

# NetShelter Aisle Containment

## Next Generation

### Cutting and Measurement Guide



TME19697

Release date: 3/2024

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# 1 Cutting Guidelines

## ⚠ WARNING

Follow safety standards for all hand tools and power tools used. Read and follow the tool manufacturer's instructions. Follow the tool manufacturer's recommendations and recognized safety requirements for use of Personal Protection Equipment (PPE).

**Failure to follow these instructions can result in death, serious injury, or equipment damage.**

The required cutting tool depends on the material:

- Use a miter saw to cut frame extrusions (NSAC2001) and panel-mounting rails (NSAC2002)
- You can use a miter saw or a utility knife to cut multi-wall panels (NSAC2101, NSAC2102) and plastic panel connectors (NSAC2153).
- Do not cut the Aluminum panel connectors (NSAC2151, NSAC2152). Instead, use the extensions to match the length of your panels.

**NOTE:** Do not cut frame extrusions to a length of 150 mm or less. Pieces 150 mm or less cannot be used and must be discarded.

Basic cutting instructions:

1. Measure and mark the materials.
2. Make a straight, perpendicular cut.
3. De-burr the edges and remove any debris from the area of the cut.

## 2 Measuring Guidelines

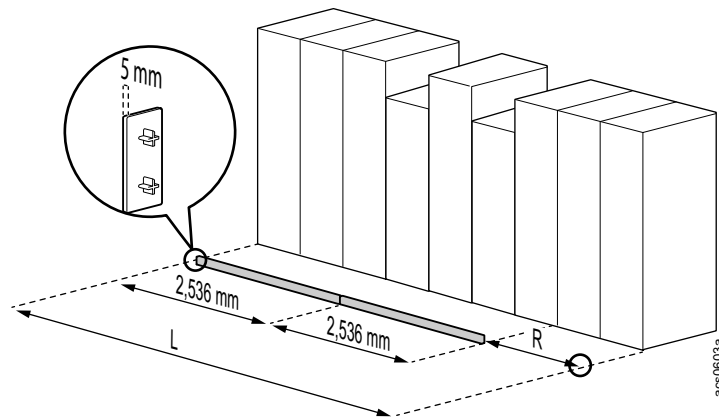
**NOTE:** The size of blanking panels in the sides of the aisle cannot be determined by a formula, as the size of the blanking panels will depend on the equipment used to fill the aisle.

### 2.1 Roof Frame

**Frame extrusions along the width of the aisle:** Cut frame extrusions to the width of the aisle. There are three supported aisle widths:

- 972 mm (3 ft)
- 1,268 mm (4 ft)
- 1,860 mm (6 ft)

**Frame extrusions along the length of the aisle:**



$$(L - 10 \text{ mm}) / 2,536 \text{ mm} = nR$$

Where

- L = the length of the aisle
- 10 mm = the combined length of the end caps (2 x 5 mm) at the each end of the aisle
- 2,536 mm = the length of an uncut frame extrusion
- $n$  = the number of full frame extrusions on each side of the aisle
- R = the remainder, or the length of the remaining frame extrusions

