



**Glassless Mirrors**

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# Mirrorlite™ Glassless Mirrors

## Introduction

Mirrorlite™ Glassless Mirrors are a breakthrough in mirror technology offering unparalleled safety and ease of installation due to their lightweight non-glass construction. Unlike the "fun house" or "oil can" effect typical of acrylic mirrors, Mirrorlite™ Glassless Mirrors reflect an optical quality image that is bright, clear, free of distortion and equal to that of a first-surface optical glass mirror.

Made of a thin super reflective film and machine stretched over a sturdy lightweight aluminium frame. Mirrorlite™ mirrors have multiple mounting options, and are a perfect replacement for heavy, traditional glass mirrors in environments such as gyms, physical therapy centers, schools, theatres, building lobbies, exhibitions, ships or anywhere else that you would need a high quality, lightweight reflective surface. Just think of the possibilities.

## Key Features and advantages

### Lighter and Brighter than Plate Glass

The Mirrorlite™ Glassless Mirrors are made of a high optical grade, very tough film that does not shatter or break into dangerous shards when impacted. The reflected image is super clear high definition and amazingly bright compared to glass or plastic mirrors. Glassless mirrors are made from a highly reflective metalized polyester film. This film is machine stretched around a frame to form a mirror.

### Shatterproof & Safe

Shatterproof Mirrorlite™ Glassless Mirrors are safe and are able to withstand shock and vibration, and can be used in environments where glass mirrors can be hazardous if impacted. USA UL safety classified.



### Lightweight and easy to install

The lightweight and shatterproof qualities allow Mirrorlite™ Mirrors to be suspended from ceilings with wire or nylon line. Standard suspension systems are easily adapted for mirror installation. The aluminium frame can be drilled for various self-tapping fasteners giving the designer complete freedom to devise custom attachments and mounting options. In many cases the mirrors are simply attached to the surface with Velcro or industrial type double-sided tape.

### Anti-Static

Because the Mirrorlite™ Glassless Mirror panel face is only one thousandth of an inch thick, it has virtually no mass, no static electricity. Dust and particles are not attracted to the panel surface. If the panel should become dirty, it is easily cleaned using a non-abrasive non-fibrous cloth and any common household clear cleaner.

## Free from Condensation & Fog

As the mirror film has so little mass and the air space behind the film is ventilated through the core, a Mirrorlite™ Mirror is effectively free from condensation and fog in areas such as bathroom, swimming pools, kitchen and other wet or humid environments.

## Sound barrier & thermal insulation

The dead air space and rigid foam core design of the Mirrorlite panel significantly dampens sound and vibration.

The core of a Mirrorlite™ Mirror is an effective thermal insulation. In the interest of energy conservation, particularly in air-conditioned structures, consideration should be given to the insulation value of a Mirrorlite™ Mirror.

## Why a Glassless Mirror?

Mirrorlite™ Mirrors ceiling and wall panels reflect an optical quality image that is bright, clear and free of distortion.

Because glassless mirrors are not made of glass, they offer several benefits over traditional glass mirrors such as being super lightweight, completely shatterproof, versatile customization and the ease of installation just about anywhere.

