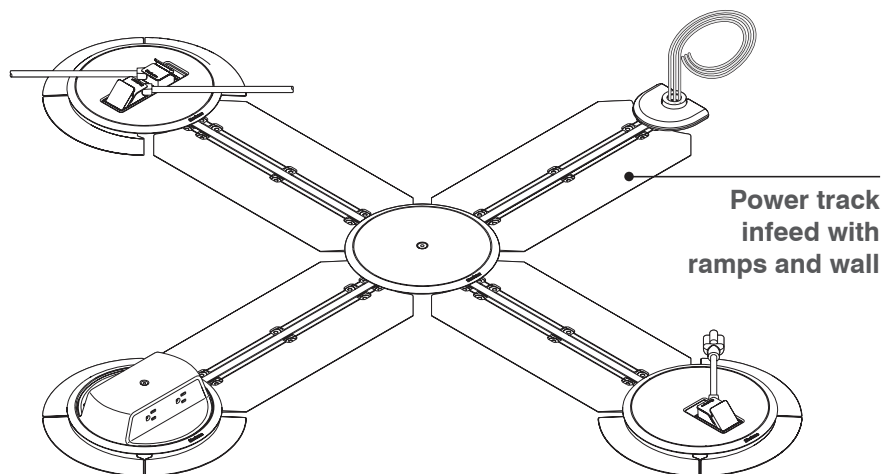


Power Track with Ramps



Connector

PRODUCT DETAILS



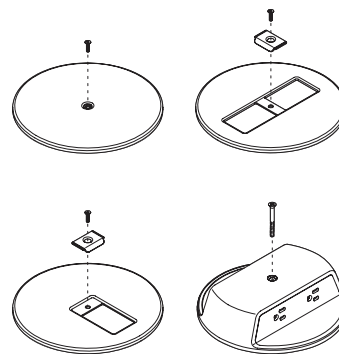
Power track infeeds provide the option of connecting the Thread system to the building power through the wall. Infeed lengths are available in 72", 96" and 120".

Available in dual circuit.

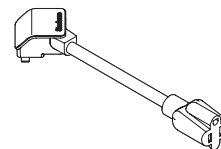
Power track lengths are available in 5 lengths from 60" to 120".

They connect to an infeed to distribute power. Power tracks can be ordered with ramps.

Connectors, four varieties: Blank low-profile (No power access), one-door low-profile (provides one access point utilizing Steelcase's proprietary low-profile plug), two door low-profile (provides two access points utilizing Steelcase's proprietary low-profile plug), and the NEMA monument, which provides four standard three prong plug (NEMA 5-15) receptacles. NEMA monument is available with tamper resistant receptacles.



Low-profile plug adapter is an 8 3/4" long adapter that allows a single three-prong plug to connect to Steelcase's proprietary low-profile connectors.



Proprietary low-profile plug can only be used with the Thread system and will not interface with existing receptacles. In order to achieve ADA compliance for connectors in an egress location, we developed our own plug design.

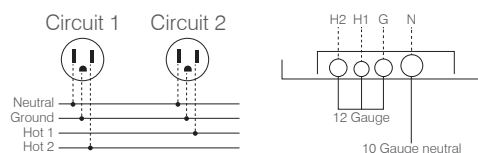
NOTE: Always consult your local inspector prior to purchasing the Thread system to ensure all local codes and ordinances are satisfied since local regulations may supersede those spelled out in the National Electric Code.

CONNECTIONS

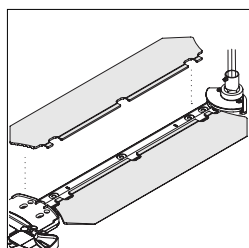
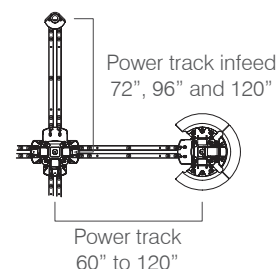
The dual circuit power track infeeds utilize three 12 gauge insulated wires along with a 10 gauge shared neutral wire.