## 2.2 Roof Panels

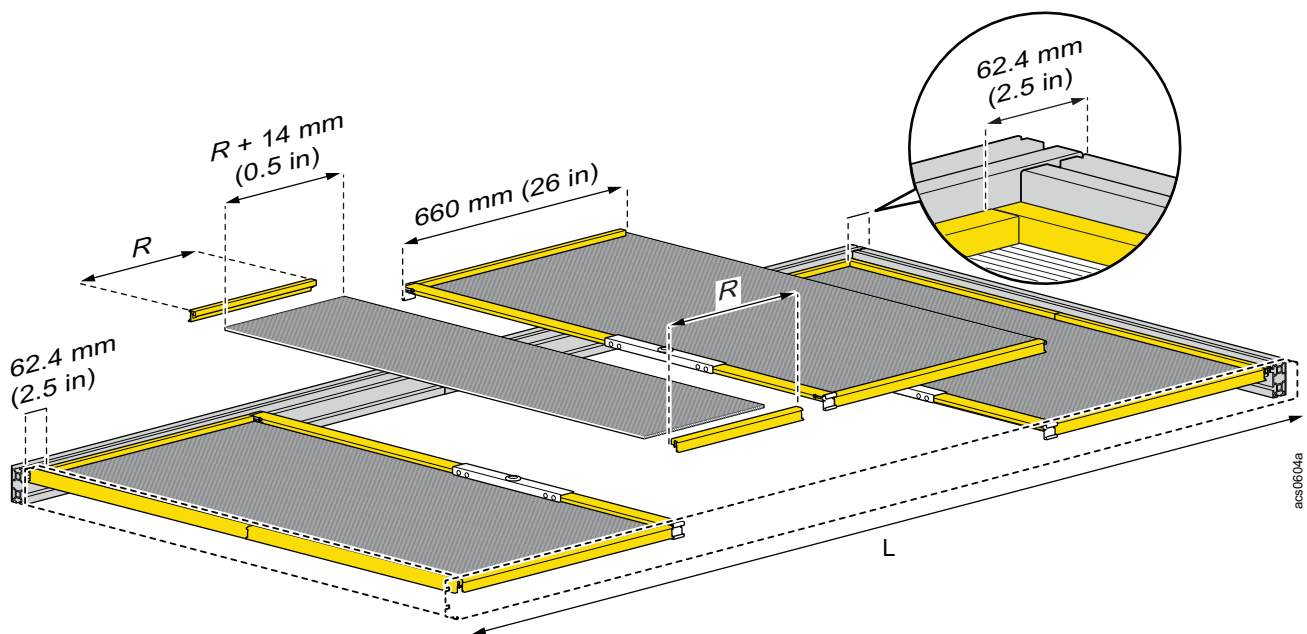
Each panel is constructed of a multi-wall panel, framed by panel mounting rails and panel connectors.

### Panel mounting rails across the width of the aisle:

- 972 mm (3 ft) aisles: Place 1.5 panel mounting rails at each end. Cut the short rails to 334 mm.
- 1268 mm (4 ft) aisles: Place 2 panel mounting rails at each end.
- 1860 mm (6 ft) aisles: Place 2.9 panel mounting rails at each end. Cut the short rails to 592 mm.

### Panel mounting rails across the length of the aisle

**NOTE:** This illustration shows measurements. It does not show the installation procedure.



$$nR = (L - 124.8 \text{ mm}) / 660 \text{ mm}$$

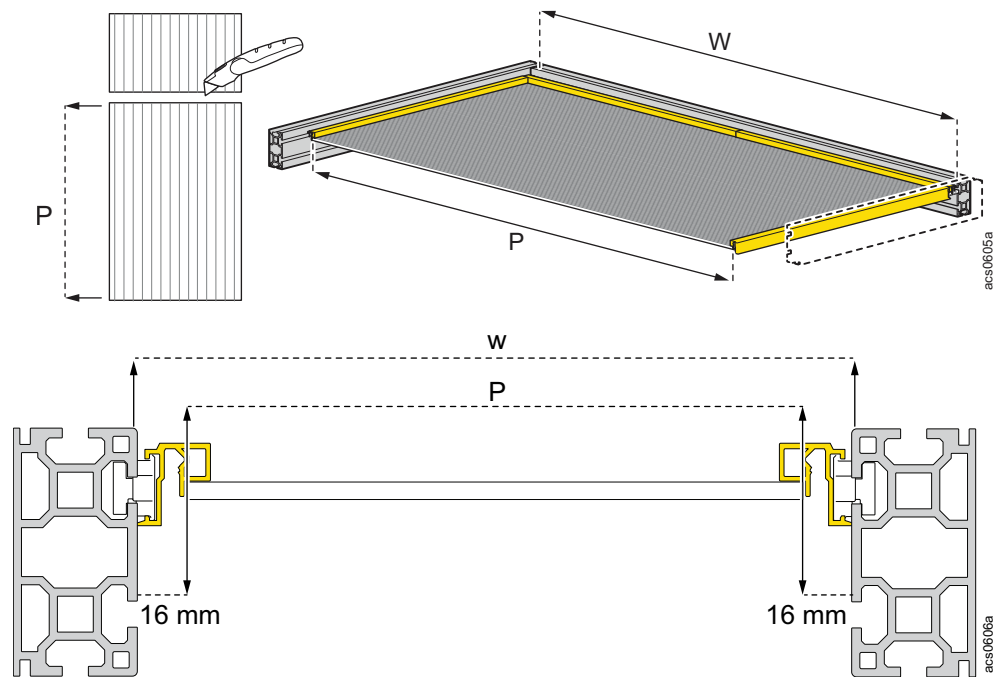
Where

- $n$  = the number of full panel mounting rails on each side of the aisle. This is also the number of uncut multi-wall panels and the number of panel connectors
- $R$  = the remainder, or the length of the remaining panel mounting rails
- $L$  = the length of the aisle.
- 124.8 mm = the combined length of the frame extrusions and mounting rails at each end of the aisle
- 660 mm = the combined length of an uncut panel mounting rail (630 mm) and a panel connector (30 mm)

**NOTE:** The last multi-wall panel should be cut to  $R + 14$  mm. The 14 mm allows the panel to be secured by the adjacent panel connectors. See the next section, **Multi-wall Panels**, for details.

