

Data Center Products APPLICATIONS GUIDE



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Please Help Us Improve This Guide

We would be very interested to hear any comments you might have on the methods described herein. We are particularly interested in learning of omissions or subjects that are unclear. Please call, fax, or e-mail and direct your comments to Technical Service. Thank you very much for your assistance.

Phone: (410) 799-4200

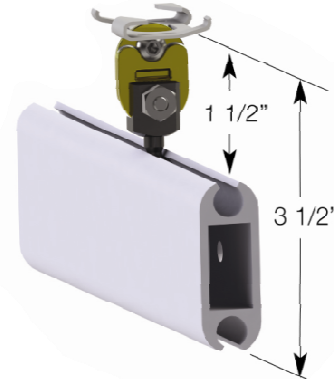
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1. ContainAire™ Partitions

The ContainAire Partitions come in pre-packaged sections which must be ordered to meet the dimensions of your specific aisle containment need. A typical order would include a number of horizontal lengths to meet the need of the length and height of a given Aisle, and four corner sections.

Horizontal track lengths come in sizes based on two measurements: Vinyl drop-down heights, and horizontal track lengths. Note that that an additional 3.5" of height of the track and hanger are not listed the dimensions below.



The table below describes each available partition section length and height:

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
Available Lengths							
1' Track	CA255x01	CA525x01	CA945x01	CA1065x01	CA1185x01	CA1425x01	CA1785x01
2' Track	CA255x02	CA525x02	CA945x02	CA1065x02	CA1185x02	CA1425x02	CA1785x02
3' Track	CA255x03	CA525x03					
4' Track	CA255x04	CA525x04	CA945x04	CA1065x04	CA1185x04	CA1425x04	CA1785x04
5' Track	CA255x05	CA525x05					
6' Track	CA255x06	CA525x06					

The corner track come in the following Dimensions:

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
1'x1' Width	CACOR255	CACOR525	CACOR945	CACOR1065	CACOR1185	CACOR1425	CACOR1785

The components for a given ContainAire Partition include:

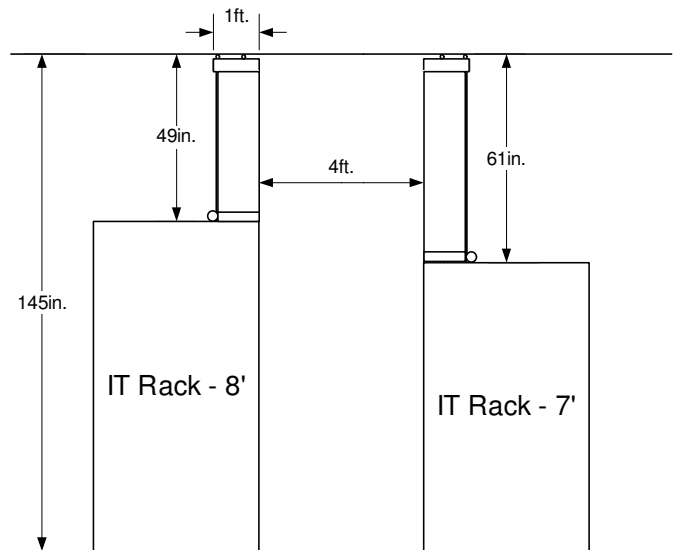
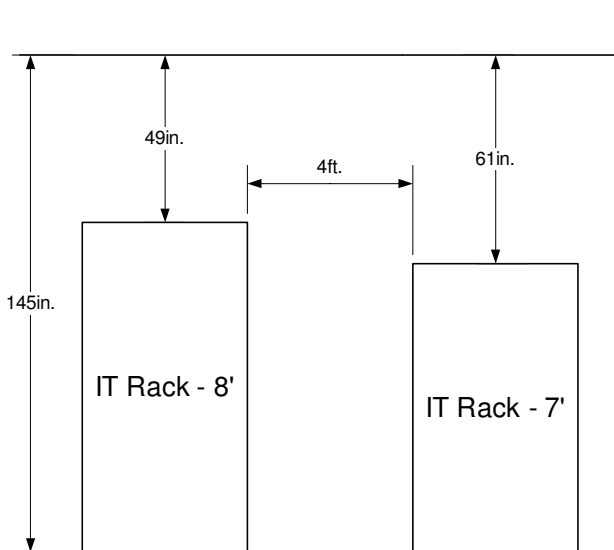
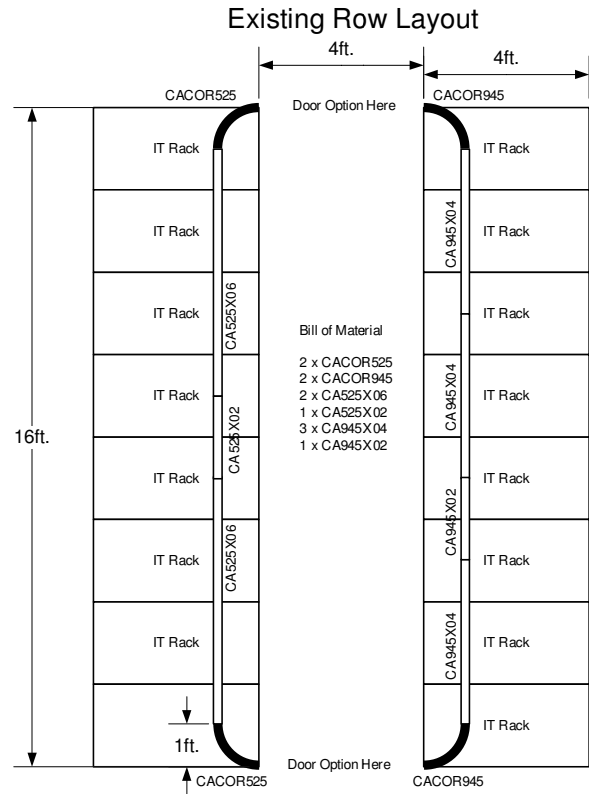
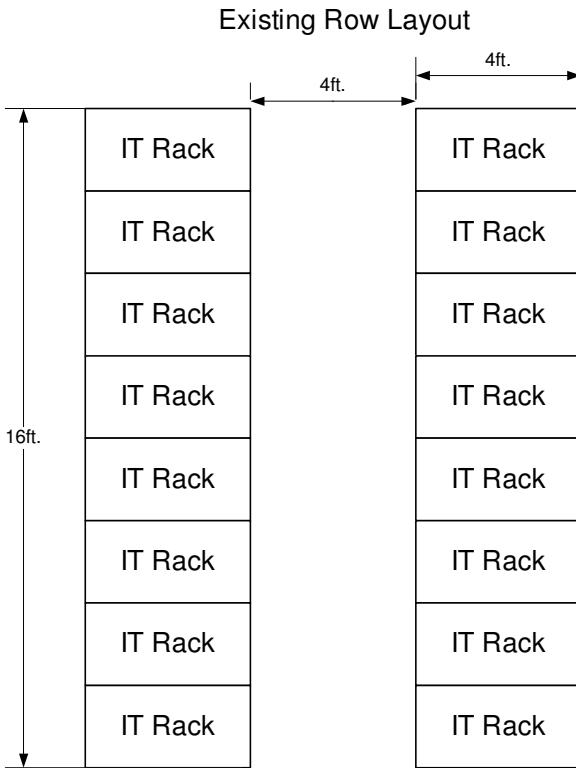
- 1 x Aluminum Track
- 1 x Aluminum Splicer
- (1-2) x Ceiling Hanger(s)
- (1-2) x Fire Suppression Link(s)
- 1 x Fire Resistant Vinyl Curtain

