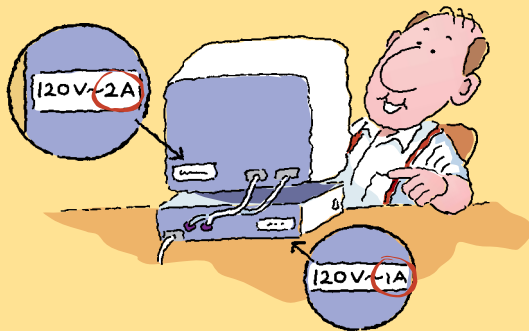


**BRETFORD®**  
**POWER**  
**SYSTEMS**  
**101**



*An Introduction to  
Using Power on Bretford Tables and Carels*

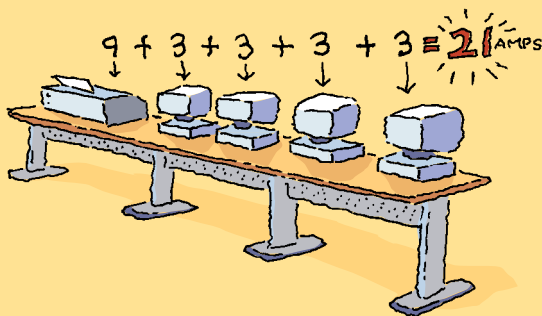
# How to Determine the Quantity of Circuits Your Power Series Requires



## STEP 1

### Figure out how many amps you will be running.

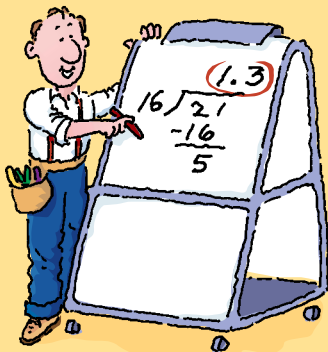
An amp is a unit of measure that tells how much electricity a machine is drawing from an electrical system. On your computer or electrical device, locate the faceplate that describes the machine's technical features. The amps are usually displayed like this: INPUT: 120 V ~ 1.8 A. If you cannot find this information on the machine, it may be located in the owner's manual.



## STEP 2

### Calculate the total number of amps per powered series.

A powered series is the total number of amps from which you will be drawing power off of one power feed. In our case, it could be a row of tables joined together or a single conference table with many power receptacles. Add up the number of amps (determined in STEP 1) for each machine being powered off the series. In our example, we've used an estimate of 3 amps for each computer and monitor and 9 amps for the printer. Please note that all equipment is different and will vary by machine.



## STEP 3

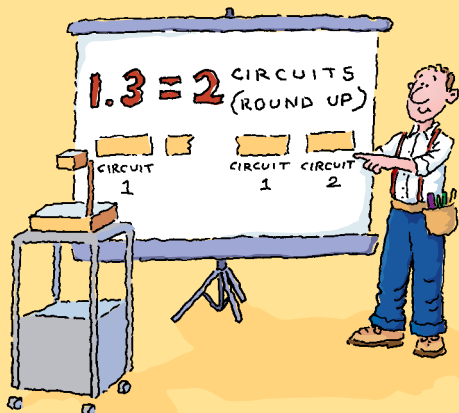
### Divide by 16.

Although each circuit is rated for 20 amps of intermittent use, most computers and machinery in an office or school environment are used continually for many hours. In this type of situation, the National Electric Code restricts the circuits to 16 amps of continuous use. So, divide the sum of the amps (determined in STEP 2) by 16.

## STEP 4

### This is the number of circuits your power series requires.

In most cases, this number will be a decimal. Round up to the next whole number, which will be the number of circuits required to run your equipment safely. If the number you arrived at is greater than 4 (the most amount of circuits the system will handle), you will have to decrease some of the power being used on this system or create another system with a new power feed.



## STEP 5

### Repeat Steps 1-4 for each remaining powered series.

This would apply if you have multiple rows of training/computer tables or another conference or library table. Remember, you must go through this process for each system that runs off its own power feed.



## Becoming Familiar with Electrical Systems

Most people are intimidated or nervous when dealing with electrical issues.