**Multi-wall Panels:**

Cut each panel across the columns to match the width of the aisle ( $W$ ) minus 32 mm.



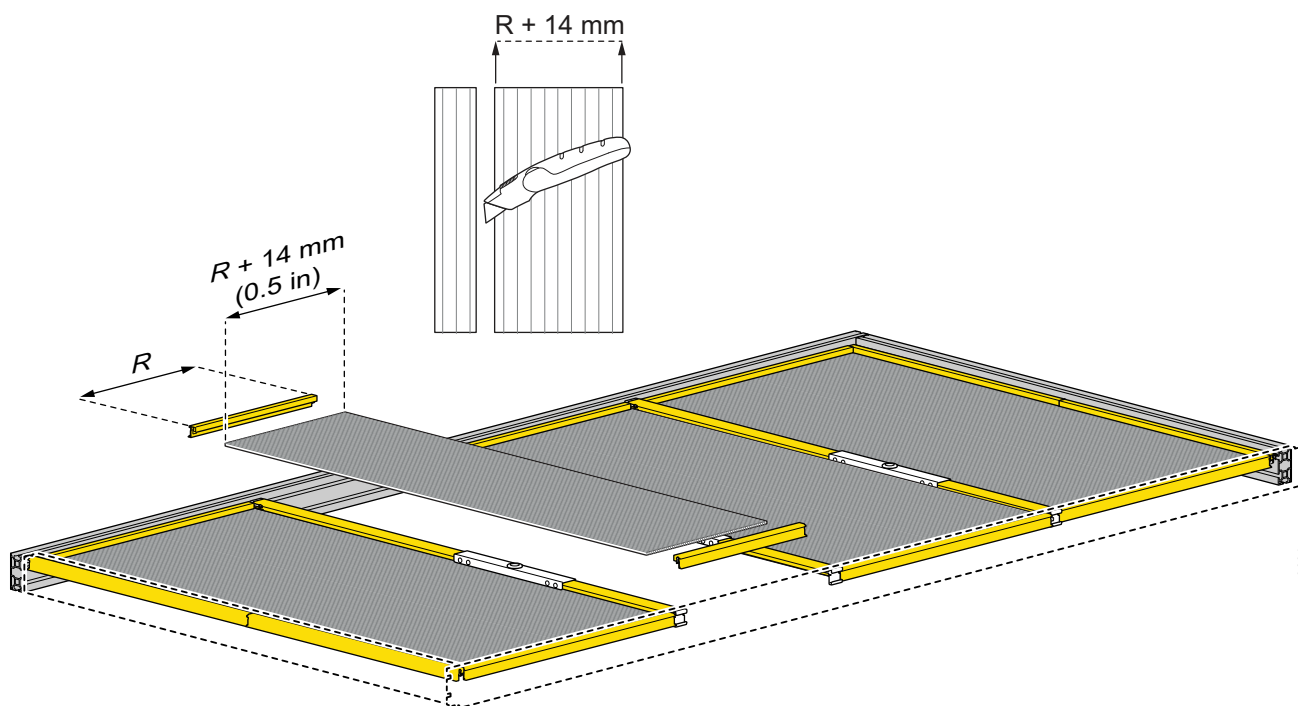
$$P = W - 32 \text{ mm}$$

Where

- $P$  = panel width
- $W$  = the width of the aisle
- 32 mm = space occupied by panel mounting rails on each side of the aisle (16 mm x 2).



