

Strut Application - for Hingeable and Retro-Fit Frames

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

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STRUT GUSSETS FOR THE F-SADDLE

The F-Saddle is used with the Single and Double-Hinge Frames, forming an independent hingeable, or removable, outer flexible face frame.

It is also used for inexpensively retrofitting flexible faces on small signs.

Struts must be used to support this independent face frame.

The F-Saddle will span a maximum of 4' between struts. Struts should be placed vertically and/or horizontally when distances exceed 4'. ABC provides 3/16" thick aluminum machine-made F-Saddle Strut Gussets to precisely fit the under side of the frame, (fig. 1).

Place the Strut Gussets on the F-Saddle as required and tack weld. Repeat the process for the opposite side of the frame, and all other areas where strut gussets are required.

Struts are then bolted to the gussets with two bolts at each end of the strut to prevent side motion, (fig. 2).

Based on the length of the strut, select either a steel or aluminum tube from the Strut Member Chart, (reverse side). Struts finish 3" behind the face, (fig.3). If possible, position struts precisely between two lamps and paint them white to reduce shadowing.

The outer face frame, complete with face, struts and retainers, is completely independent of the main frame, and may be hinged or lifted off the sign for complete internal access, (fig. 4).

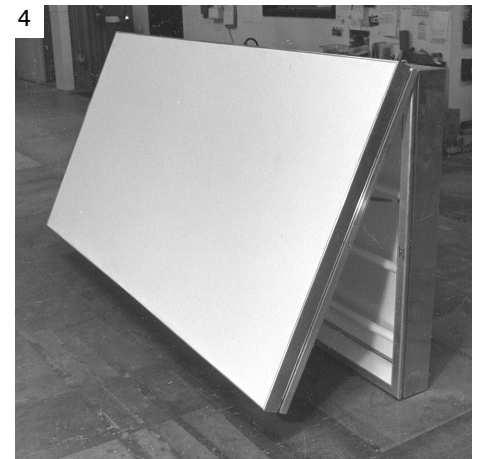
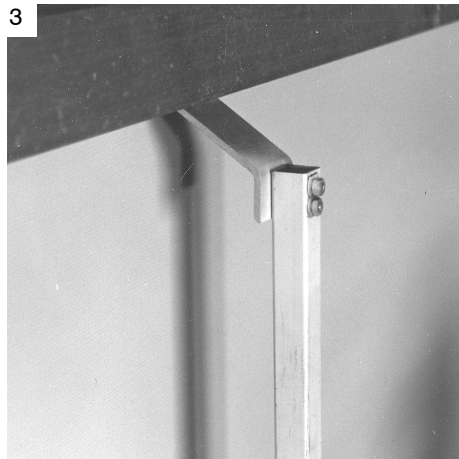
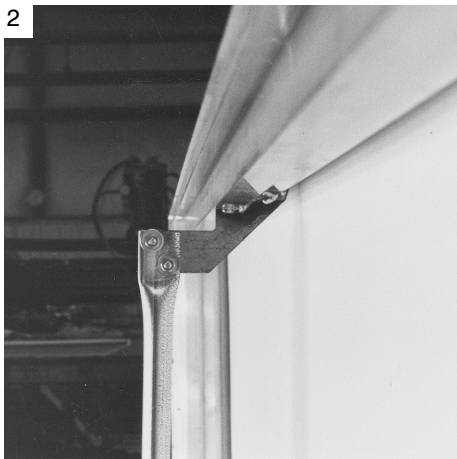
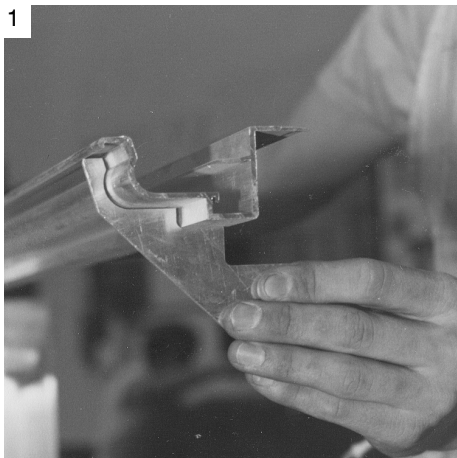
STRUT BRACKETS FOR THE ABC RETRO FRAME

The Retro Frame is recommended for retrofitting flexible faces to large signs where the main-frame strength is questionable. ABC's Retro Frame will span approximately 5 feet between struts.

If the retrofit frame is to be installed in the field, accurate measurements should be taken horizontally at the top and bottom of the sign and vertically at each end of the sign. The existing frame, (usually of steel angle), is frequently out of square. This measurement is critical if the Retro-Frame is to fit snugly over the existing sign frame.

If the existing sign has no external service access, the Retro-Frame must be hinged from the top. Pieces of steel or stainless steel offset piano hinge from 18" to 36" long should be used for a total hinge length of about 50% of the length of the sign. Be sure the hinges are straight, to prevent binding when opened.

ABC suggests oversizing the Retro-Frame somewhat, especially for hinged faces, after allowing clearance for the hinge thickness. Something on the order of 1/8" or more all around the sign. Gasket tape should be placed under the top flange of the Retro-Frame to prevent water entry.



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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

ABC[®]
Sign Products

Strut Application - for Hingeable and Retro-Fit Frames (cont.)