All infeeds stand 1/4" off of the subfloor.

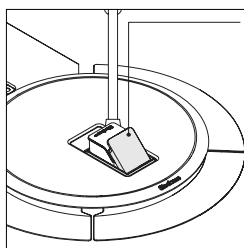
The infeed track comes with 12' of extra wiring to easily connect to the building power through a new or existing junction box.



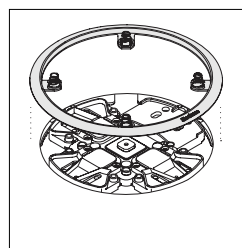
Thread power track and power track infeeds are prefabricated modular tracks capable of distributing up to 20 amps of power per circuit. These tracks must be fastened to subfloor, but can be reconfigured or removed without leaving substantial damage to the subfloor like more permanent solutions do. Thread power track cannot be field cut.



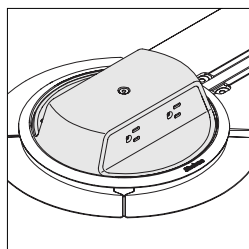
Each power track and infeed track comes with two flexible ramps. The ramps ease the transition between the subfloor and the height of the track. These ramps simply rest on top of the track and do not need to be adhered or fastened.



The low-profile connector doors are made of cast zinc. They are spring loaded and gasketed to ensure compliance with small liquid spill requirements. The system is not fully waterproof and is only acceptable for use indoors in dry locations.



The plastic trim ring is spring loaded to provide a tight fit against the flooring. It provides a simple ramp transition to the 1/2" maximum height of the connector cover and hides any imperfections in the access hole cut in the carpet.



NEMA connector is designed to accept most standard NEMA three-prong plug and cord orientations. If cord exits in a non-standard fashion, please check for fit before ordering. A low-profile connector and adapter should be utilized for nonstandard configurations.

The NEMA monument is made of a two piece plastic housing that provides access to four standard three-prong receptacles. This connector is not ADA compliant for egress locations

When planning a power network, you must calculate the amperage requirements of all your electrical components so you can provide sufficient electricity to power them.

TECHNICAL ELECTRICAL INFORMATION AND POWER PLANNING

The Thread system is listed as a 20 amp branch circuit. It utilizes three standard 12 gauge wires (hot, neutral, and ground). When more than one circuit is required to support a space or application, additional circuits will need to be provided using Thread power track infeeds connected to other circuits in the building. The number of circuits available to pull from will be determined by building construction. Please consult your electrician if you are unsure of the building power capabilities.

Thread is designed to accommodate 20 amps per circuit. Amps x volts = watts. In the U.S., this means 2,400 watts of potential. However, most locations only allow for power planning of up to 80% of potential. For example, 2,400 watts x 80% is 1,920 watts. When planning, consider whether a single or dual circuit is needed based on power needs.

See page 10 for How to Calculate Power Needs.

The Thread power track infeed begins with a universal connector that is capable of connecting to any standard 1/2" conduit or other listed product such as Wiremold or Conduit. The building electrical supply connection must be performed by a licensed electrician. Please consult with your electrician if you have questions regarding what type of conduit will be used.

Due to voltage drop, the National Electric Code (NEC) recommends that the distance between the building circuit box and the user access point not exceed 75–150 feet (depending on gauge of wires running from the building circuit box to the Thread infeed junction). Since the distance from the Thread infeed junction to the building circuit box may be difficult to ascertain, we recommend planning conservatively for the total distance of any individual Thread branch and keep it as short as possible. Thread branches longer than 70 feet per circuit may risk contributing to voltage drop exceeding acceptable levels.

Listing categories: Thread power track is listed as a multi-outlet assembly and is considered a 20 amp branch circuit, which means it meets the same requirements as the hard wire outlets in the wall. The power hub is listed as a relocatable power tap (RPT, which means it is treated the same as a typical power strip). The plug adapter is listed as an accessory to the Thread system.

