

# Structural Frame Support Braces

ABC's "Easy Sheet" series on building extruded aluminum sign frames - 1/01

# 11

Although no additional perimeter angle iron framing is necessary on ABC frames, medium to large sized signs do require some internal structural frame support.

There are many variations on materials and methods, but ABC suggests using one of the following methods for installing internal structural strut braces. When the two opposing sides of a sign frame are substantially connected with such struts, it doubles their strength in the minor axis of the frame, for to bend one, the other must bend as well.

On double face signs, place struts centered between the faces, parallel to the lamp direction, (fig. 1), or in tandem, straddling the lamps, (fig. 2).

When using the second method, strut member size may be smaller than if just one strut were to be used, if the combined radius of gyration of both smaller struts equal what is required for a single strut. This method is best used for struts which

must run in the opposite direction as the lamps, and are welded to the single struts which are parallel to the lamps.

Steel struts are connected to the frame by bolting 1-1/2" or 2" steel angle iron brackets to the frame, then welding the struts to the bolted-on bracket. The front vertical leg of the bracket is cut off at a 45 degree angle so they won't cast a shadow on the face.

The strut size is determined by measuring the inside of the frame, in inches, and dividing by 150. The resultant number

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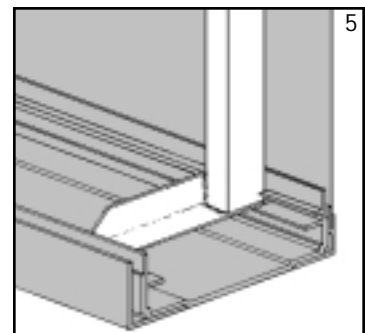
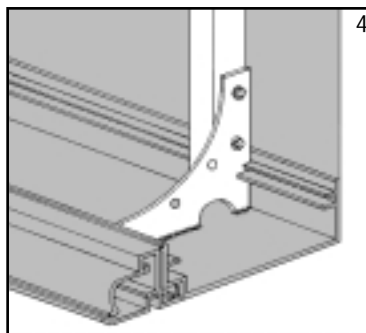
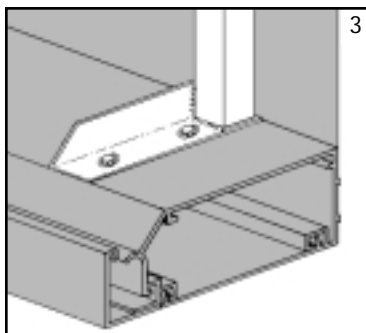
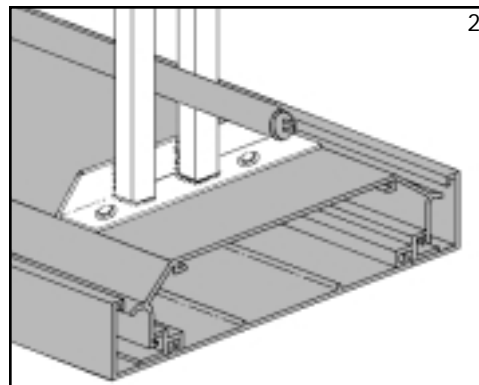
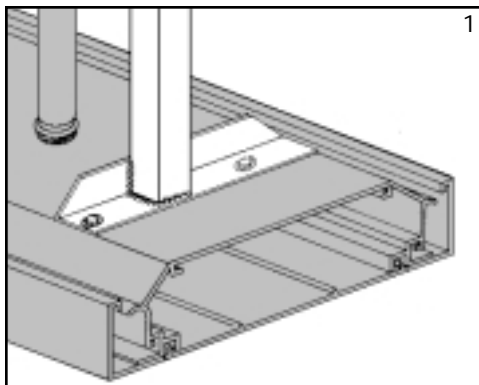
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The strut size is determined by measuring the inside of the frame, in inches, and dividing by 150. The resultant number equals the **radius of gyration**. This is designated in structural steel data under the column heading "r". For convenience, see the quick reference chart on EASY SHEET # 9.

Figure 3 shows a C-iron bolted to an Access Frame. Making these brackets in quantity, so they are an off-the-shelf item, can save time.

When building with the Single-Hinge Frame, use ABC's pre-cut C-iron Bracket for the quickest fabrication, (fig. 4). Weld the bracket to the frame, and bolt it to the vertical square tube.

Angle brackets are bolted or riveted to the wireway cover flanges on the conventional frames.



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The parts described on this page are covered by one or more of the following patents:  
U.S. 4,007,552 4,265,039  
CANADIAN 1,021,565 1,149,159 1,170,048 1,170,049 1,170,050