The last panel installed is smaller than the rest. Cut the last panel along the columns to fit the remaining space.



$$P = R + 14 \text{ mm}$$

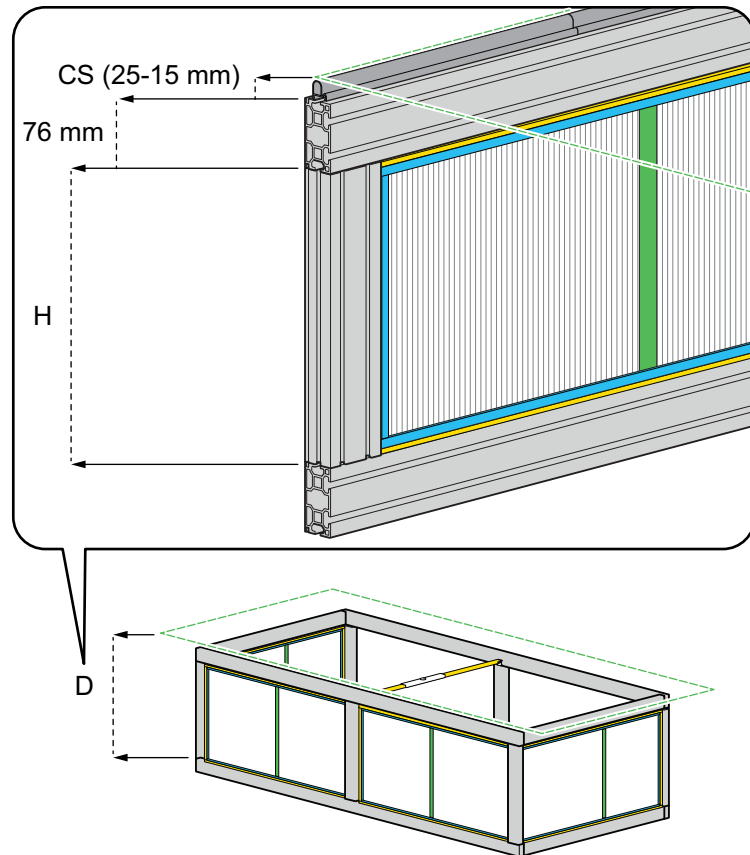
Where

- P = the length of the panel
- R = the length of the last panel mounting rails. See the previous section, **Panel mounting rails across the length of the aisle** for details
- 14 mm = overlap area that allows the panel to be secured by the panel connectors on either side

## 2.3 Vertical Duct

The vertical duct is constructed from two roof frames joined by vertical frame extrusions. To find the measurements of the roof frame pieces, see 2.1 Roof Frame, page 6.

### Height of Vertical Frame Extrusions



$$H = D - 76 \text{ mm} - \text{CS mm}$$

Where

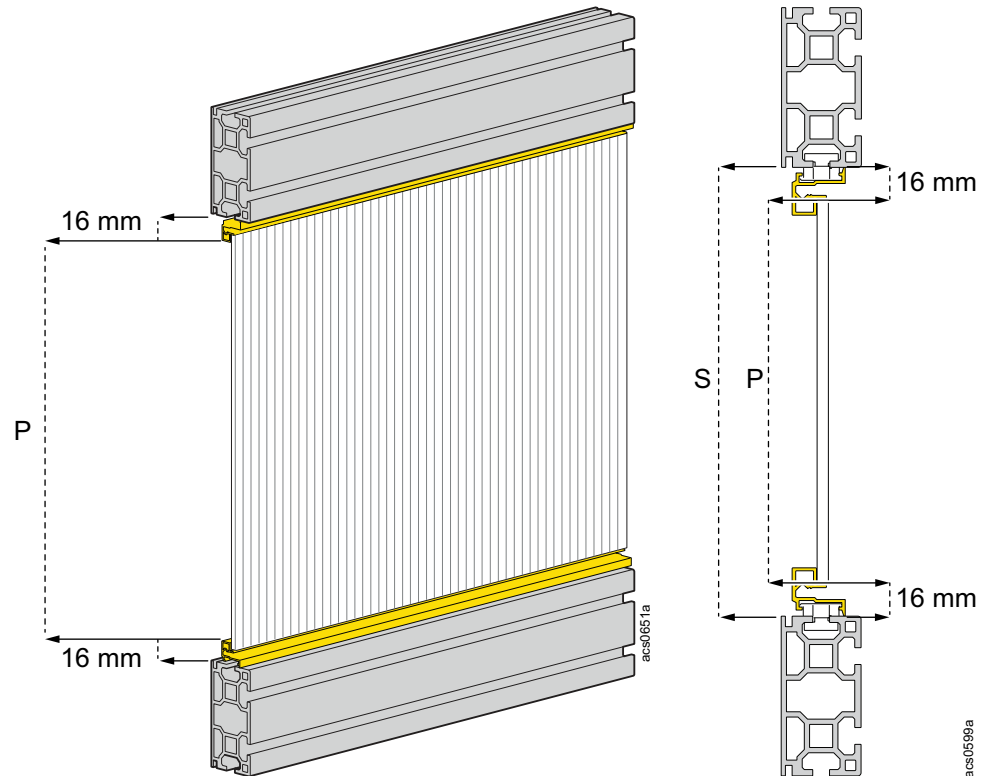
- H = the height of the vertical frame extrusion
- D = distance from the bottom of the vertical frame extrusion to the ceiling
- 76 mm = the height of the upper frame extrusions
- CS = Ceiling Seal, the space provided for the seal coextrusion

The seal coextrusion can be compressed from 25 to 15 mm. The recommended space is 20 mm.

