

# **GENERAL GRADE GLASSLESS MIRRORS 90% REFLECTIVITY TYPE GGM FOR USE IN GYMS, DANCE STUDIOS, THEATERS, PHYSICAL THERAPY CENTERS, BUILDING LOBBIES AND CEILINGS**

Glassless General Grade Mirror Panels (Type GGM) are used in architectural and decorative applications in preference to glass mirrors because they are visually equivalent to, or better than, glass while being functionally superior. They are very lightweight, rigid, self-supporting and have built-in mounting devices. Further, they are safe, easy to work with and are inexpensive compared to the total cost of a glass mirror installation.

Type GGM mirror panels are available in many standard sizes, from 24" x 24" to 68" x 144". Larger panels can be ordered in sizes up to 110" x 300" or longer! Because the panel is lightweight and shatterproof, large glassless mirrors are easy to handle and install.

Glassless Mirrors can be described as very tough, thin, transparent plastic film, coated with a reflecting surface and tensioned on a rigid, stable and supporting structure. Because the film is inert and always in tension, its nature is to distribute these forces evenly, wanting to form a flat, reflective surface.

**PHYSICAL CHARACTERISTICS:** Glassless Mirror panels function as "front-surface" mirrors. Panels are made with the plated or reflecting side towards the light source. Therefore, GGM mirrors are true first surface mirrors. Because of the flat uniform nature of the film being used in mirrors, the reflections are free of optical anomalies. The film is .001" (approximately 25 microns) thick. The image does not pass through the film to the reflecting surface and will not form ghost images on the screen.

**REFLECTIVITY:** GGM Mirrors have a minimum average direct reflectivity of 90%. Direct reflectivity measurements are made in accordance with ASTM Spec. No. F768-82 and SAE Standard J9642 or superior.

**SURFACE FLATNESS:** Film surface flatness is equal to and exceeds that of first surface glass mirrors.

**PANEL FLATNESS:** Flatness will vary in accordance with size of the panel. As an example: a panel 20" x 24" would have a coplanar flatness of  $\pm 1/16$ ", edge bow flatness of  $\pm 3/64$ "; panels 48" x 72" and larger have a coplanar flatness of  $\pm 1/8$ ", edge bow of  $\pm 3/632$ ".

**DIMENSIONAL TOLERANCES:** For smaller (20"x 24" to 48"x 72") panels: length and width  $\pm 1/8$ "; diagonals  $\pm 3/16$ ", and for 48"x 72" and larger panels: length and width  $\pm 3/16$ " and diagonals  $\pm 1/4$ ".

**PANEL CONSTRUCTION:** Glassless Mirror panels are made of a rigid foam board framed with an aluminum extrusion over which the mirror film is tensioned. There are several panel thicknesses. See size and price list for details.