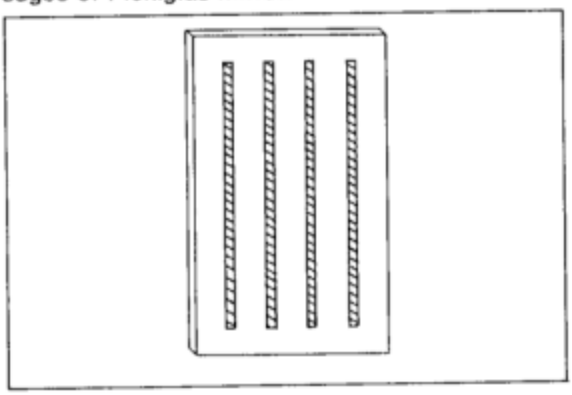
PLEXIGLAS MIRROR INSTALLATION AND ATTACHMENT RECOMMENDATIONS

(For ceiling installation and attachment recommendations see page 9.)

ADHESIVE ATTACHMENT

Double-faced Foam Tapes

Double-faced *foam* tape may be used for most Plexiglas mirror mounting requirements. The tape is simple to use and provides the cleanest method of attachment. The tape may be used for small fabricated items to adhere Plexiglas mirror to itself or Plexiglas mirror to another material. Double-faced foam tapes provide the flattest mounting and thus, the best image reproduction in Plexiglas mirror installations. To obtain optimum flatness of the mirror, the foam tape should be cut into panel length pieces. The pieces should be distributed evenly over the back of the mirror. The surface to which the mirror is to be placed should be flat, smooth, clean and should not have significant surface irregularities such as that found on a stuccoed surface. The tape should be no less than ¼" from edges of Plexiglas mirror.



The following table lists recommended foam tape sizes to be used with specific sizes of Plexiglas mirror and recommended placement of the tape for optimum flatness.

Foam Tape Recommendations

	Plexiglas Mirror Thickness	Foam Tape Thickness	Total Length of Tape
Up to 12" x 12"	⅛"	1/16"	3' minimum
Up to 36" x 48"	¼"	⅛"	16' minimum
Up to 48" x 96"	¼"	¼"	32' minimum
Over 48" x 96"	¼"	⅜"	Twice the long dimension

Tape width is 1".

Foam Tape Source

3 M Company
3 M Company Industrial Tape Div.
3 M Center [redacted]t. Paul, Minnesota

Silicone Sealants

Plexiglas mirror may be installed on many types of surfaces or attached to itself using silicone sealants as adhesives. Silicone sealants should be used in place of mastics or panel adhesives. Panel adhesives tend to destroy the reflective coat. Silicone sealants will remain flexible for long periods of time and are readily available from building supply centers and Authorized Plexiglas Distributors in either small tubes or caulking gun sizes. When using silicone sealants as adhesives, they should be applied to the Plexiglas mirror in evenly dispersed, open end beads; this will allow the adhesive to cure properly. The Plexiglas mirror may have to be supported or secured with tape for 24 hours until the sealant cures. Use only pigmented silicone sealants on Plexiglas mirror; clear silicone sealants will cause failure of the mirror appearance.

Recommended Silicone Sealants

Dow Corning
DC 780 Silicone Building Sealant
Dow Corning Company
Midland, Michigan

Contact Cements

Contact cements can be used for installing Plexiglas mirror on many types of surfaces. They are useful when fast drying or setting of the bond is necessary. Contact cements do require the application of the adhesive to both the Plexiglas mirror and the surface to which it is being attached. Apply the cement with a fine brush, enamel paint roller, or spray it on in order to apply it evenly. Wait until the cement dries sufficiently so that a piece of paper will not stick to it before placing the Plexiglas mirror into position. This allows the solvents in the cement to evaporate. Applying the Plexiglas mirror before the cement is dry will result in failure in the mirror appearance. Since the mirror cannot be moved after placement, a slip sheet of kraft paper should be used between the two cemented surfaces to position the mirror properly. Because of thermal and humidity expansion of Plexiglas mirror, the size of a Plexiglas mirror panel is limited to the following recommendations. The chart provides the maximum allowable long dimension with temperature change of area of use of Plexiglas mirror when installed with contact cements.