This step-by-step guide is for people who may not be familiar with electrical systems, but are responsible for specifying such systems when ordering furniture. It provides a basic understanding of an 8-wire, 4-circuit (20 amp per circuit) system and how to specify it on Bretford furniture. By following the simple steps outlined here, one can easily determine how many circuits are required to ensure safety when using electrical equipment.

This information is intended to provide direction and guidance as you evaluate your power requirements. However, we strongly recommend you contact a professional electrician to assess your needs.

*The Bretford tables and carts featured in this guide have separate raceways for voice and data wires and meet Category 5 performance requirements.*

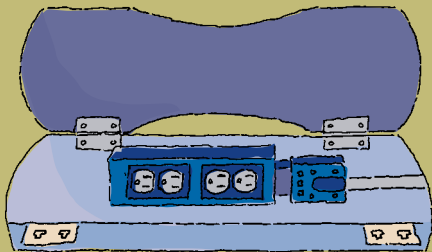
Electrical components are UL listed and manufactured in accordance with National Electric Code requirements. Certain cities and municipalities may have additional requirements.

## Applying Steps 1-5 to Your Bretford Tables and Carrels

Now that we know how many circuits each powered series will need, let's see how it applies to different types of Bretford tables and carrels.

Bretford's 8-wire, 4-circuit system uses Duplex receptacles (each duplex has two power outlets) to determine from which circuit the electrical equipment will draw power. The receptacles are marked 1, 2, 3 or 4 to designate the circuit that is activated when it is installed into the power harness. Circuits 1, 2 and 3 all share a common ground while circuit 4 has a separate ground and a neutral wire. This makes Circuit 4 perfect for more sensitive equipment like printers and network servers. Typically, personal computers and displays will be connected to circuits 1, 2 or 3.

All table power configurations will vary based upon your needs. The following pages show examples of how this works.



1 Duplex = 2 Data Jacks



### Reminder:

*All powered tables come standard equipped with data/communication raceways. Two (2) data receptacles for network capabilities will accompany every Duplex in a powered table or carrel except for PowerTrak Raceway. PowerTrak does not have any data receptacles, but provides a separate communication raceway for network support.*

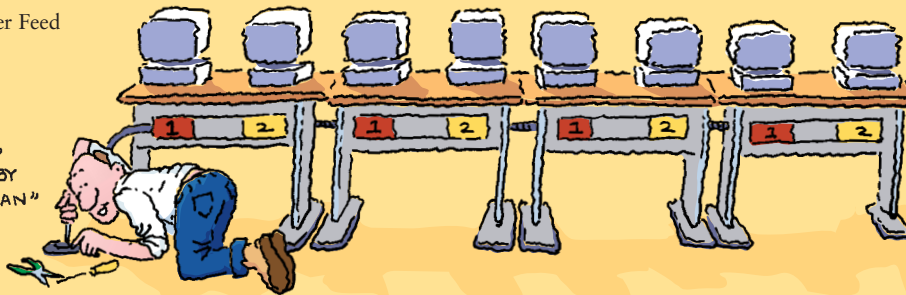
## Presentation Environments® PowerTrak™ Raceway

If your system requires 2 circuits, specify Duplexes 1 and 2 along the entire system to access those specific circuits.

Here is an example of what a 2-circuit system will require:

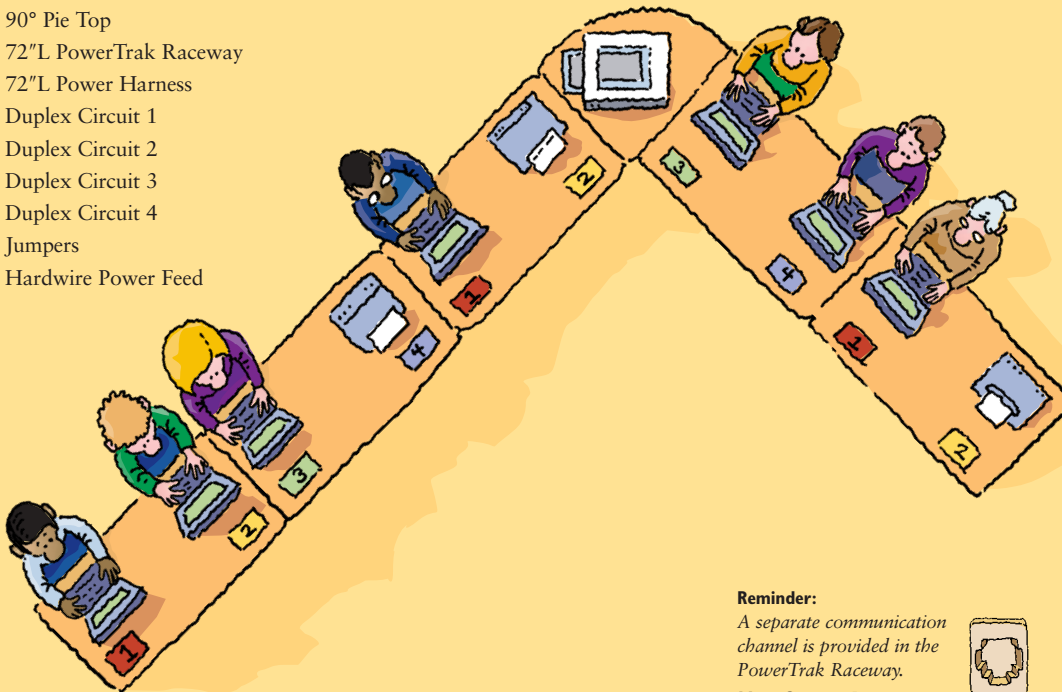
- (4) 30"D x 60"L TransTables
- (4) 60"L PowerTrak Raceway
- (4) 60"L Power Harness
- (4) Duplex Circuit 1
- (4) Duplex Circuit 2
- (3) Jumpers
- (1) Hardwire Power Feed

"HARDWIRE SYSTEMS  
MUST BE INSTALLED BY  
A LICENSED ELECTRICIAN"



Here is an example of what a 4-circuit system will require:

- (5) 30"D x 72"L TransTables
- (1) 90° Pie Top
- (5) 72"L PowerTrak Raceway
- (5) 72"L Power Harness
- (3) Duplex Circuit 1
- (3) Duplex Circuit 2
- (2) Duplex Circuit 3
- (2) Duplex Circuit 4
- (4) Jumpers
- (1) Hardwire Power Feed



### Reminder:

A separate communication channel is provided in the PowerTrak Raceway.