UL 5 is the standard for multi-outlet assembly (which correlates to article 380 in the National Electric Code) and UL1363 is the standard for RPT, but has no direct correlation in the NEC.

It is important to plan for expected power consumption in a given application to ensure enough infeeds are present to prevent tripping the circuit breaker either at a hub or at the building circuit box.

Building construction varies and there may be components hidden below the floor surface that must be avoided when drilling holes to anchor the power track infeed and power track. Subflooring, including concrete, may contain electrical wiring, structural cabling, radiant heating lines, etc. To avoid potential property damage or unsafe conditions, consult with the building architect or Engineer of Record to plan accordingly. The subfloor can only have 1/8" of variance under where the Thread power track lies. If greater than 1/8", floor leveling is required.

The building electrical supply connection must be performed by a licensed electrician. Only connect this system to a dedicated 120-127 V~ 60Hz 20A single phase GFCI protected building power circuit.

CODES INFORMATION

Thread is UL certified as a multi-outlet assembly and not a manufactured wiring assembly. Manufactured wiring systems are defined in Article 604 of the NEC and provide very clear guidelines regarding construction methods. Thread is constructed in a manner not consistent with any defined method in this section of the NEC and because of this, cannot be considered a manufactured wiring system. It is consistent with the definition for multi-outlet assemblies as defined in Article 380.

NEC 210.71: This 2017 code requires that any habitable room of at least 215 sq. ft. must have at least two floor outlets no less than 6 ft. from the wall. One outlet is required for every 215 sq. ft. of space. Thread is a solution to this code.

The system is capable of distributing 20 amps of power. Power planning to 80% consumption means the system is not designed to deliver more than 16 amps total. Each connection point can only connect to one circuit at a time. Thread is compatible with 5-15 plug types, not 5-20 plug types.

The NEC does not permit plugging an extension cord or relocatable power tap (RPT) into another extension cord or RPT. Many of the power units embedded in furniture are listed as a RPT and, per the NEC, are required to be plugged into a building hardwired receptacle. The Thread cord adapter is a listed multi outlet accessory and as such, is not considered an RPT, extension cord or a building receptacle. We recommend the NEMA monument for any Thread application where furniture-hosted power will be plugged in but some may desire to use the low-profile connector with an adapter for this application. Please note that while it is not a safety hazard, a local inspector may not approve because of the definitions and restrictions mentioned above.

Thread is listed as a multi outlet assembly in accordance with Article 380 of the NEC; it is not a flat conductor cable system (FCC) as identified in Article 324. FCC is not permitted in education, healthcare, or residential facilities.