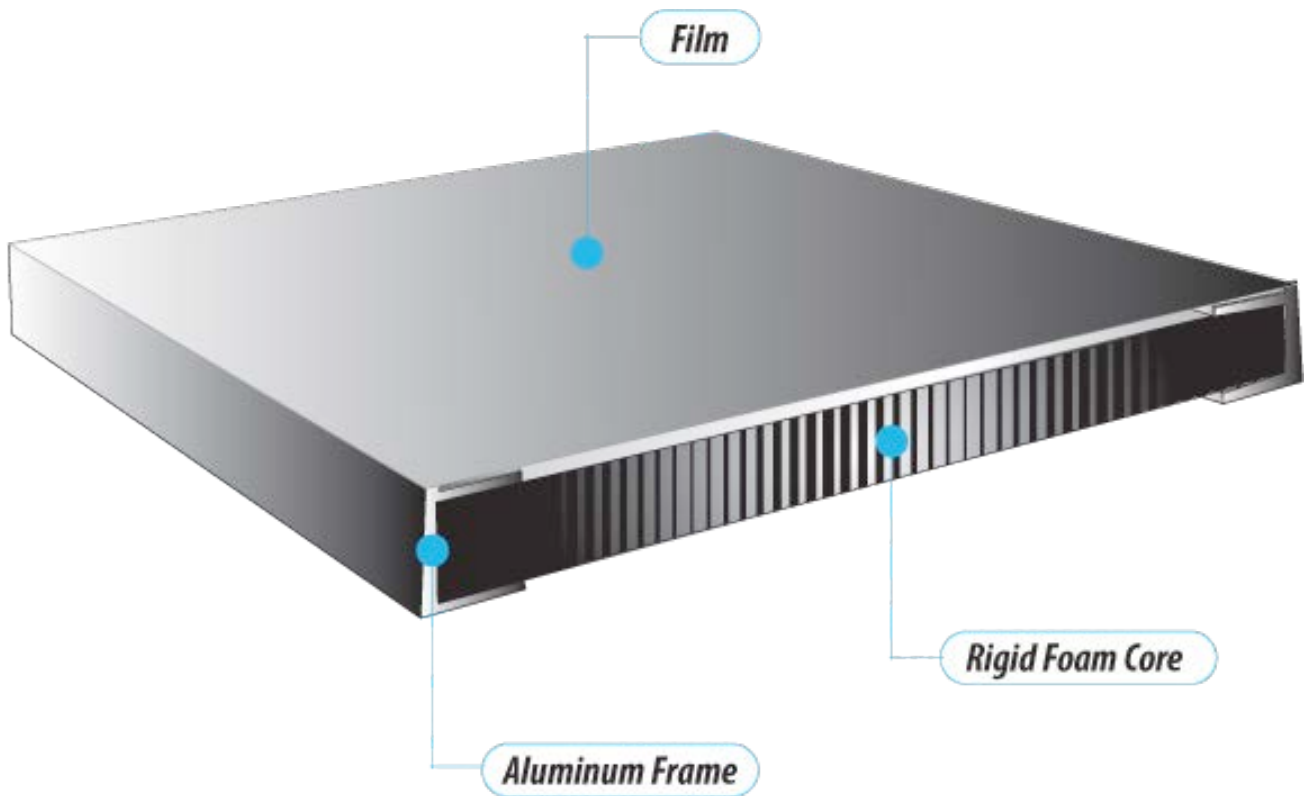
## **SAFE, LIGHTWEIGHT & EASY TO INSTALL.**

For these reasons and many more, your best option is a Mirrorlite™ Glassless Mirror.

## What is a Glassless Mirror?

Mirrorlite™ Glassless Mirrors consist of a rigid foam core framed by an aluminium extrusion. The frame has a raised lip around the four edges. A metalized polyester film is stretched across the raised edges to structure the mirror surface.

Because the film is mounted on raised edges, a 3mm air space is created between the back of the film and the core which allows the film to flex under impact without damage.



### ***Glassless mirrors reflectivity***

- 94% Reflectivity for projection
- 85%-86% Reflectivity for general use
- No distortion compared to glass mirrors

Each mirror panel is a structural entity and must be made at the factory to specific dimensions. Normal fabricating tolerances are +/- 3,2mm on length and width. A wide range of stock sizes are available and custom sizes made to order.

A Mirrorlite™ Glassless Mirror can be applied to any flat surface with little or no preparation or additional support structures. Because of its lightweight, wall inserts and supports are eliminated. The mirror can be mounted directly to finished plasterboard, wood paneling and interior partitioning with hardware, Velcro or industrial double-sided tape.

For wall mounting, mirrors are provided with a serrated metal hanger commonly used to hang pictures. Rectangular mirrors have mounting holes to allow hanging on the long or short side of the mirror.

# Applications

Mirrorlite™ Mirrors expand reflection beyond the practical limitations of conventional glass mirrors. The unique construction of Mirrorlite™ Mirrors provides optical clarity, ghost-less images and distortion-free color previously found only in more expensive front surface glass mirrors. Our mirrors are used in many different types of applications including:

- Exhibitions**
- Ballet Studios**
- Casinos**
- Cruise Ships**
- Community Centers**
- Elevators**
- Theme park "Haunted" Attractions**
- Kids Clubs**
- Martial Arts Studios**
- Medical Centers**
- Military Installations**
- Motor homes**
- Office Buildings**
- Overhead Displays ( eg. cooking shows, will not collect condensation)**
- Performing Arts & Theatrical**
- Rehabilitation Centers**
- Residences**
- School Gymnasiums**
- Security Ceilings**
- Shaving Mirrors (will not collect condensation, used in the Space Shuttle)**
- Spas**
- Aircraft & Flight simulators**
- Dance and Stage Clubs**
- Tanning Salons**
- Trade Show Booths**
- Above and Under Reflective Displays (eg. automobile car shows)**
- Weight Training Centers**
- Pub and Restaurant Promotional Mirrors (Beer and Liquor Logo)**

## Exhibition

For the designer, Mirrorlite™ mirrors introduce a new means for dramatic presentation. Lightweight and shatterproof, they enable the display of all sides of a product with ease and complete safety. Point of purchase displays, exhibitions and display cases are but a few examples of their versatility. Mirrorlite™ mirrors provide an excellent surface for silkscreen printing. Patterns, pictures, words and advertisements can be color-printed permanently and clearly.