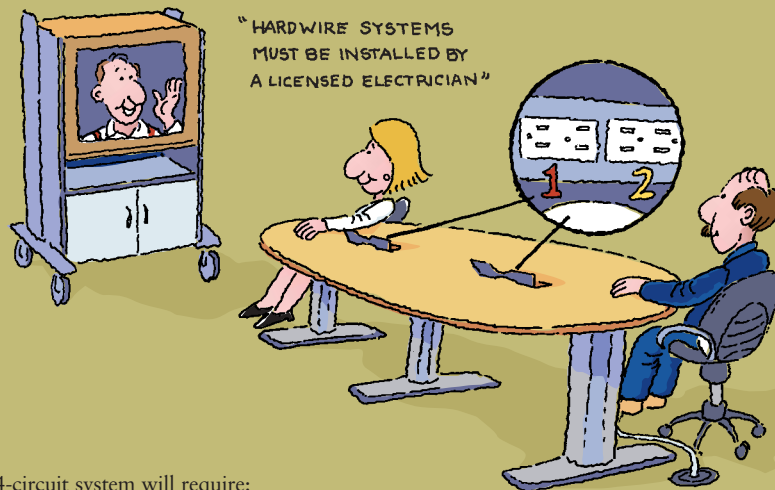
Meets Category 5 requirements



## Presentation Environments® Powered Conference Tables

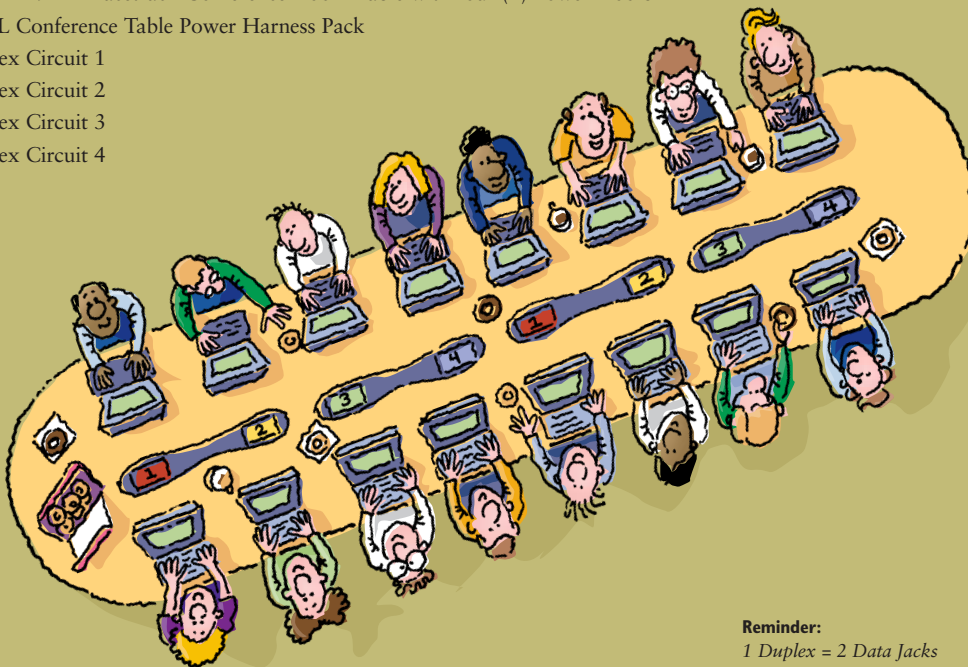
If your system requires 2 circuits, specify Duplexes 1 and 2 along the entire system to access those specific circuits. Here is an example of what a 2-circuit system will require:

- (1) 48"D x 144"L Racetrack Conference Room Table with two (2) Power Doors
- (1) 144"L Conference Table Power Harness Pack
- (2) Duplex Circuit 1
- (2) Duplex Circuit 2



Here is an example of what a 4-circuit system will require:

- (1) 54"D x 192"L Racetrack Conference Room Table with four (4) Power Doors
- (1) 192"L Conference Table Power Harness Pack
- (2) Duplex Circuit 1
- (2) Duplex Circuit 2
- (2) Duplex Circuit 3
- (2) Duplex Circuit 4



**Reminder:**  
1 Duplex = 2 Data Jacks  
Meets Category 5 requirements

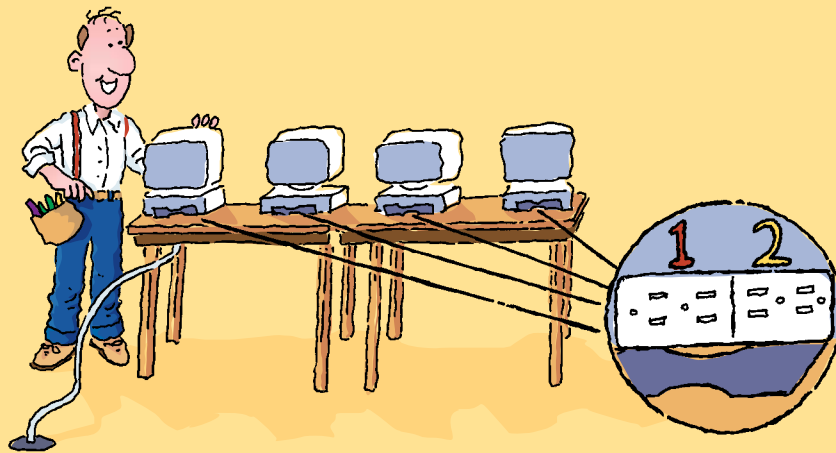


## Legacy™ Library System Technology Tables

If your system requires 2 circuits, specify Duplexes 1 and 2 along the entire system to access those specific circuits. Here is an example of what a 2-circuit system will require:

- (2) 30"D x 72"L Technology Tables
- (2) 72"L Power Harness Pack
- (4) Duplex Circuit 1
- (4) Duplex Circuit 2
- (1) Jumper
- (1) Hardwire Power Feed