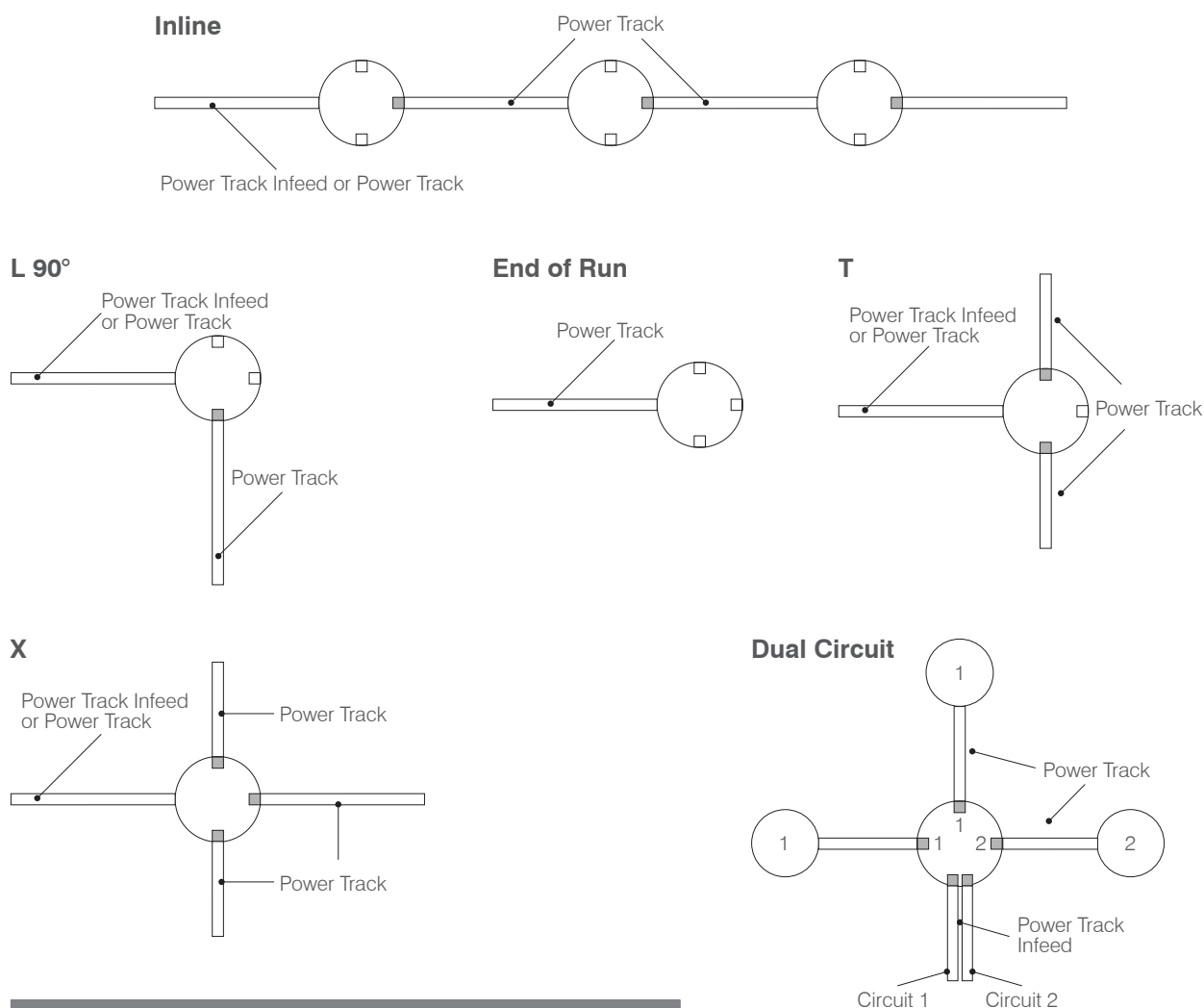
The intent of this requirement within the code is that outlets are not to be covered by carpet. The traditional multi outlet assembly design was covered with receptacles across the entire face and field wired. With that type of design, it is easy to understand it applies to the entire product. Thread is a new design, yet certified as a multi outlet assembly. The raceway is factory wired and able to be covered with carpet, but the connector/receptacle still cannot.

TRACK CONFIGURATIONS

Infeed Circuit Types: Dual circuit infeeds distribute one circuit at 90° and 180° from the infeed track. The second circuit is distributed at 270° from the infeed track.

Steelcase has recommended a maximum of 10 receptacle outlets to avoid code variation and Hub maximization.

- Blank covers do not count towards the total number of receptacles because no access points are present in this configuration.
- One door and two door low profile connectors each count as a single receptacle.
- NEMA monument counts as two receptacles.
- cULus listed.



Track Configurations & Power Access Points Legend	
Inline	connector of any type
L/90°	one door or NEMA connector
End of Run	connector of any type
T	one door or NEMA connector
X	blank connector only

Architectural Solutions Specification Guide

APPLICATIONS

Floor Specifications

The Thread power distribution system is intended for indoor use/dry locations only. Each connector in the system will require a hole to be cut in the flooring to permit access to the system. This is true for every connection point, even if only using a blank cover where no power access is needed. For this reason, we strongly recommend carpet tile when carpet is used. See installation guide for tools and direction.