**Special consideration for hanging vertical ducts:** In a hanging vertical duct, CS is the space between the upper roof frame and the drop ceiling. CS must be 25 mm if the drop ceiling is too light to compress the seal coextrusion.

### Multi-wall panels and plastic panel connectors

For single panels:



$$P = S - 32 \text{ mm.}$$

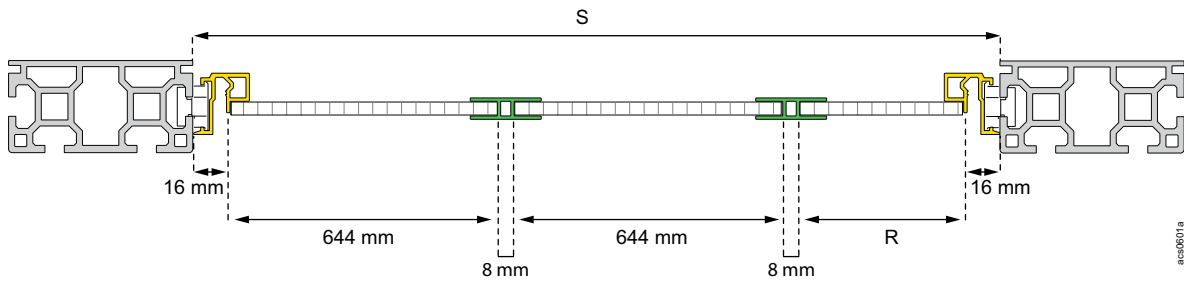
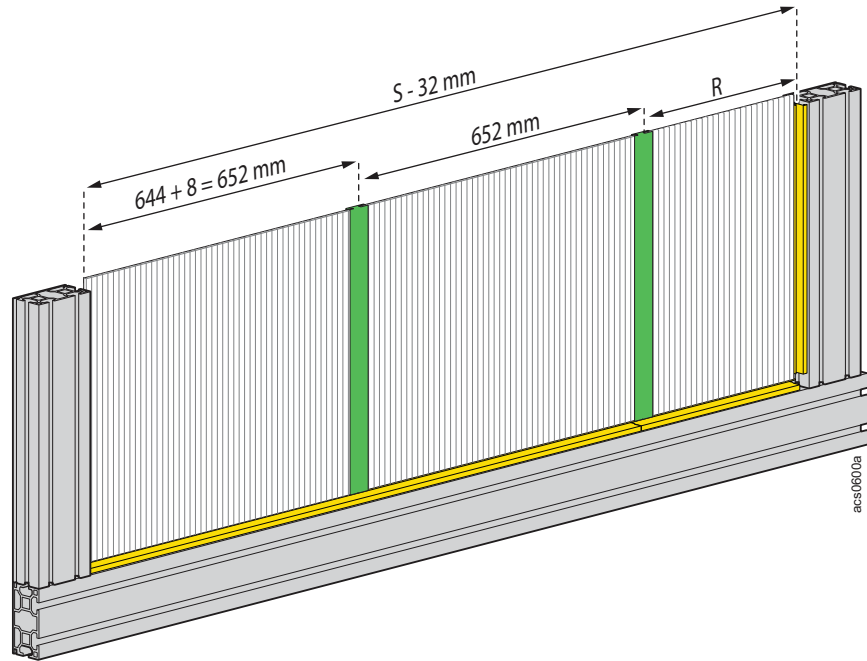
Where

- P = the panel dimension (height or width)
- S = the space between two frame extrusions
- 32 mm = the space occupied by panel mounting rails on each side (16 mm x 2)

**NOTE:** When installing multiple panels in a space, use this equation to find the height of the panels and plastic panel connectors. Use the following equation to determine the length of the panels.