Panel size limits for Contact Cements	
Maximum long dimension	Temperature Variation
Up to 12″	±70°
Up to 24″	±40°
Up to 36″	±30°
Up to 48″	±20°
Up to 72″	±15°
Up to 96″	±10°

Note: Do not mount Plexiglas mirror with tapes or adhesives where the mirror is to be dismounted from the surface to which it is attached. Removal of the mirror from the mounting surface is most likely to cause the separation of the reflective film from the Plexiglas at the adhesion areas. Under such circumstances, mechanical mounting methods should be used.

Use contact cement with minimum solvent attack. Those with strong solvent content will attack the Plexiglas mirror backcoat and reflective coating.

Contact Cement Sources

Formica #140
Formica Corp.
Spring Grove Ave.
Cincinnati, Ohio 45232

Armstrong D220
Armstrong Cork Co.
Lancaster, Pa.

Instant-Lok #41-4060
National Adhesives Division
National Starch and Chemical Company
750 3rd Avenue, New York, N.Y. 10017

MECHANICAL ATTACHMENT

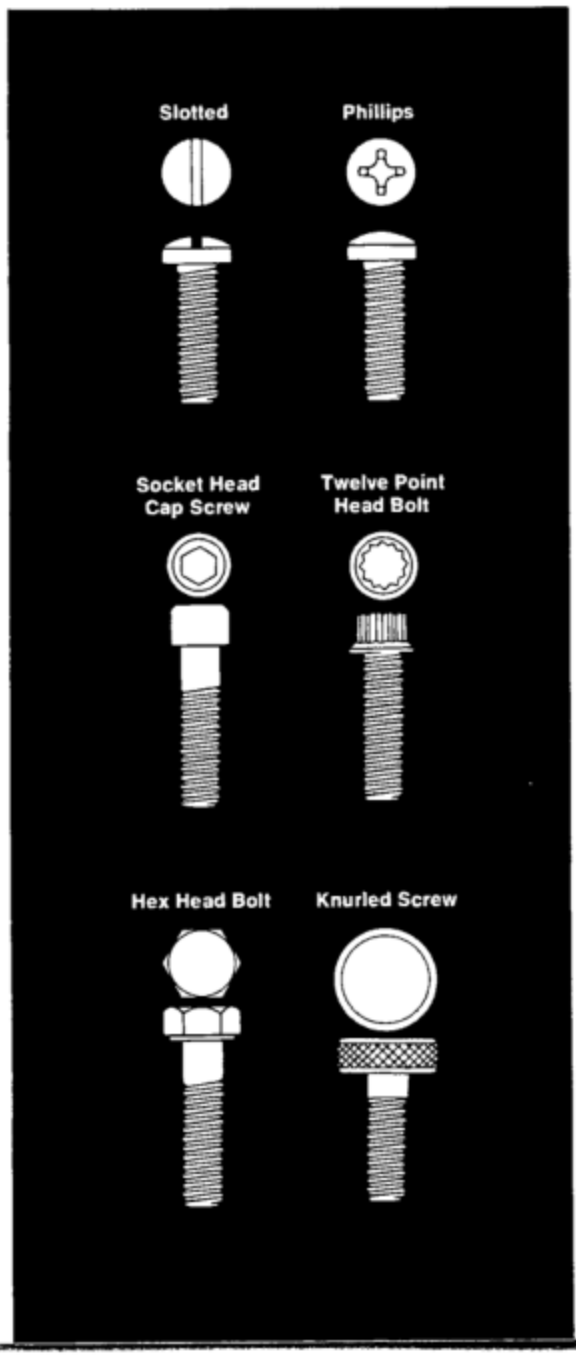
SCREWS AND BOLTS

Plexiglas mirror may be easily drilled and attached to other surfaces using recommended screws and bolts. For decorative purposes Plexiglas mirror panels of 18″ square and under may be attached with one fastener centrally located. Panels requiring two or more fasteners should be provided with oversized holes in the Plexiglas mirror to allow for thermal movement when they are to be attached to non-plastic surfaces such as wood, masonry or metal. A minimum oversize for each drilled hole is recommended in the table below in accordance with the size of the Plexiglas mirror panel and the temperature range to which the panel will be exposed.

Oversize Hole Recommendations for Through-Bolting Plexiglas Mirror							
Size of Plexiglas	± of Temp. Change						
A	10°	15°	20°	30°	40°	50°	60°
12″	1/16	1/16	1/16	1/16	1/16	1/8	1/8
24″	1/16	1/16	1/16	1/16	1/8	1/8	1/8
36″	1/16	1/16	1/16	1/8	1/8	3/16	1/4
48″	1/16	1/16	1/8	1/8	3/16	1/4	1/4
60″	1/16	1/16	1/8	1/8	1/4	1/4	3/8
72″	1/16	1/8	1/8	3/8	1/4	5/16	3/8
84″	1/8	1/8	3/16	3/16	5/16	5/16	1/2
96″	1/8	1/8	3/16	1/4	5/16	3/8	1/2

Through bolts or screws should be placed 1/4 of the way in from any edge to maintain maximum strength and minimum distortion.