Flooring surface compatibility is dependent on which track solution is used. Track with ramps is designed for carpet only. Carpet tile is preferred over broadloom. Carpet thickness must be between 0.225" and 0.450". Rely on the flooring provider to determine if the surface meets the needs of the system (ability to screw down the connectors without the surface breaking). Flooring thickness must be between 0.100" to 0.250" for both carpet and LVT.

Each piece of Thread power track or power track infeed must be fastened to the subfloor using one screw at each end of the track and one additional screw every 48". This means for power tracks that are shorter than 48" only two screws are required. For tracks 60" to 96" in length, three screws are required and for tracks longer than 96", four screws are required. Connectors require additional screws in to the sub floor. The track itself has multiple holes to allow it to be screwed down and has many more holes than are needed. For example, at the end of each track you will find four holes placed closely together but only one screw needs to be used. The extra holes are available in case of a damaged screw or some form of interference in the subfloor (like a rock in concrete) that might prevent a hole from being used. The same is true for holes all the rest of the way down the track; there are holes on both sides of the track and they are placed approximately every 12" to provide multiple options in case of interference in the subfloor. Please see installation guide for detailed instructions regarding this topic, including recommended types of fasteners and locating pilot holes.

A wall power infeed may be installed perpendicular to a wall or at any angle between 45° and 135°. However, it should be noted that once the infeed track is installed, all subsequent track connections will be either inline or at right angles to this track. There is no ability to create an angled connection between two tracks. Please refer to the installation guide for detailed instructions and drawings.

The Thread system does have some flexibility to accommodate uneven floors, however flooring elevation changes greater than 1/8" must be filled in or sanded down to even out the surface. The area underneath and immediately surrounding a junction (connector of any type, including a blank) must be flat within 1/16" in a 9" radius from the center of the junction. The Thread system is not designed for use on raised floors, across building expansion joints, or in areas where it will be subject to constant or rolling loads heavier than people. Please refer to the installation guide for additional details.

For connectors that will be in an ADA defined egress location, in order for the low-profile connector to be considered ADA compliant, the floor thickness stated above must be followed. Thinner surfaces can be used but will leave gaps and will not be ADA compliant. Thicker surfaces than stated are incompatible.