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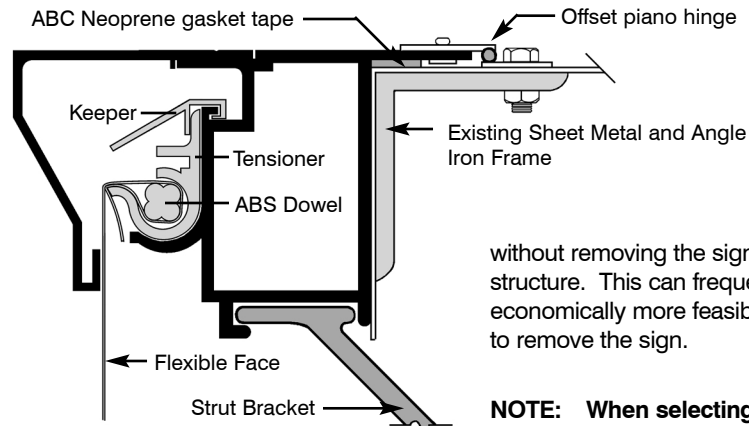
ABC provides extruded aluminum Strut Brackets which fit into the bottom of the Retro Frame. They are used in parallel pairs, and on the appropriate spans listed above. The Strut Brackets can be welded or screwed to the Retro Frame, (fig. 1).

Struts are then bolted to the Strut Brackets, with two bolts at each end, (fig. 2).

If possible, position the struts precisely between two lamps and paint them white for maximum light reflection. The struts finish 4.5" behind the face where shadows will be avoided, (fig. 3).

Square tube steel struts are recommended as the strongest and most economical, and the smallest diameter to prevent shadows. Select the proper minimum strut size from the STRUT MEMBER CHART below.

The face is installed in the Retro Frame prior to field installation. And the frame,

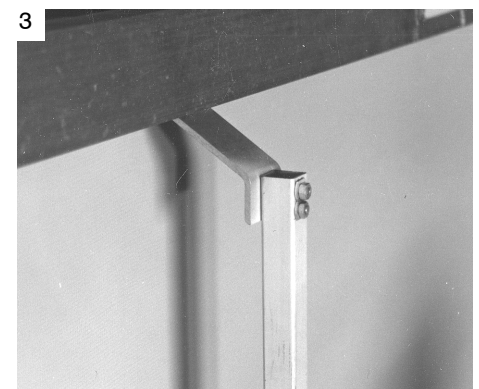
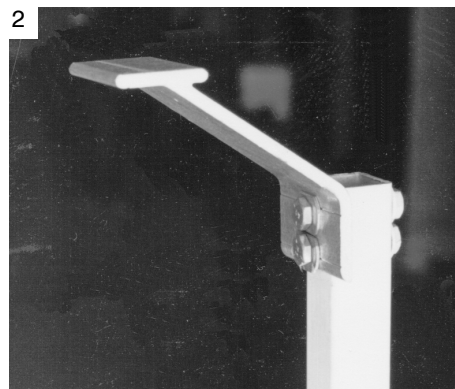
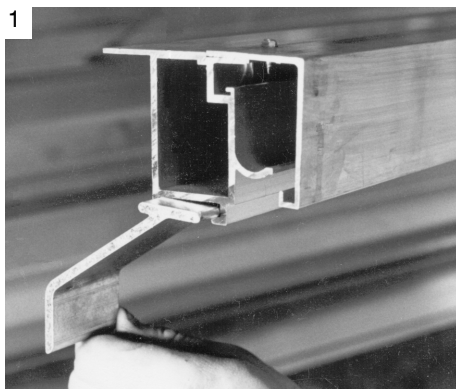


complete with struts, face and retainers is easily lifted as a unit for attachment to the existing sign.

Using these suggested techniques for retrofitting flexible faces to very large existing signs can usually be done in the field,

without removing the sign from the structure. This can frequently make the job economically more feasible than it would be to remove the sign.

NOTE: When selecting still sizes from the chart below for single face signs built of the Large A/Flexframe or Wide-Fab Frames, use the next heavier wall thickness in the steel tube size. Because the tension load on the single face is a cantilevered, unbalanced load, the thin wall tube may bow. This does not happen on a double face sign where the load is balanced.



STRUT LENGTH	STEEL ANGLE	ALUM. ANGLE	STEEL SQ. TUBE	ALUM. SQ. TUBE
To 45 inches	1.5 x 1.5 x .125"	1.5 x 1.5 x .125"	1 x 1 x .083"	1 x 1 x .083"
46 to 60 inches	2 x 2 x .125"	2 x 2 x .125"	1.25 x 1.25 x .083"	1.25 x 1.25 x .125"
61 to 72 inches	2.5 x 2.5 x .188"	2.5 x 2.5 x .188"	1.25 x 1.25 x .083"	1.25 x 1.25 x .125"
73 to 84 inches	3 x 3 x .188"	3 x 3 x .25"	1.5 x 1.5 x .083"	1.5 x 1.5 x .125"
85 to 114 inches	3.5 x 3.5 x .25"	4 x 4 x .25"	2 x 2 x .083"	2 x 2 x .125"
115 to 144 inches	4 x 4 x .25"	4 x 4 x .25"	3 x 3 x .188"	3 x 3 x .25"

From the above chart, it is obvious that angles are much heavier, more costly, and larger, which create shadows and lamp spacing problems. At ABC, we prefer to use all steel square tubes, which we simplify by just stocking 1", 1-1/4", 1-1/2", 2" and 3".

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