Notes:

A 6-foot aluminum track will always be packaged with a 6-foot wide vinyl.

Corner tracks come individually, for most applications 4 will be required on a given partition.

Example Layout:



Based on the Diagram on the previous page consider the following example

Given:

Two rows of 8 racks each forming an aisle; one row is comprised of 8 x 8' racks while the other row is comprised of 8 x 7' racks. There is a 4' cold aisle between the two racks, and the end user has chosen to use ContainAire Partitions for the vertical containment component.

Solution:

Multiple parts will need to be specified, 4 corners and enough sections of horizontal track to fill the containment space above the racks. First one needs to measure the height between the racks and the ceiling. In our given example we have the following:

- 49" above the 8' row of racks and
- 61" above the 7' row of racks.

To fill the partition space above the 8' row of racks the curtain would therefore at minimum have to be: $49" - 3.5" \text{ (hanger \& track)} = 45.5"$. After consulting the chart 52.5" is the next largest size and therefore the length required to fill the containment space. After looking at the 7' row of racks it can be determined that the 94.5" height is required. ($61" - 3.5" = 57.5"$)

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
Available Lengths							
1' Track	CA255x01	CA525x01	CA945x01	CA1065x01	CA1185x01	CA1425x01	CA1785x01
2' Track	CA255x02	CA525x02	CA945x02	CA1065x02	CA1185x02	CA1425x02	CA1785x02
3' Track	CA255x03	CA525x03					
4' Track	CA255x04	CA525x04	CA945x04	CA1065x04	CA1185x04	CA1425x04	CA1785x04
5' Track	CA255x05	CA525x05					
6' Track	CA255x06	CA525x06					

Note:

One should always order in the closest "longer" length available to avoid gaps between vinyl and server racks. For example, if you require a 36" drop, you would order our standard 52.5" drop. You then have the option to either cut the excess or leave the excess rolled on top of the cabinet or floor. It is recommended to leave an additional 3-6" of excess to produce an effective air seal.

Note:

For case in which rack height is uneven in a single row of equipment racks it will necessary to select the partitions based on the greater height requirement of the shortest rack height for that section of horizontal track.

We can also select our corners based on this dimension. We will need two for each size for each end of the racks:

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
1'x1' Width	CACOR255	CACOR525	CACOR945	CACOR1065	CACOR1185	CACOR1425	CACOR1785

2 x CACOR525
2 x CACOR945

The next thing to determine is the length and quantity of track required. After measuring our row of racks we can see that the row is a total of 16' long. As the corners are each 1' x 1' we can subtract 2' from our 16' length resulting in 14' of horizontal track length for both rows.

For our example, on our 8' row of racks to meet 14' of horizontal track at 52.5", we will order:

2 x CA525X06 (6' x 52.5") and
1 x CA525X02 (2' x 52.5")

However for our 7' row of racks to meet 14' of horizontal track at 94.5", as there are not any 6' lengths available at this length, we will order:

3 x CA945X04 (4' x 94.5") and
1 x CA945X02 (2' x 94.5")

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
Available Lengths							
1' Track	CA255x01	CA525x01	CA945x01	CA1065x01	CA1185x01	CA1425x01	CA1785x01
2' Track	CA255x02	CA525x02	CA945x02	CA1065x02	CA1185x02	CA1425x02	CA1785x02
3' Track	CA255x03	CA525x03					
4' Track	CA255x04	CA525x04	CA945x04	CA1065x04	CA1185x04	CA1425x04	CA1785x04
5' Track	CA255x05	CA525x05					
6' Track	CA255x06	CA525x06					

Note:

Although you may choose any combination of track lengths to add up to your total horizontal track length, it is recommended you use the minimal number of track lengths to both reduce costs, improve ease of installation involved and reduce air leakage at each seam. It is important to ensure that the overall partition track length is greater than or equal to the total row length measured.