## Architecture

The versatility of a Mirrorlite™ mirror enables it to adapt to creative demands. Mirrorlite™ ceiling and wall mirrors heighten visual perception of space with ghost-free clarity. Lower in-place costs allow space to be manipulated at will.

## Monitoring&Security

Mirrorlite™ Mirrors contribute to today's growing need for the protection of life and property. Inaccessible industrial processes can be monitored with easily installed lightweight Mirrorlite™ mirrors. For security and surveillance systems, mirrors can be placed in strategic locations. An unobtrusive, low maintenance system can be installed quickly and inexpensively.

## Visual Aids

Mirrorlite™ Mirrors are teaching tools for artistic and athletic instruction. Their safety, lightweight and portability find application in gyms, skating rinks, swimming pools, hospitals and health clubs. Mirrorlite™ Mirrors are suitable for use as front surface mirrors in optical projection systems. Rear screen projection systems are easily devised.



## Theatrical

The lightweight, ease of installation and inherent safety make Mirrorlite™ Mirrors a good choice for theatrical use. They are readily mounted for use on flying and pivoting scenery. Lighting can be directed to otherwise inaccessible locations. Special effects are possible with custom made two-way mirrors.



\*\*\* Picture from NYTimes

## Architectural Applications

In architectural applications, recessed canister light fixtures and air diffusers are often encountered. Recessed circular lights, typically 4" to 8" in diameter, may be required to project through the ceiling. If the location is known, for example, in the exact center of the module, the mirror can be provided with the required hole. Where the location is not yet determined or other miscellaneous penetrations occur, such as sprinklers or display fixtures, holes can be cut at the job site. A soldering iron is used to melt the film and form the required hole in the film. Using this as a guide, the core can be cut with a sharp knife or circle cutter. The flange of the adjustable collar from the fixture should be slightly larger than the opening. The collar is brought up to, but not in contact with the film surface.

Larger cut-outs to accommodate air diffusers are made similarly. The diffuser should have a circular stub, although the collar may be rectangular. In general, penetrations must occur within the area enclosed by the perimeter aluminium frame of the mirror. Should the penetration be closer than 2" to the perimeter, the module should be changed, as the frame cannot be penetrated.



Irregular ceiling perimeters may require non-rectangular mirrors. Individual requirements will be accommodated where possible according to shape and size.

As with other types of ceiling panels, Mirrorlite™ mirrors should be considered non-structural. Therefore, light fixtures and other projected elements must be independently supported from above the ceiling.



## Special Applications

Other surface finishes are available in addition to standard silver. Semi-silvered mirrors are available for 2 way effects or as security mirrors. As there is no core in this type of mirror, physical construction varies from the standard mirror.

A limited selection of colors is available. Availability of colors should be confirmed before specifying. For large projects, consideration can be given to custom colors.

Outdoor use, while not specifically recommended, is possible for limited duration. Short term display or exhibit use in a sheltered location would probably be acceptable. The purchaser assumes responsibility for determining suitability.

While not primarily intended as a sound absorber, a Mirrorlite™ Mirror will absorb some acoustical energy, depending on frequency. Absorption is generally greater on higher frequencies. In any case, it does not reflect sound to the same degree as glass or metal.

The core of a Mirrorlite™ Mirror is effective as thermal insulation. In the interest of energy conservation, particularly in air-conditioned structures, consideration should be given to the insulation value of a Mirrorlite™ Mirror.



## Types of Glassless mirrors

### Standard Glassless Mirrors

The Mirrorlite™ Glassless mirror is a technological breakthrough offering unparalleled safety and ease of installation. Because glassless mirrors are not made with glass, they offer several benefits over traditional glass mirrors such as being super lightweight, completely shatterproof, the ability to be installed just about anywhere, and complete customization options. We carry a full line of mounting accessories so that you can use your Mirrorlite™ Glassless mirror any way that you



please.