The following are recommended screws and bolts for mechanical attachment. The bolts and screws should not be tightened but should be turned up to the Plexiglas mirror surface then backed off ¼ of a turn to allow for thermal movement. Countersunk screws should not be used as they cause the Plexiglas mirror to crack.



FRAMING

Plexiglas mirror may be framed using wood, metal or plastic frames. Wood or metal frames or the placement of edge clips should be made oversize to allow for thermal movement of the Plexiglas mirror. The following chart provides a guide to expansion allowance.

Thermal and Humidity Expansion Allowances for Framed Plexiglas Mirror

Long Dimension	Possible Temp. Change ± Degree						
Panel	15°	20°	25°	30°	40°	50°	60°
12″	1/16	1/16	1/16	1/16	1/16	1/16	1/16
24″	1/16	1/16	1/16	1/16	1/16	1/16	1/8
36″	1/16	1/16	1/16	1/16	1/16	1/8	1/8
48″	1/16	1/16	1/16	1/16	1/8	1/8	1/8
60″	1/16	1/16	1/16	1/8	1/8	1/8	3/16
72″	1/16	1/16	1/8	1/8	1/8	3/16	3/16
84″	1/16	1/8	1/8	1/8	1/8	3/16	1/4
96″	1/16	1/8	1/8	1/8	3/16	1/4	1/4

Where optimum image reproduction is desired, the mechanical attachment methods described above should be used in conjunction with tapes and adhesives applied as directed for maximum flatness.

OVERHEAD INSTALLATIONS

Plexiglas mirror may be used in ceiling installations where glass or other materials present an obvious hazard. Plexiglas mirror may be installed overhead by a number of recommended methods and with specific Plexiglas mirror panel size limitations.

HORIZONTAL OVERHEAD INSTALLATIONS

Plexiglas mirror should be mounted in ceiling installations with edge-engaging frames such as T-bar system. Foam tapes and contact cements applied to the back surface of the mirror support the weight of the material in ceiling installations which could result in separation of the reflective film from the Plexiglas sheet.

Ceiling installations of Plexiglas mirror should be of limited area because of the combustibility of the material. Consult local building codes for limitations.

FRAMING

The following table shows the average deflection of horizontal unsupported frames.

Average Deflection of Plexiglas Mirror*			
	⅛" Plexiglas mirror	¼" Plexiglas mirror	Edge Engagement
Under 18" x 18"	1/16"	Less than 1/16"	½"
24" x 24"	3/16"	1/16"	½"
30" x 30"	5/16"	⅛"	½"
24" x 48"	5/16"	⅛"	½"
36" x 36"	7/16"	¼"	15/16"
48" x 48"	¾"	9/16"	15/16"
48" x 72"	11/16"	⅝"	15/16"
60" x 60"	11/16"	⅝"	15/16"

*Three year data. Panels mounted horizontally and unsupported in frames

VERTICAL OVERHEAD INSTALLATIONS

Hanging panels or partitions of Plexiglas mirror can be functional and decorative for uses such as backdrops or to partition space. The lightweight of Plexiglas mirror is primary advantage in these applications.

Hanging partitions and panels may be framed or unframed, cut to specific size and with drilled holes along the top edges approximately 1" from the edges for chain, wire or monofilament support. Two panels may be adhered back to back to obtain a reflective appearance on both sides.

IMAGE DISTORTION

Plexiglas mirror is somewhat flexible and is subject to thermal expansion. Adequate panel thickness and proper installation techniques can minimize visual distortion but cannot eliminate it entirely. For many applications, visual distortion may not be objectionable.

CLEANING PLEXIGLAS MIRROR

Plexiglas mirror should be cleaned by applying a spray wax such as Johnson's Pledge to the front surface of the mirror and wiping with a soft cloth.

BUILDING CODE CONSIDERATIONS

Plexiglas mirror is classified as a slow burning plastic material with combustibility comparable with wood. The use of Plexiglas mirror is subject to the limitations applicable to combustible interior finish.

Plexiglas mirror can be cut, routed, drilled and easily paint decorated by silk screening to arrive at a dramatic graphic panel.