This brings our total Bill of Material to:

2 x CACOR525 1 x CA525X02 1 x CA945X02
2 x CACOR945 2 x CA525X06 3 x CA945X04

2. ContainAire™ Strip Door

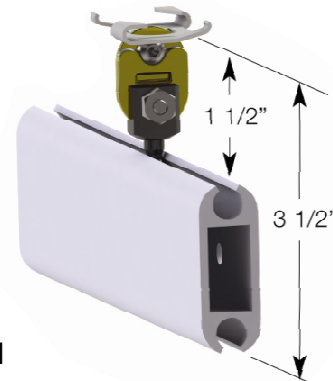
The ContainAire Strip Door is available in four models:

Available Heights	96.0"	106.5"	118.5"	142.5"	178.5"
Available Lengths					
1'	CASPD960x01	CASPD1065x01	CASPD1185x01	CASPD1425x01	CASPD1785x01
2'	CASPD960x02	CASPD1065x02	CASPD1185x02	CASPD1425x02	CASPD1785x02
3'	CASPD960x03	CASPD1065x03	CASPD1185x03	CASPD1425x03	CASPD1785x03
4'	CASPD960x04	CASPD1065x04	CASPD1185x04	CASPD1425x04	CASPD1785x04
5'	CASPD960x05	CASPD1065x05	CASPD1185x05	CASPD1425x05	CASPD1785x05
6'	CASPD960x06	CASPD1065x06	CASPD1185x06	CASPD1425x06	CASPD1785x06

The components for a given ContainAire Partition include:

- 1 x Aluminum Track
- 1 x Aluminum Splicer
- (1-2) x Ceiling Hanger(s)
- (1-2) x Fire Suppression Link(s)
- (1-6) x Fire Resistant Vinyl Strip Door(s)

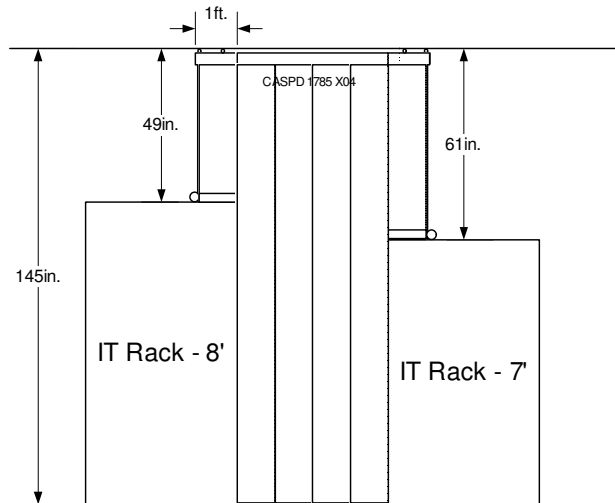
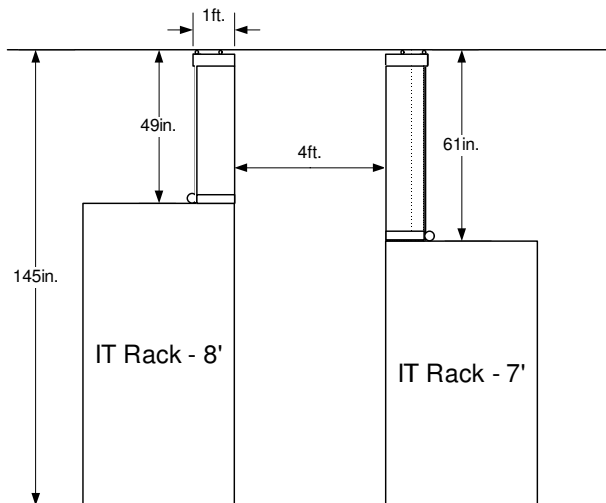
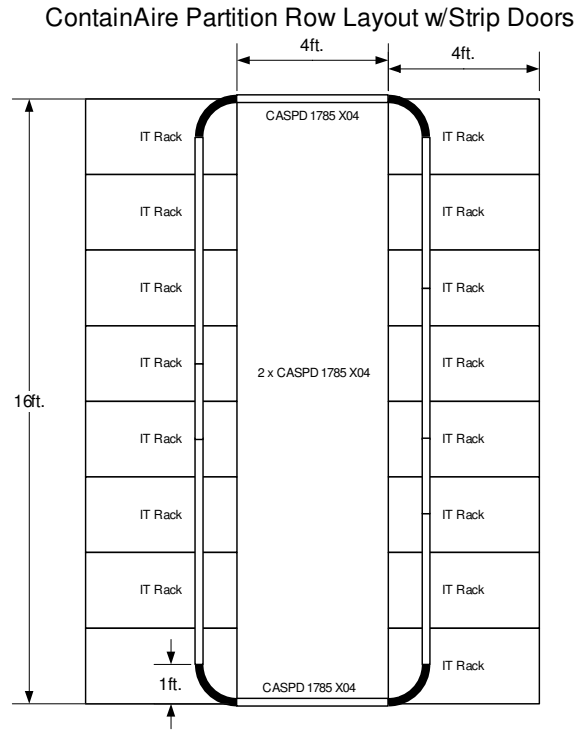
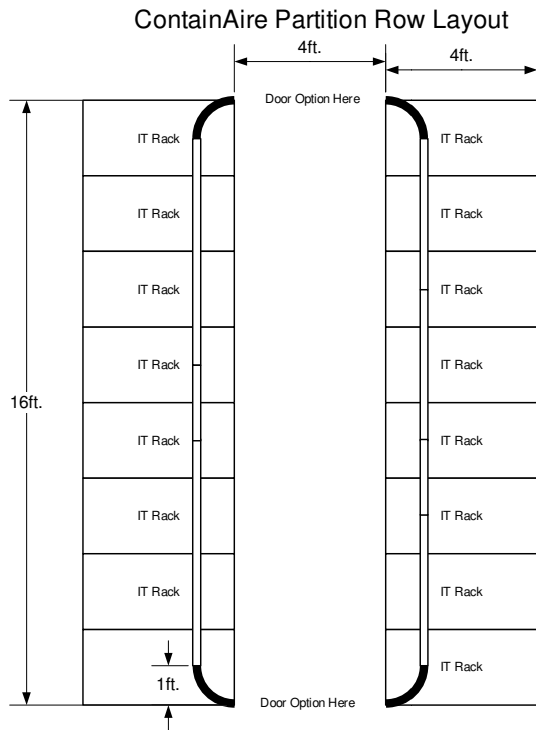
The ContainAire Strip Doors come in pre-packaged sections which must be ordered to meet the dimensions of your specific aisle containment need. However unlike the Partitions, a typical order should only require one model number. Strip Doors come packaged with the number of 1' Vinyl Strip doors at a specified height required.



