Overview

A great way to fit a rear projection system into a small space is to use a mirror system. The use of a mirror is to "fold" the projection beam so that it travels its full distance in a confined space (fig #1). Each system is precisely engineered to match individual system requirements depending on many factors (see worksheet).

Projected light travels linearly and has predictable behavior when used with first surface mirrors. While no mirror is perfect, recent technology and manufacturing techniques have come very close in both flatness and reflective properties. The screen, mirror and projector must all be carefully chosen to work together within the overall system. It is important to understand how each component will affect the final performance, and to consult a professional when designing your mirror system. Spyeglass, and it’s dealers are specially trained to combine top-of-the-line products to create the best quality viewing experience available in today’s market.

APPLICATIONS

- In-store displays and shopping malls
- Hotel lobbies and meeting rooms
- Corporate lobbies and boardrooms
- Tradeshows and exhibitions
- Museums
- Control rooms and command centers
- Learning institutions
- Theaters and projection rooms
- Or any other small space!

First Surface Mirror

All mirror-based systems should implement what is known as a first surface mirror. These specialized mirrors have the reflective surface deposited on the front of the base material (typically glass) vs. the back. This prevents internal reflections within the glass substrate which cause both image ghosting and significant loss of projected light. The first surface mirrors used in Spyeglass systems reflect 97% of the projected light where as standard second surface mirrors typically reflect around 80%. A schematic of the two mirrors is given on the following page.
**First Surface Mirror**  
*Designed for rear projection systems*

- Reflective coating is deposited on the first or "front" surface of the glass substrate (see figure 2).

- Most rear projection applications require first surface mirrors to prevent optical distortions inherent in second surface mirrors.

- Light is reflected directly off the mirror’s reflective front surface coating.

- Reflected images are crisp and sharp

**Second Surface Mirror**  
*Designed for household use*

- Reflective coating is deposited on the second or back surface of the glass (see figure 3).

- Light must pass through the glass substrate to the reflective coating and back through the glass substrate.

- Multiple light path reflections within the glass cause visible secondary optical distortions or ghost reflections.
Mirror System Worksheet

① Projector
② Frame Unit
③ Adjustable Mirror
④ Screen

- Ceiling Height
- Wall Thickness
- Projection Room Ceiling Height
- Floor to Screen
- Maximum Room Depth Available

Screen Aspect Ratio
Screen Size
Frame Type / Color

Projector Make
Projector Model
Preferred Lense Option