Mirrorlite™ Glassless mirrors consist of a rigid foam core framed by an aluminium extrusion. The frame has a raised lip around the four edges. A polyester film, aluminized on the back side, is stretched across the raised edges to form the mirror surface. Because the film is mounted on raised edges, an air space is created between the back of the film and the core. The air space, 1/8", allows the film to flex under minor impact without damage.

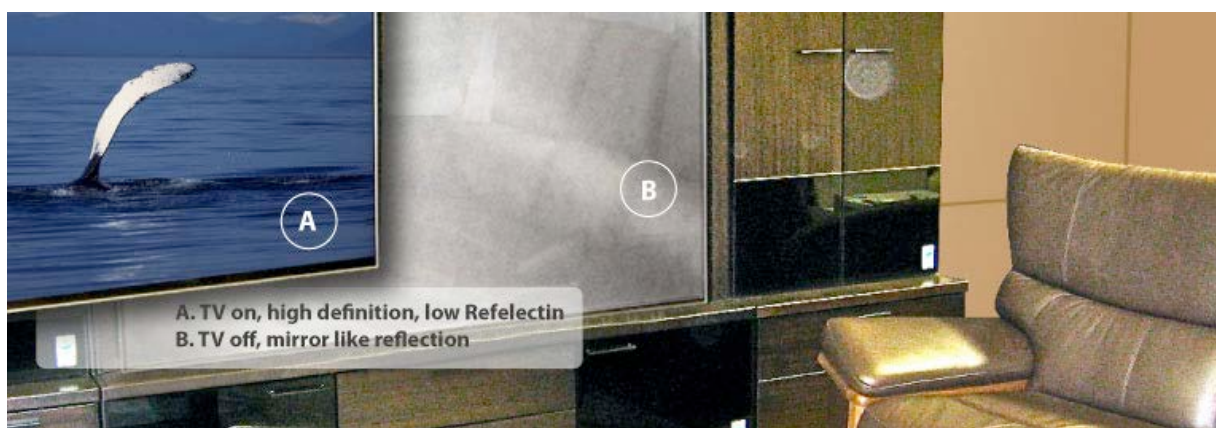
### Free-Standing mirrors

Mirrorlite™ Glassless mirror carries a full line of Free-Standing, lightweight glassless mirrors. We have single panel mirrors, bi-fold mirrors, tri-fold mirrors and a full line of stands, mounting accessories and hardware so you can use your Mirrorlite™ Glassless mirrors, any way that you please.



### Scrim Mirrors

A Scrim Mirror works just like a theatrical scrim. As you bring up light from behind the mirror, an image will appear. At Mirrorlite™ Glassless mirrors, we offer six different sizes of scrim mirrors.



## Optical Glassless Mirrors

We offer a special grade of Glassless Mirrors made specifically for use as optical or front surface mirrors. This type of mirror is most often used instead of glass when large size optical mirrors are required.



## Installation

A Mirrorlite™ Glassless Mirror may be applied to any flat surface with little or no preparation. Because of its light weight, wall inserts and supports are eliminated. The mirror can be mounted directly to finished plaster, wood paneling and interior partitioning.

For wall mounting, mirrors are provided with a serrated metal hanger commonly used to hang pictures. Rectangular mirrors have mounting holes to allow hanging on the long or short dimension. Velcro "hook and loop" fasteners are utilized at the corners to position the mirror. For irregular wall surfaces, other conventional attachments can be used such as moldings or foam tape.

The lightweight and shatterproof qualities allow Mirrorlite™ Mirrors to be suspended from ceilings with wire or nylon line. Standard suspension systems are easily adapted for mirror installation. The aluminum frame can be drilled for various self-tapping fasteners giving the designer complete freedom to devise custom attachments.