Note:

When sizing your height, remember to note that that an additional 3.5" of height of the track and hanger are not listed the dimensions above.

Example Layout:



Based on the Diagrams on the previous pages consider the following example

Given:

Two rows of 8 racks each forming an aisle; one row is comprised of 8 x 8' racks while the other row is comprised of 8 x 7' racks. There is a 4' hot or cold aisle between the two rows and the end user has selected appropriate ContainAire Partitions for the vertical containment component:

2 x CACOR525 1 x CA525X02 1 x CA945X02
2 x CACOR945 2 x CA525X06 3 x CA945X04

The end user also would now like use strip doors as the aisle end containment components.

Solution:

Based on a 4' (48") cold aisle and a total height of 145", the appropriate Strip Doors are the 4' length, 178.5" height models (**2 x CASPD1785X04**).

Available Heights	96.0"	106.5"	118.5"	142.5"	178.5"
Available Lengths					
1'	CASPD960x01	CASPD1065x01	CASPD1185x01	CASPD1425x01	CASPD1785x01
2'	CASPD960x02	CASPD1065x02	CASPD1185x02	CASPD1425x02	CASPD1785x02
3'	CASPD960x03	CASPD1065x03	CASPD1185x03	CASPD1425x03	CASPD1785x03
4'	CASPD960x04	CASPD1065x04	CASPD1185x04	CASPD1425x04	CASPD1785x04
5'	CASPD960x05	CASPD1065x05	CASPD1185x05	CASPD1425x05	CASPD1785x05
6'	CASPD960x06	CASPD1065x06	CASPD1185x06	CASPD1425x06	CASPD1785x06

Note:

Always select the height greater than that of the space you are trying to contain. Excess door can be trimmed or folded over. It is recommended that strip doors be cut even with the floor as to prevent a trip hazard.

This brings our total Bill of Material to:

2 x CACOR525 1 x CA525X02 1 x CA945X02
2 x CACOR945 2 x CA525X06 3 x CA945X04
2 x CASPD1785X04

3. ContainAire™ Retracting Roof

The ContainAire Retracting Roof is available in two models:

CA60x30- 60" wide and 30' long retracting roof. Designed for 24"-48" Aisles

CA84x30- 84" wide and 30' long retracting roof. Designed for 48"-72" Aisles

The components for a ContainAire Retracting Roof include:

- 1 x Aluminum Housing
- 1 x ESD/ Fire Resistant Vinyl Roof
- 5 x Side Rails
- 5 x Sliding Rails
- 2 x End Rails
- 1 x UL/FM Fire Suppression Link
- 1 x Rope Ratchet

All ContainAire Retracting Roofs come packaged to reach a maximum of 30 feet in length. Given a cold aisle of less than 30 feet it is possible to remove rails at quick connect points in 5' (60") segments. Rails can be cut down in the field to meet aisle lengths with more precision. Although the maximum length a single Retracting Roof can reach is 30 feet, roofs can be installed either end to end or more aesthetically mirrored from opposing ends of an aisle. It is important to not leave any length of aisle uncovered as air leakage will drastically reduce effectiveness.

Note:

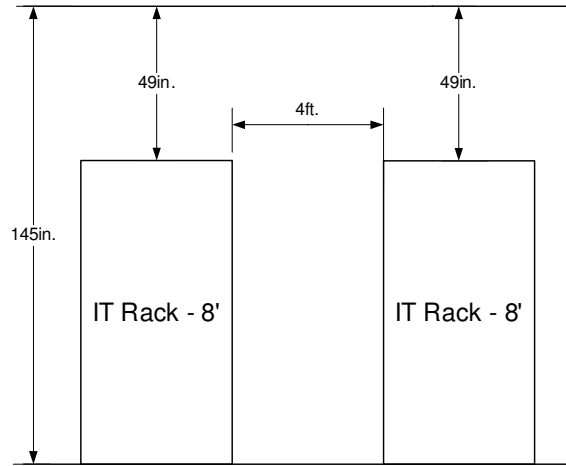
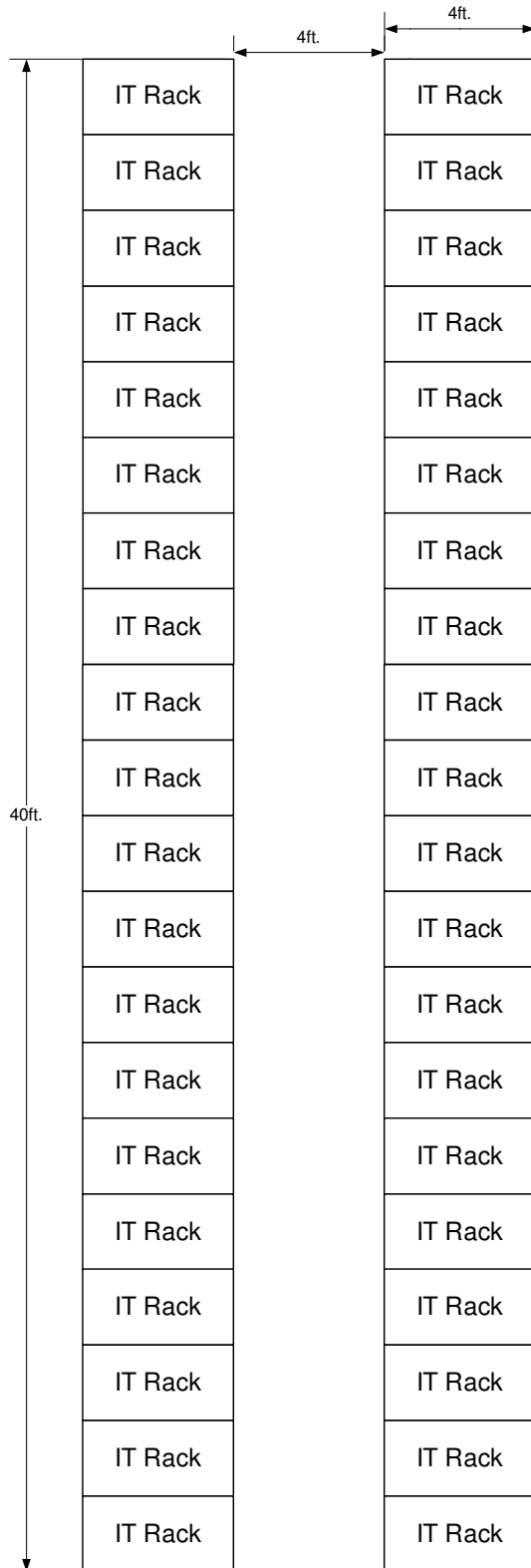
The ContainAire Retracting Roof is most applicable in cold aisle configurations with typical rack heights on both sides of the aisle.

Note:

If one or more racks are either missing or of a lower height, it is suggested a ContainAire partition kit be purchased and slide into an existing track on the retracting roof to eliminate air leakage.

Example Layout:

Existing Row Layout



Based on the Diagrams on the previous pages consider the following example

Given:

There are two rows of 20 x 2' racks forming a 40' long aisle. Each rack is 8' high and there is a 4' cold aisle between the two rows. The end user has chosen to use ContainAire Retracting Roof the vertical containment component.

Solution:

Based on a 4' (48") cold Aisle, the appropriate size retracting roof would be the 60" wide model **(CA60X30)**. Given a 40' long aisle, a single retracting roof will be unable to meet the total length, it is suggested you order two **(2 x CA60X30)** to be installed opposite of one another on opposing ends of the aisle. On each of these roofs, two 5' quick connect rails will be removed to installed 2 x 20' length roofs for a 40' total length.

This brings our total Bill of Material to:

2 x CA60X30

4. ContainAire™ Hinged Door

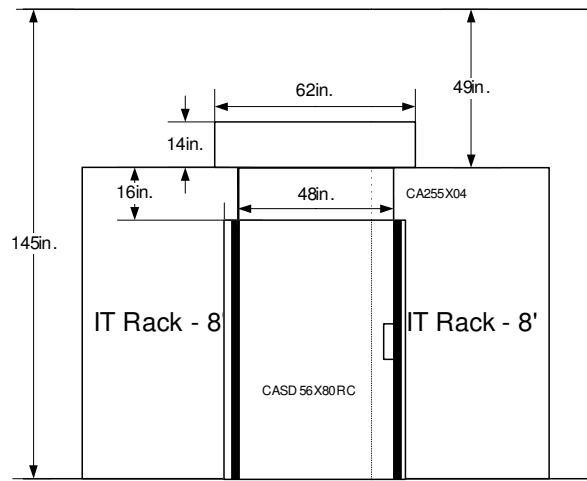
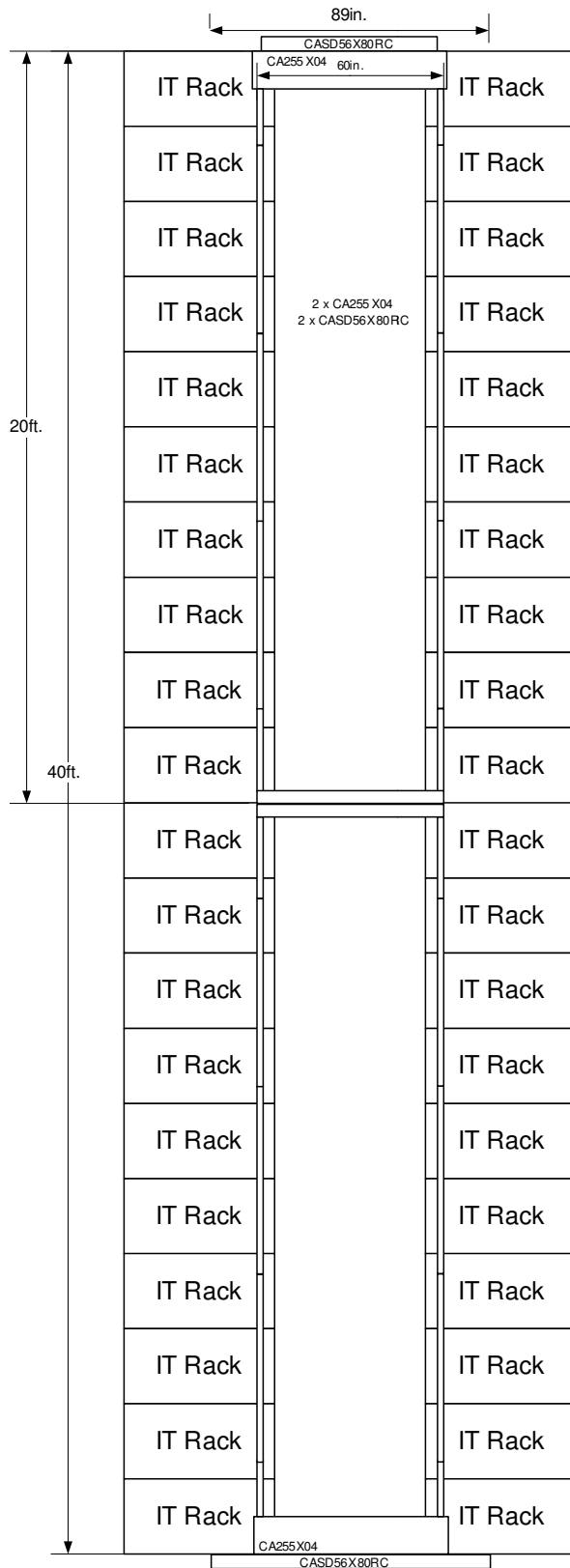
The ContainAire Hinged Door is available in four models:

Hinged Doors:	Left Handed	Right Handed
Clear Anodized	CASD56x80LC	CASD56x80RC
Black Anodized	CASD56x80LB	CASD56x80RB

All ContainAire Hinged Doors come at a 56" Width x 80" Height dimension. Handedness is best described as the side of the door that the handle is located when viewed from outside of the aisle, on the opposite is the hinge and all doors swing outward. In a given rack it may be required to purchase an additional ContainAire Partition if the racks exceed the 80" height or if a ContainAire Partition is being used with the Hinged Door. It is important to not leave any area of the aisle uncovered as air leakage will drastically reduce effectiveness.

Example Layout:

ContainAire Retracting Roof Installed w/ Hinged Door



Based on the diagram on the previous page consider the following example

Given:

There are two rows of 20 x 2' racks forming a 40' long aisle. Each rack is 8' high and there is a 4' cold aisle between the two rows. The end user has selected a ContainAire Retracting Roof as the vertical containment component and determined that **(2 x CA60X30)** Retracting Roofs are required.

The end user also would now like to install right handed, clear anodized Hinged Doors as the aisle end containment components.

Solution:

As the Aisle width is not so great as to require an extension panel, only right handed, clear anodized Hinged Doors **(2 x CASD56x80RC)** are required.

Looking at the vertical height to the Retracting Roof an 8' (96") height needs to be filled; our Hinged Door will make up 6'-8" (80") of that length. The additional 16" will need to be filled with a ContainAire Partitions. Looking at the partition guide, we see that the 25.5" high x 4' long **(2 x CA255x04)** will be required. The vinyl can then be slid into the slot in the Retracting Roof.

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
Available Lengths							
1' Track	CA255x01	CA525x01	CA945x01	CA1065x01	CA1185x01	CA1425x01	CA1785x01
2' Track	CA255x02	CA525x02	CA945x02	CA1065x02	CA1185x02	CA1425x02	CA1785x02
3' Track	CA255x03	CA525x03					
4' Track	CA255x04	CA525x04	CA945x04	CA1065x04	CA1185x04	CA1425x04	CA1785x04
5' Track	CA255x05	CA525x05					
6' Track	CA255x06	CA525x06					

This brings our total Bill of Material to:

2 x CA60X30
 2 x CASD56X80RC
 2 x CA255x04

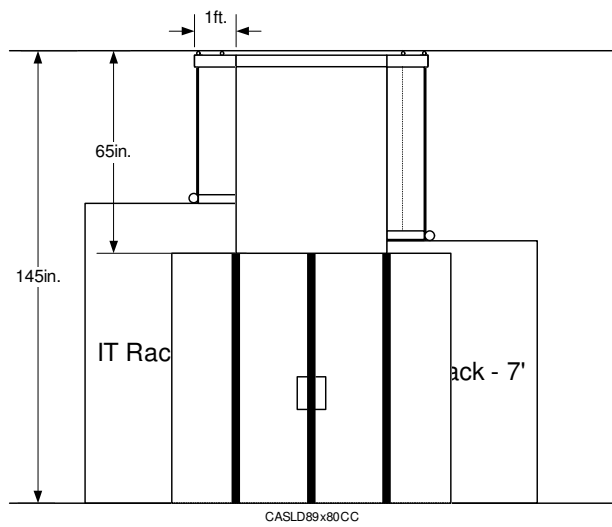
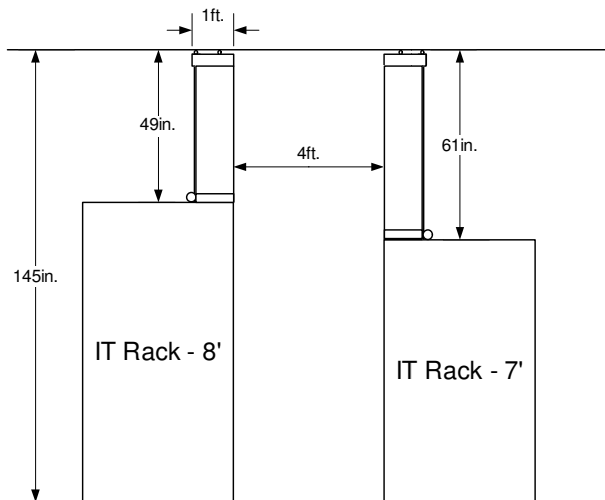
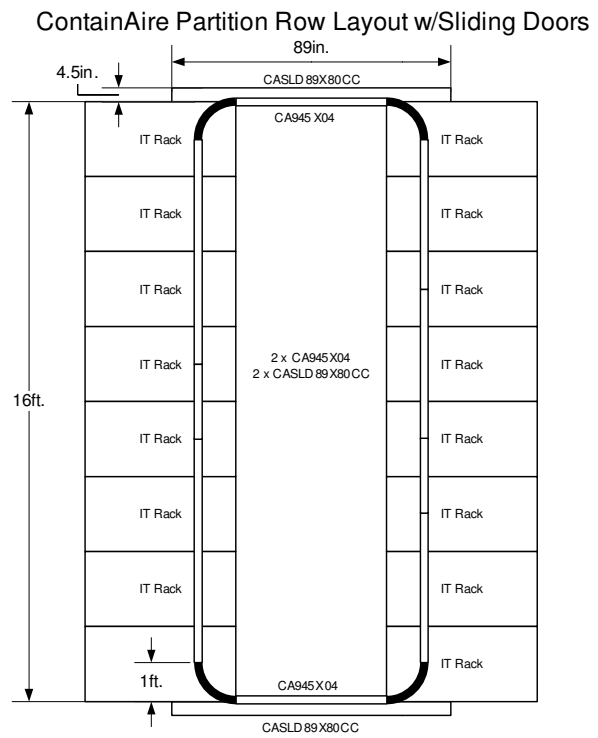
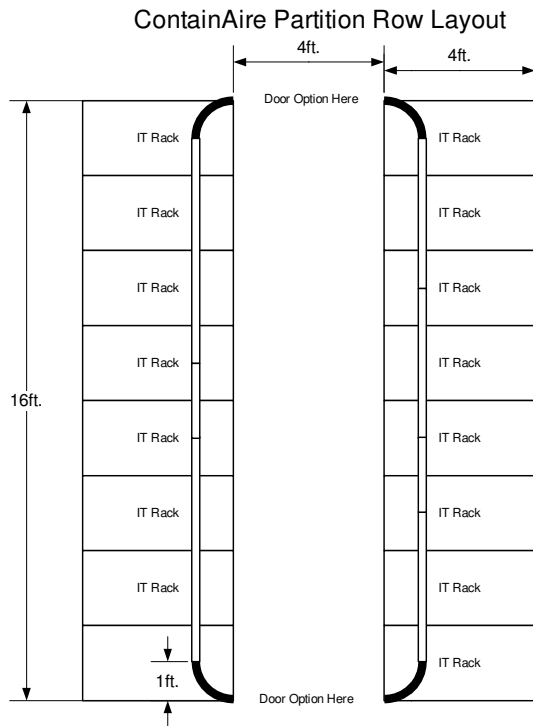
5. ContainAire™ Sliding Door

The ContainAire Sliding Door is available in six models:

Sliding Doors:	Left Sliding	Right Sliding	Centered Sliding
Clear Anodized	CASLD89x80LC	CASLD89x80RC	CASLD89x80CC
Black Anodized	CASLD89x80LB	CASLD89x80RB	CASLD89x80CB

All ContainAire Sliding Doors come at a 89" Width x 80" Height dimension. Handedness is best described as the side of the door that the handle is located when viewed from outside of the aisle, the door will then slide away from the side the handle is located. In a given rack it may be required to purchase additional ContainAire Partitions if the racks exceed the 80" height or if a ContainAire Partition is being used with the Sliding Door. It may also be required to purchase additional ContainAire Extension Walls if the aisle width exceeds 89". It is important to not leave any area of the aisle end uncovered as air leakage will drastically reduce effectiveness.

Example Layout:



Based on the diagram on the previous page consider the following example

Given:

Two rows of 8 racks each forming an aisle; one row is comprised of 8 x 8' racks while the other row is comprised of 8 x 7' racks. There is a 4' hot or cold aisle between the two rows and the end user has selected appropriate ContainAire Partitions for the vertical containment component:

2 x CACOR525 1 x CA525X02 1 x CA945X02
2 x CACOR945 2 x CA525X06 3 x CA945X04

The end user also would now like to install centered, clear anodized Sliding Doors as the aisle end containment components.

Solution:

As the aisle width is not so great as to require an extension panel, only centered, clear anodized Sliding Doors (**2 x CASLD89X80CC**) are required.

Looking at the vertical height to the ceiling a 145" height needs to be filled; our Sliding Door will make up 6'-8" (80") of that length. The additional 65" will need to be filled with a ContainAire Partition. Looking at the partition guide, we see that two 94.5" high x 4' long (**2 x CA945x04**) will be required.

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
Available Lengths							
1' Track	CA255x01	CA525x01	CA945x01	CA1065x01	CA1185x01	CA1425x01	CA1785x01
2' Track	CA255x02	CA525x02	CA945x02	CA1065x02	CA1185x02	CA1425x02	CA1785x02
3' Track	CA255x03	CA525x03					
4' Track	CA255x04	CA525x04	CA945x04	CA1065x04	CA1185x04	CA1425x04	CA1785x04
5' Track	CA255x05	CA525x05					
6' Track	CA255x06	CA525x06					

This brings our total Bill of Material to:

2 x CACOR525 1 x CA525X02 1 x CA945X02
2 x CACOR945 2 x CA525X06 3 x CA945X04
2 x CASLD89X80CC 2 x CA945X04

6. ContainAire™ Extension Wall

The ContainAire Extension Wall is available in two models:

Extension Wall:	24" Wide x 80" Height
Clear Anodized	CCAEW24X80C
Black Anodized	CCAEW24X80B

All ContainAire Extension Walls come at a 24" width x 80" height dimension. In a given rack it may be required to purchase additional ContainAire Extension Walls if the aisle width exceeds the total width of a given aisle containment component. It is important to not leave any area of the aisle end uncovered as air leakage will drastically reduce effectiveness

Based on the diagram on the previous page consider the following example

Given:

Two rows of 8 racks each forming an aisle; one row is comprised of 8 x 8' racks while the other row is comprised of 8 x 7' racks. There is a 5' hot or cold aisle between the two rows, and the end user has selected appropriate ContainAire Partitions for the vertical containment component:

2 x CACOR525 1 x CA525X02 1 x CA945X02
2 x CACOR945 2 x CA525X06 3 x CA945X04

The end user also would now like to install right handed, clear anodized Hinged Doors as the aisle end containment components.