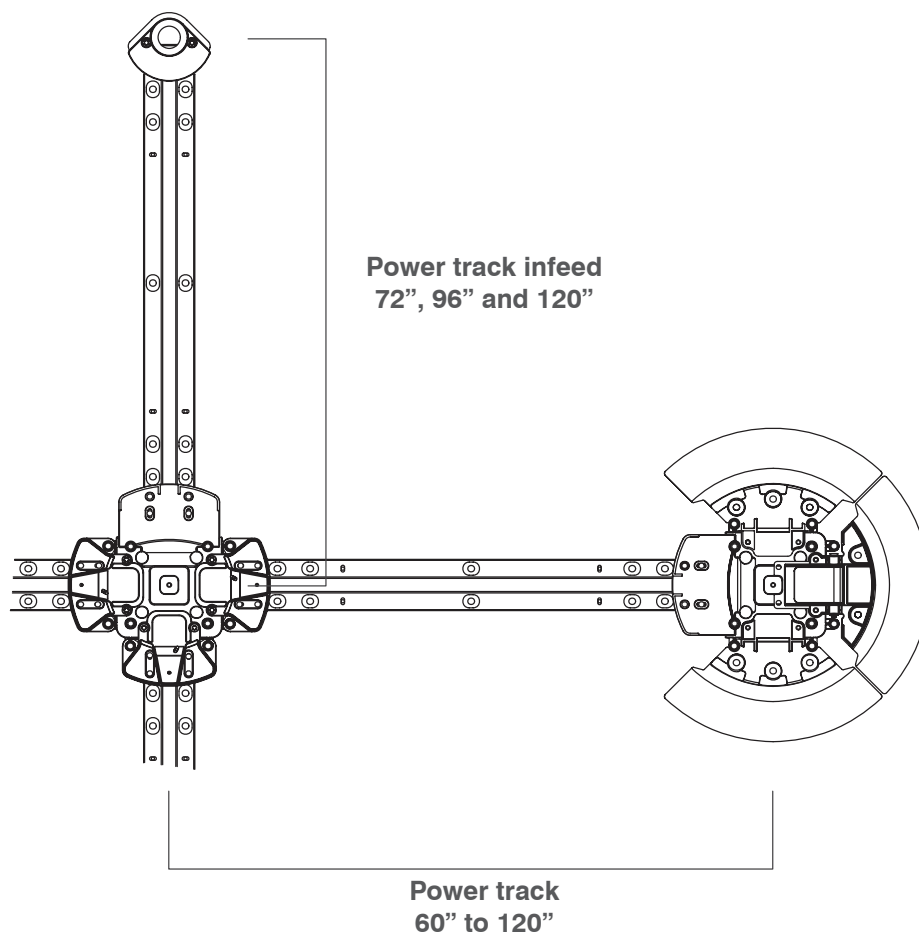
APPLICATIONS

Floor Specifications (continued)

The length of a track is measured from the center of one connector to the center of another connector; a 60" power track by itself may not be precisely 60". This is intended to simplify planning and layouts.

NOTE: While this system has been developed to minimize its impact on the physical environment and to work with a broad range of existing furniture, certain conditions exist that may create undesirable interactions with other products. One example is the use of sled-base chairs since it may not sit flat when interacting with the track or connectors. Chairs utilizing pneumatic cylinders with minimum clearance of less than 1/2" should be used with care as the bottom of the cylinder can catch on a connector cover or on the slightly raised profile of the track beneath the carpet.

Notice Regarding Installation: Thread must be anchored to the building floor for safe and proper use. Building construction varies and there may be components hidden below the floor surface that must be avoided when drilling holes to anchor the power track infeed and power track. Subflooring, including concrete, may contain electrical wiring, structural cabling, radiant heating lines, etc. To avoid potential property damage or unsafe conditions, consult with the building's architect or Engineer of Record to plan accordingly.



SPECIFYING THREAD

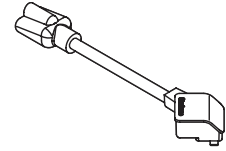
Thread Plug Adapter

Includes:

- Plug adapter
- Low-profile plug end

Dimensions:

8 3/4" D x 2" W x 1 1/2" H



Thread Power Track Wall Infeed with Ramps

Includes:

- Power track infeed
- Power track ramps
- Infeed cover: 6' of insulated color-coded wires for hardwire connection to building power source

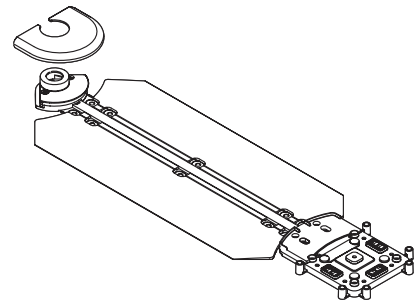
Dimensions:

8" D x 1" W x 72" H

8" D x 1" W x 96" H

8" D x 1" W x 120" H

TIP: Length of power track infeed is measured from center of building infeed to center of connector.



Thread Power Track with Ramps

Includes:

- Power track
- Power track ramps

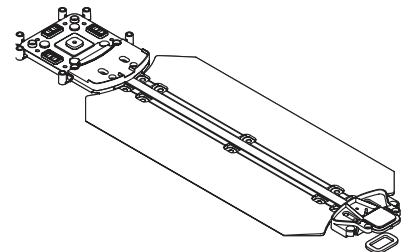
Lengths:

48", 60", 72", 84", 96", 120"

Dimensions:

8" W x 3/4" H

TIP: Length of power track is measured from center of connector to center of another connector.