## Maintenance

### Minimal Cleaning Required

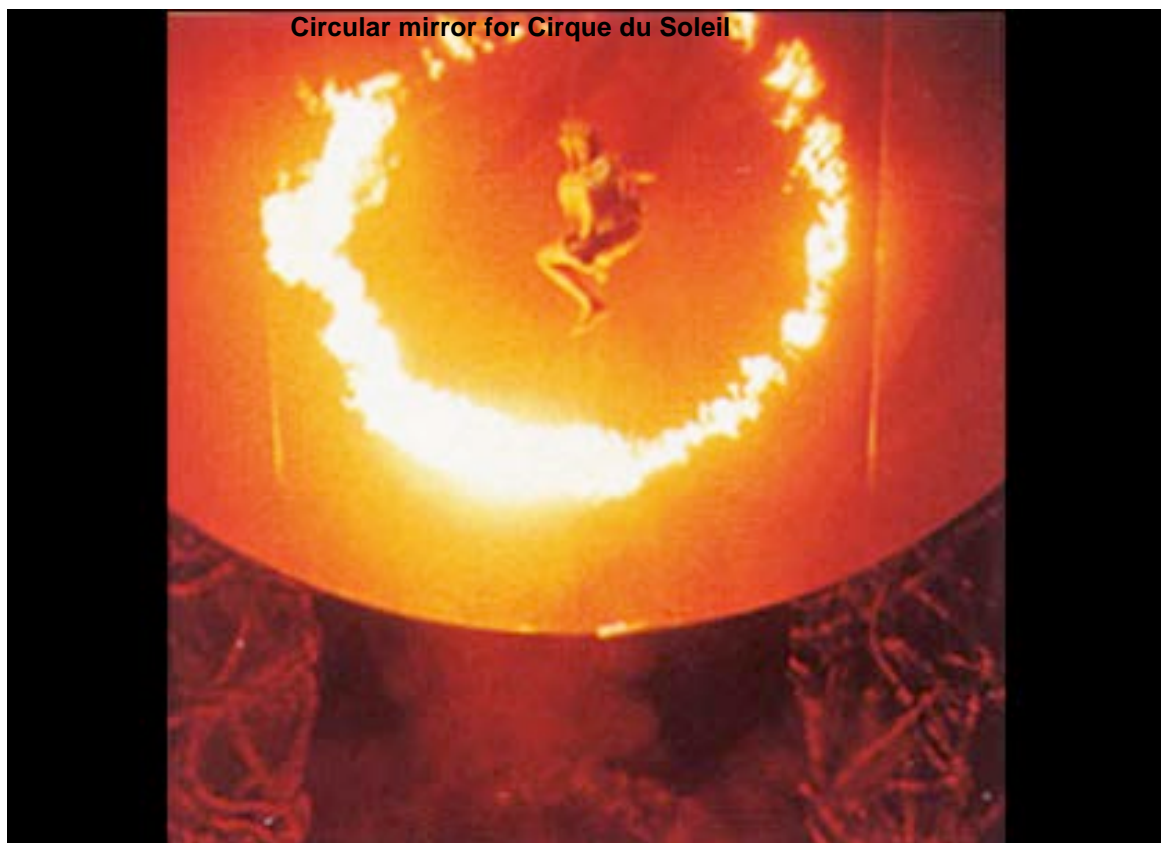
Because the mirror surface is non-static, the frequency of cleaning is minimized.

#### How do I clean "Mirrorlite™ Glassless Mirrors?"

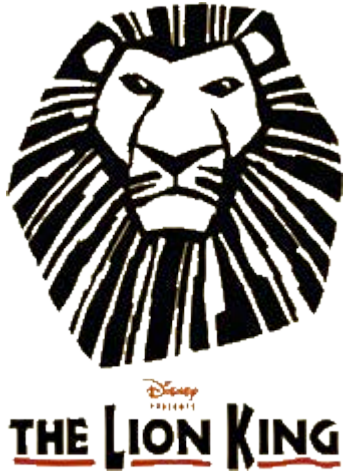
A Mirrorlite™ Mirror can be cleaned with a non-abrasive liquid household cleaner like Glassex™ or Johnson's Kleen n' Shine™. A soft lint-free cotton cloth should be used to apply the cleaner. Should the surface become lightly scratched, applying a carnauba wax, such as Pledge™, and polishing with a soft cloth, can restore it.

#### Dents and penetration of the surface

The air space behind the film allows it to flex under minor impact. While the film is extremely strong, a hard blow may dent the surface. Often this can be removed with a hot air gun. A sharp instrument could penetrate the surface. However, the penetration will not run and the remainder of the surface will be undisturbed.



## Our Worldwide clients



10m x 1,50m projection mirrors



Rear projection televisions

CIRQUE DU SOLEIL



Ceiling mirrors



7,6 m Circular mirror



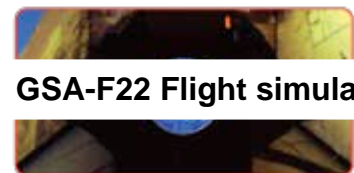
**PLAYBOY**



Theatrical applications

**A CHORUS LINE**

Space shuttle shaving mirrors



GSA-F22 Flight simulators