**NOTE:** Use this equation to find the height of the plastic panel connectors.

For multiple panels:

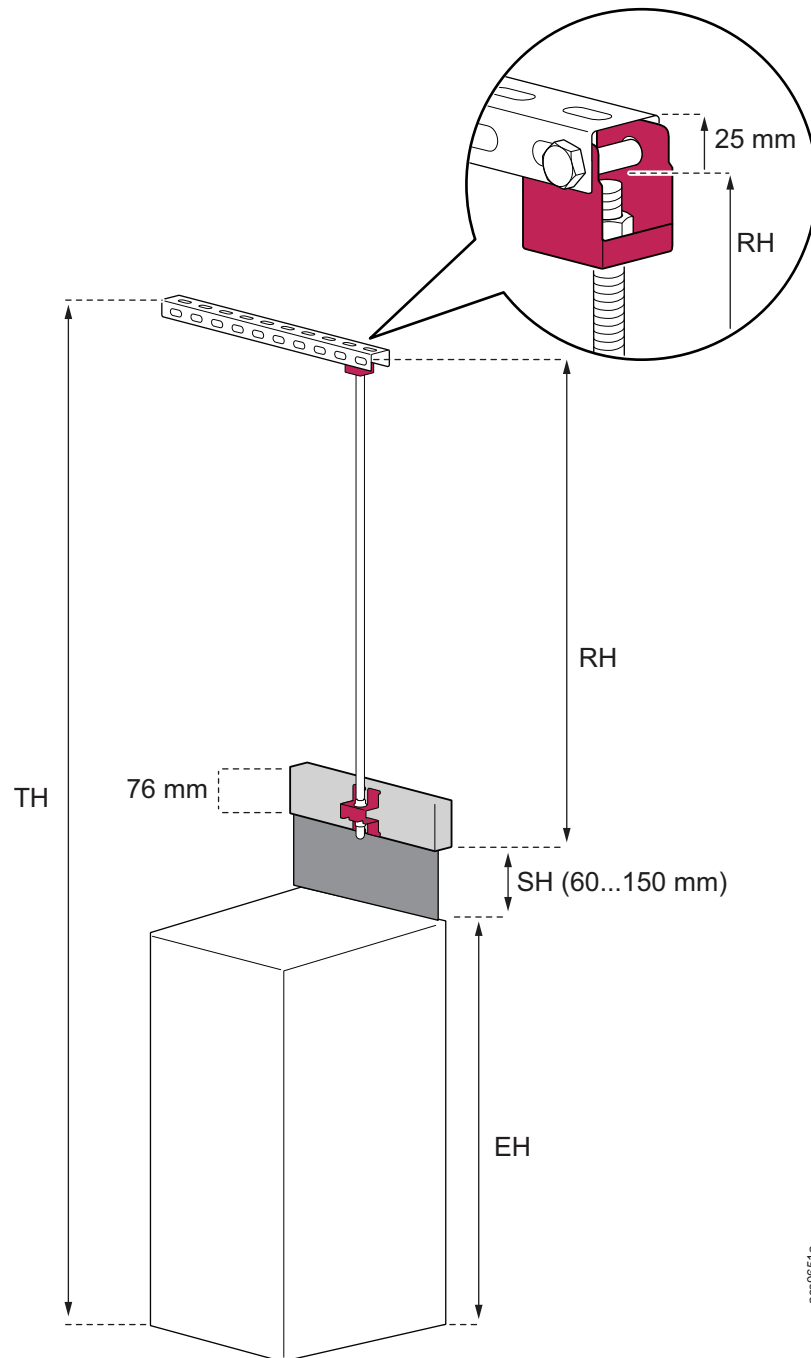


$$nR = (S - 32 \text{ mm}) / (644 + 8 \text{ mm})$$

Where

- $n$  = the number of uncut panels that can be fit in the open space. This is also the number of plastic panel connector sets.
- $R$  = the remainder, or the length of the last panel piece
- $S$  = the space between two frame extrusions
- 32 mm = space occupied by panel mounting rails on each side (16 mm x 2)
- 644 mm = the length of an uncut panel
- 8 mm = the space occupied by a panel connector

## 2.4 Hanging Assembly



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$$RH = TH - EH - SH - 25 \text{ mm}$$