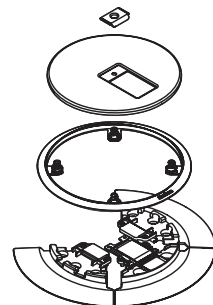
Thread Connector

Includes:

- Connector cover
- Connector trim ring
- Fillers
- Hardware

Configurations:

- Blank low-profile connector, 9 1/2" diameter x 3/4" height.
- One-door low-profile connector, 9 1/2" diameter x 3/4" height.
- Two-door low-profile connector, 9 1/2" diameter x 3/4" height.
- NEMA monument connector with tamper-resistant receptacles 9 1/2" diameter and 2 1/2" height.



HOW TO CALCULATE POWER NEEDS | Use This to Determine How Many Power-Ins You'll Need

When planning a power network, you must calculate the amperage requirements of all your electrical components so you can provide sufficient electricity to power them.

If your usage is not known in advance:

The National Electrical Code (NEC) allows a maximum of 13 receptacles on each 20-amp circuit. This provides up to 30 receptacles for each 3-circuit power-in and 40 receptacles for each 4-circuit power-in.

If your usage is known in advance:

Add up the amperage used by each piece of equipment in the workstation. Whenever you reach 60 amps (20 amps times 3 circuits) or 80 amps (20 amps times 4 circuits) from items that are likely to be used at the same time, you have reached the limit for a single power-in. Specify another power-in and continue until all equipment is powered.

If the circuits will normally be subject to a continuous load (three or more hours of continuous use, such as lights or computers), the NEC requires that circuit capacity be "de-rated" by 20 percent. Therefore, treat circuits used for continuous loads as if they were rated at 16 amps instead of the regular 20 amps.

Try to anticipate future increases in power requirements and build some excess capacity into your plan.

See table at right for typical and actual amperage usages for components.

To calculate amperage when the wattage of a device is known, divide watts by 120.

Some appliances, such as large copiers, coffee makers, or space heaters require most of the current available on a 20-amp circuit. It is recommended that such devices be supplied with their own receptacle/circuit, directly from the building. This leaves the capacity of the furniture circuits available for the more dynamic requirements of the office equipment.

Local electrical codes vary. Consult a qualified electrical contractor or engineer for the proper planning of electrical circuits in your locale.

Device	Wattage	Amperage	Voltage	Number of Devices Supported on Single 20 Amp Circuit*
Amobi Desk	400	3.6	120	4
Laptop	90	0.8	110	20
CPU/Desktop Computer	120	1.1	110	15
Monitor	60	0.5	110	29
Phone	5	0.0	110	352
High Power Tablet (e.g. Surface Pro)	40	0.4	110	44
Low Power Tablet (e.g. iPad Air)	15	0.1	110	117
Desktop Printer	40	0.4	110	44
42" LCD Screen	210	1.9	110	8
Projector	175	1.6	110	10
Desktop Lamp	19	0.2	110	93
Large Printer/Copier (high)	1900	17.3	110	1
Large Printer/Copier (low)	850	7.7	110	2
Paper Shredder	360	3.3	110	5
Desktop Fan	20	0.2	110	88
Standing Fan	180	1.6	110	10
Coffee Maker (high)	1200	10.9	110	1
Coffee Maker (low)	600	5.5	110	3
Microwave (high)	400	13.6	110	1
Microwave (low)	150	5.5	110	3
Refrigerator (high)	1500	3.6	110	4
Refrigerator (low)	200	1.4	110	12
Vacuum (high)	1500	13.6	110	1
Vacuum (low)	200	1.8	110	9
Space Heater (high)	1500	13.6	110	1
Space Heater (low)	750	6.8	110	2