"HARDWIRE SYSTEMS  
MUST BE INSTALLED BY  
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Here is an example of what a 4-circuit (shown below) system will require:

- (4) 30"D x 72"L Technology Tables
- (4) 72"L Power Harness Pack
- (4) Duplex Circuit 1
- (4) Duplex Circuit 2
- (4) Duplex Circuit 3
- (4) Duplex Circuit 4
- (3) Jumpers
- (1) Hardwire Power Feed



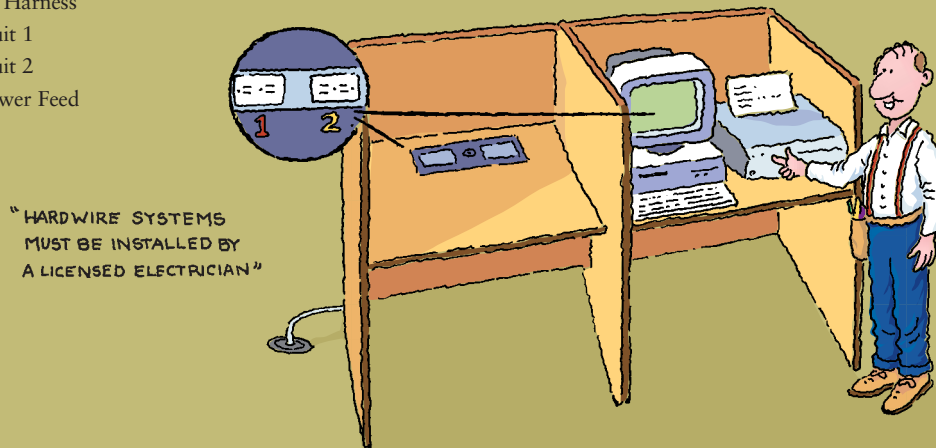
**Reminder:**  
1 Duplex = 2 Data Jacks  
Meets Category 5 requirements



## Legacy™ Library System Technology Carrels

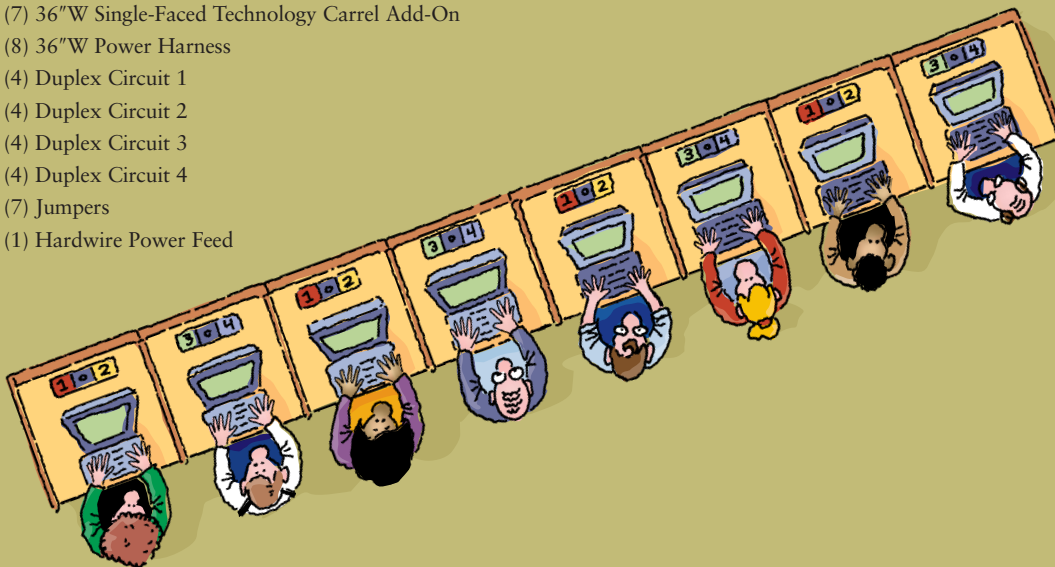
If your system requires 2 circuits, specify Duplexes 1 and 2 along the entire system to access those specific circuits. Here is an example of what a 2-circuit single-faced carrel system will require:

- (1) 36"W Single-Faced Technology Carrel Starter
- (1) 36"W Single-Faced Technology Carrel Add-On
- (2) 36"W Power Harness
- (2) Duplex Circuit 1
- (2) Duplex Circuit 2
- (1) Hardwire Power Feed



Here is an example of what a 4-circuit single-faced carrel system will require:

- (1) 36"W Single-Faced Technology Carrel Starter
- (7) 36"W Single-Faced Technology Carrel Add-On
- (8) 36"W Power Harness
- (4) Duplex Circuit 1
- (4) Duplex Circuit 2
- (4) Duplex Circuit 3
- (4) Duplex Circuit 4
- (7) Jumpers
- (1) Hardwire Power Feed

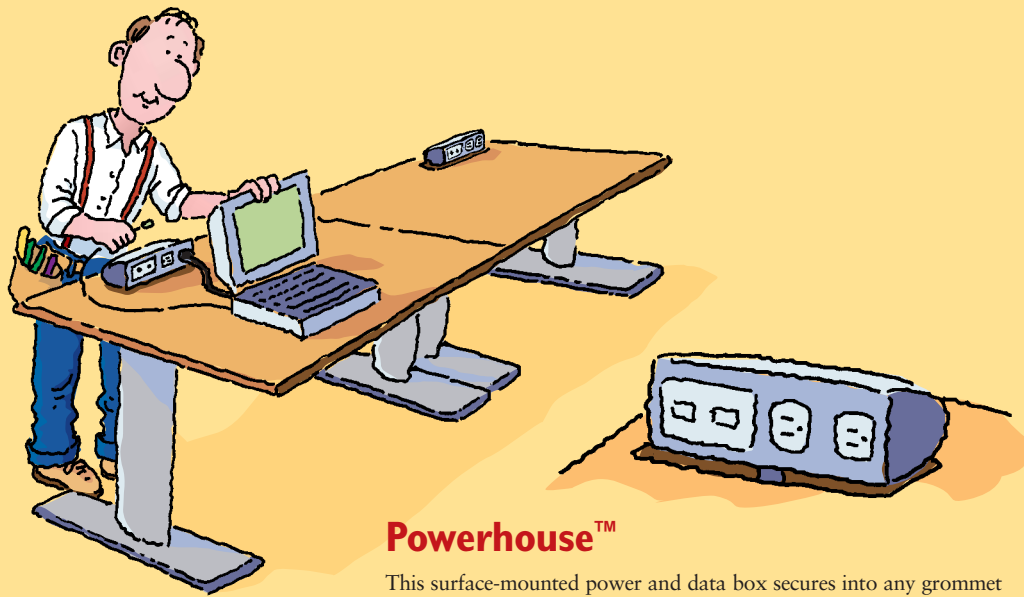


**Reminder:**  
1 Duplex = 2 Data Jacks  
Meets Category 5 requirements



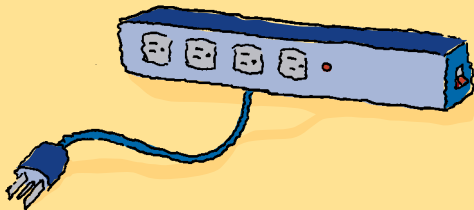
## Alternatives and Accessories for Power

For applications with smaller power requirements, Bretford's tables and carrels can also be specified with a softwire electrical system. Bretford offers the following accessories for softwire systems:



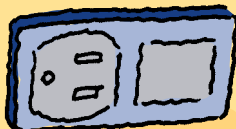
### Powerhouse™

This surface-mounted power and data box secures into any grommet hole on Bretford training tables, Legacy tables and carrels, and provides tabletop access to power and data. Each Powerhouse comes with a Duplex electrical outlet, data plates that can accommodate the Amp 110 Connect Series data receptacles, and either a 20-foot or 6-foot grounded electrical cord (120 V). Powerhouse is UL listed.



### Surge Protected Power Strip

This four-outlet, surge protected power strip is UL listed with 1 circuit capability. This unit mounts below the tabletop on both tables and carrels.



### Surge Protected Simplex

A Duplex can be replaced with a surge protected simplex. The simplex is the only outlet that is protected on the circuit.



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