Where

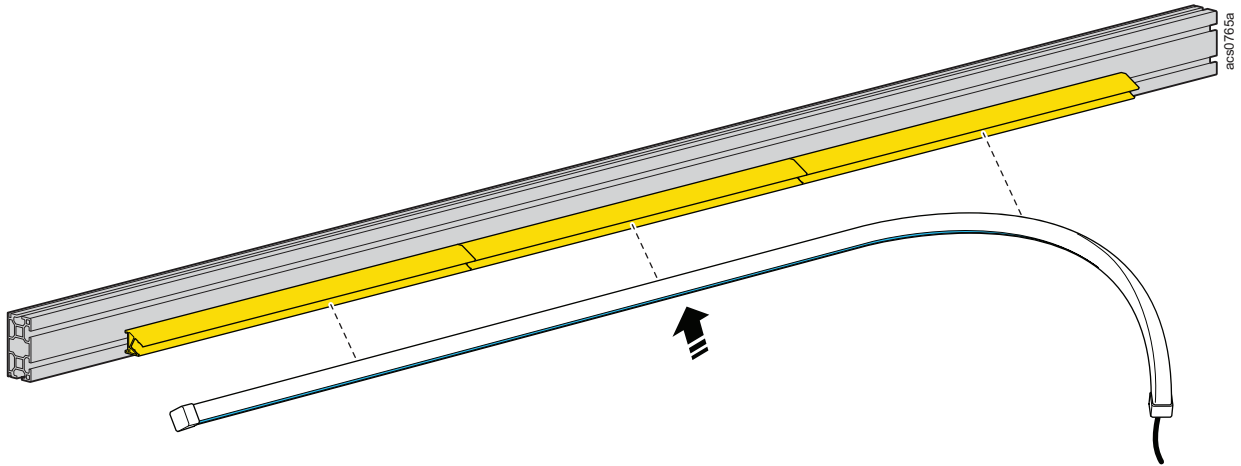
- RH = Rod Height, the height of the support rods
- TH = Total Height, the distance between the floor and ceiling
- EH = Equipment Height, the height of the tallest rack in the row
- SH = Seal Height, the space provided for the cabinet seal

The cabinet seal can be compressed from 150 to 60 mm. The recommended space is 140 mm.

- 25 mm = the space required for the fastener

## 2.5 LED Module

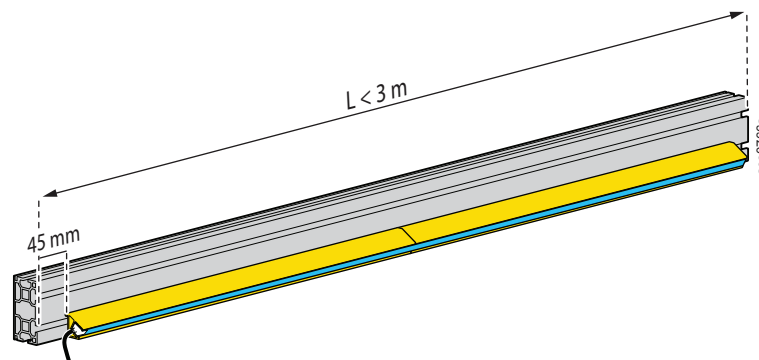
You can install a single, uncut LED module with three mounting rails. You do not need to install lighting on both sides of the aisle; one side is sufficient for most solutions.



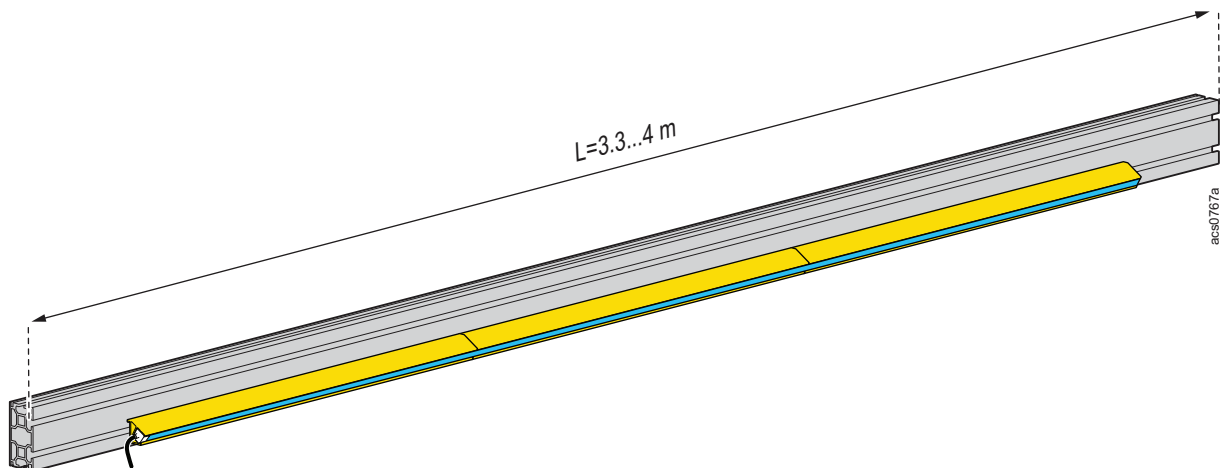
### 2.5.1 How to Measure

The guidelines for lighting differ by aisle length.