Solution:

As the aisle width is greater than the width of a door, this solution will require clear anodized ContainAire Extension Walls (**2 x CAEW24x80C**) and right handed, clear anodized Hinged Doors (**2 x CASD56x80RC**).

Looking at the vertical height to the ceiling a 145" height needs to be filled; our hinged door will make up 6'-8" (80") of that length. The additional 65" will need to be filled with a ContainAire Partition. Looking at the partition guide, we see that two 94.5" High x 4' long (**2 x CA945x04**) and two 94.5" High x 1' long (**2 x CA945X01**) will be required.

Available Heights	25.5"	52.5"	94.5"	106.5"	118.5"	142.5"	178.5"
Available Lengths							
1' Track	CA255x01	CA525x01	CA945x01	CA1065x01	CA1185x01	CA1425x01	CA1785x01
2' Track	CA255x02	CA525x02	CA945x02	CA1065x02	CA1185x02	CA1425x02	CA1785x02
3' Track	CA255x03	CA525x03					
4' Track	CA255x04	CA525x04	CA945x04	CA1065x04	CA1185x04	CA1425x04	CA1785x04
5' Track	CA255x05	CA525x05					
6' Track	CA255x06	CA525x06					

This brings our total Bill of Material to:

2 x CACOR525 1 x CA525X02 1 x CA945X02
2 x CACOR945 2 x CA525X06 3 x CA945X04
2 x CASD56X80RC 2 x CA945X04 2 x CA945X01

7. RackShield™ IT Rack Isolation

The RackShield IT Rack Isolation unit comes in three different sizes:

RS242480- 24" wide, 24" deep, and 80" high. Ideal for 1x24" IT rack

RS244880- 48" wide, 24" deep, and 80" high. Ideal for 2x24" IT rack

RS247280- 72" wide, 24" deep, and 80" high. Ideal for 3x24" IT rack

All RackShield IT Rack Isolation units come packaged completely assembled to the dimensions specified and with Plexiglas inserts installed.

8. CRAC Hood

The CRAC Hood can be ordered to any dimensions necessary for proper installation.

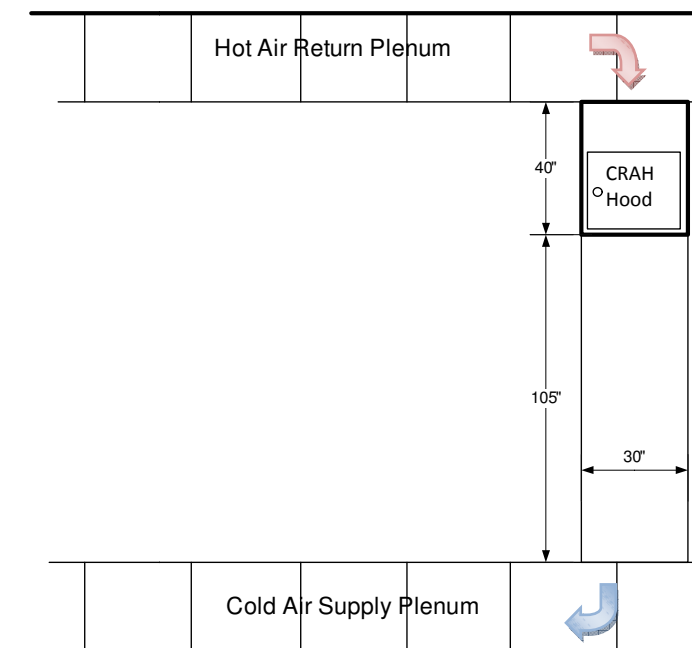
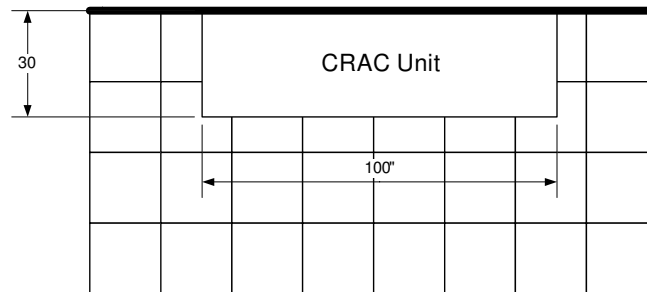
Examples of typical orders would be:

CRACH1003040- 100" wide, 30" deep, and 40" high. (See Below)

CRACH973736- 97" wide, 37" deep, and 36" high.

The components for a CRAC hood include:

- 2 x End of hood with or without door option
- 2 x Side of hood
- 100 x Self tapping Screw, 12-24, 0.5" L Coated stell hex washer head



9. In-Floor Velocity Adjustor

The In-Floor Velocity Adjustor comes in four different sizes:

VA624- 6" high, 24" wide.

VA1224- 12" high, 24" wide.

VA1824- 18" high, 24" wide.

VA2424- 24" high, 24" wide.

The size and number of Velocity Adjustors should be selected based on the width of the CRAC unit discharge and half of the depth of the access floor.

For Example: If you have a 8' CRAH, and a 12" deep Access Floor, (**4 x VA624**) would be required. (see below)

All In-Floor Velocity Adjustors come in black fireproof material. The In-floor Velocity Adjustor should be installed no closer than 4' from the AC unit discharge. The preferred distance is between 5' to 8'.