**Recommendation for aisle length < 3 m:** Cut the mounting rails and LED module to fit the existing space. Leave at least 45 mm open space for the end of the LED module.

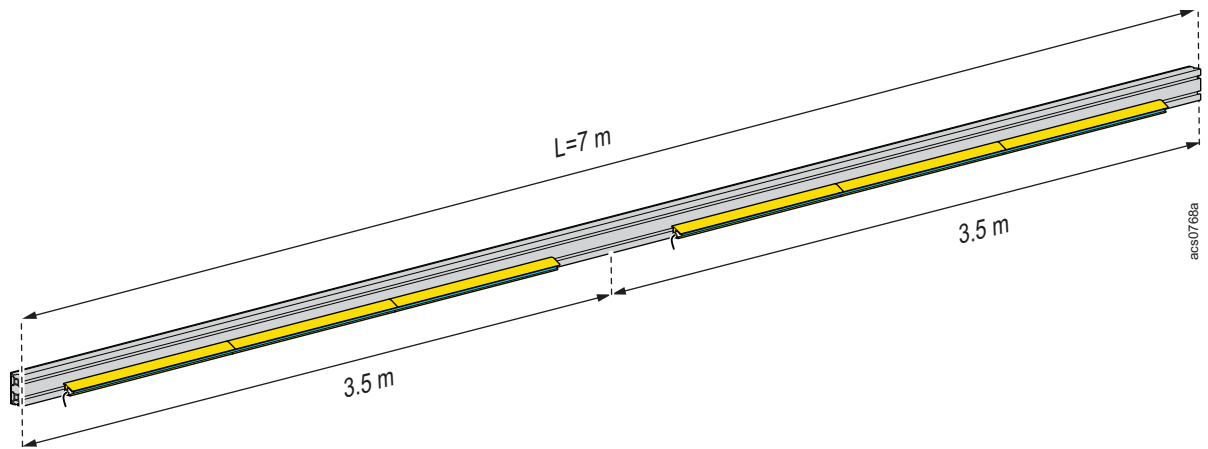


**Recommendation for aisle length = 3...4 m:** Use three mounting rails to install a single, uncut LED module.



**Recommendation for aisle length > 4 m:** Use three mounting rails to install a single, uncut LED module for every 3.3...4 m of aisle length. If your aisle length is 4.1...6.5 m, you can optionally add a shorter length of LED module. Leave at least 45 mm open space for the end of each LED module.

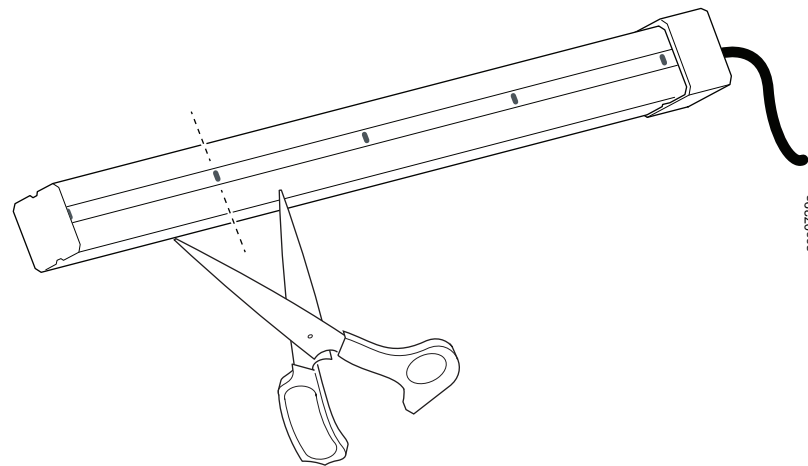
**Example:** L = 7 m. Install two LED modules in six mounting rails.



## 2.5.2 How to Cut

You can find cutting markers at the back of the LED module. Use scissors to cut the LED at one of the cutting markers.

**NOTE:** After a cut, keep the part of the LED module with the power cord. Discard the part without the power cord.



Cut the lighting mounting rails with a mitre saw, then de-burr the edges.

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